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# *AEROSPACE EQUIPMENT MAINTENANCE MANAGEMENT*

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction implements AFPD 21-1, *Managing Aerospace Equipment Maintenance.* It is the basic Air Force directive for aircraft and equipment maintenance management. It provides the minimum essential guidance and procedures for safely and effectively maintaining, servicing, and repairing aircraft and support equipment at the base level. It applies to all major commands (MAJCOMs) and their subordinates. The Air National Guard (ANG) is a MAJCOM for the purpose of this instruction. The ANG will use ANGI 21-101 during non-federalized periods but will operate IAW with this instruction when federalized. Organizational structures may differ in the Air Reserve Component (ARC). In these instances, responsibilities will be assigned to the appropriate functional area. Waiver authority for this instruction is HQ USAF/ ILM. MAJCOMs supplementing this instruction must coordinate their supplements with HQ USAF/ILM. MAJCOMs developing separate instructions based on requirements set forth in this instruction will follow guidance in AFI 33-360, *Publication Management Program*. Maintain and dispose of records created as a result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule.*

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**(ANG)** Air Force Instruction **(AFI) 21-101**, *Aerospace Equipment Maintenance Management*, 1 June 2004, is supplemented as follows. This supplement has been approved by Headquarters, United States Air Force, Directorate of Maintenance/Maintenance Management Division (HQ USAF/ILMM) and clarifies Aerospace Equipment Maintenance Management for all Air National Guard (ANG) flying units. The ANG is organized differently from the USAF primarily due to manning constraints. All ANG flying units are organized with an Aircraft / Helicopter Maintenance Squadron (AMXS) and a Maintenance Squadron (MXS) comprising of an Equipment Maintenance Flight (EMF) and a Component Maintenance Flight (CMF), therefore, throughout this instruction there will be several organizational differences. As an example, the ANG AMXS does not have specialists in Mobility Air Forces (MAF) ANG units and limited specialist support in Combat Air Forces (CAF) ANG units. Specialists are normally dispatched from the

back shops through the Maintenance Operations Center (MOC). Additionally, the ANG typically has only one person for Plans, Scheduling and Documentation (PS&D) and are centrally located in the Maintenance Operations Flight (MOF) instead of the AMXS. Refer to **Figure 1.3. (Added)**, and **Figure 1.4. (Added)**, for typical CAF and MAF organizational structure in ANG units. This instruction applies to all Air National Guard's organizations and personnel during non-federalized periods that maintain aircraft, aircraft systems, equipment, support equipment, and components regardless of AFSC and is applicable during all technician and military duty periods. It is applicable to both the Maintenance and Operations Groups. Local managers must effectively use their resources to ensure successful mission accomplishment. Managers may use any maintenance management procedure not specifically prohibited by this instruction, other maintenance publications, or technical orders. Units must publish either a single supplement and/or OIs for local policies mandated by the AFI and this supplement. HQ USAF/ILMM with coordination of ANG Logistics Policies and Procedures (ANG/LGMM) shall be the final approving authority for all deviations to established maintenance practices. Waivers may be requested via e-mail, message, or letter to ANG/LGMM. At unit level, the Maintenance Group Commander (MXG/CC) or designated representative is responsible for all matters affecting maintenance. This instruction recognizes that command authority is exercised by the State Adjutants General. The National Guard Bureau (NGB) provides policy and management guidance.

***SUMMARY OF REVISIONS***

This revision incorporates Interim Change IC 2004-1. This interim change clarifies policy and corrects errors established in the October 2002 edition of AFI 21-101. Major changes include replacing the duty title "Maintenance Supervisor" with "Maintenance Operations Officer", renaming "Maintenance Supervision" as "Maintenance Operations", and adding the "A4" term throughout the document. This IC includes maintenance management aircraft and flying metrics with emphasis on their importance (paragraph **1.10.**); clarification on management information systems (paragraph **1.14.**); a section to describe MXG/CD duties that include chairing the daily maintenance production meeting, it's focus and attendees (paragraph **2.3.2.**); requirements for TMDE flight to utilize TAS, participate in the Activity Inspection Program and MSEP (paragraphs **4.14.**); a section that describes QA permanent and augmentee personnel duties and training requirements, and outlines the MSEP and grading criteria (**Chapter 10**); emphasizes units must ensure their contracted maintenance programs comply with applicable directives (although they may be organized differently from AFI requirements for active duty/ARC units), and are evaluated by contractor officer representatives according to the SOW and QASP (paragraph **10.10.**). The IC also establishes the framework required to transition to standard maintenance information systems; clarifies policy on using the Tool Accountability System (paragraph **13.4.1.**); updates Lead Crew duties and munitions family group tables; corrects terms for flying/maintenance planning and scheduling cycles (paragraphs **15.5.-15.10.**); includes a revised **Chapter 17**, Air and Space Expeditionary Forces Maintenance Policy, in its entirety with guidance for CONUS/OCONUS Centralized Intermediate Repair Facilities. Additionally, **Chapter 18** includes new special program guidance for Nestable Fuel Tank Build-Up, and Crash, Damaged or Disabled Aircraft Repair. A bar ( | ) indicates a revision from the previous edition.

**(ANG) This document is substantially revised and must be completely reviewed.**

This publication is a total rewrite of ANGI 21-101, which has become a supplement to AFI 21-101.

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# Chapter 1

## MANAGEMENT PHILOSOPHY AND POLICY

**1.1. Introduction.** This instruction prescribes basic aerospace maintenance policy and procedures to be used throughout the USAF, excluding Air Logistics Centers (ALCs) depot operations, and provides senior leadership and management direction for the accomplishment of the mission. The term aerospace maintenance in this AFI refers to aircraft and equipment maintenance. For contract maintenance refer to AFI 63-124, *Performance Based Service Contracts (PBSC)*. Local managers are expected to effectively use the resources assigned to ensure successful mission accomplishment. Managers may use additional maintenance management procedures not specifically prohibited by this instruction, technical order (TO) or other applicable maintenance instruction. Innovation is encouraged; however, any conflict with this guidance is prohibited without command review and waiver/variance approval. This instruction supports the Air Force Core Values and its application to maintenance professionals: Integrity - do the job right the first time; Service - mission accomplishment over personal gain; Excellence - put forth the best possible effort all the time. HQ USAF/ILM oversees aerospace maintenance at all levels, from the maintainers on the flight line and in the support shops through the technicians in Combat Logistics Support Squadrons (CLSS). The MAJCOM maintenance function sets management policy for all maintainers within their MAJCOM.

**1.1. (ANG)** Units shall contact ANG/LGMM for waivers to this publication. The ANG Aircraft Maintenance Division (ANG/LGM) sets management policy for all maintainers within the ANG.

**1.2. Aircraft and Equipment Readiness.** Aircraft and equipment readiness is the maintenance mission. The maintenance function ensures assigned aircraft and equipment are safe, serviceable, and properly configured to meet mission needs. Maintenance actions include, but are not limited to, inspection, repair, overhaul, modification, preservation, refurbishment, testing, and analyzing condition and performance. All levels of supervision must place emphasis on safety, quality, and timeliness in the performance of maintenance. Quality maintenance depends on the integrity and skills of the technician. This concept must be fostered by each supervisor and technician and will not be degraded. Shortcuts or incomplete maintenance actions are prohibited. When possible, maintenance is to be accomplished on a preplanned scheduled basis. This planning provides the most effective and efficient use of people, facilities, and equipment, reduces unscheduled maintenance, and allows for progressive actions toward maintaining and returning aircraft and equipment to safe operating condition. Conducting a bench check of components and proper control of repair cycle assets throughout the maintenance cycle are also critical elements of the equipment maintenance program.

1.2.1. Preventive Versus Corrective. The purpose of the entire maintenance process is to sustain a capability to support the flying and training missions. To accomplish this objective, the primary focus of the effort should be on preventive--rather than corrective--maintenance. Preventive (or scheduled) maintenance ensures equipment is ready and available at the time of need. On the other hand, corrective (or unscheduled) maintenance is generated during the process of using equipment.

1.2.2. On-Equipment and Off-Equipment. There are two basic types of maintenance performed at unit level: on-equipment and off-equipment. On-equipment is work performed on an aircraft or piece of support equipment. Off-equipment work is typically performed in a repair shop on components removed during on-equipment maintenance. Either type of work can be scheduled or unscheduled. Components removed from equipment for in-shop repair are said to be in the repair cycle. Like pre-

ventive maintenance, effective repair cycle management is critical to sustaining maintenance capability. Attention must be paid to eliminate bottlenecks by ensuring adequate parts, equipment, and training is available and minimize repair cycle time.

**1.3. Maintenance Discipline.** Maintenance discipline involves integrity in all aspects of the maintenance process. It is the responsibility of all maintenance personnel to comply with all written guidance to ensure all required repairs, inspections, and documentation are completed in a safe, timely, and effective manner. Supervisors are responsible for establishing a climate that promotes maintenance discipline. Personnel who fail to maintain maintenance discipline standards will be held accountable.

**1.4. Maintenance Concept.** The Air Force requires varying degrees of maintenance capability at different locations. This capability is described (in order of increasing capability) as either organizational, intermediate, or depot.

1.4.1. Organizational - First level of maintenance performed *on-equipment* (directly on aerospace vehicles or support equipment at flight line level. Generally minor repairs, inspection, testing, or calibration.

1.4.2. Intermediate - Second level of maintenance performed *off-equipment* (to removed component parts or equipment) at backshop level. Primarily testing and repair or replacement of component parts.

1.4.3. Depot - Third level of maintenance performed on- or off-equipment at a major repair facility. Highest level of maintenance for more complex repairs.

1.4.4. Two-level maintenance (2LM) - maintenance approach using two of the three levels of maintenance to support weapons systems. The 2LM approach *modifies or eliminates the intermediate (off-equipment) function where possible*, consolidating that repair function at the depot or "regional" level.

1.4.5. Three-level maintenance (3LM) - maintenance approach employs all three levels of maintenance. Historical USAF maintenance approach with accompanying procedures and organizational structure.

1.4.6. Degree of maintenance capability depends upon mission requirements, economics of repair, transportation limitations, component reliability, workload agreements, facility requirements, frequency of tasks, and special training required.

1.4.7. Base-level aircraft maintenance activities must have the capability to launch and recover aircraft and sustain the preventive maintenance program. Generally, this means most units must possess a full complement of equipment and supplies to perform on-equipment and off-equipment maintenance. Aircraft repair sources may include: (a) in-house (organic) from operational or support commands, (b) other military services, and (c) commercial organizations under contract.

**1.5. Preventive Maintenance.** Air Force aircraft require regular maintenance and repair to ensure their optimum availability for mission tasking. Each aircraft is designed with a maintenance concept tailored to its operational mission. Built into that concept are specific inspection and servicing requirements, which form the basis of a preventive maintenance program. All Air Force units must implement and manage the tasks specified in the scheduled program for their assigned aircraft and associated support equipment (SE). By following that program, aircraft systems and components will operate with greater reliability over time ensuring aircraft availability. A conscientious and disciplined approach to preventive mainte-

nance will be the method used to meet that goal safely and effectively. Preventive maintenance concepts are described in TO 00-20-1, *Aerospace Equipment Maintenance General Policy and Procedures*.

**1.6. Use of Technical Orders (TO) and Supplements.** Use of the prescribed technical data to maintain aerospace equipment is mandatory and is described in 00-5 series technical orders. The Air Force is modernizing the Air Force TO program using the Technical Order Concept of Operations (TO CONOPS) as a foundation. The goal of the modernization effort is to provide user friendly, technically accurate, and up-to-date digital technical data at the point of use that is acquired, sustained, distributed and available in digital format from a single point of access for all technical data users. TO users shall access technical data using a viewing device called an Electronic Tool (E-Tool). E-Tools (desktop and laptop computers, hand held devices, etc.) are common infrastructure allowing access to all logistics information systems and shall automatically update TOs, provide automated change requests (similar to AFTO 22s) and integrate with other Maintenance Information Systems (MIS). Air Force TOs shall be available for downloading via the Air Force Portal either automatically or on a case-by-case basis. Bases with WLAN capability should use the Air Force Portal to the maximum extent possible to view TOs. Air Force maintenance personnel shall use E-Tools once they become available.

**1.6. (ANG)** Units shall contact ANG/LGMM for unresolved technical order issues.

1.6.1. Supervisors will:

1.6.1.1. Strictly enforce adherence to and compliance with TOs and supplements.

1.6.1.2. Establish and manage TO and supplement programs according to TO 00-5-1, *Air Force Technical Order System*, and AFI 33-360, *Publications Management Program*.

1.6.1.3. Establish procedures for shipping TOs, E-Tools, support equipment associated with E-Tools, and supplements to support mobility requirements.

1.6.1.4. Ensure availability of required TOs, supplements, and E-Tools in work centers. Paper media must not be used to supplement digital TOs IAW AFI 21-303, paragraph 2.4.2.

1.6.2. All personnel will:

1.6.2.1. Recommend improvements or corrections for TO deficiencies IAW TO 00-5-1. Personal e-mail and faxes are not acceptable methods of updating or revising Technical Orders. The Air Force Form 22 prescribed in **Chapter** 5 of TO 00-5-1 may be submitted as an attachment to an e-mail to report problems of a TO, however, paragraph 5-1.3 stipulates that "Replies to recommended changes are for information only. Official TO updates are the only valid authority for correcting a technical deficiency and implementing change."

1.6.2.1. (ANG) The 162nd Fighter Wing (FW) shall use United Arab Emirates (UAE) Form 22 for UAE F-16 block 60 aircraft. Routing shall be determined between the 162nd FW and Lockheed Martin (LM) Aerospace. Also send an informational copy to Central Technical Order Control Unit (CTOCU).

1.6.2.2. Continually assess the currency, adequacy, availability, and condition of their TOs and supplements.

1.6.2.3. Ensure *w*aivers to, deviations from, or additional technical data procedures are issued using approved official communication methods (i.e., signed letter, organizational E-mail, DMS message or authorized automated TO 00-25-107 technical assistance request system). Ensure all

authorized technical data variances are kept with aircraft/equipment historical records until no longer applicable.

1.6.3. MAJCOMs will ensure that any new or modified configurations or maintenance conditions are coordinated with, and approved by, the Single Manager responsible for the operational safety, suitability, and effectiveness (OSS&E) of the systems and end-items prior to implementation.

1.6.3. (ANG) The Single Manager shall be LM Aero for UAE F-16 block 60 aircraft.

**1.7. Publications.** Air Force aerospace maintenance is defined by this instruction. MAJCOMs may supplement this AFI or publish a separate instruction IAW with AFI 33-360. Units must tailor procedures to the unique aspects of their own maintenance operation and publish directives (instructions, supplements, and, for functional areas, operating instructions according to AFI 33-360) for areas where more detailed guidance or specific procedures will ensure a smooth and efficient operation. Adhere to the following procedures:

1.7.1. Do not publish unit instructions or Operating Instructions (OI) to change or supplement TOs. Use the authorized procedures in TO 00-5-1.

1.7.2. Coordinate directives with all appropriate unit agencies.

1.7.3. Conflicts between administrative and technical publications will be resolved in favor of the technical publication.

1.7.4. Conflicts between procedural technical publications and weapon system specific technical publications will be resolved in favor of the weapon system specific technical publication.

1.7.5. Conflicts between Air National Guard/Air Force Reserve and Air Force administrative publications are resolved IAW AFI 33-360.

**1.8. Most Efficient Organization (MEO)/Contract Aircraft Maintenance.** This section identifies the basic responsibilities for managing MEO or contract maintenance. Additional guidance may be found in AFI 63-124, *Performance-Based Service Contracts (PBSC)*.

1.8.1. Contractors have historically provided significant support to the U.S. Armed Forces. Contractor support can augment existing capabilities, provide expanded sources of supplies and services, bridge gaps in the deployed force structure, leverage assets, and reduce dependence on U.S.-based maintenance. The war fighter's link to the contractor is through the contracting officer or the contracting officer's representative.

1.8.2. Developing Performance-Based Requirements Documents. Performance-based requirements documents focus on desired outcomes and performance standards that communicate what the contactor is asked to provide. Requirements documents provide desired outcomes, performance standards, milestones (if appropriate), and metrics which not only measure the contractor's performance but reflect the management imperatives and initiatives that drive the Air Force (e.g., Mission Capable Rate) and other key efficiency and effectiveness metrics. Requirements documents do not provide "how to" details that dictate the contractor's organization, management, personnel development, or approach to completing work. The only exceptions are safety, environmental management, and security when the contractor operates on a military installation. Additionally, the contractor is required to follow applicable Technical Orders when performing maintenance. Contractor operations and personnel are not supervised by government personnel. Any changes to the scope of the require-

ments must be reflected in a revision to the requirements document, which is provided to the contracting officer for inclusion in the contract.

1.8.3. HQ USAF/ILM Responsibilities:

1.8.3.1. Establish and approve policies and procedures for direction and management of contract aircraft maintenance.

1.8.3.2. Air Force maintenance focal point for all inter-service and interagency matters pertaining to contract aircraft maintenance.

1.8.3.3. Ensures requirements for measurement, documentation, and reporting of contract aircraft maintenance performance exist.

1.8.3.4. Ensures policies and procedures contain provisions for continuation of required operation and services in the event of disruption, termination, or default of contract aircraft maintenance.

1.8.4. MAJCOM Responsibilities:

1.8.4.1. Designates focal points for organizational, functional, and technical questions pertaining to each contract aircraft maintenance program.

1.8.4.2. Specifies measurement areas and standards of performance required for aircraft, systems, and equipment supported by contract maintenance.

1.8.4.3. Specifies the forms, methods of documentation, and frequency of reporting used to assess contract maintenance and ensures these requirements are included in the Quality Assurance Surveillance Plan (QASP) or Performance Management Plan (PMP).

1.8.4.4. Approves base-level requests that would permit a single Federal Aviation Administration (FAA) certified Airplane/Powerplant (A/P) contractor technician maintaining contracted logistics support (CLS) aircraft to repair and sign off his/her own red X's when sent to recover aircraft off-station.

1.8.4.5. Identifies the qualifications, training requirements and responsibilities for quality assurance personnel for each contract aircraft maintenance program.

1.8.4.6. Contract owning/managing MAJCOM develops contingency procedures for support of continuing operations in the event of disruption, termination, or default of contract aircraft maintenance.

1.8.4.7. Ensures units with assigned quality assurance personnel meet requirements of AFI 63-124 and other applicable guidance.

1.8.5. Unit Responsibilities:

1.8.5.1. Designates a focal point for all functional, technical, and quality assurance matters pertaining to contract aircraft maintenance. Ensures the organizational relationship, physical location, and lines of communication between the Functional Director/Commander, quality assurance personnel, contracting officer, and the contractor performing contract aircraft maintenance, promote efficiency and continuity of operations. If maintenance requires depot level assistance for evaluation and/or repair beyond unit capability, the request shall be made IAW TO 00-25-107, *Maintenance Assistance*.

1.8.5.2. Ensures that a focal point is identified as the MXG Environmental Coordinator for all Environmental, Safety, and Occupational Health requirements, compliance, and, as appropriate, worker protection issues for MEO and contract organizations. This MXG Environmental Coordinator focal point will lead the installation Candidate Process analysis program as identified in AFPD 90-8/AFI 32-7080/7086 and assist installation tenants and other organizations as required."

1.8.6. In coordination with the contracting officer and the MXG/CC (or equivalent), provide specific guidance to the MEO/contract maintenance to ensure proper maintenance discipline and flight worthiness of aircraft and subsystems.

**1.9. Modification Management.** A modification proposal is a recommendation to change the operation, use or appearance of Air Force equipment. Forward the modification proposal on an AF Form 1067, **Modification Proposal**, or approved Research, Development, Test & Evaluation (RDT&E) process form, according to AFI 63-1101, *Modification Management*, and AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures,* to the MAJCOM focal point.

**1.9. (ANG)** Forward the modification proposal on an AF IMT 1067, *Modification Proposal, or approved Research, Development, Test and Evaluation (RDT&E) process form*, according to AFI 63-1101, and AFI 10-601, to the ANG/LGM focal point. QA submits modification proposals; tracks unit concerns being worked by higher headquarters, and ensures proper implementation of modification directives and/or TCTOs. LM Aero shall provide configuration control and process modification proposals for UAE F-16 block 60 aircraft.

1.9.1. Temporary Modifications. Temporary modifications change the configuration of a system for flight or ground test purposes or support the accomplishment of a specific mission. There are two subsets of temporary modifications as identified and defined as follows:

1.9.1.1. Temporary - 1 (T-1). T-1 modifications temporarily change, add, or remove equipment to provide increased capability for a special mission. T-1 modifications are normally made by the using command for operational reasons, and are not used as substitutes for permanent modifications. T-1 modifications will not be maintained on the system for more than one year without a waiver from the single manager (SM). To install T-1 modifications on more than five systems requires coordination through MAJCOM, owning single manager, and ALC/CC, then HQ USAF/ILM approval. Systems will be returned to their original configuration upon removal of the modification. Systems must be capable of being returned to their original configuration within 48 hours. See AFI 63-1101, *Modification Management*, for additional guidance on modifications.

1.9.1.1. (ANG) To install T-1 modifications on more than five systems requires coordination through ANG/LGM, owning single manager, and Air Logistics Center Commander (ALC/CC), then HQ USAF/ILM approval. LM Aero shall be the Configuration Review Board for UAE F-16 block 60 aircraft to install T-1 modifications. The 162nd FW shall submit and coordinate the proposal to LM Aero for approval.

1.9.1.2. Temporary - 2 (T-2). T-2 modifications are temporary modification required to support research, development, test, and evaluation (RDT&E), in service testing of potential replacement items, and for aircraft/stores compatibility testing. T-2 modifications will normally be accomplished only on programs having approved program management directives (PMDs). No more than five systems may be modified on a temporary basis without SM approval. T-2 modifications

will not be maintained on the system for longer than the approved test program requires. Systems will be returned to their original configuration upon completion of the test. They are done to:

1.9.1.2.1. A selected set of operational or test systems to evaluate a proposed permanent modification.

1.9.1.2.1.1. Test an approved acquisition program (e.g., modification of chase aircraft, modification to aerial targets where targets support various tests and are attrited in the test, installation of instrumentation into the system, etc.), or test support equipment.

1.9.1.2.1.2. Test in an operational environment to evaluate operational, safety, suitability, and effectiveness (OSS&E) including reliability and maintainability of a form, fit, and function potential replacement item (AFI 63-1201, *Assurance of Operational Safety, Suitability, and Effectiveness*).

1.9.1.2.1.3. Evaluate the aircraft/stores capability of an existing or new store on an existing aircraft.

1.9.1.3. Permanent (P). These modifications make permanent changes to correct safety or materiel deficiencies, improve reliability and maintainability, or to add or remove capability.

1.9.1.3.1. Permanent - Safety (P-S). Safety modifications are permanent modifications which correct materiel or other deficiencies (per TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*) which could endanger the safety of personnel or cause loss or extensive damage to systems or equipment.

1.9.2. For all temporary and permanent modifications, the system and end item Operational Safety, Suitability, & Effectiveness (OSS&E) shall be preserved in accordance with the following directive and instruction: AFPD 63-12, *Assurance of OSS&E* and AFI 63-1201, *Assurance of OSS&E*. OSS&E is integral to the modification management process and as such shall be preserved throughout modification planning and execution to ensure operational safety, design integrity and suitability for all modified systems and end items. The weapon system SM is responsible for maintaining system engineering integrity; the lead command is responsible for fleet-wide interoperability and commonality of that system. Therefore, all proposed permanent and temporary modifications must be approved by both the SM and lead command and reviewed by the lead command Configuration Review Board (CRB) prior to being implemented.

1.9.2. (ANG) LM Aero shall be the Configuration Review Board for UAE F-16 block 60 aircraft.

1.9.3. All permanent modifications will be managed as acquisition programs.

1.9.3.1. All permanent modifications to systems will include the appropriate modifications to the associated support equipment, computer resources, and system training devices and to the spares supporting those systems or equipment items.

1.9.3.2. When more than one SM (including commodity SMs) are involved, the program management directive (PMD) will identify the responsibilities for development and installation. Normally, the SM of the actual mission design series (MDS) being modified will be designated as the integration lead.

1.9.3.2.1. The involved SMs, using command(s), and the supporting depot(s) will develop an agreed-to implementation approach and schedule. This approach and schedule establishes all the need dates and actions.

1.9.4. Modifications to Federal Aviation Administration (FAA) certified aircraft. Modifications to Air Force aircraft having FAA certification shall not cause the aircraft to lose its FAA certification. All modifications to such aircraft shall comply with AFPD 62-4, *Civil Airworthiness Standards for Passenger Carrying Commercial Derivative Transport Aircraft* and AFPD 62-5, *Standards of Airworthiness for Commercial Derivative Hybrid Aircraft*. Such modifications are required to keep the weapon system or aircraft in compliance with FAA standards and to maintain FAA certification.

1.9.5. Modifications to Munitions. All proposed modifications to aircraft-carried munitions shall include SEEK EAGLE certification (per AFI 63-104, *The SEEK EAGLE Program*). All modifications to Air Force nuclear munitions or their associated support/training equipment shall be nuclear certified (per AFI 91-103, *Air Force Nuclear Safety Certification Program*). All modifications to Air Force non-nuclear munitions or their associated support/training equipment shall be certified (per AFI 91-205, *Non-Nuclear Munitions Safety Board*).

1.9.6. Using Command Initiated Temporary Modifications. Using commands will initiate T-1 and T-2 modifications using an AF Form 1067, **Modification Proposa**l. The proposed modification must be approved by the using command Configuration Review Board (CRB) and then forwarded to the SM for engineering approval. The using command may install the modification only after SM engineering approval is received. The using command will establish internal procedures for documenting and managing the modification. For configuration control and management, a complete copy of the modification documentation will be maintained in the historical records of the system(s) modified. The using command is responsible for all budgeting and funding of using command initiated T-1/T-2 modifications.

1.9.7. Lead Command Initiated Temporary Modifications. The same procedures as using commands applies to lead commands for T-1 and T-2 modifications. However, both the lead command and the single manager must first approve any implementation of permanent modifications for which there was no previously validated need. (The lead command is the command that serves as operator's interface with the Single Manager for a weapon system as defined by AFPD 10-9).

1.9.8. SM Initiated Temporary Modifications (T-2 Modifications only). When the SM has engineering responsibility for the item being modified, the SM shall establish internal procedures for documenting and managing the modification. For configuration control and management, a complete copy of the modification documentation will be maintained in the historical records of the system(s). When a SM needs to modify a system managed by another SM, the requesting SM will send an AF Form 1067 to the SM with engineering authority for approval. The requesting SM is responsible for funding all T-2 modifications he/she initiates.

1.9.9. Initiation of Permanent Modifications. The appropriate procedures for initiating a permanent modification depends on the estimated cost of the effort (AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*). Initiation of permanent modification begins with a submittal of an AF Form 1067. Time Compliance Technical Orders (TCTOs) shall be used to document all permanent modifications (TO 00-5-15). Generally, TCTOs are required only after the Air Force assumes configuration control of a system or commodity. Engineering Change Proposals (ECPs) control modifications prior to this point. Prior to implementation, all modifications must be approved by the SM and reviewed by the SM's CRB prior to being implemented.

1.9.10. CRB actions on modification proposals will be documented on AF Form 3525, **CRB Modification Requirements and Approval Document** or equivalent. This form is produced electronically

by the Modifications Management System, D087L. The D087L system is available for use by all modification managers in AFMC, and the data is available Air Force wide. Configuration information will be processed and reported in the Generic Configuration Status Accounting Subsystem (GCSAS). The GCSAS is a single unified information source for all Air Force military system configuration status accounting. GCSAS is a subsystem of the Reliability and Maintainability Information System (REMIS) and will provide cradle-to-grave tracking of serially controlled configuration items.

1.9.11. Safety Modifications. Safety modifications shall take priority over all other modifications for funding and implementation. For each safety modification, the SM will conduct a risk assessment. All safety modifications will be accomplished in the minimum amount of time required to ensure a safe and operationally effective fix. The goal for accomplishing engineering, test, production, and complete installation of the modification on the fleet of systems/equipment is 18 months. *NOTE*: A modification must meet the following criteria to qualify as a safety modification: the deficiency which the modification is to correct must have caused or could cause loss of, or serious injury to, personnel or loss of, or extensive damage to, systems/equipment. To be designated as a safety modification, a request for safety modification designation must be forwarded from the SM for approval by the commander of the lead command and the Director of Air Force Safety. If the deficiency does not cause the fleet to be grounded, the approving commander must provide rationale for the safety designation.

1.9.11. (ANG) 162nd FW Safety modifications shall not be accomplished on UAE F-16 block 60 aircraft without coordination with ANG Director of Logistics (ANG/LG), ANG Director of Operations (ANG/XO), ANG Flight Safety (ANG/XOS) and LM Aero.

**1.10. Maintenance Management Metrics.** Leaders, supervisors and technicians must have accurate and reliable information to make decisions. Primary concerns of maintenance managers are how well the unit is meeting mission requirements, how to improve equipment performance, identifying emerging support problems, and projecting future trends. Maintenance management metrics—sometimes called quality performance measures or indicators—are a crucial form of information used by maintenance leaders to improve the performance of maintenance organizations, equipment and people when compared with established goals and standards. Metrics often take the form of an "MC Rate Graph" or a "Status of Personnel Training Slide," presenting a gauge of an organization's effectiveness and efficiency. Properly used, metrics are roadmaps that help determine where you've been, where you're going, and how (or if) you're going to get there.

1.10.1. The overarching objective of Air Force maintenance is to maintain aerospace equipment in a safe, serviceable and ready condition to meet mission needs. Maintenance management metrics serve this overarching objective and shall be established or maintained by Headquarters Air Force, Major Commands, Wings and/or Squadrons to evaluate/improve equipment condition, personnel skills and long-term fleet health. Metrics shall be used at all levels of command to drive improved performance and adhere to well-established guidelines.

1.10.1.1. Metrics must be accurate and useful for decision-making.

1.10.1.2. Metrics must be consistent and clearly linked to goals/standards.

1.10.1.3. Metrics must be clearly understood and communicated.

1.10.1.4. Metrics must be based on a measurable, well-defined process.

1.10.2. Analysis is crucial to improving organizational performance and is the key component of the metrics management process. Commanders and maintenance managers must properly evaluate main-

tenance metrics and rely upon the maintenance analysis section for unbiased information. Analysis sections shall draw upon information from various maintenance information systems for data. The Core Automated Maintenance System (CAMS)/Integrated Maintenance Data System (IMDS), G081 (CAMS for Mobility), Reliability and Maintainability Information System (REMIS), Standard Base Supply System (SBSS), Air Force Knowledge System (AFKS), and AF/IL-approved command-unique analysis tools are the primary data sources. A good maintenance manager does not strive to "chase numbers" for the sake of looking good. However, the manager uses metrics to focus resources and personnel to improve maintenance processes. Managers must also clearly understand and communicate the crucial linkage between goals, standards and metrics. The Air Force sets goals and standards for organizations, personnel and weapons systems that facilitate evaluation, comparisons and improvements. These standards are published separately by senior leadership and should be clearly understood at all levels of command. Leaders at every level must also support analysis and review metrics to properly drive improved performance. Maintenance analysts manage and track this process, but maintenance metrics, and the resulting improvements they drive, are inherently a leadership responsibility.

1.10.3. Primary Maintenance Metrics. Metrics are often grouped into various categories, including leading or lagging indicators. Leading indicators show a problem first, as they directly impact maintenance's capability to provide resources to execute the mission. Lagging indicators follow and show firmly established trends. Maintenance leaders must review sortie production and maintenance health constantly and be knowledgeable about maintenance indicators that highlight trends before they become problems. This section lists the primary maintenance metrics alphabetically with a description and formula as prescribed in AFI 21-103, Attachment 2 (for aircraft status formulas); and TO 00-20-2, Appendix L (for flying formulas). An example (figure) is also included with several of the key metrics.

1.10.3.1. Abort (Total) Rate (AR). A unit's abort rate is a leading indicator of both aircraft reliability and quality of maintenance performed. It is the percentage of missions aborted in the air and on the ground. An abort is a sortie that ends prematurely and must be re-accomplished. The abort rate may be measured separately as ground or air aborts.

1.10.3.1.1. Total AR (%) = $\frac{\text{Air + Ground Aborts}}{\text{Total Sorties Flown + Ground Aborts}} \times 100$

1.10.3.1.2. Maintenance aborts are those sorties ended prematurely on the ground or in the air caused by system failures/maintenance problems. Maintenance abort rates can gauge both aircraft reliability and quality of maintenance performed. Maintenance abort rates can be calculated using the following formulas.

1.10.3.1.2.1. Maintenance Air AR (%) = $\frac{\text{Air Aborts (Maintenance)}}{\text{Total Sorties Flown}} \times 100$

1.10.3.1.2.2. Maintenance Ground AR (%) = $\frac{\text{Ground Aborts (Maintenance)}}{\text{Total Sorties Flown + Ground Aborts}} \times 100$

1.10.3.2. Break Rate (BR). The break rate is a leading, flying-related metric. It is the percentage of aircraft that land in "Code-3", or "Alpha-3" for Mobility Air Force (MAF), status (unable to complete at least one of its primary missions). This metric primarily indicates aircraft system reliability. It may also reflect the quality of aircraft maintenance performed. If Fix Rates (refer to

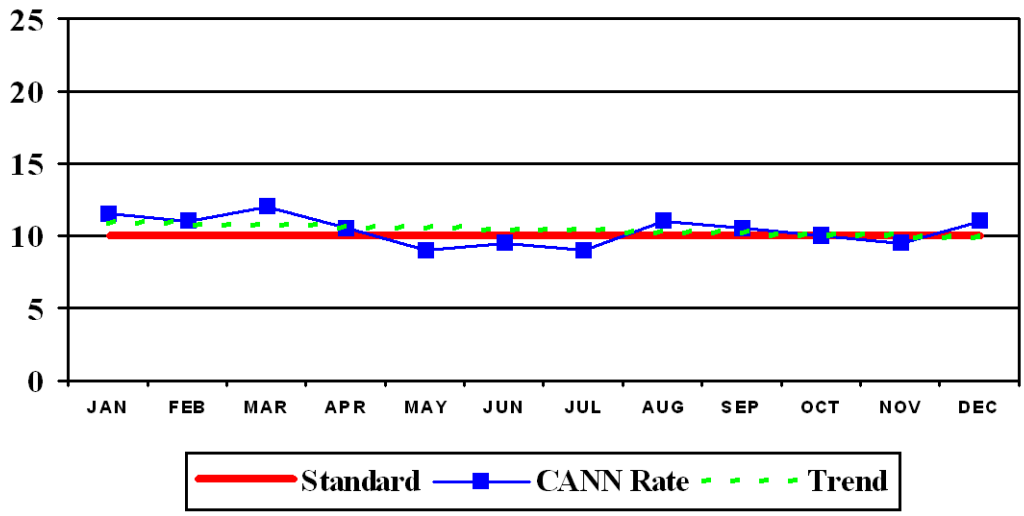
paragraph **1.10.3.6.**) are used as a measurement of maintainability, the Break Rate is the complementary measurement of reliability. For true evaluation of equipment/system reliability, measurements must be taken at the system/subsystem level. It is also an excellent predictor of parts demand. Several indicators that follow break rate are Mission Capable (MC), Total Not Mission Capable for Supply (TNMCS), Cannibalization Rate (CR) and Repeat/Recur (R/R).

1.10.3.2.1. $$\text{BR (\%)} = \frac{\text{Number of Sorties that Land “Code-3”}}{\text{Total Sorties Flown}} \times 100$$

1.10.3.3. Cannibalization Rate (CR). The CR is a leading indicator that reflects the number of cannibalization (CANN) actions (removal of a serviceable part from an aircraft or engine to replace an unserviceable part on another aircraft or engine or to fill an RSP). In most cases, a cannibalization action takes place when base supply cannot deliver the part when needed and mission requirements demand the aircraft be returned to an MC status. The CR is the number of cannibalization actions for total sorties flown. This rate includes all aircraft-to-aircraft, engine-to-aircraft, and aircraft/engine to RSP cannibalization actions. Since supply relies on the back shops and depot for replenishment, this indicator can also be used, in part, to indicate back shop and depot support.

1.10.3.3.1. $$\text{CR (\%)} = \frac{\text{Number of Aircraft and Engine CANNs}}{\text{Total Sorties Flown}} \times 100$$

**Figure 1.1. Sample Metric of CANN Rate Aggregate.**




1.10.3.4. Deferred (or Delayed) Discrepancy (DD) Rate (DDR). The DDR is a leading indicator that should be closely evaluated in comparison to other metrics. This rate represents the average deferred discrepancies across the unit's average possessed aircraft fleet. Discrepancies are considered deferred when: a) they are discovered and the decision is made to defer them, b) discrepancies are scheduled with a start date greater than 5 days after the discovery date, or c) discrepancies are awaiting parts with a valid off base requisition. Delayed discrepancies may be Awaiting Maintenance (AWM) or Awaiting Parts (AWP). Although minor maintenance actions must sometimes be deferred or delayed to a more opportune time, maintenance should try to keep this rate as low

as possible. If delayed discrepancies can't be scheduled/combined with a more extensive maintenance action, maintenance schedulers should routinely schedule their aircraft down for a day when required to work deferred discrepancies. The DDR metric measures AWM + AWP rates, though individual AWM and AWP rates can and should also be monitored.

1.10.3.4.1. Total DDR (%) = $\frac{\text{Total (Snapshot) AWM + AWP Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.2. AWM DDR (%) = $\frac{\text{Total (Snapshot) AMW Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.3. AWP DDR (%) = $\frac{\text{Total (Snapshot) AWP Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.4. Aircraft Possession. A key factor in metrics involves aircraft "possession". The Air Force mandates each aircraft will always be owned or "possessed" by a designated organization. Possession is an indicator of an organization's or aircraft fleet's health. Aircraft that are under the control of their owning base are possessed by that organization. An aircraft that flies to depot for maintenance/inspection or is repaired by a depot team at the base is temporarily possessed by depot. In calculating the various aircraft maintenance metrics, possession is calculated in units of hours normally for specific time periods (e.g., monthly, annual, etc.).

1.10.3.5. Departure (Logistics) Reliability (DR) Rate (DRR). This is a broader leading metric used primarily for airlift aircraft that may show a composite of supply, saturation or maintenance problems. The on-time standard for departures are those within 15 minutes of the daily scheduled departure time. The metric provides the commander with an objective measure of the health of the air mobility system and reflects the percentage of departures that are on-time. The main focus of the departure reliability metric is to strengthen the air mobility system through accountability for process improvement. This metric may also be subdivided into other categories (e.g., worldwide departure or en route).

1.10.3.5.1. DRR (%) = $\frac{\text{Number of Departures – Number of Logistics Delays}}{\text{Number of Departures}} \times 100$

1.10.3.6. Fix Rate (FR). The FR is a leading indicator showing how well the repair process is being managed. It is a percentage of aircraft landing with CAP Code-3 or 4 pilot reported discrepancies (PRDs) returned to flyable status in a certain amount of time (clock hours). Problems found by maintenance after the aircraft lands (ground found) are not considered in the fix time. The fix time stops when all CAP Code-3 or 4 PRDs are fixed even if the aircraft remains NMC. This metric is an excellent tool to track "dead time" in aircraft repair processes because it measures the speed of repair and equipment maintainability. The common, standard interval for this metric is 12-hours. However, fighter units typically measure fix rate at shorter intervals (4 and/or 8 hours) along with the 12-hour rate.

1.10.3.6.1. FR (%) = $\frac{\text{"Code-3" Breaks Fixed Within 12 Hours of Landing}}{\text{Total "Code-3" Breaks}} \times 100$

1.10.3.7. Flying Schedule Effectiveness (FSE) Rate. This leading indicator is a measure of how well the unit planned and executed the weekly flying schedule. The flying scheduled developed by tail number is the baseline upon which the FSE is derived by comparing each day's deviations. Deviations that decrease the FSE from 100% include: scheduled sorties not flown because of

maintenance, supply, operations, weather, HHQ, air traffic control, sympathy, or other reasons; scheduled sorties that takeoff more than 30 minutes prior to scheduled takeoff; scheduled sorties that takeoff more than 15 minutes after their scheduled takeoff time (30 minutes for RC-135, EC-135, and U-2 aircraft); and sorties that are added to the schedule. Disruptions to the flying schedule can cause turmoil on the flight line, send a ripple effect throughout other agencies, and adversely impact scheduled maintenance actions. [Adjusted Sorties Scheduled = Total Sorties Scheduled - Sorties Cancelled for Monthly/Yearly Utilization (UTE) Rate Achievement + Sorties Added for End of Fiscal Year UTE Close Out]. Some MAF units calculate FSE using the formula in paragraph **1.10.3.7.2.**

1.10.3.7.1. FSE (%) = $\frac{\text{Adjusted Sorties Scheduled – Chargeable Deviations}}{\text{Adjusted Sorties Scheduled}} \times 100$

1.10.3.7.2. MAF FSE (%) = $\frac{\text{Sorties Scheduled – Total Deviations}}{\text{Sorties Scheduled}} \times 100$

1.10.3.8. Hangar Queen (HQ) (Average) Rate. A Hangar Queen is an aircraft that has not flown for at least 30 consecutive days in their possessed status, or not flown within 10 days after being gained from depot possession (in "D/B-Status" codes). Refer to **Chapter 18** for HQ categories/ criteria. This indicator is used to evaluate management of the Hangar Queen program and to assist units with problems beyond their control. The HQ rate captures the average number of aircraft hangar queen days (all categories) for a specified reporting period.

1.10.3.8. (ANG) Aircraft that have not flown within 10 days after being gained from depot possession (in "D/B-Status" codes) will not be considered Hanger Queen and will not be reported as such.

1.10.3.8.1. HQ (%) = $\frac{\text{Total Acft Days in all HQ Categories (in report period)}}{\text{Days (in report period)}} \times 100$

1.10.3.9. Home-Station Logistics Departure Reliability (HSLDR) Rate. This is a leading metric used primarily by the MAF for airlift aircraft. This delineates down to only first-leg departures of unit-owned aircraft departing home station.

1.10.3.9.1. HSLDR Rate (%) = $\frac{\text{\# of HS Departures – \# of HS Logistics Delays}}{\text{\# of HS Departures}} \times 100$

1.10.3.10. Maintenance Schedule Effectiveness (MSE). This is a leading indicator that measures success in the unit's ability to plan and complete inspections and periodic maintenance on-time per the maintenance plan. Deviations to the plan are recorded. A low MSE rate may indicate a unit is experiencing turbulence on the flight line or in the back shops. This indicator is primarily used as feedback to maintenance managers on the success and adherence to scheduled maintenance plans and actions.

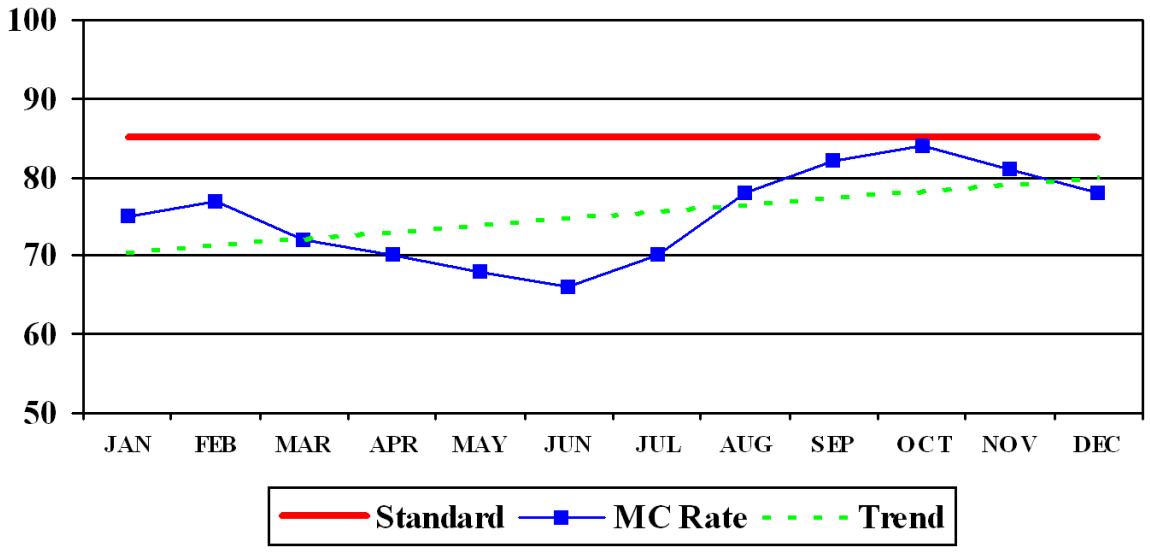
1.10.3.10.1. MSE (%) = $\frac{\text{Number of Scheduled Mx Actions Completed On-Time}}{\text{Total Number of Mx Actions Scheduled}} \times 100$

1.10.3.11. Mission Capable (MC) Rate. The MC rate is perhaps the best-known yardstick for measuring a unit's performance. It is the percentage of possessed hours (excluding aircraft in "B-Type" possession purpose code/purpose identifier code status: BJ, BK, BL, BN, BO, BQ, BR, BT, BU, BW, BX) for aircraft that are FMC or PMC for specific measurement periods (e.g., monthly or annual). This metric is a lagging indicator and represents a broad composite of many

processes and metrics. A low MC rate may indicate a unit is experiencing many hard breaks, parts supportability shortfalls or workforce management issues. Maintenance managers should look for workers deferring repairs to other shifts, inexperienced workers, lack of parts from supply, poor in-shop scheduling, high cannibalization rates or training deficiencies. High commitment rates may also contribute to a lower MC rate. The key is to focus on negative trends and identify systemic, underlying causes. Further, the root factors of the MC rate should be measured, evaluated and reported through the use of the TNMCM, TNMCS and NMCB rates.

1.10.3.11.1. MC (%) = $\frac{\text{FMC Hours + PMC Hours - “B-Type” Status Hours}}{\text{Possessed Hours}}$ x 100

**Figure 1.2. Sample Metric of MC Rate for Fighter Aircraft.**




1.10.3.11.2. Total Not Mission Capable Maintenance (TNMCM) Rate. Though a lagging indicator, the TNMCM rate is perhaps the most common and useful metric for determining if maintenance is being performed quickly and accurately. It is the average percentage of possessed aircraft (calculated monthly/annually) that are unable to meet primary assigned missions for maintenance reasons (excluding aircraft in “B-Type” possession identifier code status). Any aircraft that is unable to meet any of its wartime missions is considered Not Mission Capable (NMC). The TNMCM is the amount of time aircraft are in NMCM plus Not Mission Capable Both (NMCB) status. Maintenance managers should look for a relationship between other metrics such as R/R, BR and FR to the TNMCM Rate. A strong correlation could indicate heavy workloads (e.g., people are over tasked), poor management, training problems or poor maintenance practices. The TNMCM is also called “out for maintenance.”

1.10.3.11.2.1. TNMCM (%) = $\frac{\text{NMCM Hrs + NMCB Hrs - “B-Type” Status Hrs}}{\text{Possessed Hours}}$ x 100

1.10.3.11.3. Total Not Mission Capable Supply (TNMCS) Rate. Though this lagging metric may seem a “supply responsibility” because it is principally driven by availability of spare

parts, it is often directly indicative of maintenance practices. For instance, maintenance can keep the rate lower by consolidating feasible cannibalization actions to as few aircraft as practical. This monthly/annual metric is the average percentage of possessed aircraft that are unable to meet primary missions for supply reasons. The TNMCS rate is the time aircraft are in NMCS plus NMCB status. TNMCS is based on the number of airframes out for MICAP parts that prevent the airframes from performing their mission (NMCS is not the number of parts that are MICAP). Maintenance managers must closely monitor the relationship between the Cannibalization Rate (CR) and TNMCS. TNMCS is also called "out for supply."

1.10.3.11.3.1. TNMCS (%) = $\frac{\text{NMCS Hrs + NMCB Hrs - “B-Type” Status Hrs}}{\text{Possessed Hours}}$ x 100

1.10.3.12. Primary Aerospace Vehicle Authorized (PAA) vs. Possessed (P/P) Rate. PAA are those aircraft authorized for a unit to perform their operational mission(s). It forms the basis to allocate operating resources to include manpower, support equipment, and flying hour funds. This metric shows a comparison of the unit’s PAA versus average possessed aircraft for a particular time period. It identifies units below PAA so MAJCOM/ HAF can assist in reallocating resources to support contingency taskings or to reduce flying hour requirements.

1.10.3.12.1. P/P (%) = $\frac{\text{Average Number of Possessed Aircraft}}{\text{Total Unit Aircraft PAA}}$ x 100

1.10.3.13. Personnel Availability (PA). Personnel availability simply provides a measure of manning status. It compares the number of personnel authorized to the number of personnel available. A maintenance manager may find it useful to review data based on skill level. In which case, compare the personnel authorized to the number of personnel holding a specific skill level. The number authorized is based on the Unit Manning Document. The number available includes only those available for duty, which excludes those who are reassigned, on leave, TDY, etc.

1.10.3.13.1. PA (%) = $\frac{\text{Total Number of Personnel Available}}{\text{Total Number of Personnel Authorized}}$ x 100

1.10.3.14. Phase Flow (PF) Average. A phase time-distribution interval (TDI) is a product that shows hours remaining until the next phase on each aircraft possessed by a unit. This leading metric measures the average phase time remaining on the fleet. It should be approximately half the inspection interval and should appear as a diagonal line when the fleet PF average is portrayed graphically in a TDI (e.g., “scatter gram”). However, a unit may have good reasons to manage its phase flow so the data points define a pattern other than a diagonal line. For example, in preparation for a long-distance overseas deployment, a unit may need to build up the average phase time remaining on its fleet, because phase capability may be limited for a short time. Beware of gaps or groupings, especially on aircraft with less than half the time remaining to phase.

1.10.3.14.1. PF = $\frac{\text{Total Hours of All Possessed Aircraft Until Next Phase}}{\text{Total Possessed Aircraft Assigned}}$

1.10.3.15. Repair Cycle Processing (RCP) Total Time/Rate. Though primarily considered a “supply-related metric,” this indicator can be an excellent local management tool. It is the average time expressed in days that an unserviceable asset spends in the repair cycle at a unit. This indicator is for repairable aircraft parts only; it does not include engines or support equipment. The clock begins when the replacement part is issued to the flight line and ends when the serviceable asset is

returned from the repair facility to the parts store for reissue. To improve the process of repairing parts, the different steps in that process must be measured.

1.10.3.15.1. RCP (%) = $\frac{\text{(Pre-Mx + Repair + Post-Mx Days) – AWP Days}}{\text{Number of Items Turned In}}$ x 100

1.10.3.16. Repeat/Recurring (R/R) Discrepancy Rate. This metric is a leading indicator and perhaps the most important and accurate measure of the unit's maintenance quality. It is the average number of repeat and recur system malfunctions compared to the total number of aircrew discrepancies. A repeat discrepancy is when the same malfunction occurs in a system/subsystem on the next sortie/sortie attempt after the discrepancy originally occurred and was cleared by maintenance (including CNDs/no-defect-noted, etc). A recurring discrepancy is when the same system/subsystem malfunction occurs on the 2nd thru 4th flights/attempted flights after the original flight in which the malfunction occurred and was cleared by maintenance (including CNDs/no-defect-noted, etc). A high R/R rate may indicate lack of thorough troubleshooting; inordinate pressure to commit aircraft to the flying schedule for subsequent sorties; or a lack of experienced, qualified or trained technicians. The more complex the weapon system and the greater the operations tempo, the more susceptible a unit is for repeat or recurring discrepancies. Examine each R/R discrepancy and seek root causes and lasting fixes. The goal should be to keep all repeat and recurring discrepancies to a minimum.

1.10.3.16.1. R/R (%) = $\frac{\text{Total Repeats + Total Recurs}}{\text{Total Pilot Reported Discrepancies}}$ x 100

1.10.3.17. Upgrade Training (UT) Rate. This metric reflects the percentage of technicians in upgrade training. The goal should be to keep the combined total less than 40 percent because the higher the number, the greater the training burden. Training should be given high priority, as the number of personnel in training (and more importantly, the quality of the maintenance training program) invariably affects other aircraft metrics (e.g., R/R or FR) in ways that may not be immediately obvious.

1.10.3.17.1. UT (%) = $\frac{\text{Number of Technicians in Upgrade Training}}{\text{Total Number of Technicians}}$ x 100

1.10.3.18. Utilization (UTE) Rate. The UTE rate is a leading indicator, but serves as a yardstick for how well the maintenance organization supports the unit's mission. The UTE rate is the average number of sorties or hours flown per primary aerospace vehicle inventory (PAI) aircraft per month. This measurement is primarily used by operations in planning the unit's flying hour program. Maintenance uses this measurement to show usage of assigned aircraft. Since UTE rates are used for planning, actual UTE rates (computed at the end of the month) are used to evaluate the unit's monthly accomplishment against the annual plan. Typically, CAF units measure the sortie UTE rate, while MAF units measure the hourly UTE rate to more accurately measure the combined performance of operations and maintenance.

1.10.3.18.1. UTE Rate = $\frac{\text{Sorties (or hours) Flown per Month .}}{\text{PAI Aircraft per Month}}$

**1.11. Support Agreements.** Maintenance organizations may be tasked to support functions that are not related to the primary unit mission. Intra-service, inter-service, inter-command, and international support agreements outline the degree of support provided and the responsibilities of the supported function. The

agreements must be developed and reviewed in terms of possible impact on the primary unit mission and all other existing agreements and fully coordinated with the Logistics Readiness Squadron plans function.

**1.11. (ANG)** Units shall contact ANG/LGMM for unresolved support agreement issues.

**1.12. Operating Instructions:** Wing or group instructions pertaining to maintenance are published as OIs. When crossing group lines, OIs must be coordinated and approved by the affected commanders and published as wing OIs. OIs are not published to change AF instructions, policy or TOs. Wing OIs will be published when expanded guidance encompasses other group responsibilities, for example: Operations Group (OG), Maintenance Group (MXG), Civil Engineer (CEG), Mission Support (MSG), etc. Quality Assurance (QA) will be the Office of Primary Responsibility (OPR) for maintenance policy guidance and consolidation.

1.12.1. Quality Assurance will review all OIs to ensure the instructions are technically accurate, complete and consistent with AF and MAJCOM policy. OIs will be reviewed annually.

1.12.1. (ANG) Quality Assurance shall coordinate the review of the unit supplements/OIs with the Office of Collateral Responsibility (OCR) to ensure the instructions are technically accurate, complete, pertinent, and consistent with AF and ANG policy. Unit supplements/OIs must be reviewed annually. Throughout this publication, supplements may be used for an OI.

1.12.2. The appropriate safety function reviews any OI that affects munitions operations or safety; including all locally developed checklists, instructions, supplements, plans, or operating procedures relating to nuclear surety (AFI 91-101, *Air Force Nuclear Weapons Surety Program*).

**1.13. Communications and Transportation.** Effective maintenance requires efficient communications and transportation. Radios must be available to expedite personnel, equipment, materiel, and maintenance data throughout the maintenance complex. A communication system must be selected with the capability to effectively support the maintenance communication requirements, including mobility and host base interoperability IAW AFI 33-202, *Computer Security*. Wireless LANs (WLANs) must comply with all applicable Air Force 33-series publications. Radios shall be frequency-programmable. Unit commanders shall develop communication plans according to mission requirements. The Designated Approving Authority (DAA) must approve the use of all non-licensed wireless devices to support maintenance and transportation needs.

**1.14. Management Information Systems (MIS).** MIS refers to automated maintenance information systems including Core Automated Maintenance System/Integrated Maintenance Data System (CAMS/IMDS), G081 (CAMS for Mobility), Reliability and Maintainability Information System (REMIS), Comprehensive Engine Management System (CEMS), PMEL Automated Management System (PAMS), Reliability, Availability, Maintainability for Pods (RAMPOD), and Air Force Knowledge Services (AFKS) formerly known as Enterprise Data Warehouse (EDW). Other applications are often referred to as MIS; examples include Tool Accountability System (TAS), Point of Maintenance (POMX), Fleet Asset Status Gadget, Centralized Intermediate Repair Facility (CIRF) Logistics Information Network (LIN), and Enhanced Maintenance Operations Center (EMOC) software package. MIS provides maintenance supervisors at all levels with products to evaluate organizational effectiveness and to aid in the decision-making process. Therefore, deploying units must ensure that any and all appropriate hardware (e.g., computers, servers, etc.) are available at the deployed locations to ensure connectivity. Reference paragraphs **5.8.19.2.** and **5.8.19.3.** AF/ILM has central authority for policy and guidance covering all MIS IAW appli-

cable Air Force 33-series publications. According to the AF/IL Information Systems Strategic Architecture Plan, two of the AF/IL's strategic goals are to provide integrated, trusted data and to eliminate or consolidate information systems. In support of these goals, AF/ILM is focusing MIS modernization efforts towards eventual fielding of a single, integrated MIS. To facilitate this drive to a single system, MAJCOM LGs and AF/ILM must have control over the proliferation of unit- or MAJCOM-unique MIS. If a unit desires to use a system other than the authorized standard MIS, whether commercial off-the-shelf (COTS), government off-the-shelf (GOTS) or locally generated, the unit must submit a request for permission to their MAJCOM 3-digit Maintenance Management Division (e.g., LGM, A4M, etc.). MAJCOM 3-digits functional managers shall coordinate on all requests and forward through the MAJCOM 2-digit to AF/ILM for final consideration/approval via written or e-mail means.

**1.14. (ANG)** The 162nd FW shall use Automated Logistics Management System (ALMS) for UAE F-16 block 60 aircraft. ALMS shall be considered a MIS. The 162nd FW shall develop local procedures in an OI/Sup for deployed aircraft.

1.14.1. MIS Data Classification. Data contained, entered, and retrieved in MIS is classified as "Sensitive/FOUO." Safeguards have been put in place to ensure control of this "Sensitive/FOUO" data with access through "military only" systems. Use is limited to authorized personnel who have been granted access through a controlled process. Each MIS has additional protection with unique, individually granted, need-to-know USERID/Password assurances. It is vital, especially during contingency operations, to capture maintenance data at every location to provide in-depth current/after action analysis of Air Force, MAJCOM, and unit efforts for deployments and contingencies.

1.14.2. CAMS Graphical User Interface (GUI). The CAMS GUI was fielded as the front-end to CAMS/IMDS in March 2002. Use of the GUI to access CAMS/IMDS is mandated. On a "case-by-case" basis, AF/ILMM shall grant exceptions due to technical interface requirements.

**1.15. Functional Management.** At wing-level, the maintenance group commander (or equivalent) is the functional manager for all maintenance personnel. As the functional manager, the maintenance group commander:

1.15.1. Oversees the career progression of maintenance officers and senior noncommissioned officers (SNCOs) by allocating and assigning maintenance officers and SNCOs to those positions within the wing requiring a maintenance Air Force Specialty Code (AFSC).

1.15.2. Coordinates on all wing policies affecting maintenance operations.

**1.16. Waiver Request.** MAJCOMs are not permitted to deviate from this instruction without receiving written approval from HQ USAF/ILM. Units must submit waiver requests through the MAJCOM.

**1.16. (ANG)** Units shall submit waiver requests through the ANG/LGMM.

**1.17. Organization.** Air Force wings will organize according to AFI 38-101 or as authorized by HQ USAF/DPM. Contractor and civil service maintenance functions are not required to organize IAW AFI 38-101, but will implement the organization as outlined in their proposal and accepted by the government. For the purpose of this instruction, in units where there is not a Maintenance Group commander responsible for maintenance, the applicable civilian director of maintenance (DOM) will ensure compliance with all responsibilities in this instruction.

**1.17. (ANG)** For the purpose of this instruction, in units where there is not an Operations Group Commander or Maintenance Group Commander responsible for maintenance, the applicable group commander or director of maintenance must be the maintenance authority, as depicted by the wing's organizational structure, and must ensure compliance with all responsibilities in this instruction. Also for the purpose of this instruction the term "civilian equivalent" does not apply. Other differences between the USAF and a typical ANG unit are:

Accessory Flight = Accessory Element

Aircraft Maintenance Unit = Squadron or Aircraft Maintenance Flight

AGE Flight = AGE Element

Armament Systems Flight = Armament Section

Avionics Flight = Avionics Element

Fabrication Flight = Fabrication Element

Flight Chief = Maintenance Supervisor

Maintenance Flight = Maintenance Element

Maintenance Operations Squadron = Maintenance Operations Flight

Maintenance Operations = Maintenance Supervisor

Maintenance Operations Office = Flight OIC/Squadron Maintenance Officer (SMO)
Maintenance Superintendent = Maintenance Supervisor

Maintenance Training Flight = Maintenance Training

MAJCOM = Air National Guard

Munitions Flight = Munitions Element

Propulsion Flight= Propulsion Element

Section Chief = Element/ Workcenter Supervisor

Squadron Production Supervisor (Squadron Pro Super) = Production Supervisor (Pro Super)

Weapons Maintenance Element = Armament Section

1.17.1. (Added-ANG) ANG maintenance activities are organized by the various organizational structure codes on the manning document for that particular weapon or support system. See **Figure 1.3. (Added)**, and **Figure 1.4. (Added)** Workcenters are staffed consistent with mission requirements, workload, and available personnel. Units are encouraged to consolidate functions when warranted to streamline operations and enhance mission readiness. During non-federalized operations, ANG units are not manned or structured to adopt all gaining command maintenance management policies and procedures. When the gaining command utilizes a different maintenance management program, the unit MXG/CC ensures management personnel are aware of that program to permit the unit to be incorporated into the gaining command management structure upon federalization.

**Figure 1.3. (Added-ANG) ANG CAF Maintenance Group Organization. *NOTE:* Typical but not all inclusive.**

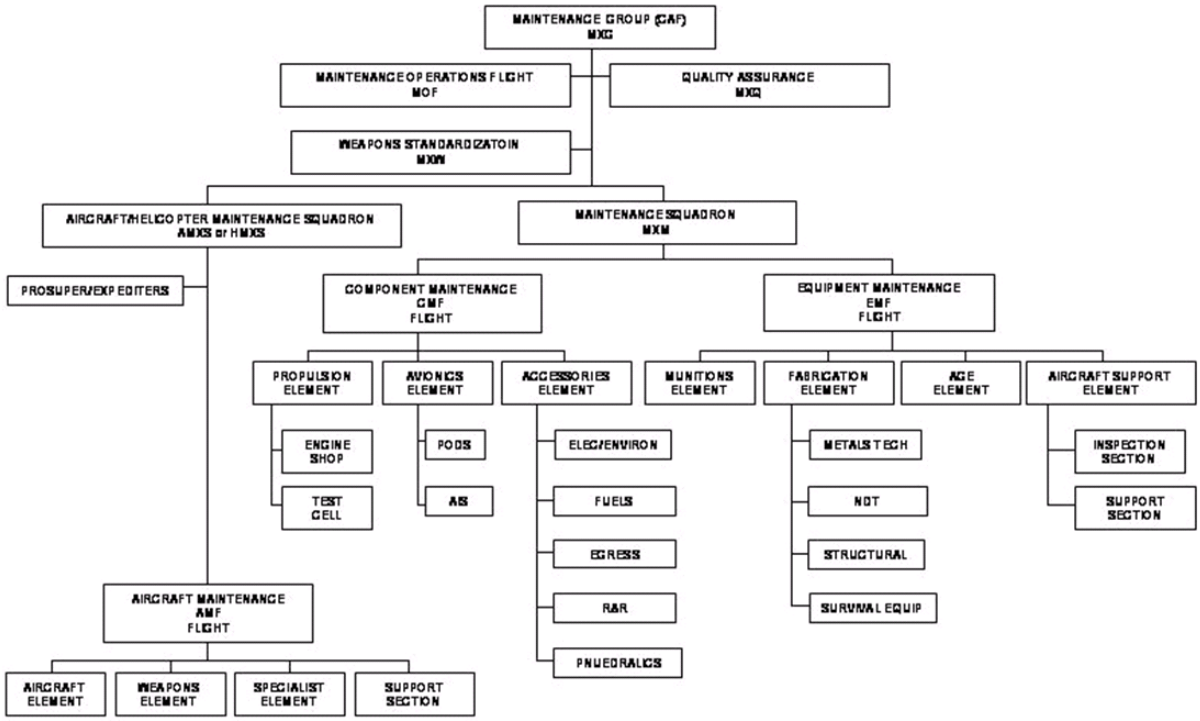
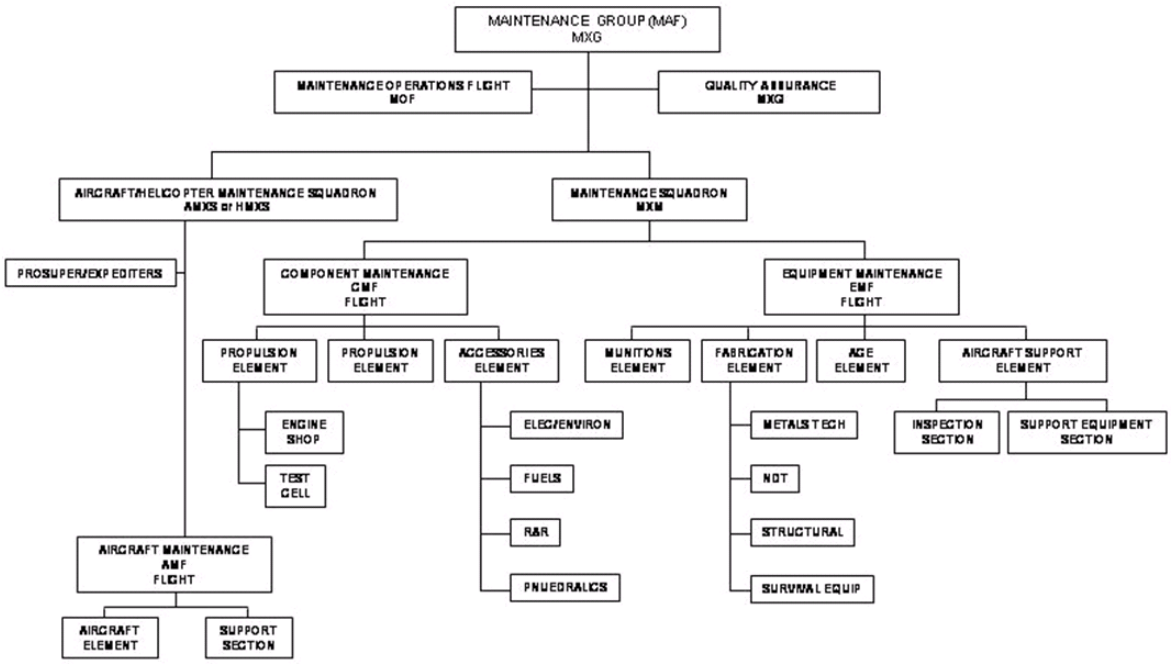


**Figure 1.4. (Added-ANG) ANG MAF Aircraft Maintenance Group Organization. *NOTE:* Typical but not all inclusive.**




**1.18. Maintenance Standardization.** The objectives of standardization are to ensure greater interoperability, improve maintenance quality and ensure maintenance effectiveness. The Maintenance Group commander is accountable to the wing commander for ensuring standardization of maintenance discipline, quality, organizational structure, and philosophy.

1.18.1. Supervision at all levels will use metrics provided by Maintenance Data Systems Analysis (MDSA) to evaluate the overall health of the fleet and the ability to meet sortie production goals. They will take necessary actions to avoid or reverse negative trends.

**1.19. Maintenance Training.** Maintenance training provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary Air Force Specialty Code (AFSC). The overall capability of a unit depends on the state of training for aircrew members and maintenance personnel. Training is essential to improving and sustaining unit capability and is one of the most important responsibilities of commanders and supervisors. Providing training in combat and sortie generation skills not normally integrated into peacetime operations (e.g., munitions and external fuel tank build-up, hot refueling, etc.) is particularly critical and requires special management attention. Commanders and supervisors must give priority support to training. When balancing resources, (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), maintenance training carries an equal priority with the operational training mission. Maintenance training is established according to AFI 36-2201, *Developing, Managing, and Conducting Training*, AFI 36-2232, *Maintenance Training* and MAJCOM training instructions.

1.19.1. Aircraft Maintenance Qualification Program (AMQP). Qualification training is ongoing, providing adequate skills to accomplish all maintenance tasks required. Each MAJCOM defines the mechanisms to achieve that qualification according to AFI 36-2201 and MAJCOM instructions

1.19.2. Cross-Utilization Training (CUT). CUT provides the unit internal flexibility by training individuals to perform tasks that are outside their primary AFSC. This training can offset periods of austere or low skill level manning. It also enhances combat capability by developing a pool of qualified personnel to draw upon during surges. Use care not to create a dependency upon CUT-trained personnel for every task. CUT is not a long-term fix or management solution for an AFSC shortfall. 3-levels shall not participate in CUT, except for those individuals who have satisfied all 5-skill level upgrade training requirements in their primary AFSC and have completed 15 months on-the-job training (OJT) IAW AFI 36-2201, *Air Force Training Program*, Vol 2, Chapter 1. Ensure the training records of individual's receiving CUT are appropriately documented. Address questions regarding CUT to the applicable AFSC Career Field Manager.

1.19.2. (ANG) Address questions concerning CUT to ANG/LGMM. Important considerations for units include:

1.19.2.1. (Added-ANG) Identifying the type of tasks for CUT and determining which individuals receive that training.

1.19.2.2. (Added-ANG) Providing CUT so that personnel can work with little or no assistance.

1.19.2.3. (Added-ANG) Ensuring CUT does not interfere with skill level upgrade training or weapons system qualification training.

1.19.3. Special Experience Identifier (SEI) Policy (Not applicable to ANG/AFRC). Special experience identifiers are designed to identify personnel with special experience and rapidly identify maintenance resources to meet management objectives. The purpose of this policy is to improve the identification of experienced personnel, deployment/assignment equity, and maintenance capability. The objectives of this policy are to:

1.19.3. (ANG) Except the 116th Air Control Wing (ACW) active duty personnel.

1.19.3.1. Measure unit and MAJCOM experience levels, and support appropriate management action to increase experience levels where needed.

1.19.3.2. Ensure maintenance personnel who have relevant hands-on experience on aircraft and engines are awarded all appropriate SEIs.

1.19.3.3. Ensure all aircraft maintenance personnel are rotated to SEI coded duty positions where relevant hands-on experience can be acquired within 36 months of date arrived station.

1.19.4. Utilization and training workshops (U&TW): Aircraft maintenance career field managers and MAJCOM functional managers will review SEIs in AFMAN 36-2108, *Enlisted Classification*, for accuracy during U&TWs on maintenance AFSCs. Responsibilities:

1.19.4.1. HQ USAF/ILMM is the OPR for the Air Force.

1.19.4.2. The maintenance staff functional manager is the OPR at MAJCOM level. MAJCOM functionals will:

1.19.4.2.1. Monitor the status of experience levels at each base/unit via analysis of the numbers of personnel possessing SEIs versus the total number of personnel assigned within the AFSC/program element code (PEC).

1.19.4.2.2. Identify, by name, those individuals assigned to a base/unit with more than 36 months TOS and not awarded a SEI applicable to that base/unit. Provide this list to the Maintenance Group Commander/Maintenance Operations Officer(s)/Superintendent(s) for analysis/investigation.

1.19.4.2.3. Ensure positions are coded at MAJCOM or base level. Monitor the coding of positions. A recommended measurement is the total number of UMD positions vs. the number of SEI coded positions in a given AFSC.

1.19.4.3. Group commander:

1.19.4.3.1. Monitor the group experience levels as indicated by the number of assigned personnel with SEIs awarded versus the total number of personnel assigned within the AFSC/PEC.

1.19.4.3.2. Implement actions to ensure individuals with more than 24 months TOS and not awarded a SEI complete all requirements before the 36 months TOS to preclude having to report those individuals to Air Staff.

1.19.4.3.3. Provide the reason(s) why any assigned personnel with more than 36 months TOS has not been awarded a SEI resulting from assignment to a wing position coded IAW AFI 21-101 policy, to the MAJCOM OPR. Provide the proposed date each of these individuals is anticipated to be awarded the applicable SEI.

1.19.4.4. Maintenance Operations Officer (MOO)/Superintendent (SUPT) is the unit focal point for SEI management. The unit commander/Maintenance Operations (MOO/SUPT) shall:

1.19.4.4.1. Assign personnel to authorized positions consistent with requirements, individuals grade, and skill level.

1.19.4.4.2. Ensure previously awarded SEIs are re-designated to newly awarded AFSCs during personnel upgrade actions.

1.19.4.4.3. Ensure individuals are awarded the assigned weapons systems SEI to an awarded AFSC when SEI awarding criteria contained in AFMAN 36-2108 has been met.

1.19.4.4.4. For multiple mission design series (MDS) units, initiate action to award additional relevant SEIs if/when an individual gains experience on additional MDSs. Award additional SEIs using AF Form 2096, **Classification/On-The-Job Training Action**, or P-series orders.

1.19.4.4.5. Ensure that those personnel with 18-24 months TOS, without an SEI applicable to the unit of assignment, and assigned to positions not coded with an airframe, engine, or sub-system SEI are rotated into positions where an applicable SEI may be earned and awarded.

1.19.4.5. Reporting procedures: MAJCOMs will provide a semi-annual report to HQ USAF/ILMM on 1 April and 1 October, summarizing the MAJCOM experience levels in each of the target AFSCs IAW specified reporting criteria. Reports ( RCS: HAF-ILM(SA)0010 ) will portray:

1.19.4.5.1. The total number of personnel by CAFSC who have been assigned to a SEI coded or uncoded position with TOS of 18-24, 25-36, and more than 36 months who do not have a unit relevant SEI awarded to any AFSC, must be reported IAW the format contained in HQ USAF/ILMM website URL: **http://140.185.52.73/ilm/ilmm/acmaint/sei.htm**. In addition, provide specific reasons/logic for each individual without a SEI awarded and greater than 36 months TOS.

1.19.5. MAJCOMs must ensure that only those positions where relevant hands-on experience can be gained are coded with the weapons system specific SEI. Code unit manning document (UMD) positions in the following manner:

1.19.5.1. Do not code MOC, tool room, safety, vehicle NCOs, quality, or other staff/support functions with weapon system or engine SEIs.

1.19.5.2. MAJCOMs will ensure that only those positions where relevant hands-on aircraft/ engine experience can be gained are coded with the weapons system/engine specific SEI based upon the following guidelines.

1.19.5.3. Code positions with the weapons system SEI: 2A0X1A/B, 2A3X1X, 2A3X2, 2A3X3X, 2A5X1A, 2A5X2, 2A5X3X, 2A6X3, 2A6X4, 2A6X5, 2A6X6, and 2W1X1 (including armament back shops).

1.19.5.3.1. Code positions with weapons systems/avionics systems as determined by the lead command for MAF/CAF or HQ AFSOC: 2A0X1C/D, 2A5X3A/C.

1.19.5.4. Code positions with engine SEI where personnel can receive hands-on engine experience (flight line, JEIM, and test cell): 2A6X1A/B.

1.19.5.5. Code positions with either weapons system or low observable SEI: 2A7X3.

1.19.5.6. Electro-environmental (2A6X6) and hydraulics (2A6X5) back shop positions will not be coded with SEIs unless the personnel are normally dispatched from the shop to work aircraft.

1.19.5.7. Aerospace Repair (A/R) shops will be coded with the A/R SEI.

1.19.5.8. For units having positions on their UMD funded by another MAJCOM under a host/tenant or memorandum of agreement, the positions will be coded with the coordination/ approval of the funding MAJCOM.

1.19.5.9. MAJCOMs may code additional positions with appropriate SEIs with the concurrence of the MAJCOM functional manager.

1.19.5.10. Triggers: The trigger point is where MAJCOMs must review unit experience/manning levels for further action. MAJCOMs may develop their own trigger point, with justification, based on total number of personnel assigned in the AFSC vs. the number of personnel holding a wing applicable awarded SEI. As a minimum, the experience baseline shall be 60%. If experience levels in a specific AFSC fall below this point, MAJCOMs should consider steps to help alleviate the situation. These may include Temporary Duty (TDY), manning assistance, assignment availability codes, using SEIs in the overseas selection/returnee allocations cycle, when available, to direct people with the required SEI into a particular location, or command leveling using skill level, SEI, and time on station as the assignment selection criteria. Any request for assistance to AFPC must be accompanied by justification to include total personnel assigned in the AFSC, number of personnel in the wing holding an awarded, relevant SEI and the number of personnel with greater

than 36 months time on station without an award of an SEI. Units with personnel on station longer than 36 months with no SEI awarded will have difficulty justifying their need for assistance. *NOTE*: this trigger point does not affect or prevent SEI selection rates approved by MAJCOMs or AFPC through normal channels.

**1.20. Maintenance Repair Priorities.** Maintenance repair priorities are based on **Table 1.1.**.

**Table 1.1. Maintenance Repair Priority Designators.**

| PRIORITY | APPLICATION |
|---|---|
| | |
| 1 | Aircraft on alert status, war plan or national emergency missions, including related Aero space Ground Equipment (AGE), munitions and munitions support equipment (MSE). |
| | |
| 2 | Primary mission aircraft, related AGE, munitions, and munitions support equipment, for the first 8 work hours after landing or start of recovery or within 6 work hours of a sched uled launch, alert or test flight and during simulated generation/ORI.<br>Air evacuation, rescue, weather mission aircraft, related AGE, munitions, and munitions support equipment.<br>All transient support, and FAA aircraft. Flight or missile crew training simulator, other training equipment or related AGE required repair, which is impacting the mission by pre venting or delaying student training. |
| | |
| 3 | Primary mission aircraft, engines, air launched missiles and related AGE, munitions and munitions equipment, and equipment undergoing scheduled or unscheduled maintenance, if not performed or repaired will prevent or delay mission accomplishment.<br>Transient air vehicles not otherwise listed.<br>Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews.<br>Time change requirements for nuclear weapons.<br>Repair cycle assets to satisfy a MICAP condition.<br>Spares not available in supply.<br>Critical end items and spares not available in supply.<br>Routine maintenance of aircrew or missile-training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training.<br>Avionics shop electronic AGE and automated test stations. |
| | |

| | |
|---|---|
| 4 | Routine or extensive repair of primary mission aircraft, related Support Equipment (SE).<br>Administrative aircraft undergoing scheduled or unscheduled maintenance.<br>Routine maintenance of AGE not otherwise listed above.<br>WRM items due maintenance or inspection.<br>Inspection, maintenance, and TCTO compliance of Readiness Spares Packages (RSP) or Mission Support Kits.<br>Scheduled calibration and unscheduled repairs on PME not listed above.<br>Extensive repair of aircrew or missile training simulator, or other training devices or related AGE. |
| | |
| 5 | Non-tactical or non-primary mission aircraft undergoing extensive repair.<br>Repair cycle asset shortages required to fill a readiness spares packages (RSP) authoriza tions.<br>Fabrication and repair of aeronautical items not carrying a higher priority.<br>Time change requirements on non-nuclear items. |
| | |
| 6 | Fabrication and repair of non-aeronautical items. Repair cycle asset shortages required to fill a peacetime operating stock authorization |
| | |
| 7 | Spares/repair cycle assets excess to base requirements. |
| | |

***NOTES:***

1. This table is intended as a guide in establishing maintenance repair priorities. It does not prohibit the production supervisor, in coordination with the MOC, from changing the maintenance repair priority when warranted. (Raising or low ering maintenance repair priorities does not necessarily require a corresponding change in the supply delivery priority). Factors warranting such actions include but are not limited to: Raising the priority(1) Expedite repair of an aircraft that is delaying scheduled maintenance (ISO, Phase, etc.) flow time. (2) When known maintenance actions exceed the pre-launch time of 6 hours. Lowering the priority(1) Aircraft on the flying schedule that require excessive maintenance and cannot meet subsequent scheduled sorties. (2) Following its last sortie of the day, the aircraft is scheduled for phase, periodic, TCTO, or extensive mainte nance.

2. During SIOP or operational exercise, the preplanned maintenance flow deter mines job sequence.

3. The maintenance repair priority and supply delivery priorities are normally iden tical. However, the production supervisor may authorize the use of a less responsive supply delivery priority.

**1.21. Duty Shifts and Rest Periods.** During normal operations, maintenance personnel will be scheduled for duty based on a 40-hour workweek. For airlift, helicopter, bomber and tanker units with extended flying periods, maintenance personnel will have their duty hours aligned to give the best mission support.

1.21.1. Supervision will be equitably distributed to cover all duty periods.

1.21.2. The following guidance establishes maximum duty periods and minimum rest periods for all personnel assigned to a maintenance activity. Group Commanders (GP/CCs) may waive the following provisions during emergencies and advanced defense readiness conditions.

1.21.3. Duty time begins when personnel report for duty and ends when their supervisor releases them. A rest period is a block of time that gives a person the opportunity for at least 8 hours of uninterrupted sleep in a 24-hour period.

1.21.4. Do not schedule personnel for more than 12 hours of continuous duty time. Provide a rest period after each shift. Time spent in exercise/contingency deployment processing lines and in-transit counts toward the total duty day, and may impact time available to perform maintenance at the destination. This policy includes maintenance recovery teams. Group commanders are final approval authority for exceeding 12-hour limit up to a maximum of 16 hours.

1.21.5. Duty periods for crew chiefs and maintenance technicians traveling with their units' aircraft are normally controlled by the aircraft commander. The aircraft commander will:

1.21.5.1. Allow maintenance technicians the opportunity for a minimum of 8 consecutive hours of uninterrupted sleep in a 24-hour period.

1.21.5.2. If ground time warrants, develop a work and rest plan (not to exceed more than l2-hour work and rest cycle). The work and rest cycle should be adjusted to give maintenance personnel an adequate rest period prior to the departure of the aircraft if at all possible.

1.21.6. Personnel who work a maintenance shift and are assigned non-maintenance duty, such as charge of quarters, may exceed the 12-hour duty period provided rest is permitted while performing the non-maintenance duties.

1.21.7. Personnel who handle/load nuclear weapons and/or conventional munitions and egress explosives are limited to a 12-hour continuous duty period followed by a normal rest period. During emergencies and advanced readiness condition, the Group Commander or equivalent may waive this requirement. This rest period may not be waived for exercises or inspections.

1.21.8. In alert force or standby duty situations where facilities are available for resting, established norms may be exceeded. Adjust rest periods to allow for at least 8 hours of sleep when people on alert or standby are required to work.

1.21.9. Ensure individuals are afforded adequate rest periods and breaks. Stop anyone if fatigue may jeopardize safety. In all cases, aircraft commanders/supervisors ensure aircraft maintenance personnel are not required to perform duty when they have reached the point of physical or mental fatigue rendering them incapable of performing their assigned duties safely and reliably.

**1.22. Air Force Munitions Policy.** Air Force Munitions Policy is contained in AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*. MAJCOMs will develop and provide policy and guidance on use of War Reserve Materiel (WRM) Missiles/Precision Guided Munitions (PGM), other limited or restricted use munitions and management of cumulative service life sensitive munitions (i.e., CBU-87/

89). This will ensure WRM munitions remain available and in reliable condition and at the same time provide a realistic training environment and support for exercise purposes.

1.22.1. Live and inert missiles (or electrical simulators) of the same type **must not be** loaded or flown together on an aircraft for any purpose. Live and inert (to include training or practice) bombs **must not be** loaded in/on the same dispenser/rack or flown on an aircraft load together. Any request to deviate from or waiver to this policy must be coordinated through the Wing Weapons Manager (WWM), and must be submitted via official message to the MAJCOM Munitions Division, Weapons Safety, and Operations Weapons and Tactics/Training Divisions. The MAJCOM Munitions Division is the sole approval authority for these deviations/waivers. Test organizations may load and fly live and inert munitions on the same aircraft **for test missions only**, as long as the flight profile is IAW an approved test directive that has been through a Safety Review Board process and flight clearance through the applicable SPO/Seek Eagle office has been properly obtained.

1.22.2. Request for waiver of, or deviation to, this policy will include as a minimum: 1). Operational Risk Assessment report and proposed controls to mitigate or eliminate hazards to personnel, damage to aircraft and support equipment or inadvertent employment of live ordnance, and, 2). A signed copy of the Test Requirement Plan, Test Plan, or Concept Employment Plan. Approved requests will remain valid only for the event requested and will not exceed 60 days.

1.22.3. Captive Air Training Munitions (CATM): Safety pins/streamers for arming keys/safe-arm handles on CATMs may be removed for daily training/flying operations provided positive control and accountability is maintained for these items. If additional components (wings, fins, rollerons, etc.) are authorized to be removed they must also be an authorized flight configuration (Seek Eagle) listed in the applicable -1 flight manual. These components are only removed for foreign or dropped object prevention. Any CATM missiles used for exercises, Load Crew Training or inspections will be configured to the maximum extent possible with all safety devices and components to mirror the parent tactical munitions.

1.22.3.1. (Added-ANG) A configuration of live and inert (to include training and practice) bombs must not be loaded in/on the same dispenser, rack or flown on an aircraft load together. Any deviation or request for waiver to this policy shall be requested by official message and coordinated and approved by ANG Munitions Division, ANG Weapons Safety, and ANG Operations Weapons and Tactics/Training Division.

1.22.3.2. (Added-ANG) Command Missile Policy. To maintain our WRM missile reliability and availability, the following applies (except AGM-69/86/129):

1.22.3.2.1. (Added-ANG) In addition to the Air Force Munitions Policy requirements, the Command Missile Policy applies to all versions of Tactical Air Missiles (i.e., AIM-7, AIM-9, AGMs, AGM-142 (HAVE NAP), and AIM-120 (AMRAAM), AGM-84 (HARPOON). Containerized/not containerized missiles are not used for peacetime loads, SGOs, exercises, or inspections.

1.22.3.2.2. (Added-ANG) The total number of ready missiles (Category C) for these units may be one SCL per Primary Aerospace Vehicle (Aircraft) Authorized (PAA). Units with continuous active alert commitments (includes home station and detachments) may add one standard missile load for each primary alert aircraft to their total. Missiles stored at detachments are placed in dead/AURC storage (Category A).

1.22.3.2.3. (Added-ANG) Tactical missiles may be flown for OPlan tasking, Noble Eagle (other Continental United States NORAD (CONR) taskings), air defense alert, WSEP, and OT&E Programs.

1.22.3.2.3.1. (Added-ANG) Live missiles of one type and inert versions (or electronic simulators) of others may be loaded on aircraft participating at WSEP/Combat Archer, as applicable.

1.22.3.2.4. (Added-ANG) Load crew training missiles must mirror the parent tactical missile.

1.22.3.2.5. (Added-ANG) Missiles must not be electronically verified during or after IG, ORI, or local exercises/SGOs on the field test set solely to determine missile reliability/serviceability.

1.22.3.2.6. (Added-ANG) A dedicated e-mail address must be established for units utilizing the TMRS program IAW applicable Technical Orders.

1.22.3.2.7. (Added-ANG) TAC Ferrying of Alert AUR missiles:

1.22.3.2.7.1. (Added-ANG) For TAC ferry flights of a full AUR AIM-9 the umbilical connector must be connected. The Guidance Control System (GCS) requires power to the seeker head to keep it stabilized due to the internal gyros even if other parts of the missile are identified as unserviceable.

1.22.3.2.7.2. (Added-ANG) For TAC ferry flight of AIM-7. The AIM-7 umbilical secured and shorted to prevent power to the missile.

1.22.3.2.7.3. (Added-ANG) Units requesting to TAC Ferry missile shall contact ANG Aircraft Maintenance Division Weapons Branch (ANG/LGMW) with missile serial numbers and the date of event.

1.22.3.2.7.4. (Added-ANG) Aircraft transporting live missiles must not engage in Air-to-Air or Air-to-Ground training.

1.22.3.2.7.5. (Added-ANG) Partial configurations have not been approved by SEEK EAGLE for F-16 and F-15 units. Units flying CATM-120 must have wings and fins attached.

1.22.3.2.7.6. (Added-ANG) Deicing fluid, fuel, hydraulic fluid, etc., is not inherently damaging to the missile, however, these fluids should not be sprayed directly on the missiles, especially avoiding the wing holes, aft end, and harness cover. If the missile is contaminated with any of these fluids the missile should be cleaned IAW the appropriate TO. Missiles do not need to be downloaded prior to deicing.

**1.23. Two Level Maintenance.** Refer to AFI 21-129, Two Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment, for detailed procedures.

**1.24. Individual Mobilization Augmentees (IMA).** The Air Force Reserve Command (AFRC) provides aircraft maintenance units with manpower augmentation through IMA authorizations. Refer to AFI 36-2115, *Assignments within the Reserve Components*, AFI 36-2619, *Military Personnel Appropriation Man-Day Program,* AFI 36-2629 *Individual Mobilization Augmentee Management,* AFI 36-3209, *Sepa-*

*ration and Retirement Procedures for Air National Guard and Air Force Reserve Members*, and AFMAN 36-8001, *Reserve Personnel Participation and Training Procedures*.

**1.25. Reliability and Maintainability (R&M).** At the core of Air Force R&M efforts are technical working groups (e.g. PIWG, MDS maintainers conferences, Component Improvement Program). Forward inputs IAW AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*. Assessing unit R&M concerns is twofold. First, review all reported R&M deficiencies and determines those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Analysis and Logistics Readiness Squadron provide the majority of this information.

**1.25. (ANG)** The 162nd FW shall coordinate UAE F-16 block 60 issues with LM Aero.

**1.26. Civilian Visitors.** Units may not permit civilian visitors to operate any item of military equipment when such operation could cause, or reasonably be perceived as causing an increased safety risk.

1.26.1. Civilian visitors include:

1.26.1.1. Air Force family members who are not employed by the Air Force or assigned to a military service.

1.26.1.2. All civilians who are visiting another unit/installation and are not performing their normally assigned duties.

1.26.1.3. Retired DoD employees.

1.26.2. Civilian employees, contractor employees, and other civilian personnel who must operate Air Force equipment as part of their assigned duties are not considered civilian visitors.

1.26.3. This policy is effective regardless of how closely military personnel supervise the civilian visitors. In addition, civilian visitors will not operate any Air Force equipment, specialized vehicles, and any other equipment that requires training to operate, unless they have been specifically trained in the operation of such equipment.

1.26.4. This policy is not intended to preclude Air Force units from hosting civilian visitors and affording them the opportunity to see their Air Force at work.

**1.27. Unit Committed Munitions List (UCML), Test/Training Munitions List (TTML).** Operational units will use UCML's, Test/Training units will use TTML's unless they already require a UCML (i.e. NORAD Committed). The UCML/TTML is a list of primary munitions (PM), support munitions (SM), and limited-use munitions (LM) necessary to meet unit operational/test/training requirements and is published IAW AFI 21-101. The list of PM cannot include more than 10 individual munitions or munitions family groups (MFG) combined per mission, design, and series (MDS) aircraft assigned. The UCML/TTML also specifies the authorized number of fully certified load crews as determined by the LCOM and the minimum required to be formed and certified. MAJCOMS may supplement UCML/TTML processing, coordination and appendix requirements.

1.27.1. As a minimum, UCML/TTML's will be updated annually to identify all munitions tasked and/or required to support test/training or OPlans and Designed Operational Capability (DOC) statements. Additional munitions may be included on the UCML/TTML as SM or LM munitions if required by the unit or designated by the MAJCOM to support test, training, or deployment. The UCML/TTML is

the base document for aircrew and load crew training munitions forecasts, authorizations and operations. Units will start their UCML/TTML validation in July, and have a coordinated input to the MAJCOM Munitions Division in August. MAJCOMs will supply approved UCML/TTML to the units in September.

1.27.1. (ANG) Not Applicable (N/A) to the ANG. The following only applies to the ANG: As a minimum, UCML/TTMLs must be updated annually to identify all munitions tasked and/or required to support test/training or OPlans and DOC statements. Additional munitions may be included on the UCML/TTML as SM or LM munitions if required by the unit or designated by ANG/LGM to support test, training, or deployment. The UCML/TTML is the base document for aircrew and load crew training munitions forecasts, authorizations and operations.

1.27.2. Unit changes to the UCML/TTML will be justified by Wing Weapons and Tactics, coordinated and processed through the Wing Weapons Manager, Munitions Flight and MXG/CC before sending it to higher headquarters and MAJCOM.

1.27.2. (ANG) Include Operations Group Commander (OG/CC) before sending it to ANG/LGM.

1.27.3. Standard Conventional Load (SCL) lists are not part of the UCML/TTML. They are stand-alone documents.

1.27.4. Total Authorized Load Crews (Fighter units) are derived using the approved Logistics Composite Model (LCOM) published for each MDS. The number of load crews depicted on the UCML/TTML is derived by subtracting the numbers of supervisors (ratio of one per eleven authorizations) from the total number of 2W1X1 loading manpower authorizations per squadron (from the LCOM) and dividing by the standard load crew size.

**1.28. Requests for Depot Level Assistance.** If maintenance requires depot level assistance for evaluation and/or repair beyond unit capability, the request must be made IAW TO 00-25-107, *Maintenance Assistance*, and TO 00-20-14, *AF Metrology and Calibration Program*.

**1.28. (ANG)** The 162nd FW shall coordinate with LM Aero for depot level assistance for the UAE F-16 block 60 aircraft.

**1.29. (Added-ANG) NGB Technical Support, Single Point of Contact (SPOC), and Advisory Committees/Teams.** When established, the purpose of the SPOC, advisory committee/team is to augment and advise ANG/LGM staff personnel and is also responsible to the respective weapon system or Logistics council. A committee/team must be sanctioned by the ANG in order for it to be recognized. The need to form a team or SPOC shall be initiated by ANG/LGM or by the various weapon system councils. Appointment to the team must be by recommendation through the individuals MXG/CC to the weapons system council president for approval and to the respective ANG functional OPR for appointment. Team/SPOC members may be removed by recommendations from the respective weapon system council to the ANG/LGM OPR for approval. Notification of the team/SPOC members to the field must be by message or e-mail. Duties of the team/SPOC include, but are not limited to:

1.29.1. (Added-ANG) Act as the functional expert for specific aircraft maintenance related issues.

1.29.2. (Added-ANG) Coordinate with all other agencies/units as required to establish a consensus on issues.

1.29.3. (Added-ANG) Provide technical guidance on specific areas of expertise.

1.29.4. (Added-ANG) Provide technical assistance to the ANG and respective weapon system council for policy creation.

1.29.5. (Added-ANG) Execute specific technical tasks as assigned IAW existing ANG policy.

1.29.6. (Added-ANG) Attend meetings pertaining to assigned subjects.

1.29.7. (Added-ANG) Maintain close communications with ANG functional OPR.

1.29.8. (Added-ANG) Provide trip reports, point papers, background papers, and general information when required.

1.29.9. (Added-ANG) Provide updates to units.

1.29.10. (Added-ANG) Generate informational/tasking message, as required, after coordination with ANG functional OPR.

1.29.11. (Added-ANG) SPOCs shall not set policy.

1.29.12. (Added-ANG) TODO SPOC shall be approved/removed by QA SPOC, but only after coordination with the Command Functional at ANG/LGMM and attaining the consensus of the other QA Superintendents and TODOs within the respective weapons system.

## Chapter 2

## GENERAL RESPONSIBILITIES FOR COMMANDERS AND KEY LEADERS

**2.1. General.** This chapter outlines specific maintenance responsibilities. Due to diversity of maintenance structures, responsibilities are assigned at the appropriate level as applicable. The levels are in descending order and represent levels of assignment.

***NOTE:*** For the purpose of this instruction, contractor equivalents are as follows: SrA (1 year time in grade)--aircraft worker or field maintenance worker or higher; SSgt--aircraft mechanic or field maintenance mechanic or higher; MSgt--senior mechanic or higher; CMSgt/maintenance officer--foreman or branch chief or higher.

**2.2. Wing Commander Responsibilities.** The WG/CC allocates maintenance resources to meet mission requirements. The WG/CC should ensure the maintenance organization is not overly tasked with base detail augmentation. Where maintenance resources are not available, reductions in mission requirements may be necessary. Commanders organize maintenance according to AFI 38-101. The relationship between maintenance capability and the successful accomplishment of the mission needs to be clearly understood. The wing commander:

2.2.1. Sets up a close working relationship with Group Commanders to ensure an understanding of the requirements and capabilities of maintenance actions. Commanders will communicate and cooperate to enhance the wing's maintenance and sortie generation capability.

2.2.2. Ensures combined OG and MXG participation in all organizational planning, programming, and budgeting actions. OG and MXG involvement in unit deployment/employment planning is critical to the development of the unit's combat capability and requires close coordination with the Maintenance Operations Flight Plans, Scheduling, and Documentation (MOF PS&D).

2.2.3. Establishes a balance between the OG requirement for sorties and MXG maintenance capability. Establishes a joint OG and MXG planning and scheduling cycle to ensure the best use of aircraft, equipment, and personnel to accomplish short term sortie production and long term fleet health.

2.2.4. May delegate to the maintenance group commander the responsibility to chair the Intermediate Repair Enhancement Program (IREP) meetings.

2.2.5. Participates in quarterly quality assurance and monthly scheduling meetings to keep in touch with maintenance issues.

2.2.6. Establishes a crash damaged or disabled aircraft recovery (CDDAR) capability. Publishes a wing instruction containing specific responsibilities for all applicable base agencies.

2.2.7. Will ensure effective management of the Foreign Object Damage (FOD) Program and the Dropped Object Prevention (DOP) program.

2.2.8. Oversee the development of the joint annual maintenance and flying program.

2.2.9. Ensure maintenance and operations develop a joint annual maintenance and flying program. Ensure maintenance capability is considered in the development of the flying/test program. Continuous review ensures a long-term balance between maintenance capability and operational requirements.

**2.3. Maintenance Group Commander (MXG/CC) Responsibilities.** MXG/CCs (or equivalents) are responsible for aerospace equipment maintenance required to ensure balance between sortie production and fleet management. In addition to the responsibilities listed below, the MXG/CC must also ensure Special Programs in **Chapter 18** of this instruction are complied with.

2.3.1. MXG/CC responsibilities:

2.3.1.1. Ensure standardization of maintenance discipline, procedures, organizational structures, compliance, and management philosophy

2.3.1.2. Ensure maintenance training throughout the group is accomplished according to the published (monthly) training plan and the awaiting and overdue backlogs are eliminated. The MXG/CC exercises oversight authority for all maintenance training.

2.3.1.2. (ANG) N/A to the ANG. The following only applies to the ANG: Ensure that maintenance training throughout the respective group is accomplished according to the published (monthly) training plan and the awaiting and overdue backlogs are kept to a minimum. The MXG/CC exercises oversight authority for all maintenance training.

2.3.1.3. Determine Agile Combat Support (ACS) requirements, utilizing the smallest Unit Type Codes (UTCs) to meet capability, tailoring them as required; identify deploying personnel (and alternates) by name; and take any necessary actions to acquire additional support or equipment as required prior to deployment. The MXG/CC provides readiness status to the OG/CC of personnel and equipment available to support ACS requirements. The OG/CC is responsible for reporting readiness of supporting maintenance UTCs.

2.3.1.4. Delegate the necessary authority for support and production activities to perform assigned tasks.

2.3.1.5. Exercises overall responsibility for rotating personnel, as necessary, to enhance mission and develop individual experience and knowledge.

2.3.1.5. (ANG) N/A to the ANG. The following only applies to the ANG: Rotate personnel, within ANG manpower directives, to enhance mission and develop individual experience and knowledge.

2.3.1.6. Control assignment of group facilities. Submit the necessary documents for new construction and modifications.

2.3.1.7. Ensure squadron commanders and supervisors at all levels are responsible for the Vehicle Management Program, ensuring compliance with the provisions of AFI 24-301, *Vehicle Operations*, and AFPAM 24-317, *Vehicle Control.*

2.3.1.8. Provide for management of the financial program.

2.3.1.9. Promote unit self-sufficiency through the use of maintenance resources according to TO 00-25-195.

2.3.1.10. Manages the group QA program to ensure standardized inspection and maintenance procedures.

2.3.1.11. Promote unit repair enhancement through the effective use of maintenance resources according to AFI 21-123, The Air Force Repair Enhancement Program (AFREP), TO 00-25-195, Air Force Technical Order System Source, Maintenance and Recoverability Coding of Air Force

Weapons Systems, and Equipment, and TO 00-20-3, Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System.

2.3.1.12. Develop an impoundment program and ensures compliance with the procedures IAW **Chapter 11** of this instruction.

2.3.1.13. Ensure procedures to properly turn in recoverable and consumable items are developed according to AFMAN 23-110, *USAF Supply Manual*.

2.3.1.14. Establish a means to review repeat, recurring, and cannot duplicate (CND) discrepancies or problem aircraft and systems, and perform periodic reviews to identify and direct resolution of trends.

2.3.1.15. Ensure repair cost evaluations are performed and appropriate levels of review and repair authorization are established in squadrons, flights, and repair sections IAW TOs 00-20-3, 00-25-240, Uniformed Repair/Replacement Criteria for USAF Support Equipment (SE) and 35-1-25, Economic Repair Criteria for Support Equipment (SE) .

2.3.1.16. Ensure a records management program is established according to AFI 37-138, *Records Disposition-Procedures and Responsibilities*, AFMAN 37-123, *Management of Records*, and AFMAN 37-139, *Records Disposition Schedule*.

2.3.1.17. Ensure a compliance-structured self-inspection program is established IAW **Chapter 18** and MAJCOM directives. This program is not required for contract organizations unless specified in the Statement of Work (SOW).

2.3.1.18. When applicable, ensure strict adherence to command war reserve materiel (WRM) missile and precision guided munitions (PGM) control policy IAW AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*.

2.3.1.19. Ensure all personnel assigned to maintenance are used to accomplish critical wartime tasks, tank build-up, and munitions build-up before releasing them for non-maintenance duties.

2.3.1.20. Establish and ensure a strong and positive, routine interface between MDSA and QA.

2.3.1.21. Ensure effective use of the Air Force Engineering and Technical Services/Contracting Engineering Team Specialists (AFETS/CETS) according to AFI 21-110, *Engineering and Technical Services*, *Management and Control* and use appropriate engineering materials as prescribed in AFI 21-401, *Engineering Data Storage, Distribution, and Control*, and AFI 21-403, *Acquiring Engineering Data*.

2.3.1.22. Establish local procedures for management and maintenance of assigned ground training aircraft to ensure they remain useful and safe within guidelines stated in AFI 84-103, *U.S. Air Force Heritage Program*, and AFMAN 23-110-series, *USAF Supply Manual*.

2.3.1.23. Manages the wing oil analysis program (OAP) and ensures compliance IAW AFI 21-124, *Air Force Oil Analysis Program.*

2.3.1.23. (ANG) And IAW ANGI 21-105, *Corrosion Control, Nondestructive Inspection, and Oil Analysis Programs.*

2.3.1.24. Ensures the group's UTC requirements are reviewed and annually briefed to senior maintenance supervision, to include all senior NCOs.

2.3.1.25. Provide aircraft, personnel, and equipment to support the maintenance-training program.

2.3.1.26. Quarterly review maintenance limiting factors (LIMFACS), shortfalls, and simulation requests.

2.3.1.27. Approve depot-level assistance requests (TO 00-25-107) after they are coordinated with PS&D, QA, all applicable maintenance organizations, and then forwards the requests to the MAJCOM for review and approval.

2.3.1.27. (ANG) The 162nd FW shall coordinate with LM Aero for depot level assistance for the UAE F-16 block 60 aircraft.

2.3.1.28. Review the wing's proposed annual maintenance and flying hour/test programs prior to submission to the NAF and MAJCOM..

2.3.1.28. (ANG) N/A to the ANG. The following only applies to the ANG: Review the wing's proposed annual maintenance and flying hour/test programs prior to submission to the ANG.

2.3.1.29. Coordinate with the base fire department, safety, and airfield operations in developing adverse weather procedures for protecting aircraft and equipment (AFOSH STD 91-100, *Aircraft Flight Line-Ground Operations and Activities*, AFI 10-229*, Responding to Severe Weather Events*, and specific assigned aircraft TOs). GP/CCs are responsible for their aircraft and associated equipment, but may be required to coordinate the use of facilities and equipment to ensure their protection.

2.3.1.30. Institutionalize Operational Risk Management (ORM) within the workplace. Identify, eliminate or control, and document hazards to minimize risk associated with uncertainty in the decision-making process. Additional guidance can be found in AFI 90-901, *Operational Risk Management Program.*

2.3.1.31. Ensure compliance with all applicable Air Force Occupational Safety and Health (AFOSH) standards.

2.3.1.32. Establish minimum levels for essential maintenance assets to include aircraft, engines, pods, AGE, vehicles, etc.

2.3.1.33. Ensure a nuclear surety program is viable and implemented in nuclear tasked units.

2.3.1.34. Ensure squadrons comply with provisions in AFI 10-201, *Status of Resources and Training Systems*. The MXG/CC will coordinate with the OG/CC as required to ensure accurate, timely reporting of readiness capability.

2.3.1.35. Ensure organizational compliance with all Federal, State and local laws pertaining to environmental regulations and pollution prevention.

2.3.1.36. Ensure aircraft maintenance data is accurate by establishing and supporting a data integrity team (DIT). This team is not required in contract and civil service organizations unless specified in the SOW. If the contract/civil service organization does not have a DIT, they shall establish a process to ensure data integrity is maintained (commercial derivative aircraft are exempted and shall comply with guidance in AFI 21-107). Ensure members assigned to the DIT are suitably qualified and provided sufficient time to accurately assess the data. Ensure each aircraft mainte-

nance work center performs a review of all documentation entered into CAMS/G081 daily IAW TO 00-20-2, *Maintenance Data Documentation.*

2.3.1.36. (ANG) A DIT is required for all ANG flying units.

2.3.1.36.1. The MXG/CC must ensure the Maintenance Operations Flight (MOF) develops procedures to update and ensure Geographical Location (GEOLOC) codes for on-station possessed and for off-station possessed aircraft are updated/correct in IMDS location subsystem. (G081 units are exempt as long as a HHQ agency accomplishes this requirement.)

2.3.1.37. Provide oversight of, and coordinate on, all initiatives to change published maintenance instructions, mission directives, etc.

2.3.1.38. Develop group local procedures for Red Ball maintenance to include parts delivery, maintenance procedures, documentation methods, and follow-on actions IAW **Chapter 18** of this instruction.

2.3.1.39. Ensure squadrons not possessing 2W1X1 personnel establish a chaff/flare training program. As a minimum, the program will include academic, explosive safety, and load/unload training. The program will be administered using the following guidance; as a minimum, the academic program will include:

2.3.1.39.1. Applicable TOs and publications.

2.3.1.39.2. Applicable safety discipline/practices.

2.3.1.39.3. Security requirements.

2.3.1.39.4. Aircraft familiarization.

2.3.1.39.5. Stray voltage checks (as required)

2.3.1.39.6. Munitions characteristics.

2.3.1.39.7. Local requirements.

2.3.1.40. Ensure an orientation program is developed and conducted for all personnel newly assigned to all unit maintenance/activities. As a minimum, topics must include unit mission, Aerospace Expeditionary Forces (AEF) vulnerability, tasking plans, supply procedures, foreign object damage (FOD) program, general flight line and work center safety rules, environmental issues, block training, and corrosion control.

2.3.1.41. Engine Lead the Fleet (Pacer) Program. Lead the Fleet Program is used to determine actual distress modes of an engine in the field. The Lead the Fleet Program provides early intelligence on engine integrity, reliability, and maintainability before a majority of the fleet is impacted. The program is also designed to proved engineering data and procurement lead-time for orderly updating and modification of the engine, as well as for the engine controls and accessories.

2.3.1.41.1. Manage the wing engine Lead the Fleet (Pacer) Program established for that engine type IAW the following documents: MOUs, MOAs, Propulsion Center of Excellence Best Practice 01-14, **https://www.asc.wpafb.af.mil/asc/lp/pcoe/best_practices.htm**, and AFI 21-104, *Selective Management of Selected Gas Turbine Engines*.

2.3.1.42. DELETED.

2.3.1.43. Ensure training requests identified on AF Form 898, **Field Training Requirements Scheduling Document**, are coordinated and approved.

2.3.1.44. Ensure the publication library or publication sets, including technical orders are established.

2.3.1.45. Designate a focal point for all functional, technical, and quality assurance matters pertaining to contract aircraft maintenance (as required).

2.3.1.46. Establish tool issue and control procedures that include FOD prevention, security, control, and accountability IAW **Chapter 13**. Also provide tool inventory procedures, methods of tool identification, and lost or missing tool procedures.

2.3.1.47. Ensure that a focal point be identified as the MXG Environmental Coordinator for weapon system Environmental, Safety, and Occupational Health requirements, compliance, and worker protection issues. See also AFPD 90-8/AFI 32-7080/7086 for additional guidance.

2.3.1.48. Develop a 10-year facility plan specifying maintenance, upgrade, and replacement projections for the group's facilities. The MXG/CC will update and coordinate this plan with the Civil Engineer annually. Monthly, the MXG/CC will coordinate and prioritize group maintenance facility work orders.

2.3.1.49. Ensure the protection and security of aircraft, equipment and facilities

2.3.1.50. In coordination with the OG/CC, reviews and approves the weekly, monthly, quarterly, and annual flying/test schedules.

2.3.1.51. Establishes unit procedures for reconciling training munitions issued for flight line requirements (AFI 36-2217, *Munitions Requirements for Aircrew Training)*.

2.3.1.52. Ensures effective management of weight and balance (W&B) program IAW **Chapter 10** of this instruction.

2.3.1.53. Ensures the Weight and Balance program is managed by QA.

2.3.1.54. Coordinate with OG/CC to establish effective Functional Check Flight (FCF), Operational Check Flight (OCF), and High Speed Taxi Check programs.

2.3.1.55. Ensures plans, scheduling, and documentation (PS&D) responsibilities outlined in **Chapter 15** are accomplished.

2.3.1.56. Ensures the maintenance capability is considered in development of the flying program.

2.3.1.57. Establishes the capability to perform aircraft cross-servicing (ACS), when tasked IAW **Chapter 18**.

2.3.1.58. Ensures maintenance requirements [e.g. aircraft turnaround, alternate fuel cell, hot refueling, end-of-runway (EOR) check area, engine run spots, explosive load (cargo) areas] are included in the base parking plan.

2.3.1.59. Establishes procedures for maintenance OI program management and administration. The MXG/CC oversees the development and publication of all maintenance-related OIs.

2.3.1.60. Controls the duty assignment of newly assigned maintenance officers and chiefs. The MXG/CC ensures career development and training of maintenance officers IAW AFI 36-2611, *Officer Professional Development*.

2.3.1.61. Manages the hangar queen program, if applicable IAW **Chapter 18**.

2.3.1.62. Establishes crash damaged or disabled aircraft recovery (CDDAR) capability in accordance with applicable mission design series technical data. Ensures resources and trained personnel are available to perform responsibilities of CDDAR.

2.3.1.63. Functions as the wing OPR for the Intermediate Repair Enhancement Program (IREP).

2.3.1.64. Designates the Installation Maintenance Advisor when applicable, to the Aero Club according to AFI 34-217, *Air Force Aero Club Program.*

2.3.1.65. Establishes written guidance on individual responsibilities and specific procedures for cannibalization (CANN) actions (**Chapter 8 & Chapter 18**). Aircraft in depot maintenance (possessed by AFMC) will not be cannibalized without approval from the applicable air logistics center (ALC) system manager and in coordination with MAJCOM functional manager.

2.3.1.66. Approves the monthly maintenance and training plans. EXCEPTION: For munitions maintenance schedules and plans, when authorized by the MXG/CC, the munitions flight commander/chief chairs the munitions scheduling and training meetings and publishes schedules.

2.3.1.67. Establishes the group maintenance awards and recognition program to meet Air Force and MAJCOM requirements (AFI 36-2818 *USAF Logistics Awards Program*).

2.3.1.68. Ensures effective management of the group's Engine Trending and Diagnostic (ET&D) program.

2.3.1.69. Ensures effective Aircraft Structural Integrity Program (ASIP) is established IAW AFI 63-1001, *Aircraft Structural Integrity Program* and **Chapter 18**.

2.3.1.70. Establishes local manufacture procedures and controls.

2.3.1.71. Manages the group's maintenance/munitions-training program to include course development content, ancillary, qualification, and maintenance training activities. Publishes monthly training schedules outlining specific aircraft course and equipment requirements. The MXG/CC has overall responsibility for the training of maintenance personnel.

2.3.1.71. (ANG) Ensures training requests identified on AF IMT 898, *Field Training Requirements Scheduling Document*, are coordinated and approved.

2.3.1.72. Ensures strict adherence to technical data and management procedures. Conducts reviews to verify compliance; oversees maintenance performed in the maintenance group.

2.3.1.73. Will establish unit procedures to reconcile training munitions issued for requirements in accordance with (IAW) AFI 36-2217, *Munitions Requirements for Aircrew Training*.

2.3.1.74. Ensure fire extinguisher, hazard communication (HAZCOM), and appropriate ancillary training programs are established for personnel performing on-/off-equipment maintenance duties. Ensure all occupational health requirements are documented on AF form 55, Employee Safety and health record.

2.3.1.75. MXG will establish written procedures in conjunction for clearing repeat/recurring and cannot duplicate (CND) discrepancies.

2.3.1.76. Establish procedures to ensure coordination occurs between unit/squadron debriefing sections and the maintenance operations center (MOC) for each sortie or abort.

2.3.1.77. Establish a dedicated crew chief (DCC) program IAW **Chapter 3** of this instruction.

2.3.1.77. (ANG) N/A to the ANG except for the 116th ACW active duty personnel.

2.3.1.78. Establish written procedures outlining the unit's flight control maintenance/diagnostics team program, if applicable.

2.3.1.79. If hot refueling is performed, the MXG/CC will designate an office of primary responsibility (OPR) (QA, maintenance training flight (MTF), or current operations flight inspection/system support section) for hot refuel training IAW **Chapter 18** of this instruction.

2.3.1.80. Ensure effective management of the group's total maintenance training program IAW AFI 36-2201, *Developing, Managing and Conducting Training*.

2.3.1.81. Ensure full compliance with the following IAW **Chapter 18** of this instruction:

2.3.1.81.1. Identification friend or foe (IFF) Mode 4 reliability

2.3.1.81.2. Radar warning receiver (RWR) testing

2.3.1.81.3. End-of-runway (EOR) inspection

2.3.1.81.4. DELETED.

2.3.1.81.5. DELETED.

2.3.1.82. Ensure quality assurance program (QAP) requirements are implemented IAW **Chapter 10** of this instruction.

2.3.1.83. During exercises and contingencies, kicks off and chairs a meeting to establish game plan and priorities.

2.3.1.84. Establishes a maintenance operations center (MOC).

2.3.1.85. TMDE Collection Point. Ensure MXG activities serviced by an off-base PMEL establish a TMDE collection point. The collection point coordinator is the single point-of-contact between the MXG work centers and the servicing TMDE Flight and is trained by the servicing TMDE Flight. MXG/CC shall designate the collection point primary and alternate coordinator in writing. The TMDE collection point has the same responsibilities as those in paragraph **4.14.4.** Production Control Section, of this instruction.

2.3.1.85. (ANG) N/A to the ANG. The following only applies to the ANG: TMDE Collection Point. Ensure Maintenance Group (MXG) activities serviced by an off-base PMEL establish a TMDE collection point. The collection point coordinator is the single point-of-contact between the MXG work centers and the servicing TMDE Flight. MXG/CC shall designate the collection point primary and alternate coordinator in writing.

2.3.1.86. For nuclear capable units, ensure additional responsibilities in AFI 21-204, *Nuclear Weapons Procedures*, are complied with.

2.3.1.87. (Added-ANG) Monitor the assignment and use of all maintenance personnel to ensure equitable distribution of skilled people. Ensure all personnel assigned to Maintenance are used to accomplish critical wartime tasks before releasing them for non-maintenance duties.

2.3.1.88. (Added-ANG) Sign the SCR.

2.3.1.89. (Added-ANG) Assign a manager for the engine-run, qualification/certification program IAW AFI 11-218.

2.3.1.90. (Added-ANG) Appoint, when required, a WWM. The MXG/CC appoints a WWM, who is the most qualified Aircraft Armament Systems (2W1XX) and is the functional manager for AFSC 2W1X1. In cases where the function is not represented by full time personnel, the MXG/CC shall appoint a full time representative. In cases where a 2W100 Chief Master Sergeant is not assigned to the Maintenance Group, the MXG/CC may request a waiver for the most qualified 2W1 SMSgt to serve as the WWM for up to 24 months. Submit waivers to ANG/LGMW for approval.

2.3.1.91. (Added-ANG) Ensure that no maintenance is performed by personnel who are not properly trained and certified, unless under the direct supervision of a trainer or certifier.

2.3.1.92. (Added-ANG) Ensure that anyone performing maintenance utilizes an AF IMT 623, *Individual Training Record Folder*, and Career Field Education and Training Plan (CFETP) or automated training products to provide a record of qualification, regardless of military rank or civilian grade.

2.3.1.93. (Added-ANG) Ensure that QA has access to Joint Engineering Data Management Information and Control System (JEDMICS), and a primary and that an alternate POC has been assigned and identified to the ANG Program Manager for coordination in accordance with ANG Policy Memorandum 21-407.

2.3.1.94. (Added-ANG) Ensure an OI has been established for controlling, security, distribution, and destruction of engineering data in all media forms.

2.3.1.95. (Added-ANG) May authorize the use of non-2W1X1 personnel, for alert detachments only, as load crewmembers but not load crew chiefs.

2.3.1.96. (Added-ANG) The MXG/CC shall ensure oversight is provided for microcomputer systems management for the maintenance complex. The MXG/CC may assign the following tasks as an additional duty:

2.3.1.96.1. (Added-ANG) Control and validation of microcomputer equipment requests submitted for microcomputer equipment through the automated system.

2.3.1.96.2. (Added-ANG) Functional Server Administrator (FSA) for the LAN.

2.3.1.96.3. (Added-ANG) Computer Systems Manager (CSM).

2.3.1.96.4. (Added-ANG) Custodian for ADPE.

2.3.1.97. (Added-ANG) Enable use of AFKS formerly known as Enterprise Data Warehouse (EDW).

2.3.1.98. (Added-ANG) Establish effective sortie generation operations procedures IAW **Chapter 18**.28. if applicable.

2.3.1.99. (Added-ANG) Ensure that the unit has implemented an effective Corrosion Prevention and Control Program IAW ANGI 21-105.

2.3.1.99.1. (Added-ANG) Publish an OI outlining local policies and procedures.

2.3.1.99.2. (Added-ANG) Designate a SNCO with appropriate technical background and corrosion control experience to serve as the unit corrosion prevention and control manager.

2.3.1.100. (Added-ANG) Establish Ramp inspection program IAW **Chapter 18** if tasked.

2.3.1.101. (Added-ANG) Ensures an effective AIP IAW Paragraph **18.25.** Appoints an officer or Non-Commissioned Officer (NCO) as the AIP project officer, and ensures effective measures are in place to capture data.

2.3.1.102. (Added-ANG) Establish a vehicle control program for their group.

2.3.2. Maintenance Group Deputy Commander (MXG/CD) Responsibilities. The MXG/CD assists the MXG/CC with responsibilities in Paragraph **2.3.1.** and **Chapter 18**.

2.3.2. (ANG) N/A to the ANG except the 116th ACW. All subparagraphs of **2.3.2.**, are also N/A.

2.3.2.1. The MXG/CD chairs the daily production meeting and ensures all maintenance requirements are effectively scheduled and flying schedule problems are resolved. As the meeting chairperson, the MXG/CD shall:

2.3.2.1.1. Ensure meeting topics, as a minimum, include: aircraft status, MICAP status, high visibility aircraft (impounded aircraft, hangar queens, etc.), AF Form 2407 actions, flying and maintenance schedule deviations, supply MICAPs, prioritizing aircraft requiring/competing for shared resources, and review SIs, TCIs, TCTOs, DFT/CFT schedules.

2.3.2.1.2. Ensure meeting attendees, as a minimum, include the MOF/CC, AMU and squadron production supervisors, AMU schedulers, and representatives from MOC, MSL, MOF PS&D, MOF EM, and QA.

2.3.2.2. Develop maintenance capability in conjunction with the production activities.

2.3.2.3. Coordinate between maintenance and operations.

2.3.2.4. Ensure critical equipment, facilities, and materiel resources are allocated and establish overall priorities.

2.3.2.5. Serve as the group's focal point for enlisted manning.

2.3.3. Maintenance Group (MXG) Superintendent Responsibilities. The MXG Superintendent ensures consistent maintenance practices according to technical data and management procedures throughout the group. The MXG Superintendent ensures QA and maintenance training programs meet the needs of the group and the intent of higher headquarters instructions. The MXG Superintendent oversees maintenance facilities, aircraft support equipment procurement and maintenance, resolves conflicting maintenance requirements between units, and in coordination with unit leadership, rotates personnel, as necessary, to enhance mission accomplishment and develop individual experience and knowledge. The MXG Superintendent is directly responsible to the MXG/CC and shall:

2.3.3. (ANG) N/A to the ANG except the 116th ACW. All subparagraphs of **2.3.3.**, are also N/A.

2.3.3.1. Serve as a technical advisor to the MXG/CC.

2.3.3.2. Advise the MXG/CC on personnel, morale, and welfare issues

2.3.3.3. Provide liaison between the staff and production supervisors.

2.3.3.4. Advise the MXG/CC on problems not identified through maintenance data systems or quality control inspection reports.

**2.4. Squadron Commander Responsibilities.** The squadron commander performs command functions outlined by public law or directives common to all Air Force squadron commanders. They are responsible to the GP/CC for overall squadron leadership. In addition, the squadron commander:

**2.4. (ANG) Squadron/Flight Commander Responsibilities.** N/A to the ANG. The following only applies to the ANG: The commander is responsible to the MXG/CC and may be assisted by one or more individuals for overall squadron/flight management. They play a pivotal role in the unit's effort to improve maintenance quality. They must ensure supervisors and personnel participate in reviewing maintenance processes. Without aggressive involvement from maintenance supervision, the unit MSEP shall not be effective. The Squadron/Flight Commander:

2.4.1. Ensures strict adherence to technical data and all other written management procedures.

2.4.2. Implements and manages self-inspection, retention and career motivation, security, mobility, and personnel reliability programs, as applicable.

2.4.3. Administers the squadron safety program. Coordinates with the squadron safety monitor and flights to ensure all personnel obtain the required safety training. Ensure safety information is available and personnel in hazardous areas know of safety implications.

2.4.4. Ensures facilities meet Air Force industrial environmental standards IAW AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*, and reports deficiencies to base bioenvironmental.

2.4.4.1. Establish a radiation protection program IAW AFOSH Standard 48-9, when applicable.

2.4.5. Ensures the unit is capable of deploying in response to wing taskings. Coordinates with the Logistics Readiness Squadron logistics plans function and unit supervisors to prepare for execution of plans. Initiates squadron deployment planning and provides inputs to plans.

2.4.5.1. Designates a focal point for deployments (mobility). This person will be referred to as the Unit Deployment Manager (UDM).

2.4.5.2. When evaluating taskings, the UDM considers other plans that task the unit, personnel/equipment requirements, and LIMFACs. Performs unit duties and responsibilities in AFI 10-403, *Deployment Planning*, Chapter 4, Deployment Execution Equipment Preparation Requirements and Chapter 5, Personnel Preparation and Deployment Execution Requirements.

2.4.6. Ensures personnel authorized and assigned are adequate to support the unit mission and tasking plans. Coordinates with wing manpower office representatives for assistance in preparing requests to MAJCOM for UMD adjustments.

2.4.7. Ensures the group commander is notified of any critical shortages of personnel, aircraft, equipment, or components that might affect the unit's ability to generate aircraft sorties.

2.4.7.1. Monitors additional duties, leave, training requirements, and details taking manpower from the work force.

2.4.7.2. Monitors all personnel working outside of their primary AFSC (out of hide) to ensure that it does not hamper mission accomplishment.

2.4.8. Enforces sound maintenance, supply discipline, and financial management practices.

2.4.9. Ensures compliance with Office of Personnel Management and Air Force policy directives.

2.4.10. Reviews Single Integrated Operational Plan (SIOP), Emergency War Order (EWO), applicable Designed Operational Capability (DOC) statements, mobility, contingency, and exercise plans and ensures squadron processes are established to meet tasked requirements.

2.4.11. Monitors new requirements for training, equipment authorizations, special tools, E-Tools, workspace, facilities, and manning for impact on unit's capability to perform its mission.

2.4.12. Establishes a squadron vehicle program as required by AFI 24-301, *Vehicle Operations,* and designates a vehicle control officer.

2.4.12. (ANG) N/A to the ANG. The following only applies to the ANG: Complies with the group vehicle program as required by AFI 24-301 and designates a squadron vehicle control officer/NCO, if required.

2.4.13. Reviews status of training programs monthly. Ensures upgrade training and maintenance qualification programs emphasize quality and are not primarily focused on meeting minimum upgrade time frames.

2.4.14. Ensures functional publication libraries are established and maintained according to AFI 37-160, *Air Force Publications and Forms Management Programs—Publication Library* and AFI 33-322, *Records Management Program.*

2.4.15. Ensures compliance with unit Environmental Protection Agency (EPA) program according to AFI 32-7042, *Solid and Hazardous Waste Compliance.*

2.4.16. Ensures turn-in of consumable/expendable XB3 material and scrap is properly accomplished as outlined in AFMAN 23-110, *USAF Supply Manual*.

2.4.17. Ensures personnel are trained and resources are available for CDDAR.

2.4.18. Manages unit flying crew chief (FCC) program, if applicable.

2.4.18. (ANG) N/A to the ANG.

2.4.19. Ensures compliance with the environment safety and occupational health programs as identified in AFPD 90-8, Environment, Safety, and Occupational Health, AFPD 91-3, Occupational, Safety, and Health, AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program, and the AFI 32-7XXX series environmental instructions."

2.4.20. Appoints custodians to manage the custodian authorization and custody receipt listing (CA/CRL).

2.4.21. Provides oversight for any contract maintenance performed.

2.4.22. (Added-ANG) Designates a Unit Environmental Coordinator (UEC) to work environmental coordination, implementation, and compliance with the installation MXG/OG Environmental Coordinator, the installation environmental flight, and the installation Hazardous Material Management Process (HMMP) team for ESOH issues.

2.4.23. (Added-ANG) Participates in quarterly QA reviews.

2.4.24. (Added-ANG) Has a working knowledge of MIS (Maintenance Information System) and ensures its use.

2.4.25. (Added-ANG) Analyzes unit manning authorizations and the individuals assigned to ensure an adequate balance of career fields, task certified personnel, and certified personnel listed on the SCR exist to meet mission requirements.

2.4.26. (Added-ANG) Endorses adding an individual to the SCR and forwards to the QA Supt. for final review prior to submission to the MXG/CC for approval and inclusion on the SCR (**Exception**: the 116th ACW squadron commanders have approval for inclusion on the SCR).

2.4.27. (Added-ANG) Maintains a current copy of the unit personnel manpower roster (UPMR). Maintains a record of personnel actions and verifies entry of approved actions into the personnel data subsystem.

**2.5. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MOO/SUPT is also referred to as Maintenance Operations (formerly maintenance supervision). As applicable, Maintenance Operations advises the squadron commander on technical matters, leads a mission-focused maintenance effort, and manages resources necessary to accomplish the mission. They provide necessary administration to manage assigned responsibilities. They control maintenance through production supervisors, flight chiefs, section, and shop chiefs. MOO responsibilities differ only in degree and are common and applicable to all maintenance functions. The Superintendent is responsible to the Maintenance Operations Officer. Maintenance Operations:

2.5.1. Enforces strict adherence to technical data and management procedures. Ensures all supervisors understand the importance of using current technical data and advocates use of the TO improvement program (TO-00-5-1).

2.5.2. Establish a technical administration function and an internal distribution system to centrally administer technical maintenance functions required by their subordinate flights, as applicable.

2.5.3. Adjusts resources to meet production requirements.

2.5.4. Assigns adequate supervisory coverage for each shift, ensuring senior NCOs and officers are rotated through days, swings, or night shifts.

2.5.5. Manages the Special Certification Roster (SCR). Ensures the SCR is reviewed quarterly (ANG semi-annually) by appropriate work center supervisors to verify that all entries are current and accurate, and that prerequisites including applicable training, testing, evaluation, or other requirements for task certification have been completed. Takes appropriate, timely action to decertify/recertify personnel affected by non-judicial punishment actions or other administrative actions affecting maintenance qualifications. The MOO/SUPT must sign the SCR, signifying personnel listed on the roster are certified and qualified to accomplish tasks that require certification and inspector authorizations.

2.5.5. (ANG) Maintains a copy of the SCR for the flight.

2.5.6. Ensures accurate daily documentation of maintenance actions.

2.5.7. Ensures complete and accurate documentation in MIS.

2.5.7. (ANG) Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.5.8. Manages the squadron cannibalization program.

2.5.8. (ANG) N/A to the ANG. The following only applies to the ANG: Monitors cannibalization actions.

2.5.9. Reviews and evaluates management and production effectiveness. Analyzes personnel and equipment performance history using QA reports. Initiates management actions to meet new workloads or correct reported/perceived deficiencies.

2.5.10. Ensures Oil Analysis Program (OAP) is monitored and administered according to AFI 21-124, *Air Force Oil Analysis Program*.

2.5.10. (ANG) And IAW ANGI 21-105.

2.5.11. Ensures procedures for identifying, recording, and clearing repeat, recurring, and Can Not Duplicate (CND) discrepancies are understood and followed.

2.5.12. Closely monitors aircraft/equipment impoundments.

2.5.13. Ensures aircraft/support equipment is available to support unit training objectives.

2.5.14. Ensures timely and accurate engine data is provided to the engine management element for all applicable engines.

2.5.15. Ensures personnel are qualified to support dual load operations (DLO), concurrent servicing operations, and hot refueling operations (as applicable).

2.5.15. (ANG) N/A to the ANG. The following only applies to the ANG: Ensures personnel are qualified to support SGO, concurrent servicing operations, and hot refueling operations (as applicable).

2.5.16. In coordination with QA, establishes squadron procedures for the Aircraft Structural Integrity Program (ASIP) as applicable. Comply with program guidance IAW AFI 63-1001 and this instruction. All point of contact information will be provided to the ASIP manager.

2.5.17. Establishes aircrew debriefing procedures.

2.5.17. (ANG) N/A to the ANG. The following only applies to the ANG: Supports aircrew debriefing procedures.

2.5.18. Ensures a sufficient number of personnel are qualified to perform mission critical tasks listed on the SCR Table in **Chapter 18**.

2.5.19. Ensures viability of unit CDDAR.

2.5.20. Ensures a squadron corrosion control program and refurbishment is implemented and effectively managed.

2.5.20. (ANG) N/A to the ANG. The following only applies to the ANG: Ensures the corrosion control program is implemented and properly managed.

2.5.21. Establishes procedures to effectively respond to hot brakes incidents.

2.5.21. (ANG) N/A to the ANG. The following only applies to the ANG: Complies with Base OI for hot brakes incidents. Establishes procedures to effectively respond to hot brakes incidents as applicable.

2.5.22. Reviews the Status Of Resources and Training System (SORTS) information for their organization.

2.5.23. Designates Flight Chiefs. The best-qualified people are selected within the constraints of AFMAN 36-2108, *Airman Classification*. EXCEPTION: Munitions flight chiefs will be appointed by the SQ/CC IAW AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions.*

2.5.23. (ANG) N/A to the ANG. The following only applies to the ANG: Designates Supervisors. The best-qualified people are selected within the constraints of AFMAN 36-2108. **EXCEPTION**: Munitions Element supervisors shall be appointed IAW AFI 21-201.

2.5.24. Ensures the unit manpower document (UMD) is IAW the approved organizational structure.

2.5.25. Maintains a current copy of the unit personnel manpower roster (UPMR). Maintains a record of personnel actions and verifies entry of approved actions into the personnel data subsystem.

2.5.26. Ensures special experience identifier (SEI) qualified individuals are matched against proper SEI positions on the UPMR.

2.5.26. (ANG) N/A to the ANG (**Exception**: Applicable to the 116th ACW active duty personnel).

2.5.27. Ensures SEIs are awarded to individuals meeting the qualification criteria and that they are reflected in the personnel data subsystem.

2.5.27. (ANG) N/A to the ANG (**Exception**: Applicable to the 116th ACW active duty personnel).

2.5.28. Allocates projected gains against pending or actual vacant slots.

2.5.29. Is responsible for training subordinate officers and SNCOs.

2.5.30. Monitors workforce availability. Ensures shift scheduling considers additional duties, leave, ancillary training, and details to provide maximum capability and minimize work force degradation.

2.5.30.1. Review and support monthly Weapons Load Training (WLT) schedule.

2.5.30.1. (ANG) N/A to the ANG. The following only applies to the ANG: Review and support quarterly WLT schedule.

2.5.31. Participates in the maintenance planning cycle.

2.5.32. Ensures only qualified personnel accomplish maintenance with the appropriate equipment and tools.

2.5.33. Ensures compliance with Air Force 91- series safety directives, appropriate Air Force occupational safety and health standards (AFOSH STD), and applicable industrial safety publications. Those occupational training requirements which require documentation will be annotated on AF Form 55, Employee Safety and Health Record.

2.5.34. Establishes procedures to minimize foreign object damage and dropped objects.

2.5.34. (ANG) N/A to the ANG. The following only applies to the ANG: Manages the responsibilities in the FOD and DOP program IAW **Chapter 18** of this instruction.

2.5.35. Monitors and updates local IPI requirements; forwards to QA a list of squadron tasks requiring IPIs IAW **Chapter 10** of this instruction.

2.5.36. Develops and monitors environmental protection guidance. Ensures compliance with AFPD 90-8 and ensures compliance with Air Force 32-7XXX series environmental directives and applicable environmental protection/compliance guidance. Develops and monitors environmental protection guidance. Designates a Unit Environmental Coordinator (UEC) to work environmental coordination, implementation, and compliance with the installation MXG/OG Environmental Coordinator, the installation environmental flight, and the installation Hazardous Material Management Process (HMMP) team for ESOH issues.

2.5.36. (ANG) N/A to the ANG. The following only applies to the ANG: Monitors environmental protection guidance. Ensures compliance with AFPD 90-8 and ensures compliance with Air Force 32-7XXX series environmental directives and applicable environmental protection / compliance guidance.

2.5.37. Ensures security, storage maintenance, and proper use of equipment according to AFMAN 23-110, *USAF Supply Manual*.

2.5.38. Establishes procedures to control repair cycle assets.

2.5.38. (ANG) N/A to the ANG. The following only applies to the ANG: Complies with procedures to control repair cycle assets IAW TO 00-20-3.

2.5.39. Reviews the D23 and other pertinent supply products to ensure proper asset management.

2.5.40. Ensures reporting of materiel deficiencies according to TO 00-35D-54*, USAF Deficiency Reporting and Investigating System*.

2.5.40. (ANG) The 162nd FW shall report deficiencies to LM Aero for UAE F-16 block 60 aircraft.

2.5.41. Ensures HAZCOM and HAZMAT pharmacy programs are followed according to applicable directives. Also reference related series 91 and 161 AFOSH Standards.

2.5.42. Ensures deferred maintenance, pilot reported discrepancies (PRD) and back-ordered parts are properly managed. Periodically reviews on-line products.

2.5.43. Ensures PRDs, scheduled, and unscheduled maintenance actions are entered and completed in the MIS. This includes maintenance performed in support of maintenance squadron flights.

2.5.44. If a functional area warrants QA augmentation, technicians are recommended by the MOO/SUPT and approved by the QA supervisor.

2.5.45. Coordinates with medical service agencies responsible for monitoring potentially hazardous environmental conditions within maintenance and industrial areas.

2.5.46. Advises the MOC and the production supervisor of conditions that may disrupt the orderly and controlled execution of the maintenance plan.

2.5.47. Coordinates permanent change of assignment (PCA) actions. Ensures required documentation is completed and submitted. Ensures the SQ/CC and squadron technical-administration section is briefed on all pending and completed PCA actions.

2.5.47. (ANG) N/A to the ANG (**Exception**: Applicable for the 116th ACW active duty personnel).

2.5.48. Ensures that a squadron SERENE BYTE or PACER WARE response capability exists IAW AFI 10-703, *Electronic Warfare Integrated Reprogramming*, as applicable.

2.5.49. Distributes projected gain/loss lists and maintenance manpower requests (MMR) to all work centers and establishes suspenses for updates. Ensures approved personnel actions have been received for all updates then submits consolidated updates to programs

2.5.49. (ANG) N/A to the ANG (**Exception**: Applicable for the 116th ACW active duty personnel).

2.5.50. Ensures a program for control of assigned land mobile radios (LMR) is established IAW **Chapter 18.**

2.5.50. (ANG) N/A to the ANG. The following only applies to the ANG: Complies with the group program for control of assigned LMRs is established IAW **Chapter 18** of this publication.

2.5.51. Establishes a method for distributing maintenance cross-talk messages, QA newsletters, policy announcements, technical notifications, and other important maintenance information for which no formal notification process exists.

2.5.52. Ensures an annual maintenance plan is developed and reconciled with the flying schedule to ensure maintenance can support the annual flying/test program. Keeps aircraft and munitions reconfigurations to a minimum. Missions requiring, specific weapons (BDUs, PGMs, missiles etc), targeting pods, CFTs, WBTs, external tanks, ECM pods, ACMI pods etc, must be scheduled concurrently to reduce the number of reconfigurations required during a flying period. The length of this period is MDS and mission dependent and left to unit discretion.

2.5.53. Monitors requirements for composite tool kits (CTK), special tools and support equipment (SE) and takes necessary action to ensure availability, as required IAW **Chapter 13**.

2.5.54. Reviews applicable support agreements (SA) annually or as required and makes recommendations for changes.

2.5.55. Enforce MAJCOM standards on location of G-series files (hard copy or electronic TOs carried on aircraft).

2.5.56. Establishes procedures to ensure accountability of Ground Instructional Trainer Aircraft (GITA) IAW **Chapter 18**.

2.5.56. (ANG) N/A to the ANG. The following only applies to the ANG: Complies with procedures to ensure accountability of GITA.

2.5.57. (Added-ANG) Ensures unit SGO training requirements are supported and consistent with the unit's wartime tasking IAW Chapter 18.28.

2.5.58. (Added-ANG) Reviews and consolidates monthly maintenance plan inputs from flights/sections and forwards to PS&D.

2.5.59. (Added-ANG) Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103 and AFMAN 23-110.

2.5.60. (Added-ANG) Coordinates the work shift schedule with the Production Supervisor and maintenance supervision to ensure sufficient people are available to support the mission.

2.5.61. (Added-ANG) Ensures operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW TO 00-20-1.

2.5.62. (Added-ANG) Approves requirements for bench stocks and provide guidance as to the type, location and use by one or more sections. Spot check bench stocks to evaluate adequacy, supply discipline, and housekeeping.

2.5.63. (Added-ANG) Ensures reparable parts are promptly processed through repair channels within the required time frame. Reference AFMAN 23-110.

2.5.64. (Added-ANG) Monitors shift manpower distribution, including distribution of supervision, and make necessary adjustments. Imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades, are identified to Squadron/flight commander.

2.5.65. (Added-ANG) Ensures personnel are identified to meet deployment tasking according to the unit's DOC statement IAW AFI 10-403, AFI -10-215, and AFMAN 10-401.

2.5.66. (Added-ANG) Monitors tool and equipment management and special tool needs IAW **Chapter 13** of this instruction. Also enforces procedures for control, storage, and management of AME, dash 21 equipment, and maintenance, safety, and MSPE according to AFI 21-103.

2.5.67. (Added-ANG) Ensures elements maintain records of inspection, lubrication, and maintenance of industrial equipment according to the appropriate general maintenance manuals and TOs on AFTO Form 244, *Industrial/Support Equipment Record*, or AF IMT 2411, *Inspection Document*.

2.5.68. (Added-ANG) Ensures training requirements are executed in support of the established training plan and individual AFSC CFETP. Ensure all personnel complete the Shop Level Pollution Prevention (P2) training program and the ESOH training requirements as applicable.

2.5.69. (Added-ANG) Ensures compliance with TO 33K-1-100, TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide, applicable calibration measurement summaries (CMS), and TO 00-20-14, in the use, care, handling, transportation, calibration of TMDE and scheduled for calibration IAW AFCSM 21-566, *Inspection and Time Change, Software User Manual.*

2.5.70. (Added-ANG) Consolidates section inputs for items received in LRS requiring functional check, operational programming, or calibration. Submit the listing to LRS inspection section.

2.5.71. (Added-ANG) Coordinates all new AGE requirements through the AGE element to ensure support capability and eliminate unnecessary duplication of equipment.

2.5.72. (Added-ANG) Ensures bench stock and tool/equipment storage areas are managed appropriately IAW **Chapter 8** and **Chapter 13** of this instruction.

2.5.73. (Added-ANG) Ensures general housekeeping, safety, security and environmental control and AFOSH standards are followed.

2.5.74. (Added-ANG) Establishes a safety program designed specifically for mishap prevention and the identification and abatement of hazards associated with the workcenter IAW **Chapter 9**.

2.5.75. (Added-ANG) Monitors and ensures environmental health physicals and respirator training, initial and recurring requirements, are accomplished when required for assigned personnel (refer to AFOSH STDs).

2.5.76. (Added-ANG) Monitors and ensures AF IMT 55, *Employee Safety and Health Record*, is documented IAW AFI 91-301.

2.5.77. (Added-ANG) Administers the squadron safety program in the flight. Ensure all personnel obtain the required safety training. Ensure safety information is available and personnel in hazardous areas are briefed about the dangers. Identify requirements to the bioenvironmental engineers; ensuring facilities meet Air Force industrial environmental standards IAW AFI 91-302.

2.5.78. (Added-ANG) Evaluates maintenance quality, the qualifications of personnel, and training deficiencies by working with element supervisors and by observing personnel performance. Review MSEP results and trends, target areas for improvement, and also recognize quality performers.

2.5.79. (Added-ANG) Develops training requirements, evaluates skills, aptitudes and proficiency of assigned people. Ensures CUT requirements are identified as required by the unit mission. Ensures CUT does not interfere with upgrade training or qualification training of individuals not qualified on the assigned weapon system.

2.5.80. (Added-ANG) Reviews deferred maintenance weekly for accuracy and to determine if appropriate and timely actions are being taken. Use MIS screens/Automated Records Check and coordinates with the Production Supervisor for accomplishment.

2.5.81. (Added-ANG) Manages administrative details, including personnel performance reports, additional duties, training, appointments, etc.

2.5.82. (Added-ANG) Enforces procedures for managing lockout and tag-out situations (IAW **Chapter 9** of this publication and AFOSH STD 91-45).

2.5.83. (Added-ANG) Ensures supervision is aware of any critical shortages of personnel, aircraft, equipment, or components.

2.5.84. (Added-ANG) Ensures review of new, revised, or changed publications/technical orders and that personnel are informed of any significant changes. Decides if new or changed publications affect the qualifications of personnel. Ensures workcenter publications are current and required publications are available to meet workcenter needs.

2.5.85. (Added-ANG) Solicits, actively, solicit inputs and promotes the product improvement and R&M programs.

2.5.86. (Added-ANG) Ensures only designated personnel listed on SCR are verifying Urgency of Need (UND) 1A and JA requirements.

2.5.87. (Added-ANG) Ensures compliance with precious metals recovery program, as applicable, in accordance with AFMAN 23-110 and TO 00-25-113, *Conservation and Segregation of Critical Alloys and Precious Metal Bearing Parts and Scrap.* Maintain and dispose of records according to the Air Force Records Disposition Schedule, accessible on-line: (**https://webrims.amc.af.mil**).

2.5.88. (Added-ANG) Ensure personnel know specific disaster control duties and provisions of AFMAN 32-4004 and AFI 10-229 with regard to the movement of aircraft, support equipment, and evacuation of flightline personnel.

2.5.89. (Added-ANG) Ensures assigned personnel have access to the equipment and resources necessary to perform their job.

2.5.90. (Added-ANG) Ensures organizational compliance with all federal, state, and local laws pertaining to environmental regulation and pollution prevention. Enforce local environmental protection

guidance and monitor compliance. Supervisors must work closely with the base environmental office to identify specific local requirements.

**2.6. Aircraft Maintenance Unit (AMU) OIC/NCOIC or Flight Commander/Flight Chief.** The AMU OIC/NCOIC and Flight Commander/Flight Chief is responsible to the MOO for the leadership, supervision, and training of all assigned personnel. AMU OICs/NCOICs and Flight Commanders/Chiefs may delegate responsibilities involving day-to-day functioning of sections and elements, as appropriate. Some responsibilities listed may only apply to particular flights or squadrons, and therefore only apply if the function is performed. AMU OICs/NCOICs and Flight Commanders/Chiefs shall:

**2.6. (ANG) N/A to the ANG.** (except for the 116 ACW). All subparagraphs of **2.6.**, are also N/A.

2.6.1. Enforce strict adherence to technical data and management procedures. Ensure all supervisors understand the importance of using current technical data, advocate use of the TO improvement program, and ensure work center TO files are maintained according to TO 00-5-1.

2.6.2. Ensures aerospace equipment forms and MIS documentation are completed, accurate and accomplished for each shift. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.6.3. Coordinate the work shift schedule with the production supervisor and Maintenance Operations (MOO/SUPT) to ensure sufficient people are available to support the mission.

2.6.4. Designate section supervisors.

2.6.5. Provide input/oversee the unit's Flying Crew Chief program, if applicable.

2.6.6. Ensure operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, And Procedures*.

2.6.7. Ensure the corrosion control program is implemented and properly managed.

2.6.8. Select qualified personnel to perform production inspections (e.g., SCR items) and forward names to Maintenance Operations (MOO/SUPT) for approval.

2.6.9. Review/update flight In Process Inspection (IPI) requirements listing annually and route through Maintenance Operations (MOO/SUPT) for consolidation and MXG/CC approval. Forward to QA for review, standardization, and publication.

2.6.10. Review Maintenance Data Systems Analysis (MDSA), QA, and other management reports to determine appropriate management actions to meet new workloads, target deficiencies, and identify and correct root causes.

2.6.11. Approve requirements for bench stocks and provide guidance as to the type, location and use by one or more sections. Spot check bench stocks to evaluate adequacy, supply discipline, and housekeeping.

2.6.12. Establish and review requirements for vehicles and SE, and ensure procedures for their operation and maintenance are enforced.

2.6.13. Ensure reparable parts are promptly processed through repair channels within the required time frame. Reference AFMAN 23-110, *USAF Supply Manual*.

2.6.14. Monitor shift manpower distribution, including distribution of supervision, and make necessary adjustments. Imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades, are identified to Maintenance Operations (MOO/SUPT).

2.6.15. Ensure personnel are identified to meet deployment tasking according to the unit's DOC statement IAW AFI 10-403, *Deployment Planning*, AFI -10-215, *Personnel Support for Contingency Operations (PERSCO)*, and AFMAN 10-401, *Operations Plan & Concept Plan Development and Implementation*.

2.6.16. Ensure procedures are followed to control disposal of recoverable materials, including scrap metal and silver-bearing materials, IAW AFMAN 23-110, *USAF Supply Manual* and TO 00-25-113, *Conservation and Segregation of Critical Alloys and Precious Metal Bearing Parts and Scrap.*

2.6.17. Provide inputs to maintenance and flying schedules, and execute scheduled maintenance plans.

2.6.18. Ensure sections (and elements) maintain records of inspection, lubrication, and maintenance of industrial equipment according to the appropriate general maintenance manuals and TOs on AFTO Form 244, **Industrial/Support Equipment Record**, or AF Form 2411, **Inspection Document**.

2.6.19. Ensure procedures are followed to identify, record, and clear repeat, recurring, and CND discrepancies.

2.6.20. Manage the flight's responsibilities in the FOD and DOP program IAW **Chapter 18** of this instruction.

2.6.21. Manage additional duties, leaves, ancillary training, and assigns personnel to base and work details (when tasked by the SQ/CC) to balance workload and minimize negative impacts on the work force.

2.6.22. Ensure training requirements are executed in support of the established training plan and individual AFSC Career Field Education and Training Plans (CFETP). Ensure all personnel complete the Shop Level Pollution Prevention (P2) training program and the ESOH training requirements as applicable

2.6.23. Comply with TO 33K-1-100, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*, applicable calibration measurement summaries (CMS), and TO 00-20-14, *AF Metrology and Calibration Program*, in the use, care, handling, transportation and calibration of TMDE owned by the flight.

2.6.24. Consolidate section inputs for items received in supply requiring functional check, operational programming or calibration. Submit the listing to the Logistics Readiness Squadron inspection section.

2.6.25. Coordinate all new aerospace ground equipment (AGE) requirements through the AGE flight to ensure support capability and eliminate unnecessary duplication of equipment.

2.6.26. Ensure bench stock and tool/equipment storage areas are managed appropriately IAW **Chapter 8** and **Chapter 13** of this instruction.

2.6.27. Ensure general housekeeping, safety, security and environmental control and AFOSH standards are followed.

2.6.28. Establish a safety program designed specifically for mishap prevention and the identification and abatement of hazards associated with the work center IAW **Chapter 9**.

2.6.29. Monitor and ensure environmental health physicals and respirator training, initial and recurring requirements, are accomplished when required for assigned personnel (refer to AFOSH STDs).

2.6.30. Ensure AF Form 55, **Employee Safety and Health Record**, is documented IAW AFI 91-301, *Air Force Occupational and Environmental, Safety, Fire Protection and Health (AFOSH) Program* applicable AFOSH standards.

2.6.31. Administer the squadron safety program in the flight. Ensure all personnel obtain the required safety training. Ensure safety information is available and personnel in hazardous areas are briefed about the dangers. Identify requirements to the bioenvironmental engineers, ensuring facilities meet Air Force industrial environmental standards IAW AFI 91-302, Air Force Occupation and Environmental, Safety, Fire Protection and Health (AFOSH) Standards.

2.6.32. Evaluate maintenance quality, the qualifications of personnel, and training deficiencies by working with section chiefs and by observing personnel performance. Review QAP results and trends, target areas for improvement and also recognizing quality performers.

2.6.33. To develop work center-training requirements, evaluate skills, aptitudes and proficiency of assigned people. Ensure CUT requirements are identified as required by the unit mission. Ensure CUT does not interfere with upgrade training or qualification training of individuals not qualified on the assigned weapon system.

2.6.34. Ensure personnel are coded with appropriate special experience identifiers (SEI) on the UPMR. Refer to **Chapter 1** for additional information on SEIs.

2.6.35. Review deferred maintenance weekly for accuracy and to determine if appropriate and timely actions are being taken. Use MIS screens/Automated Records Check and coordinate with the production supervisor for accomplishment.

2.6.36. Review the aircraft automated records check after it has been validated by the section chief. Refer to **Chapter 7** for records check procedures.

2.6.37. Ensure MIS data records, the D23 (repair cycle asset management list), and other pertinent products are reviewed to ensure proper asset management. Ensure provisions of appropriate MAJCOM and functional area instructions and regulatory guidance are followed; manage shortfalls and supply difficulties by monitoring pacing items that affect the mission.

2.6.38. When applicable, ensure warranty items are loaded in MIS according to applicable MIS directives and deficiency reports (DR) are accomplished on warranted item failures according to TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*, and AFMAN 64-110*, Manual for Weapons Systems Warranties*. Coordinate with the QA product improvement manager (PIM), as needed.

2.6.39. Maintain bench sets or mock-ups using applicable tech data or Air Force general equipment TOs.

2.6.40. Enforce procedures for managing lockout and tag-out situations (IAW **Chapter 9** and AFOSH STD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*).

2.6.41. Ensures Maintenance Operations (MOO/SUPT) is aware of any critical shortages of personnel, aircraft, equipment, or components.

2.6.42. Review and evaluate management and production reports. Take management actions to meet new workloads or corrects deficiencies identified in these reports.

2.6.43. Ensure tools and equipment are scheduled for calibration IAW AFCSM 21-566, TO 33K-1-100, and 00-20 series technical orders.

2.6.44. Review new, revised, or changed publications and informs personnel of any significant changes. Decides if new or changed publications affect the qualifications of personnel. Ensures work center publications are current and required publications are available to meet work center needs.

2.6.45. Actively solicit inputs and promotes the product improvement and R&M programs.

2.6.46. Ensure only designated personnel listed on SCR are verifying Urgency of Need (UND) 1A and JA requirements.

2.6.47. Monitors cannibalization actions.

2.6.48. Establish a flight precious metals recovery program, as applicable, in compliance with AFMAN 23-110, *USAF Supply Manual*, retain and file records in compliance with AFMAN 37-139, *Records Disposition Schedule.*

2.6.49. Establish flight-specific emergency action procedures including disaster control and severe weather and forward to MOC for possible inclusion into wing procedural or Quick Reaction checklists. Ensure personnel know specific disaster control duties and provisions of AFMAN 32-4004, *Emergency Response Operations,* and AFI 10-229, *Responding to Severe Weather Events,* with regard to the movement of aircraft, support equipment, and evacuation of flight line personnel.

2.6.50. Ensure personnel are familiar with unit CDDAR and understand local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.6.51. Ensure assigned personnel have access to the equipment and resources necessary to perform their job.

2.6.52. Ensure organizational compliance with all federal, state, and local laws pertaining to environmental regulation and pollution prevention. Enforce local environmental protection guidance and monitor compliance. Supervisors will work closely with the base Civil Engineer's environmental office to identify specific local requirements.

2.6.53. Manage administrative details, including personnel performance reports, additional duties, training, appointments, etc.

2.6.54. Participate in daily maintenance planning and scheduling meetings, as applicable.

**2.7. Section Chief.** The section chief is responsible to the flight chief for the leadership, supervision, and training of assigned personnel. The section chief is a first-line manager and supervisor of maintenance production and, as such, is the technical authority and advisor in that area. When sections are subdivided, element leaders perform the appropriate functional responsibilities. The Section Chief accomplishes the following:

**2.7. (ANG) Element/Workcenter Supervisor** : N/A to the ANG. The following only applies to the ANG: The element/workcenter supervisor is responsible for the leadership, supervision, and training of

assigned personnel. The element/workcenter supervisor is a first-line manager and supervisor of maintenance production and, as such, is the technical authority and advisor in that area. Depending upon the organizational structure of the assigned weapon system, it may be necessary to assign the following responsibilities to one or more supervisors/small shop chiefs as deemed most appropriate. The element/workcenter supervisor accomplishes the following:

2.7.1. Enforces strict adherence to technical data and management procedures. Ensures all supervisors understand the importance of using current technical data, advocates use of the TO improvement program, and ensures work center TO files are maintained according to TO 00-5-1. Conducts face-to-face counseling with personnel who violate directives.

2.7.2. Ensures aerospace equipment forms and MIS documentation are completed, accurate and accomplished for each shift. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.7.3. Perform production and supervisory inspections.

2.7.4. Review, evaluate, and take corrective action based on QA and other inspection reports.

2.7.5. Ensure personnel follow procedures for identifying, recording and clearing repeat/recur and CND discrepancies.

2.7.6. Identify items requiring calibration or operational check before installation. Provides a list of these items for distribution to supply and maintenance.

2.7.7. Manage tool storage, tool replacement, bench stocks, and operating stocks. Ensure adequate CTKs, equipment and special tools are available to support weapon system requirements. **Chapter 8** of this instruction prescribes procedures for bench stock management. Spot-check bench stock and operating stocks to ensure compliance and supply discipline. **Chapter 13** prescribes CTK procedures.

2.7.7.1. Monitors tool and equipment management and special tool needs IAW **Chapter 13** of this instruction. Also establishes detailed procedures for control, storage, and management of alternate mission equipment (AME), -21 equipment, and maintenance, safety, and protective equipment (MSPE) according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*.

2.7.8. Maintain WRM assets such as 463L pallets, parachutes, support equipment, vehicles, etc.

2.7.9. Ensure housekeeping, safety, security and environmental control standards are followed.

2.7.10. Provide work and workforce planning factors (projected leaves, section backlog, etc) to the flight chief.

2.7.11. Review new, revised, or changed publications and brief personnel on significant changes. Determine if new or changed publications affect the qualifications of personnel. Ensure section publications are current and required publications are available to meet weapon system requirements.

2.7.12. Actively solicits inputs and promotes the product improvement and R&M programs, and review deficiency reports prior to forwarding to flight chief.

2.7.13. Manage the section's repair cycle program. Review the D23 weekly and other pertinent supply products to ensure proper supply discipline.

2.7.14. Monitor, track, and ensure occupational safety, fire prevention, occupational and environmental health requirements, and respirator training (initial and recurring) are accomplished for

assigned personnel. Ensures AF Form 55, Employee Safety and Health Record is documented IAW **AFI 91-301**.

2.7.15. Determines maintenance tasks requiring IPI. Forward IPI listing through the flight chief to the AMU OIC/NCOIC (for AMXS flights only), and Maintenance Operations (MOO/SUPT) for consolidation.

2.7.15. (ANG) N/A to the ANG. The following only applies to the ANG: Determines maintenance tasks requiring IPI. Forward IPI listing through maintenance supervision for consolidation.

2.7.16. Evaluate skills, aptitudes and proficiency of assigned personnel to develop workcenter training requirements. Ensure cross-utilization training (CUT) requirements are identified as required by the unit mission and are implemented according to command training instructions, and **Chapter 1** of this instruction.

2.7.17. Ensure personnel are trained on specific MIS subsystems as follows:

2.7.17.1. Use of the MIS.

2.7.17.2. Interpretation of products and reject narratives.

2.7.17.3. How to request background products.

2.7.17.4. Initial job data documentation training to section users.

2.7.17.5. Maintain the appropriate MIS manuals.

2.7.17.6. Review documented discrepancies for the work center on a daily basis (CAMS screen #100 /380 and G081 screen #8069/9129A/67033) to monitor scheduled and deferred events. All events that show status of scheduled and are beyond their scheduled date and time must be closed, rescheduled, or deferred. Performs a daily review of suspense validations using CAMS screen #128 (G081 does not have suspenses).

2.7.17.7. Review transcribed AFTO 781 series forms, and work center MIS data entries for the previous day, and all preceding non-duty days, for job accuracy and completeness (CAMS screen #100 and G081 screen 9032).

2.7.17.7. (ANG) For G081 use screen 67137.

2.7.18. Evaluates assigned personnel and determines training needs. Tracks training requirements and ensures personnel attend required training. Ensures training documentation is accurate. When applicable, ensures AETC TRSS developed training materials are used to supplement qualification training.

2.7.19. (ACC Bomber units only) For jobs with a two-person concept, IAW Nuclear Surety procedures, ensure the MIS work center event (WCE) is annotated with “Two-Person Concept Applies.”

2.7.20. Ensures personnel and equipment are identified and prepared to meet deployment tasking IAW AFI 10-403, *Deployment Planning*, AFI 10-215, *Personnel Support for Contingency Operations (PERSCO)*, and AFMAN 10-401, *Operations Plan & Concept Plan Development and Implementation*.

2.7.21. Evaluates the quality of maintenance and qualifications of personnel through observation and inspection of maintenance actions, initiate corrective actions as required.

2.7.22. Establishes a work center safety program designed specifically for mishap prevention and the identification and abatement of hazards IAW AFOSH standards and other applicable safety related directives.

2.7.23. Ensure TMDE maintenance and calibration requirements are met.

2.7.23. (ANG) Ensure TMDE that is overdue calibration, is not used without ANG/LGMM approval for calibration extension.

2.7.24. Ensure technicians are available for debrief, as requested, to assess weapon system performance.

2.7.25. Manages the Bad Actor Program according to TO 00-35D-54, *Deficiency Reporting*.

2.7.25. (ANG) N/A to the ANG. The following only applies to the ANG: Participates in the Bad Actor Program according to TO 00-35D-54.

2.7.26. Implement and execute a self-inspection program IAW **Chapter 18**.

2.7.27. (Added-ANG) Spot checks bench stock and operating stocks for authorized levels and enforce supply discipline. **Chapter 8** of this instruction prescribes procedures for bench stock management.

2.7.28. (Added-ANG) Ensures that workcenter specific responsibilities outlined in ANGI 21-105 are followed.

2.7.29. (Added-ANG) Maintains master equipment ID number lists when required.

2.7.30. (Added-ANG) Ensures the training of and annual recertifying of crash recovery team personnel.

2.7.31. (Added-ANG) Maintains historical records. Element supervisors maintain AFTO Forms 95, *Significant Historical Data*, on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system dash -6 manuals. Historical records should be automated (TO 00-20-1).

2.7.32. (Added-ANG) Maintains a current copy of the Qualified Products Listing (QPL). The QPL identifies qualified products (i.e., cleaners, paints, etc.) within a particular Mil-spec and are the only approved materials for use on ANG aircraft, subsystems and support equipment. Products not listed on the QPL are unauthorized and must not be used. The QPL can be located at the following Air Force Corrosion Prevention and Control Office web site: (**http://www.afcpo.com**).

2.7.33. (Added-ANG) Notifies QA prior to start of the first TCTO accomplishment.

**2.8. Squadron Production Supervisor (Pro Super).** The production supervisor directs the overall maintenance effort of their unit. The pro super will be a SNCO or civilian equivalent. The Pro Super will:

**2.8. (ANG) Production Supervisor (Pro Super).** N/A to the ANG. The following only applies to the ANG: The Production Supervisor directs the overall maintenance effort of their unit. The Pro Super shall be a SNCO. At local option, Expediter and Production Supervisor duties may be combined provided all duties of both functions are performed. The Pro Super must:

2.8.1. Enforce strict adherence to technical data and management procedures. Advocates the importance of using current technical data and use of the TO improvement program (TO 00-5-1).

2.8.2. Ensure aerospace equipment forms and MIS documentation are completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.8.3. Direct the maintenance effort using available resources. Involved in developing and executing the monthly and weekly flying and maintenance plans.

2.8.4. Authorizes and directs aircraft-to-aircraft cannibalization actions. Coordinates with Propulsion Flight for engine-to-aircraft cannibalizations, and coordinates the actions with the MOC and supply.

2.8.5. Keep MOC informed of the maintenance effort and coordinates with MOC and other squadrons for support. Provide specific aircraft status update information as required.

2.8.6. Attend and/or conduct the squadron's daily maintenance meeting.

2.8.7. Determine/track aircraft status.

2.8.8. Understands aircraft status and inventory reporting as covered in AFI 21-103, and applicable supplements. Works closely with Expediters and the maintenance operations center (MOC) to ensure actual aircraft status matches aircraft status reported in the MIS.

2.8.9. Will know the actions required by the squadron under SIOP or contingency plans. Direct aircraft generation flow. Responsible for developing and keeping the aircraft generation sequence current.

2.8.10. Maintains a current copy of the on-base disaster map with cordon overlay and appropriate check sheets outlining duties during disaster exercises. Will be familiar with specific disaster control duties and squadron responsibilities, and with the portion of AFI 32-4001, *Disaster Preparedness Planning and Operations*, and unit operations order (OPORD) pertaining to movement of aircraft, support equipment, and evacuation of flight line personnel.

2.8.11. Manages the maintenance production effort by assigning priorities to meet the flying and maintenance schedules. Aggressively works not-mission capable (NMC) aircraft.

2.8.12. Verifies MICAP conditions.

2.8.13. Be thoroughly familiar with unit CDDAR and understand local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.8.14. Signs the Exceptional Release (ER) IAW TO 00-20-1.

2.8.15. (Added-ANG) Direct cannibalization on assigned aircraft and coordinates the action with the MOC prior to cannibalization actions. MOC must coordinate cannibalizations actions with LRS.

**2.9. Expediter.** Expediters lead people and manage resources to accomplish scheduled and unscheduled maintenance. Expediters work for the Pro Super in generating aircraft. The flight line expediter is responsible to the production supervisor, ensures maintenance accomplishment and sortie production by managing, controlling and directing allocated resources.

**2.9. (ANG) Expediter:** N/A to the ANG. The following only applies to the ANG: Expediters lead people and manage resources to accomplish scheduled and unscheduled maintenance. Expediters work with the Pro Super and MOC in generating aircraft, ensuring maintenance accomplishment and sortie production by managing, controlling and directing allocated resources. At local option, Expediter and Production

Supervisor duties may be combined; provided all duties of both functions are performed. Waivers to this paragraph shall be directed to ANG/LGMM. Expediter's responsibilities:

2.9.1. Enforce strict adherence to technical data and management procedures. Advocates the importance of using current technical data and use of the TO improvement program (TO-00-5-1).

2.9.2. Ensure aerospace equipment forms and MIS documentation is completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

2.9.3. Coordinates aircraft mission capable status and aircraft configuration status IAW AFI 21-103, to include discrepancy, WUC, ETIC, and job completion with the MOC and the production supervisor.

2.9.4. Updates status of cannibalization actions on assigned aircraft.

2.9.5. Ensures aircraft are ready for flight.

2.9.6. Orders parts, assigns appropriate priorities and document numbers, and relays this information to the MOC.

2.9.6. (ANG) N/A to the ANG. The following only applies to the ANG: Ensures parts are ordered using appropriate priorities, document numbers are relayed to the Pro Super and MOC, and picked up expeditiously from the Flight line Dedicated Support Element (FDSE). Expeditors may verify MICAP requisitions.

2.9.7. Coordinates with the MOC for support beyond squadron capability.

2.9.8. Maintains a current on-base disaster map with cordon overlay and appropriate check-sheets outlining duties during disasters or exercises.

2.9.9. Remains on the flight line when maintenance is being performed and during aircraft launches and recoveries. Flight line expediters do not normally perform duties that are the responsibility of production inspectors, e.g., sign off "red Xs" and perform IPIs.

2.9.10. The specialist expediter (if used), weapons expediter, back shop maintainers, and section chiefs coordinate all aircraft maintenance actions with the flight line expediter.

2.9.10. (ANG) Also notify MOC.

2.9.11. Possesses an overall knowledge of the primary assigned aircraft and systems, and has demonstrated the ability to supervise personnel, control work, and resolve conflicts.

2.9.12. Continually reviews the active aircraft forms.

2.9.13. Review aircraft forms prior to ER.

2.9.14. Keeps a copy of the flying schedule, emergency action and procedural checksheets, base grid map, group IPI listings, MESL, QRL, a WUC manual, and a device or method for tracking aircraft status in the expediter vehicle. The tracked status reflects aircraft serial number, location, priority, mission capability status and ETIC, configuration, OAP condition codes, fuel load, munitions load, and remarks for each assigned aircraft (mission capability status requirements are based on tasking and MDS). Show all limitations against the FSL and BSL column as itemized on the MESL (AFI 21-103). Reconnaissance units ensure devices depicting aircraft status comply with program security requirements.

2.9.15. Notify MOC and Pro Super when aircraft are ready for flight (crew ready and crew show), engine start, taxi, block-in, and aircraft configuration (e.g. fuel, munitions, cargo). AETC training organizations will notify the MOC and Pro Super only by exception (e.g. crew does not show, engine fails to start).

2.9.15. (ANG) N/A to the ANG. The following only applies to the ANG: Notifies MOC and Pro Super when aircraft are ready for ER, flight (crew ready) and crew show, engine start, taxi, block-in, and aircraft configuration (e.g., fuel, munitions, cargo).

2.9.16. Follow established cannibalization procedures.

2.9.17. Expediters direct AGE drivers to position AGE as required and notify the AGE driver of AGE requiring maintenance.

2.9.18. The expediter reviews Deferred Discrepancies (DDs) and coordinates with the responsible work center for completion.

2.9.19. Ensure supply document numbers are relayed to crew chiefs/specialists for entry into aircraft and equipment forms.

2.9.20. Monitors aircraft OAP status and ensures sampling is completed IAW AFI 21-124.

2.9.21. Are thoroughly familiar with unit CDDAR and understand local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

2.9.22. Ensure parts are ordered using appropriate priorities, document numbers are relayed to the Pro Super and MOC, and picked up expeditiously from the flight line dedicated supply element (FDSE).

2.9.23. (Added-ANG) Tracks all discrepancies identified during "Red Ball" maintenance and takes proper follow-up action.

## Chapter 3

## AIRCRAFT/HELICOPTER MAINTENANCE SQUADRON (AMXS/HMXS)

**3.1. General.** Services, inspects, maintains, launches, recovers assigned and transient aircraft (if applicable), and ensures all mobility requirements are met. There is normally one AMXS/HMXS per wing aircraft and one Aircraft Maintenance Unit (AMU) for each assigned Operations Squadron (OS). In MAF units (i.e. Tactical Airlift, Strategic Airlift and Air Refueling units), there will be one Support Flight for each AMXS/HMXS. CAF units will establish a Support Section in each AMU. ***NOTE:*** The terms and responsibilities associated with the sections identified in this chapter may differ or may not be applicable to all units, based on unit size, mission, and MDS assigned.

**3.1. (ANG) General.** N/A to the ANG. The following only applies to the ANG: Services, inspects, maintains, launches, recovers assigned and transient aircraft (if applicable), and ensures all mobility requirements are met. There is normally one AMXS/HMXS per each MDS aircraft, one Aircraft Maintenance Flight (AMF) for each assigned Operational Squadron (OS), and one Support Section for each AMXS/HMXS. **NOTE**: The terms and responsibilities associated with the sections identified in this chapter may differ or may be N/A to all units based on unit size, mission, and MDS assigned.

3.1.1. Aircraft Generation. Aircraft generation is the cumulative effort required to launch and recover sorties. It includes activities that generate sorties and train personnel to generate sorties, and is predominantly accomplished in an on-equipment environment. Units will sustain capability to accomplish sortie generation for peacetime and wartime taskings. A typical sortie generation sequence usually begins with recovery of an aircraft from another mission. Because aircraft recovery and generation activities are directly related, aircraft recovery is the first step in aircraft generation.

3.1.1. (ANG) AMXS is responsible for developing EOR procedures, IAW **Chapter 18** and MDS -6 requirements.

3.1.2. On-equipment maintenance is performed to prevent equipment/system failures, repair them when they occur, and improve airframe availability and reliability.

3.1.3. Launching and recovering aircraft. Aircraft technicians ensure mission accomplishment by launching and recovering aircraft. During the launch and recovery of aircraft, deficiencies will be identified on aircraft and equipment. These deficiencies, in the form of jobs, are assigned job numbers, and repair priorities are aligned to most effectively meet mission requirements.

**3.2. Squadron Commander Responsibilities.** The squadron commander performs command functions outlined by public law, or directives common to all Air Force squadron commanders. The Commander is responsible to the MXG/CC for overall squadron management. General responsibilities are outlined in **Chapter 2**.

**3.3. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MOO/SUPT is responsible to the SQ/CC for maintenance production. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the MOO/SUPT:

**3.3. (ANG)** Flight OIC/SMO Responsibilities.

3.3.1. Assures standardized procedures and organizations among AMUs.

3.3.1. (ANG) If applicable.

3.3.2. Manages and develops procedures for system checkout activities for the wing's IFF Mode 4 and Radar Warning Receiver (RWR) programs, **see Chapter 18**.

3.3.2. (ANG) As applicable.

3.3.3. In coordination with the Wing Weapons Manager, Weapons Safety Manager, and Airfield Management, manages and develops written procedures for the unit's end of runway (EOR) program.

3.3.3. (ANG) As applicable.

3.3.3.1. Supervises EOR activities for unit-assigned aircraft. Ensures sufficient personnel, equipment, and facilities are assigned/maintained/provided to properly perform EOR inspections IAW **Chapter 18**.

3.3.4. Ensures each AMU provides input for development of an annual maintenance plan and reconciles it with MOF PS&D Section to ensure maintenance capabilities are not exceeded and commitments can be met.

3.3.5. Coordinate with other maintenance squadrons to execute a rotation plan that balances grade, skill level and experience of AFSC 2A6X6 and 2A6X5, 2A6X1, 2A5X1 personnel between Aircraft Maintenance Unit and back shop. Ensures military personnel are rotated, as necessary, to enhance individual experience and knowledge.

3.3.5. (ANG) N/A to the ANG. The following only applies to the ANG: Executes a rotation plan (within ANG manpower guidelines) that balances grade, skill level and experience of AFSC 2A6X6 and 2A6X5, 2A6X1, 2A5X1 personnel between aircraft maintenance and back shop. Ensures personnel are rotated, as necessary, to enhance individual experience and knowledge.

3.3.6. Monitors the squadron DCC and FCC programs.

3.3.6. (ANG) N/A to the ANG (except for the 116th ACW active duty personnel).

3.3.7. Ensures personnel understand the purpose of the AF Form 2409, **Generation Sequence Action Schedule**.

3.3.7. (ANG) Or electronic form containing the same information.

3.3.8. Ensures an explosive safety and chaff/flare academics and loading program is established in airlift, helicopter, and tanker units.

3.3.9. Publishes procedures covering the storage, control, and handling of starter cartridges (flight line and alert) to meet the daily alert, training, and SIOP requirements.

3.3.10. Provide input to MDSA for the monthly report to MAJCOM.

3.3.11. Oversees and coordinates daily hot pit operations as needed.

3.3.12. For Centralized Aircraft Support System (CASS) units:

3.3.12.1. Ensures conditioned air ducts, liquid coolant hoses, start (bleed) air ducts, power cables, and any couplings used to interface with the aircraft are inspected for serviceability.

3.3.12.2. Provides housekeeping of the pits to include water or snow removal and removal of pit lids to provide access.

3.3.13. Ensures SPRAM accounts are established IAW AFI 21-103 and AFMAN 23-110, *USAF Supply Manual*.

3.3.13.1. Ensures SPRAM accounts are maintained IAW AFI 21-103 for Alternate Mission Equipment (AME) External Fuel Tanks, F-15 Conformal Fuel Tanks (CFT) and B-1B Weapons Bay Fuel Tanks (WBT).

3.3.14. When tasked, ensures the squadron trains sufficient Aircraft Cross Servicing (ACS) Stage A cross-servicing crews and that the crews maintain proficiency to meet NATO requirements. Document ACS training on the Allied Command Europe (ACE) Form ACSC. Refer to SHAPE OPS-60 for specific ACS requirements, see **Chapter 18**.

3.3.15. Coordinates with WWM on all issues affecting AFSC 2W1X1 personnel to include: work center/organizational manpower authorization change requests (ACR), AFSC changes, cross training, re-training, special duty requests, special assignment actions (SWAP, Palace Chase, etc), and physical profile changes.

**3.4. The Aircraft Maintenance Unit (AMU).** Responsible for servicing, inspecting, maintaining, launching, and recovering assigned aircraft, and ensures all mobility requirements are met. There is one AMU for each assigned OS. AMU may include the following sections: Aircraft, Specialist, Scheduling, Weapons, Debrief and Support.

**3.4. (ANG) The Aircraft Maintenance Flight (AMF).** N/A to the ANG. The following only applies to the ANG: AMF is responsible for servicing, inspecting, maintaining, launching, and recovering assigned aircraft, and ensures all mobility requirements are met. AMF may include the following sections: production, aircraft, and specialist.

**3.5. Aircraft Maintenance Unit OIC/NCOIC Responsibilities.** The AMU OIC/NCOIC is responsible to the MOO for sortie generation and the management/supervision/training of assigned personnel. The AMU OIC/NCOIC allocates personnel and resources to the production effort. In addition to the common responsibilities in **Chapter 2**, the AMU OIC/NCOIC:

**3.5. (ANG) Maintenance Supervision Responsibilities.** N/A to the ANG. The following only applies to the ANG: Maintenance supervision is responsible for sortie generation and the management/supervision/training of assigned personnel. Maintenance supervision allocates personnel and resources to the production effort. In addition to the common responsibilities in **Chapter 2**, the maintenance supervision:

3.5.1. Reviews Pilot Reported Discrepancies (PRDs) daily and ensures proper maintenance actions are taken.

3.5.2. Reviews all aborts and ensures proper maintenance actions are taken.

3.5.3. Ensures aircraft phase/isochronal flow is sufficient to meet required taskings.

3.5.4. Ensure sufficient number of personnel are engine run qualified IAW AFI 11-218, *Aircraft Operation and Movement on the Ground*.

3.5.5. Chairs a daily AMU maintenance production meeting.

3.5.5. (ANG) If applicable.

3.5.6. (Added-ANG) Ensures that assigned positions are filled with qualified technicians.

3.5.7. (Added-ANG) Ensures all maintenance actions are documented in the MIS.

3.5.8. (Added-ANG) Reviews transcribed AFTO 781 series forms, and workcenter MIS data entries for the previous day, and all preceding non-duty days, for job accuracy and completeness (CAMS screen #100 and G081 screen 67137).

3.5.9. (Added-ANG) Monitors cannibalization (CANN) actions.

**3.6. Production Supervisor.** The production supervisor is responsible for flight maintenance production. In squadrons with eight or less assigned aircraft production supervisor and flight line expediter duties may be combined provided duties of both functions are performed. Duties are outlined in **Chapter 2**.

**3.6. (ANG) Production Supervisor.** N/A to the ANG. The following only applies to the ANG: The Production Supervisor is responsible for squadron maintenance production. The MXG/CC may combine Production Supervisor and flightline expediter duties. Duties are outlined in **Chapter 2**.

**3.7. Flight line Expediter.** The expediter ensures maintenance is accomplished. An expediter is assigned for each aircraft section. Duties are outlined in **Chapter 2**.

**3.8. Aircrew and Maintenance Debriefing Section.** The Debrief Section works for the Aircraft Maintenance Unit except in MAF units where it may be centrally located. Debriefing is conducted at the termination of each sortie/mission or when a sortie/mission is aborted. Aircraft scheduled for turn-around sorties/missions need not be debriefed if returned in landing status Code 1 or 2. However, debriefing is required, regardless of landing status, after the last flight of the day for each aircrew.

**3.8. (ANG) Maintenance Debrief.** N/A to the ANG. The following only applies to the ANG: The MXG/CC shall establish a debriefing function and the MOC normally has overall management responsibility. At the MXG/CC option, the AMXS may be given the responsibility for Debrief.

3.8.1. Debriefing sections will use aircraft fault reporting manuals to help identify fault codes and speed fault isolation. Include fault codes when documenting discrepancies in the aircraft forms. Use automated debrief tools such as the Computerized Fault Reporting System.

3.8.1.1. When fault reporting manuals are not published for the weapon system, units shall develop aircrew debriefing guides.

3.8.2. Debriefing sections shall develop guides, if not already provided by the MAJCOM, that contain detailed procedures identifying responsibilities for dropped object reporting, aborts or In-Flight Emergencies (IFE), flight control impoundment actions, and engine malfunctions. Debriefing guides are reviewed and approved by QA.

3.8.3. Debriefing sections use operational utilization update screens in MIS to enter flying time information. Debriefing section will develop procedures to ensure flying times and installed engine event history recorder (EHR) readings, if equipped, for both home station and deployed sorties/missions, are updated no later than the next duty day after occurrence.

3.8.4. Debrief aircrew following the procedures outlined in this instruction, AFI 21-103, and by completing applicable screens in the automated debriefing subsystem.

3.8.4. (ANG) N/A to the ANG. The following only applies to the ANG: Discrepancies are sent to MOC either by automated or manual means. Assign status codes to aircraft according to AFI 21-103

and appropriate MESL. Debriefing personnel must thoroughly understand and use the MESL found in command supplements to AFI 21-103 or maintained on the ANG web site.

3.8.5. Check AFTO Form 781H (appropriate blocks) for Flight Condition Data, Airframe Time, Block 13 Servicing Data, per paragraph **3.8.16.1.**, and signature of aircraft commander or designated representative.

3.8.6. Debrief personnel will input discrepancy and deviation information, utilization, and applicable flight data (to include landing status, system capability, and other applicable cause code) into the automated MIS per MAJCOM guidance. Expediters or production supervisors will ensure completed AFTO 781-series forms are provided to the debrief function by the end of the flying day if debriefs have been suspended due to surges. AFTO Form 781s will not be sent to Operations before MIS updates. Local backup procedures will be used for recording data when the automated MIS becomes inoperable.

3.8.6. (ANG) Ensure that aircraft utilization data recorded on the AFTO Form 781, *Aircrew/Mission Flight Data Document*, is entered into the MIS. The responsibility for inputting all flight data shall be locally determined.

3.8.7. Debriefing record files are developed for each aircraft. Files are arranged by aircraft tail number. Include automated debriefing sortie recaps for the most recent five sorties (minimum) to help properly identify repeat/recur discrepancies (software disk back-up copies containing the same information required by hard copy debriefing information may be filed in lieu of hard copies).

3.8.8. Utilize MIS to identify and research discrepancies for Repeat/Recur trends, and document them accordingly in the AFTO Form 781A, **Maintenance Discrepancy and Work Document**.

3.8.9. Debriefers, with the assistance of technicians, ensure previously documented discrepancies are reviewed and identified as repeat/recurs.

3.8.9.1. Repeat/Recur: The definitions for a repeat or recur can be found in the glossary.

3.8.9.1.1. All repeat/recurs are identified on automated debriefing sortie recaps and in the AFTO Form 781A by automated method, red stamp, pen, marker, etc.

3.8.9.1.1. (ANG) Debriefers shall inform the Production Supervisor and expediter when a repeat/recur occurs.

3.8.9.1.2. (Added-ANG) Aircraft debriefing is necessary for all weapons or support systems, but is done differently depending on the complexity of the systems involved. Regardless of the debriefing option elected, procedures are set up to identify "Repeat/Recurring" discrepancies. As a minimum these procedures must limit the person who signs the “inspected by” block to a 7-skill level or higher.

3.8.9.1.3. (Added-ANG) A repeat discrepancy on an aircraft occurs on the next or attempted sortie after corrective action has been taken and the system or subsystem is used and indicates the same malfunction.

3.8.9.1.4. (Added-ANG) A recurring discrepancy on an aircraft occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or subsystem is used and indicates the same malfunction.

3.8.9.1.5. (Added-ANG) A corrective action occurs when parts are removed, replaced, repaired, or when any form of troubleshooting adjustment or cleaning of contacts is accomplished.

3.8.9.1.6. (Added-ANG) A discrepancy in the aircraft forms requesting an in-flight ops check does not negate the identification of a repeat/recur discrepancy if the malfunction returns.

3.8.10. Use the appropriate landing status code (**Table 3.1.**) and the appropriate system capability code (**Table 3.2.**) at the completion of a sortie/mission.

3.8.11. Provide the MOC with aircraft identification numbers and system WUCs for each aircraft debriefed with a landing status Code 3 using the MESL. Production Supervisors make the final determination on the mission capability status of aircraft; MOC ensures the status is accurate and updates the status information in the MIS.

3.8.12. Debriefers enter one of the deviation cause codes (from **Table 3.3.**) into the MIS to indicate the reason for the deviation and the agency that caused a deviation (AFCSM 21-574, *Automated Debriefing*).

3.8.13. Debriefing sections complete Aircraft Structural Integrity Management Information System (ASIMIS) forms on aircraft with ASIP equipment installed. *NOTE*: Not applicable to F-16 units.

3.8.14. Deployed Debriefing Procedures.

3.8.14.1. When debrief section is not deployed, the senior deployed maintenance officer/ NCO ensures debriefing documents are completed by properly trained deployed maintenance personnel.

3.8.14.2. When Maintenance Analysis technicians are not deployed, the senior deployed maintenance officer/NCO designates an individual or activity to perform analysis functions.

3.8.14.3. Use automated debrief tools as the primary debriefing instrument. If MIS is available at the deployed location, MIS will be used. Units include blank printouts of MIS debriefing screens or locally devised products in deployment packages for use if MIS is not available. Use blank printouts as manual documentation method and send documents to home station for data transcribing by the most expeditious means available. Retain duplicates at the deployed site to help in future debriefings. Turn in, validate and reconcile all documents with the squadron debriefing section upon re-deployment.

3.8.15. Debriefing Enhancements. Units have the option of using the following tools to enhance the debriefing process:

3.8.15.1. Cockpit Mock-up. Display cockpit photographs of each assigned MDS to permit identification of indicators and switches at the debriefing station. Actual size photographs are recommended. Dash-1 TO illustrations or computer aided design (CAD) engineering drawings may be substituted for photographs.

3.8.15.2. Scope Malfunction Photographs. To assist in identifying faulty scope presentations, identify common scope malfunctions using processed radar scope camera film. Index and maintain photographs in the debriefing facility. Maintain duplicates in the appropriate avionics or support shop. When this method is used, the applicable photograph is referenced in the descriptive narrative of the fault for effective cross-referencing. Revise photographs when additional scope malfunctions are identified. Squadrons with weapon systems assigned that are not equipped with scope cameras are encouraged to provide photographs using base resources.

3.8.15.3. Airborne Videotape Recorder (AVTR) Playback Equipment. Use an AVTR playback machine and monitor (compatible with all MDS-installed equipment) in debriefing to assist in screening in-flight data.

3.8.16. Aviation Fuels Management and Accounting. Refueling aircraft at DoD installations should always be a planning priority. However, in the overseas or deployment environment, this is not always possible. Refer to AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station* for off-station purchases, when purchasing goods and services off-station. Debriefing sections will maintain a copy of AFI 23-202, to assist in collecting essential billing and fuels accounting information.

3.8.16.1. Aircrews are responsible for documenting the AFTO Form 781H, **Aerospace Vehicle Flight Status and Maintenance Document**, in blocks 13 and 14 for fuel taken on during in-flight refueling. Upon the aircraft's return to home station, the debriefing section reviews the AFTO Form 781H for non-DoD refueling.

3.8.16.2. During small deployments involving minimal maintenance support, the aircraft commander transmits fuel-servicing information using the most expeditious method. Debriefing sections review the information and forward to RDCO/ICOs. When the aircraft return to home station, debriefing collects all non-DOD fuels documents for turn in to the base fuels officer.

**Table 3.1. Landing Status Codes.**

| CODE | STATUS |
|---|---|
| Code 0 | Ground abort. |
| Code 1 | Aircraft mission capable with no additional discrepancies. |
| Code 2 | Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times. |
| Code 3 | Aircraft or system has major discrepancies in mission essential equipment that may require extensive repair or replacement prior to further mis sion assignment. The discrepancy may not affect safety-of-flight and the aircraft may be Not Mission Capable (NMC) flyable. |
| Code 4 | Aircraft or system has suspected or known radiological, chemical, or biological contamination. |
| Code 5 | Aircraft or system has suspected or known battle damage. |

***NOTE:*** Debriefers enter code “8” in MIS for aircraft debriefed as code “4” or “5”. MESL requirements determine if aircraft mission capability status is NMC or PMC.

**Table 3.2. System Capability Codes.**

| CODE | STATUS |
|---|---|
| Code 0 | System flown with a known discrepancy, no additional Discrepancies noted. System can be used. |
| Code 1 | System used and performed satisfactorily. No maintenance required. |
| Code 2 | System used and performed satisfactorily. A minor malfunction exists, but system is capable of further mission assignment. |
| Code 3 | System performance was unsatisfactory. This system did not cause an abort. |
| Code 4 | System performance was unsatisfactory. This system caused or contributed to an abort. |
| Code 5 | System out of commission prior to takeoff. |
| Code 6 | System installed but not used. |
| Code 7 | System not installed. |
| Code 8 | Aircraft or system has suspected or known Radiological/biological contamination. |

**Table 3.3. Deviation Cause Codes.**

| CODE | DEVIATION REASON |
|---|---|
| ATx | Air Traffic |
| GAA | Ground Abort, before engine start, maintenance |
| GAB | Ground Abort, after engine start, before taxi, maintenance |
| GAC | Ground Abort, after taxi, maintenance |
| HQT | Higher Headquarters, MAJCOM |
| HQN | Higher Headquarters, NAF |
| HQP | Higher Headquarters, other |
| MTx | Maintenance |
| OPx | Operations |
| SUx | Supply |
| SYx | Sympathy |
| WXx | Weather |
| OTx | Other |
| xxx | MAJCOM/Local Option |

***NOTE:*** Use x for any character for MAJCOM/local use.

3.8.17. (Added-ANG) Aircraft scheduled for turn-around sorties need not be debriefed if returned in code 1 or 2 status. However, debriefing is required, regardless of status, after the last flight of the day.

3.8.18. (Added-ANG) Ensure that there is emphasis of data collection during debriefing because of the financial impact of data lost during poor debriefing procedures.

3.8.19. (Added-ANG) During debriefing, debriefers are to remove the AF IMT 664, *Aircraft Fuels Documentation Log* from the forms binder, and return it to the aircrew. The aircrew is to deliver this form to their document control officer, according to AFI 23-202. If debriefers do not perform this function, then the Unit shall publish specific procedures outlining the delivery of the AF IMT 664 to the document control officer.

3.8.20. (Added-ANG) When debriefing battle damage, the recovery organization uses the following forms:

3.8.20.1. (Added-ANG) AFTO Form 97, *Aerospace Vehicle Battle Damage Repair Debrief/ Assessment Record.*

3.8.20.2. (Added-ANG) AFTO Form 97A, *Aerospace Vehicle Battle Damage Repair Debrief/ Assessment Record (Continuation Sheet).*

3.8.20.3. (Added-ANG) AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document.*

3.8.20.4. (Added-ANG) AFTO Form 781A, *Maintenance Discrepancy and Work Document*, according to TO 1-1H-39.

3.8.21. (Added-ANG) When automated Maintenance Data Documentation (MDD) Systems, including the debriefing portion are available; data must be input using procedures outlined in the appropriate user manuals or directives. When automated systems are not available, alternate methods must be used, until the data can be input. To the greatest extent possible, all efforts must be made to relay data as soon as possible to the input location.

**3.9. Aircraft Section.** This section consists of dedicated crew chiefs (DCCs), assistant dedicated crew chiefs (ADCCs), flying crew chiefs (FCCs), and aircraft technicians. The crew chief sections are the primary work centers responsible for maintaining the assigned aircraft. Based on the number of aircraft and personnel assigned, MAJCOMs have the option to split into more than one crew chief section.

**3.9. (ANG) Crew Chief Section.** N/A to the ANG. The following only applies to the ANG: The crew chief sections are the primary workcenters responsible for maintaining the assigned aircraft. Based on the number of aircraft and personnel assigned, MXG/CC's have the option to split into more than one crew chief section.

3.9.1. Crew Chief Section performs:

3.9.1.1. Common crew chief section tasks include servicing, scheduled and unscheduled maintenance, pre-flights, thru-flights, basic post-flights, home station checks, special inspections, corrosion control, cleaning, ground handling, launch and recovery of aircraft, troubleshooting and adjustment, on-equipment repairs and component removal and replacement and ensuring documentation of maintenance actions.

3.9.2. Dedicated Crew Chief (DCC). DCCs are first-level supervisors in the flight line management structure. The objective of the DCC program is to directly assign a maintenance person to each aircraft to provide continuity/accuracy of aircraft forms, aircraft status, scheduled maintenance, and improve aircraft cosmetics. The DCC program is the "backbone" of aircraft serviceability and mission capability. This program offers longevity to aircraft and has the potential to save the Air Force unnecessary expenses through preventive maintenance measures. Before being assigned as a DCC, the technician must have a minimum of 6 months experience on the MDS, be a staff sergeant or higher, and possess a 2A3X3A/B/J or 2A5X1/2 AFSC. The MXG/CC retains the authority to waive other aircraft maintenance AFSCs and time/rank requirements to be a DCC. The MXG/CC shall brief the WG/CC monthly on the DCC experience levels/grades and on any need to waive requirements. DCCs manage and supervise all maintenance on their aircraft. DCCs are selected on the basis of initiative, management and leadership ability, and technical knowledge. Only the best maintainers should be assigned as a DCC and Assistant Dedicated Crew Chief (ADCC). "Crew Chief" is a job description and not an Air Force specialty. DCCs and ADCCs are qualified according to the applicable MDS Job Qualification Standards (JQS). Each assigned aircraft must have an assigned DCC (optional for contractor and civil service maintenance functions as determined by the MAJCOM). If possible, the DCC should be the reporting official for the ADCC(s) assigned to his/her aircraft. The DCC keeps the section chief and the flight line expeditor informed of aircraft status. ARC organizations shall reference MAJCOM policy for determination and assignment of crew chiefs. The DCC/ADCC also:

3.9.2. (ANG) The above paragraph is only applicable to 116th ACW active duty personnel. The ANG crew chief must:

3.9.2.1. Will be selected and appointed in a ceremony hosted by the squadron commander and presented certificates, etc.

3.9.2.1. (ANG) The above paragraph is only applicable to 116th ACW active duty personnel.

3.9.2.2. Enforce strict adherence to and comply with technical data and management procedures. Advocates the importance of using current technical data and use of the TO improvement program (TO-00-5-1).

3.9.2.3. Ensure aerospace equipment forms and MIS documentation are completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

3.9.2.4. Documents and identifies maintenance and support requirements to the expediter or section chief.

3.9.2.5. Accumulates knowledge of the aircraft's long-term problems, and takes steps to fix those problems.

3.9.2.6. Ensures timely corrective action is taken on all delayed and deferred discrepancies.

3.9.2.7. Helicopter DCCs perform vibration analysis in flight.

3.9.2.7. (ANG) N/A to the ANG. The following only applies to the ANG: Ensure that helicopter crew chiefs perform vibration analysis in flight.

3.9.2.8. Coordinates with pro supers, expediters, for downtime to accomplish scheduled and unscheduled maintenance.

3.9.2.9. DCCs manage and supervise maintenance on their aircraft and accompany their aircraft during all aspects of maintenance.

3.9.2.9. (ANG) N/A to the ANG. The following only applies to the ANG: Manage and supervise maintenance on their aircraft and accompanies their aircraft during all aspects of maintenance.

3.9.2.10. Performs ground handling, servicing, basic post-flight, pre-flight, thru-flight, home station checks, phase and ISO inspections, acceptance and transfer inspections, special inspections, launch and recovery, quick turns, alert duties, maintenance ground test, corrosion control, wash, lubrication, and maintenance and modification preparations as applicable on their aircraft.

3.9.2.11. Performs engine operation when qualified and certified.

3.9.2.12. Ensures replacement parts are requisitioned and documentation is completed.

3.9.2.13. Attends pre- and post-dock meetings, accompanies the aircraft through scheduled inspection (optional for PDM) and assists the inspection dock chief as needed.

3.9.2.14. Are responsible for on-aircraft dash 21 equipment inventories when this responsibility is not assigned to another function.

3.9.2.15. Ensure DIFM assets within their control are turned into supply.

3.9.2.16. Ensure aircraft technical order (G) files kept on the aircraft are current and complete for use.

3.9.2.17. When authorized, ensure DCC and ADCCs name and rank is stenciled or painted on their aircraft. Follow the established wing paint scheme, unit standards, and marking procedures in TO 1-1-8, *Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft*.

3.9.2.17. (ANG) N/A to the ANG. The following only applies to the ANG: Ensure, when authorized, that crew chief and assistant crew chief's name and rank is stenciled or painted on their aircraft. Follow the established wing paint scheme, unit standards, and marking procedures in TO 35-1-3, TO 1-1-8, and ANGI 21-105.

3.9.2.18. Perform as OJT trainers/certifiers as required.

3.9.2.19. (Added-ANG) Take oil samples and complete appropriate documentation, as required.

3.9.2.20. (Added-ANG) Perform aircraft document review.

3.9.3. Flying Crew Chiefs (FCC). Refer to **Chapter 18** for FCC responsibilities.

3.9.3. (ANG) N/A to the ANG.

**3.10. Specialist Section.** Common tasks for the specialist section are aircraft systems troubleshooting, on-equipment repairs, component removal and replacement, aircraft avionics systems classified item management, and aircraft ground handling, servicing, and cleaning. The section may include avionics, propulsion, hydraulics, and electro/environmental technicians. Other functions may be added at the discretion of the AMU. When used, the specialist section expediter coordinates maintenance priorities with the pro super and flight line expediters.

**3.10. (ANG)** Not all ANG AMFs have specialist assigned.

3.10.1. In addition to the common responsibilities in **Chapter 2**, the specialist section chief:

3.10.1.1. Actively promotes cross-talk with applicable maintenance units to obtain information on system/component repeat, recur and cannot duplicate (CND) trends. .

3.10.1.2. Provides support for Phase/Isochronal Inspections

3.10.1.3. Attends Phase/Isochronal Pre-Docks if required to provide specialist support.

3.10.1.4. Specialists assigned to Rescue Squadrons will assume the responsibilities normally delegated to the Maintenance Group for shop management and procedures, when possible for those functions to remain with the AMU.

3.10.2. Avionics Specialist.

3.10.2. (ANG) If assigned.

3.10.2.1. Ensures awaiting parts (AWP) for the low altitude navigation and targeting infrared for night (LANTIRN) pods are transferred to the sensor section for cross-cannibalization in support of unit production.

3.10.2.2. Performs reprogramming of avionics systems as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

3.10.2.3. Maintains guidance and control systems.

3.10.2.4. Maintains communication and navigation systems including interphone cord repair.

3.10.3. Electronic Warfare Specialist: Functions may be combined with the Avionics Element.

3.10.3.1. Maintain inventory control of all ECM AME and ECM pods.

3.10.3.2. Performs reprogramming of avionics/electronic warfare systems (to include electronic attack pods) as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

3.10.3.3. Load contingency and training configuration settings in ECM pods, infrared countermeasures systems, and RWR/RTHW systems, unless the equipment is assigned to another section.

3.10.3.4. Transport and load ECM pods.

3.10.3.5. Verify operation of the installed RWR/RTHW systems.

3.10.3.6. Coordinate with wing EW officer, AMU and MXS/EMS/CMS pro supers for EW integrated reprogramming.

3.10.4. If applicable, performs B-52 EW responsibilities to include:

3.10.4.1. Emergency and routine reprogramming of the following: ALQ-155/Sensor Integration, ALQ-172, ALQ 153 and ALR-46 systems as directed by Electronic Warfare Officer.

3.10.4.2. Chaff magazine loading and maintenance.

3.10.4.3. Coordinate LRU cannibalization actions in support of annual USM-464 End-to-End testing with the B-52 EWS section in the Avionics Flight.

3.10.4.4. Coordinate CND screening with the B-52 EWS section in the Avionics Flight.

3.10.5. If applicable, B-52 Comm/Nav Mission Systems Section (CNMS)

3.10.5.1. Maintains Offensive Avionics System (OAS), AN/ASQ-176, Strategic Radar (SR), AN/APQ-166. Inertial Navigation Set (INS), AN/ASQ-136. Electro-optical Viewing System (EVS), AN/ASQ-151. AVTR System.

3.10.5.2. Maintains communication and navigation systems including interphone cord repair.

3.10.6. Propulsion Specialists.

3.10.6. (ANG) If assigned.

3.10.6.1. Troubleshoots, repairs, and replaces aircraft propulsion systems.

3.10.6.2. Performs aircraft engine downloads if required by TOs.

3.10.6.3. Performs flight line engine borescope inspections.

3.10.6.4. Ensure pertinent worksheets, historical records, and troubleshooting information regarding engine removals are provided to the propulsion flight.

3.10.6.5. Are the squadron focal point for engine maintenance training.

3.10.6.6. Will be actively involved in the wing FOD and engine trending programs.

3.10.6.6.1. When FOD is identified, other than minor sand nicks or scratches, notify the Wing FOD Monitor prior to blade blending. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 IAW TO 00-20-1.

3.10.6.6.2. Notify the Engine Management Section with the following information for input into the engine historical records; engine serial number, stage number, number of blades

blended, depth of damage before and after blend, area of damage, and employee number of maintenance personnel.

3.10.7. Electro/Environmental Specialists.

3.10.7. (ANG) If assigned.

3.10.7.1. Troubleshoots, repairs and replaces aircraft Electro/Environmental systems.

3.10.7.2. Maintains aircraft environmental control, bleed air, vacuum, pneumatic, installed fire extinguishing and suppressant systems, liquid and gaseous oxygen systems, and on-board oxygen generating systems and components. The E&E section services, repairs, modifies and tests components of these systems, as required. Using organizations are responsible to inspect gaseous and cryogenic servicing carts prior to use. Users are responsible to ensure the quantity of the liquid oxygen (LOX) or LN2 in the aircraft servicing cart does not fall below minimum levels prior to or during servicing.

3.10.8. Hydraulics. Hydraulics personnel maintain on-equipment pneumatic, hydraulic, and pneudraulic systems and components.

3.10.8. (ANG) If assigned.

**3.11. Weapons Section.** This section normally consists of two elements; loading and maintenance. Weapons expediters are assigned to manage flight line operations. The maintenance section is not normally formed in squadrons supporting B-1, B-2, or B-52 aircraft. In squadron-sized fighter units, maintenance authorizations and responsibilities may be combined with those of the armament systems flight. MAJCOMs will determine applicable portions of the weapons responsibilities for contract and civil service organizations. Weapons loading tasks will adhere to the minimum requirements of the weapons certification and weapons task qualification programs. Weapons personnel in helicopter units are responsible for applicable portions of this chapter and the armament flight chapter.

**3.11. (ANG) Weapons Element.** N/A to the ANG. The following only applies to the ANG: This section normally consists of two sections; weapons loading and armament systems. Weapons expediters may be assigned to manage flightline operations. A weapons loading section chief may be assigned to assist in managing flightline operations. Individual gun services and weapons release section chiefs may be assigned to support management of armament systems sections. An armament systems section chief may be assigned to assist in managing gun services, and weapons release sections. Weapons loading tasks must adhere to the minimum requirements of the weapons certification and weapons task qualification programs. Weapons personnel in rescue units are responsible for applicable portions of this chapter and **Chapter 16** of this instruction. In addition to the common element supervisor responsibilities in **Chapter 2**, the weapons element supervisor:

3.11.1. Weapons Section Chief. In addition to the common section chief responsibilities in **Chapter 2,** the weapons section chief:

3.11.1.1. Assists the wing weapons manager in recommending distribution of wing 2W1X1 personnel to satisfy weapons loading and on-equipment armament system maintenance requirements.

3.11.1.2. Advises the MOO and notifies the Wing Weapons Manager regarding factors which affect training, weapons loading or maintenance capabilities, load crew or Personnel Reliability Program (PRP) status, equipment and tester shortfalls and other key weapons related issues.

3.11.1.3. Recommends the most qualified personnel in the weapons section to be lead crew members.

3.11.1.4. Ensures the minimum load crews as stated on the UCML/TTML are trained and certified to perform the mission (within the ARC, UCML minimums are determined by the MAJCOM). Maintains load crew integrity during training and evaluations to the maximum extent possible. Ensures all load crews are trained to perform aircraft functional checks.

3.11.1.4. (ANG) Ensures at least 85 percent of the authorized load crew stated on the UCML/TTML are trained and certified to perform the mission.

3.11.1.4.1. In nuclear tasked units, load crew members and loading supervisors (including weapons expediters) are trained to perform weapons systems fault isolation and troubleshooting within the guidelines of the weapons system safety rules and applicable loading/troubleshooting technical procedures.

3.11.1.5. Ensures safe and reliable loading and maintenance procedures are used. Do not use more than one load crew to accomplish weapon loading and unloading tasks (DLO) on fighter/attack aircraft, unless authorized by the MAJCOM.

3.11.1.6. Maintains a visual aid or automated product depicting the current status of assigned load crews and members. Manually updates printed products from automated systems between issues. Printed products are not required if computer systems are networked or modem-interfaced with the weapons standardization (WS) load crew management system for on-line updates.

3.11.1.7. In coordination with the WS superintendent, ensures load training aircraft requirements and load crew proficiency evaluation schedules are developed. Includes these schedules in the weekly and monthly maintenance plans. Ensures training aircraft are properly configured to support load-training requirements prior to scheduled training sessions.

3.11.1.8. Designates weapons expediters in writing. Weapons expeditors report to the weapons section chief.

3.11.1.8. (ANG) N/A to the ANG. The following only applies to the ANG: May designate expediters and subordinate supervisors.

3.11.1.9. Ensures a checklist for each Primary Munition (PM) and Support Munition (SM) is on hand for each assigned load crew CTK. In coordination with the WWM, determines required quantities in test organizations.

3.11.1.10. Reviews all AFTO Forms 22 for -16 and -33 technical orders and routes to the WS for review.

3.11.1.11. Ensures supervisory post-loads and maintenance inspections are performed.

3.11.1.12. Ensures approval of Locally Manufactured Equipment (LME) if not included in tech data or on the Munitions Materiel Handling Equipment (MMHE) Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845.

3.11.1.12.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on

the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

3.11.1.12.2. Munitions/armament LME, specifically designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, "y"-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings must be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME, not designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site, must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

3.11.1.12.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

3.11.1.12.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO 244s, or equivalent, shall be maintained for all LME items (racks, stands, adapters, etc.). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

3.11.1.12.5. DELETED.

3.11.1.13. Ensures coded dies for nuclear applications are controlled according to AFI 91-104, Nuclear Surety Tamper Control and Detection Programs.

3.11.1.14. Ensures aircraft -6 armament system, AME, NIE inspections, TCTOs and aircraft functional checks (except phase/HPO) are accomplished as required to prevent overdues or over flight of equipment.

3.11.1.15. Tracks all assigned in-use AME by aircraft tail number and position installed, and/or storage location (must be tracked in the MIS).

3.11.1.15.1. Ensures normally installed equipment (NIE) locations are updated in the MIS.

3.11.1.16. Ensures positive control/accountability/serviceability for suspension equipment accessories (cables, fittings, adapters, etc.).

3.11.1.17. Tracks F-16 acceleration monitor assemblies by serial number, showing aircraft tail number and installed position.

3.11.1.18. Ensures load crew certification records and automated products are sent with load crews to TDY location if loading tasks are to be performed. Obtain a signed copy of the Weapons Load Crew Management Program (WLCMP) or equivalent printout from WS.

3.11.1.19. Ensures personnel receive a documented supervisory review of and complete required prerequisite training before entering initial load crew training or performing flight line operations (e.g., cockpit familiarization, fire fighting, AGE, etc.).

3.11.1.20. Ensures on-equipment serial number inventory, AFTO Form 95 review and functional checks are performed on all AME and NIE installed as a result of transfer or acceptance inspection. Also perform inventory of applicable -21 authorizations.

3.11.1.21. Inspects 25% of weapons section CTKs, armament test and support equipment for serviceability, at least quarterly, and initiates corrective action as required. Schedules and tracks inspections to ensure 100% of CTKs, test, and support equipment will be checked over a one-year timeframe. Documents inspection results and uses for follow-up action and reference as necessary. Ensures inspection is documented on appropriate equipment form such as AFTO Form 244 or AF Form 2411.

3.11.1.21. (ANG) N/A to the ANG. The following only applies to the ANG: Inspects weapons element CTKs, armament test and support equipment for serviceability. Schedules and tracks inspections to ensure 100 percent of CTKs, test, and support equipment must be checked over a one-year timeframe. Documents inspection results and uses for follow-up action and reference as necessary. Ensures inspection is documented on appropriate equipment form such as AFTO Form 244 or AF IMT 2411.

3.11.1.22. Ensures appropriate follow-up actions are accomplished for all armament system malfunctions. Monitors actions taken by supporting agencies on dispensers, suspension equipment, training munitions, etc., which were involved with specific system malfunctions. Updates WWM by the first of each month for the previous month on weapons release reliability and gun fire-out rates along with corrective actions if required.

3.11.1.23. Monitors upgrade training, PRP status and qualifications of assigned work center personnel. Ensures MAJCOM Mandatory Course List (MMCL) requirements are met (if applicable).

3.11.1.23. (ANG) N/A to the ANG. The following only applies to the ANG: Monitors upgrade training and qualifications of assigned workcenter personnel.

3.11.1.24. Ensures sufficient computer systems are assigned to support network/modem interface with the WWM, WS, other Weapons Sections, Armament Systems Flight, automated training systems and other agencies.

3.11.1.25. Establishes a SPRAM account to track F-15E encoder/decoders and power supplies and F-16 ruggedized nuclear remote interface units (as applicable, if not tracked by Armament Systems Flight).

3.11.1.26. Provides WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, armament testers, support equipment, and personnel assigned (to include physical profiles/security status, and mal-assigned if applicable) by the first of each month.

3.11.1.27. See **Chapter 18** in regards to the Special Certification Roster.

3.11.1.28. Ensures (with WWM concurrence) that WS personnel are inluded on TDY's or deployment of more than 30 days to provide MPRL and recertification capability to deployed load crews. On TDY's where live munitions are to be fired/expended, regardless of length, the WWM will determine whether or not WS participation is required.

3.11.1.29. See **Chapter 12** for KEEP program information.

3.11.1.30. See **Chapter 13** in regards to lost tools.

3.11.1.31. Designates individuals authorized to perform and document production and supervisory inspections on the SCR.

3.11.1.32. See **Chapter 18** in regards to Maintenance Recovery Teams (MRT).

3.11.1.33. Review **Chapter 18** for requirements dealing with Protective Aircraft Shelter (PAS) Environment.

3.11.1.34. Ensures appropriate amount of Dash-21 armament equipment is on-hand and accounted for IAW AFI 21-103.

3.11.1.35. Ensures individual tool kits are set up for each load crew (as specified on the UCML/TTML; numbers include lead crews). In coordination with the WWM, determines the number of loading tool kits required for load crews in bomber units, and those that support only test, evaluation or training operations. Coordinates with WWM on assigned weapons load crew CTKs for approval/signature of the Master MIL prior to signature by the AMU MIL approval authority (**Chapter 13**). The WWM must indicate approval by signing the master weapons load crew MIL.

3.11.1.36. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

3.11.1.36. (ANG) N/A to UAE owned F-16 block 60 equipment.

3.11.2. Weapons Loading Element. Personnel assigned to loading (not required in rescue units):

3.11.2. (ANG) N/A to the ANG. The following only applies to the ANG: Weapons Loading: The weapons loading supervisor is responsible to the weapons element supervisor for all loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. The loading supervisor coordinates maintenance priorities with the flightline expeditor and Production Supervisor. In addition to common element/workcenter supervisor responsibilities outlined in **Chapter 2** of this instruction, the weapons loading supervisor:

3.11.2.1. Load and unload munitions and weapons in support of daily flying training and contingency operations. Certification and qualification requirements for these operations are specified in WS section of this instruction.

3.11.2.2. Install and remove armament related suspension equipment, launchers, adapters, etc., on assigned aircraft to support configuration requirements for daily and contingency operations.

3.11.2.3. Perform functional and stray voltage checks required for loading operations.

3.11.2.4. Provide assistance to the weapons maintenance element when required.

3.11.3. Load Crew Chief. The load crew chief is responsible to the weapons section chief for armament systems maintenance and loading of assigned aircraft. Load crew chiefs are normally NCOs with AFSC 2W151. Senior airmen may perform load crew chief duties when unit-manning status dictates. The weapons load crew chief:

3.11.3.1. Is responsible for and controls all actions concerning the aircraft during loading and unloading. No one is authorized access to the aircraft without load crew chief approval. The load crew chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which would jeopardize safety, hamper loading operations, or violate tech data. Access to the cockpit and/or applying power to the aircraft by other than the load crew during loading operations is prohibited unless coordinated through and approved by the weapon load crew team chief. **EXCEPTION:** During loading and unloading when CSOs (including fueling) are utilized, the CSS is in charge.

3.11.3.2. Supervises the loading and unloading of only one aircraft at a time.

3.11.3.3. Controls and ensures the number of personnel in the area during explosives handling operations are kept to a minimum.

3.11.3.4. Ensures compliance with AFI 91-101, *Air Force Nuclear Safety Certification Program,* when responding to unscheduled maintenance actions on nuclear loaded aircraft.

3.11.3.5. Monitors and ensures proper documentation of qualifications, proficiency, on-the-job and upgrade training of his crew members. Takes the necessary action to assist or provide any training opportunities.

3.11.3.5.1. In nuclear tasked units, train crew members to perform weapons systems fault isolation and troubleshooting within the guidelines of the weapons system safety rules and applicable loading/troubleshooting technical procedures.

3.11.3.6. Enforces compliance with and ensures all loading and maintenance operations are performed in accordance with established tech data and checklists.

3.11.3.7. See **Chapter 12** for KEEP program information.

3.11.4. Weapons Maintenance Element. Personnel assigned to weapons maintenance (when this function is not formed, these tasks are performed by loading personnel):

3.11.4. (ANG) N/A to the ANG. The following only applies to the ANG: Armament Systems Section: Armament Systems Sections are not normally formed in rescue units. The armament section performs on/off-equipment maintenance for assigned aircraft armament systems, guns, pylons, racks, launchers, and adapters. The section stores, maintains, and accounts for all AME, tools, stocks, and equipment assigned to the element. Gun services and weapons release supervisors may be assigned to support management of the armament shop. An armament shop supervisor may be assigned to assist in managing the gun and weapons release shops. In addition to common element/workcenter supervisor's responsibilities outlined in **Chapter 2** of this instruction, the gun, weapons release, and/or armament supervisors:

3.11.4.1. Install and remove all armament AME and NIE to facilitate other maintenance (FOM) or for repair action, to include acceptance and transfer inspections.

3.11.4.2. Perform aircraft troubleshooting and repair actions.

3.11.4.3. Perform aircraft armament systems functional checks and dash-6 inspection requirements on in-use AME and NIE.

3.11.4.4. Boresight aircraft guns.

3.11.4.5. Perform armament systems pre-flight, through flight and BPO inspections.

3.11.4.6. Perform on-equipment TCTOs and weapons time change items.

3.11.4.7. Maintain qualification on designated weapons related qualification tasks for the unit

3.11.4.8. Maintenance personnel may be certified as load crew members at the discretion of the weapons section chief.

3.11.4.9. (Added-ANG) Assists the wing weapons manager in recommending distribution of wing 2W1X1 personnel to satisfy on- and off-equipment weapons release and gun system maintenance.

3.11.4.10. (Added-ANG) Advises maintenance supervision and the wing weapons manager regarding factors which affect armament systems, gun maintenance, and other related programs.

3.11.4.11. (Added-ANG) Establishes and monitors gun room security and explosive licenses if required.

3.11.4.12. (Added-ANG) Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103.

3.11.4.13. (Added-ANG) If applicable, supports WRM rack, adapter, pylon, launcher and gun maintenance requirements IAW AFI 25-101. Ensure all WRM racks, adapters, launchers, and guns are serviceable to meet unit taskings.

3.11.4.14. (Added-ANG) Provides the WWM monthly status on authorized/on-hand quantities and serviceability of AME/WRM, critical armament testers, and support equipment.

3.11.4.15. (Added-ANG) Establishes a SPRAM account to track F-16 Ruggedized Nuclear Remote Interface Units (RNRIU) and a munitions account for dummy test rounds and issued LAU-131 launchers if required.

3.11.4.16. (Added-ANG) Develops and implements a recognition program for assigned personnel.

3.11.4.17. (Added-ANG) Ensures compliance with hazardous material and hazardous waste management and air emissions record keeping as required for environmental compliance IAW applicable environmental requirements and guidance.

3.11.4.18. (Added-ANG) Ensures sufficient computer systems are assigned to support network and modem interface with the WWM, WS, Weapons Sections, automated training systems, and other agencies.

3.11.4.19. (Added-ANG) Identify to LRS, by NSN, all aircraft armament systems components that require acceptance inspections.

3.11.4.20. (Added-ANG) In coordination with PS&D, requisitions parts to satisfy time change requirements for aircraft armament or gun system components not identified in aircraft dash-6 TOs.

3.11.4.21. (Added-ANG) Maintains the MIS database for installed guns, gun systems, and gun component time change items or inspection data, based on round count limits listed in the dash-6 TO, including updating rounds from the AF IMT 2434 or locally developed form.

3.11.4.22. (Added-ANG) Advises the element chief of any factors limiting the maintenance capability.

3.11.4.23. (Added-ANG) Develops procedures, in coordination with the weapons element/section supervisors and wing weapons manager, on the governing accountability and control of AME.

3.11.4.24. (Added-ANG) Unpacks and packs assigned AME in storage.

3.11.4.25. (Added-ANG) Develops and implements a program for documenting issues and receipts of in-use AME.

3.11.4.26. (Added-ANG) Manages the supply function for the section IAW AFMAN 23-110.

3.11.4.27. (Added-ANG) Performs user calibration and maintenance on element TMDE.

3.11.4.28. (Added-ANG) Coordinates with TMDE to ensure calibration requirements are met.

3.11.4.29. (Added-ANG) Maintains the R-14 master ID listing.

3.11.4.30. (Added-ANG) Maintains CTKs, tool storage area and test equipment IAW **Chapter 13**.

3.11.4.31. (Added-ANG) Maintains the element technical order and publication files.

3.11.4.32. (Added-ANG) Maintains supply management documents (i.e., D04, D18, D19 and Q13).

3.11.5. Weapons Expediter (not required in rescue units). The weapons expediter is responsible to the weapons section chief for all armament systems maintenance and loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. The expediter coordinates maintenance priorities with the production supervisor.

3.11.5. (ANG) If utilized. If a weapons expeditor is not assigned the following duties must be performed by a weapons loading supervisor. A weapons loading supervisor may be assigned to assist in managing flightline operations.

3.11.5.1. Supervises/ actively monitors on-equipment armament systems maintenance.

3.11.5.2. Supervises/ actively monitors loading/unloading operations.

3.11.5.3. Tracks configuration of aircraft, suspension equipment, and weapons. Ensures 100 percent documented accountability of in-use AME/NIE, by location and status, whether installed or stored.

3.11.5.4. Informs the production supervisor of all start and stop times, status changes, delays and extensions.

3.11.5.5. Tracks munitions expenditures as follows:

3.11.5.5.1. Fill out an AF Form 2434, **Munitions Configuration and Expenditure Document**, or locally produced form, on all aircraft configured and loaded to release or fire munitions. Record by serial number and location or position all armament related AME or support equipment from which munitions items are expended.

3.11.5.5.2. A reconciliation of expenditures is accomplished with the munitions section at the end of the flying day. After the reconciliation, copies of expenditure documents are distributed to the PS&D, the munitions flight and, when required, the armament systems flight. The documentation action block is annotated when entries are made on item historical documents.

3.11.5.5.2. (ANG) Expenditure documents are not distributed to PS&D.

3.11.5.6. Coordinates with the MOC or munitions control for the delivery and pick-up of munitions items.

3.11.5.7. Coordinates accomplishment of all planned and unscheduled maintenance and inspections with the production supervisor.

3.11.5.8. Monitors the safety of flight line weapons operations.

3.11.5.9. Supervises and assists load and maintenance crews during weapons release system fault isolation and troubleshooting.

3.11.5.10. Performs supervisory post loads of explosives loaded aircraft and maintenance inspections.

3.11.5.10. (ANG) N/A to the ANG. The following only applies to the ANG: Performs supervisory spot checks of post loads of explosives loaded aircraft and maintenance inspections using the following guidelines:

3.11.5.10.1. (Added-ANG) Post load inspections need include only a sampling of loaded aircraft and must be at least one aircraft per flying day. The inspection must be documented in the WLCMP or equivalent or in the ANG Quality Assurance Database (QuAD) before the aircraft is considered “weapons ready”. The post load does not take the place of the weapons load crew chief’s “postloading” portion of the applicable 1X-XXX-33-1-2CL-X checklist.

3.11.5.10.2. (Added-ANG) The weapons expeditor, if used, shall perform these post load inspections. If no expediter is used, weapons supervisors shall perform the inspections. LSC must train weapons supervisors and any weapons element 7-levels qualified to perform expediter duties during their annual weapons academics class.

3.11.5.10.3. (Added-ANG) Any 2W171 eligible to perform expediter duties may be trained to perform post load spot-checks. Units shall determine these training requirements and do not require a special class or course code because they are taught in academics.

3.11.5.10.4. (Added-ANG) Trends from post load inspections should be forwarded to the LSC to help evaluate the effectiveness of their ongoing training efforts.

3.11.5.11. Initiates CANN documentation, when authorized, or when AME and NIE with inspection requirements aligned to a specific aircraft phase and specific accrued flying hour intervals (e.g. pylons, bomb racks, launchers, and gun components) are removed and installed on a different aircraft. Use caution when installing items on aircraft with less phase time accrued than the item itself to avoid overfly of AME or NIE -6 inspection requirements. Inform PS&D when actions affect the aircraft inspection schedule.

3.11.5.12. Maintains a separate AF Form 2430 *Specialist Dispatch Control Log* for each shift. Ensures all required documentation is complete and accurate. Transcribe any actions not complied with or cancelled to the next shifts AF Form 2430.

3.11.5.12. (ANG) Or local form.

**3.12. MH-53J/M and HH-60 Units.** The MH-53J/M and HH-60 Weapons Section is a composite of both the flight line weapons section and armament flight. Flight Chiefs need only comply with applicable paragraphs and guidance below the WWM and armament flight chapters that are applicable to MH-53J/M and HH-60 unit organizational structure, responsibilities and functions.

3.12.1. Personnel are formed into maintenance teams, are qualified to perform on/off equipment maintenance, and do not load ammunition on the helicopter. This is performed by the flight engineer or aerial gunner.

3.12.1. (ANG) N/A to the ANG. The following only applies to the ANG: Personnel are formed into maintenance teams and are qualified to perform on-off equipment maintenance and do not normally load ammunition on the aircraft. This is normally done by the flight engineer or aerial gunner.

3.12.2. Other basic responsibilities of the MH-53J/M and HH-60 weapons section are as follows:

3.12.2.1. Maintain qualification to install/remove chaff/flare and install/remove guns.

3.12.2.1. (ANG) N/A to the ANG. The following only applies to the ANG: Perform chaff/flare loading as required. Perform applicable gun system functional checks. Perform both -6 and commodity tech order inspection requirements on associated guns and equipment.

3.12.2.2. Weapons sections do not maintain aircrew/mobility small arms weapons (i.e., M9, M16, etc.).

3.12.2.2. (ANG) N/A to the ANG. The following only applies to the ANG: Maintain weapons/munitions accounts as required.

3.12.2.3. DELETED.

3.12.2.4. DELETED.

**3.13. MQ-1 Predator Units.**

3.13.1. All 2W1X1 manpower positions earned to support the MQ-1 Predator shall be formed under a single work center designated as a Weapons Flight. The Weapons Flight shall support and perform training and certification/qualification for all Predator weapons loading, armament systems, and suspension equipment inspections and maintenance.

3.13.1.1. The WWM will have management authority IAW **Chapter 16** of this instruction.

3.13.1.2. A separate Armament Flight or Weapons Standardization Section will not be formed to support UCAV/Predator

3.13.2. With the exception of those personnel designated by the WWM, all 2W1 personnel will be qualified/certified to perform both loading and on and off armament equipment maintenance and inspection functions.

3.13.2.1. Personnel within the element will be designated as trainers and certifiers for the purpose of weapons load certification.

3.13.2.2. For management purposes personnel may be formed into weapons support teams to support loading/maintenance.

3.13.3. As a minimum, all loading tasks will be evaluated by designated trainers /certifiers quarterly. An AF Form 2419 and 2435 or an automated product may be used to document training and certification. As a minimum this document will show initial, recurring certification and decertification dates, and identify trainers and trainees.

**3.14. Lead Technician (Lead Tech) Responsibilities.** Units may choose to identify Lead Technicians. A Lead Tech is the flight AFSC subject matter expert and represents all personnel in that AFSC. Their use is especially important where multiple AFSCs are integrated into sections. Units supporting different aircraft types may find it beneficial to identify Lead Tech for each MDS. Serving as a Lead Tech is considered an additional duty, not a duty title or full-time job. Lead Techs:

3.14.1. Work with the Flight Chief /Section Chiefs to ensure personnel in the Lead Tech's AFSC receive proficiency training.

3.14.2. Serve as the Flight Chief's technical advisor for matters relating to their AFSC.

3.14.3. Work with the Flight Chief/Section Chief to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements.

3.14.4. Monitor repair processes to ensure safe, effective repair of unit assets.

3.14.5. Evaluate trends and indicators of troubleshooting effectiveness and 2LM efficiency. Unit RTOK "Re-test OK" components (RTOK) are costly and often indicate opportunities to improve troubleshooting or repair processes. If your unit has RTOK data available, review the data monthly for trends. Simple process improvements may result from emphasis on RTOK costs, more in-depth troubleshooting, or (circumstances permitting) reinstalling original line replaceable units (LRUs) when replacement LRUs drawn from supply don't fix the problem

**3.15. Support Section.** The section may include the following sections/functions to support flight line maintenance and generation activities; support section (CTKs/special tools, E-Tools, test equipment, TOs, bench stock), Dash-21 equipment, alternate mission equipment, vehicles, mobility equipment and dedicated supply support functions to support the production effort. Mobility Air Force (MAF) and Low Density-High Demand (LD-HD) units shall combine aircraft support functions into one Aircraft Support Flight (ASF) per PAD 02-05, Annex U. The ASF in the AMXS shall support all AMUs. Due to geographical separation, the CTK function may be decentralized to the AMUs. The NCOIC must be a highly motivated NCO with a maintenance-related AFSC. Assign highly qualified personnel for a minimum of 12 months. 2W1X1 personnel may be required to maintain task qualification/certification. Group commander approval is required for rotation under 12 months. Units are strongly encouraged to benchmark off of other support sections to leverage the benefits of standardization between units. Refer to **Chapter 8** of this instruction and applicable AFMAN 23-110 series publications for guidance on supply procedures. Refer to **Chapter 13** of this instruction for tool control guidance. Supply support procedures in this section do not apply to aircraft supported by Contractor Operated and Maintained Base Supply (COMBS). The support section:

**3.15. (ANG) Support Section.** N/A to the ANG. The following only applies to the ANG: Support Section, when assigned. Organize a support section in each sortie support flight. 2W1X1 personnel may be required to maintain task qualification/certification. Refer to **Chapter 8** of this instruction and AFMAN 23-110 for guidance on supply procedures. Refer to **Chapter 13** of this instruction for tool control guidance. The support section:

3.15.1. Maintains technical orders (TO 00-5-1).

3.15.2. Maintains bench and operating stocks. See **Chapter 8** for detailed procedures.

3.15.3. Ensures maintenance, control and storage of assigned Alternate Mission Equipment (AME), Dash-21 equipment, and Maintenance, Safety, and Protective Equipment (MSPE) IAW AFI 21-103. Develops local procedures to control and store non-specified configuration items using AFI 21-103 guidelines.

3.15.4. Accomplishes squadron deployment processes (i.e. equipment/supply preparation/ de-preparation).

3.15.5. Maintains hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

3.15.6. Control and maintain test, measurement and diagnostic equipment (TMDE) IAW TO 33-1-27, Maintenance Support of precision measurement equipment.

3.15.6.1. User maintenance for TMDE assigned to support sections must be limited to those tasks within the squadron's capability.

3.15.6.2. Comply with TO 33K-1-100, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*; TO 00-20-14, *AF Metrology and Calibration Program*; and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

3.15.6.3. DELETED.

**3.16. Plans, Scheduling and Documentation Section (AMU PS&D).** AMU PS&D is the focal point for all maintenance planning of flight assigned aircraft. In MAF units, MOF PS&D performs AMU PS&D functions. Refer to **Chapter 15** and MAJCOM instructions for additional AMU PS&D responsibilities.

**3.16. (ANG)** N/A to the ANG except the 116th ACW.

**3.17. Dedicated Supply Support.** In addition to the responsibilities in **Chapter 8** for Maintenance Supply Support procedures, supply support will:

3.17.1. Requisitions parts and uses supply management products. Initiates follow-up action when necessary.

3.17.2. Notifies the expediter of all back-ordered parts.

3.17.3. Maintains QRL as needed and make it readily available to technicians.

3.17.4. Tracks and processes DIFM assets, to include warranty parts (AFMAN 64-110, *Manual for Weapon System Warranties*).

3.17.5. Manages reusable containers IAW AFI 24-202, *Preservation and Packing*, and TO 00-20-3.

3.17.6. Controls and manages aircraft TNB/FOM assets if stored within the support section.

3.17.7. Notifies the expediter of tail number “mark for” changes.

3.17.8. Monitors the squadron CANN program and associated documentation.

3.17.9. Process the MICAP start in Mission Capable (MICAP) Asset Sourcing System (MASS); ensure all pertinent data is included. (Applies to commands with a Regional Supply Squadron (RSS).

3.17.10. Upgrade, downgrade and cancel MICAP requirements. (Applies to commands with a RSS).

**3.18. (Added-ANG) The Transient Alert (T/A) Flight** (where authorized) is responsible for recovering, servicing, inspecting, maintaining, and launching transient aircraft. Procedures in this section apply to en route, military, contract, and civil service transient maintenance functions. Additionally, T/A:

3.18.1. (Added-ANG) Complies with provisions in TO 00-20-1 with regard to maintenance and reimbursement documentation. AF IMT 726, *Transient Aircraft Service Record*, may be used for documenting maintenance servicing requirements and billing information.

3.18.2. (Added-ANG) Promptly informs the MOC of all status changes on transient aircraft.

3.18.3. (Added-ANG) The scope and depth of required technical data to support transient aircraft shall be determined by the MXG/CC. If technical data and qualified personnel are not available then the pilot or qualified aircrew member must remain at the aircraft while basic servicing operations are performed. Under no circumstances shall maintenance be performed on transient aircraft without technical data and qualified personnel.

3.18.4. (Added-ANG) Ensures personnel authorized to run engines are qualified according to applicable Air Force and command directives. When there are no qualified maintenance personnel assigned to the T/A Flight, qualified aircrew members accomplish necessary engine runs for maintenance.

3.18.5. (Added-ANG) Maintains HAZMAT and ESOH items IAW with ESOH guidance.

## Chapter 4

## MAINTENANCE SQUADRON (MXS)

**4.1. General.** The Maintenance Squadron consists of personnel from various AFSCs organized into flights: propulsion, avionics, test measurement and diagnostic equipment (TMDE), accessory maintenance, aerospace ground equipment (AGE), fabrication, armament systems, maintenance, and munitions flights. The MXS maintains AGE, munitions, off-equipment aircraft and support equipment components; performs on-equipment maintenance of aircraft and fabrication of parts; and provides repair and calibration of TMDE. If a MXS exceeds 700 authorizations, MAJCOMs may establish an Equipment Maintenance Squadron and Component Maintenance Squadron IAW AFI 38-101, *Air Force Organization*, applicable squadron level duties are IAW this chapter and flight duties are governed by their respective chapter. *NOTE:* The terms and responsibilities associated with the sections identified in this chapter may differ or may not be applicable to all units, based on unit size, mission, and MDS assigned.

**4.1. (ANG) General.** N/A to the ANG. The following only applies to the ANG: The MXS provides support to the AMXS's sortie production and the depth to sustain maintenance effectiveness. The MXS is divided into two flights, the Component Maintenance Flight and the Equipment Maintenance Flight. The Component Maintenance Flight performs both on and off equipment maintenance on assigned aircraft and normally consists of the Avionics Element, the Propulsion Element, and the Accessory Element. The Equipment Maintenance Flight performs both on and off equipment maintenance on assigned aircraft and normally consists of the Fabrication Element, AGE Element, Inspection Element, and Munitions Element (when assigned). The extent of CUT tasking shall be locally determined. MDS peculiarities shall determine exceptions to the general organization of the MXS. **NOTE**: The terms and responsibilities associated with the sections identified in this chapter may differ or may be N/A to all units based on unit size, mission, and MDS assigned.

**4.2. Squadron Commander Responsibilities.** The squadron commander performs command functions outlined by public law, or directives common to all Air Force squadron commanders. They are responsible to the MXG/CC for overall squadron management. General responsibilities are outlined in **Chapter 2**. The squadron commander recommends and the group commander appoints flight commanders.

**4.3. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MXS Maintenance Operations Officer (MOO) is responsible to the Squadron Commander for maintenance production. The MOO, assisted by the Maintenance Superintendent (SUPT), manages the resources to accomplish the workload. In addition to general responsibilities in **Chapter 2**, the MOO/SUPT:

**4.3. (ANG)** Flight OIC/SMO Responsibilities.

4.3.1. Designates Flight Chiefs. The best-qualified people are selected within the constraints of AFMAN 36-2108, *Airman Classification*. EXCEPTION: Munitions flight chiefs will be appointed by the SQ/CC IAW AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions.*

4.3.2. Coordinates with the AMXS Maintenance Operations (MOO/SUPT) to develop and execute a rotation plan that balances grade, skill level and experience of personnel between Aircraft Maintenance Units and back shops. Ensures military personnel are rotated, as necessary, to enhance individual experience and knowledge. The wing weapons manager shall perform this function for AFSC 2W1X1.

4.3.2. (ANG) Within ANG manpower constraints.

4.3.3. Compiles a list of tasks requiring in-process inspections (IPIs) to be included in the Group IPI list.

4.3.4. Reviews and consolidates monthly maintenance plan inputs from flights/sections and forwards to MOF PS&D.

4.3.5. Participates in the review of base level repair capability IAW TO 00-20-3, AFI 21-123 and MAJCOM supplements.

4.3.6. When requested by QA, appoints QA augmentees.

4.3.7. Ensures EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM supplements.

4.3.7. (ANG) N/A to the ANG.

4.3.8. Ensures procedures exist between the MXS and Weapons Standardization (WS) for required weapons loading actions on transient aircraft, storage of transient aircraft impulse cartridges, and requisition and maintenance of weapons safing equipment for common transient types of aircraft.

4.3.9. Ensures viability of the CDDAR program and develops local procedures and guidance.

4.3.10. Provides local manufacture capability and ensures control of the fabrication process.

4.3.11. When applicable, ensures MXS personnel use the Engineering Data Service Center and Engineering Technical Service personnel to get information and specifications when the information in technical orders does not provide enough detail.

4.3.11. (ANG) Also may use JEDMICS when technical orders do not provide enough detail.

4.3.12. Ensures that a squadron SERENE BYTE or PACER WARE response capability exists IAW AFI 10-703, if applicable.

4.3.13. Establish a radiation protection program IAW AFOSH Standard 48-9, when applicable.

4.3.14. Appoints MXS production supervisors.

4.3.14. (ANG) If used.

4.3.15. Monitors OAP IAW AFI 21-124.

4.3.15. (ANG) And ANGI 21-105.

4.3.16. Appoints a squadron land mobile radio manager, if applicable, IAW **Chapter 18**.

4.3.17. Ensures SPRAM accounts are established IAW AFI 21-103 and AFMAN 23-110, *USAF Supply Manual*.

4.3.18. Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103.

**4.4. Production Supervisor.** If appointed, in addition to the general responsibilities in **Chapter 2**, the MXS Production Supervisor:

4.4.1. Ensures scheduled maintenance is accomplished in support of flight line operations.

4.4.2. Monitors flight line operations and coordinates support and priority with other squadron production supervisors and MOC.

4.4.3. Provides specialist non-availability to the MOC at the beginning of each shift, and as changes occur for those specialists routinely dispatched.

4.4.4. Identifies production requirements and shortfalls to the MOO/SUPT.

4.4.5. Participates in daily maintenance planning meetings.

4.4.6. Acts as the maintenance production liaison between AMXS, MOC, and MXS production flights.

4.4.7. Direct the overall maintenance effort of their units. Focus on flight line and back shop maintenance repair activities and work closely with flight commanders, flight chiefs, section chiefs, element chiefs, and the isochronal inspection section/phase dock coordinator to meet mission requirements.

4.4.8. Work closely with the flight line pro supers to ensure back shop maintenance is directed toward mission needs. Focus on aircraft generation and direct the overall maintenance effort of their respective units by placing priority on aircraft supporting operational requirements, scheduled and unscheduled aircraft maintenance, and aircraft used for maintenance and/or operations training. Aggressively work not mission capable (NMC) aircraft.

4.4.9. Work closely with flight line Pro Super, flight chiefs, section chiefs, element chiefs and MOC to ensure actual aircraft status as reflected in the aircraft forms matches status reported in MIS.

4.4.10. Be involved with and direct their unit personnel to accomplish cannibalization (CANN) actions IAW this instruction, MAJCOM directives, and the local OI.

4.4.10.1. Coordinate CANNs with the flight line pro super, MOC and other appropriate agencies.

**4.5. Specialist Support.**

4.5.1. In addition to the general responsibilities in **Chapter 2**, the section chief ensures:

4.5.1.1. Coordination with the MXS production supervisor on maintenance priorities before dispatching personnel.

4.5.1.1. (ANG) N/A to the ANG. The following only applies to the ANG: In coordination with MOC and the MXS Production Supervisor if applicable, on maintenance priorities before dispatching personnel.

4.5.1.2. TMDE, tools and technical data are available to the technician either through the section or supported activity resources.

4.5.1.3. Specialists order parts using MIS. Parts are received through the Aircraft Support Section, expediter or dock chief, as appropriate.

4.5.1.3. (ANG) N/A to the ANG. The following only applies to the ANG: Specialists order parts using MIS.

4.5.2. Upon dispatch, technicians are responsible to the expediter, section chief, or dock chief to:

4.5.2. (ANG) N/A to the ANG. The following only applies to the ANG: Upon dispatch, technicians are responsible to the Pro Super, expediter, element/workcenter supervisor, or dock chief to:

4.5.2.1. Report in before beginning the job.

4.5.2.2. Review aircraft forms prior to beginning maintenance on an aircraft.

4.5.2.3. Reporting job completions, stop times, ETIC slippage, and significant problems.

4.5.2.4. Providing all document numbers for back ordered parts.

4.5.2.5. Verifying the status of the aircraft or equipment.

4.5.2.6. (Added-ANG) Ensure MIS is completed and aircraft forms are accurate and completed in a timely manner.

**4.6. Accessory Flight**

**4.6. (ANG) Accessory Element.** N/A to the ANG. The following only applies to the ANG: This activity performs on-and-off equipment maintenance of aircraft systems and associated support equipment. The element may be organized into the following shops: Pneudraulic, Electro-Environmental, Fuel Systems, Egress, and Repair and Reclamation/Wheel and Tire. The extent of CUT tasking shall be determined locally.

4.6.1. Flight Commander/Chief Responsibilities. In addition to the common responsibilities in **Chapter 2**, the Accessories flight commander/chief:

4.6.1. (ANG) N/A to the ANG. The following only applies to the ANG: Accessory Element Supervisor. In addition to the common responsibilities in **Chapter 2**, the Accessory Element Supervisor:

4.6.1.1. Ensures an effective and valid egress training program is established IAW AFI 21-112, Aircrew Egress Systems Maintenance, and monitors program effectiveness.

4.6.1.2. Ensures a rotation plan is developed to assure Electrical/Environmental personnel comply with core task requirements.

4.6.1.3. Ensures explosives are controlled and stored in approved storage areas.

4.6.1.4. (Added-ANG) Ensures compliance with crash recovery program responsibilities.

4.6.1.5. (Added-ANG) Ensures explosives are controlled and stored in approved storage areas.

4.6.2. The Electrical-Environmental Section.

4.6.2.1. Performs on- and off-equipment maintenance on the following aircraft systems and components: liquid nitrogen; liquid and gaseous oxygen; air conditioning; pressurization; fire extinguisher/suppression (including explosive squibs); vacuum; anti-icing; bleed air; and combustion heater and on-board nitrogen-generating systems.

4.6.2.2. Performs maintenance on aircraft electrical and environmental systems.

4.6.2.3. Provides off-equipment support for flight line support equipment electrical components.

4.6.2.3. (ANG) If tasked.

4.6.2.4. Performs repairs on liquid and gaseous oxygen servicing units/carts, including liquid nitrogen tanks (exclusive of the basic trailer or chassis and user-type maintenance).

4.6.2.4. (ANG) **NOTE** : Responsibility for scheduling inspections, ordering parts, and reporting status of servicing carts shall be determined locally.

4.6.2.5. Performs authorized local manufacture, repair, overhaul, testing, modification, and inspection of aircraft and support equipment electrical components, wiring harnesses, batteries, and charging units.

4.6.2.5.1. Ensures battery disposal procedures meet environmental standards and are controlled for accountability purposes.

4.6.2.6. Performs off-equipment maintenance for aircraft and aircrew CO2 cylinders. U-2 units maintain assigned air sampling equipment and perform system uploads, downloads, and pre-flight operational checks.

4.6.2.7. Performs off equipment maintenance on type MA-1 portable breathing oxygen cylinders (portable walk around bottles) and regulators IAW applicable aircraft/equipment technical orders, to include removing and replacing the regulator and purging the bottle. Ownership and storage of these cylinders will remain with the appropriate support section.

4.6.2.8. Maintains environmental control unit (ECU) for SRAM-modified B-52 aircraft.

4.6.2.9. Performs hot purge and pump down on aircraft LN2 and LOX servicing carts.

4.6.3. Egress Section.

4.6.3.1. The egress section maintains aircraft egress systems, components, and trainers.

4.6.3.2. Maintains aircraft ejection seats, extraction and escape systems, egress components of jettisonable canopies, explosive components of escape hatches and doors, and egress trainers.

4.6.3.3. Requests assistance from the base explosive ordnance disposal (EOD) unit when egress explosive devices are damaged or suspected to be unsafe.

4.6.3.4. Provides storage for egress explosive items removed during maintenance. Ensures quality upgrade/qualification egress systems training is conducted IAW AFI 21-112, *Aircrew Egress Systems Maintenance,* using all available unit resources.

4.6.3.5. Establishes the egress training program to include a master training plan, explosive safety, life support certification, and MIS time change documentation qualification.

4.6.3.5.1. Review these programs semiannually.

4.6.3.6. Actively promotes the accuracy of the egress TCI data base in the MIS and ensures automated data products are updated anytime an egress item is replaced to ensure the annual TCI forecast is correct. Do not maintain a separate data base to manage the egress TCI program.

4.6.3.6.1. Inputs all egress TCI data entries in the MIS data base to include clearing the suspense when delegated in writing by the Plans and Scheduling section. If egress clears suspenses, a snapshot of the completed job must be forwarded to PS&D personnel.

4.6.3.6.2. Provide component background information to the appropriate PS&D section and include a list of any components having multiple part numbers with different service lives. Validate and verify all MIS egress data for each aircraft, and meet with PS&D at least annually to review each aircraft's egress data. Document the annual verification on an AF Form 2411 kept on file in the aircraft jacket file.

4.6.3.6.3. Coordinates with MDSA section to establish a monthly requirement for MIS products to help manage egress TCIs. Automated products may be downloaded into computer media format.

4.6.3.6.4. DELETED.

4.6.3.7. The egress section will coordinate with the wing historian or WG/CC to ensure all permanently decommissioned static display aircraft are made safe and explosive devices removed, condemned, or turned in to base supply (AFMAN 23-110, *USAF Supply Manual*).

4.6.3.8. Ensures all assigned ground instructional training aircraft (GITA) are made permanently safe.

4.6.3.9. Ensures the section "safes" aircraft according to 00-80-series and weapon system TOs.

4.6.3.10. (Added-ANG) Egress Section is responsible for overall management and control of the egress configuration management. (CAMS/REMIS corrections).

4.6.4. Fuel Systems Section.

4.6.4.1. Repairs, functionally checks, and inspects aircraft fuel systems, fuel tanks, hydrazine systems, and related components. In addition to the common responsibilities outlined in **Chapter 2**, the Fuels Section Chief:

4.6.4.1.1. Ensures assigned personnel receive periodic physical examinations as established by the base medical service. Occupational physicals will be tracked in MIS.

4.6.4.1.2. Sets up controls to prevent unauthorized entry into fuel cell and hydrazine repair areas.

4.6.4.1.3. Provides hydrazine safety training, as applicable.

4.6.4.1.4. Provides safety training to all personnel who enter aircraft fuel tanks or open fuel tank areas to perform maintenance or assist.

4.6.4.1.5. When required, ensures hydrazine response teams are formed with only team members/supervisors that hold a fuels maintenance AFSC and integrate them into CDDAR program and local in-flight emergency procedural checklists. Additional information on hydrazine hazards and management is found in aircraft TOs, TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding and Bonding*, MDS-specific TOs, and AFOSH STD 48-8, *Controlling Exposure to Hazardous Material*.

4.6.4.1.5. (ANG) The MXG/CC may appoint team members from other AFSCs as long as the person is task certified. These individuals must be listed on a SCR.

4.6.4.1.6. Performs safety inspection on facilities; ensures open tank repair areas, and equipment used for open fuel tank and hydrazine maintenance meet aircraft-specific TO and AFOSH STD 48-8, *Controlling Exposure to Hazardous Materials*, requirements.

4.6.4.1.7. Manages and documents non-grounding fuel leaks according to TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, and applicable aircraft TOs. Coordinates with PS&D to schedule aircraft with non-grounding fuel leaks through the fuel system repair facility to prevent further deterioration of aircraft condition.

4.6.4.1.8. The following general procedures apply to AME external fuel tanks for A-10, F-16, F-15, C-130, and F-15E conformal fuel tanks (CFT), and B-1B Weapons Bay Fuel Tanks (WBTs):

4.6.4.1.8.1. Fuels section maintains a local maintenance area for A-10, F-15, F-16 AME external fuel tanks repairs, and '*temporarily*' stores F-15E CFTs and B-1B Weapons Bay

Tanks that require fuel system maintenance. After maintenance, the owning unit will reclaim CFTs and WBTs. The fuels section:

4.6.4.1.8.1.1. Performs all maintenance and inspections on AME fuel tanks.

4.6.4.1.8.1.2. Ensures all maintenance actions are recorded in MIS and Significant History Data Record (SHDR) for external tanks.

4.6.4.1.8.1.3. Purges and preserves external tanks that require ground shipment.

4.6.4.1.8.1.4. Meets monthly with PS&D to schedule external fuel tanks for inspection or TCTOs.

4.6.4.1.8.2. The following applies to war reserve material (WRM) external fuel tanks:

4.6.4.1.8.2.1. Fuels section performs all maintenance and inspections on WRM fuel tanks. The appropriate system specialist maintains release systems components requiring repair. After maintenance, notify supply to pick up the tank.

4.6.4.1.8.2.2. Ensures that all maintenance actions are recorded in MIS.

4.6.4.1.8.2.3. Purges and preserves fuel tanks for storage and shipment. Logistics Readiness Squadron is responsible for the storage, delivery, and shipment of fuel tanks.

4.6.4.1.8.2.4. Fuels System personnel shall attend initial nestable fuel tank build up (NFTBU) training at a FTD. The Fuels Section shall establish and conduct annual refresher NFTBU training classes for all Fuel Systems personnel tasked as a NFTBU cadre member for any UTC and document completed training in MIS. The Fuels System personnel trained by FTD must conduct the annual refresher training for other section personnel (refer to **Chapter 18**).

4.6.4.1.8.2.4. (ANG) N/A to the ANG. The following only applies to the ANG: Fuels System personnel tasked as a nestable fuel tank build up (NFTBU) cadre member shall attend initial NFTBU training at a FTD. The Fuels Section shall establish and conduct annual refresher NFTBU training classes for all Fuel Systems personnel tasked for any UTC and document completed training in MIS. The Fuels System personnel trained by FTD must conduct the annual refresher training for other section personnel (refer to **Chapter 18**).

4.6.4.1.8.2.5. Meets quarterly with the MXG WRMO/WRM NCO and MTF to identify Fuel Systems personnel for WRM NFTBU teams. (Units are no longer required to maintain ready-trained augmentees. Commanders must provide NFTBU augmentees to fill UTC requirements at the time of tasking). Reviews WRM NFTBU mission capability (MISCAP) statement as it applies to the unit's tasking and ensures availability of trained Fuel Systems personnel and serviceable equipment/tools to support requirements.

4.6.4.1.8.2.6. Meets quarterly with MXG WRMO/WRMNCO and Logistics Readiness Squadron representatives to review inspection criteria for stored WRM tanks, schedule tank inspections and maintenance, and report on monthly walk-through if WRM if applicable.

4.6.4.1.9. Establishes notification procedures to inform the base fire department when open fuel tank repairs are in progress and when maintenance is complete.

4.6.4.1.10. Establishes a Confined Space Entry Program IAW TO 1-1-3 and AFOSH 91-25.

4.6.4.1.11. Establishes a respiratory protection program that covers use, storage, cleaning, and inspection of respirators, hoses, and associated support equipment.

4.6.4.1.11.1. Ensures annual training is accomplished IAW AFOSH 48-137.

4.6.4.1.11.2. Documents all respiratory training requirements on AF Form 55.

4.6.4.1.12. Maintains in-flight refueling receptacle system.

4.6.4.1.13. Establishes local notification procedures to contact owning organizations when fuel system maintenance is complete on external fuel tanks, CFTs and WBTs.

4.6.5. Hydraulics Section. This section maintains on and off-equipment pneumatic, hydraulic, and pneudraulic systems and components (except environmental and egress systems) and provides maintenance support for SE and test equipment. Additionally, the section maintains hydraulic test stands, pumping units, and associated components. In addition to the common section chief responsibilities outlined in **Chapter 2**, the Hydraulics Section Chief ensures the following services are provided:

4.6.5.1. Local manufacture and testing of flexible hose assemblies and testing of rigid tubing.

4.6.5.1. (ANG) At MXG/CC option the local manufacture and testing of rigid tubing may be moved to another workcenter.

4.6.5.2. Pneudraulic maintenance on munitions maintenance loading and handling equipment that is beyond munitions flight repair capabilities.

4.6.5.3. Maintenance and inspections on refueling drogues and booms, and refueling receptacle systems for large aircraft.

4.6.5.4. Repair, overhaul, and bench check of flight control, landing gear, and hydraulic power system components such as brakes, struts, accumulators, reservoirs, and actuators.

4.6.5.5. (Added-ANG) Reviews Air Logistics Center Drawing IAW TO 4S-1-182, to ensure cleaners used on landing gear components are approved.

## 4.7. Aerospace Ground Equipment (AGE) Flight

4.7.1. General. The AGE Flight provides powered and non-powered AGE as defined in TO 00-20-1 to support the wing mission. The flight:

4.7.1. (ANG) The MXG/CC may assign the responsibilities of nonpowered AGE to other workcenters.

4.7.1.1. Maintains AGE in direct support of sortie production and back shop maintenance activities. Applicable AGE should be listed in the respective Allowance Standards (AS).

4.7.1.2. Picks up, services, delivers, repairs, modifies, and inspects assigned AGE with the exception of non-powered munitions materiel handling equipment (MMHE), propulsion support equipment (SE), vehicle SE, and avionics SE.

4.7.1.2. (ANG) The MXG/CC has the option to relieve the AGE element from pickup and delivery of powered and nonpowered AGE.

4.7.1.3. Performs chassis, enclosure, and trailer maintenance on gaseous and cryogenic servicing units.

4.7.1.4. Manages all support equipment maintenance and inspection scheduling activities for AGE maintained by the flight. To the fullest extent possible, ensures maintained equipment is placed on the AGE Flight/work center equipment account.

4.7.1.5. Will be structured to most effectively utilize manpower and resources. May be organized as a consolidated maintenance unit using the Repair, Inspection, and Servicing sections or may be broken into teams for concentrated support efforts.

4.7.1.6. Enforce the proper use of approved cleaning compounds IAW TO 35-1-3, TO 35-1-12 and Qualified Products Listings (QPL).

4.7.1.7. Maintains facility waste water standards IAW AFI 32-7041, Chapter 2, and IAW applicable federal, state, local, DoD, AF, MAJCOM, and installation requirements/guidance.

4.7.2. Flight Commander/Chief Responsibilities. In addition to the general responsibilities in **Chapter 2**, the AGE Flight Chief:

4.7.2. (ANG) N/A to the ANG. The following only applies to the ANG: AGE Element/Workcenter Supervisor Responsibilities. In addition to the general responsibilities in **Chapter 2**, the AGE Element/Workcenter Supervisor:

4.7.2.1. Coordinates annually with applicable maintenance supervisions to identify types and minimum quantities of mission essential level (MEL) AGE (powered and NPA). The MXG/CC will be the final approval authority for the MEL.

4.7.2.2. Ensures mission essential AGE status is tracked daily using MIS, AF Form 2431 *Aerospace Ground Equipment Status*, or locally developed electronic product. Status will be provided to the MOC when it falls below MEL. *NOTE*: When a local product is used it must include, as a minimum, the same information found on the AF Form 2431.

4.7.2.3. Establish a field numbering system and maintain IAW TO 35-1-3, on assigned AGE.

4.7.2.4. Ensures the MIS is used for equipment scheduling to the maximum extent possible. The documentation function if decentralized to the flight is performed by the scheduler.

4.7.2.5. Controls fuel dispensed from issue tanks IAW AFMAN 23-110, *USAF Supply Manual*, and AFI 23-204, *Organizational Fuel Tanks*.

4.7.2.6. Ensures the uniform repair and replacement criteria program is implemented IAW TOs 00-25-240, 35-1-24, 35-1-25, and 35-1-26. The fight chief must ensure replacement assets are placed on order with the appropriate backorder priority.

4.7.2.7. Reviews all Dull Sword reports for MMHE listed in the Master Nuclear Certification List at website: **https://wwwmil.nwd.kirtland.af.mil/MNCL/default.asp** that are maintained by the AGE Flight.

4.7.2.8. Coordinates welding requirements with the Fabrication Flight Chief. For AGE welding requirements not covered by end item technical orders, both flight chiefs will determine the economy of repair action. Safety determination is made by the fabrication flight chief. The fabrication

flight chief ensures the AGE material requiring repair meets general welding guidelines (TO 34W4-1-5, *Operator Manual-Welding Theory and Application*).

4.7.2.9. Approves and controls AGE cannibalization. The flight chief sets up procedures for AGE support section to initiate cannibalization work orders.

4.7.2.10. In conjunction with maintenance training, establishes and monitors the AGE operator training program.

4.7.2.11. Coordinates with structural maintenance to establish an AGE corrosion control prevention program.

4.7.2.12. Establish written procedures for supporting equipment and personnel when there is a need to provide local support activities at a down-range location or satellite base.

4.7.2.13. Ensures equipment is prepared for storage or shipment according to TO 35-1-4, *Processing and Inspection of Support Equipment for Storage and Shipment,* and applicable end item TOs.

4.7.2.14. Ensures equipment is prepared to meet mobility taskings.

4.7.2.15. Ensures quarterly equipment inventory listings are submitted to the respective MAJCOM AGE functional manager by the 15th day following the closeout of each quarter. Listings must identify all AS-driven AGE maintained by the flight and all supply requisition/due-out information.

4.7.2.15. (ANG) Provides annual equipment listings to ANG/LGMM. N/A to UAE owned F-16 block 60 equipment.

4.7.2.16. Ensures effective training programs are instituted and personnel are rotated, as necessary, to facilitate training and currency in all areas.

4.7.2.17. Report instances of SE abuse and misuse to Maintenance Operations (MOO/SUPT) for corrective action.

4.7.2.18. Ensures the flight has the required SE on hand or on order with the appropriate backorder priority.

4.7.3. AGE Production Supervisor. (if established) The AGE pro super is responsible to the AGE flight chief for the maintenance production of all assigned sections or teams. In addition to the general responsibilities in **Chapter 2**, the pro super:

4.7.3. (ANG) These duties shall be performed/assigned by the AGE Element Supervisor.

4.7.3.1. Monitors the production of each section or team and recommends equipment and personnel adjustments to the flight chief.

4.7.3.2. Monitors section or team adherence to the flight's safety, training, and CTK programs.

4.7.3.3. Frequently spot checks equipment for serviceability.

4.7.3.4. Approves CANN actions on powered and NPA and ensures all actions are properly documented in the MIS. CANN approval will not be delegated.

4.7.3.5. Resolves production conflicts between sections or teams.

4.7.3.6. In conjunction with the MTF, develops course control documents for AGE familiarization training.

4.7.3.7. Assists the flight chief with management and supervision of the flight's assigned resources.

4.7.3.7. (ANG) N/A to the ANG.

4.7.4. Team leader or section chief responsibilities. In addition to the common section chief responsibilities outlined in **Chapter 2**, team leaders and/or section chiefs (depending on organization):

4.7.4. (ANG) These duties shall be performed/assigned by the AGE Element Supervisor.

4.7.4.1. Develop a training program to qualify personnel on all aspects of AGE maintenance.

4.7.4.2. Monitor qualification training and documentation of training records.

4.7.4.3. Coordinate with flight line maintenance supervision for daily AGE requirements.

4.7.4.4. Inform the AGE production supervisor or flight chief of shortfalls in equipment and personnel.

4.7.4.5. Request approval from the AGE pro super for CANN actions. Follow procedures in TO 00-20-2 and this instruction when documenting CANN actions.

4.7.4.5. (ANG) N/A to the ANG.

4.7.4.6. Inform the AGE flight chief or pro super of MICAP conditions that may have an adverse effect on the ability to support the aircraft maintenance squadron.

4.7.4.6. (ANG) N/A to the ANG.

4.7.4.7. Manage CTKs IAW **Chapter 13** of this instruction.

4.7.4.8. Ensures all equipment status and ETIC changes are updated in the MIS.

4.7.4.9. Ensures shop equipment is inspected and annotated on the AF Form 2411, **Inspection Documen**t, or AFTO 244.

4.7.5. Repair and Inspection function completes inspections and major maintenance on powered and non-powered AGE. This function may be divided into a repair section and an inspection section or left consolidated. The duties of this function include the following:

4.7.5. (ANG) These duties shall be performed by the AGE personnel.

4.7.5.1. Perform maintenance beyond the capability of the servicing function.

4.7.5.2. Correct deferred discrepancies and discrepancies discovered during inspection.

4.7.5.3. Perform TCTOs as required.

4.7.5.4. Validate all AGE NMCS and parts requests before placing items on order.

4.7.5.5. Prepare AGE and section equipment for storage or shipment. This includes helping the servicing, pickup, and delivery section prepare equipment for deployment.

4.7.5.5. (ANG) N/A to the ANG. The following only applies to the ANG: Prepare AGE and section equipment for storage or shipment.

4.7.5.6. Perform corrosion inspections of AGE and treat corrosion before assembly.

4.7.5.7. Clean, tag, and prepare components before routing through the repair cycle.

4.7.5.8. Perform AGE operational checks before returning equipment to the servicing, pickup, and delivery section.

4.7.5.8. (ANG) N/A to the ANG. The following only applies to the ANG: Perform AGE operational checks before returning equipment to serviceable status.

4.7.5.9. Maintain MA-1A enclosures installed on deicer trucks

4.7.5.9. (ANG) At MXG/CC option.

4.7.5.10. (Added-ANG) Maintains all assigned F-2 type trailers. Trailers placed in-use receive pre and post-use serviceability inspections. Develops periodic inspection requirements (maximum interval of 18 months) for trailers in storage to include:

4.7.5.10.1. (Added-ANG) Corrosion inspection and preservation treatment.

4.7.5.10.2. (Added-ANG) Tire inflation check.

4.7.5.10.3. (Added-ANG) Wheel bearing and chassis lubrication.

4.7.6. Servicing, Pickup, and Delivery (SPD) function. The servicing, pickup, and delivery function services, inspects, and dispatches AGE. SPD manages and supervises the AGE tow vehicle operation. More than one servicing, pickup, and delivery function may be set up based on mission requirements, facilities, and base layout. Under the team concept, each team has SPD responsibility. As a minimum, AGE drivers must be available during aircraft launches. The servicing, pickup, and delivery function:

4.7.6. (ANG) These duties shall be performed by the AGE personnel.

4.7.6.1. Performs servicing inspections on powered AGE according to equipment work cards to ensure proper fuel and oil operating levels and other servicing requirements are met.

4.7.6.2. Performs maintenance within its capability.

4.7.6.3. Prepares AGE for deployment.

4.7.6.4. Delivers AFTO Forms 244/245 to AGE schedulers for equipment being sent to the I&R section.

4.7.6.4. (ANG) N/A to the ANG. The following only applies to the ANG: Reviews AFTO Form 244 and AFTO Form 245, *Significant Historical Data*, for equipment prior to maintenance.

4.7.6.5. Picks up and delivers AGE, except operator dispatched equipment (e.g., bomb lifts and powered munitions trailers).

4.7.6.5. (ANG) At MXG/CC option.

4.7.6.5.1. NPA is normally located in the using organization, unless maintenance or inspection needs dictate return to the flight. Normally, the equipment users are responsible for transporting NPA within the using organization. Using organizations are responsible to inspect and service NPA prior to use.

4.7.6.6. Delivers oxygen and nitrogen carts to servicing and maintenance facility.

4.7.6.6. (ANG) At MXG/CC option.

4.7.6.7. Moves equipment on the flight line in support of the expediter.

4.7.6.8. Updates vehicle status display, if required by the flight chief.

4.7.6.9. Utilizes AF Form 864, **Daily Requirement and Dispatch Report**, or locally developed electronic product to record all equipment pickup and delivery. When a local product is used it must include, as a minimum, the same information found on the AF Form 864.

4.7.6.10. Maintains non-hazardous Absorbed Glass Matt-type batteries (e.g., Optima brand) utilized in powered AGE.

4.7.7. AGE Production Support Section. The AGE production support section provides administration and ancillary services for TO files maintenance, supply support, fuels management, and scheduling support for the AGE flight. Assign a full-time scheduler (AFSC 2R1X1) and supply specialists (AFSC 2S0X1) to the support section when the workload warrants. The section chief:

4.7.7. (ANG) These duties shall be performed/assigned by the AGE Element Supervisor.

4.7.7.1. Trains and supervises section personnel, including the AGE scheduler and supply specialist.

4.7.7.2. Maintains the flight's TO files IAW TO 00-5-1/2. TO files may be decentralized and managed by respective work centers.

4.7.7.3. Manages the flight's repair cycle program.

4.7.7.4. Manages the flight's tool storage and issue areas IAW **Chapter 13** of this instruction.

4.7.7.5. Manages the flight's TMDE program.

4.7.7.6. Manages the flight's supply function. Provides parts, bench stock, and supplies IAW **Chapter 8** of this instruction.

4.7.7.7. Manages the flight's scheduling function.

4.7.7.8. Manages the flight's fuels management program.

4.7.7.9. DELETED.

4.7.7.10. Manages the flight's hazardous material (HAZMAT) and Environmental Safety and Occupational Health (ESOH) programs IAW ESOH guidance and HAZMAT directives.

4.7.8. AGE Scheduling. The AGE scheduler works for the production support section chief and is responsible for maintaining the AGE historical records. In addition, the AGE scheduler:

4.7.8. (ANG) These duties shall be performed/assigned by the AGE Element Supervisor.

4.7.8.1. Plans and schedules all AGE scheduled maintenance. Prepares an AGE maintenance plan (unless AFSM 21-573, Vol 2 scheduling procedures are used), and maintains a current equipment scheduling report for all assigned equipment (AFSCM 21-series).

4.7.8.1.1. Schedule six-month periodic and annual inspections/maintenance to come due six months apart to retain the six-month periodic inspection integrity without opening an additional job during the annual inspection.

4.7.8.2. Controls off-equipment work.

4.7.8.3. Schedules, controls, and monitors TCTOs/TCIs, and OTIs according to 00-20-series TOs, **Chapter 15** of this instruction, and MIS AFCSM 21-series.

4.7.8.4. Sets scheduling priorities based on the minimum number of each type of equipment, and monitors and reports changes to AGE MEL's (as established locally) to the flight chief, pro super, and the MOC.

4.7.9. AGE Supply Support. Supply responsibilities are outlined in **Chapter 8** of this instruction.

4.7.10. AGE Sub-pools. A sub-pool is a site, other than the central AGE parking area (ready line), where AGE is positioned for future dispatch. Sub-pools are set up based on mission needs, facilities, or base layout. AGE Flight Chiefs coordinate sub-pool locations with airfield management and perform spot checks of sub-pooled AGE.

4.7.10. (ANG) At MXG/CC option.

4.7.11. Tow Vehicles. AGE tow vehicles are radio equipped to expedite the delivery of AGE. Radios will be permanently installed or hand held. Initial radio operator familiarization training is given to vehicle drivers. Flight chief will establish proper distribution and control of assigned vehicles.

4.7.11.1. Vehicle Status. If required by the flight chief, a vehicle status display is used to show the status of vehicles. Minimum information consists of vehicle type, registration number, and status.

**4.8. Armament Flight.**

**4.8. (ANG)** Paragraph **4.8.** and all subparagraphs are also N/A to the ANG.

4.8.1. The Armament Flight normally performs off-equipment maintenance for assigned fighter aircraft armament systems, guns, pylons, racks, launchers and adapters. For B-52 units, the Armament Flight shall assist with performing weapons system on-equipment periodic phase inspections. An AFSC 2R1X1 scheduler, 2S0X1 supply specialist, and 3A0X1 information management specialist may be assigned to the flight. The flight normally consists of three sections: maintenance, alternate mission equipment (AME), and support. The WWM, with GP/CC concurrence, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks. MAJCOMs must determine applicable portions of the weapons and armament responsibilities for contract and civil service organizations.

***NOTE:*** Armament flights are not normally formed in MQ-1 Predator units or those supporting helicopters. The AMU Weapons Section in these units is responsible for complying with applicable portions of this chapter.

4.8.2. When more than one AMU is supported, combat armament support teams (CAST) may be formed. If the maintenance section is organized into CASTs, each will be aligned with a specific AMU. CASTs provide exclusive support (to the maximum extent possible) to the AMU with which they are aligned. If applicable, show CAST alignment on UMDs and establish separate MIS work centers for each. Divide tools and equipment proportionally and jointly use scarce or one-of-a-kind items; do not exceed AS quantities. Equally divide maintenance responsibilities for joint-use equipment between CASTs. As a minimum, CAST chiefs will be 7-skill level NCOs and are responsible to the maintenance section chief for all maintenance actions performed by their respective team (flight chief may waive CAST chief requirements). The CAST maintenance concept is not intended to prohibit a unified or consolidated armament flight effort to meet the overall production goals.

4.8.3. Flight Commander/Flight Chief Responsibilities. In addition to common flight chief responsibilities outlined in **Chapter 2** of this instruction, the Armament flight chief:

4.8.3.1. Assists the wing weapons manager in recommending distribution of wing 2W1X1 personnel to satisfy on- and off-equipment weapons release and gun system maintenance.

4.8.3.2. Advises the MOO and the wing weapons manager regarding factors which affect armament systems, gun maintenance, and other related programs.

4.8.3.3. Establishes and monitors gun room security and explosive licenses if required.

4.8.3.4. Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103.

4.8.3.5. If applicable, supports WRM rack, adapter, pylon, launcher and gun maintenance requirements IAW AFI 25-101, *War Reserve Material (WRM) Program Guidance and Procedures*. Ensure all WRM racks, adapters, launchers, and guns are serviceable to meet unit taskings.

4.8.3.6. Provides the WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, critical armament testers, and support equipment by the first of each month, for the previous month.

4.8.3.7. Establishes a SPRAM account to track F-16 "Ruggedized" Nuclear Remote Interface Units (RNRIU) and a munitions account for dummy test rounds and issued LAU-131 launchers if required.

4.8.3.8. Establishes a SPRAM account to track F-15E encoder/decoders and power supplies (as applicable, if not tracked by Weapons Section).

4.8.3.9. Develops and implements a recognition program for assigned personnel.

4.8.3.10. Ensures compliance with hazardous material and hazardous waste management and air emissions record keeping as required for environmental compliance IAW applicable environmental requirements and guidance.

4.8.3.11. Ensures sufficient computer systems are assigned to support network and modem interface with the WWM, WS, Weapons Sections, automated training systems and other agencies.

4.8.3.12. Identify to Logistics Readiness Squadron, by National Stock Number (NSN), all aircraft armament systems components that require acceptance inspections.

4.8.3.13. See **Chapter 12** for KEEP program information.

4.8.3.14. See **Chapter 18** in regards to the Special Certification Roster.

4.8.3.15. See **Chapter 18** in regards to Maintenance Recovery Teams (MRT).

4.8.3.16. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

4.8.4. Armament Maintenance Section. This section performs the maintenance on assigned aircraft armament systems, guns, pylons, racks, launchers, and adapters. The maintenance section:

4.8.4.1. In coordination with AMU (MOF in MAF units) PS&D, schedules and performs all inspections, TCTOs, time changes, maintenance and repair actions for aircraft armament systems suspension and release components and AME, including AME items preloaded with munitions for contingencies.

4.8.4.2. Performs the off-equipment portion of major inspections, and in bomber units, assists with the on-equipment portion of major aircraft inspections that pertain to the armament system.

4.8.4.3. Maintains WRM assets (if applicable).

4.8.4.4. Maintains equipment historical records (AFTO Forms 95) for AME, aircraft guns and weapons system NIE, if decentralized. If an automated maintenance management system is available, it will be used for equipment historical records. Backup files will be maintained for those portions of historical records that are automated.

4.8.4.5. Coordinates with the AMU (MOF in MAF units) PS&D for equipment requiring in-shop inspections. When possible, calendar NIE inspections are scheduled concurrent with nearest aircraft hourly inspection within the calendar interval. However, do not allow NIE/AME scheduled inspections to become overdue (-6 TO). Include NIE/AME inspection schedules in both the monthly and weekly maintenance plan/flying schedule.

4.8.4.6. Performs off-equipment acceptance and transfer inspections on aircraft, to include NIE and AME. Inspections include:

4.8.4.6.1. Parts integrity inspection.

4.8.4.6.2. Complete electrical and mechanical check to include associated cables.

4.8.4.6.3. Updating/initiating historical records for each item.

4.8.4.7. Performs the off-equipment portions of aircraft inspections that pertain to armament systems. Depending on Wing Weapons Manager input, the flight may perform certain on-equipment tasks

4.8.4.8. Maintains and inspects ammunition loading assemblies and systems. The munitions flight maintains the chassis portion.

4.8.4.9. May be task qualified to support combat coded operations squadrons. Coordinates with Aircraft Maintenance Unit weapons section chiefs and the wing weapons manager to establish standard minimum qualification requirements. Qualification may include installation and removal of all assigned aircraft NIE, aircraft configuration and de-configuration with assigned AME, IPL/Safing (EOR) actions, chaff & flare/tow decoy/gun loading and unloading procedures, and weapons release and gun system functional checks and troubleshooting. During contingencies and exercises, if applicable, CASTs are responsible to the aligned Aircraft Maintenance Unit weapons section chief. In units without CAST formed, the WWM, weapons section chief and armament system flight chief coordinate manning requirements to support exercise/contingency operations.

4.8.4.10. In coordination with AMU (MOF in MAF units) PS&D, requisitions parts to satisfy time change requirements for aircraft armament or gun system components not identified in aircraft dash-6 TOs.

4.8.4.11. Maintains the MIS data base for installed guns, gun systems, and gun component time change items or inspection data, based on round count limits listed in the dash-6 TO, including updating rounds from the AF Form 2434 or locally developed form.

4.8.4.12. Advises the flight chief of any factors limiting the maintenance capability.

4.8.4.13. Performs the armament systems portion of aircraft inspections as applicable.

4.8.5. Alternate Mission Equipment (AME) Section (If not formed, the following will be accomplished by the Armament Maintenance Section). This section accounts for, stores and controls AME. Personnel assigned to the AME section may be assigned to CASTs if they are formed. In addition to the general responsibilities in **Chapter 2**, the AME section chief:

4.8.5.1. Develops procedures, in coordination with the Aircraft Maintenance Unit weapons section chiefs and wing weapons manager, on the governing accountability and control of AME.

4.8.5.2. Maintains all weapons assigned, non-load box-configured (bomber aircraft), F-2 type trailers. Trailers placed in-use receive pre- and post-use serviceability inspections. Develops periodic inspection requirements (maximum interval of 18 months) for trailers in storage to include:

4.8.5.2.1. Corrosion inspection and preservation treatment.

4.8.5.2.2. Tire inflation check.

4.8.5.2.3. Wheel bearing and chassis lubrication.

4.8.5.3. Unpacks and packs assigned AME in storage and delivers it to the maintenance section for inspection.

4.8.5.4. Develops and implements a program for documenting issues and receipts of in-use AME.

4.8.5.5. Lists assets as SPRAM if required.

4.8.6. Armament Support Section. This section stores and maintains required tools and equipment and manages the supply and bench stock functions for the flight. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, the support section:

4.8.6.1. Manages the supply function for the flight IAW AFMAN 23-110, *USAF Supply Manual*.

4.8.6.2. Performs user calibration and maintenance on flight TMDE.

4.8.6.3. Coordinates with TMDE to ensure calibration requirements are met.

4.8.6.4. Maintains the R-14 master ID listing.

4.8.6.5. Maintains CTKs, tool storage area and test equipment IAW **Chapter 13**.

4.8.6.6. Ensures approval of Locally Manufactured Equipment (LME) if not included in tech data or on the Munitions Materiel Handling Equipment (MMHE) Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845.

4.8.6.6.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards, and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

4.8.6.6.2. Munitions/armament LME, specifically designed to interface with or support munitions, which is not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, “y”-stands, munitions chocks, specialized

tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME, not designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site, must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

4.8.6.6.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

4.8.6.6.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO Forms 244, or equivalent, must be maintained for all LME items (racks, stands, adapters, etc.). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

4.8.6.7. Maintains the flight technical order and publication files.

4.8.6.8. Maintains supply management documents (i.e. D04, D18, D19 and Q13).

4.8.6.9. Manages consumables.

4.8.6.10. Manages residual and bench stock.

4.8.6.11. Manages hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

## 4.9. Avionics Flight

4.9.1. General. The sections assigned to this flight will vary depending on the weapons systems supported and the scope of maintenance responsibilities. In addition to duties specified within this chapter, the flight conforms to guidelines established in **Chapter 3** when performing on-equipment maintenance.

4.9.1. (ANG) The Avionics Element maintains avionics systems, related equipment, and components. It may consist of the Mission Systems Shop, Communications/Navigation Shop, Instrument/Flight Control/Guidance Control Shop, Avionics Intermediate Shop/Intermediate Automatic Test Station, and Electronic Warfare.

4.9.2. Flight Commander or Flight Chief Responsibilities. In addition to the common responsibilities listed in **Chapter 2**, the Avionics Flight Chief:

4.9.2. (ANG) N/A to the ANG. The following only applies to the ANG: Supervisor Responsibilities. In addition to the common responsibilities listed in **Chapter 2**, the Supervisor:

4.9.2.1. Coordinates with maintenance leaders to develop procedures for accomplishing programming of EW systems.

4.9.2.1. (ANG) N/A to the ANG. The following only applies to the ANG: Coordinates with maintenance supervision to develop procedures for accomplishing programming of EWS. This element develops maintenance procedures, in conjunction with the OG/CC, to accomplish programming of EWS to include secure voice, IFF and Data Link.

4.9.2.2. Ensures control and storage of assigned AME (AFI 21-103). Develop local procedures for control and storage of items not specified in dash 21 TOs.

4.9.2.3. Ensures personnel do not make unauthorized or false transmissions on international distress frequencies (TO 31R2-1-251, *General Instructions-Transmission of False Distress Signals on Emergency Frequencies*).

4.9.2.4. Ensures cryptography components are controlled and maintained according to National Security Agency and HQ USAF/XOI directives.

4.9.2.5. Ensures adequate personnel are trained and qualified to perform on station calibration tasks formerly handled by Type IV PMEL.

4.9.2.5. (ANG) This includes the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.2.6. Implements the "Bad Actor" program IAW TO 00-35D-54. A Bad Actor is a component or assembly repeatedly identified as the source of failures within a specific time frame.

4.9.2.6. (ANG) N/A to the UAE owned F-16 block 60 program.

4.9.2.7. When applicable, determines maintenance responsibility for aircraft adapter group equipment.

4.9.2.8. Ensures central integrated test systems (CITS) central ground processors (CGP) are maintained. (B-1 units only)

4.9.2.9. Establishes procedures and ensures configuration control of all applicable software are both current (latest date) and correct for the application and use for which it is intended. Ensure technicians check Automated Computer Program Identification Number System (ACPINS) at least weekly for software updates for assigned systems. A software sub-account will be established, allowing the shop/section access to the ACPINS. Software configuration control will be maintained IAW TO 00-5-16, Manual USAF Automated Computer Program Identification Number System (ACPINS) and TO 00-5-17, Users Manual USAF Computer Program Identification Numbering (CPINS) System.

4.9.2.9. (ANG) LM Aero shall provide configuration control for software for the UAE F-16 block 60 aircraft.

4.9.2.10. Manages hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

4.9.3. Production Supervisor Responsibilities. The production supervisor (pro super), if assigned, is responsible to the section chief for maintenance production on their shift. In addition to the general responsibilities in **Chapter 2**, the Avionics flight pro supers:

4.9.3. (ANG) These responsibilities shall be performed/assigned by Avionics supervision.

4.9.3.1. Direct and control repair efforts by managing all repair assets and monitoring the actions of repair team leaders.

4.9.3.2. Evaluate production skills, aptitude, and proficiency of team leaders and team members.

4.9.3.3. Perform and document production and supervisory inspections.

4.9.3.4. Ensure all equipment assigned is inspected, calibrated, and repaired as required.

4.9.3.5. Assume repair monitor and team leader duties, if required.

4.9.4. Repair Monitor Responsibilities. The repair monitor monitors the status of items processed into the section for repair. Each shift may have a repair monitor assigned. Maintain records used by the repair monitor according to AFMAN 37-123. Each repair monitor:

4.9.4. (ANG) These responsibilities shall be performed/assigned by Avionics supervision.

4.9.4.1. Processes items into and out of the section, ensuring all documentation is complete and correct.

4.9.4.2. Advises the section chiefs, pro supers and team leaders of item status.

4.9.4.3. Assists the section chiefs in management of the DIFM program by being familiar and complying with MAJCOM instructions to ensure ordered and received parts are documented; and uses, maintains and files, management and computer records. Maintain and update a working copy of the D-23, *Repair Cycle Asset Management Listing*, sorted by location and detail number.

4.9.4.4. Maintains AWP section, ensures accurate documentation, and submits supply assistance requests as required.

4.9.4.5. Tracks and monitors MICAP status for all assigned DIFM and parts affecting section repair capabilities using the automated SBSS Reports.

4.9.4.6. Ensures the MIS is updated with current supply data, location changes and DIFM status changes.

4.9.5. Team Leader Responsibilities. The team leader is the first level, working supervisor in the avionics flight management structure. As the resource manager and senior technician for the repair team, the team leader is responsible, in coordination with the pro super, for all repair actions performed by their team. Team leaders:

4.9.5. (ANG) These responsibilities shall be performed/assigned by Avionics supervision.

4.9.5.1. Ensure repair team members are qualified to perform tasks assigned.

4.9.5.2. Manage and direct work effort of the repair team, and is responsible for the quality of maintenance performed.

4.9.5.3. Ensure assigned equipment is properly maintained, repaired and calibrated.

4.9.5.4. In coordination with the pro super and section chief, schedule and prioritize work for the repair team.

4.9.5.5. Ensure MIS data accurately reflects the current repair capabilities, reparable items status, and repair history. Also, advise the repair monitor of status and ETIC changes.

4.9.5.6. Monitor and update the D23 for their repair area. Sort this portion of the D23 by repair area (repair section code) and stock number.

4.9.5.7. When appropriate, perform production and supervisory inspections.

4.9.6. Avionics Flight Production. Avionics production efforts are geared toward actual mission needs rather than temporarily high DIFM or AWM rates. Asset managers determine priorities using the D23, MIS reports, and real time status of repair resources. Managers prioritize work to meet current and projected mission needs. MICAP parts receive priority repair, readiness spares package (RSP) requirements are considered next and are prioritized by their demand rates and stock levels. Peacetime operating stock restock items are normally worked as priority three, prioritized by the demand rates and stock levels of the item. Production Priority Files, (see **Figure 4.1.**), are used to track and control assets within the repair center(s).

4.9.6. (ANG) These responsibilities shall be performed/assigned by Avionics supervision.

4.9.7. Two-Level Maintenance (2LM). Two-level maintenance restricts the level of repair authorized for avionics LRUs. The following guidelines apply to organizations operating under 2LM. Refer to AFI 21-129, *2 Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment*, for further guidance.

4.9.7. (ANG) Paragraph **4.9.7.** and all subparagraphs are N/A to UAE F-16 block 60 program.

4.9.7.1. Avionics sections are authorized to perform the following maintenance actions if the required support equipment is authorized and on-hand. Repairs above and beyond those listed require approval from the appropriate approval authority (MAJCOM, depot). 2LM flights will limit repairs to:

4.9.7.1.1. Could not duplicate (CND) or bench check serviceable (BCS) screening.

4.9.7.1.2. Wing-level TCTOs.

4.9.7.1.3. LRU operational flight program (OFP) loads.

4.9.7.1.4. Cross-cannibalization of shop-replaceable units (SRU).

4.9.7.1.5. Replacement of minor bits and pieces.

4.9.7.1.6. High priority TCTOs or other circumstances may result in more workload than can be accommodated under two-level maintenance. In the event the section cannot accomplish the special workload as well as normal CND/BCS screening, the following formula may be used to identify those two-level maintenance LRUs that could be temporarily "direct NRTS" without screening. The formula may also help determine LRU priorities in order to adjust workload to meet production. Formula: (PBR X EXCHG PRICE X DDR)

4.9.7.1.6.1. LRUs with higher index numbers have a higher priority for repair than those with lower numbers. In the example below, the PSP would have the highest priority, followed by DMT. DFLCC may be a candidate to temporarily "Direct NRTS" until workload permits CND/BCS screening.

4.9.7.1.6.2. Update Percent of Base Repair (PBR), Exchange Price and Daily Demand Rate (DDR) quarterly to ensure the index reflects actual conditions. EXAMPLE:

| NOUN | PBR | EXCHG PRICE | DDR | INDEX |
|---|---|---|---|---|
| PSP | 63 | $33352.00 | 214412 | |
| DMT | 13 | $16521.00 | 21451 | |
| DFLCC | 82 | $ 6000.00 | 03148 | |

4.9.7.1.6.3. The index should be used as a guideline to assist production supervisors in prioritization of workload. Consider local conditions, such as MICAPS, when determining actual production priorities.

4.9.8. Historical Records. Section chiefs maintain AFTO Forms 95 on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system Dash-6 manuals. Historical records should be automated (TO 00-20-1). The section chief ensures:

4.9.8. (ANG) These responsibilities shall be performed/assigned by Avionics supervision.

4.9.8.1. Historical records are used as a source of historical performance and history is added as work progresses.

4.9.8.2. The record remains with the component anytime it is undergoing maintenance.

4.9.8.3. Data is provided from these records upon request to the analysis function to aid in defining avionics maintenance problems and recommended solutions.

4.9.9. Avionics Flights supporting 2LM, multiple MDS, and those organized under the combat support team structure are authorized to form functional sections below flight level to achieve efficiency and maintain effective span of control.

***NOTE:*** Do not authorize additional manpower positions to form sections resulting from local management decisions. Common section chief responsibilities are listed in **Chapter 2**.

4.9.9. (ANG) Paragraph **4.9.9.** and all subparagraphs are also N/A to the ANG.

4.9.10. Communication-Navigation Section.

4.9.10.1. Performs off-equipment maintenance and/or CND screening on communication and navigation components and systems, including assigned SE not maintained by TMDE.

4.9.10.2. Maintains communications and navigation systems, components, and test equipment designated “user responsibility” in TO 33K-1-100-CD-1, TMDE Calibration Notes Maintenance Data Collection Codes CAL Measurement Summaries, Calibration Procedure, Calibration Interval, and Work Unit Code Reference Manual. *NOTE:* When other test equipment—including contractor-maintained test equipment—requires calibration or repair, submit it to the TMDE IAW TO 33K-1-100-CD-1. Responsibilities also include maintenance of radar altimeters, Mark XII systems (AIMS), identification friend or foe (IFF) systems, direction finder equipment that is an integral part of airborne radios, secure voice systems, long range aids to navigation (LORAN), and global positioning systems. Typical COMM/NAV systems may include HF, UHF, VHF, IFF, ADF, VOR/ILS, TACAN, AFSATCOM/SATCOM, Cockpit Voice Recorder (CVR), Emergency Location Transmitter (ELT), secure voice, interphone, search/weather/doppler radars, radar/radio altimeters, global positioning satellite (GPS), Traffic Collision Avoidance System (TCAS), and associated data-bus management system components.

***NOTE:*** When authorized by MAJCOM, this section may perform on-equipment maintenance.

4.9.11. RF Multiplexing Section.

4.9.11.1. Performs off-equipment maintenance on E-4B, E-6B, and RC-135 communication systems. Responsibilities include intermediate maintenance of Peacekeeper Airborne Launch Control

System, MILSTAR, ARC-171 UHF Receiver/Transmitters, Pacer Link Phase II UHF Systems, AN/ARC 96/616A, and AFSATCOM.

4.9.12. Guidance and Control Systems (GCS) Section.

4.9.12.1. Performs off-equipment maintenance on guidance and control systems, to include automatic flight control systems, all-weather landing systems, attitude heading reference systems (AHRS), instrument systems, attitude reference and bombing systems, flight director systems, auxiliary flight reference systems, pressure altimeters and encoders of the AIMS systems, engine test cell aircraft instrumentation, inertial navigation systems (INS), and navigation computers.

4.9.12.1. (ANG) N/A to the ANG. The following only applies to the ANG: Performs on/off equipment maintenance on guidance and control systems, to include automatic flight control systems, all-weather landing systems, AHRS, instrument systems, attitude reference and bombing systems, flight director systems, auxiliary flight reference systems, pressure altimeters and encoders of the AIMS systems, engine test cell aircraft instrumentation, INS, and navigation computers. GCS must ensure the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.12.2. Maintains compass and stability augmentation systems (SAS), weapons release computer systems (WRCS), flight data recorders (FDR), maintains fuel savings advisory systems (FSAS), Malfunction, Detection, Analysis and Recording Subsystem (MADAR), Doppler systems, navigational computers, loads environment spectra survey (LESS) recorder systems, ground proximity warning systems (GPWS), and assigned SE not maintained by TMDE.

4.9.12.3. Maintains engine test cell aircraft instrumentation and test equipment designated "user responsibility" in TO 33K-1-100-CD-1. *NOTE:* When other test equipment—including contractor-maintained test equipment—requires calibration or repair, submit it to the TMDE Flight IAW TO 33K-1-100-CD-1. Performs off-equipment maintenance and/or CND screening on guidance and control components and systems to include assigned SE not maintained by TMDE. Typical GCS GUID/CONT systems may include automatic flight control, compass, flight director, attitude heading reference, stability augmentation, air data, flight/engine instruments, fuel/liquid quantity instruments, flight recorders, inertial navigation, flight management, and associated data-bus management system components. NOTE: When authorized by MAJCOM, this section may perform on-equipment maintenance.

4.9.13. Weapons Control System Section.

4.9.13.1. Maintains aircraft weapons control systems, lead computing optical sight systems and assigned SE not maintained by TMDE. This section also performs on-equipment calibration of weapons control systems.

4.9.14. Sensors Section.

4.9.14.1. Performs off-equipment maintenance of sensor systems and associated support equipment not maintained by TMDE.

4.9.14.1. (ANG) This function may be assigned to Avionics Element or AMXS depending on MDS.

4.9.14.2. Maintains pod histories, pod statistics (Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD)), and scheduling records, AN/AAS-35 Pave Penny Tar-

get Identification Set Laser (TISL) systems, maintains and operates simulated laser target (SLT), AVTR, Cockpit Television Sensor (CTVS), Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pods and systems, LANTIRN Mobility Shelter Set (LMSS), Forward Looking Infrared Radar (FLIR), Downward Looking Infrared Radar (DLIR), Improved Weather Reconnaissance System (IWRS), and Infrared Acquisitions/Designation System (IRADS).

4.9.15. Electronic Warfare System (EWS) Section.

4.9.15.1. Performs on- and off-equipment maintenance on aircraft EWS and components, including assigned SE when not maintained by TMDE.

4.9.15.1. (ANG) N/A to the ANG. The following only applies to the ANG: Electronic Warfare (EW) Shop performs on- and/or off-equipment maintenance, depending on MDS, on RWR, chaff/flare dispensers, ECM systems. These EWS may be either internally or pod mounted in or on the aircraft. EW personnel ensure all classified EWS and TMDE are properly stored, transported, and controlled. If the EW workload is sufficiently small, the MXG/CC may assign this workload and associated manpower to another section/shop. EW personnel may be tasked to load chaff/flare IAW **Chapter 14**.

4.9.15.2. Maintains EWS status, EWS histories (AFTO Form 95, **Significant Historical Data**), and scheduling records.

4.9.15.3. Reports Electronic Attack (EA) pod status to Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD) if maintaining EA pod equipment. Other EWS status is reported In accordance with TOs 00-20-1 and 00-20-2, *Maintenance Data Documentation*.

4.9.15.4. Stores and controls non-installed EA pods according to applicable directives. Other removed EWS components are controlled in accordance with technical order 00-20-3, Maintenance of Repairable Property and the Repair Cycle Asset Control System.

4.9.15.5. EA pod maintenance functions establish program to effectively manage cannibalization pods to return them to service, at a minimum, every time the PMI is due.

4.9.15.6. Maintains inventory control of EWS alternate mission equipment. Loads proper contingency and training configuration settings in ECM pods, infrared countermeasures systems and radar warning receivers (RWR) unless equipment/responsibility is assigned to another repair section.

4.9.15.7. Develops an EWS assessment program to verify system operation in accordance with applicable aircraft and system technical data.

4.9.15.8. Maintains aircraft adapter group equipment when directed.

4.9.15.9. Loads proper contingency and training software in reprogrammable EWS in accordance with applicable system technical data and AFI 10-703, *Electronic Warfare Integrated Reprogramming*.

4.9.15.10. Performs reprogramming of avionics/electronic warfare systems (to include electronic attack pods) as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

4.9.16. B-52 Electronic Warfare System Section.

4.9.16.1. Maintains inventory control and storage of EWS Alternate Mission Equipment (AME).

4.9.16.2. Performs alignments and operational checkouts of AME consisting of ALT-28 Delta and India band transmitters.

4.9.16.3. Loads contingency and training configuration settings provided by MAJCOM or wing Electronic Warfare Officer.

4.9.16.4. Performs emergency and routine reprogramming of ALQ-155/Sensor Integration, ALQ-172, ALR-46 systems, performs alignment and checkout of the ALQ-155 Control Indicator Programmer (CIP).

4.9.16.5. Maintains the ALQ-153, ALQ-172, and ALQ-155/AME hot mockups and associated test equipment.

4.9.16.6. Performs CND screening of electronic warfare (EW) LRUs.

4.9.16.7. Performs periodic USM-464 End-to-End testing of the ALQ-172, ALQ-155, ALQ-122 and ALR-46 EW systems in accordance with applicable technical data.

4.9.16.8. Maintains USM-464 Test Set and associated test equipment.

4.9.16.9. Performs electronic warfare portion of aircraft phase inspections as required.

4.9.17. Avionics Intermediate Section.

4.9.17. (ANG) Avionics Intermediate Shop (AIS) must ensure the calibration and repair of torque wrenches when not performed or maintained by PMEL, when approved by AFMETCAL Det 1.

4.9.17.1. Maintains, programs and performs TCTOs on avionics components specific to assigned test stations and support equipment.

4.9.17.2. Maintains, calibrates, certifies and performs TCTOs on assigned SE not maintained by TMDE.

4.9.18. Computer Section.

4.9.18.1. Performs on and off-equipment maintenance of the E-3 Mission Computer system.

4.9.18.2. Performs on-equipment maintenance of the E-3 Mission Simulators (MSIM) and the Facility for Interoperability Testing (FIT) to include the Joint Tactical Information Distribution System (JTIDS).

4.9.18.3. Maintains the Data Display Training Set (DDTS).

4.9.18.4. Accomplishes maintenance on assigned support equipment not maintained by TMDE.

4.9.19. Surveillance Radar Section.

4.9.19.1. Performs on and off-equipment maintenance of the E-3 Surveillance Radar and Mission Identification Friend or Foe (IFF) system.

4.9.19.2. Maintains related Special Test Equipment used by the AMU and other maintenance squadron sections.

4.9.19.3. Maintains Surveillance Radar Hot Mock-up.

4.9.20. Combat Systems Section. The Combat Systems Section consists of Computer Maintenance and Electronic Warfare Systems. The section performs both on and off-equipment maintenance of the EC-130H primary mission equipment (PME) and the mission support facility.

4.9.20.1. Performs off-equipment maintenance on the Compass Call Mission Simulator (CCMS) PME. The section is serviced by the FX supply system and does not receive automated supply products for items processed by the FX system. Management programs requiring FX supply data are exempt from these requirements; however, the section complies with those portions of the programs where data may be locally derived.

4.9.21. Cryptographic Section.

4.9.21.1. Performs on and off-equipment maintenance on RC-135 and E-4B aircraft cryptographic systems and associated equipment.

4.9.21.2. Controlled Cryptographic Items (CCI): Aircraft-installed CCI and keying materials shall be handled IAW AFI 21-109, *COMSEC Equipment Maintenance and Maintenance Training*; AFI 33-211, *Communication Security (COMSEC) User Requirements*; AFI 33-212, *Reporting COMSEC Deviations*; and AFMAN 23-110, *USAF Supply Manual.* Document aircraft CCI removal and installation in AFTO Form 781B using procedures in TO 00-20-1, Chapter 3.

4.9.22. Offensive Avionics Section.

4.9.22.1. Maintains offensive avionics systems and associated support equipment.

4.9.22.2. Performs off equipment maintenance on limited AVTR system maintenance (cleaning and demagnetizing heads; aligning remote control units), AN/ASW-55 Data Link Pod.

4.9.22.3. Performs off equipment maintenance on LRU not coded for two level repair for AN/ASQ-176 Offensive Avionics Systems (OAS), AN/APQ-166 Strategic Radar (SR), and AN/ASQ-151 Electro-optical Viewing System (EVS).

4.9.22.4. Performs maintenance and calibrations for AN/APM-440 Radar Test Set (RTS), AN/ASM-661 Transmitter/Modulator Assembly Test Set (TMATS), AN/ASM-470 STV camera and FLIR scanner test set, and AN/ASM-691A Data Link Pod test set.

4.9.22.5. Performs classified purge operations on circuit cards requiring declassification and perform maintenance and calibration of the Demagnetizer P/N 3000-6 (2 BW only).

4.9.23. (Added-ANG) Video Shop: performs on- and off-equipment maintenance on airborne video equipment such as video cameras, motion picture projectors, slide film projectors, video monitors, processing and distribution amplifiers, video audio switchers, synchronizing generators, and control circuitry. At MXG/CC option, this shop may be assigned to the Aircraft Maintenance Squadron.

4.9.24. (Added-ANG) Sensor/CTVS/AVTR performs on- and off-equipment maintenance on sensors, cockpit video system, and airborne video tape recording system. This function may be assigned to Avionics Element or AMXS depending on MDS.

**4.10. Fabrication Flight.**

4.10.1. The Fabrication Flight is responsible for structural maintenance, metals technology, survival equipment and NDI.

4.10.1. (ANG) N/A to the ANG. The following only applies to the ANG: This activity is responsible for modification, corrosion control, local manufacture, inspection, and repair of aircraft and SE beyond the owning workcenters capabilities. The element is organized into the following functions:

Aircraft Metals Technology, Aircraft Structural Maintenance, Survival Equipment, and Nondestructive Inspection (NDI).

4.10.2. Flight Commander/Flight Chief Responsibilities. In addition to the common responsibilities outlined in **Chapter 2**, the Fabrication Flight Chief:

4.10.2. (ANG) N/A to the ANG. The following only applies to the ANG: Element/workcenter supervisor Responsibilities. In addition to the common responsibilities outlined in **Chapter 2**, the element/workcenter supervisor:

4.10.2.1. Provides sufficient local manufacture capability to meet mission requirements and monitors all local manufacture work order requests.

4.10.2.2. Coordinates repair requirements with the AGE flight chief. For AGE welding requirements not covered by end-item technical orders, both flight chiefs will determine the economy of repair action. The fabrication flight chief makes safety determinations. The fabrication flight chief will ensure the material of AGE requiring repair meets the general welding guidelines in TO 34W4-1-5, *Operator Manual-Welding Theory and Application*, and AFOSH STD 91-5, *Welding, Cutting, and Brazing*. The determination of equipment integrity, for the purposes of welding, is made by the AGE flight chief.

4.10.2.3. Ensures section personnel are scheduled for occupational medical examinations IAW AFOSH STD 48-101, *Aerospace Medical Operations* as specified in bioenvironmental surveys.

4.10.2.4. Establishes procedures for precious metal recovery IAW AFMAN 23-110, *USAF Supply Manual* and TO 00-25-113.

4.10.2.5. Develops procedures to ensure assigned survival equipment specialist personnel are trained and certified on thermal protective devices and shields IAW **Chapter 18** of this instruction.

4.10.2.6. Manages hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

4.10.3. Aircraft Structural Maintenance (ASM) Section. This section manages structural repair, corrosion control, composite repair, and low observable (LO) coatings. Provides inspection, damage evaluation, repair, manufacture, and/or modification of metallic, composite, fiberglass, plastic components, and related hardware associated with aircraft and support equipment. In addition to common section chief responsibilities in **Chapter 2**, the section chief:

4.10.3.1. Designs and constructs special forming jigs and dies. Ensures special jigs, dies and forming tools are protected to prevent damage.

4.10.3.2. Repairs honeycomb panels, skin stressed dome antenna panels, dome antennas, radomes, metal-bonded, and composite materials.

4.10.3.3. Manufactures metal tubing, conduits, and cables IAW drawings and specifications.

4.10.3.4. Stocks supplies and equipment to support aircraft and equipment washing, inspection, and treatment.

4.10.3.5. Purchases equipment and materials and ensures facilities are available to provide the capability to chemically or mechanically inspect, remove, and treat corrosion on aircraft, engines, AGE, and components.

4.10.3.6. Monitors the washing and corrosion inspection schedule in the weekly and monthly maintenance plans.

4.10.3.7. Ensures protective/LO coatings are applied to aircraft, AGE, applicable munitions, and components per applicable TOs and IAW local, state and federal environmental directives.

4.10.3.8. Provides training and assistance to sections managing their own corrosion programs to include cleaning operations, corrosion prevention, inspection, removal and treatment techniques.

4.10.3.9. Performs corrosion control and ensures wash rack procedures/requirements are accomplished IAW AFI 21-105, Aerospace Equipment Structural Maintenance, MAJCOM instructions, and MDS-specific TOs.

4.10.3.10. Ensures personnel are rotated to maintain currency in all aspects of the career field, e.g., coating application and removal, Radar Absorbent Materiel (RAM) application and removal, insignia and markings, and structural repair competency.

4.10.3.11. Develops procedures to ensure assigned ASM personnel are trained and certified on aircraft intake maintenance.

4.10.3.12. Provides a current copy of the Qualified Products Listing (QPL) for Mil-Spec approved cleaners for assigned aircraft and equipment every six (6) months to unit supervision, aircraft wash rack, support sections, EMS, CMS, and/or MXS Flight Chiefs. The QPL identifies qualified products (i.e., cleaners, paints, etc…) within a particular Mil-spec and are the only approved materials for use on Air Force aircraft, subsystems and support equipment. Products not listed on the QPL are unauthorized and will not be used. Additional QPLs can be located at the following Air Force Corrosion Prevention and Control Office web site: **http://www.afcpo.com**.

4.10.4. Metals Technology Section. This section inspects, repairs, services, manufactures, fabricates, performs heat treating, cleans, welds, and tests aircraft and equipment, components, and tools. This section:

4.10.4.1. Ensures assigned welders are certified and maintain proficiency IAW TO 00-25-252, *Certification of USAF Aircraft and Missile Welders* and AFI 21-105, *Aerospace Equipment Structural Maintenance* and MAJCOM instructions.

4.10.4.2. Provides and enforces the use of required safety devices. Gives safety briefings stressing the hazards of arc radiation.

4.10.4.3. Ensures proper materials are selected for local manufacture.

4.10.4.4. Observes machine tool set-up procedures, machine cutting operations, operations performed by hand, and general machine section operations, such as bench assembly, fitting, and adjusting machine parts.

4.10.4.5. Ensures technicians follow procedures in AFOSH STD 91-series and 48-series.

4.10.4.6. Ensures special tools, jigs, and fixtures are designed, fabricated, protected and properly stored.

4.10.5. Survival Equipment Section. This section inspects, repairs, manufactures, packs and re-packs fabric, canvas, leather, rubber, survival equipment, rubberized products and flotation equipment. Inspects, repairs, and packs recovery and drogue parachute systems for both personnel and aircraft, as well as flotation equipment, protective equipment, emergency evacuation systems, and associated

subsystems. *NOTE*: for Airdrop units: Inspection and maintenance of cargo extraction and drop parachutes are done by aerial port activities. (*EXCEPTION*: For units where AFSC 2A7X4 is not authorized, the MXG/CC or designee establishes alternate support arrangements.) This section:

4.10.5.1. The section is not responsible for ordering forecasted life sustaining TCIs. However, if a unit of life sustaining equipment is in the SE section for maintenance other than time change and discrepancies are found, SE will order the necessary bits and pieces to repair the unit regardless if the item is a TCI or not.

4.10.5.2. Inspects safety belts and harnesses. Evaluates the extent of damage and wear to material and equipment IAW technical data, and decides whether to repair or replace.

4.10.5.2. (ANG) N/A to the ANG. The following only applies to the ANG: Responsible for inspection, cleaning, and testing of aircraft and aircraft maintenance safety belts and harnesses, repair or fabrication of sound proofing materials, repair of organizational equipment and textile items. Evaluates the extent of damage and wear to material and equipment IAW technical data, and decides whether to repair or replace.

4.10.5.3. Manufactures, inspects, cleans, and packages aircraft thermal radiation barriers IAW **Chapter 18** of this instruction.

4.10.5.4. Repairs aircraft soundproofing materials.

4.10.5.5. Maintains liaison with squadron aircrew life support sections to determine support and workload requirements. Life support policies and procedures are found in AFI 11-301, *Aircrew Life Support (ALS) Program*.

4.10.5.6. Inspects, repairs and modifies protective clothing and equipment IAW technical directives.

4.10.5.7. Validates accuracy of AFTO Form 391, **Parachute Log**, AFTO Form 392, **Parachute Repack, Inspection and Component Record** and applicable flotation equipment forms.

4.10.5.8. Ensures maintenance, inspection, and repair capability exists for maintaining aircrew survival equipment (personnel and recovery parachutes, flotation equipment, and protective clothing) through procurement of expendable repair parts. Establish special stock levels to support the repair and replacement of parts for anti-exposure suits.

4.10.5.9. Ensures repairs and modifications to flight clothing and other life support equipment are in strict accordance with applicable tech data.

***NOTE:*** Clothing owners are responsible for attachment of velcro, patches, and rank insignia.

4.10.5.9. (ANG) **NOTE** : The MXG/CC may direct this section to attach velcro, patches and rank insignia.

4.10.5.10. Performs preventative and minor or major maintenance on sewing machines.

4.10.5.11. Establishes a 6-month recurring training program on infrequently maintained systems (i.e., ACES II drogue chute) to ensure personnel are proficient.

4.10.5.12. Repairs 463L cargo nets, if applicable.

4.10.5.13. (Added-ANG) Ensures personnel conducting maintenance on parachutes are current and qualified in AFSC 2A7X4. If non-AFSC 2A7X4 personnel are used to conduct IPIs, they must attend a formal training course prior to conducting parachute maintenance.

4.10.6. Non-destructive Inspection (NDI) Section. The section will provide the capability to determine structural integrity of aircraft, engines, specified components, and AGE. The section is organized into the NDI function and the oil analysis program (OAP) laboratory. In addition to the common section chief responsibilities outlined in **Chapter 2**, the NDI section chief:

4.10.6.1. Ensures capability exists to perform optical, dye-penetrant, magnetic particle, ultrasonic, eddy current, and radiographic inspections.

4.10.6.2. Maintains liaison with the base medical service which provides occupational physicals, emergency treatments, film badge services, and acts as radiographic advisors IAW AFI 48-125, *The US Air Force Personnel Dosimetry Program* and AFOSH 91-110, *Non-Destructive Inspection and Oil Analysis Program*.

4.10.6.3. Controls and disposes of radiographic silver-bearing material IAW AFMAN 23-110, *USAF Supply Manual*. Coordinates with the base medical and photo facilities to prevent duplication of disposal effort.

4.10.6.4. Performs NDI of aircraft, engines, AGE, and other equipment. Inspection findings are normally limited to a description of the size, location, and type of any defect discovered. NDI personnel do not make serviceability determinations except for "inspect only" TCTOs and if NDI actions constitute a completed maintenance action.

4.10.6.5. Establishes technique files using AFTO Forms 242, **Nondestructive Inspection Data**, and TO 33B-1-1, *Nondestructive Inspection Methods*.

4.10.6.6. Develops process control procedures IAW TO 33B-1-1 and other directives.

4.10.6.7. Ensure radiographic film files contain, as a minimum:

4.10.6.7.1. The last complete set of radiographs for each assigned aircraft and engine by serial number or ID number. Annotate the name of the person who interpreted the film. *NOTE:* Ensure the person interpreting the film also initials the set of radiographs or a locally developed interpretation worksheet, as applicable.

4.10.6.7.2. Radiographic paper exposures, such as non-detrimental FOs and non-detrimental discrepant honeycomb moisture exposures, may be discarded or reclaimed immediately after the discrepancy is corrected.

4.10.6.8. Contractor personnel must be qualified and certified according to National Aerospace Standard (NAS) 410, *NAS Certification and Qualification of Nondestructive Test Personnel.*

4.10.7. OAP Laboratory Responsibilities. If the assigned MDS has an OAP requirement see AFI 21-124, Air Force Oil Analysis Program.

**4.11. Maintenance Flight.**

**4.11. (ANG)** The Maintenance Flight is not used except for the 116th ACW, however, sections duties are located as noted in subparagraphs.

4.11.1. The maintenance flight normally contains the R&R, Wheel and Tire, Transient Alert and Inspection sections.

4.11.2. Flight Commander/Chief Responsibilities. In addition to the common responsibilities outlined in **Chapter 2**, the Maintenance Flight Chief:

4.11.2. (ANG) N/A to the ANG. The following only applies to the ANG: Element/workcenter supervisor Responsibilities. In addition to the common responsibilities outlined in **Chapter 2**, the element/workcenter supervisor:

4.11.2.1. Ensures compliance with Crashed, Damaged, or Disabled Aircraft Repair (CDDAR) program responsibilities (refer to **Chapter 18**).

4.11.2.2. Monitors the flow plan phases of the refurbishment process (if required by assigned MDS).

4.11.2.3. Manages hazardous material (HAZMAT) and ESOH items IAW with ESOH guidance.

4.11.3. Repair and Reclamation (R&R) Section. In addition to the common responsibilities outlined in **Chapter 2**:

4.11.3. (ANG) This section is in the Accessory Element of the Component Repair Flight and at local option, the MXG/CC may reassign responsibilities to other shops.

4.11.3.1. Removes, replaces, and rigs flight control surfaces/systems on primary assigned aircraft.

4.11.3.2. Troubleshoot, rig, and replace landing gears, actuated doors, canopies and associated equipment requiring component maintenance beyond the capability of other activities.

4.11.3.2.1. When directed by the MXG Commander, establish specialized maintenance rig teams to accomplish flight control, canopy, landing gear, door systems, and other systems rigging. These teams will consist of highly qualified personnel trained on each particular system. Each team may participate in flight crew debriefing, troubleshooting, repairing, or replacing components as necessary. When dispatched as a team to troubleshoot CND, repeat, recurring, and FCF discrepancies, initiates an AFTO Form 781A and automated MIS entries for all items inspected, tested, removed, or replaced. Review corrective actions prior to final release of the aircraft.

4.11.3.3. If required, removes, installs, and repairs towed-targets and airborne reel pods.

4.11.3.4. Performs CDDAR responsibilities when assigned.

4.11.3.4. (ANG) Accomplish and document inspections of crash recovery equipment IAW applicable directives, or at least semiannually if no directive is available. Crash recovery technical interchange meeting (TIM) attendance is recommended.

4.11.4. Wheel and Tire (W&T) Section. The wheel and tire shop maintains aircraft wheels and tires. If a supply point for built-up work is set up in the shop, DIFM processing procedures are used. The supervisor sends issue and turn-in documents to the repair cycle support unit. In addition to the common section chief responsibilities outlined in **Chapter 2**:

4.11.4. (ANG) This section is in the Accessory Element of the Component Repair Flight.

4.11.4.1. Manages build-up, repair, test, and storage of wheel and tire components.

4.11.4.2. Provides the capability to degrease wheel components and disassembly for NDI inspection IAW TO 4W-1-61, Maintenance Instruction - All Types Aircraft Wheels, prior to processing through corrosion and the NDI laboratory.

4.11.4.3. Cleans, inspects, and properly stores wheel bearings.

4.11.4.3.1. Units will ensure positive procedures are in place to prevent co-mingling of bearings.

4.11.4.4. Inspects and maintains safety equipment, such as wheel cages, in a serviceable status at all times.

4.11.5. Aircraft Inspection Section. The inspection section performs aircraft (phase, periodic, isochronal or Letter Check) inspections. It may also perform pre-flights, basic post-flights, hourly post-flights, thru-flights, TCTOs, home station checks, and refurbs. Prepares the aircraft for functional check flight (FCF), if required**.** ***NOTE*****:** Units maintaining multiple weapon systems, the inspection section may be divided into separate elements for each type aircraft maintained. In addition to the general responsibilities in **Chapter 2**, the inspection section supervisor will ensure:

4.11.5. (ANG) This section is located in the Equipment Maintenance Flight (EMF) except for the 116th ACW.

4.11.5.1. Assigned non-powered AGE (NPA) such as dock stands are maintained.

4.11.5.1. (ANG) If applicable.

4.11.5.2. Dock supervisors and coordinators are appointed as required; inspection schedules are reviewed; and dock teams are available to meet inspection needs.

4.11.5.3. Specialists are controlled by the Inspection Section when they are performing maintenance in the docks. When specialist support is required, coordinates with MOC and/or production supervisor.

4.11.5.3. (ANG) At MXG/CC option, full time specialists may be assigned to the Inspection Section.

4.11.5.4. Standardized inspection flow plan is developed to aid in managing the progress of the inspection, and to control dock personnel and support specialists. Units may use an Automated Data System (ADS) instead of the inspection flow plan to request specialist support. Ensure flow plan data remains current with -6 TO requirements.

4.11.5.5. Status board or MIS display is used to track in-progress inspections and schedule inputs from the weekly flying and maintenance schedule. Show the following information:

4.11.5.5.1. Aircraft type.

4.11.5.5.2. Aircraft serial number.

4.11.5.5.3. Inspection type and when due (sequence).

4.11.5.5.4. Scheduled in (date and time).

4.11.5.5.5. Actual start (date and time).

4.11.5.5.6. Scheduled out (date and time).

4.11.5.5.7. Aircraft crew chief and assistant crew chief names and duty phone.

4.11.5.5.8. Remarks (status of aircraft, delays, possible MICAP conditions, etc.).

4.11.5.5.9. Safety/Danger Considerations (power/hydraulic applications, stress panels removed, aircraft on jacks, weight and balance, etc.)

4.11.5.6. Upon inspection completion, the dock chief complies with post dock review procedures.

4.11.5.7. All discrepancies discovered during the inspection are documented IAW TO 00-20-1. Approved, locally developed discrepancy sheets may be used to identify and track discrepancies during the inspection, however, all open discrepancies shall be transferred to applicable AFTO Form 781s prior to post-dock.

4.11.5.8. TOs and inspection work cards are available and work unit code (WUC) manuals/checklists are current and properly maintained. In coordination with MOF PS&D, the inspection function will ensure changes to inspection work cards are updated on the Job Standard Master Listing.

4.11.5.9. Personnel are trained to operate industrial-type equipment, hoists, hangar doors, and AGE necessary to do their job.

4.11.5.10. Inspection area contains MIS terminals, AGE, work stands, supplies, and equipment needed to inspect, repair, lubricate, or service are available and ready for use.

4.11.5.11. Needed parts for the aircraft are ordered and inform the MOC and owning agency of all parts backordered UJC 1A or JA (MICAP reportable). (*NOTE*: The use of AF Form 2413, **Supply Control Log**, is optional when MIS is available.)

4.11.5.12. PS&D functions have a record of inspection documents when the inspection is completed.

4.11.5.13. Components are tagged with an AFTO Form 350, **Reparable Item Processing Tag**, when they are removed from the aircraft. As a minimum, include the aircraft ID, component position, and serial number (if serially controlled). To prevent invalidating historical records, ensure serially controlled components are reinstalled on the same aircraft and position from which they were removed. (*EXCEPTION:* If it is absolutely necessary to install serially controlled components in a different position, notify the documentation function for records update.) When it is not practical to tag items such as access panels, an AFTO Form 350 or other suitable means of identification may be used if the items are identified and kept together in a secure storage area and/or rack. (The applicable storage area and/or rack must have the aircraft serial number clearly displayed.)

4.11.6. Refurbishment Section. When established, the refurbishment section performs interior and exterior refurbishment of assigned aircraft. Wings have the option to align the refurbishment section under either the fabrication flight or the maintenance flight. Refurbishment intent is to ensure integrity of existing structures, coatings and fabrics either through repair or replacement. Aircraft refurbishment actions will be accomplished IAW applicable technical orders. In addition to the responsibilities outlined in **Chapter 2**, the section chief:

4.11.6.1. Ensures local, state, and federal environmental requirements are met.

4.11.6.2. Develops a flow plan to provide positive control of inspection and fix phases of the refurbishment process.

4.11.7. Transient Aircraft Maintenance Section, when assigned, is responsible for recovering, servicing, inspecting, maintaining, and launching transient aircraft. Procedures in this section apply to military, contract, and civil service transient maintenance functions. Transient aircraft are those aircraft not assigned to a base that are en route from one location to another that may require routine servicing. Aircraft deploying to or staging from a base for the purpose of flying sorties or conducting training with a squadron assigned to the base, with or without the necessary maintenance support from the home base, are not considered transient aircraft. MOC coordinates specialist support for transient aircraft through appropriate squadrons. TO 00-20-1 contains general requirements for TA maintenance. In addition to the responsibilities outlined in **Chapter 2**, the section chief:

4.11.7.1. Supervises all maintenance performed by assigned personnel on transient aircraft.

4.11.7.2. Recovers and delivers to the survival equipment section all deceleration chutes for assigned, transient and tenant aircraft.

4.11.7.3. Performs maintenance IAW TO 00-20-1 and completes reimbursement documentation. Optional use of AF Form 726, *Transient Aircraft Service Record*, is authorized for the documentation of maintenance servicing requirements and necessary billing information.

4.11.7.4. Uses AF Form 861, **Base/Transient Job Control Number Register**, to record arrivals and departures of transient aircraft. Each aircraft may be assigned a single Event Identification Description (EID) for all support general work performed by the transient maintenance function. As a minimum in the job description/remarks block enter “P” for park, “I” for inspect, “S” for service, “L” for launch, and “E” for EOR. Contract transient alert activities will forward completed AF Forms 861 to the QA monthly. QAs forward completed forms to the applicable contracting officer managing the transient alert for inclusion in the contract file. Blue-suit transient alert activities will route the AF Forms 861 to the flight chief for review. After review, AF Forms 861 are returned to the TA section and filed for a minimum of 1 year. Dispose of AF Form 861 according to AFMAN 37-139, *Records Disposition Schedule*. AF Form 861 may be used to validate manpower requirements against current Air Force manpower standards. Contact the wing manpower office for more information on this procedure.

4.11.7.5. Closes out support general EIDs daily.

4.11.7.5.1. Use the same last four digits on subsequent days for the same aircraft.

4.11.7.5.2. Use a separate EID for each discrepancy that is not support general.

4.11.7.6. Ensures TOs needed for the function are properly maintained. The scope and depth of the file are based on current mission requirements. As a minimum, maintain the appropriate TOs for aircraft that can be expected to transit the function on a regular basis.

4.11.7.7. Ensures personnel are trained and strictly adhere to oil sample requirements specified in the respective dash-6 TO, TO 33-1-37-1/2/3 and AFI 21-124, *Air Force Oil Analysis Program*.

4.11.7.8. Ensures personnel authorized to run engines are qualified according to AFI 11-218 and **Chapter 18** of this instruction. Request the visiting aircrew to run engines if TA or maintenance personnel are not authorized. If qualified aircrew members are not available, contact MOC to request assistance from the home station.

4.11.7.9. Ensures transient aircraft status changes are reported to MOC.

4.11.7.9.1. If support is required, the MOC notifies the home station for support.

4.11.7.10. Perform Aircraft Cross-Servicing as required. Refer to **Chapter 18.**

4.11.7.11. Ensures EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM supplements.

4.11.7.12. Ensures procedures exist for required weapons loading actions on transient aircraft, storage of transient aircraft impulse cartridges, and requisition and maintenance of weapons safing equipment for frequently transiting aircraft.

4.11.7.12.1. Arming, de-arming and munitions unloading/loading operations on transient aircraft may be performed to facilitate maintenance, by any weapons load crew certified/qualified on the munitions and aircraft. The group commander may direct the LSC to arm, de-arm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data and support equipment is available. In such cases, the aircrew should be available for consultation on aircraft peculiarities. If these cannot be met, request help from higher headquarters. Local procedures are developed to control impulse cartridges removed from transient aircraft.

4.11.7.13. When a FCF is required on transient aircraft, QA at the transient base serves as the focal point and ensures all FCF requirements are completed.

4.11.7.14. Ensures checklists exist to ask pilots about explosive egress systems pertaining to aircraft that do not normally transit their base.

**4.12. Munitions Flight.** Responsible for the control, accountability, storage, shipping and receiving, inspection, maintenance, assembly and delivery of conventional, precision guided, nuclear munitions, and naval mines. The Flight manages and maintains all assigned tools, test, munitions handling equipment and conventional Naval mine clips. It also administers, operates and maintains the Combat Ammunitions System-Base and Deployable (CAS-B and D). Munitions Flights are typically composed of three sections: Production, Materiel and Systems. Refer to AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*.

**4.12. (ANG) Munitions Element.** N/A to the ANG. The following only applies to the ANG: This function is located in the EMF. Responsible for the control, accountability, storage, shipping and receiving, inspection, maintenance, assembly and delivery of conventional and precision guided munitions. The Element manages and maintains all assigned tools, test, and munitions handling equipment. It also administers and operates the Combat Ammunitions System (CAS). Munitions Elements are typically composed of three sections: Materiel, Production, and Systems. Munitions element supervisor, in coordination with QA, shall develop quarterly standards. Coordinate with the MXG/CC to establish unit procedures to reconcile training munitions issued for requirements in accordance with IAW AFI 36-2217, *Munitions Requirements for Aircrew Training.*

4.12.1. Munitions Accountable Systems Officer (MASO). The MASO is responsible for the accountability of munitions. The MASO reports transactions that affect the accountable records of items in the munitions account. MASO responsibilities are outlined in AFIs 21-201, 21-204, and 23-111. Organizations with Special Weapons Information Management (SWIM) or Defense Integration and Management of Nuclear Data Services (DIAMONDS) items may appoint separate accountable officers for conventional and nuclear accounts, provided separate SRANS (FK and FV) are established.

4.12.1.1. (Added-ANG) Deployable CAS is the primary means to account for munitions while deployed and in establishing “BARE BASE”. Units must develop and be able of implementing backup procedures to maintain accountability in event of system failure or power loss.

4.12.2. Storage Facilities. Munitions assets, including inert components, are stored in approved storage structures for security and protection IAW AFMAN 91-201. If secured storage is limited, preference is given by the risk category and classification as outlined in AFI 21-201, AFMAN 10-401, and AFMAN 23-110, *USAF Supply Manual*.

4.12.3. (Added-ANG) Ensures approval of LME IAW AFI 21-101 Paragraph **3.11.1.12.**

4.12.4. (Added-ANG) Munitions Control (M/C). M/C shall use visual aids to provide access to critical data IAW AFI 21-201. MMHE and TCTO status must be tracked in one of the following options: CAS, CAMS, or Munitions Control 2000 (MC2K). AFI 21-201, Paragraph 2.12.26. does not apply to the ANG units except MMHE.

## 4.13. Propulsion Flight

4.13.1. The Propulsion Flight maintains aircraft engine propulsion units, propulsion components, and propellers. The flight performs engine/module/accessory disassembly, assembly, test, and repair. The flight has responsibility for jet engine intermediate maintenance (JEIM); test cell and noise suppression systems (NSS); accessory and quick engine change (QEC) repair; small gas turbine; module/accessory repair section; engine support equipment; and turbo-prop/turbo-shaft repair, engine isochronal/phase inspections, as required. These sections may be combined or grouped at the discretion of the maintenance squadron commander. Programs such as engine regionalization and 2LM may affect the standard organizational structure and responsibilities.

4.13.1. (ANG) N/A to the ANG. The following only applies to the ANG: The Propulsion Element maintains aircraft engine propulsion units, propulsion components, and propellers to include composite propeller blades. This element located in the CRF. The element performs engine/module/accessory disassembly, assembly, test, and repair. The element has responsibility for JEIM; test cell and NSS; accessory and QEC repair; small gas turbine; module/accessory repair section; engine support equipment; and turbo-prop/turbo-shaft repair, engine isochronal/phase inspections, as required. These sections may be combined or grouped at the discretion of the maintenance Squadron/flight commander. Programs such as engine regionalization and 2LM may affect the standard organizational structure and responsibilities.

4.13.2. Flight Commander/Chief Responsibilities. In addition to common responsibilities in **Chapter 2**, the Flight Chief:

4.13.2. (ANG) N/A to the ANG. The following only applies to the ANG: Element/workcenter supervisor responsibilities. In addition to common responsibilities in **Chapter 2**, the element supervisor:

4.13.2.1. Is the wing focal point for propulsion maintenance programs, focusing on continuity, compliance and standardization, provides advice to wing leadership on propulsion issues, and monitors all aspects of wing propulsion maintenance program.

4.13.2.2. Acts as the Wing 2A6X1 AFSC functional manager, providing technical guidance to achieve and maintain quality propulsion systems to support the wing mission..

4.13.2.3. Reviews production data to ensure propulsion units and components processed through the flight are repaired and functionally checked in accordance with established flow times, including quick engine change (QEC) configuration when applicable.

4.13.2.4. Coordinates with the engine manager to ensure accurate engine and equipment status reporting.

4.13.2.5. Provides JEIM regional repair (QUEEN BEE), and/or engine regional repair center (ERRC) support to other organizations, when directed.

4.13.2.6. Develops guidelines to comply with Air Force and wing OAP requirement IAW 33 series technical orders and AFI 21-124.

4.13.2.7. Determines kit requirements for recurring maintenance actions if applicable. Kits are pre-assembled from bench stock, in minimum quantities necessary, to support workload requirements. Repair cycle assets are not included in kits. Unused kit items will be returned to bench stock.

4.13.2.8. Reviews/analyzes all unscheduled engine or module removals and test cell rejects IAW AFI 21-104, *Selected Management of Selected Gas Turbine Engines*.

4.13.2.8.1. Reviews/analyzes major component failure trends.

4.13.2.8.2. Provides advice to the Group Commander's Engine Trending & Diagnostic (ET&D) program, as required.

4.13.2.9. Monitors proper disposition of engines and components IAW technical directives.

4.13.2.10. Establishes CANN procedures for in-shop, flight line and deployed locations according to **Chapter 8**, **Chapter 18**, and TO 00-20-2, includes coordination with the Engine Management (EM) section. Procedures will ensure sufficient time remains on TCIs prior to CANN action approval.

4.13.2.11. Ensures availability of all maintenance documentation (TO 00-20-2), including accomplishment of AFTO Forms 244 and 245 on engine test stands, test cells, NSS, and propulsion support equipment (includes cranes and hoists, trailers, etc.). This documentation can be tracked utilizing MIS.

4.13.2.12. Coordinates with Equipment Maintenance Squadron and/or base civil engineering to provide maintenance on NSS and engine test cells. If the wing or squadron is a tenant, incorporate this maintenance requirement into the host-tenant support agreement. Ensures maintenance contract is established IAW AFI 32-1001, Section D.

4.13.2.13. Ensures an uninstalled engine run qualification/certification program is established IAW AFI 11-218 *Aircraft Operations and Movement on the Ground,* and **Chapter 18** of this instruction.

4.13.2.13. (ANG) The MXG/CC or OG/CC (as appropriate) shall appoint a Unit Engine Run Program Manager, preferably within the engine shop. Each individual designated as engine-run qualified is task certified on the SCR. Certification is documented in MIS by aircraft MDS/engine series with maximum power settings specified, when applicable.

4.13.2.14. Establishes a forecast list of supplementary part requirements based on a review of repair documentation for the preceding 6 months, and ensures adequate stock of the items is available as applicable to the MDS.

4.13.2.15. Ensures specialized and long life shipping devices and containers are accounted for and maintained in a serviceable condition (AFMAN 23-110, *USAF Supply Manual*, AFI 21-104, *Selective Management of Selected Gas Turbine Engines*, and TO 00-85-20, *Engine Shipping Instructions*).

4.13.2.16. Ensures that engines and engine components removed from crashed damaged aircraft are disposed of properly (AFMAN 23-110-series).

4.13.2.17. Determines if pre-maintenance test cell runs are required for all engines removed.

4.13.2.18. Designates qualified personnel as bearing inspectors.

4.13.2.19. Ensures a wing flexible borescope certification program, for each TMSM possessed, is established IAW **Chapter 18.**

4.13.2.19. (ANG) And rigid borescope.

4.13.2.20. Ensures a wing blade blending certification program, for each TMSM possessed, is established IAW **Chapter 18**.

4.13.2.21. Tracks the status of ready spare engines using a visual display or automated product showing: serial number; configuration (type and position, if applicable); time remaining until next scheduled engine removal, overhaul or reconditioning, preservation date, type accomplished, re-preservation due date, JOAP code (if applicable), and remarks.

4.13.2.22. The flight chief works closely with MOF EM section to program engine removals for the weekly and monthly maintenance plans. Scheduled and unscheduled engine removals are important considerations in balancing propulsion flight workload with production capability. The flight chief and MOF EM develop a 6-month plan to smooth surges in the engine maintenance workload. Use automated methods to develop the 6-month plan and include scheduled engine removals for TCIs, PEs, and TCTOs. Include a factor for projected unscheduled removal.

4.13.2.23. Ensures propulsion flight FOD prevention program responsibilities are followed.

4.13.2.24. (Added-ANG) Ensures APU are tested, maintained and monitored IAW appropriate guidance, when applicable.

4.13.3. Oil Analysis Program (OAP). Accurate oil sampling determines the internal condition of engines and accessories. Coordinate with the OAP laboratory to obtain maximum benefits from OAP data when abnormal wear-metal trends are indicated.

4.13.3.1. If required, the propulsion flight chief:

4.13.3.1.1. Ensures all OAP responsibilities are performed IAW AFI 21-124.

4.13.3.1.1. (ANG) N/A to the ANG. The following only applies to the ANG: As the primary OAP Manager ensures all OAP responsibilities are performed IAW AFI 21-124 and ANGI 21-105.

4.13.3.1.2. Establishes procedures to monitor OAP trends and takes required actions.

4.13.3.1.3. Ensures personnel are trained to identify and respond to wear metal limits for assigned and maintained engines, and are trained to perform sampling procedures (TO 33-1-37-2, *Joint Oil Analysis Program Laboratory Manual, Volume II).*

4.13.3.1.4. Ensures oil samples taken at the test cell are promptly delivered to the OAP laboratory.

4.13.3.1.5. Acts as a central point-of-contact for all abnormal OAP laboratory results.

4.13.3.1.6. Forwards information to the OAP laboratory concerning actions taken as a result of OAP recommendations.

4.13.3.1.7. If the NDI laboratory providing OAP support is not located on the same base as the supported unit, or the supported unit does not have NDI/OAP personnel assigned, assign the OAP responsibilities outlined in TO 33-1-37-1/2/3 to the owning organization. The owning organization provides samples in an expeditious manner to the supporting OAP laboratory. The owning organization also:

4.13.3.1.7.1. Establishes collection points and procedures to receive and forward OAP samples to the supporting laboratory; monitors sample collection; assigns control numbers, and provides blocks of sample control numbers for use in other squadrons.

4.13.3.1.7.2. Advises Maintenance Operations (MOO/SUPT), MOC and the owning work center of abnormal OAP trends.

4.13.3.1.7.3. Reviews OAP cycle times (from sampling to receipt at the laboratory and return to the unit) to ensure processing meets mission needs.

4.13.4. Support Section. In addition to common responsibilities outlined in **Chapter 2**, the support section chief ensures a flight due-out release point and holding bins are established, and UND "A" and UJC BQ requirements are verified. The support section processes supply requests, maintains AF Forms 2413 (or operates remote devices), tracks MICAP due-outs, monitors bench stock, conducts bench stock and adjusted stock level reviews, and operates tool storage areas.

4.13.4. (ANG) If applicable, otherwise duties are performed/assigned by the Propulsion Element Supervisor.

4.13.5. Jet, Turboprop, Turbo-shaft Engine Intermediate Maintenance (JEIM) Section. The JEIM section stores, builds up, tears down, modifies, and repairs engines, QEC kits, and tests components. Shops that repair engines under 2LM will normally do "retained tasks" only. In addition to common responsibilities in **Chapter 2**, the JEIM section chief:

4.13.5.1. Plans and monitors the progress of propulsion system maintenance, ensuring maintenance schedules are met by anticipating materials required and managing delays to prevent schedule disruptions.

4.13.5.2. Prepares propulsion units and components for shipment and ensures units being returned to depot are properly identified. Attaches CEMS products to life-limited components (TO 00-20-series), NOTE: (Only if the source of repair requires a paper CEMS product) and ensures components rejected by Automated Ground Engine Test Set/Engine Test Trim Automated System (AGETS/ETTAS) are shipped with printouts and deficiency reports (if applicable).

4.13.5.3. Ensures documentation of TCTO compliance (TO 00-20-series).

4.13.5.4. Ensures use of CEMS products (obtained from EM) for all assigned engines. CEMS products will list all parts and serial numbers installed on the engine.

4.13.5.5. Establishes procedures to ensure all parts and serial numbers are inventoried when an engine is received or released by the section. Notify EM when a different serial numbered part is installed or changed so the automated record is updated.

4.13.5.6. Perform production scheduling. At a minimum, scheduling includes informing the flight chief of significant problems and production delays. Immediately informing MOF EM section of engine status changes (AFI 21-104, *Selected Management of Selected Gas Turbine Engines*). Maintaining and reviewing production records to update flow times and identify problem areas.

4.13.5.7. Ensures an Engine Work Folder is established for each engine during periodic inspection, reconditioning, or other maintenance. All engine shops will establish engine work folders on all possessed engines and engine management section or JEIM will maintain the folders until the engine is transferred. The work folder will transfer with the engine. NOTE: (A copy should be maintained by the losing organization for at least 6 months). Gaining units will maintain the work folders and ship the documents with the engine to depot when appropriate. The engine work folder contains a list of all parts, TCTOs and TCI requirements for the engine. The worksheets document engine historical information, critical maintenance management stages, and employee numbers of technicians and supervisors completing maintenance and inspections. One work order is initiated in MIS for an entire job. Separate job control numbers/work center events (JCN/WCE) are initiated for discrepancies found during the look phase of an inspection or subsequent to repair. Complete the MIS work orders during inspection, reconditioning or maintenance. Supplement work folders and worksheets to fit unit needs. Flights may use computer-generated products, provided they include all required information. As a minimum, work folders will contain the following:

4.13.5.7.1. Engine/Module/Accessories Information Worksheet. This document is used to provide a quick synopsis of maintenance accomplished. Include: engine serial number, type, position (if applicable), engine operating time, date started work, date turned serviceable, job control number, maintenance required, reason for removal, list of time change and TCTO requirements. The supervisor reviews signature blocks (crew chief, support, EM), and section chief verifies all repair requirements have been accomplished and documented in the work folder. Ensure a job control number created by the JEIM/Module/Accessories or EM section and is used to process repair of the engine and modules. This procedure will ensure all maintenance data is documented against one JCN and engine failure information is connected to the in-shop action.

4.13.5.7.1. (ANG) Ensure a job control number created by the JEIM/Module/Accessories or EM section and is used to process repair of the engines, modules, and any additional flightline profile packages/WCE (N/A under G081). Schedule flightline profile packages/WCE and MIS profile packages against the flightline-generated WCE (N/A under G081). **EXCEPTION**: Engines received from off station operating units must establish new job control numbers and WCEs.

4.13.5.7.2. Receiving Inspection Worksheet. For documenting items to be accomplished by JEIM prior to engine repair. Minimum requirements: FOD check of engine inlet and exhaust, inspection of engine for general condition and fluid leakage, EHR/TEMS data (if applicable), Engine Trending Diagnostic (ET&D) (if applicable), borescope inspection (if applicable), a check with OAP lab for possible problems, and a list of unique or problem areas to be checked prior to engine disassembly or maintenance.

4.13.5.7.2.1. If applicable, include the following: Engine History Recorder/Turbine Engine Management System (EHR/TEMS) data, ET&D, borescope inspection, a check with OAP lab for possible problems, and a list of unique or problem areas to be checked prior to engine disassembly or maintenance.

4.13.5.7.3. Serially Controlled/Time Tracked Item Replacement Record. This document shows a list of components replaced by nomenclature, old and new part number (if applicable), and serial number.

4.13.5.7.4. Daily Summary Record. This document provides a synopsis of maintenance performed during each shift. Document work packages, subordinate work packages, and TOs used to perform the task in the Summary Block. All entries in the Summary of Maintenance section will include Shift, Rank, Last Name, and Employee Number of person making the entry. Units may use a general purpose or command/locally generated form.

4.13.5.7.5. In-Process Inspection (IPI) List. This form includes the WUC, nomenclature, specific step required for the IPI, and space for employee numbers and signatures of technicians and inspectors performing maintenance.

4.13.5.7.6. Parts Requisition Record. Use this document to list all parts (including TCIs) on order. At a minimum, this document will include the following headings: Engine/Module/Accessory TMSM, Engine/Module/Accessory Serial Number, Nomenclature, Part Number, NSN, Requisition Number, Priority, Status, DIFM Clear with Yes and No sections.

4.13.5.7.7. JEIM Test Cell Preparation Worksheet. This worksheet contains a list of items/tasks to be accomplished by JEIM prior to sending an engine to the test cell. As a minimum, document the following: an inlet and exhaust FOD inspection, any pre-run servicing required, cap open lines, cannon plugs, engine intake and exhaust. Also document a thorough tool inventory and an inspection for loose hardware. The section supervisor will document a review of the work folder to ensure that maintenance performed or required actions are documented.

4.13.5.7.8. Test Cell Pre-run Worksheet. Test cell personnel will complete this document prior to an engine run. At a minimum, document will include the following headings: Engine TMS, Engine Serial Number, EOT/Cycles, JCN, Remarks, Pre-run Emergency Briefing Accomplished with (run Supervisors Name, Signature and Date sections), Inspection with (Area, Employee Number and Date sections). NOTE: At a minimum, Area section will include: Inlet FOD/FO, Exhaust FOD/FO, Engine Exterior and FO, General Engine Serviceability, Test Stand/Thrust Bed/Test Equipment for FO, CTK Inventory C/W, Engine Servicing Check, All preliminary engine installation and run requirements C/W, serviceable fire extinguisher on hand. Each area section will have the performing technician's employee number and date accomplished annotated.

4.13.5.7.9. Test Cell Post Run Worksheet. This document is used to document items/tasks accomplished by test cell personnel after engine run. At a minimum, this document will include the following headings: Engine TMS, Engine Serial Number, EOT/Cycles, JCN, Maintenance Actions Performed, Test Cell Supervisors Post-run Review with (Name, Signature and Date sections), Inspection with (Area, Employee Number and Date sections). NOTE: At a minimum, Area section will include: Inlet FOD/FO, Exhaust FOD/FO, CTK Inventory C/W, Post-Run OAP Samples C/W (if applicable), AFTO Form 350 or AFTO Form 20 Attached, Engine Preservation Type and Date, Throttle Secured to Off Position (if applicable) and Tagged, Cap Open Lines/Cannon Plugs, Install Intake/Exhaust Covers, Servicing Amount, Engine Test Cell Discrepancies Cleared, 7-Level Inspection of Components Replaced or Disconnected, Final Leak Check. NOTE: Test Cell personnel will leak-check items not accessible

with the engine installed in or on the aircraft prior to leaving test cell. Each area section will have the performing technician's employee number and date accomplished annotated.

4.13.5.7.10. Final Inspection Worksheet. This document is used to document JEIM requirements after repair or testing has been completed. It includes, FOD inspection of intake, exhaust, and external engine; borescope engine (if applicable); ensuring throttle is secured and tagged to "off" position (if applicable); capping, plugging and covering fittings and lines; attaching AFTO Form 350 to lines, fittings or plugs that require "leak check" when installed in aircraft (items not accessible in aircraft must be leak checked on test cell); attaching AFTO Form 350 and/or serviceable tag to engine, ensure supply accounts and MIS entries have been cleared.

4.13.5.7.11. Borescope Worksheets. Ensure borescope inspection worksheets are used for engines requiring borescope documentation.

4.13.5.7.12. Uninstalled Engine/Module Blade Blending / FOD Damage Worksheet. Use to document blade blending / FOD damage for uninstalled engines/modules. As a minimum, worksheet will have the following information: Engine/Module S/N#, Date, Discrepancy, Stage, Corrective Action, and Man #.

4.13.5.8. Process the MICAP start in Mission Capable (MICAP) Asset Sourcing System (MASS); ensure all pertinent data is included. (Applies to commands with a Regional Supply Squadron (RSS).

4.13.5.9. Upgrade, downgrade and cancel MICAP requirements. (Applies to commands with a RSS).

4.13.6. Test Cell and Noise Suppression System (NSS) Section. This section is responsible for testing engines to evaluate the quality of maintenance and engine performance, and accomplish engine preservation.

4.13.6. (ANG) Ensure that inspections, repairs, and corrosion control are accomplished, and records are maintained on noise suppresser systems, test cells, and trim pads, when required.

4.13.6.1. In addition to the common section chief responsibilities outlined in **Chapter 2**, the NSS section chief:

4.13.6.1.1. Ensures NSS and test cell personnel accomplish minor maintenance, make adjustments to engines, and document engine condition. The test cell supervisor ensures test cell components are calibrated on site, if practical.

4.13.6.1.2. Briefs maintenance personnel on NSS operating/emergency procedures.

4.13.6.1.3. Ensures the NSS is used to the fullest extent. Open tie-down pads are only used as a secondary system when the NSS is down or to help reduce backlogs.

4.13.6.1.4. Ensure qualified NSS personnel are present whenever the NSS is in use. If required, provides NSS personnel to augment AMXS deployment requirements.

4.13.6.1.5. Ensures custodial responsibilities are accomplished on all assigned equipment.

4.13.6.2. Qualified personnel from the aircraft's owning squadron will position aircraft on the NSS, prepare aircraft for engine run and accomplish engine run, trim, and troubleshooting.

4.13.6.3. Report Halon 1301 releases in accordance with AFI 91-204, *Safety Investigations and Reports* and AFI 32-7086, *Hazardous Materials Management*.

4.13.6.4. Maintains facility waste water standards IAW AFI 32-7041, Chapter 2, and IAW applicable federal, state, local, DoD, AF, MAJCOM, and installation requirements/guidance.

4.13.7. Accessory Repair Section. (if applicable) This section repairs and maintains fuel nozzles, fuel manifolds, oil pumps, accessory housings, afterburners, thrust reversers, augmentors, engine components, and modules. This section also operates and maintains the bearing room in accordance with TO 44B-1-15, *General Instructions - Jet Engine Anti-friction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities*.

4.13.8. Small Gas Turbine Engine Section. This section repairs and maintains small gas turbines used in aircraft. In addition to common responsibilities outlined in **Chapter 2**, the section chief ensures personnel are qualified to operate small gas turbine engines and test stands.

4.13.8. (ANG) The MXG/CC has the option to reassign these duties, if applicable.

4.13.9. Engine Support Equipment Section. This section maintains, manages, and stores engine support and test equipment, including engine stands and trailers.

4.13.10. Propeller Section. This section repairs, builds up, tears down, and modifies propellers, valve housings, pump housings, and associated components.

4.13.11. Module Repair Section. This section, depending on the type of engines supported, performs tear down, time change, maintenance, repair, build-up, and storage of engine modules and components.

4.13.12. Quick Engine Change (QEC) Kit Management. QEC kit removals and installations are coordinated with the SRAN EM and loaded in MIS as a part number-serial number item, reflecting where the kit is installed or spared.

4.13.12.1. In addition to repair cycle procedures outlined in **Chapter 8**, the technician removing a QEC kit item from an engine completes an AFTO Form 350, enters the reason for removal in Block 14, and annotates the QEC kit inventory for each repairable item. For components removed for heat treating, washing, or sand blasting, technicians will attach a numbered metal tag (if needed) to the item and enter the metal tag number on the AFTO Form 350, Block 15. The metal tag links the item to the AFTO Form 350. Section personnel enter "QEC" in large letters on the AFTO Form 350, Block 15, to identify the item as a QEC asset.

4.13.12.2. Complete the AF Form 596, **Quick Engine Change Kit Inventory** for on repair cycle items and QEC kit unique items when an engine enters the section for tear down. If TO requirements restrict reuse of items, the technician marks the AF Form 596 with an asterisk to show that a demand has been placed on supply.

**4.14. Test, Measurement, and Diagnostic Equipment (TMDE) Flight.**

**4.14. (ANG) Test, Measurement, and Diagnostic Equipment (TMDE) Flight.** N/A to the ANG. The following only applies to the ANG: The MXG/CC designates a TMDE coordinator for liaison between the unit and the servicing TMDE laboratory. Local OIs must be published to ensure that unit TMDE is controlled, calibrated, repaired, and certified IAW prescribed directives. A host tenant agreement with the servicing PMEL must be accomplished when required. All TMDE specified as PMEL responsibility in

TO 33K-1-100-1/2 must be sent to the PMEL for scheduled calibration and repair. Where an ANG Type II PMEL is assigned, the appropriate commander shall ensure the PMEL conforms to the provisions outlined in TO 00-20-14. ANG Flying units (except those collocated with a Type II PMEL on the same installation) may request authorization from Air Force Metrology and Calibration (AFMETCAL) Det 1 to support their own torque wrenches, by submitting a waiver package through ANG/LGMM, PMEL FAM with all supporting data IAW TO 00-20-14. Calibration responsibility waivers shall be considered for "Torque Wrenches Only". CAF units shall assign the torque wrench calibration function to the AIS/Intermediate Automated Test Station (IATS), and Airlift/Tanker units shall assign it to the Avionics Guidance and Control Shop. Units receiving approval for a Torque Wrench Calibration Site must comply with all requirements listed in Chapter 18.32. All subparagraphs in section **4.14.** are also N/A to the ANG.

4.14.1. General. The TMDE flight maintains, calibrates, and certifies TMDE, traceable through the Air Force Primary Standards Laboratory (AFPSL) to the National Institute of Standards and Technology, or other AFMETCAL-approved source. It consists of a Precision Measurement Equipment Laboratory (PMEL), production control section, a Quality Program (QP) section, and a TODO or TODA. A Rapid Assistance Support for Calibration (RASCAL) may also be assigned. The PMEL normally includes work areas such as voltage, impedance, time/frequency, microwave, temperature, mechanical-dimensional, and optics. The PMEL performs in-laboratory and on-site calibration and repair using laboratory equipment and calibration standards, Transportable Field Calibration Unit (TFCU), Portable Automatic Test Equipment Calibrator (PATEC), Jet Engine Test Cell/Stand Calibrator (JETSC), or RASCAL. The TMDE flight provides base-level support of aircraft, precision guided munitions, ground systems, and other equipment assigned to the base or geographically separated units. The PMEL calibrates, certifies, and maintains TMDE in accordance with TOs 00-20-14, 33K-1-100, and the supported Calibration and Measurement Summaries (CMS).

4.14.1.1. When a RASCAL mobile facility is assigned to the base, the TMDE flight maintains the facility, associated calibration standards, computers, environmental control units (ECU), power transformers, etc., for immediate peacetime or wartime deployment. The flight uses base resources (e.g., civil engineering, AGE flight, etc.) to the maximum extent possible to maintain RASCAL facilities, ECUs, and power transformers. The TMDE flight shall maintain sufficient PMEL journeymen-craftsmen with documented qualifications to maintain, complex, and de-complex the RASCAL structure.

4.14.2. Flight Commander/Chief Responsibilities. The TMDE flight chief is responsible for common flight supervisor duties in **Chapter 2** of this instruction. Specifically, the flight chief shall:

4.14.2.1. Use this instruction, TOs 00-20-14, *AF Metrology and Calibration Program*; 33K-1-100 *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*; CMSs; AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program*; and AFMAN 32-1094, *Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction,* to maintain PMEL certification.

4.14.2.2. Ensure calibration and repair support for TMDE that is designated as a PMEL responsibility in TO 33K-1-100 or appropriate CMS for host, tenant, and off-base supported activities.

4.14.2.3. Establish and maintain a priority maintenance support plan for mission essential support equipment. As a minimum, the plan must ensure qualified PMEL personnel are readily available to support mission essential maintenance requirements.

4.14.2.4. Establish a customer relations program to provide technical assistance and advice and to obtain customer feedback on TMDE matters. The program must include periodic visits to, telecommunications contact with, or locally-developed customer survey letters sent to all on- and off-base owning work center (OWC) customers. All customers must be contacted annually as a minimum. Maintains records documenting these visits, contacts, and surveys. The supported activities' representatives are also encouraged to visit the TMDE flight.

4.14.2.5. Ensure the PMEL Automated Management System (PAMS) is administered, maintained, and operated in accordance with Air Force 33-series publications and 5000-series Air Force System Security Instructions and Memorandums (see AFIND 5, *Numerical Index of Specialized Information Protection Publications*) and AFCSM 21-303(V2), *PMEL Automated Management System (PAMS) - Software Users Manual*.

4.14.2.6. Ensure PMEL management responsibilities outlined in TO 00-20-14, Section 3, are fulfilled.

4.14.2.7. Ensure RASCAL, JETSC, PATEC, and TFCU are maintained as complete sets and available for immediate peacetime or wartime deployment.

4.14.2.8. Approve priority calibration or repair requests and may delegate this authority.

4.14.2.9. Establish and manage a TODO or TODA to meet in-place and deployment requirements.

4.14.2.10. Maintain equipment and TO accounts as necessary for the purpose of identifying mobilization equipment.

4.14.2.11. Establish a training program that includes identifying advanced training requirements.

4.14.2.12. Ensure a system is established to periodically review all TMDE in deferred and in-maintenance status.

4.14.2.13. Establish a preventive maintenance program IAW TO 00-20-1 and track inspections using Tool Accountability System requirements in **Chapter 13** (AFI 21-101). The program must include recurring events such as solid state/wet standard cell checks, plenum chamber hydrostatic test, vacuum pump servicing, weekly temp/humidity monitor check, RASCAL shelter maintenance, periodic standard resistor checks, NDI of eye hooks and chains, JETSC trailer maintenance, 28 VDC rectifier checks, filter cleaning, etc.

4.14.2.14. Establish security procedures to protect classified TMDE in compliance with AFI 31-401, *Managing the Information Security Program*.

4.14.2.15. Identify earned reimbursements to the local DFAS accounting liaison (or alternate office) for billing and collection NLT 30 days after the month in which the reimbursement was earned. Reimbursement documentation shall include, as a minimum, receipts for materiel expenses (i.e., DD Form 1348-1, *Issue Release/Receipt Document*, or commercial supplier equivalent) and data for labor expenses (i.e., category of labor, total hours expended, civilian/military pay grade). TMDE flight shall retain reimbursement source documents on file in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.2.16. Comply with this instruction's **Chapter 13** Tool and Equipment Management Program.

4.14.2.17. Ensure support agreements with off-base non-MXG receivers (tenants) require establishment of TMDE Collection Points (preferably one per combat group or equivalent), see this instruction paragraph **2.3.1.85.** This requirement applies to off-base ANG activities (MXG and non-MXG) too.

4.14.2.18. Establish security procedures to protect classified TMDE in compliance with AFI 31-401, *Managing the Information Security Program.*

4.14.2.19. Identify earned reimbursements to the local DFAS accounting liaison for billing and collection NLT 30 days after the month in which the reimbursement was earned. Notice to DFAS shall minimally include data from receipts for materiel expenses (i.e. DD Form 1348-1, Issue Release/Receipt Document, or commercial supplier equivalent) and data for labor expenses (i.e. category of labor, total hours expended, civilian/military pay grade). TMDE flight shall retain reimbursement source documents on file in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.2.20. Implement tool control procedures for accountability, security, and safety.

4.14.3. PMEL Quality Program (QP). The QP is established by the TMDE flight chief. The PMEL QP outlined in TO 00-20-14, Section 9, and this chapter shall be used instead of the QAP in **Chapter 10**. However, the TMDE flight must participate in the **Chapter 10** Activity Inspection Program and MSEP, excluding over-the-shoulder inspections.

4.14.3.1. The TMDE Flight Chief shall:

4.14.3.1.1. Appoint highly qualified AFSC 2P0X1 TMDE personnel, 7-skill level when possible, as PMEL Quality Assurance (PQA) evaluators and may appoint PQA augmentees. The flight chief may appoint highly qualified 5-skill level personnel when necessary.

4.14.3.1.2. Publish a monthly QP summary and route it through squadron supervision to at least the SQ/CC (or organizational equivalent). The report format should comply with TO 00-20-14 and meet local requirements.

4.14.3.2. PMEL Quality Assurance evaluators shall:

4.14.3.2.1. Perform technical evaluations and reviews of TMDE production processes, products, and services to assess equipment condition, process compliance, calibration traceability, personnel proficiency and competency, quality of training; and inform the TMDE flight chief of findings.

4.14.3.2.2. Perform systematic follow-up and provide remedial instruction (if required) in correcting identified nonconformities. Evaluate nonconformity and problem areas to find the root cause in accordance with TO 00-20-14. Log nonconformities, root causes, and corrective actions in PAMS/MIS.

4.14.3.2.3. Establish a system to track the status of technical order improvement reports and DRs for compliance IAW TOs 00-5-1 and 00-35D-54. Download monthly TO Improvement Status (TOIS) Listing from the AFMETCAL Det 1 METWEB homepage.

4.14.3.2.4. Verify requests for calibration responsibility determinations (AFTO Form 45, *Request for Calibration Responsibility Determination*) and maintain a suspense file until changes are incorporated into work-unit code manuals. Download and review Calibration Determination Listing from the AFMETCAL Det 1 METWEB homepage.

4.14.3.2.5. Manage items in PAMS statuses: item calibrated (awaiting QR), item selected for SR, MDR exhibit and items waiting PR (see TO 00-20-14).

4.14.3.2.6. Inspect completed PAMS job documentation in conjunction with QR and SR for time accounting, accuracy, completeness, and compatibility of action taken and how mal codes. Report trends monthly to TMDE flight chief.

4.14.4. Production Control Section. The production control section consists of customer service, production scheduling, traffic management, and maintenance supply liaison functions. Additionally, an AFSC 2S0X1-Supply Management individual should be assigned. Production control uses PAMS/MIS to maintain an accurate master identification listing, process equipment, and to provide current status of all TMDE.

4.14.4.1. Customer Service Function. Establishes procedures for turn-in and pick-up of TMDE. Emergency equipment is accepted at any time. In addition, the customer service function shall:

4.14.4.1.1. Process incoming TMDE using PAMS/MIS equipment schedules, PAMS/MIS directives, and TOs. Inspect each item of incoming TMDE to determine exterior condition IAW TO 33-1-27, *Logistics Support of Precision Measurement Equipment,* and, for unscheduled TMDE malfunctions, determine adequacy of discrepancy documentation on AFTO Forms 350. Notify the OWC of inadequately documented, excessively dirty, or incomplete paperwork and/or TMDE. The TMDE flight may return these items for correction of the discrepancies prior to processing into PMEL.

4.14.4.1.2. Produce monthly TMDE schedules and quarterly master ID lists at least five work days before the first duty day of the month and distribute to OWCs for correction and verification. Schedules for OWCs are not required when there are no items in maintenance or overdue status. Establish a tracking and a suspense system for return of corrected listings.

4.14.4.1.3. Notify OWC monitors within 10 calendar days (20 calendar days for remote or off-base locations) of TMDE not delivered on or before the scheduled date due calibration. Maintain a log of all contacts concerning overdue TMDE. For remote and off-base locations, notification is not required if the PMEL has received an advance copy of shipping documentation. Overdue calibration notifications shall include a statement to remove TMDE from service according to Air Force instructions unless a date due calibration extension has been requested and approved by the owning MAJCOM IAW TO 00-20-14. Notify the OWC commander (or equivalent) by letter when the OWC routinely fails to deliver or schedule delivery within a reasonable period following notification.

4.14.4.1.4. Train OWC TMDE monitors. Maintain a database or log of coordinator training (dates, names, organizations, etc.).

4.14.4.2. Production Scheduling Function shall:

4.14.4.2.1. Accept TMDE from customers and may reject TMDE until the OWC complies with their organizational responsibilities in TOs 00-20-14; 15X-1-102, *General Care and Cleaning of Oxygen Gauges and Oxygen Device Related Test Equipment*; 33-1-27, *Logistic Support of TMDE*; and 37C11-1-1, *Cleaning of Pressure Gauges Used on Liquid Oxygen Systems* (e.g., submit equipment with batteries, set torque wrenches at the lowest setting prior to delivery, deliver accessories with TMDE, etc.).

4.14.4.2.2. Establish a workload leveling program through daily coordination with customers to maintain a level incoming workload. Advise TMDE flight chief through section chief of significant increases in workload or deviations from monthly schedule.

4.14.4.2.3. Establish a "Hold Area" for TMDE requiring technical data or accessories, awaiting instructions from item managers, etc. Maintain a separate "Hold Area" database or file for this TMDE. Notify OWCs of the change to a deferred status. Return items awaiting technical data or accessories if the OWC does not respond in a timely manner after being notified.

4.14.4.2.4. Establish an "awaiting shipment" area for TMDE shipped to another organization and maintain a database or file with associated documents.

4.14.4.2.5. Use PAMS/MIS to control TMDE processed for maintenance. Ensure the current status of all TMDE processed into the PMEL for repair and calibration is reflected in the PAMS/MIS database.

4.14.4.2.6. Correct the PAMS/MIS master ID database not later than three workdays after receipt of customer corrections.

4.14.4.2.7. Notify customers of completed TMDE. Take action to resolve problems with customers who fail to pick-up completed TMDE within a reasonable period.

4.14.4.2.8. Manage and schedule TMDE TCTOs as per instructions in **Chapter 15**.

4.14.4.2.9. Schedule TMDE using one of the following categories. To avoid abuse of the TMDE priority system, the TMDE flight chief shall assist OWC personnel in locating TMDE to meet their mission requirements. The OWC should attempt to meet mission requirements prior to requesting emergency or mission essential support.

4.14.4.2.9.1. EMERGENCY Calibration or Repair: One-of-a-kind TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage. A letter of justification signed by the OWC Maintenance Operations (MOO/SUPT) must accompany the TMDE. The letter may be handwritten to prevent delay, and telephone verification between the OWC and PMEL is encouraged. PMEL must accept emergency TMDE any time and immediately place it into work, with calibration or continuous repair action until repair/calibration is completed or status of the item changes (e.g., AWP, deferred for lack of standards or technical data, etc.). The TMDE flight or section chief may require an OWC technician familiar with the TMDE to accompany the TMDE to and remain at the PMEL to provide technical assistance until the work is completed or placed in an interim-complete status. The owning or using organization must pick up the TMDE immediately upon notification of completion.

4.14.4.2.9.2. MISSION ESSENTIAL Calibration or Repair: One-of-a-kind or one-deep TMDE that is part of a unit's deployment package, or is critical to daily peacetime operations, or TMDE assets falling below critical availability levels. A letter of justification signed by the OWC flight chief or equivalent shall accompany the TMDE. The OWC flight chief or equivalent may pre-identify, by letter, TMDE that meets the mission essential definition as approved by the TMDE flight chief or delegated approval authority. PMEL must accept mission essential TMDE any time during duty hours and schedule it with sufficient priority to ensure the calibration/repair is complete, or the maintenance status changes (i.e., from INW to AWP, DEF, etc.), by the date and time specified by the cus-

tomer. The OWC or using organization must pick up the TMDE immediately upon notification of completion.

4.14.4.2.9.3. ROUTINE Calibration or Repair: TMDE not categorized as emergency or mission essential. PMEL must accept routine TMDE during normal turn-in and pick-up hours.

4.14.4.3. TMDE Traffic Management Function. Processes TMDE items needing contract, warranty, depot or lateral calibration/repair and return through local traffic management office in compliance with this instruction and AFI 24-201, *Cargo Movement*. This function shall:

4.14.4.3.1. Process TMDE shipped off base for calibration or repair and return, including warranty and contract items. TMDE is accountable property with an expiration date (date-due calibration) and it must be shipped by traceable means. All installation TMDE items must be shipped through the flight according to TO 00-20-14 and other applicable publications.

4.14.4.3.2. Retain and file hard copy source documents for all inbound and outbound (contract, warranty, depot and lateral) shipments in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.4.3.3. Use the PAMS shipping module to the fullest extent possible. If PAMS is not available, manual backup methods shall be employed.

4.14.4.3.4. Track TMDE in PAMS maintenance statuses “DEPOT” and “CONTR”. Maintain file consisting of all supporting documentation for each type of shipment.

4.14.4.3.5. Establish and implement a reusable container program in compliance with AFI 24-202, *Preservation and Packing*.

4.14.4.3.6. Outbound Shipments. Prepare DD Form 1149, *Requisition and Invoice or Shipping Document*, for each shipment. All copies of the DD Form 1149 are stamped "TMDE" in one-inch letters using red ink. The form must contain the words "DO NOT POST/ PROJECT CODE 571" in block 4, and "SUPPLY INSPECTION NOT REQUIRED—SHIP BY TRACEABLE MEANS ONLY"; and either "CONTAINS HAZARDOUS MATERIAL" or "CONTAINS NON-HAZARDOUS MATERIAL." in section B.

4.14.4.3.6.1. Use AF Form 537, *PME Shipping*, for all TMDE shipments delivered to the packing and crating activity. Include an AFTO Form 350 with each item of unserviceable TMDE.

4.14.4.3.6.2. Retain two legible copies of the DD Form 1149 signed by packing and crating. Ensure these copies contain sufficient information to identify the owner or user, part number, NSN, ID or serial number, nomenclature, and the TCN assigned by the transportation activity.

4.14.4.3.6.3. Retain one copy of the DD Form 1149 until the shipment is received at the destination point, then file the DD Form 1149 IAW AFMAN 37-139, *Records Disposition Schedule*; mark the other copy as "Advance Copy" and mail/electronically transmit it to the destination point. Initiate tracer action if shipping time exceeds standards in AFI 24-201 and follow-up with the destination point within 30 calendar days of the shipping date.

4.14.4.3.7. Inbound Shipments. Place the “Advance Copy” of the DD Form 1149 received from the shipping organization in a suspense file. Notify the traffic management office to initiate tracer action if shipping time exceeds standards in AFI 24-201.

4.14.4.3.7.1. Reconcile the inbound “Advance Copy” DD Form 1149 with the shipping document (DD Form 1149) and clear the suspense. Sign the “Advance Copy” and mail/electronically transmit it to the originator.

4.14.4.3.7.2. Update the PAMS maintenance file ID listing and route the TMDE through designated official for incoming inspection. Report damage attributable to shipping through the Transportation Management Office, Cargo Movement Inbound Section, to initiate SF Forms 361 or 364, Damage Reports, via the Cargo Movement Operations System (CMOS). Retain copies of the report of damage with the respective DD Form 1149.

4.14.5. Maintenance Supply Support (MSS) Section. MSS manages maintenance-supply actions and provides assistance to other flight personnel to resolve supply problems. The MSS shall:

4.14.5.1. Establish an "AWP/Equipment Inoperative for Parts (EIP)" storage area, and maintain accountability and control of TMDE and expendable parts. Track status of TMDE in PAMS using maintenance status “AWP/EIP” and “in-service AWP”.

4.14.5.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify and monitor Urgency Justification Codes (UJCs) and Standard Reporting Designator (SRD) codes.

4.14.5.3. Maintain bench, operating, and shop stocks. Dispose of property containing precious metals in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.5.4. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

4.14.5.5. Monitor status of backordered requisitions and maintain liaison with Logistics Readiness Squadron personnel. Initiate supply assistance requests for supply difficulties. Submit follow-up actions (document identifier code "AFC") to Logistics Readiness Squadron for requisitions with unacceptable status or unacceptable estimated delivery dates.

4.14.5.5.1. Coordinate with customers to obtain mission impact statements to substantiate supply assistance requests. Establish a suspense system and follow-up to ensure correspondence is received and acted on.

4.14.5.5.2. Consider assigning NRTS codes to TMDE exceeding 60 days in “AWP/EIP” status. Supply personnel must initiate follow up action with the item manager of the repair parts beginning at the 60th day in status. If delivery of the parts does not occur by the 90th day in status then supply personnel must contact the item manager of the end item for disposition instructions.

4.14.5.6. Maintain accountability for issues and turn-ins of Due In From Maintenance (DIFM) repair cycle assets (see TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*).

4.14.5.7. Establish a TMDE flight precious metals recovery program in compliance with AFMAN 23-110, *USAF Supply Manual*, retain and file records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.5.8. Establish TMDE flight shelf life program in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.5.9. Assist GPC holders in administering and coordinating purchases.

4.14.5.10. Requisition and control TCTO kits in compliance with this instruction and TO 00-5-15, *Air Force Time Compliance Technical Order System*.

4.14.6. Type II PMEL Chief. The Type II PMEL chief is responsible to the TMDE flight chief. In addition to the general section chief responsibilities listed in **Chapter 2** of this instruction and in TO 00-20-14, the PMEL chief shall:

4.14.6.1. Ensure timely verification (see TO 00-5-3, *AF Technical Manual Acquisition Procedures*) of new and updated calibration TOs distributed to the PMEL for review, including beta tests of software. Annotate comments (enhancements and discrepancies) on AFTO Form 158, *TO Review Comment Sheet*.

4.14.6.2. Ensure currency of software used in manual/automated calibration procedures and software used to pass/fail TMDE parameters. All such software must possess a valid Computer Program Identification Number (CPIN), see TO 00-5-17.

4.14.6.3. Identify sufficient training requirements for AETC advanced and supplemental training to the flight chief to ensure constant availability of military personnel for peacetime and wartime deployment. Furnish task-certified primary and alternate military personnel for the duration of any PMEL deployment taskings.

4.14.6.4. Daily evaluate adequacy of total days in lab (referred to as cycle time or turnaround time) for TMDE awaiting maintenance (AWM), AWM from deferred, and in-work (INW). Initiate corrective action as necessary to balance workload and capacity (production). Workable backlog must not exceed 7 days. The source document for data is the PAMS Daily Workload Report or equivalent. The formula for workable backlog (expressed in days) is: workable backlog (number of pieces) divided by the average daily production.

4.14.6.5. Ensure work area supervisors perform and document follow-ups weekly on TMDE in deferred (DEF) status.

4.14.6.6. Annually identify and code PMEL owned TMDE in PAMS as working standard or not applicable; document the review and retain on file until a subsequent review.

4.14.6.7. Designate sufficient work area supervisors and delegate authority to:

4.14.6.7.1. Supervise and direct the work efforts of the work area team and share responsibility for the quality of maintenance. Work area supervisors must establish processes to ensure that work area maintenance practices produce traceable, clean, safe to use TMDE with optimal physical condition, and accurate documentation.

4.14.6.7.2. Ensure PAMS accurately reflects correct maintenance status for all TMDE applicable to the work area. Also, ensure accuracy and completeness of MDC/JDD data entered in PAMS.

4.14.6.7.3. When authorized on the SCR, perform production and supervisory inspections: i.e., sign condition tags, validate/verify NRTS conditions, identify/clear repeat and CND discrepancies, etc.

4.14.6.7.4. Resolve production difficulties for TMDE in maintenance, typically when the in maintenance cycle time exceeds seven calendar days.

4.14.6.7.5. Ensure work area team members formally report instances of substandard materiel or supplier performance. Prepare and submit AF Form 1815, *Difficulty Report Worksheet*; AFTO Forms 22, *TO Improvement Report and Reply*; SF Form 368, *Product Quality Deficiency Report*; and all other supplier feedback documents pertinent to PMEL processes. Route all documents through the QP section for coordination and tracking.

4.14.6.8. Notifies customers of completed TMDE. Takes action to resolve problems with customers who fail to pick-up completed TMDE within a reasonable period.

4.14.6.9. Manages and schedules TMDE TCTOs as per instructions in **Chapter 15**.

4.14.6.10. Schedules TMDE based on category and first-in, first-out within each category. TMDE categories are:

4.14.6.10.1. Emergency Calibration or Repair: One-of-a-kind TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage. A letter of justification signed by the OWC maintenance supervision shall accompany the TMDE. The letter may be handwritten to prevent delay, and telephone verification between the OWC and PMEL is encouraged. PMEL accepts emergency TMDE any time and immediately places it into work, with calibration or repair action continuous until repair or calibration is completed or status of the item changes (e.g., AWP, deferred for lack of standards or technical data, etc.). The TMDE flight or section chief may require an OWC technician familiar with the TMDE to accompany the TMDE to and remain at the PMEL to provide technical assistance until the work is completed or placed in an interim-complete status. The owning or using organization picks up the TMDE immediately upon notification of completion.

4.14.6.10.2. MISSION ESSENTIAL Calibration or Repair: One-of-a-kind or one-deep TMDE that is part of a unit's deployment package, or is critical to daily peacetime operations, or TMDE assets falling below critical availability levels. A letter of justification signed by the OWC flight chief or equivalent shall accompany the TMDE. The OWC flight chief or equivalent may pre-identify, by letter, TMDE which meets the mission essential definition as approved by the TMDE flight chief or delegated approval authority. PMEL accepts mission essential TMDE any time during duty hours and schedules it as the next item into work, with the TMDE worked by all shifts until calibration or repair is complete or status of the item changes. The OWC or using organization picks up the TMDE immediately upon notification of completion.

4.14.6.10.3. ROUTINE Calibration or Repair: TMDE not categorized as emergency or mission essential. PMEL accepts routine TMDE during normal turn-in and pick-up hours.

4.14.6.10.4. To avoid abuse of the TMDE priority system, the TMDE flight chief shall assist OWC personnel in locating TMDE to meet their mission requirements. The OWC should attempt to meet mission requirements prior to requesting priority TMDE support.

4.14.6.11. TMDE Traffic Management. Processes TMDE items needing contract, warranty, depot or lateral calibration/repair and return through local traffic management office in compliance with this instruction and AFI 24-201, *Cargo Movement*.

4.14.6.11.1. Process TMDE shipped off base for calibration or repair and return, including warranty and contract items. TMDE is accountable property with an expiration date (date-due calibration) and it must be shipped by traceable means. All installation TMDE items will be shipped through the flight according to TO 00-20-14 and other applicable publications.

4.14.6.11.2. Retain and file hard copy source documents for all inbound and outbound (contract, warranty, depot and lateral) shipments in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.6.11.3. PAMS shipping module will be used to the fullest extent possible. If PAMS is not available, manual backup methods will be employed.

4.14.6.11.4. Track TMDE in PAMS maintenance statuses “DEPOT” and “CONTR”, and establish storage areas for TMDE awaiting shipment to another activity. Maintain file consisting of all supporting documentation for each type of shipment.

4.14.6.11.5. Establish and implement a reusable container program in compliance with AFI 24-202, *Preservation and Packing*.

4.14.6.11.6. Outbound Shipments. Prepare DD Form 1149, **Requisition and Invoice or Shipping Document**, for each shipment. All copies of the DD Form 1149 are stamped "TMDE" in one-inch letters using red ink. The form must contain the words "DO NOT POST/ PROJECT CODE 571" in block 4, and "SUPPLY INSPECTION NOT REQUIRED—SHIP BY TRACEABLE MEANS ONLY"; and either "CONTAINS HAZARDOUS MATERIAL" or "CONTAINS NON-HAZARDOUS MATERIAL." in section B.

4.14.6.11.6.1. Use AF Form 537, **PME Shipping**, for all TMDE shipments delivered to the packing and crating activity. Include an AFTO Form 350 with each item of unserviceable TMDE.

4.14.6.11.6.2. Retain two legible copies of the DD Form 1149 signed by packing and crating. Ensure these copies contain sufficient information to identify the owner or user, part number, NSN, ID or serial number, nomenclature, and the TCN assigned by the transportation activity.

4.14.6.11.6.3. Retain one copy of the DD Form 1149 until the shipment is received at the destination point, then file DD Form 1149 in compliance with AFMAN 37-139, *Records Disposition Schedule*; mark the other copy as "Advance Copy" and mail/electronically transmit it to the destination point. Follow up with destination point within 30 calendar days of shipping date and initiate tracer for shipments exceeding standards in AFI 24-201.

4.14.6.11.7. Inbound Shipments. When notified of incoming shipments, place the “Advance Copy” of the DD Form 1149 received from the shipping organization in a suspense file. Notify the traffic management office to initiate tracer action if shipping time exceeds standards in AFI 24-201.

4.14.6.11.7.1. Reconcile the inbound “Advance Copy” DD Form 1149 with the shipping document (DD Form 1149) and clear the suspense. Sign the “Advance Copy” and mail/ electronically transmit it to the originator.

4.14.6.11.7.2. Update the PAMS maintenance file ID listing and route the TMDE through designated official for incoming inspection. Report damage attributable to shipping using SF Forms 361 or 364.

4.14.7. TMDE Technical Order Distribution Office (TODO)/Technical Order Distribution Account (TODA). Responsible for maintaining TO, TCTO, CPIN and commercial data files in compliance with TOs 00-5-1, *AF Technical Order System*; and 00-5-17, *USAF Computer Program Identification Numbering (CPIN) System*. In addition to all applicable TO supplements, the TODO/TODA shall:

4.14.7.1. Follow up monthly on TMDE in deferred maintenance status for lack of TOs or commercial data.

4.14.7.2. Maintain preliminary (draft) TO files and associated documentation from TO verification and post publication reviews.

4.14.7.3. Review AFMETCAL Det 1 METWEB homepage weekly for new ISSs and IOSs.

4.14.7.4. Retain and file TODO Account Reconciliation Listing (ARL), and other related TO records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.7.5. Monitor status of backordered requisitions and maintains liaison with Logistics Readiness Squadron personnel. Initiate supply assistance requests for supply difficulties. Submit follow-up actions (document identifier code "AFC") to Logistics Readiness Squadron for requisitions with unacceptable status or unacceptable estimated delivery dates.

4.14.7.5.1. Coordinates with customers to obtain mission impact statements to substantiate supply assistance requests. Establishes suspense system and follow-up to ensure correspondence is received and acted on.

4.14.7.5.2. Consider NRTS codes for TMDE in AWP/EIP status typically in excess of 120 days, after reviewing all submitted follow-up actions and coordinating with the customer.

4.14.7.6. Maintain accountability for issues and turn-ins of due in from maintenance (DIFM) repair cycle assets (see TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*).

4.14.7.7. Establish a TMDE flight precious metals recovery program in compliance with AFMAN 23-110, *USAF Supply Manual*, retain and file records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.7.8. Establish TMDE flight shelf life program in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.7.9. Assist GPC holders in administering and coordinating purchases.

4.14.7.10. Requisition and control TCTO kits in compliance with this instruction and TO 00-5-15, *Air Force Time Compliance Technical Order System*.

4.14.8. TMDE Collection Point. Units serviced by a PMEL that is not located on the same base shall establish a TMDE collection point. The collection point coordinator is the single point-of-contact between the owning work center and the servicing TMDE flight and is trained by the servicing PMEL. The TMDE collection point has the same responsibilities as those in paragraphs **4.14.4.**, Production Control Section, and **4.14.5.**, and Customer Service Function.

4.14.9. Type II PMEL Chief. The Type II PMEL chief is responsible to the TMDE flight chief and in addition to the general section chief responsibilities listed in **Chapter 2** of this instruction, and TO 00-20-14, the PMEL chief shall:

4.14.9.1. Ensure timely verification (see TO 00-5-3, *AF Technical Manual Acquisition Procedures*) of new and updated calibration TOs distributed to the PMEL for review, including beta tests of software. Annotate comments (enhancements and discrepancies) on AFTO Form 158, **TO Review Comment Sheet**.

4.14.9.2. Ensure currency of software used in manual and automated calibration procedures, software used to pass/fail TMDE parameters during calibration must possess a valid computer program identification number (CPIN), see TO 00-5-17.

4.14.9.3. Identify sufficient training requirements for AETC advanced and supplemental training to the flight chief to ensure constant availability of military personnel for peacetime and wartime deployment. For deployment taskings applicable to PMEL, task certified primary and alternate military personnel will be furnished as tasked for the duration of the deployment.

4.14.9.4. Daily evaluate adequacy of total days in lab (a.k.a. cycle time or turnaround time) for TMDE awaiting maintenance (AWM), AWM from deferred, and in-work (INW). Initiate corrective action as necessary to balance workload and capacity (production). Workable backlog shall not exceed seven days. Note: workable backlog in pieces divided by average daily production equals workable backlog in days (use data from PAMS Daily Workload Report).

4.14.9.5. Ensure work area supervisors perform follow-ups on TMDE in deferred (DEF) status.

4.14.9.6. Annually identify and code PMEL owned TMDE in PAMS as working standard or not applicable; document review and retain on file until subsequent review.

4.14.9.7. Designate sufficient work area supervisors and delegate authority to:

4.14.9.7.1. Supervise and direct the work efforts of the work area team and share responsibility for the quality of maintenance. Work area supervisors shall establish processes to ensure that work area maintenance practices produce traceable, clean, safe to use TMDE, with optimal physical condition, and accurate documentation.

4.14.9.7.2. Ensure the PAMS accurately reflects correct maintenance status for all TMDE applicable to the work area. Also, ensure accuracy and completeness of MDC/JDD data entered in PAMS.

4.14.9.7.3. When authorized on the SCR, perform production and supervisory inspections: i.e. sign condition tags, validate/verify NRTS conditions, identify/clear repeat and CND discrepancies, etc.

4.14.9.7.4. Resolve production difficulties for TMDE in maintenance, typically when the in maintenance cycle time exceeds seven calendar days.

4.14.9.7.5. Evaluate and take corrective action to resolve difficulties for TMDE in hold and deferred statuses, follow-up bimonthly and document review actions.

4.14.9.7.6. Ensure work area team members formally report instances of substandard materiel or supplier performance. Prepare and submit AF Form 1815, **Difficulty Report Worksheet**; AFTO Forms 22, **TO Improvement Report and Reply**, and 29, **TO Delinquency Report**; SF

Forms 364, **Report of Discrepanc**y, and 368, **Product Quality Deficiency Repor**t; and all other supplier feedback documents pertinent to PMEL processes. Route all documents through QP section for coordination and tracking.

4.14.10. TMDE Technical Order Distribution Office (TODO). Responsible for maintaining TO, TCTO, CPIN and commercial data files in compliance with TOs 00-5-1, *AF Technical Order System*; and 00-5-17. In addition to all applicable TO supplements, the TODO shall:

4.14.10.1. Follow up monthly on TMDE in deferred maintenance status for lack of TOs or commercial data.

4.14.10.2. Maintain preliminary (draft) TO file and associated documentation from TO verification and post publication reviews.

4.14.10.3. Download monthly TO Improvement Status (TOIS) Listing from the AFMETCAL Det 1 METWEB homepage and distribute to TMDE QP section.

4.14.10.4. Retain and file TODO code selected reconciliation listing (CSRL), AFTO Forms 215, **Notification**, and other related TO records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

**Figure 4.1. Production Priority File.**

**PRODUCTION PRIORITY FILES (AFTO FORMS 350 PART II)**

| | AWM INW | AWP |
|---|---|---|
| **P1** | **MICAP (MISSION NEED,DDR)** | |
| **P2** | **RSP/MSK (DDR)** | |
| **P3** | **POS (BALANCE)** | |
| **P4** | **DDR/AFLC CRITICAL ITEMS, ALL OTHERS** | |

**4.15. Centralized Intermediate Level Maintenance and Rotable Equipment Pools.**

**4.15. (ANG)** Applies to OCONUS Centralized Intermediate Repair Facilities (CIRFs) only.

4.15.1. General. Intermediate-Level Maintenance performed by one unit in support of another is a maintenance support concept that is coming into increasing use across the AF. In the future, CONUS and OCONUS Centralized Intermediate Repair Facilities (CIRFs) will become commonplace for maintenance and logistics support. The following section provides generalized guidance on CONUS and OCONUS centralized maintenance and centralized pools of Stock Class VII end items. Management and control procedures for these activities may vary depending on specific logistics characteristics of the asset/commodity as well as the type of aircraft and geographical region supported. CIRFs may be established for any intermediate-level repair asset.

4.15.2. CIRF operations shall use the AF Portal to report daily status of assets. Logistics personnel and maintainers need accurate and timely information management systems to make swift and accurate logistics command & control decisions on available serviceable and unserviceable assets across the entire repair cycle.

4.15.3. Rotable Pools. Customer wait time (CWT) and transportation constraints may drive MAJCOMs to establish a Centralized Rotable Pool (CRP). CRPs are established by placing additional Class VII assets at the maintenance facility to be maintained by the CIRF. This pool of spare assets may provide sufficient numbers to allow direct shipment of serviceable assets to the supported units as soon as the need is communicated. Use of a CRP reduces CWT by replacing unserviceable assets with serviceable as soon as the need is communicated rather than waiting for the unserviceable asset to be shipped to the CIRF, repaired and returned to the FOL. CRP rules for operating these pools should be mutually agreed upon by the participating MAJCOMs. Establishment of CRPs for contingency operations shall be agreed upon by the combatant command, CIRF-supporting command, and other supporting MAJCOMs during the deliberate planning phase. CRPs may be built in one of three ways.

4.15.3.1. Spare assets may be shipped to a CIRF from non-deploying units to build the CRP.

4.15.3.2. Additional spares may be shipped to the CIRF from deploying units.

4.15.3.3. CRPs may be built from unserviceable assets shipped from the FOL to the CIRF for repair. Once repaired, these serviceable assets would be retained at the CIRF as CRP assets until established trigger points are reached at the FOLs.

4.15.4. During steady-state and contingency operations it is possible that maintenance, beyond the capability of the CIRF, is required on CRP assets. When this occurs, the CIRF-supporting command functional manager must coordinate with the appropriate MAJCOM functional manager to develop an alternate course of action for repair.

4.15.5. Engines. For engine types using a CRP the designated engine manager must maintain accountability of CRP engines and report status IAW prescribed instructions. When supported units ship a reparable engine to the CIRF, the designated engine manager shall ship a replacement engine and ensure all appropriate Centralized Engine Management System (CEMS) documentation is completed (to include engine transfers).

4.15.5.1. Process to determine candidate engines for CIRF repair. MAJCOMs are responsible for developing specific procedures for minor and major engine maintenance.

4.15.6. Pods. The CIRF-supporting command shall establish a CRP as necessary to meet customer wait times acceptable to the war fighter.

4.15.6.1. Process to determine candidate pods for CIRF repair. MAJCOMs are responsible for developing specific procedures and criteria for minor and major maintenance.

4.15.6.2. All spare pods must be containerized for shipment. Deploying units must ship all spare pods in containers to ensure sufficient containers are available to support pod shipments from and to the AOR.

4.15.7. Transportation. Successfully moving CIRF assets to reduce CWT requires total asset visibility and effective shipment planning between the deployed unit and the CIRF. All modes of military and commercial air/surface transportation shall be used.

4.15.7.1. The transportation goal for retrograde and serviceable CIRF assets to/from each CIRF location shall be established by agreement between the CIRF and the supported units. Transportation time begins as soon as the asset is in-checked into the Defense Transportation System and ends with transportation receipt at the CIRF or FOL.

4.15.7.2. To ensure transportation time is kept to a minimum; deployed units must ship unserviceable CIRF assets as soon as possible and by the most expeditious means. Retention of unserviceable CIRF assets must be approved by the combatant command A4.

4.15.8. Repair Funding. The CIRFs receive repair dollars by using the AF Form 616 for a fund cite authorization. Units using a CIRF activity to support their operations shall contact the supporting-command's Regional Supply Squadron (RSS) to establish a Form 616 account. If an asset is repaired, the cost of repairs shall be charged to the owning unit's Form 616 account; likewise, when the asset is repaired and turned in to SBSS, the same account shall be credited accordingly.

**4.16. (Added-ANG) ANG CONUS Centralized Intermediate Repair Facilities (CIRFs).**

**4.16. (ANG)** An ANG CONUS CIRF may be implemented for any active duty or Air Reserve Component intermediate repair asset within the United States and territories if approved by Air National Guard Director of Logistics (ANG/LG). A CONUS CIRF is different from an Air Logistics Center operating location that supports depot throughput or OCONUS CIRF that supports wartime or contingency units overseas. Paragraph **4.15.** applies to OCONUS support operations no matter where the CIRF is located, CONUS or OCONUS.

4.16.1. (Added-ANG) The purpose of ANG CONUS CIRF operations is to maintain or improve readiness. ANG/LG shall approve ANG CONUS CIRF operations and where these operations will occur. CONUS CIRF is optimum for systems that have constrained equipment, experienced personnel, or repair part availability. CONUS CIRFs should be deployable to meet wartime and contingency needs. Improved asset management, such as Engine Reliability Centered Maintenance, and reduced equipment needs are primary benefits to CONUS CIRF.

4.16.2. (Added-ANG) The maintenance concept for each item must be IAW ANG guidance. The supported wing may retain some repair capability to optimize the benefits of CIRF. These wing retained tasks shall be approved and defined by ANG/LGM.

4.16.3. (Added-ANG) The supply concept should mirror normal supply concepts and procedures. Pipeline spare and repair parts requirements must be evaluated and adjusted before CONUS CIRF operations are authorized. CIRF operations shall not commence until these initial spares are available. End item, LRU, and SRU asset distribution procedures shall be defined and approved by ANG/LGM and ANG Logistics Supply Division (ANG/LGS). ANG/LGM/LGS shall monitor and request modifications to equipment and stock levels such as POS, RSP, and WRM.

4.16.4. (Added-ANG) The transportation concept should mirror normal transportation concepts and procedures. As a rule, transportation costs shall be paid by the shipping agency. Units shall fund shipments to the CIRF as part of their normal Second Destination Transportation funding line and the ANG CIRF operating locations shall request funding from ANG Transportation Division (ANG/LGT) for shipments to ANG units. Transportation costs for customers outside the ANG must be in accordance with the support agreement and approved by ANG/LGT and ANG Logistics Resources Division (ANG/LGY).

4.16.5. (Added-ANG) All appropriate costs for repair shall be charged to the customer that sends the part to the CIRF. Utility costs shall be charged as agreed upon in the support agreement and approved by ANG Director of Civil Engineering (ANG/CE). Credit generating assets such as avionics items and wheel/tire build-up require special attention. These credits shall be documented and distributed to the customer.

4.16.6. (Added-ANG) Items repaired by the CIRF can be sent to any unit to fill a MICAP or other shortage. Items that have different modifications between Commands require special consideration.

4.16.7. (Added-ANG) Facility square footage authorizations should be adjusted for CIRF locations. Units should identify this additional or reduced requirement to ANG/CE.

4.16.8. (Added-ANG) Personnel requirements must be approved by ANG/LGY and ANG Manpower and Organization Directorate (ANG/XPM). When supporting a unit outside the ANG, these requirements should be funded by the customer. ANG/XPM/LGY shall approve redistribution of full and part time personnel authorizations within the ANG.

4.16.9. (Added-ANG) TCTO procedures shall be defined in the agreement between all organizations. Unit level TCTOs must be accomplished at the unit unless approved as part of the agreement.

4.16.10. (Added-ANG) Operating procedures, support agreements and other written guidance shall be coordinated with all units involved and approved by ANG/LG. As a minimum, financial, personnel, TCTO, equipment, transportation, supply, facility, asset distribution, bench stock, and management processes and procedures shall be documented and approved.

## Chapter 5

## MAINTENANCE OPERATIONS SQUADRON (MOS)

**5.1. General.** The MOS is directly responsible to the MXG/CC for the administration, analysis, training management, and programs and resources necessary to support the group production effort. The MOS is comprised of the following flights: Maintenance Training, Maintenance Operations and Programs and Resources. The planning, controlling, scheduling, and executing responsibilities of the MXG/CC will be met through the actions of these functions.

**5.1. (ANG) General.** N/A to the ANG. The following only applies to the ANG: The MOF is responsible to the MXG/CC for aircraft maintenance staff functions required for the efficient operation of the Maintenance Group. This flight normally includes the MOC, PS&D, EM, Training Management, Maintenance Analysis, and Maintenance Plans and Programs. They are responsible to the MXG/CC for overall flight management. Additional common responsibilities are outlined in **Chapter 2** of this publication.

**5.2. Squadron Commander Responsibilities.** The MOS/CC performs command functions outlined by public law or directives common to all Air Force squadron commanders. The MOS/CC shall be a maintenance officer and is responsible to the MXG/CC for overall squadron management. As a key maintenance executive responsible for marshalling wing maintenance resources to support peacetime, contingency and wartime orders, the MOS/CC monitors squadron capability and takes necessary actions to ensure that all resources are available and effectively utilized to meet mission requirements. General responsibilities are outlined in **Chapter 2**. The squadron commander recommends and the MXG/CC approves flight commander appointments.

**5.2. (ANG) Commander/ Superintendent Responsibilities.**

5.2.1. DELETED.

5.2.2. DELETED.

5.2.3. DELETED.

5.2.4. DELETED.

5.2.5. DELETED.

**5.3. Flight Commander/Flight Chief Responsibilities.** Common responsibilities are specified in **Chapter 2** of this instruction. Additional areas of responsibility are defined in this chapter and command training instructions.

**5.3. (ANG)** N/A to the ANG.

**5.4. Maintenance Training Flight (MTF).** Provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary Air Force Specialty Code (AFSC). Organizations that do not have a Maintenance Training Flight must complete skill training in the individual work centers. Training for combat skills is critical. Maintenance training is an essential element of improving and sustaining unit capability; it must receive priority treatment by Squadron Commanders and Maintenance Operations (MOO/SUPT). When balancing resources (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), maintenance training carries an equal priority with the operational training mission. Accomplish maintenance training away from the production/test envi-

ronment (whenever possible) to eliminate/minimize distractions. Training requirements may be satisfied through Air Education and Training Command (AETC) in-resident classes, Field Training Detachment (FTD), MTF, Mobile Training Team (MTT), Air Force Institute of Technology (AFIT), Career Development Courses (CDC), Air Force Engineering Technical Services (AFETS), civilian institutions, Computer Based Training (CBT), Video Tele-Training (VTT), Regional Training Centers (RTC), Maintenance Qualification Centers (MQC), or any combination thereof. The MTF assists SQ/CCs by providing unit training managers to manage the enlisted specialty training program. The MTF consists of the Training Management Section and the Development and Instructor Section. Establish maintenance training according to AFI 36-2201, AFI 36-2232, *Maintenance Training*, and MAJCOM supplements. Civil service and contract organizations shall perform training as outlined in their training plans as accepted by the government, their respective performance work statement and MAJCOM instructions.

**5.4. (ANG) Maintenance Training Flight (MTF).** The 116th ACW must comply with AFI 21-101, Paragraph **5.4.** guidance for the MTF. For all other ANG units the name for this office is Training Management. The maintenance training program ensures that all personnel are qualified to perform their job; and that a balance of skills is maintained for all maintenance personnel. The two elements of the training program are upgrade and qualification training. Upgrade Training (UGT) provides the job knowledge and required skill levels of an Air Force specialty. UGT administration is vested in the individual's supervisor/trainer, training management, and base training manager. Qualification Training is ongoing and designed for individuals to perform their job. Units shall locally determine which methods to use to provide qualification training. At local option, Training Management may be placed into Quality Assurance. In either case, the responsibilities outlined below must remain the same.

5.4.1. AETC Training Detachment (TD) will be utilized as the primary maintenance training resource at all bases with an assigned TD. The TD will not be responsible to conduct ancillary training. The MTF will develop courses and supplement training when the training requirements are beyond the capability and timely response of the TD. The MTF will not duplicate training provided by the TD.

5.4.1. (ANG) N/A to the ANG except for the 116th ACW.

5.4.2. Responsibilities of the MTF are:

5.4.2. (ANG) Responsibilities of Training Management are:

5.4.2.1. Perform duties specified in applicable Air Force and MAJCOM 36 series directives.

5.4.2.2. Serve as the single point of contact for all training matters affecting maintenance, including outside agencies such as disaster preparedness, environmental flight and the training detachment (TD).

5.4.2.2.1. MTF Chief maintains administrative responsibility for unit training managers whether UTMs are centralized or decentralized.

5.4.2.2.1. (ANG) N/A to the ANG except the 116th ACW.

5.4.2.3. Establish procedures for controlling and maintaining visual information programs and associated equipment.

5.4.2.4. Coordinate training requests conducted by Air Force engineering and technical services (AFETS)/contractor engineering and technical services (CETS) as listed in AFI 21-110, *Engineering and Technical Services*.

5.4.2.5. Provide a monthly status of training (SOT) briefing to the group/squadron commanders, and/or directors.

5.4.2.6. Monitor progress of temporarily assigned students under the security assistance training program IAW AFI 31-401, *Information Security Program Management*.

5.4.2.6. (ANG) N/A to the ANG.

5.4.2.7. Coordinate requests for formal training, publishes class schedules, and maintains the applicable management information system training subsystem.

5.4.2.8. Serves as liaison between aircraft maintenance AFSCs and the Base Training Office, ensuring upgrade training and qualification training programs are conducted according to AFI 36-2201, AFI 36-2232 and MAJCOM instructions.

5.4.2.9. Establish a monthly training schedule that will not adversely affect the maintenance production effort, but will ensure the availability of personnel, facilities, and training devices to accomplish training requirements.

5.4.2.10. Notify GP and SQ commanders of deviations to the published monthly training schedule, to include: no shows, walk ins, class cancellations, etc.

5.4.2.11. Serve as OPR for development and control of written aircraft maintenance AFSC tests. Assign each test a control number and secure all tests. Tests may be automated. Control access to test materials and monitor test accountability. (Tests associated with weapons load training are developed and maintained by the respective OPR.)

5.4.2.11. (ANG) Manages the testing program. Tests (may be automated) must be controlled to prevent compromise. Locally developed tests must be monitored for currency and accuracy. Training Management shall coordinate with functional areas to ensure a comprehensive annual review is conducted and shall update tests when required. The 116th ACW must comply with AFI guidance for the MTF.

5.4.2.12. Coordinate with functional areas to ensure a comprehensive annual review is conducted and updates the test when required.

5.4.2.13. Coordinate with PS&D function and the production supervisor or Maintenance Operations (MOO/SUPT) for selecting training aircraft. The MTF shall forward training requirements in a monthly format (including configuration and time periods) to MOF PS&D by the end of the second week of each month for inclusion in the monthly maintenance schedule. Training requirements must be updated weekly and forwarded to MOF and AMU PS&D for inclusion in the weekly maintenance plan. The MTF is responsible for scheduled maintenance training aircraft (in conjunction with the AMU) to include maintaining aircraft forms and coordinating on- and off-equipment maintenance.

5.4.2.13. (ANG) N/A to the ANG. The following only applies to the ANG: Training or the section responsible for conducting the training coordinates with PS&D for selecting training aircraft. Training Management must forward training requirements in a monthly format (including configuration and time periods) to PS&D by the end of the second week of each month for inclusion in the monthly maintenance schedule. Training requirements must be updated weekly and forwarded to PS&D for inclusion in the weekly maintenance plan. Aircraft down for training more than seven consecutive days must be carried in an aircraft possession purpose identifier code of TJ.

5.4.2.14. Ensure Special Certification Roster (SCR) information is loaded in MIS IAW **Chapter 18**.

5.4.2.14.1. (Added-ANG) Ensures the SCR is current.

5.4.2.14.2. (Added-ANG) Ensures the SCR is coordinated with workcenters, squadron/flight commanders, Quality Assurance, and approved by the MXG/CC.

5.4.2.14.3. (Added-ANG) Maintains a copy of the SCR and forwards a signed master copy to QA.

5.4.2.14.4. (Added-ANG) A copy of the applicable portion of the SCR shall be made available to each flight either through hardcopy or MIS format.

5.4.2.15. Ensure a newcomers orientation program is developed and conducted, familiarizing newly assigned personnel with wing maintenance activities. Topics should include unit mission, tasking plans, supply procedures, foreign object damage (FOD) program, general flight line and work center safety rules, QAP, and product improvement procedures. MAJCOMs may determine which organization will conduct this training.

5.4.2.16. Ensure ancillary training program is established IAW AFI 36-2201, AFI 36-2232 and MAJCOM instructions.

5.4.2.17. Overdue Training. Individual recurring qualifications become overdue on the last day of the month in which recertification is due. When an individual is TDY, on leave, or incapacitated, that person need not be decertified provided the required evaluations are completed within 30 days of the member's return to duty, not to exceed 2 calendar months from original due date.

5.4.2.17. (ANG) When an individual is TDY, on leave, or incapacitated, that person need not be decertified provided the required evaluations are completed within 90 days of the member's return to duty, not to exceed three calendar months from original due date.

5.4.2.18. Upgrade Training Waivers. See comprehensive guidance for training waivers in AFMAN 36-2108, *Airman Classification* and AFI 36-2101, *Classifying Military Personnel*.

5.4.2.18. (ANG) N/A to the ANG. The following only applies to the ANG: Process and coordinates upgrade Training Waivers.

5.4.3. Coordinates training course control documents (CCD) dealing with explosive safety annually through the wing weapons safety office.

5.4.4. (Added-ANG) Personnel Processing. During in-processing, Training Management and workcenter supervisors must review and evaluate all previous training completions and current workcenter requirements. The individual's training records and requirements must be updated at this time. During out-processing, Training Management must delete any scheduled training events. Any individual in UGT must be deleted from UGT and a copy of all completed training must be placed in their AF IMT 623.

5.4.5. (Added-ANG) Is responsible for overall management and control of the automated training management sub-system (ATS).

**5.5. Maintenance Operations Flight (MOF).** This flight is the central agency for managing the health of the fleet. The flight is comprised of the following sections: Engine Management; Maintenance Supply

Liaison (see Paragraph **5.6.**); Plans, Scheduling and Documentation; Maintenance Data Systems Analysis; and the Maintenance Operations Center. In addition to directing the day-to-day activities of the flight, the MOF commander (MOF/CC) is responsible for managing the health of the aircraft fleet. In coordination with AMXS and MXS (or EMS and CMS) Maintenance Operations (MOOs/SUPTs), the MOF/CC is responsible through the MOS/CC to the MXG/CC to develop and publish the wing flying/maintenance schedule, determine long-range fleet health maintenance priorities, coordinate and prioritize the use of shared maintenance resources, provide trend analysis information to the MXG/CC and squadron commanders, and provide supply liaison and engine management support for flight line and back shop maintenance requirements. The MOF/CC will develop procedures for and ensure Geographical Location (GEOLOC) codes for all possessed aircraft, especially off-station possessed aircraft, are updated/correct in the IMDS location subsystem (G081 units are exempt as long as a HHQ agency accomplishes this requirement). An AFSC 2RXXX SNCO must fill the MOF Superintendent position.

**5.5. (ANG)** The MOS/CC position does not normally exist in the ANG. The duties in this paragraph shall be performed by the MOF/CC or MOF superintendent. MSL does not fall under the MOF for ANG units.

5.5.1. Engine Management (EM) Section. The EM section monitors engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in the MIS, Comprehensive Engine Management System (CEMS) and performs engine manager duties. The EM section is established to effectively manage unit efforts to maintain adequate engine support for mission requirements. The EM section combines functions supporting engine management from separate areas within the wing and will be physically co-located with the Propulsion Flight. The stock record account number (SRAN) engine manager works and is co-located with the EM section. The EM section will:

5.5.1. (ANG) Paragraph **5.5.1.** and all subparagraphs are N/A to the UAE F-16 block 60 program, however, 162nd FW in conjunction with General Electric (GE) and LM Aero shall develop local procedures in an OI/Sup.

5.5.1.1. Manage the MIS and CEMS by following additional guidance found in:

5.5.1.1.1. AFI 21-104, *Selective Management of Selected Gas Turbine Engines*.

5.5.1.1.2. AFI 10-201, *Status Of Resources And Training System*

5.5.1.1.3. AFI 23-101, *Centrally Managed Equipment*

5.5.1.1.4. TO 00-25-254-1, *System Manual – Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures*.

5.5.1.1.5. TO 00-25-254-2, *System Manual – Comprehensive Engine Management System for DSD: D042*.

5.5.1.1.6. TO 00-20-5-1, *Instructions for Jet Engine Parts Tracking and Fatigue Limit Control.*

5.5.1.1.7. AFCSM 21-558, *Comprehensive Engine Management System*.

5.5.1.1.8. Applicable aircraft -6 TOs.

5.5.1.1.9. (Added-ANG) TO 00-20-5-1-1, *Engine Historical Records F-100-PW-100/200/220 Engines.*

5.5.1.1.10. (Added-ANG) TO 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines.*

5.5.1.2. Attend the daily production meeting and coordinate with MOF PS&DE, MOF EM, AMU PS&D, and propulsion flight on engine and component maintenance, TCIs, SIs, TCTOs and modifications. Manage engine SIs, TCTOs and TCIs IAW **Chapter 15**.

5.5.1.2. (ANG) N/A to the ANG. The following only applies to the ANG: Coordinate with aircraft maintenance, PS&D, and propulsion element on engines and components, TCIs, SIs, TCTOs, modifications, and ensures TCTOs and TCIs are requisitioned for the EM section IAW guidance found in **Chapter 15** of this instruction.

5.5.1.3. Plan, schedule, and document maintenance actions on assigned engines.

5.5.1.4. Provide TCI information (cycles remaining, engine operating time (EOT), etc.) on serially controlled items to the propulsion flight and AMU for engine and engine component CANN actions.

5.5.1.5. Ensure all engine SIs are loaded against the engine, not the aircraft.

5.5.1.6. Ensure all engine/module inspections/TCIs tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc. are loaded/tracked in the MIS and CEMS databases. A matrix by engine type should be developed to depict specific inspection and TCT quantities for each. Inspections tracked by flight hours must only be loaded in the MIS.

5.5.1.7. Manage TCTOs on all assigned engines and components both installed and removed. Accomplishes quarterly TCTO status reviews and reconciliation's IAW TO 00-25-254-1. Complies with TCTO duties and responsibilities for engine items as outlined in **Chapter 15**. Keep records on TCTO kits and status for all engines installed in aircraft sent to depot.

5.5.1.7. (ANG) Initiates AF IMT 2410, *Inspection/TCTO Planning Checklist*, and AF IMT 2001, *Notification of TCTO Kit Requirement*, for TCTO kits, parts, and tools and forwards the AF IMT 2001 to the flight service center or LRS. Maintains TCTO folders for engine-related TCTOs.

5.5.1.8. Manage time changes on all engines and components, and ensure forecast parts requests are submitted to supply up to 60 days (but not less than 10 days) prior to the need date of the scheduled time change or JEIM/ERRC induction. See **Chapter 15** for further guidance.

5.5.1.9. Maintain and update historical documents for all assigned engines, modules, and major assemblies using MIS automated history. Perform and document semi-annual reviews of both paper (if applicable/maintained) and automated engine records.

***NOTE:*** Paper history can be maintained in conjunction with automated history. In addition to TO 00-20-5-1 requirements, the following historical entries in automated history are required for serially tracked engines, modules, components and major assemblies:

5.5.1.9.1. When engines are removed, conduct a detailed records review to ensure utilization was properly recorded against the engine and sub-components. A removal narrative is required for all removal actions, except for HOW MAL codes 866, 879, and 800. Use the correct Automated History Event indicator when processing MIS transactions to ensure removal times are posted to automated AFTO Forms 95. Include the reason for removal and other pertinent data. Ensure utilization is updated in the MIS before processing the engine removal.

5.5.1.9.2. Special inspections, occurrences, and all borescopes. Include total time (EOT, TACs, CCYs, etc.), findings (no defect noted, discrepancies noted, etc.) and other pertinent information.

5.5.1.9.3. Engine test cell rejects according to TO 00-25-254-1. Include total time (EOT, TACs, CCYs, etc.), the reason for reject, any specific test cell data and a summary of work performed at the test cell.

5.5.1.9.3. (ANG) This data must be routed to the Engine Management Section at the time the engine is returned to JEIM for repair and the data must include, but is not limited to, the reason for the rejection and the time of occurrence. For engines that are accepted at test cell, the data that is required are all repairs, servicing, and if preservation of the engine was required.

5.5.1.9.4. Field Service Evaluation (FSE) or modifications. Include total time (EOT, TACs, CCYs, etc.), a brief summary of modifications to include part number and serial number of modified items, and other pertinent information.

5.5.1.9.5. TCTO kit verification and validations. Include total time (EOT, TACs, CCYs, etc.), a brief summary of modification including the part number and serial number of items, and other pertinent information.

5.5.1.9.6. Shipping engine, module (uninstalled), and major assemblies (uninstalled). Include total time (EOT, TACs, CCYs, etc.), the reason for shipment, the destination, and other pertinent information.

5.5.1.9.7. Receiving/acceptance inspections, transfers and shipment of engines to designated repair facilities for engine, module (uninstalled), and major assemblies (uninstalled). Include total time (EOT, TACs, CCYs, etc.), received or departing from unit, discrepancies, and other significant information.

5.5.1.9.8. Data corrections. Include corrections to erroneous entries and other pertinent information.

5.5.1.9.9. Work completed on engine, module (uninstalled), and major assemblies (uninstalled). Include total time (EOT, TACs, CCYs, etc.) and a brief maintenance summary to include major assemblies replaced, test cell run, engine preservation, annual engine records reviews and other significant information (i.e. FOD).

5.5.1.10. Provide automated management products and assist with presentation of reports and briefings. Maintain flow charts and production visual aids depicting current end-item status (JEIM units only).

5.5.1.11. Check life-limited components forecast for additional component changes, TCTOs and SIs on all removed engines.

5.5.1.12. In coordination with the Propulsion Flight Chief, develop a detailed 6-month engine and module TCI removal forecast to smooth peaks and valleys in the engine maintenance workload and publish the forecast in the monthly flying and maintenance plan. This 6-month forecast must be accomplished monthly using CEMS product E373/MIS products and the projected unscheduled removals based on Unscheduled Removal Rate (total number of unscheduled removals divided by flying hours times/1000). Provide a copy of the forecast to maintenance leaders, MOF and AMU PS&D, and the command engine manager. The forecast must be published in the monthly aircraft and maintenance utilization plan.

5.5.1.13. Publish scheduled engine changes in the weekly and monthly maintenance plan.

5.5.1.13. (ANG) N/A to the ANG. The following only applies to the ANG: Publish scheduled engine changes in the monthly maintenance plan or in the first weekly maintenance plan of the effective month.

5.5.1.14. Verify engine total time versus aircraft total time, flying hours and manual cycles (as applicable) with AMU (MOF in MAF units) PS&D during aircraft document reviews.

5.5.1.15. Maintain (load, delete, and change) the Job Standard Master Listing (JML) for engine inspections and time changes listed in the aircraft –6 T.O.

5.5.1.16. Establish a CEMS and MIS contingency plan for when either or both systems are down for extended periods (more than 48 hours). The plan will include procedures for retaining data in date-time order for input when MIS/CEMS operation resumes and address home station and deployed procedures.

5.5.1.17. Develop local engine tracking procedures and documentation methods to be used at deployed locations. Procedures must include the method of communication (message, e-mail or FAX), documentation and shipping responsibilities with SRAN addresses, and reporting procedures for CANNs and engine removals. The procedures must ensure units take immediate action to correct all reporting errors between the base MIS and CEMS using the engine manager's data list.

5.5.1.18. Accomplish unit engine manager duties IAW AFI 21-104, TOs 00-25-254-1/-2, and MAJCOM instructions. Act as liaison to the SRAN engine manager when part of a tenant unit supported by the host base engine manager function.

5.5.1.19. Provide the primary SRAN engine manager all quarterly reporting information required for submission to higher headquarters.

5.5.1.20. Stock Record Account Number (SRAN) Engine Manager. The MXG/CC appoints a SRAN engine manager (if a host), or a unit engine manager (UEM), if a tenant, to accomplish the duties outlined in TO 00-20-254-series, AFI 21-104 and this instruction. The SRAN EM is selected from AFSC 2R1X1 or 2A6X1A/B or 2S0X1 with a 7- or 9-skill-level (or civilian equivalent). The assistant will be at least a 5-skill level from the same AFSCs or civilian equivalent. The SRAN EM and assistant are aligned under the EM section. The SRAN engine manager will:

5.5.1.20.1. Advise MXS/CC and MXG/CC on administering the base engine management program, on engine maintenance concepts, principles, policies, procedures and techniques and acts as single point of contact between the unit and MAJCOM for engine management questions.

5.5.1.20.2. Establish written procedures to support engine management responsibilities IAW AFI 21-104 and this instruction. Provide inputs for MAJCOM supplements to TOs 00-25-254-1 and 00-25-254-2. Unit procedures must specify responsibilities for accurate and timely MIS/CEMS reporting of TCTO, SI, TCI, and other documentation requirements (borescope inspections, blade blending, CANN actions, etc.). Procedures must ensure engine, module, and component data is reported to EM no later than close of business the first duty day after the event (e.g., part removal, installation, time update, TCTO status change, etc.).

5.5.1.20.3. DELETED.

5.5.1.20.4. Address tenant, transportation, maintenance, aircraft distribution, supply, and support personnel requirements.

5.5.1.20.5. Ensure local procedures and base publications support EM requirements. Coordinate procedures with the MAJCOM engine management policy section prior to publication.

5.5.1.20.5. (ANG) N/A to the ANG.

5.5.1.20.6. Request initialization decks (I-Deck) from CEMS Central Data Base (CDB) and ensure data in the MIS mirrors the CDB.

5.5.1.20.6. (ANG) To include imbedded parts, part number, serial number, engine operating times, inspections, active TCTOs, and TCIs. AHE maintained in MIS does not have to mirror CEMS.

5.5.1.20.7. Ensure deployed engine monitors are assigned and trained to perform duties while deployed. Designated engine monitors will ensure all deployed spare engines have a copy (paper or electronic) of CEMS product E407, option 1 and 4, included in the deployment package.

5.5.1.20.8. Perform engine manager duties for shipment and receipt of all assigned engines.

5.5.1.20.9. Perform periodic quality audits to monitor accuracy and timeliness of reporting.

5.5.1.20.10. Perform annual EM training for all affected personnel (back shop, test cell, flight line, aircraft maintenance scheduler, etc.) who report engine status or are responsible for engine documentation and scheduling IAW AFCSM 21-558, Vol 2; AMCI 21-112; TO 00-25-254-1/2 and TO 00-20-1.

5.5.1.20.11. Maintain a jacket file of engine shipping documents and receipts. Obtain command EM approval prior to returning engines to depot or two-level maintenance.

5.5.1.20.12. Perform duties and requirements for engine shipments according to AFPD 24-2, *Preparation and Movement of Air Force Materiel*, AFI 21-104, and TOs 00-85-20, 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines,* 2R-1-11, and 2-1-18.

5.5.1.20.13. Ensure engines are prepared for shipment according to TO 2J-1-18, and TO 00-85-20, *Engine Shipping Instructions*. Engines requiring off-base shipment must be delivered to transportation within 24 hours of notification/decision to ship the engine and/or the engine change is complete. Notify MAJCOM engine management and the owning SRAN if this time frame cannot be met.

5.5.1.20.13. (ANG) N/A to the ANG. The following only applies to the ANG: Ensure engines are prepared for shipment according to TO 2J-1-18, and TO 00-85-20, *Engine Shipping Instructions*, and place them in airfreight area within 72 hours after the engine change is completed. Notify ANG/LGMM engine management and the owning SRAN if this time frame can't be met.

5.5.1.20.14. The SRAN EM will report the following to CEMS:

5.5.1.20.14.1. Receipt transactions for engines as of the date and time engines are delivered from the transportation hold area and accepted at the JEIM facility.

5.5.1.20.14.2. Shipment transactions with the "as of" date and time the engine/s physically leave the base.

5.5.1.20.14.3. All engine and tracked item removals, installations, and engine status changes.

5.5.1.20.14.4. All engine status transaction removals, installations, gains, engine-not-mission capable for supply (ENMCS), work completed, test cell rejects, work stopped, work started, change in level of maintenance, awaiting disposition, intra-Air Force receipt and intra-Air Force shipments, transfer, and HOW MAL codes IAW AFI 21-104 and TO 00-25-254-series.

5.5.1.20.14.5. For engines removed status codes LF, LB or LG, then determine whether to ship the engine to depot or induct in 2LM repair and process an "ML" transaction. Refer to TO 00-25-254-1 for CEMS codes guidance.

5.5.1.21. Verify all update transactions (e.g., times, TCTO, part removal and installations) are input before reporting an engine removal or installation.

5.5.1.22. (Added-ANG) Forecast life limit change requirements resulting from analysis of life limit data and engine time change/inspection requirements and engine historical document files.

5.5.1.23. (Added-ANG) Ensure transferred engines or major assemblies are accompanied by assigned TCTO kits and the required historical documentation.

5.5.1.24. (Added-ANG) Ensure that command-directed modifications and rescissions requiring decompliance work are accomplished.

5.5.1.25. (Added-ANG) Coordinate with LRS to ensure requirements for ENMCS are accurately reported and promptly requisitioned.

5.5.1.26. (Added-ANG) Check the non-installed spare engine historical preservation record IAW TO 2J-1-18.

5.5.1.27. (Added-ANG) Ensure comments on the status of engines in unserviceable categories (INW, AWP, AWM) are entered into the information analysis web site (GUARDIAN) daily. The web site address is: (**https://guardian.drc.com/Main/Home.asp**).

**5.6. Maintenance Supply Liaison (MSL) Section.** The MSL monitors the overall maintenance and supply interface, resolves supply support problems, and coordinates supply related training needs. If MAJCOMs opt to establish the MSL function, the LRS/CC must organize a MSL capability within the Management & Systems (M&S) Flight as part of the Customer Service Center. MSL personnel are authorized on the LRS UMD and report to the LRS/CC through the M&S Flight. Where needed, the LRS/CC may decentralize the MSL capability to physically reside in the aircraft maintenance activity. The LRS/CC, through the MSL, is the liaison between maintenance units and Regional Supply Squadrons (RSS). Refer to **Chapter 8** of this instruction for additional duties.

**5.6. (ANG)** N/A to the ANG.

5.6.1. MSL advises maintenance leaders of supply support problems regarding the maintenance efforts and recommends corrective actions.

5.6.2. Provides dedicated supply support when warranted to maintenance production. If maintenance work center workloads do not warrant dedicated supply support, the work center personnel are trained in supply procedures. However, MSL is still responsible for the overall maintenance and supply interface. In addition, the MSL will:

5.6.2.1. Periodically visit all maintenance work centers. Identify and recommend corrective actions on procedural or compliance problems associated with supply support and provide assistance in their resolution.

5.6.2.2. Identify supply related training needs to maintenance work center supervisors.

5.6.2.3. Provide guidance to work center supervisors on utilization of supply management products, precious metals recovery program, shelf-life management, warranty parts management (AFMAN 64-110, *Manual for Weapons System Warranties*) and due-in from maintenance (DIFM) management.

5.6.2.4. Provide guidance for maintaining bench, operating, and shop stocks and assist users in resolving any related problems. Assist work centers in disposal of property containing precious metals in compliance with AFMAN 23-110, *USAF Supply Manual*.

5.6.2.5. This paragraph through **5.6.2.6.1.2.** applies to aircraft systems and equipment under 3-level maintenance. In conjunction with other maintenance work centers, consolidates repair section inputs for the direct NRTS list; publishes and distributes the list to the appropriate agencies. Reviews and updates the list at least semiannually.

5.6.2.6. Coordinate with maintenance work centers to identify components for which there is no base level repair or diagnostic capability.

5.6.2.6.1. Compile a listing of these items and ensure organization section code 009DN is loaded as the repair section on the repair cycle record.

5.6.2.6.1.1. Repair section code 009DN alerts maintenance technicians the component is direct NRTS and is not routed through a repair section.

5.6.2.6.1.2. The last two positions (DN) are base optional, identifying the wing or organization providing the authority for direct NRTS.

5.6.2.7. Assists in preparing and submitting change requests for RSP authorizations. Maintains suspense file of AF Forms 1032, **WRM Spare List**. NOTE: This responsibility is normally performed by MSL when an LSM is not assigned.

5.6.2.8. Conduct annual supply procedural surveillance visits to all work centers.

5.6.2.9. Solicit and consolidate inputs from all squadrons to initiate a quick reference list (QRL) as needed. MSL distributes the QRL to appropriate work centers including the aircraft parts store.

5.6.2.10. Reviews available supply management products to manage the flow of repair cycle assets and identify potential problem items.

5.6.2.11. Establish an "AWP/EIP" storage area.

5.6.2.12. Monitor status of back-ordered requisitions and maintain liaison with Logistics Readiness Squadron personnel. Initiate supply assistance requests for supply difficulties. Submit follow-up to Logistics Readiness Squadron for requisitions with unacceptable status or unacceptable estimated delivery dates.

5.6.2.13. Coordinate with customers to obtain mission impact statements to substantiate supply assistance requests. Establish a suspense system and follow-up to ensure correspondence is received and acted on.

5.6.2.13.1. Consider NRTS action for TMDE that exceeds 120 days in AWP/EIP status, after reviewing all submitted follow-up actions and coordinating with the customer.

5.6.2.14. Assist Air Force Government Purchase Cardholders in administering and coordinating weapons system purchases. The System Program Director (SPD) must approve the local purchase of all aircraft parts. Refer to AFI 64-117 for additional guidance.

5.6.2.15. The requisition and control of TCTO kits is a supply process managed within the Repair Cycle Support Section.

**5.7. Maintenance Operations Flight Plans, Scheduling, and Documentation (MOF PS&D) Section.** MOF PS&D is responsible for coordinating aircraft maintenance requirements and utilization scheduling between maintenance, operations, and external agencies. MOF PS&D oversees the entire maintenance scheduling effort throughout the wing and notifies applicable senior managers of scheduling process discrepancies and recommended courses of action IAW command and local procedures. Specific MOF PS&D responsibilities are detailed in **Chapter 15**.

**5.8. Maintenance Data Systems Analysis (MDSA) Section.**

**5.8. (ANG)** At local option, Management Analysis function may be placed into Quality Assurance. In either case, the responsibilities outlined below shall remain the same.

5.8.1. The primary purpose of the MDSA is to track, analyze, and present information to help senior leadership assess the health of the units' weapon systems and equipment. Maintenance Analysts are highly trained statisticians with a wide range of knowledge based skills geared to the investigation of problem areas. MDSA must seek every opportunity to educate leadership on the services available. Numbers by themselves rarely tell a complete story, so it is imperative maintenance leaders work very closely with MDSA to uncover driving factors. The best analysis will flourish in a unit where senior leaders challenge the MDSA section, and maintainers at all levels are involved in the analysis process.

5.8.1. (ANG) As a minimum using the metrics from Paragraph **1.10.**, monthly.

5.8.2. The MDSA section manages maintenance information systems and performs analyses to assess and improve unit performance (i.e., effectiveness, and efficiency of unit resources, and logistical support processes). Maintenance information systems (MIS) are the foundation for data pertaining to utilization and expenditure of unit resources. These systems provide the main source of information used by analysts to assess unit's performance and capability. CAMS/G081 and REMIS are the prime sources of data.

5.8.2. (ANG) The AFKS formerly known as EDW is also a prime sources of data.

5.8.3. The MDSA section provides support to the MXG. Like Quality Assurance, the MDSA must have direct access to the MXG/CC to ensure negative and positive information affecting unit health is not filtered in any way.

5.8.4. Personnel Qualification. Analysts will be familiar with the functions and responsibilities of the Combat Wing organization and must have a basic understanding of the equipment maintained by the unit. The MDSA section chief will ensure each analyst assigned attends a local familiarization course for 2R0X1 personnel. As a minimum the course will include weapon system/Communications Electronics (CE) familiarization, flight line and shop operations, organizational structure and roles of each group, squadron, and flight. Analysts will attend the course within 3 months of assignment to the unit.

For remote assignments, analysts will attend within 1 month of assignment. For AFRC, Analysts will attend the course within 6 months of assignment to the unit.

5.8.4.1. Each MDSA section will maintain a current set of 5 and 7 Level Career Development Courses as these contain the primary source of technical reference material for Analysts. MDSA should maintain additional books, tutorial and computer programs to enhance statistical and presentation capabilities. The requirement to maintain the CDC material is optional for contract and civil service organizations.

5.8.4.2. The senior analyst will ensure the growth of analysis personnel by rotating them through the different elements within MDSA. Allow sufficient time for them to become proficient and provide for continuity.

5.8.4.2. (ANG) N/A to the ANG except for the 116th ACW.

5.8.5. MDSA Team Concept. Using MIS data gathering, research, and investigation, MDSA teams identify problem areas for additional study. Deficiency Analysis/Quality Assurance assists by providing in-depth technical expertise. The MDSA team will present the MXG leaders with completed studies focusing on the cause and effect of problem areas, to include recommendations for course(s) of action as appropriate.

5.8.6. MDSA Section Responsibilities. Analysis personnel must establish sound working relationships with all unit personnel through constant communication and frequent visits to work centers. Analysis must be customer oriented and provide assistance to all unit personnel in the area of maintenance management information systems, data extraction and interpretation. The two major responsibilities of analysis are (1) analyzing and assessing unit and weapon system performance and (2) managing the MIS. To enable maximum responsiveness and effectiveness to Operations/Maintenance requirements and allow broader awareness of the maintenance environment, when feasible (based on manning, skill levels and at the discretion of the Chief of MDSA) Analysts can be located in the squadron. When analysts are located in the squadron they will still work directly for the Chief of MDSA, who will provide their training, monitor the quality and relevancy of their workload. The following is a listing of key analysis responsibilities and is not an all encompassing list:

5.8.7. Ensure a viable Data Integrity Team exists.

5.8.8. Ensure MIS User Group meetings are held at least quarterly.

5.8.9. Sets priorities and resolves conflicts on all automated maintenance systems priorities.

5.8.10. Develops planning data and inputs in coordination with wing plans OPRs.

5.8.11. Processes and maintains maintenance data base records (this does not infer input). Other than data maintenance, analysts will under no circumstances alter source data in MIS.

5.8.12. Reviews data for anomalies and identifies areas requiring further study.

5.8.13. Provides presentations, reports, studies/analyses, and briefings as requested or deemed appropriate.

5.8.14. Provides information on analysis services and capabilities to unit supervision.

5.8.15. Assists unit leaders with the application and interpretation of maintenance data.

5.8.16. Coordinates with PS&D and production leaders to provide monthly airframe, facility and personnel capabilities (as required), attrition, and spare factors for use in planning the annual flying program. Compute attrition and spare factors IAW MAJCOM instructions.

5.8.17. Provides MSL and decentralized supply support function with data and information for input into the Intermediate Repair Enhancement Program (IREP). When available, a Deficiency Analyst will participate in the IREP to help identify and analyze problem areas.

5.8.18. Analyzes equipment performance trends to identify problems affecting the unit mission.

5.8.19. Ensures timely submission of data to meet MAJCOM reporting suspenses and ensures the validity of data submissions. Works with the senior maintainers on all comments written to explain the meaning of the data presented. MDSA must work very closely with leadership to ensure the sources of problems are identified. The data alone can not tell the whole story.

5.8.19.1. Verifies accuracy of the job data documentation (JDD) subsystem of MIS. Validates data entered into MIS as part of daily analysis duties and informs affected agencies of discrepancies. MDSA will identify erroneous or missing data to the responsible agency for correction or completion. MDSA will not correct or enter data into a MIS. This is not considered part of the Data Integrity Team process.

5.8.19.2. Individuals/agencies initiating the input(s) are responsible for its accuracy and completeness. Key decisions are based on maintenance information extracted from MIS. Maintaining the integrity of this data is paramount. Deployments, local exercises, and other conflicts do not alleviate the requirement for input and accuracy.

5.8.19.2.1. For units with deployment commitments, MDSA will assist in developing specific procedures for the deployment of the MIS related hardware and software. Where necessary, MDSA and the deploying squadron will work with the Communications Squadron to develop contingency procedures for ensuring connectivity of the MIS where no connection exists. These procedures must be reviewed prior to any deployment to determine if they will need modification for unique factors. All procedures must take into account unit suspenses for recurring RCS reports to the headquarters. Deployments are not a legitimate reason for missing or erroneous data.

5.8.19.3. Analysis personnel on deployments are responsible for obtaining a connection to the MIS data base through local area network or a dial up connection. It is vital that a connection to the MIS be established before beginning flying operations. Deployed analysis personnel will also ensure that aircraft status; flying hours, inventory, scheduling and deviation information, and discrepancy data is entered at the deployed location. Contact MAJCOM analysis section at least 30 days before deployment for MIS connection instructions. The primaryresponsibility of Analysis personnel is to ensure connection to the MIS, provide statistical analysis, and ensure maintenance and flying data is captured during the deployment.

5.8.19.4. Controls the assignment of unit work center and mnemonic codes. Coordinate with the Programs Section (MOS) on the assignment of alpha numeric and work center codes. Publishes written guidance to control these codes. Uses multiple mnemonic codes within a work center code to accommodate different AFSCs assigned. This enables the work center supervisor to tailor training requirements loaded to the work center training requirement record (WCT) by AFSC. Coordinates new or revised mnemonic codes with affected activities for planning purposes. For G081

units, AMC will publish guidance on work center mnemonics and only one mnemonic will be assigned per work center.

5.8.20. Maintenance Information Systems (MIS). See **Chapter 1**, paragraph **1.14.** of this instruction for the definition of MIS. For management of CAMS/IMDS and REMIS, follow AFCSM 21-series, AFCSM 25-524, REMIS, MAJCOM and unit procedures, and REMIS user manuals. Personal computers and software used as "stand-alone" systems are not considered MIS and shall not be managed by MDSA, with the exception of desktop systems required by the MDSA section. However, when any of these systems are connected to a MIS via LAN or WLAN (e.g., using TELNET, INFOCONNECT, AF Portal, etc.), they become de facto "smart terminals" for the MIS they are interfacing with. They are then subject to any parameters, conventions, and publications affecting the MIS and must be certified and accredited in accordance with AFI 33-202, *Computer Security* and AFI 33-115, Vol 1, *Network Management*.

5.8.20.1. CAMS/IMDS and G081. CAMS/IMDS and G081 are integrated production and management information systems. With the exception of REMIS, the systems interface with SBSS at base level. The Air Force is pursuing a Point of Maintenance (POMX) capability, which will be the maintenance data documentation interface to IMDS. The MDSA section has overall responsibility for system database management. Work centers throughout the organization manage those applications and functions applicable to their environment. The integrated application in CAMS/IMDS and G081 requires close coordination between on-equipment and off-equipment work centers and the staff.

5.8.20.2. IMDS is comprised of maintenance systems: CAMS, CEMS, G081, PAMS, RAMPOD, REMIS, and various other application/automation tools. The Standard Systems Group (SSG), Maxwell AFB Gunter Annex, Alabama is the Air Force agency responsible for oversight and systems management to ensure all existing and any new system functionality is incorporated in IMDS's functional baseline. Any request to modify/create new functionality within IMDS must be documented on an AF Form 3215, *Information Technology/National Security System Requirements Document* (ITSRD) on the HQ SSG/ILM Maintenance Information System web site at (**https://web2.ssg.gunter.af.mil/ilm/index.html**). The validation, approval, ranking, and subsequent inclusion of these ITSRDs into IMDS are controlled by a formal Functional Requirements Board (FRB) and Configuration Control Board (CCB) processes as described in the IMDS FRB and CCB charters. System problems (e.g., unusual errors) should be coordinated IAW local procedures (i.e., system administrators, database managers, Field Assistance Branch (FAB)/Help Desk) as these are not considered new or modified functionality. System response and/or connectivity issues should generally be worked first locally, and at a minimum, coordinated with the local Administrator/POC/DBM and Communications Squadron, prior to calling the FAB/Help Desk.

5.8.20.2. (ANG) System response and/or connectivity issues should generally be worked first locally, and at a minimum, open a trouble ticket for tracking purposes, coordinated with the local Administrator/POC/DBM and Communications Squadron, prior to calling the FAB/Help Desk.

5.8.20.3. The MDSA section chief ensures trained data base managers have the capability to support the 24-hour processing requirements for CAMS. Training may be obtained through the local communications squadron, AETC specialized courses or MAJCOM specialized training, or contractor training.

5.8.20.3. (ANG) N/A to the ANG. The following only applies to the ANG: The MDSA element/ workcenter supervisor ensures trained database managers have the capability to support processing requirements for CAMS. Training may be obtained through the local communications squadron, AETC specialized courses or contractor training.

5.8.20.4. The MDSA section assists CAMS users in developing procedures for collecting information from deployments and exercises where CAMS is not available. Options available are:

5.8.20.4.1. Use any NIPRNET web connection to access CAMS via AF Portal.

5.8.20.4.2. Accumulate hard copy documentation of CAMS screens or locally approved means for input by work centers upon return to home station or mail delivery for extended deployments only when all other options have been exhausted. Manual documentation is the last resort for collecting data.

5.8.20.5. Managing the CAMS Data base. MDSA provides management control of the CAMS data base. Data base Managers (DBM) will be rotated yearly to ensure all Analysts are fully trained and have experience in this vital area. The DBM responsibilities are as follows:

5.8.20.5. (ANG) N/A to the ANG. The following only applies to the ANG: Managing the CAMS Database. MDSA provides management control of the CAMS database. The DBM responsibilities are as follows:

5.8.20.5.1. Manages the use and structural integrity of the CAMS data base.

5.8.20.5.2. Ensures CAMS security is maintained in accordance with AFI 33-202, *Computer Security* and AFI 33-115, Vol 1, *Network Management*.

5.8.20.5.3. Controls and monitors the operation of CAMS.

5.8.20.5.4. Provides expertise on CAMS for resolution of problems beyond the work center's and sub-system monitors' control.

5.8.20.5.5. Provides support to tenant users.

5.8.20.5.5. (ANG) If applicable, provides support to tenant users and establishes MOAs.

5.8.20.5.6. Coordinates with the Defense Enterprise Computing Center (DECC), Air Force (Base) Network Control Center (AFNCC), (BNCC), or Regional Processing Center (RPC) on all matters concerning CAMS. The DBM has sole responsibility for coordinating with DECC or RPC. Deviations from this policy must be clearly stated in local directives and published by the host GP/ CC.

5.8.20.5.6. (ANG) N/A to the ANG. The following only applies to the ANG: Coordinates with the Defense Mega Center (DMC), AFNCC, BNCC, or RPC on all matters concerning CAMS and with ANG Network Operations Security Center (ANG/NOSC) and ANG Regional Operations Security Center (ANG/ROSC) when applicable. A trouble ticket must be established prior to coordination. The DBM has sole responsibility for coordinating with DMC or RPC. Deviations from this policy must be clearly stated in local OIs and published by the host GP/ CC.

5.8.20.5.7. Ensures the DECC or RPC supports all requirements concerning the operation and maintenance of CAMS.

5.8.20.5.8. Coordinates with other users and the DECC or RPC to schedule periodic saves of CAMS files to prevent loss of data caused by computer failure. Scheduled saves should cause the least possible interruption to CAMS users.

5.8.20.5.9. Notifies affected users if errors are found.

5.8.20.5.10. Coordinate with the DECC or RPC and CAMS users to schedule routine Preventative Maintenance (PM) to ensure it will have the least impact on the unit (when the system is least used).

5.8.20.5.11. Develops procedures and acts as the prime agency for reporting all suspected CAMS hardware failures. If failures are reported, determines whether an operator error or hardware failure has occurred. This responsibility may be decentralized into the squadrons of CAMS units.

5.8.20.5.12. Coordinates with other users and the DECC or RPC on loading of new releases, special programs, and changes to programs.

5.8.20.5.13. Coordinates and/or publishes scheduled CAMS downtime.

5.8.20.5.14. Ensures CAMS users are aware of problems relating to their subsystems through sub-system monitor notification, including all releases and system advisory notices (SAN).

5.8.20.5.15. Maintains the System Advisory Notice (SAN) file.

5.8.20.5.16. Coordinates with subsystem managers, tenant users, and Remote Job Entry Terminal (RJET) sites on monthly maintenance of the CAMS data base (i.e., Delete History NFS120 and JDD Delete History NFS760). These utilities are run monthly. A schedule will beproduced to allow the least impact on other system users. Schedule periodic saves of CAMS files to prevent loss of data caused by computer failure. Scheduled saves will be done to cause the least possible interruption to CAMS users.

5.8.20.5.17. Notifies other CAMS users and subsystem managers of unscheduled downtime status as soon as possible. When an extended computer outage occurs, DBMs notify sub-system managers of computer off-line time and determine if manual backup procedures are necessary to input data.

5.8.20.5.17.1. When CAMS is unavailable, the DBM, subsystem mangers, and squadron personnel will implement manual backup procedures for accumulating CAMS data. The data will be updated in CAMS when the system becomes available. Manual procedures include documentation on paper copies of CAMS screens, AFTO Forms 349, **Maintenance Data Collection Record**, and Sortie Maintenance Debriefing documents.

5.8.20.5.17.2. The host DBM will develop and publish a local OI detailing manual documentation and JCN assignment procedures in coordination with MOF PS&D.

5.8.20.5.18. Coordinates with other functions to ensure continuity of events taking place in CAMS including procedures for background products. When possible, backgrounds are processed during times of least on-line system use. The DBM recommends options to reduce background products, by encouraging users to use on-line capabilities of CAMS. The DBM will control the use of background products to ensure the maximum benefit with the least interruption to the system response time.

5.8.20.5.19. Controls and distributes local unit CAMS products after processing is complete.

5.8.20.5.20. Reviews system response times and takes action if required. The MAJCOM system response time standard is 5 seconds. System response time exceeding 10 seconds should be reported to the unit's DBM.

5.8.20.5.20. (ANG) System response time exceeding ten seconds should be reported to the unit's DBM then up channeled to ANG/LGMM.

5.8.20.5.21. Notifies MAJCOM of extended unscheduled computer downtime (over 24 hours), or when experiencing problems beyond the capabilities of the unit's DBM. Units experiencing problems beyond the capabilities of the host DBM will notify the platform manager or the alternate.

5.8.20.5.21. (ANG) Notifies ANG/LGMM of extended unscheduled computer downtime (over four hours), or when experiencing problems beyond the capabilities of the unit's DBM. N/A to the UAE owned F-16 block 60 program.

5.8.20.5.22. Has access to the tools required to manage the CAMS data base in the host unit. The data base managers must have a password with access to TIP and Demand. The password must have access to a DA1A account for DBE/IQU and access to a J51A account for QLP-update added to the HOST DBM user ID index. The data base administrator (DBA) at the DECC, RPC, or BNCC will then add the users ID to a system account. The DBM will have access to programs required to manage the CAMS data base in the host unit, which will include: ACOPY, SUPUR DSKUTL, EZLOAD (FAS privileges) PSURB, STAR (read only) and UDSMON.

5.8.20.5.22.1. QLP with update on demand pending approval of (the DECC and RPC).

5.8.20.5.22.2. Data Base Look (DBL).

5.8.20.5.22.3. Console monitoring (CONS) with display option.

5.8.20.5.22.4. QLP report writer. Individual analysts not directly associated with data base management are still required to receive training in QLP report writer, on-line inquiries, and conversational commands to obtain nonstandard data from the CAMS data base to perform analysis duties. This training will be documented on an AF Form 797, Job Qualification Standard Continuation, and included in the Analysts' AF Form 623, **Individual Training Record**.

5.8.20.5.23. Initiates NDA500 or set-verify to identify and isolate data base errors and attempt correction through use of data base editor (DBE) or QLP with update, IQU, or IPF. These utility programs are run monthly. Coordinates system off-line time to accomplish set-verify with the DECC or RPC and subsystem users to minimize off-line time.

5.8.20.5.24. Notifies affected users if errors are found in the CAMS data base and takes prompt action to correct the errors.

5.8.20.5.25. Ensures proper use and control of the data base fix keys provided by the MAJCOM.

5.8.20.5.25. (ANG) N/A to the ANG.

5.8.20.5.26. Coordinates and controls recovery procedures for CAMS.

5.8.20.5.26. (ANG) Ensures proper use and control of the database fix keys provided by the gaining MAJCOM and FAB.

5.8.20.5.27. Controls and monitors submissions of CAMS Difficulty Reports (DIREP), and Command, Control, Communications, and Computers (C4) system requirement documents, and suggestions for CAMS evaluations.

5.8.20.5.28. Coordinates on matters pertaining to the interface of other automated systems with CAMS.

5.8.20.5.29. The DBM will develop and follow a checklist in case of the loss of an aircraft. Regardless of the time or day of week, the DBM (or alternate) will be contacted to immediately put the CAMS in File Update Mode (FUD) until the checklist can be completed.

5.8.20.6. CAMS/REMIS System Security. The DBM ensures that system security is maintained by performing the following responsibilities.

5.8.20.6.1. Control access to specific CAMS programs and subsystems by utilizing TRIC security. Specific TRICs or options within TRICs will be restricted by the DBM on request from the subsystem manager or when the DBM deems it necessary. TRIC security capabilities can be delegated to the subsystem and/or squadron personnel for updates at the discretion of the DBM.

5.8.20.6.2. Ensures CAMS subsystem managers are informed of the status of applicable transaction identification codes (TRIC) prior to turning the TRIC on or off. In circumstances where a particular TRIC code is turned off for extended periods of time, the DBM notifies their MAJCOM counterpart, providing rationale for leaving the TRIC in the off status.

5.8.20.6.3. Develop methods preventing unauthorized use of MIS equipment and data within the purview of AFI 33-332, *AF Privacy Act Information*; and AFI 33-202, *Computer Security*. Ensures proper control of MIS passwords. Specific instructions for REMIS passwords are as follows:

5.8.20.6.3.1. MDSA is the focal point to monitor user/id request forms. Forward completed forms to MAJCOM.

5.8.20.6.3.2. Provide MAJCOM via message/e-mail, the name, rank, office symbol, and phone number of the focal point as changes occur.

5.8.20.6.3.3. Maintain a listing of locally assigned REMIS users and provide updates to add, change or delete REMIS users upon assignment, separation, or retirement.

5.8.20.7. Responsibilities for Work Centers Using CAMS. Work center responsibilities are listed in **Chapter 2** of this instruction.

5.8.20.8. CAMS Subsystems Managers. Each CAMS subsystem is controlled by a specific subsystem manager who ensures using personnel are qualified to use the respective subsystem of CAMS and are current with AFCSM 21- series manuals. Subsystem managers and their alternates will be identified by letter of appointment from the responsible agency. Personnel using CAMS will work problems beyond their scope with the subsystem managers first. If the problem still cannot be resolved, the subsystem manager will elevate it to the DBM. Each subsystem manager reports hardware/software problems to the unit DBM, assists the maintenance training flight in developing and conducting familiarization courses for CAMS users, monitors access to their sub-

system via TRIC security and approves/disapproves requests for TRIC access for users and forwards to DBM for processing. The following list assigns functional responsibilities for the various CAMS subsystems:

5.8.20.8.1. MDSA is responsible for the overall management of the Job Data Documentation (JDD) subsystem.

5.8.20.8.1.1. Provides overall management and control of the maintenance deferred code listing. Changes to the table will be coordinated with MOF PS&D.

5.8.20.8.2. MOF PS&D is responsible for overall management of aircraft operational event, special inspection, time change, TCTO, aircraft equipment transfer, Generic Configuration Status and Accounting Subsystem (GCSAS), and aircraft inventory subsystems

5.8.20.8.3. The MOF Engine Management section is responsible for overall management and control of scheduled/unscheduled engine maintenance events concerning engine inspections, engine time changes, engine TCTOs, engine equipment transfers and engine status.

5.8.20.8.4. MOC is responsible for overall management and control of the location subsystem and aircraft status reporting (CAMS/REMIS corrections).

5.8.20.8.5. Avionics Section is responsible for overall management and control of the Automatic Test Reporting System (ATERS) (CAMS/REMIS corrections).

5.8.20.8.6. Egress Section is responsible for overall management and control of the egress configuration management. (CAMS/REMIS corrections).

5.8.20.8.7. MTF is responsible for overall management and control of the training management sub-system.

5.8.20.8.8. Programs Section is responsible for overall management and control of the personnel management subsystem.

5.8.20.8.9. QA is responsible for overall management and control of the deficiency reporting (DR) sub-system.

5.8.20.8.10. MSL (if applicable) is the liaison between CAMS and supply. System problems concerning supply transactions i.e., supply rejects, reports, are brought to attention of the MSL for correction of Difficulty Reporting (DIREP).

5.8.20.8.11. Debriefing Section is responsible for overall management and control of the automated debriefing subsystem. During debrief, the debriefing section ensures accuracy of aircraft sorties and flying hours, validates pilot reported discrepancies (PRD), validates repeat and recur maintenance actions.

5.8.20.9. Tenant Support. The host DBM provides CAMS technical support to tenant users to assist them in maintaining their unit's data base. The DBM ensures that all tenant users are supported. DBM support requirements will be identified in a Memorandum of Agreement or the Host Tenant Support Agreement. Refer to AFI 21-103, Chapter 6, Communications-Electronics (C-E) Status and Inventory Reporting, for maintenance analysis and host database manager responsibilities in support of the C-E maintenance community.

5.8.20.10. Maintenance Automated Products (Nonstandard MIS Products). The use of computerized products from the CAMS/G081 and REMIS systems are major sources of information for

maintenance data systems analysis. All MDSA personnel will receive training to enable them to make maximum use of these systems. This training will be documented on an AF Form 797, Job Qualification Standard Continuation, and included in the Analysts' AF Form 623.

5.8.20.10.1. Query Language Processor (QLP) and Integrated Query Utility (IQU) allow retrieval of information from CAMS data base files. These utilities are intended to provide nonstandard data and report formats for specific uses and update or change data base information.

5.8.20.10.2. REMIS-TALK is another data retrieval system available to analysts for data extraction used similarly to QLP. This retrieval system is used to extract information from the REMIS system on Equipment Inventory, Multiple Status and Utilization Reporting Subsystem (EIMSURS), Product Performance Subsystem (PPS), and Generic Configuration Status and Accounting Subsystem (GCSAS) and the Debrief Subsystem.

5.8.20.11. Documentation Accuracy and Completeness. The management information requirements of the unit are generally fulfilled by analyzing data collected through standard Air Force MIS systems. All personnel in the unit are involved to some extent in the documentation, processing, review, retrieval, or application of maintenance data. The data entry made by a technician becomes an element in a data base used for management decision making within the wing, MAJCOM, and AF. If that entry is incorrect, incomplete, or is later found to be entered in error, the data base is impaired to that extent. Consequently, decisions made based on that data are less sound. Unit managers and production personnel are responsible for ensuring accuracy and completeness. When documentation is accurate, unit managers and logisticians have the means to improve equipment, program for spares, and allocate resources to the best effect. Data integrity is the responsibility of every member of the unit. Subsystem monitors are responsible for ensuring the accuracy of their subsystem. This can be accomplished by pointing out errors or problems to appropriate work center supervisors. Data base Managers can provide assistance when the problem is beyond the technical expertise of the subsystem manager.

5.8.20.12. Data Integrity Teams/Group (DIT/DIG). The purposes of the DIT include: (1) ensuring the unit has complete and accurate data in the MIS and aircraft forms (to include all inputs made by staff agencies), (2) identifying and quantifying problems within the unit preventing complete and accurate documentation, (3) identifying and correcting the root causes for poor data integrity, and (4) educating the unit on the critical need for data integrity. The DIT/DIG teams are established to evaluate/isolate/eliminate documentation problems in CAMS/G081. All units will establish a DIT/DIG. MDSA is the OPR for the team and is not responsible for identifying or correcting errors. The DIT/DIG will include at least one representative from each squadron that repairs aircraft, and participation from PS&D, the MOC, the MSL, and COSO, EMB, Debrief, and QA on an as needed basis, as determined by the Chief of Analysis. MAJCOMs will determine the frequency the DIT/DIG will meet. Representatives will be at least 5-levels and familiar with the unit's assigned weapon system(s). As a minimum, the following functions should be performed by the DIT:

5.8.20.12. (ANG) The DIT/DIG must include at least one representative from each squadron that repairs aircraft, and participation from PS&D, the MOC, the CSSM, EM, Debrief, and QA on an as needed basis, as determined by the MDSA. The DIT shall meet monthly.

5.8.20.12.1. To ensure automated AFTO Form 781A's are being accurately documented they will be compared with data documented, what is in one should be in the other. When the two differ, the responsible work center will be charged with an error and have it included in the error rate. Examples include: mismatch of write-up in forms versus CAMS/G081, signed off in forms but not closed in CAMS/G081, or completed in CAMS/G081 but not signed off in forms, no JCN in forms or corrective action in CAMS/G081 does not match what's in forms. A 14-day records check doesn't cover this requirement. A minimum of one aircraft per squadron, per week needs to be checked, ensuring 100 percent coverage of all aircraft forms each year.

5.8.20.12.1. (ANG) A minimum of 25 percent of the fleet per quarter needs to be checked.

5.8.20.12.2. Compare all "Not Reparable This Station" (NRTS) actions and turnarounds in CAMS/G081 with those in the Standard Base Supply System (SBSS) to verify that all NRTS actions and turnarounds are documented in CAMS/G081. Work with supply to resolve all differences in NRTS and turnaround documentation between CAMS/G081 and SBSS.

5.8.20.12.3. Run Maintenance Action Review background report for all work accomplished by squadron and by work center.

5.8.20.12.4. Audit report by squadron for work center event and corrective action narratives versus coding.

5.8.20.12.5. Identify suspected errors on the report by circling or marking on the report and give report to appropriate squadron for corrections. Identify and count the documentation errors affecting scheduled/unscheduled maintenance on equipment identified as REMIS reportable in AFI 21-103.

5.8.20.12.6. Develop a system to keep track of number of errors by work center and squadron.

5.8.20.12.7. Establish a suspense method to get corrected reports/MIS back to the DIT/DIG. Allow a maximum of 5 days for both the MIS to be corrected and corrected reports to be sent back to the DIT/DIG.

5.8.20.12.8. Check work center utilization to verify that all required maintenance actions are being documented in CAMS/G081. Look for over and under documentation.

5.8.20.12.9. Maintain cumulative uncorrected and corrected error rate data bases.

5.8.20.12.10. Analyze the error rate data and prepare reports of rates and identify where errors are occurring.

5.8.20.12.11. Error rates and causes will be briefed to the MXG/CC at least monthly.

5.8.20.12.12. Do not limit scope of DIT/DIG to Job Data Documentation (JDD). Consider tracking error rates for PS&D, MOC, and debrief for ops events cancelled, but not input in CAMS/G081 that cause the flying hour reports to be wrong for sorties and flying hours. Look at ways to track status errors from MOC, and MOC/debriefing errors such as no WUC loaded for a Code-3 PRD, or deviations not loaded correctly.

5.8.20.13. CAMS/G081 Users Group. Establish a CAMS/G081 Users Group to identify user problems, provide on the spot training to correct user documentation problems, and to discuss other issues relating to operation of the system. A senior maintenance leader chairs the working

group. Meetings are held at least quarterly and are also conducted prior to loading a CAMS release/G081 major program change to ensure all personnel are aware of the changes. An agenda will be published and sent to all work centers prior to all meetings. Meeting minutes will be published and sent to all work centers.

5.8.20.13. (ANG) The MXG/CC may establish a CAMS/G081 Users Group. Otherwise duties shall be performed by the DIT.

5.8.20.14. Maintenance Performance. Primary concerns of maintenance managers are how well the unit is meeting mission requirements, how to improve equipment performance, and identifying emerging support problems, and projecting current trends. Maintenance performance is compared with standards, goals, and maintenance plans. The maintenance scheduling effectiveness rates computed by PS&D and other performance rates computed by analysis are valuable data sources for making these comparisons. When the operational requirements are not achieved, MDSA will perform an investigation to determine the cause. As a minimum the following areas will be considered:

5.8.20.14.1. Are operational requirements realistically based on availability of equipment?

5.8.20.14.2. Causes for flying schedule deviations (cancellations, aborts, additions or early/late takeoffs)

5.8.20.14.3. Are specific aircraft, equipment, systems, or subsystems contributing to a disproportionate share of deviations/turbulence?

5.8.20.14.4. Is specific equipment failing to perform as scheduled? Does this equipment require more or less maintenance than others?

5.8.20.14.5. Are there enough people to meet mission needs? Are certain work centers documenting significant overtime or show consistently high utilization rates?

5.8.20.14.6. Is there a good balance of skills within AFSCs and between the units?

5.8.20.14.7. Do higher rates for repeat/recur discrepancies indicate training/experience shortfalls?

5.8.20.14.8. Is there sufficient time to schedule and work maintenance problems?

5.8.20.14.9. Are trends significant? Are the trends short term (6 months or less) or long term? Where will the unit likely be in 6-12 months?

5.8.20.14.10. Are there seasonal or cyclical variations? Are current variations outliers?

5.8.20.15. Equipment/Mission Analysis. When adverse trends are identified, further investigation may be necessary to gather facts. QA, unit managers, and work center technicians should be contacted for assistance in performing these investigations. Consolidate the results in the form of briefings or interim reports, depending upon the seriousness of the trend. The product of these reports should be viewed as indications of the unit's success in keeping equipment mission ready. Consider the following questions when reviewing negative trends:

5.8.20.15.1. Which systems are creating a high not mission capable (NMC) rate? Are these the normally high systems? If so, are they higher than normal? What are the high driving components, and what is being done (or could be done) to address the problems? What factors

are causing an increase or decrease in the NMC hours? Is the unit's deployments affecting the rate, if so to what extent?

5.8.20.15.2. Are specific aircraft or equipment causing trend distortions?

5.8.20.15.3. What systems are having high CND, repeat or recur malfunctions?

5.8.20.15.4. What parts or components are causing NMCS conditions? Are these normal, or possibly a new problem emerging?

5.8.20.15.5. Are the items repaired on station? Are they 2LM components? Could they be repaired locally?

5.8.20.15.6. Is supply support sufficient and responsive? If not, why not? Are stocks adequate?

5.8.20.15.7. Is the lack of training, technical data, or tools and equipment affecting certain systems or AFSCs?

5.8.20.16. Analytical Process. The analytical process consists of identifying contributory factors, manipulating raw data into meaningful formats, computing management indicators, performing statistical measurements, and creating accurate, complete, and easy to understand presentations. An analytical process uses a number of methods, e.g., visual observation that is dependent upon the experience and knowledge of the observer; comparative analysis that may be performed statistically or visually and involves the comparison of two or more like operations or items to identify variations or differences, and statistical analysis or statistical investigation that is the methodical study of data. These methods are used to reveal facts, relationships, and differences about data and data elements and are a useful adjunct to comparative and visual analysis. Analysts should use these tools and other methods to perform analytical studies to gain insight into unit performance and to enhance process improvement. AFSC 2R0X1 Career Development Course (CDC) is a good source of statistical and analytical techniques, and the MDSA will maintain a current copy of the 5 and 7-level CDC for reference.

5.8.20.17. Management Contributions to the Analytical Process. Maintenance managers have a significant impact on the usefulness of the MDSA to the unit. By challenging the MDSA with analyzing problems affecting the unit, they help not only the unit they will foster the in-depth training of the Analysts. Managers should constantly review how information is being organized and presented. The lack of focus regarding use of data, improper arrangement of data for analysis, or unclear presentations of results can obscure meaningful information. Managers should be familiar with how data is developed, interpreted, and presented to ensure accurate presentations of results for decision making. Special studies and analyses specifically targeted for areas of concerns to managers are valuable tools in helping units isolate factors surrounding problem areas. Analysts are trained statisticians and investigators, and should be used in this capacity.

5.8.20.18. Analytical Studies. MDSA will provide results of investigations, analyses, or studies to work centers. Specific studies are provided to the requester, and a file copy is retained for future reference. Widespread dissemination is achieved by reproducing the study or including it in a monthly maintenance summary.

5.8.20.18.1. The study should state assumptions up front. The study should be summarized in plain English and should state how the significance is measured.

5.8.20.18.2. Although not the only format, most studies will begin with some sort of background information. The study should include the data, research, investigation, and statistical findings, along with their respective sources. Then conclusions relevant to the study should be drawn from the data, research, investigation, and statistical findings. Finally the study should include recommendations to address the conclusions relevant to the problem (other issues uncovered can be identified, but should be kept separate). The most effective study is one that goes beyond superficial conclusions. It helps solve a problem relative to mission performance, and is available for all involved parties to read.

5.8.20.19. Maintenance Analysis Referrals. These are highly affective tools for getting many agencies aware of a common problem. Referrals are simply tools to aid in process improvement and should never be used to attach blame when a process is not working right. A referral is a procedure used to identify, investigate, and propose corrective action for management problems. Referral reports are used to start the referral procedure and document the corrective actions for implementation and future reference. Due to the amount of investigation and research needed to properly process referrals, take care to ensure they are not used for problems that can be resolved more efficiently through verbal or less formal communications. Referrals are not determined by a quota system. They are used only when necessary to affect a permanent solution to a problem that cannot be solved by other means. Referral reports must be concise, accurate, and timely to provide maintenance managers with information for making decisions. Anyone can initiate a referral but MDSA is the OPR and maintains a log of all referrals, assigning a referral number before processing begins. The log should reflect the referral number, initiating agency, date, subject, and action taken. Route through the affected agencies for comments, with the final addressee as the maintenance data systems analysis section. Retain copies and indicate whether additional monitoring or follow-up action is necessary. Provide a completed study to each group QA.

5.8.20.20. Functions of Deficiency Analysis. Deficiency analysts are technicians will be a 5 or 7 level with at least one SSgt with the following skills: aircraft maintenance, off-equipment avionics, flight line avionics, or engines. Other skills may be included to effectively analyze specific functions of an aircraft weapon system. Not everyone has the prerequisite skills needed to perform Deficiency Analysis, so care must be taken to ensure candidates have the writing and math skills sufficient to perform the job. Deficiency analysis technicians will be rotated back to their maintenance section or flight line within 36 months to maintain AFSC proficiency. Deficiency analysts serve a dual role; they provide analytical support to the squadrons and maintenance managers, and also provide technical expertise for the maintenance data systems analysis section. They use analytical data and their technical knowledge to identify problems, work with the customer, and help find solutions. They should not limit themselves to pointing out general areas for investigation, they should identify deficiencies applicable to a work center, particular equipment end item, maintenance practice or management action. This does not apply to AMC units. Deficiency analysis responsibilities include:

5.8.20.20. (ANG) N/A to the ANG. All subparagraphs of **5.8.20.20.** are also N/A to the ANG.

5.8.20.20.1. Reviews QA summaries for positive and negative trends.

5.8.20.20.2. Reviews debriefing data and abort information daily to assist in the identification of problem aircraft or systems.

5.8.20.20.3. As a minimum, performs monthly reviews of:

5.8.20.20.3.1. Deferred discrepancy lists for technical errors or negative trends.

5.8.20.20.3.2. Repeat and recurring discrepancy lists for problems.

5.8.20.20.3.3. High CND rates and incidents for inadequate troubleshooting or technical data problems.

5.8.20.20.3.4. Aircraft scheduling deviations for negative maintenance practices and trends that impact work force and workload stability.

5.8.20.20.4. Monitoring and evaluating the maintenance portion of the base repair program and IREP.

5.8.20.20.5. Analyzing the performance of selected systems, subsystems, and components (LRUs) to help determine the source of problems affecting the mission of the unit.

5.8.20.20.6. Attending the Quality Assurance Program and Product Improvement Working Group (PIWG) meetings, providing trend data as needed.

5.8.20.20.7. The function of the Deficiency Analyst is not to become the full time DIT monitor.

5.8.20.21. Base Repair/IREP Program. Monitoring and evaluating the program is an important function of the maintenance data systems analysis section. Analysis of the aircraft maintenance portion of the base repair program and IREP may provide supervisors with the data needed to determine work center repair capabilities. Technical Order 00-20-3 contains information necessary for computing repair rates.

5.8.20.22. Dedicated Operations Squadron Analysis (where applicable). The AMU analysis function is intended to provide dedicated analytical support for the AMU. The MDSA section chief dedicates an analyst to each AMU. Accomplishing AMU tasks are the dedicated analyst's primary responsibility. The section chief is responsible for the overall effectiveness of the AMU analysis program. The dedicated AMU analyst works for the maintenance data systems analysis section chief. However, the analyst is also responsive to the AMU manager's needs. To improve the overall effectiveness of the dedicated analyst program, analysts should be rotated approximately every twelve months. When the AMU analyst is not located in the AMU the AMU analyst will still spend time in the AMU area daily to ensure all duties are discharged or AMU manager needs are fulfilled. As a minimum, the AMU analyst performs the following tasks:

5.8.20.22.1. Reviews maintenance debriefing data and tracks in-flight discrepancies and deviations on each aircraft. Review aircraft status inputs from the MOC for work unit code accuracy. Closely monitors fix time on Code 3 breaks and reports results to AMU managers daily. Briefs problem aircraft and systems highlighted by this tracking to AMU managers daily.

5.8.20.22.2. Weekly and monthly, briefs comparative AMU data as required by the MXG/CC.

5.8.20.22.3. Provides analyses as requested by the AMU managers or when identified through review of AMU performance data.

5.8.20.22.4. At least weekly, validates cannibalization documentation in CAMS with AMU's COSOs and informs the AMU OIC and Superintendent of its accuracy. If errors exist, a more frequent validation may be required to resolve any documentation problems. Advises the AMU managers of recurring problems.

5.8.20.22.5. Monitors the UTE rate for the AMU.

5.8.20.22.6. Analyzes programmed and actual attrition factors.

5.8.20.22.7. Attend AMU scheduling/production meetings at least once per week.

5.8.20.23. Unit Maintenance Data Presentations. Present data by using summaries, charts, graphs, tabular displays, and narratives. These data presentations should show the relationships among various factors. Data presentations should be displayed or presented in time to be useful in plans or reports. A printed monthly maintenance summary, tailored to the needs of the unit, is an excellent method of presenting data. Presentations should be well constructed, accurate and easy to understand.

5.8.21. (Added-ANG) Except for the 116th ACW, prepares a data summary (ANG 7401 Report) for crosstell purposed. The SPOC, in coordination with ANG/LGMM, shall specify preparation, frequency, effective date, distribution, and data elements to be reported. Compiles and submits the ANG 7401 report to ANG/LGMM by the 11th working day of each month for the preceding month through Guardian. Procedural guidance can be found in ANGPAM 21-103, *Maintenance Data Systems Analysis Guide*.

5.8.22. (Added-ANG) G081 Management. This function manages and coordinates the overall use and development of G081 equipment and programs within the maintenance complex and management of the system to meet unit, ANG and AMC requirements. The G081 management element is responsible for the following:

5.8.22.1. (Added-ANG) Developing and maintaining an OI for local management of G081, which as a minimum contains:

5.8.22.1.1. (Added-ANG) Contingency plans for the support of critical areas during extended computer downtime.

5.8.22.1.2. (Added-ANG) Use of the G081 system during deployments and contingency operations.

5.8.22.2. (Added-ANG) Assisting agencies within the maintenance complex to better utilize G081.

5.8.22.3. (Added-ANG) Maintaining an up-to-date master copy of all publications pertaining to G081 policies, procedures, programs, and ensuring changes are briefed to all users.

5.8.22.4. (Added-ANG) Ensuring integrity of the database is maintained by limiting user access to authorized workcenters and personnel.

5.8.22.5. (Added-ANG) Assigning USERID/Password access to G081 users. Monitoring and assisting users with LOGIN procedures. Unlocking and resetting passwords as requested by users.

5.8.22.6. (Added-ANG) Acting as approval agency for the MXG/CC or MOF commander on program 8033 off-base messages.

5.8.22.7. (Added-ANG) Trouble Reporting. G081 management is the primary POC for reporting all G081 related problems. Trouble reporting is directed to G081 management element.

5.8.22.8. (Added-ANG) Coordinating with ANG/LGMM personnel concerning hardware and software problems.

5.8.22.9. (Added-ANG) Ensuring all G081 users are informed of downtimes scheduled for preventive maintenance.

5.8.22.10. (Added-ANG) Providing specialized functional or workcenter training to POCs to ensure computer competency at the user level.

5.8.22.11. (Added-ANG) Assisting maintenance activities in the proper application and interpretation of G081 technical publications.

5.8.22.12. (Added-ANG) Troubleshooting and, if possible, solving G081 related problems beyond the capabilities of the functional users. If solving the problem is beyond G081 management capability, identifying the problem to ANG/LGMM for corrective action.

5.8.22.13. (Added-ANG) Ensuring G081 users are aware of problems and corrective actions relating to G081.

5.8.22.14. (Added-ANG) Ensuring that users are aware of problems including System Deficiency Reports (529s) applicable to the functional area by evaluating all recommended F9038 program changes received from other G081 users.

5.8.22.15. (Added-ANG) Coordinating with the MXG/CC or MOF commander/superintendent and applicable staff organizations on matters concerning interface with associated systems at base level, as directed by ANG/LGMM.

**5.9. Maintenance Operations Center (MOC).** The MOC is assigned to the MOF in the MOS. Refer to **Chapter 6** for MOC responsibilities.

**5.10. Programs and Resources Flight.**

**5.10. (ANG) Programs and Deployments.** N/A to the ANG. The following only applies to the ANG:

5.10.1. The Program and Resources Flight manages the manning, facilities, support agreements, and deployment functions for the group. The flight will:

5.10.1. (ANG) N/A to the ANG. The following only applies to the ANG: The program and deployments section manages the manning, facilities, and deployment functions for the group.

5.10.1.1. Develop, maintain, and coordinate all AFI-directed programs and plans affecting maintenance.

5.10.1.2. Act as resource advisor to MXG/CC.

5.10.1.3. Conduct staff assistance visits (SAV) within the group to assist each maintenance functional area.

5.10.1.3.1. SAV visits will administratively evaluate a unit's ability to deploy IAW the DOC statement.

5.10.1.3.2. SAV visits will be conducted at least once a year and documented. Units will retain documentation until the next SAV unless repeat discrepancies are noted. If discrepancies are repeated, SAV documentation will be retained until the discrepancies are closed.

5.10.2. Manage manpower and assignments for the group with the exception of AFSC 2W1X1 and 2R1XX personnel who are managed by wing functional managers.

5.10.2. (ANG) N/A to the ANG. The following only applies to the ANG: Manages manpower and assignments for the group.

5.10.3. Serve as the focal point within maintenance group for management of facilities.

5.10.4. Be the focal point for maintenance group mobility planning and execution actions. It coordinates maintenance group and all maintenance mobility requirements.

5.10.4.1. If designated as a UTC Pilot Unit:

5.10.4.2. Coordinates with Wing Plans and those other UTC tasked units on cargo and equipment authorizations/requirements in order to develop and maintain a standardized package, which meets the specific mission capability requirements.

5.10.4.3. Coordinates with Wing Plans and the Allowance Standard (AS) monitor for that UTC on equipment changes and new equipment requirements.

5.10.4.4. If requested, assists with site surveys of deployment locations.

5.10.5. Comply with support agreements IAW AFI 25-201.

5.10.6. Be responsible for developing/coordinating group maintenance commercial contracts unless MXG/CC has determined another office of responsibility.

5.10.7. DELETED.

5.10.8. DELETED.

5.10.9. Monitors SORTs reporting for the MXG.

5.10.10. Coordinate with the Logistics Readiness Squadron to obtain unit assistance in interpreting guidance for marking/packing/marshaling of tasked equipment according to AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*; AFMAN 10-401, *Operations Plan and Concept Plan Development*; and AFMAN 91-201, *Explosive Safety Standards*.

5.10.11. (Added-ANG) Programs Section is responsible for overall management and control of the personnel management subsystem.

5.10.11.1. (Added-ANG) Assists the deployed senior maintenance representative with site surveys.

5.10.11.2. (Added-ANG) Coordinates with Wing Plans to compile the data necessary to implement and maintain the deployment database.

5.10.11.3. (Added-ANG) Reviews all operations plans requiring support from the aircraft maintenance complex.

5.10.11.4. (Added-ANG) Coordinates maintenance planning actions in support of all aircraft maintenance plans with concerned activities.

5.10.11.5. (Added-ANG) Maintains personnel and equipment rosters, applicable plans, and checklists required to deploy aircraft maintenance personnel and equipment.

5.10.11.6. (Added-ANG) Ensures personnel readiness folders (if used) are maintained.

5.10.11.7. (Added-ANG) Prepares and submits financial requirements for inclusion in the base financial plan and operating budget. Coordinates with each cost center to assess financial needs.

Advises the MXG/CC on the distribution of the operating budget. Analyzes past expenses, current expenses, and programs to project the financial requirements.

5.10.11.8. (Added-ANG) Monitors the status of expenses to include Depot Level Repairables (DLR) by cost center and briefs the MXG/CC of unusual expenditures that may impact the unit's financial condition. Reviews financial status to ensure each cost center receives equitable and necessary base-funded materials and services.

5.10.11.9. (Added-ANG) Evaluates trends and operating costs, which are used in projecting commitments and obligations.

5.10.11.10. (Added-ANG) As required, provides training to the cost center managers.

5.10.11.11. (Added-ANG) Maintains a current copy of the Maintenance manning documents.

5.10.11.12. (Added-ANG) Initiates/coordinates on all personnel assignments and change requests. Monitors critical AFSCs. Ensures assigned personnel are properly loaded in the personnel data system.

5.10.11.13. (Added-ANG) Is familiar with all Maintenance facilities. On an annual basis determines if existing facilities are suitable for the activities to which they are assigned.

5.10.11.14. (Added-ANG) Serves as the focal point for the management of facilities and development of the master aircraft-parking plan in coordination with the Airfield Manager. Include tenant unit parking plan in the host unit's master parking plan. Coordinates on all work requests for new construction or alteration to existing facilities. Coordinates all facility requirements with affected agencies.

5.10.11.15. (Added-ANG) Is the focal point for Maintenance inputs to support agreements.

5.10.11.16. (Added-ANG) Conducts staff-assist visits, and documents, at least annually, to each maintenance shop to assist with financial management, personnel management, facility management, and deployment planning.

5.10.11.17. (Added-ANG) Monitors and validates all telephone installation requests, if applicable.

5.10.12. (Added-ANG) The Maintenance Plans (these duties may be in the Programs and Deployments Section) responsibilities are outlined in AFI 36-2129, *Logistics Plans Management*, and include the following:

5.10.12.1. (Added-ANG) Assists the installation deployment officer (frequently the senior Maintenance Plans officer in the Maintenance Plans flight) in managing the installation deployment program IAW AFI 10-403.

5.10.12.2. (Added-ANG) Develops a briefing to inform all SNCOs and officers of the wings wartime taskings and DOC Statement requirements. The briefing must also cover Aerospace Expeditionary Force (AEF) vulnerability windows.

5.10.12.3. (Added-ANG) Publishes installation deployment guidance.

5.10.12.4. (Added-ANG) Manages the wing’s Contingency Operations/Mobility Planning and Execution System (COMPES) Logistics Module (LOGMOD) program.

5.10.12.5. (Added-ANG) Serves as the focal point for all logistics planning.

5.10.12.6. (Added-ANG) Administers the wing support agreement program (Maintenance Plans) IAW AFI 25-201. Additionally, serves as focal point for any host nation or third country requests for logistical support.

5.10.12.7. (Added-ANG) If designated as a UTC Pilot Unit:

5.10.12.7.1. (Added-ANG) Coordinates with Wing Plans and those other UTC tasked units on cargo and equipment authorizations/requirements in order to develop and maintain a standardized package, which meets the specific mission capability requirements.

5.10.12.7.2. (Added-ANG) Coordinates with Wing Plans and the AS monitor for that UTC on equipment changes and new equipment requirements.

5.10.12.7.3. (Added-ANG) Assists with site surveys of deployment locations.

**5.11. Quality Assurance.**

5.11.1. Administratively assigned to the MOS (Not applicable to the ANG), but works directly for the MXG/CC. Refer to **Chapter 10** for QA responsibilities.

5.11.1. (ANG) Applicable to the 116th ACW.

## Chapter 6

## MAINTENANCE OPERATIONS CENTER (MOC)

**6.1. General.** The MOC monitors and coordinates sortie production, maintenance production, and execution of the flying and maintenance schedules while maintaining visibility of fleet health indicators. The aircraft maintenance squadron sets priorities for the production effort to meet mission requirements. Through coordination with maintenance units, the MOC establishes priorities for competing limited resources (such as fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (e.g., egress) based on daily flying schedule and maintenance priorities. The exchange of information between squadrons and the MOC must be in detail sufficient enough to allow the MOC to comply with reporting requirements and to identify potential problems. The Air Force is developing the Enhanced Maintenance Operations Center (EMOC) software as the standard MOC tool for the near future. During periods of contingency tasking (simulated or actual), the MOC assumes increased responsibility for the coordination effort. Command and control differs for internal and external conditions and states of readiness: Internal control is exercised when all resources are in a single squadron; external control is exercised when more than one squadron must share facilities or resources. Command and control, as exercised by the battle staff through the MOC, primarily concerns the maintenance squadron(s) actions to facilitate and expedite production in the AMUs. Additional guidance is outlined in MAJCOM supplements if applicable. Specific responsibilities are:

6.1.1. Maintains visual aids (electronic or manual), using EMOC when available, to show the status and location of each aircraft on station, maintained or supported by the wing. Units should ensure status boards depicting aircraft status comply with program security guidelines.

6.1.2. Publishes local radio call signs for maintenance LMR networks and ensures it is kept current.

6.1.3. Ensures aircraft status is properly reported and maintained in accordance with AFI 21-103, AFCSM 21-564, *Status and Inventory*, and MAJCOM supplements. The aircraft maintenance Pro Super determines aircraft status and capability. The MOC verifies aircraft status using the MIS before reporting it.

6.1.4. Monitors the progress of aircraft functional check flights (FCF) as established by QA and PS&D.

6.1.5. Informs affected activities of changes in priorities, plans, and schedules.

6.1.6. Coordinate on changes to the flying schedule with applicable agencies by use of AF Form 2407, **Weekly/Daily Flying Schedule Coordination**.

6.1.6. (ANG) Automated products containing the same information are acceptable.

6.1.7. Requests support services, such as fire fighting activity standby, aircraft water, snow removal, fueling and defueling service, civil engineer support, or control tower clearances for ground movement of aircraft and equipment.

6.1.7.1. The MOC coordinates on all aircraft engine runs and all aircraft ground movements conducted by maintenance personnel prior to execution.

6.1.8. Develops and implements procedural checksheets.

6.1.8.1. Procedural checksheets are required for use during actions such as mass loads, Broken Arrow, Dull Swords, Bent Spear, aircraft crash, flight line fire, severe weather warning or evacuation, runway closure, Quick Reaction Checksheets, and any other unusual circumstances deemed necessary. For SIOP notification, use the plan implementation checksheets. Use unit operational plans as a guide in developing these checksheets. Checksheets contain those actions required to be taken by functional area(s). The MOC maintains checksheets IAW TO 00-5-1.

6.1.9. Monitors the status of Aerospace Ground Equipment (AGE) designated as mission essential, if it falls below critical levels.

6.1.10. Coordinates munitions delivery priorities with flying units and munitions maintenance activities/control, when tasked.

6.1.10.1. Informs all required agencies, including the base fire department, of munitions-loaded aircraft to include when each aircraft is loaded or unloaded with munitions. Provide the aircraft type, tail number, location, type of explosives, and arming status. Wings will publish procedures of notification requirements.

6.1.11. Maintains the status, expected time in commission (ETIC), and location of each aircraft on and off station, which is either maintained or supported.

6.1.12. Ensures all deviations to the daily flying schedule are reviewed and accurately reported in accordance with MAJCOM directives. MOC will forward to Maintenance Analysis a copy each of the AF Forms 2407 and daily flying schedule with all deviations annotated.

6.1.12. (ANG) Automated products containing the same information are acceptable.

6.1.13. Monitors the hangar queen program, if applicable.

6.1.13. (ANG) N/A to the UAE owned F-16 block 60 program.

6.1.14. Coordinates maintenance on the alert force.

6.1.15. Ensures work centers dispatching in areas where the two-person concept is required are aware of the requirement prior to dispatch, IAW Nuclear Surety Program.

6.1.16. Monitors and reports the status of electronic countermeasures (ECM) and sensor pods IAW AFI 10-201. When mission-capable (MC) pod availability falls below requirements as stated in DOC or OPlan, the monitoring of status is changed to include serial number, status (AWP/AWM), MICAP NSN, off-base requisition numbers, and ETIC. Classification is IAW AFI 31-401.

6.1.17. Informs the flight line expediter of OAP code C and E conditions, and ensures aircraft are not operated until results of OAP sample(s) are known.

6.1.18. Notifies appropriate agencies (e.g., flight line expediter, fuel cells, munitions control, etc.) of severe weather warnings.

6.1.19. Ensures wing safety office, QA, and wing FOD monitor are notified of mishaps involving aircraft FOD, aircraft damage, or injuries resulting from aircraft maintenance.

6.1.20. In USAFE, supports the wing's participation in the ACE ACS program. Consult the SHAPE OPS-60, Status Report, ACE Aircraft Cross-Servicing Requirements and Capabilities (NATO CON-FIDENTIAL), for ACS program key points of contact. Contact HQ USAFE/LGMM for assistance.

6.1.21. When tasked by the WG/CC, maintains central key control for hardened aircraft shelters and other facilities.

6.1.22. (Added-ANG) Prepares aircraft-condition projections for reporting through SORTS. N/A to the UAE owned F-16 block 60 program.

6.1.23. (Added-ANG) MOC must coordinate, track, and assign a control number for cannibalization actions.

**6.2. MOC Personnel.** Personnel who work in the MOC must know the maintenance information system and be qualified by experience and/or formal training on at least one of the weapons systems being maintained.

6.2.1. The MOC senior coordinator establishes a well-defined proficiency training program for weapons system coordinators. Because there is no weapons system coordinator AFSC, the proficiency training program familiarizes MOC personnel with every aspect of MOC operation.

6.2.2. Selected personnel assigned to the MOC are capable of reporting aircraft status from the Minimum Essential Subsystems Lists (MESL) and in operating MIS remote devices before assuming unsupervised duties.

6.2.3. The MOC senior coordinator or representative will attend daily group production meeting.

**6.3. MOC Facilities.** The MOC should be located near the flight line. Facilities and visual aids cannot be fully standardized due to variations in buildings, geography, mission and organizational site. When deployed, units may establish an alternate maintenance operations facility. The facilities and visual aids must meet the minimum standards set forth in this publication. When improvements to existing facilities are possible or when new facilities are being planned, the following standards apply:

6.3.1. Completely enclose room, air condition and heat. An observation room is permitted. The floor of the observation room is high enough to permit seeing the status board without interference. The doors to the MOC and the observation room are either mechanically or electrically locked. Control access to both for security.

6.3.2. Isolate MOC electrical power circuits and have procedures in place for providing a standby power source and emergency lighting.

**6.4. Visual Aids.** Use visual aids to provide ready access to critical data. Computer terminals may be used in place of visual aids. If this option is used, develop procedures for retrieval of printed products on a regular basis providing contingency working documents in case of system failure. Visual aids show the following:

6.4.1. Aircraft status displays list aircraft by serial number and show location, priority, status, designed operational capability (DOC) limitations/remarks, ETIC, configuration, OAP status codes, munitions load and fuel load columns. Units having only one standard configuration or fuel load may omit these columns. Units using automated systems need to display the above information, but may use “remark” or “narrative” portions of the screen for items not listed by specific title. Show DOC limitations against Full System List (FSL) and the Basic Systems List (BSL) as itemized on the MESL in the MAJCOM supplement to AFI 21-103. Discrepancy narratives in the “DOC limitations/remarks” column should be clear, concise, accurate, and include all pertinent data (i.e., document numbers, etc.)

6.4.1. (ANG) Show DOC limitations against FSL and the BSL as itemized on the MESL on the ANG/LGM web site. N/A to the UAE owned F-16 block 60 program.

6.4.2. Format flying schedule displays to show the individual aircraft scheduled for flight each day. As a minimum, column headings show serial number, scheduled takeoff, actual takeoff, scheduled landing, actual landing, sortie configuration, call sign and remarks.

6.4.3. When required by unit mission, construct generation displays showing operational readiness inspection (ORI/IRRI/NATO TAC EVAL), SIOP, general war plan, strike, mass load, and other special mission requirements. The display shows maintenance actions required to generate aircraft in the time sequence to meet mission requirements. The format of the displays should be compatible with operational plans and command post displays.

6.4.4. Each unit assigned a mobility commitment constructs portable mobility displays to meet deployed mission needs.

**6.5. Maintenance Communications.** Reliable, redundant and effective communications systems are essential for efficient operation. These systems should provide accurate, timely, secure, programmable frequency and jam resistant communications needed to accomplish the maintenance mission in a fully deployed isolated mode. Develop and exercise communications-out procedures. People receive initial radio operating training before assuming duties involving radio operation IAW AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System;* AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum Management*; and AFI 33-202, *Computer Security*. For effective flight line operation, more non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when host tenant agreements so specify.

6.5.1. Allowance for specific radios are shown in AS 660. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110, *USAF Supply Manual*.

6.5.2. A VHF/UHF radio is authorized to provide communications between aircraft and maintenance. Aircrews will relay advance status information, IAW locally developed procedures.

6.5.2. (ANG) Secure Telephone Unit (STU) phones are authorized.

6.5.3. The following standard maintenance notification codes reflect the landing status of the aircraft being reported:

6.5.3.1. Code l - Aircraft is flyable with no additional discrepancies.

6.5.3.2. Code 2 - Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times.

6.5.3.3. Code 3 - Aircraft or system has major discrepancies in mission essential equipment that require repair or replacement before further mission assignment.

6.5.3.4. Code 4 - Aircraft or system has suspected or known radiological, chemical, or biological contamination.

6.5.3.5. Code 5 - Aircraft or system has suspected or known battle damage.

***NOTE:*** Debriefers enter code “8” in the MIS for aircraft debriefed as code “4” or “5”.

6.5.4. Each MOC has a hotline on the secondary crash phone net. When required, direct communications lines are provided to QA, munitions control, explosive ordnance disposal (EOD), airfield operations, base fire department, NDI, and the central security control. When mission requirements justify, a direct line to the control tower should be installed.

**6.6. Specialist Use and Control.** When a specialty is not available within a squadron's resources the MOC coordinates with the specialist shop to provide support. In this case, specialists are dispatched by direct communication between the MOC and the work center.

6.6.1. When a specialist is not available, the expediter asks the MOC for specialist support. Specialists report to, and are controlled by, the expediter. The expediter releases the specialists when no longer needed for the dispatched task and tells the MOC.

6.6.2. When an unscheduled maintenance requirement exists in the maintenance squadron(s), and the requirement cannot be satisfied within their resources, the work center asks the MOC for support. Dispatched personnel report to, and are controlled by, the work center supervisor. The work center supervisor releases the dispatched personnel when no longer needed and tells the MOC.

6.6.2. (ANG) Specialists must report job completions, start and stop times, ETIC slippages, and significant problems to maintenance supervision and/or the MOC.

6.6.3. MOC monitors the maintenance squadrons' specialists working on aircraft scheduled maintenance requirements. To obtain specialist support for phase, periodic or isochronal inspections, the MOC sources them from the appropriate organizations as outlined on the appropriate AF Form 2406, **Maintenance Preplan**, or MIS product. When specialists do not report to the requesting work center within 15 minutes of their scheduled start time, MOC is informed of the no-show and takes follow-up action.

**6.7. Selected Generation Aircraft.** In units where aircraft are required to meet SIOP or contingency commitments, the squadrons select the tail numbers of aircraft needed to meet requirements. Maintain visual aids that show the order aircraft should be generated. The MOC constantly monitors aircraft status and revises the pre-selected sequence as changed by the squadron. Implementation of strict security guidelines and secure voice will be maintained during these operations.

**6.8. Transient Aircraft.** The MOC keeps the status and location of all transient aircraft. Post the priority of each transient aircraft on the status board, based on the maintenance priorities listed in Table 1-1. MOC coordinates with the appropriate agency for aircraft maintenance support.

6.8.1. The MOC will contact Weapons Standardization (WS) for arming or de-arming of transient aircraft. Refer to **Chapter 16** for additional guidance.

# Chapter 7

## DOCUMENTING MAINTENANCE

**7.1. Aircraft/Equipment Forms Documentation.** Aircraft forms documentation must be accomplished IAW TOs 00-20-1 and 00-20-2.

7.1.1. When MIS systems are available, automated forms will be used. As a minimum, AFTO Form 781A, AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document*, AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document* and AFTO Form 95, **Significant Historical Data**, generated by the applicable MIS system will constitute fully automated aircraft/equipment forms. Manual forms produced by a computer program such as PerForm or JetForm do not meet the intent of automated forms.

7.1.2. The work center supervisor and section chief ensure all discrepancies, completed maintenance actions, inspections, serially controlled components, TCTOs, deferred discrepancies, etc., are documented and input in the MIS system as soon as possible, but no later than the end of the current duty day. When MIS systems are down, use MDSA developed procedures to manually document maintenance actions and ensure the appropriate MIS documentation is completed as soon as the system is operational.

7.1.3. Document support general work with 02 (wash only), 03 (scheduled inspections or maintenance), 04 (special inspections), and 09 (shop support general) prefixed work unit codes. All other support general data are not required to be input into the MIS system (TO 00-20-2).

7.1.4. All red X discrepancies will be cleared from both the aircraft forms and the MIS system prior to flight. Refer to **Chapter 18**, Mandatory Special Certification Roster (SCR) and Prerequisites, for Red X sign-off eligibility requirements. Units will develop local procedures to ensure Red X discrepancies discovered during time-sensitive maintenance accomplished during red ball, or EOR operations are input and cleared from the forms prior to flight and every effort will be made to input and clear the discrepancy in the MIS prior to flight. *NOTE*: Develop procedures to ensure that when the MIS is down, the appropriate documentation is completed as soon as the system is operational.

7.1.5. Preprinted manual aircraft forms are not authorized for use in units with an available MIS. Units may create job flow packages in the MIS to automate required documentation of repetitive complex tasks such as engine change, phase inspection, flight control maintenance, etc. Each time the governing publication changes, or at least annually, QA will alert the OPR to review appropriate job flow packages.

7.1.5. (ANG) **EXCEPTION** : QA may authorize use of preprinted manual aircraft forms during those times when the MIS in unavailable.

7.1.6. As a minimum, any Red X symbol conditions generated during the performance of an inspection (Phase, ISO, HSC, or HPO) will be entered into the MIS system and on AFTO form 781A. Minor discrepancies may be tracked on AFTO Form 349s, **Maintenance Data Collection Record** or locally developed listings. Any minor discrepancies still open at the time the “Fix” phase is complete must be entered into the AFTO Form 781A or AFTO Form 781K and the MIS system.

7.1.7. Aircraft modified for service tests will have a 3- by 5-inch red-bordered placard affixed to the front side of the AFTO Form 781F, **Aerospace Vehicle Flight Report and Maintenance Document**. The placard will state the type of modification and installed equipment.

7.1.8. Documentation prescribed in this instruction is maintained IAW AFMAN 37-123, *Management of Records,* and disposed of IAW AFMAN 37-139, *Records Disposition Schedule*.

7.1.9. Units using fully automated forms will maintain the last 7 copies of the aircraft forms in the aircraft jacket file in PS&D. When the 8th report is received, destroy the earliest record. (AFMAN 37-139, *Records Disposition Schedule*)

7.1.10. Units without a MIS system and authorized to use manual aircraft forms will maintain the current and last 3 month's worth of closed aircraft forms in the aircraft jacket file. (AFMAN 37-139, *Records Disposition Schedule*)

***NOTE:*** Locally developed data bases will not be used in lieu of CAMS or G081.

**7.2. Aircraft Document Reviews (ADR).** Aircraft AFTO Form 781-series for possessed aircraft are reviewed by flight line maintenance functions (DCC or alternate), AMU PS&D, MOF Engine Management (EM), and supply to ensure the accuracy and validity of entries**.**

***NOTE:*** In MAF units, MOF PS&D will comply with AMU PS&D requirements identified in the following paragraphs.

**7.2. (ANG) Aircraft Document Reviews (ADR).** N/A to the ANG. The following only applies to the ANG: Aircraft AFTO Form 781-series for possessed aircraft are reviewed by flightline maintenance functions (crew chief or alternate), PS&D, EM, NDI OAP Lab, and LRS to ensure the accuracy and validity of entries. **NOTE**: This applies to all ANG MOF PS&D.

7.2.1. ADRs validate and correct any errors on airframe and engine operating times and cycles, TCTO documentation, TCI component operating times, time remaining to the next inspection, backordered supply document numbers, and open and deferred discrepancies.

7.2.2. An ADR is accomplished at least every 60 days for units using fully automated AFTO 781-series forms. Units without access to a MIS system and authorized to use manual AFTO Form 781-series must accomplish an ADR at least every 30 days. Also accomplish an ADR when an aircraft is transferred (including Queen Bee), deployed for more than 30 days, before and after scheduled inspections (Phase or ISO), before and after storage, and after fatigue tests. For cannibalization aircraft, conduct ADRs at least every 30 days. MAJCOM and group commanders may shorten the ADR interval as needed.

7.2.3. ADR Procedures:

7.2.3.1. MOF PS&D creates a job standard (JST) for ADRs. AMU PS&D loads this inspection against all assigned aircraft.

7.2.3.2. AMU PS&D schedules the ADR in maintenance plans. An ADR is a scheduled maintenance action and counts in maintenance scheduling effectiveness computations.

7.2.3.3. AMU PS&D and EM validate applicable inspection, TCI, and TCTO data for correct due dates or expiration dates, airframe and engine operating times (or flight times if applicable), and appropriate symbol entry required by TO 00-20-1.

7.2.3.4. Supply runs a tail number inquiry to validate backorders and corrects any discrepancies discovered.

7.2.3.5. Maintenance personnel will correct all documentation discrepancies discovered during the ADR prior to updating the ADR Job Control Number (JCN).

**7.3. Document Management.** Documentation functions keep historical documents and maintenance data essential to planning and scheduling maintenance. The documentation activity is an essential link in the processing of related forms for TCTOs and TCIs.

7.3.1. Keep individual documents for end items, subsystems, and components in accordance with the TO 00-20-series, this instruction, automated management systems' documentation, AFI 21-103, AFI 33-322, and the applicable -6 TOs.

7.3.2. When MIS systems are available, MIS automated history will be used in place of AFTO Forms 95 to document significant historical events on aircraft, engines and equipment.

7.3.2. (ANG) MIS products that exceed manageable print size may be stored in digital format.

7.3.3. Filing and Disposition. Establish files and properly dispose of documents IAW AFI 33-322 and TO 00-20-1. Complete disposition of documents according to AFI 37-138, *Records Disposition-Procedures and Responsibilities*, as specified by AFMAN 37-139, *Records Disposition Schedule*. Equipment records may be decentralized to the section owning the equipment.

**7.4. Repeat/Recur Discrepancies.**

7.4.1. Clearing Repeat/Recur discrepancies. Clearing these types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher and/or equivalent civilian personnel can clear appropriate symbols IAW TO 00-20-1. (EXCEPTION: The MXG/CC may appoint exceptional 5-skill level SrA assigned as a Flying Crew Chief (FCC) to clear repeat/recur discrepancies).

7.4.1. (ANG) N/A to the ANG. The following only applies to the ANG: Clear Repeat/Recur discrepancies. These types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher personnel can clear the appropriate symbol IAW TO 00-20-1.

**7.5. Cannot Duplicate (CND) Discrepancies.**

7.5.1. Personnel will make every effort to duplicate the circumstances that created the reported discrepancy. The discrepancy may be cleared only after thorough troubleshooting has been accomplished. CND discrepancies will be cleared in the following manner:

7.5.1.1. When discrepancy cannot be duplicated, the technician will document "Cannot Duplicate Malfunction" (CND) in corrective action block, and clear the symbol IAW TO 00-20-1.

7.5.1.1. (ANG) N/A to the ANG. The following only applies to the ANG: When discrepancy cannot be duplicated, the technician must document troubleshooting actions and add "Can Not Duplicate Malfunction" in corrective action block. These types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher shall clear the symbol IAW TO 00-20-1.

7.5.1.2. IAW TO 00-20-1, when any corrective action involves more than one work center, personnel having the primary responsibility for repair must not initial over the symbol until personnel from all participating work centers have completed and documented their work. Each work center

must make a separate form entry referencing the original discrepancy. The additional form entries must be referenced in the corrective action block of the original discrepancy.

**7.6. Maintenance Data Systems Analysis.**

7.6.1. Data Integrity Teams. Units will form Data Integrity Teams (DIT) led by MDSA, with membership of PS&D, QA, flight line, and back shop maintenance personnel. The DIT will be the final authority in resolving any MIS entries, and therefore requires the complete backing of senior unit leadership. DIT is not required for contract or civil service maintenance organizations unless specified in the SOW.

7.6.1. (ANG) N/A to the ANG. The following only applies to the ANG: Data Integrity Teams. Units must form DIT led by MDSA, with a representative from each squadron that repairs aircraft, and participation from PS&D, the MOC, the CSSM, EM, Debrief, and QA on an as needed basis, as determined by the MDSA. The DIT shall be the final authority in resolving any MIS entries, and therefore requires the complete backing of senior unit leadership. DIT is not required for contract maintenance organizations unless specified in the SOW.

**7.7. In-Process Inspections (IPI).** An IPI is an additional inspection or verification step at a critical point in the installation, assembly, or reassembly of a system, subsystem or component. These inspections are either TO, MAJCOM, or locally directed and are accomplished by qualified personnel as identified in the SCR. The weapon system lead command as defined in AFPD 10-9, *Lead Operating Command Weapon Systems Management*, shall determine minimum IPI requirements and incorporate these requirements into applicable technical orders. Maintenance Operations (MOO/SUPT) compiles a list of squadron tasks requiring IPIs. The list must include work unit code, nomenclature, specific TO, paragraph, and step number within the technical order task where the IPI will be called for. When developing the IPI list, consult with QA on trends or problem areas that continually warrant extra supervisory attention. Squadrons submit their on- and off-equipment lists to QA for consolidation, MXG/CC approval, and publication as the group IPI listing. IPIs must be reviewed annually for applicability. All personnel must clear symbols IAW TO 00-20-1. NOTE: Some IPIs are already specified in applicable tech data. There is no requirement to include TO-directed IPI tasks in the local listing.

7.7.1. Document the IPI due in the discrepancy block of the original discrepancy or as a separate entry in the AFTO Form 781A, **Maintenance Discrepancy and Work Document**, AFTO Form 244, **Industrial/Support Equipment Record** or appropriate work document and in the MIS. If the IPI is a separate entry in the AFTO form 781A or AFTO Form 244, place the IPI on a Red X. When an IPI is a separate entry, document IPI compliance in the "Corrective Action" block of the AFTO form 781A and sign the "Inspected By" block. Ensure the original discrepancy references the page and item numbers of the IPI entries. The person performing the task enters the required IPI step and notifies a qualified IPI certifier at the appropriate step. The certifier complies with the IPI and enters their signature and employee number next to the IPI statement in the corrective action block. The qualified technician who ultimately clears the discrepancy will ensure the IPI was completed and properly documented. For maintenance actions where a different work center is required to perform an IPI, the prime work center creates a work center event (WCE) or job for the IPI. The individuals signing the Red X and IPI do not have to be the same.

7.7.2. IPI documentation for off-equipment maintenance will be accomplished as follows:

7.7.2.1. IPIs will be documented in the same manner as on-equipment IPIs, utilizing the AFTO Form 350, **Repairable Item Processing Tag**.

7.7.2.2. Document engine off-equipment IPIs in the engine work folder. IPI documentation in an automated system is not required for off-equipment engine work.

7.7.2.3. Tactical missile IPIs are documented in the Tactical Munitions Reporting System (TMRS). Ensure the step that requires the IPI and the employee number are identified on the documentation.

# Chapter 8

## MAINTENANCE SUPPLY SUPPORT

**8.1. General.** AFMAN 23-110-series manuals provide supply policies and procedures for supply support. Units supported through Combat Supply Support for Maintenance (CSSM) will use supply procedures in AFMAN 23-110, *USAF Supply Manual*. Units under the Combat Oriented Supply Organization (COSO) will follow the policies outlined in MAJCOM instructions.

**8.1. (ANG)** Within the ANG, units are supported through CSSM under the LRS. Detailed procedures for management of CSSM is outlined in AFMAN 23-110. The 162nd FW, LM Aero and UAE shall determine in local procedures UAE F-16 block 60 supply support.

8.1.1. Readiness Spares Package (RSP) Review. Maintainers have a critical role in the annual RSP review process. This role includes active Maintenance participation in the base level validation process conducted by the Logistics Readiness Squadron (LRS) and their MAJCOM during the annual RSP pre-review process in preparation for the Air Logistics Center (ALC)/System Program Division (SPD) final review. Close maintenance-supply collaboration is essential to ensure RSPs are properly sized to support contingency maintenance requirements.

**8.2. Intermediate Repair Enhancement Program (IREP).** IREP provides wing senior leadership a forum to evaluate current aircraft weapons systems resource and support status, highlight specific problem areas, focus on local repair initiatives to include the Air Force Repair Enhancement Program (AFREP) processes, and discuss ways to improve the overall repair cycle process. The MXG/CC will be the OPR for the IREP program meeting on a recurring basis (at least quarterly). This forum should include people who can resolve problems within the base repair process. Personnel from maintenance squadrons, as well as financial managers and resource advisors are critical to program success.

**8.2. (ANG) NOTE** : IAW AFI 21-123, AFREP is optional to the ANG.

8.2.1. IREP Meeting. The meeting is chaired by the Wing, Vice Wing or MXG Commander. Participants may include the following; Logistics Readiness Squadron, flight service center, representatives from maintenance units, O&M resource advisors, maintenance analysis, AFREP (if applicable), QA, and others as determined by the MXG/CC. The key to a successful IREP is active involvement of all individuals and organizations associated with the repair cycle process. At the IREP meeting the appropriate asset manager should be the focal point to lead the discussion of the key data about a specific part. Conduct IREP meetings on a recurring basis (at least quarterly) to ensure the repair cycle process is on track, to seek methods of improvements, and to apply necessary resources to get the job done. The first order of business should be a review of action items from the previous IREP meeting.

8.2.1.1. Subject Matter Review. One of the objectives of the IREP meeting is to increase overall base self-sufficiency for repair and reduce the overall cost of operations. Topics discussed vary based on local requirements, but should include key elements of asset management and costs associated with each of the maintenance stock fund divisions. The number of items reviewed in each category is determined locally. Units determine the specific format and visual aids used for presentation of following information:

8.2.1.2. Asset Profile/Top Projected MICAP Situations. An asset profile is an in-depth review of an asset identified as critical to mission accomplishment or that causes frequent MICAP situa-

tions. Data in an asset profile may include number authorized and on-hand, number repaired and not repaired, number MICAP, average repair cycle days, average AWP days, monthly demand, item cost, and financial value of assets in the repair cycle. The overall health of the assets should include reasons for MICAP situations and solutions to resolve them.

8.2.1.3. Test Station Equipment Profile. Test station in-commission time is critical to efficient repair cycle output. TMDE and other shop deficiencies may have a negative effect on the base repair cycle process. The wing should focus on actions, which maximize test station capability.

8.2.1.4. Wing Self-Sufficiency Initiatives. Initiatives include discussion of new wing, group and squadron AFREP initiatives and other local self-sufficiency repairs. Discussions must include how initiative is crossfed to appropriate depot, MAJCOM headquarters, and all other like-MDS bases.

8.2.1.5. High Cost Maintenance. Unit funded Time Compliance Technical Orders (TCTOs)/ modifications, high cost work centers, Special Purpose Recoverables Authorized Maintenance (SPRAM) back orders, financial value of parts in the repair cycle, etc.

8.2.1.6. Top CANN Items. Items with significant CANN histories. Review information which includes the number of times items were canned the last 30 days, average cannibalization occurrences over the last 6 months, projected get well date, and the time required to CANN the item.

8.2.1.7. Unit Aircraft Engine Status Review. A status review summary should include number in work, projected production date, and reasons for work stoppage.

8.2.1.8. Repair Cycle Bottlenecks. Review any area, which impedes the repair cycle process such as frozen supply records, supply, rejects, test station backlogs, personnel deficiencies, manpower shortages etc.

8.2.1.9. AWP Program. Analyze due-outs causes and back order priorities to determine if supply action is required to correct any deficiencies/problems. See also paragraph **18.6.1.**

8.2.1.10. Repair Cycle Throughput. Throughput is the average time it takes to move individual items through the repair cycle. Review/compare the 12-month average versus the current month repair cycle time (RCT) to determine if progress is being made. RCT is defined as the complete cycle from issue to repair/condemn, and turn-in or shipping of a reparable asset.

8.2.1.11. Part Store Issue Effectiveness. Percentage of aircraft parts issued from the flight line part store vs. the main warehouse. Disregard this element when supply does not segregate aircraft components into a separate warehouse.

8.2.1.12. Discuss product improvement initiatives (AFTO Form 22, *Technical Manual Change Recommendation and Reply*; AFTO Form 27, *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval*; AFTO Form 135, *Source, Maintenance and Recoverability Code Change Request*; Deficiency Reports (DRs), maintenance related Innovation Development through Employee Awareness (IDEA) forms, etc.).

**8.3. Maintenance Repair/Supply Delivery Priorities.** Use the following to establish maintenance repair priorities. Raising or lowering priorities will not necessarily require a corresponding change in the supply delivery priority. The maintenance repair priority and the supply delivery priority are normally identical. Use a less responsive supply delivery priority when the need time or date for a part does not justify the delivery priority specified. Refer to AFI 24-301, *Vehicle Operations*.

8.3.1. Priority 1. Supply delivery: Within 30 minutes. Use for primary mission aircraft within 12 hours of a scheduled launch on the following missions:

8.3.1.1. Presidential directed missions supporting U.S. forces in combat and national emergency plans and special weapons movement missions.

8.3.1.2. Aircraft alert status.

8.3.1.3. Related AGE, munitions, and munitions equipment assigned to these missions.

8.3.2. Priority 2. Supply delivery: Within 30 minutes. Use for:

8.3.2.1. Primary mission aircraft and related AGE, munitions, and munitions equipment for first 8 hours after landing or start of recovery or within 6 hours of a scheduled launch or alert.

8.3.2.2. Simulated generation during operational readiness inspections.

8.3.2.3. Primary special weapons movement mission aircraft 48 hours prior to a scheduled launch.

8.3.2.4. Aeromedical evacuation, rescue, and weather mission aircraft and related AGE, munitions and munitions equipment.

8.3.2.5. All transient Federal Aviation Administration aircraft.

8.3.2.6. Aircraft and equipment or related AGE requiring repair which is preventing or delaying student or maintenance training.

8.3.3. Priority 3. Used for:

8.3.3.1. Primary mission air vehicles, engines and related AGE, munitions and munitions equipment, undergoing scheduled or unscheduled maintenance.

8.3.3.2. Transient air vehicles not otherwise listed.

8.3.3.3. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews.

8.3.3.4. Time change requirements for nuclear weapons.

8.3.3.5. Scheduled and unscheduled maintenance of munitions which if not performed will prevent or delay mission accomplishment.

8.3.3.6. Test, Measurement and Diagnostic Equipment (TMDE) requiring emergency repair or calibration, the lack of which will prevent or delay mission accomplishment.

8.3.3.7. Spares not available in supply.

8.3.3.8. Critical end items and spares not available in supply.

8.3.3.8. (ANG) Or supply designated "priority repair" spares.

8.3.3.9. Routine maintenance of aircrew or missile training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training.

8.3.3.10. Avionics shop electronic support equipment and automated test stations.

8.3.4. Priority 4. Used for:

8.3.4.1. Routine or extensive repair of primary mission air vehicles, related AGE, and repair cycle assets.

8.3.4.2. Administrative aircraft undergoing scheduled or unscheduled maintenance.

8.3.4.3. Routine maintenance of AGE not otherwise listed above.

8.3.4.4. WRM items due maintenance or inspection.

8.3.4.5. Inspection, maintenance, and TCTO compliance of RSP or Mission Support Kits.

8.3.4.6. Scheduled calibration and unscheduled repairs on TMDE not listed above.

8.3.4.7. Extensive repair of aircrew or missile training simulator, or other training devices or related AGE.

8.3.4.8. Repair cycle assets to satisfy a MICAP condition.

8.3.5. Priority 5. Used for:

8.3.5.1. Bench stock requirements.

8.3.5.2. Fabrication and repair of aeronautical items not carrying a higher priority.

8.3.5.3. Non-tactical or non-primary mission aircraft undergoing extensive repair.

8.3.5.4. Time change requirements on non-nuclear items.

8.3.6. Priority 6. Used for fabrication and repair of non-aeronautical items, equipment, and other aeronautical requirements.

8.3.7. Priority 7. Used for spares excess to base requirements.

**8.4. Decentralized Supply Support.** The LRS commander is accountable for providing supply support in the form of parts and personnel to maintenance activities. Decentralize supply personnel and parts to the maximum extent possible. These personnel coordinate maintenance and supply actions, manage supply transactions for their assigned maintenance activity, manage the production of assets in the repair cycle, or resolve supply support problems. They assist maintenance in processing requisitions, researching sources of supply, completing DD Form 1348-6, **DoD Single Line Item Requisition System Document**, entering manual requisitions (part number only), updating exception code lists, and other peculiar maintenance supply problems.

**8.4. (ANG) Decentralized Supply Support.** N/A to the ANG. The following only applies to the ANG: Within the ANG, maintenance supply support is obtained from the CSSM section under the LRS. Customer's procedures for the management of CSSM are outlined in AFMAN 23-110. The procedures outlined below provide general responsibilities to maintenance personnel regarding their role in obtaining needed supplies and equipment to maintain combat ready aircraft. CSSM personnel shall assist maintenance in processing requisitions, researching sources of supply, completing DD Form 1348-6, *DoD Single Line Item Requisition System Document,* entering manual requisitions (part number only), updating exception code lists, and other peculiar maintenance supply problems.

**8.5. Ordering Parts.** Order aircraft parts from supply through MIS/SBSS interface. Monitor supply status on all backordered parts. Request supply assistance if status is unacceptable. Technicians ordering parts:

8.5.1. Provide required data to facilitate the issue request. See AFMAN 23-110, *USAF Supply Manual*.

8.5.2. Complete AF Form 2413, Supply Control Log, or locally developed computer log, and include supply document number and time ordered or use printouts of requests made via supply interface in lieu of AF Form 2413 or computer log.

8.5.3. See TO 00-20-1, and AFMAN 23-110, *USAF Supply Manual*, when ordering parts for transient aircraft. Use demand code N (non-recurring) for transient aircraft requests. Use demand code R (recurring) if the item is for a base assigned aircraft or for regularly scheduled transient flights.

8.5.4. Supply Discipline. Supply discipline is the responsibility of all military and civilian employees regardless of grade or position. Supervisors, at all levels, ensure the practice of good supply discipline. Train all maintenance personnel to perform supply duties related to their job. They must understand:

8.5.4.1. A repairable item is as important as a serviceable item, since the repairable may be the only part available. Therefore, promptly process repairable items.

8.5.4.2. How to assign a valid supply delivery priority to each demand. AFMAN 23-110, *USAF Supply Manual* identifies these priorities.

8.5.4.3. Actions to cancel erroneous requests.

8.5.4.3. (ANG) Notifies the Customer Service Representative (CSR) in CSSM to cancel those requests that are no longer required. Also notifies the Customer Service Representative to downgrade UJC as necessary (NMC to delay discrepancy, etc.) to save transportation costs.

8.5.4.4. Force activity designators (FAD) assigned to each Air Force unit based on the Air Force program document. Use this code with the urgency of need designator (UND) to set the requisition priority. When supporting a unit with a higher FAD, use the FAD of the supported unit.

8.5.4.5. The use of urgency justification codes (UJC).

8.5.4.5. (ANG) The proper use of the UJC on parts requests, to designate the impact and type of need. The UND is the first position of the UJC and indicates the impact of the request. The use of the following UNDs: “1”, “J”, and “A” are restricted and must be verified by the Pro Super, expediter or as designated by the MXG/CC.

8.5.4.6. How to verify and monitor backordered requests to prevent unwarranted mission limiting conditions, cannibalizations, priority abuses and wasted money. AFMAN 23-110, *USAF Supply Manual*, identifies verification requirements.

8.5.4.7. The requirement to recycle reusable containers and metals.

8.5.4.8. How to turn in excess materiel.

8.5.4.9. The importance of recording usage of an item in the supply system by processing TRNs is imperative because if the removal and replacement is not processed in supply it may never be stocked or may be under stocked.

8.5.4.10. Due In From Maintenance (DIFM) inputs are critical to recording and getting credit for proper repair cycle times. DIFM status codes are currently broken down into three categories, delayed maintenance time, repair time, and AWP time. Repair time is the only time recorded and used to determine the number of assets Logistics Readiness Squadron can stock. Not using the proper codes when they change, reduces the number of assets on base. Additionally, since credit is

not given for delayed maintenance time or AWP time these should be reduced to as near zero as possible.

8.5.4.11. The System Program Director (SPD) must approve the local purchase of all aircraft parts (Refer to AFI 64-117).

**8.6. Bench, Shop, Operating Stocks, Work Order Residue, Special Levels, and Shelf-Life Items.**

8.6.1. Bench Stock. Work center supervisors determine the contents of their bench stock. Examples of bench stock items include: nuts, bolts, cotter keys, washers, resistors, capacitors, light bulbs, sealants and batteries. Establish levels to provide 60 days usage. Retain excess material but not over 200% of the authorized quantity.

8.6.1.1. Mark bins containing 50 percent or less of the authorized quantity to facilitate monthly inventories. Do not include items coded TCTO, unacceptable for Air Force use, critical, classified or sensitive in bench stocks. Refer to AFMAN 23-110, *USAF Supply Manual* for exception data.

8.6.1.2. Maintain environmentally sensitive items in their original container. If removed from original container, place items in a sealed package and clearly mark them to prevent misidentification and misuse avoid mistakes. (e.g. seals, dessicant, filters, circuit cards, sealants)

8.6.1.3. Remove unidentifiable items, or items whose serviceability is unknown, from bench stock bins and process them as shop scrap through the Defense Reutilization and Marketing Office (DRMO).

8.6.1.4. Control and secure any precious metals displayed. Dispose of property containing precious metals in compliance with AFMAN 23-110, *USAF Supply Manual*.

8.6.1.5. Set up fixed or mobile bench stocks to provide quick and easy access to bits and pieces needed to support maintenance efforts. Ensure mobile bench stocks do not present a FOD hazard.

8.6.1.6. Identify and control the issue and turn-in of hazardous materiel/items on bench stock listings. See AFMAN 23-110, *USAF Supply Manual* for additional guidance on establishing, maintaining, and reviewing bench stocks.

8.6.2. Shop Stock. Maintain shop stock for day-to-day operations. Monitor shop stock to prevent materials from becoming excessive or outdated. Includes gas cylinders, random length bar stock, sheet metal, plastic, fabric, electrical wire, and similar items not normally included in bench stocks. Shop stock should not normally exceed 90 days usage, or the unit of issue or unit pack, whichever is greater. Store shop stock near/adjacent to bench stock items, if practical, but do not mix them together. Clearly identify materials as “Shop Stock” and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable.

8.6.3. Operating Stock. Includes connector dust covers, hydraulic line caps/plugs, and similar items that are normally recovered after use and re-used. Store operating stock near/adjacent to bench stock items, if practical, but do not mix them together. Monitor operating stock to prevent it from becoming excessive or outdated. Retain partially used bench stock items in bench stock and not in operating stock. Identify, tag, and turn in items with no forecasted use IAW AFMAN 23-110, *USAF Supply Manual*. Clearly identify items as “Operating Stock” and label them with noun, national stock number or part number (if applicable), unit of issue, and shelf-life, if applicable.

8.6.4. Work Order Residue. Includes expendable bit/piece items left over from maintenance work orders or bench stock deletions. Store work order residue near/adjacent to bench stock items, if practical, but do not mix them together. Ensure excesses are consolidated for turn-in to supply, when possible. Clearly identify items as "Work Order Residue" and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable. Control all work order residues used on or around aircraft, uninstalled engines, and AGE.

8.6.5. Adjusted Stock Levels. Adjust base supply stock levels to prevent an out of stock condition. Adjusted levels are used when the demand level or consumption is inadequate to support the requirement. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level. It may indicate a need to review demand data for accuracy. Use AF Form 1996, *Adjusted Stock Level*, to establish supply levels for support of special projects, special operating requirements, or if existing demand data is insufficient to support mission requirements. Work centers, with assistance from supply personnel, must prepare the AF Form 1996 and route it through MOO/SUPT for review prior to sending to Logistics Readiness Squadron customer service/stock control. See AFMAN 23-110, *USAF Supply Manual*, for criteria and procedures to submit these requests. Prior to submitting to LRS, ensure the AF Form 1996 contains adequate justification and is approved by the group commander. Examples of adequate justification include: seasonal material requirements, long lead-time items, unserviceable components forcing a "no fly" or NMC condition for extended periods of time and fleet-wide versus single aircraft impacts. Work centers must maintain a master file of adjusted stock levels and must follow-up on requests. Supply personnel and the appropriate work center must accomplish a validation of adjusted stock levels according to AFMAN 23-110, *USAF Supply Manual*.

8.6.6. Shelf life Items. Work centers control shelf life items in bench stock and operating/shop stock IAW AFMAN 23-110, *USAF Supply Manual*. Logistics Readiness Squadron identifies shelf life items by use of labels. This label contains the item's shelf life code . Mark Operating/Shop stock labels with the shelf-life codes and source (e.g., TO number, etc.). Contact the Supply Inspector assigned to the Distribution Flight of the Logistics Readiness Squadron to determine if shelf life conflicts exist between the various sources. Check expiration dates on issueditems and do not accept outdated items from supply. Do not open shelf life containers until needed and use the oldest items first. Recycle, reclaim, or turn-in for disposal shelf life items which are loose in the bin and expiration dates cannot be determined IAW Type I shelf life criteria. Inspect Type II shelf life items IAW applicable tech data.

**8.7. Repair Cycle Assets.** DSS personnel will monitor and control progress and status of repair cycle assets. Process repair cycle assets according to TO 00-20-3. Units establish local procedures for the control of repair cycle assets throughout the maintenance cycle. Include methods of accounting for all components and accessories, procedures for control of assets in AWP or AWM status, and procedures and responsibilities for cross cannibalization, removal of bits and pieces, and scheduling and control of repair cycle assets. Promptly process, repair, and return repairable components to the repair cycle support element. Repair assets to the fullest extent authorized within unit capabilities.

8.7.1. EOQ/XB3 Turn-In. Place EOQ/XB3 pick-up point containers in or near each maintenance work center to encourage turn-in of unneeded items. Make the containers easily accessible and visible. Work center supervisors periodically inspect containers for unauthorized items. AFMAN 23-110, *USAF Supply Manual* contains detailed procedures.

8.7.2. The requisitioning and control of TCTO kits is a supply process managed within the Logistics Readiness Squadron Repair Cycle Support Element.

**8.8. Tail Number Bins (TNB).** Place all due-out release (DOR) items in the TNB and inform the MOC and expediter (for MICAPs) or the AMU PS&D (for backordered items) that the part is in. Do not release parts from the TNB without proper documentation. Return items removed from the TNB that are not installed that duty day. Inform the production supervisor or expediter of TNB assets, which may prevent or satisfy a mission-limiting condition. TNB items used to satisfy MICAP conditions are not cannibalizations. Reorder these items and notify the expediter of the new document number. Update the aircraft forms and automated maintenance system. If supply, CSSM, or COSO creates a due-out prior to transfer of these items, notify Logistics Readiness Squadron to change the "mark-for" field on the due-out detail. Seal and store partially completed TCTO kits and parts in the TNB and mark the container or package with the tail number, serial number, or equipment identification number and TCTO number. Maintain security and control of TNB assets. Track property placed in the TNB by tail number, serial number, or equipment identification number. For each entry indicate:

8.8.1. Date received

8.8.2. Noun

8.8.3. Document number

8.8.4. Status (facilitate other maintenance (FOM), ISU/DOR, TCTO, etc.)

8.8.5. Removal information (date, time, signature, and employee number of the person who picked up the property)

8.8.6. Remarks

**8.9. Cannibalization.** Cannibalization (CANN) actions may be necessary when a not-mission capable (NMC) condition will prevent the accomplishment of a mission and the required assets are not immediately available from supply. Prior to cannibalization action, verify that the required component cannot be sourced from on-base assets within the allotted time. In addition, the cannibalization decision authority considers man-hour availability and the risks of damaging serviceable equipment. Document cannibalizations according to automated maintenance systems' documentation and process according to TO 00-20-2. Additional local guidance for cannibalization actions should identify who may authorize CANN action, restrictions, specific procedures, individual responsibilities, and documentation requirements.

8.9.1. CANN actions involving parts from ABDR aircraft, Air Force Museum aircraft, Maintenance Training Devices (MTDs), or Defense Reutilization and Marketing Office (DRMO) will not be accomplished without authorization from the Item Manager. If the part is approved for CANN, it will not be put into service until all necessary inspections (NDI, pressure checks, operational checks, etc) have been performed using specific guidance from the Item Manager to ensure proper serviceability. Parts will not be removed from static display/Air Force Museum aircraft except in accordance with AFI 84-103, *Museum System*.

8.9.2. Removal of Bit and Piece Repair Parts from Condemned Assets. Remove selected bit and piece repair parts from condemned end items. Do not remove bit and piece repair parts from XD assets returning to the depot without item manager approval. The end item manager provides condemnation authority for XD assets. Once condemnation authority for an XD asset is received from the item manager, remove all serviceable and reparable XD SRUs. Bench check all XD SRUs and process all ser-

viceables for turn-in to Logistics Readiness Squadron as "found on base." Determine if the unserviceable XD SRUs repair cost exceeds 75 percent. If repair exceeds 75 percent of cost, reinstall the SRU into the condemned LRU and turn-in the LRU to Logistics Readiness Squadron through the normal due-in from maintenance (DIFM) process. Also, remove serviceable bit and piece parts. Store XB bits and pieces as operating stock or turn-into supply.

8.9.3. Quick Reference Lists (QRL). In conjunction with Maintenance Operations Squadron (MOS), Maintenance Supply Liaison (MSL)/Dedicated Support Element (DSE) solicits and consolidates inputs from all squadrons to initiate a QRL. MSL distributes the QRL to appropriate work centers including the aircraft parts store. Accomplish review and validation at least semiannually. The review will include TO research to ensure listing of preferred items. Maintenance activities submit proposed additions to the QRL by stock and part number, work unit code, and TO, figure, and index number. Print the listing by primary air vehicle system using a local format.

8.9.4. DELETED.

8.9.4.1. DELETED.

8.9.4.2. DELETED.

8.9.4.3. DELETED.

**8.10. Equipment Items.** Continually review equipment items needed for mission accomplishment. Maintain them in a serviceable condition. Supply personnel assist equipment custodians in researching and preparing documents for gaining authorizations and ordering equipment items. Equipment custodians request equipment, tools and bench mock-ups, using AF Form 601, **Equipment Action Request**, or AF Form 2005, **Issue Turn-In Request**. Supply provides equipment custodians a custodian authorization and custody receipt listing (CA/CRL) listing all authorized and in-use equipment for each account. Check the appropriate allowance standard (AS) for authorizations. See AFMAN 23-110, *USAF Supply Manual*, for procedures on appointing equipment custodians, setting up the proper accounts, ordering, and maintaining equipment items. Organizational equipment custodians must work through Logistics Readiness Squadron to obtain a loan agreement from the Command Equipment Management Office prior to loaning organizational equipment to another installation AFMAN 23-110, *USAF Supply Manual*. Accountable equipment custodians must notify Equipment Management Element of deploying or scheduled to deploy equipment IAW AFMAN 23-110, *USAF Supply Manual*. NOTE: (This applies to Air Expeditionary Force (AEF) deployments and Non-AEF deployments). Ensure compliance with capitalized equipment procedures IAW AFMAN 23-110, *USAF Supply Manual*.

**8.11. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming.** Maintenance sections must identify items requiring functional checks, calibration, or operational flight programming prior to use by preparing a list of items, (including the repair section's organization and section code) and sending the list through the Flight/CC or Flight/Section Chief or AMU OIC/NCOIC (if applicable) and Maintenance Operations (MOO/SUPT) to the LRS chief inspector. This list shall be updated/validated semi-annually IAW AFMAN 23-110, Vol 2, Pt 2, Chapter 14. Supply issues the items using procedures in AFMAN 23-110, Vol 2, Pt 2, Chapter 14, paragraph 14.40. to repair sections when functional checks, calibration, or programming is due or when serviceability is doubtful. If a part issues requiring a functional check, ensure it is not restricted in the weapon system Dash-6 TO. Do not use an aircraft as a test bed for parts. Refer to TO 00-20-3, Section 3.9 for functional check and frequency requirements.

**8.12. Supply Points.** Establish supply points within individual work centers when time or resources required to move items dictate a need. Storage space for the supply points is provided by the supported work center. Determine management of the supply point by agreement between the group commanders. Inventory supply point assets annually. The work center supervisor assists Logistics Readiness Squadron with the reconciliation and inventory. Establishment of an aircraft parts store and/or flight service center within the maintenance complex reduces the dependence on supply points and or bench stocks. Supply maintains warehouses in both these facilities, stocking assets closer to the point of use. Expenditure of funds and manpower may be reduced by use of these facilities.

**8.13. Buildup Items.** Maintain items requiring build-up prior to use (i.e. wheels and tires) in supply points in a built-up configuration. Send items to appropriate work centers for build-up and return them to the supply point for later issue. Use AF Form 1297, **Temporary Issue Receipt**, to control assets sent for build-up when the supply point is operated by supply. Validate AF Forms 1297 daily if over 10 days old. Establish local procedures to control assets when maintenance operates the supply point and assets are sent to another organization for build-up.

**8.14. Supply Reports and Listings.** Use supply reports and listings to manage maintenance requirements. Most are provided automatically or generated after supply transactions. Request others when needed. **Attachment 2** (this instruction) lists the most common/important reports and listings.

**8.15. Special Purpose Recoverable Authorized Maintenance (SPRAM).** SPRAM assets are fault isolation spares, shop standard spares, training spares, -21 technical order (TO) spares (alternate mission equipment), test station spares, and stand alone spares. These assets are ERRC XD/XF items, which are controlled and managed as in-use supplies. A SPRAM monitor and custodian are appointed to manage these assets. The program was developed to provide Air Force maintenance leaders an automated system to maintain visibility and accountability for recoverable spares being used for other than their primary mission and that are not being reported through any other system. (Ref: AFMAN 23-110, *USAF Supply Manual* and AFI 21-103, *Equipment Inventory Status and Reporting*).

**8.15. (ANG)** Identify any additions, deletions, or changes of SPRAM assets to the equipment management section of LRS.

**8.16. Deficiency Report (DR) Exhibit** . Material deficiency report exhibit procedures for issue, turn-in, and storage are contained in TO 00-35D-54 and AFMAN 23-110, *USAF Supply Manual*. They shall be input into the Deficiency Report Entry and Mail Submitter (DREAMS) system. DREAMS is the feeder system into the Deficiency Reporting Information System (DRIS) (G021).

**8.17. Time Compliance Technical Order (TCTO) Kit Procedures.** TCTO kit management is a joint maintenance and supply responsibility according to TO 00-5-15 and AFMAN 23-110, *USAF Supply Manual*. TCTO managing agencies initiate requests for kits, parts and tool requirements (See **Chapter 15** for additional information). Transfer aircraft or equipment with TCTOs still pending completion with their applicable TCTO kits. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. AFMAN 23-110, *USAF Supply Manual*, TO 00-5-15, and TO 00-5-1 contain detailed guidance for the transfer of TCTO kits.

8.17.1. The Supply TCTO Kit Monitor:

8.17.1.1. Contacts the research element to load an item record for the TCTO upon receipt of TCTO requirements from maintenance.

8.17.1.1. (ANG) N/A to the ANG. The following only applies to the ANG: Loads the item record for the TCTO upon receipt of TCTO requirements from maintenance.

8.17.1.2. Annotates the TCTO cover memorandum, received from the QA, with the number of assets in supply, including WRM that are affected by a TCTO. (*NOTE*: For aircraft supported by contractor operated and managed base supply (COMBS), TCTO kits are stored in the COMBS until they are ready to be installed). Return a copy of the memorandum to the managing PS&D and QA.

8.17.1.3. Forwards due-out documents produced by SBSS to the managing PS&D for filing in the TCTO file.

8.17.1.4. Provides notification to the managing PS&D when locally procured parts or base-assembled kits are complete. SBSS sends the MIS a due-out status notification indicating availability.

8.17.1.5. Takes actions to correct discrepancies identified on the TCTO reconciliation listing (for example, mark-for changes, kit shortages or excesses, and delivery dates past the TCTO remove from service date).

8.17.1.6. Advises the managing PS&D on the status of incomplete kits.

**8.18. Work Center Supply Management.**

8.18.1. Maintain AF Form 2413 or AF Form 2005 recording all parts ordered from Logistics Readiness Squadron and verify status with the daily document register (D04) and the monthly due-out validation listing (M30) or use printouts of requests made via the supply interface in lieu of AF Form 2005 and AF Form 2413. On receipt of parts, discard AF Form 2005 or place in an inactive file.

8.18.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify and UJC and SRD codes.

8.18.3. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

8.18.4. Follow-up with supply personnel to resolve AWP problems.

8.18.5. Establish procedures for controlling cross-cannibalization of reparable assets to reduce AWP units.

8.18.6. Process supply items requiring a buildup before issue in a timely manner.

8.18.7. Compile a list of items requiring functional check or calibration prior to installation. Review and update at least annually.

8.18.8. Applies to aircraft systems and equipment under 3 levels of maintenance. Compile a list of direct NRTS items in coordination with maintenance squadron back shops and AFREP representative and provide it to supply for inclusion in the master direct NRTS listing. Review and update at least annually.

8.18.9. Establish a storage area for reusable containers. Consolidation with other work centers is authorized.

8.18.10. Schedule and control all repair cycle assets through the repair flights based on priority assigned.

8.18.11. Move repairable assets from work center to work center in an expedient manner. Ensure the proper documentation and container accompany the asset through the repair cycle.

**8.19. Local Manufacture.** Units publish directives outlining procedures covering the manufacture of items source coded local manufacture. Include procedures that prevent abuses, specify coordination requirements and approval authority. Local manufacturing is an essential part of unit maintenance support. The applicable end-item TO identifies items subject to local manufacture. Specific procedures are AFMAN 23-110, *USAF Supply Manual*. When developing directives:

8.19.1. Identify the approval authority for local manufacture requests.

8.19.2. Requesters use an AF Form 2005, *Issue/Turn in Request,* for supply item local requests. Use an AF Form 601, *Equipment Action Request,* for equipment requests. Provide a drawing, sample, technical data and DD Form 1348-6, *DOD Single Line Item Requisition System Document,* as required. Obtain drawings from the Base Engineering Data Service Center (EDSC). Use the Air Force engineering data program governed by AFI 21-401, *Engineering Data Storage, Distribution, and Control*.

8.19.3. Requesters coordinate with the appropriate fabricating section to determine the bits and pieces required to manufacture the item. The supply local manufacturer manager assists in verifying parts availability.

8.19.4. Requesters identify all sections that have action on the AFTO Form 350, Reparable Item Processing Tag, for items requiring multiple section processing.

**8.20. Production Scheduling.** The repair section chiefs establish a production schedule based on priorities. Logistics Readiness Squadron provides the repair cycle asset management listing (D23) to assist each repair section in this effort. The D23 is provided in both maintenance location and stock number sequence. Repair sections use the D23 to manage the flow of DIFM assets in the repair cycle and to ensure the DIFM status and location is updated.

**8.21. Control of AWP Assets and Cross-Cannibalization.** Closely control reparable assets in AWP status. Do not consolidate storage areas for AWM and AWP assets. Group commanders negotiate storage of out-sized units. Provide the supply AWP manager the DIFM document number of the AWP end item and the due-out document numbers of bits and pieces to adjust supply data base records for cross-cannibalization actions. Supply requisitions, initiates lateral support, and monitors the status of repair bits and pieces. Repair section asset managers identify unacceptable supply status impacts to the Logistics Readiness Squadron AWP manager. Supply requests disposition for assets with unavailable repair parts. Only dispose of parts on receipt of disposition authority.

**8.22. DIFM.** Repair sections use the D23 to manage the flow of DIFM assets in the repair cycle and to update DIFM status and location. If a parts request is backordered and the unserviceable DIFM item does not limit or restrict the operational capability of the end item, remove it and send it to the applicable support section for either repair, not repairable this station (NRTS) approval, or condemnation with a subsequent turn-in to supply (as a credit DIFM) according to TO 00-20-3.

**8.23. Bench Check and Repair Policy.** Maintenance sections bench check items as part of the on-equipment troubleshooting process. When workload requires, the section chief determines the priority for bench check actions. Specific procedures for bench check and repair policy are provided in TO 00-20-1. The following general guidelines apply:

8.23.1. Order required parts "fill or kill." If the part is not in stock and a MICAP condition exists, backorder the new request. Determine local repair capability before requisitioning off-base support or going lateral support.

8.23.2. Remove the suspected item, fill out the AFTO Form 350, and annotate it as repair and return. Attach AFTO Form 350 to the item; place the item in the repair cycle; and annotate the name of the repair section on the form.

8.23.3. Bench-check, repair, take NRTS action, or condemn the item. If the item is repaired or otherwise determined to be serviceable, the repair section informs the support section the item is available for pick-up so on-equipment maintenance action may resume. If the item cannot be repaired, the repair section informs the support section to initiate a backordered request and takes appropriate NRTS and condemnation action on the unserviceable asset.

**8.24. Maintenance Turn-Around Record Update (TRN) Processing.** Work centers processing TRNs maintain AF Form 2521, **Turn-Around Transaction Log**. The AFTO Form 350, Part II, is processed using the supply interface to the automated maintenance system. Verify each TRN with the D04. Use TRN procedures only when due-out document numbers cannot be established.

**8.25. Maintenance Turn-In to Supply.** Work centers must properly tag and secure repair cycle assets in their reusable container. The repair shop must comply with environmental control requirements as specified in TOs, and place documentation with the container. Include AFTO Form 350, Parts I and II, and a condition tag or label with all items turned into supply. Enter the correct action taken code on AFTO Form 350, Part II. Accomplish proper reclamation and demilitarization actions on condemned repair cycle assets.

**8.26. Destruction of TOP SECRET Material.** Destruction of TOP SECRET material requires a receipt according to AFI 31-401, Information Security Program Management. Include a copy of the destruction certificate with the turn-in documentation.

8.26.1. Provide sensitive instruments interior container protection.

8.26.2. Ensure MIS products accompany all engine serial tracked items according to TO 00-20-1, and MAJCOM directives.

8.26.3. Ensure supply signs the DD Form 1348-1.

8.26.4. Ensure a copy of the LRU/SRU historical record accompanies turn-in of all items.

**8.27. User Calibration.** Comply with TO 00-20-14 and perform calibration on TMDE designated as user responsibility in TO 33K-1-100.

**8.28. Processing the MICAP.** Process the MICAP start in Mission Capable (MICAP) Asset Sourcing System (MASS); ensure all pertinent data is included. Upgrade, downgrade and cancel MICAP requirements. (Applies to commands with a Regional Supply Squadron (RSS).

# Chapter 9

## SAFETY

**9.1. Hazards.** All managers and supervisors must incorporate Operational Risk Management (ORM) within the workplace. Identify, eliminate or control, and document hazards to minimize risk associated with uncertainty in the decision-making process. Additional guidance can be found in AFI 90-901, *Operational Risk Management Program*, and AFPAM 90-902, *Operational Risk Management Guidelines and Tools*. Managers and supervisors at all levels must recognize the sources of hazards and apply appropriate safety practices to avoid injuries to personnel and damage to equipment by following established procedures and directives, asking for help when needed, and using the appropriate personnel protective equipment (PPE). Control potential physical, fire, and health hazards by proper training prior to job accomplishment, appropriate work procedures, and supervisory controls IAW AFOSH Standards and Technical Orders.

**9.2. Hazard Abatement Program.** Implement and follow the Air Force Hazard Abatement Program to protect all Air Force personnel from work-related deaths, injuries, and occupational illnesses. Under this program, personnel identify potential hazards within the work environment. After hazards have been identified, determine the adequacy of current directives and procedures, provide appropriate training to affected personnel, and provide a method to track and control the training and hazard correction/abatement processes. See **Attachment 1** , Table A-1 for appropriate AFOSH standards, TOs, and other applicable directives. Document safety plans, actions, hazards, and personnel training with the appropriate AF forms listed below.

9.2.1. AF Form 3, **Hazard Abatement Plan**; AFI 91-301, *USAF Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Program*.

9.2.2. AF Form 55, **Employee Safety and Health Record**; AFI 91-301.

9.2.3. AF Form 457, **USAF Hazard Report**; AFI 91-202, *USAF Mishap Prevention Program*.

9.2.4. AF Form 1118, **Notice of Hazard**; AFI 91-301.

**9.3. Air Force Mishap Prevention Program.** Implement and follow AFI 91-202 to protect Air Force resources. All Air Force personnel have the responsibility under the mishap prevention program to identify workplace hazards, to include equipment and environmental situations that places Air Force personnel, equipment, or facilities at risk. After hazards have been identified, assess the risks associated with each hazard, determine and take action(s) needed to reduce the risk by: engineering the hazard out; or imposing procedural actions (operational limits, frequent inspections, protective equipment, or stopping until corrective action is taken); and/or educating and training personnel on the hazards and the safety procedures to be followed to reduce the chances of a mishap occurring. Ensure all personnel receive safety, fire protection, and health on-the job training upon initial assignment and whenever there is a change in equipment, procedures, processes or safety, fire protection, and health requirements. Well-trained and educated personnel are the greatest deterrent to mishaps in the workplace. Supervisors must document safety-related training on AF Form 55, **Employee Safety and Health Record,** IAW AFI 91-301.

**9.4. Safety Inspections.** Accomplish hazard assessment and identification through the application of occupational safety, fire prevention, and health inspections, evaluations, and surveys. Supervisors per-

form self-inspections to assess the safety environment of the unit. Most AFOSH standards contain sample checklists for unit self-inspections. Also, use locally developed checklists tailored to specific unit requirements. Wing or base-level safety, bioenvironmental engineering, fire protection, and environmental inspectors conduct unit inspections, evaluations, and surveys according to AFI 91-301 and AFI 32-7086.

9.4.1. Occupational Safety and Health Administration (OSHA) officials, as representatives of the Secretary of Labor, may conduct inspections of nonmilitary-unique workplaces and operations where Air Force civilian personnel work. (The inspections may be unannounced). OSHA inspectors may question or privately interview any employee, supervisory employee, or official in charge of an operation or workplace.

9.4.2. Federal OSHA officials may perform OSH inspections of Air Force workplaces in areas where the US holds exclusive federal jurisdiction (including government owned contractor operated facilities).

9.4.3. Authorized safety and bioenvironmental engineer officials from states without OSHA-approved OSH plans may exercise jurisdiction over contractor workplaces only when there are no OSHA standards that apply to the work in progress. State OSHA officials, operating under a federally approved plan and subject to the terms of any variance, tolerance, or exemption granted by the Department of Labor, may enforce state OSHA standards in contractor workplaces. At overseas location, local government agencies may conduct inspections of AF operations where host nation personnel are employed or contractor facilities or operations as stipulated in the status of forces or country-to-country agreement IAW AFI 91-301.

**9.5. General Safety Guidance.** Aircraft maintenance personnel are exposed to a large variety of hazardous situations, machinery, equipment, and chemicals. Most hazardous situations can be avoided by simply following procedures, asking for help when needed, and using personal protective equipment (PPE). Supervisors must be knowledgeable of the AFOSH Standards, TOs, and AF instructions applicable to their operations and ensure their personnel are educate on the safety requirements applicable to the job. Personnel work more safely and effectively when properly trained and motivated. For example, ensure personnel who work with hazardous chemical are trained as outlined in AFOSH Std 161-21, *Hazard Communications,* or most current standard, on personal protective equipment.

9.5.1. Use the general work center safety guidance in AFOSH STD 91-66*, General Industrial Operations*, AFOSH STD 91-100*, Aircraft Flight Line-Ground Operations and Activities,* and local instructions. Follow AFOSH STD 91-66 for safe practices in operation and maintenance of base facilities, such as, buildings and grounds, general housekeeping, ladders, office safety practices, emergency eyewash and showers, and finger ring policies. It also addresses safety precautions for electrical facilities and electronic equipment, such as, electrical emergency equipment, protective equipment, fire prevention, cardiopulmonary resuscitation (CPR), first aid training, clothing and jewelry. It also contains guidance for aircraft hangar operations, tool safety, material handling, fall protection, housekeeping, and operation and maintenance of compressed air systems, maintenance stands, lifting devices, and aerospace ground equipment (AGE).

**9.6. Flight line Safety.** Adhere to aircraft flight line safety guidance in AFOSH STD 91-100; TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*; and equipment TOs. AFOSH STD 91-100 contains safety guidance for towing and taxiing aircraft, aircraft jacking operations, aircraft cleaning and decontamination, aircraft tire mounting and servicing operations, flight line vehicle opera-

tions, and hot refueling. TO 00-25-172 contains safety guidance for aircraft servicing operations (all gaseous and liquid servicing), aircraft grounding and bonding, concurrent servicing operations, hot refueling, and combat or contingency operations. Follow established procedures in AFOSH Standard 48-19, Chapter 5, Hazardous Noise Program, when operating AGE or auxiliary power units.

**9.7. Work center Safety Guidance.** Follow aircraft repair shop safety guidance found in AFOSH STDs 91-66 and 91-100 and equipment TOs. AFOSH STD 91-66 contains safety guidance for particular repair shops, such as welding, parachute, paint, fiberglass repair, fabrication shops, etc. AFOSH STD 91-100 contains guidance for general shop principles, machine safeguarding and shop layout, housekeep-ing, aircraft painting and paint removal, battery equipment and charging operations. See **Attachment 1** for AFOSH standards applicable to aircraft maintenance activities.

**9.8. Flight line Driving.** Motor vehicles operating on the flight line present a clear and possible danger to aircraft, equipment, and ground personnel. Guard against carelessness, haste, and disregard of safety standards. These factors are the primary sources of collisions and personnel injury. All operators of vehicles on the flight line must first obtain training and possess a valid flight line driving permit. Follow the general safety requirements for flight line vehicle operations found in AFOSH STD 91-100 and AFJMAN 24-306, *Manual for the Wheeled Vehicle Driver,* AFI 13-213*, Airfield Management and Base Operations,* and local instructions. Familiarize all personnel authorized to operate vehicles on the flight line with the aircraft marshaling signals found in AFI 11-218.

**9.9. Munitions Safety Guidance.** Use munitions safety requirements found in AFMAN 91-201, *Explosive Safety Standards*; 11A-, 11P-, and 13A-series TOs (explosive and egress handling safety); AFI 21-112, *Aircrew Egress System Maintenance*; and specific equipment TOs. AFMAN 91-201 contains safety topics, such as, explosive safety program elements, explosive facility licenses, quantity distance criteria, handling of aircraft, remotely piloted vehicles and drones containing explosives, fire protection, storage and compatibility standards, transportation, etc. The 11A-, 11P-, and 13A-series TOs deal with the specifics of handling and maintaining explosive items or components. AFI 21-112 pertains to the handling of egress and escape systems and personnel training, certification, and decertification.

**9.10. AFOSH Guidance.** Use AFOSH standards where federal standards either do not exist, do not adequately cover a function, contain less stringent criteria, or when consolidation of information is beneficial for use in the workplace. Use Air Force functional directives and technical data in conjunction with AFOSH standards. If conflicting guidance exists, the weapon system specific technical data will take precedence. See **Attachment 1** for AFOSH standards applicable to aircraft maintenance activities.

**9.11. Lockout and Tagout Concept.** Use procedures to isolate machinery or equipment (in off-equipment areas) from all potentially hazardous energy. When the unexpected energizing, startup, or release of stored energy could cause injury, machinery or equipment is locked out or tagged out before qualified personnel perform any servicing or maintenance. Instruct all personnel in the safety significance of lockout or tagout procedures. Find complete guidance for instituting an effective program in AFOSH STD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*.

**9.12. Warning Tags.** For on-equipment aircraft maintenance, use the AF Form 1492, **Warning Tag**, to "flag" a condition that could cause damage or injury if ignored. The tag is designed to preclude the inad-

vertent activation of a system that should not be activated. Do not use the AF Form 979, **Danger Tag**, for on-equipment aircraft maintenance.

9.12.1. Use the perforated bottom portion of the tag to provide a "cross-check" with the aircraft forms. Insert this portion of the tag through the aircraft forms binder ring, aligned with its corresponding entry. Each warning tag must match an existing AFTO Form 781A entry. One AFTO Form 781A entry may contain several warning tags only if they pertain to the same discrepancy.

9.12.2. Units establish procedures for amplification of these minimum requirements.

**9.13. Danger Tags.** Will only be used when an immediate hazard exists and specific precautions are required to protect personnel or property or as required by TOs, instructions, or other directed requirements. Tags will be placed on damaged equipment and immediate arrangements made for the equipment to be taken out of service and sent to the repair shop. Do not use the AF Form 979, **Danger Tag**, for on-equipment aircraft maintenance.

**9.14. Safety Equipment.** Hazards should be engineered out, isolated, guarded against or a safer chemical used as a substitute whenever possible before considering the use of personal protective equipment (PPE). PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering or administrative controls. When PPE is required ensure personnel are provide the appropriate PPE for the hazard and are trained in its use, inspection and care. Contact the installation ground safety or bioenvironmental engineering staff for assistance in the selection of PPE. Review AFOSH Standard 91-31, *Personal Protective Equipment* for additional information on personal protective equipment.

**9.15. Confined Spaces.** A confined space is any area that is large enough to bodily enter; and has limited/restricted means of entry or exit; and is not designed for continuous human occupancy. The hazards associated with confined spaces are numerous, some example of hazards workers may encounter include atmospheric hazards such as an oxygen enriched or depleted environment; flammable, explosive and toxic gases; and engulfment or entrapment hazards. Many of these hazards are not readily apparent, detectable by odor, or visible, which may result in workers entering confined spaces without consideration of the potential dangers. Commanders, functional managers, and supervisors must ensure all confined spaces that fall under their purview are properly identified, both permit and non-permit required, and implement a confined spaces program as outlined in AFOSH Std 91-25, *Confined Spaces*. Also see AFI 48-137, *Respiratory Protective Program*, and TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, for specific requirements. Supervisor will ensure all personnel required to enter a confined space are properly trained, equipped, and qualified and that the training is documented prior to entry. For assistance in establishing an effective confined space program contact the installation ground safety office.

**9.16. Contracted Operations.** AFI 91-301, Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH), does not apply to private contractor employees or the working conditions of private contractor employees working under government contracts (see AFI 91-301, paragraph 9). Contractors are solely responsible for compliance with OSHA standards for the protection of their employees. The Air Force's interest is to protect Air Force personnel and equipment, meaning that specific safety requirements in AFOSH standards or Air Force technical orders must be complied with by contractor personnel when non-compliance would clearly present the potential to harm or damage gov-

ernment resources. Examples include, but are not limited to, the lockout/tagout program, personnel requirements for specific tasks (i.e. aircraft towing), and use of certain safety equipment that prevents personnel from becoming incapacitated and subsequently damaging resources (i.e eye protection during aircraft liquid oxygen servicing). The Air Force is not responsible for ensuring that contractors comply with "personal" safety requirements that do not present the potential to damage government resources (i.e. hearing protection, safety shoes, AF Form 55, etc.).

**9.17. (Added-ANG) Use of Cordless tools and Mag lite type flashlights on JP-8 serviced aircraft.**

9.17.1. (Added-ANG) The use of cordless tools and Mag lite type flashlights (or other battery powered tools/flashlights not approved for use in a Class I, Division I, hazardous atmosphere) are authorized for use on JP-8 serviced aircraft as long as the following is adhered to. Interiors (flight deck, fuselage etc.) are not considered a classed environment regardless if the aircraft is hangared or not.

9.17.1.1. (Added-ANG) Cordless tools must not be used during fuel servicing.

9.17.1.2. (Added-ANG) Cordless tools/lites must not be used during fuel system/tank/cell maintenance, to include removal of any panels that provide access to fuel cells/tanks, or probes, and engine enclosures.

9.17.1.3. (Added-ANG) Cordless tools must not be used within five feet of a fuel vent.

9.17.1.4. (Added-ANG) Batteries must not be charged or changed in a Class I hazardous atmosphere.

9.17.1.5. (Added-ANG) Cordless tools must not be used in the vicinity of known or suspected fuel leaks.

9.17.1.6. (Added-ANG) Mag lite type flashlights may be used for all routine maintenance actions, to include fuel servicing, as long as they are not used within 1 foot of fuel vents and are 6 volts or less.

9.17.2. (Added-ANG) A JP-8 serviced aircraft is defined as an aircraft that has been consecutively serviced with JP-8 at least four times.

9.17.3. (Added-ANG) An OI must be written to ensure cordless tools/flashlights that are not approved for use in a Class I, Division I, hazardous atmosphere are not used on non JP-8 serviced aircraft, if required.

**9.18. (Added-ANG) Use of Cell Phones and Pagers.**

9.18.1. (Added-ANG) No personally purchased communications devices shall be allowed on the flightline or in hangar floor areas (cell phones, pagers, etc.).

# Chapter 10

## QUALITY ASSURANCE (QA)

**10.1. General.** Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of quality assurance personnel, maintenance leaders, and technicians are necessary to ensure high quality maintenance production and equipment reliability. Maintenance leaders are responsible for safety of flight, safety of equipment operation, and quality maintenance production. The quality assurance staff evaluates the quality of maintenance accomplished in the maintenance organization and performs necessary functions to manage the organization's Maintenance Standardization and Evaluation Program (MSEP). The MSEP provides an objective sampling of both the quality of equipment and the qualifications of maintenance personnel. Quality assurance personnel are not an extension of the work force and shall not be tasked to perform production inspections as a portion of the MSEP. Quality assurance serves as the primary technical advisory agency in the maintenance organization, helping production supervisors and the MXG/CC to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of quality assurance. This activity identifies underlying causes of poor quality in the maintenance production effort. By finding causes of problems and recommending corrective actions to supervisors, quality assurance can significantly affect the quality of maintenance within the maintenance complex. Aircraft and equipment condition and personnel proficiency are validated through the MSEP and shall be recorded using the Quality Assurance Database (QAD) when fielded. MAJCOMs can continue to use their own systems in the interim. Civil service and contracted organizations shall use the accepted quality program outlined in their respective contract.

**10.1. (ANG)** ANG units shall use the ANG QuAD for documenting QA evaluations. Other QuAD functions may be used at the QA Chief's discretion. At local option, Management Analysis and/or Training Management may be assigned as an integrated part of QA rather than the Maintenance Operations Flight. If this option is exercised, the duties and responsibilities of Training and Analysis are specified in **Chapter 5**.

**10.2. QA Responsibilities.**

10.2.1. Responsible to the MXG/CC to perform as the primary technical advisory agency for maintenance, assisting work center supervisors.

10.2.2. Implements and administers the MSEP.

10.2.3. Manages the Product Improvement Programs (PIP) and other programs to include:

10.2.3.1. Deficiency Reporting (DR).

10.2.3.2. Product Improvement Working Group (PIWG).

10.2.3.3. R&M Working Groups.

10.2.3.4. Technical Order Distribution Office (TODO).

10.2.3.5. One-Time Inspections (OTI).

10.2.3.6. Functional Check Flight (FCF) program.

10.2.3.7. Weight and Balance (W&B) program.

10.2.3.8. Hot Refuel Program.

10.2.3.9. Aircraft and Equipment Impoundment program IAW **Chapter 11** of this instruction.

10.2.4. Reviews aircraft aborts, in-flight emergencies (IFE), and other incidents as required using MIS or MAJCOM form.

10.2.4. (ANG) Or locally developed form.

10.2.5. Assists MOF PS&D and the Munitions Flight with the Configuration Management Program IAW **Chapter 15**.

10.2.6. Assists MOF PS&D with the Time Compliance Technical Order (TCTO) program IAW **Chapter 15**.

10.2.7. Implements the unit chafing awareness program as applicable.

10.2.7. (ANG) Affected workcenters shall assist in the development and instruction of an effective chafing program.

10.2.8. Flight line weapons loading inspections/evaluations are the responsibility of Weapons Standardization (WS) evaluators. QA inspectors may augment these evaluations at the request of Weapons Standardization.

10.2.8. (ANG) N/A to the ANG. The following only applies to the ANG: Flightline weapons loading inspections/evaluations are the responsibility of WS and QA evaluators.

10.2.9. QA uses their technical expertise to assist the MXG to arrive at informed decisions when coordinating with higher headquarters, Air Force Materiel Command (AFMC), Defense Contract Management Agency (DCMA), and other outside agencies.

10.2.10. Evaluates unit maintenance management procedures, including locally developed forms, publications, operating instructions, etc., for accuracy, intent, and necessity.

10.2.11. Ensures management/evaluation of the programs in **Chapter 18** and other programs as assigned by the group commander.

10.2.12. Manages the Air Force Repair and Enhancement Program (AFREP) IAW AFI 21-123.

10.2.13. (Added-ANG) SGO evaluations as applicable.

10.2.14. (Added-ANG) JEDMICS use is optional, however if used, manage the program in accordance with ANG Policy Memorandum 21-407.

10.2.15. (Added-ANG) QAR Program, if applicable.

**10.3. QA Superintendent Responsibilities.** In addition to common responsibilities outlined in **Chapter 2**, the Quality Assurance Superintendent shall:

10.3.1. Make recommendations to the MXG/CC to enhance the quality of maintenance.

10.3.1. (ANG) Acts as the primary technical advisor within aircraft maintenance.

10.3.2. Develop the MSEP, using a Quality Assurance Tracking (QAT) program. Make every effort to fully use a LAN to provide all local supervisors access to MSEP data.

10.3.3. Act as group focal point to ensure appropriate actions are taken to notify the MAJCOM when deficiencies are found in Air Force or MAJCOM instructions.

10.3.4. Review local OIs and forms annually for accuracy, intent, and necessity.

10.3.4. (ANG) Reviews and approves all locally developed checklists, checksheets, forms, preprints, JST, and TO Local Page supplements.

10.3.5. Designate individuals to fill the following key positions:

10.3.5.1. Chief Inspector.

10.3.5.2. W&B program manager.

10.3.5.3. FCF managers.

10.3.5.4. PIM.

10.3.5.4. (ANG) PIM responsibilities may be distributed among inspectors as needed.

10.3.5.5. TODO manager.

10.3.6. Perform management inspections.

10.3.6.1. Take action to evaluate group maintenance staff functions (e.g., scheduling, training management) as well as technical activities, and ensure these areas are periodically evaluated.

10.3.7. Ensure the group portion of the FOD prevention program is conducted IAW **Chapter 18** of this instruction.

10.3.8. Oversee and implement the group impoundment program IAW **Chapter 11** of this instruction.

10.3.9. As assigned, manage and oversee the prevention of dropped objects and assist in investigating incidents IAW **Chapter 18** of this instruction.

10.3.9. (ANG) N/A to the ANG. The following only applies to the ANG: QA shall provide assistance to the safety office when investigating dropped object incidents if requested.

10.3.10. Ensure group maintenance actions relating to hot pit refueling are IAW TO 00-25-172, **Chapter 18** of this instruction, applicable technical data, and MAJCOM supplements.

10.3.11. Coordinate on requests for locally designed tools or equipment. QA must maintain records of all approved locally designed tools and equipment, including pictures or drawings, a description of the use for each item, and the owning work center. If a TO contains the option of a locally designed tool, QA does not need to coordinate or maintain the records on that tool as long as the tool remains approved by the TO (see paragraph **13.6.**). NOTE: Weapons loading and weapons maintenance locally designed equipment must be coordinated through the Wing Weapons Manager. Locally manufactured munitions equipment must meet the requirements of this instruction.

10.3.12. Monitor the aircraft structural integrity program (ASIP) IAW **Chapter 18** of this instruction.

10.3.13. Review, verify (annually), and publish group IPI listings.

10.3.14. Evaluate maintenance TO files that are kept on the aircraft (G files).

10.3.15. Monitor flight control maintenance.

10.3.16. Review wing depot-level assistance requests developed IAW TO 00-25-107.

10.3.17. In conjunction with Maintenance Operations (MOO/SUPT), develop key task and routine inspection listings, and provide copies of approved lists to all affected organizations.

10.3.18. Ensure standardized Acceptable Quality Levels (AQL)/standards are developed for all tasks including key tasks and routine inspection lists.

10.3.19. Ensure agendas and presentations are compiled for the QA review.

10.3.20. If applicable, evaluate and document contractor's performance IAW the Quality Assurance Surveillance Plan and AFI 63-124.

10.3.21. (Added-ANG) JEDMICS if applicable.

10.3.22. (Added-ANG) Monitors the Repair Enhancement program if applicable.

10.3.23. (Added-ANG) Monitors maintenance crosstells. Distributes maintenance and safety crosstell messages as applicable within the maintenance complex.

10.3.24. (Added-ANG) Reviews and monitors special certification roster for currency, qualification and applicability. Maintains a signed master copy of the SCR.

10.3.25. (Added-ANG) Controls and issues inspector stamps, when used, for QA personnel.

**10.4. QA Chief Inspector Responsibilities.** The Chief Inspector is responsible to the QA Superintendent for ensuring functions listed below are performed. The Chief Inspector may delegate day-to-day management responsibility for each area, as appropriate. Each QA Chief Inspector is responsible for appropriate section chief duties in **Chapter 2** and shall:

**10.4. (ANG)** The QA Superintendent may elect to appoint a Chief Inspector or distribute these responsibilities to individual inspectors as appropriate.

10.4.1. Provide on-the-spot assistance through assigned inspectors to correct problems.

10.4.2. Spot-check TOs, in-use inspection work cards, checklists, job guides, and code manuals during evaluations and inspections for currency and serviceability.

10.4.3. Assist the analysis section with investigations and studies.

10.4.4. Review weekly summary inputs for accuracy and content, as applicable.

10.4.5. Initiate actions when additional attention is required to resolve adverse maintenance trends or training problems. Actions include preparing crosstell information bulletins and messages for group commander release to other similarly-equipped units when necessary.

10.4.6. Review and compile inputs annually for consolidated group IPI listings. A copy of the approved IPI listing must be kept and annotated with the signature and date of review/certification. The IPI listings must be approved by MXG/CC.

10.4.7. Standardize the group's master AFTO Forms 781-series IAW TO 00-20-1.

10.4.8. Review wing depot-level assistance requests developed IAW TO 00-25-107.

10.4.9. Ensure all assigned 2W1X1, 2W0X1, 2W2X1, and 2M0X0 QA inspectors complete all required explosive safety and nuclear surety training. Additionally, load crew academic training is required initially and annually thereafter for all 2W1X1's.

10.4.10. Review Category II major discrepancies quarterly for trends. If frequency or severity of identified discrepancies warrant inclusion of that item into a specific TO governing an action or

inspection, the QA Chief Inspector must submit an AFTO Form 22 or develop a local work card, local page supplement, or checklist (TO 00-5-1).

10.4.11. Establish procedures for inspectors to document completion of inspections.

10.4.12. Determine the duties and responsibilities of inspectors.

10.4.13. Perform inspections on ground training aircraft IAW **Chapter 18** of this instruction.

**10.5. QA Inspector Responsibilities.**

**10.5. (ANG)** QA inspectors shall manage programs and perform duties as assigned by the Quality Assurance Superintendent and/or Chief Inspector, if assigned.

10.5.1. Evaluate flight line and back shop maintenance tasks and inspections (only weapons qualified inspectors with a 2W1 AFSC shall inspect 2W1 maintenance tasks).

10.5.1. (ANG) QA Inspectors may inspect 2W1 maintenance tasks. Does not apply to certification loads.

10.5.2. Enter inspection and evaluation reports into the QA Database.

10.5.3. Perform QA review of Dull Swords, Unsatisfactory Reports, DRs, and Service Reports (SR). In addition, review all AFTO Forms 22 and local operating instructions (OI).

10.5.4. Evaluate forms documentation and MIS inputs.

10.5.5. Perform WRM tank build-up evaluations or inspections (in units with a tank build-up tasking).

10.5.6. (Added-ANG) Performs evaluations and technical inspections in all maintenance functions, to include MOF and survival equipment, as directed by the MXG/CC.

10.5.7. (Added-ANG) Periodically evaluate weapons loading and other maintenance actions performed during sortie generation operations.

10.5.8. (Added-ANG) Reviews and submits wing depot-level assistance requests developed IAW TO 00-25-107.

**10.6. QA Training.**

10.6.1. Develop a local training plan to train all QA personnel, including QA augmentees, to ensure uniformity in application of inspection and evaluation (I&E) techniques and philosophy. This local training package must cover such things as setting standards for I&E techniques to facilitate objective inspections, how to properly document inspection worksheet information, and appropriate actions to take to prevent personnel injury or equipment damage if a major finding is detected. The formal QA inspector course may be used to supplement the training requirement. Document QA Inspector training in individuals' training records using the AF Form 797, *Job Qualification Standard Continuation Sheet* and/or utilize the MIS to track inspector training.

10.6.2. Conduct an Evaluator Proficiency Evaluation (EPE) on each inspector while they are performing one evaluation and one inspection. Each QA inspector shall be trained and must pass the EPE prior to performing unsupervised evaluations and inspections. All EPEs must be tracked on the SCR. Additional requirements for nuclear weapons certifying officials are located in AFI 21-204.

10.6.2.1. QA inspectors, whether permanent or augmentee, require initial qualification on EPEs. QA augmentees require an annual EPE on a personnel evaluation or technical inspection.

10.6.3. Document all training on AF Forms 797 and/or utilize the MIS. Personnel must be familiar with all tasks they evaluate/inspect. If not mandated otherwise, the Chief Inspector must determine which tasks inspectors must be JQS qualified and certified on before an evaluation or inspection is performed.

10.6.4. Ensure QA inspectors and QA augmentees complete AFI 21-112 certification before evaluating egress tasks and comply with TO 00-25-252 before evaluating welding operations.

10.6.5. QA personnel, including augmentees, who conduct engine run evaluations are not required to maintain the engine run proficiency requirements outlined in **Chapter 18** of this instruction and AFI 11-218, *Aircraft Operation and Movement on the Ground*. However, if QA evaluators run engines, they must maintain the applicable aircraft proficiency requirements.

10.6.6. QA inspectors must be trained on all associated safety requirements prior to performing inspections on fuel systems or fuel maintenance facilities IAW TO 1-1-3, *Inspection and Repair of Aircraft, Integral Tanks, and Fuel Cells*.

**10.7. QA Augmentation.** If a functional area does not warrant a full-time position in QA or specialized expertise is warranted, select qualified technicians that are recommended by their Maintenance Operations (MOO/SUPT) to be augmentees. QA must maintain a listing of current augmentees. In coordination with Maintenance Operations (MOO/SUPT), QA shall establish augmentee duties.

**10.7. (ANG)** Cross utilization of permanently assigned QA personnel should be encouraged to minimize the use of augmentees.

**10.8. Rotation of QA Personnel.** The MXG/CC is responsible for developing/executing a plan to rotate QA personnel. As a minimum, personnel must have 6 months' time in the unit before being selected as a QA inspector and must be assigned to QA for a minimum of 24 months. Personnel receiving specialized training (e.g., Weight and Balance, AFREP, etc.) should be assigned for 36 months to ensure program continuity. (Time requirements not applicable at OCONUS long and short tour locations and not applicable to ARC).

**10.8. (ANG)** N/A to the ANG except for the 116th ACW active duty personnel.

**10.9. Activity Inspections.**

10.9.1. General Information. QA must ensure all maintenance activities and staff functions are inspected at least every two years. This inspection may be accomplished as a phased inspection divided into increments and performed throughout the specified inspection cycle. The activity inspection is designed to give managers a comprehensive, objective evaluation of mission capabilities and compliance with technical and management directives for each function. The following procedures apply:

10.9.1.1. The MXG/CC must ensure the depth and detail of the activity inspection is sufficient to evaluate the management capability of the maintenance organization. This is achieved by expanding the minimum requirements outlined herein or by adding special subject items. The Quality Assurance Superintendent recommends adjustments to the requirements based on trends and prob-

lem areas identified by QA personnel, MAJCOM and Air Force IG/LSEP/MSEP inspections, or audit reports.

10.9.1.2. Activity inspections are management and compliance oriented. Management and procedural deficiencies are most often identified by investigating production problems or poor discipline resulting in excessive overtime and failure of personnel to be dispatched to a job on time. Inspectors must not only identify discipline, housekeeping, and technical discrepancies, but must also attempt to identify the underlying cause for the deficiencies.

10.9.1.3. Following a detailed compliance inspection by MAJCOM or Air Force teams, the MXG/CC may postpone a portion of the activity inspection schedule to allow activities a chance to clear identified/recorded discrepancies. If the activity inspection schedule is postponed, the MXG/CC must ensure that all activities are rescheduled for inspection within 24 months following the higher headquarters compliance inspection.

10.9.1.4. The activity inspection must encompass all flights of the organization being inspected and all facets of the operation within each flight. Whenever possible, locally required inspections conducted by outside agencies (e.g., wing safety, training, security, Logistics Readiness Squadron, base bioenvironmental/environmental, or the fire department) should be accomplished in conjunction with the Quality Assurance activity inspection. This reduces the number of disruptions to the organization being inspected and also increases the comprehensiveness of the activity inspection. The quality assurance superintendent, in conjunction with the MXG/CC, attempts to set up a concurrent inspection program with the necessary outside agencies. When these agencies are required by their governing directives to file formal reports and their inspections are performed in conjunction with the activity inspection, the findings shall be included as separate attachments to the basic report. The inspected activity must answer the activity inspection report and attachments directly to QA. QA reviews all responses and forwards the original attachments with responses to the outside agency. A copy of each attachment with responses must be filed as part of the inspection report in QA. The QA Superintendent, when determining an overall inspection rating of the organization, must consider the outside agencies' findings.

10.9.2. Activity Inspection Scheduling. Activity inspections must be scheduled and included in monthly planning. Quality assurance coordinates the inspection schedule with the Maintenance Operations Flight to ensure minimum disruption of other schedules. To facilitate preparation of the schedule, quality assurance must maintain a record that shows all activities to be inspected, date of last inspection, and the month the next inspection is due.

10.9.3. Inspection Preparation. The quality of the inspection is largely dependent upon thorough preparation for each inspection by the individual inspectors. As a minimum, preparations include the following:

10.9.3.1. Review the mission, organizational structure, current projects and programs, and past performance of the unit or activity to be inspected. Sources of information for this review include previous inspection/staff visit reports, manning authorization listings, equipment authorization and inventory documents, Allowance Standards (AS), deficiency analysis files, in-depth analysis of available automated reports or listings from the MIS and current directives applicable to the function.

10.9.4. Conducting the Inspection. The following procedures are essential to a meaningful activity inspection program.

10.9.4.1. Since an effective activity inspection program depends on the managerial knowledge and experience of the individuals conducting the inspection, team members who have specialized training in specific areas may be used to assist the activity inspection team chief. For example, the TO file expert may inspect TO files during all activity inspections, thus permitting consistent inspection coverage.

10.9.4.2. The inspection team chief initially reports to the commander (AFRC - Squadron Leadership) of the activity to be inspected. At this time, the team chief advises the commander of special subject areas to be inspected, items of concern to the squadron commander or MXG/CC, and major problem areas included in the last activity inspection report. The quality assurance superintendent must be present at the initial meeting and should visit the unit being inspected as often as possible during the inspection.

10.9.4.3. The inspection must be conducted as rapidly as possible, consistent with the depth and detail desired by the MXG/CC. The supervisor of each activity being inspected should be available within the unit to discuss suspected problem areas if required.

10.9.4.4. Inspectors must be impartial, and their comments factual. It is essential that the inspector provide specific references to the directives to support each of the findings for procedural, safety and technical discrepancies. This aids the activity supervisor in defining and correcting discrepancies. When unfavorable trends are identified a recommended solution should be given. If recommendations are the opinion of the inspector, they should be identified as such. To ensure accuracy and completeness, the inspector must record both favorable and unfavorable findings. The accuracy and completeness of the inspection report depends upon the notes taken by the inspector during the inspection. These notes must reflect the actual conditions and should include all related factors that will aid in preparing the report.

10.9.4.5. Following the inspection and before the report is published, the inspection team must brief the commander (for AFRC - Squadron Leadership) and key personnel of the inspected activity. The team should present the inspection findings, give the inspectors' impressions and recommendations, and provide information on those items that require immediate managerial attention. This briefing permits a person-to-person discussion of items of conjecture or disagreement. The quality assurance superintendent must attend this briefing and resolve any disagreement prior to finalizing the report. Supervisors must be advised of discrepancies that require prompt correction. The briefing should stress management deficiencies, when appropriate.

10.9.5. Inspection Requirements. When conducting an activity inspection, the activity inspection team headed by QA must address internal problems of the unit and problems caused by other activities outside the jurisdiction of the inspected unit. The inspection is primarily management oriented; however, portions of the inspection include a determination of technical compliance. Quality Assurance must address the following areas, as they apply to the activity:

10.9.5.1. Report discrepancies affecting production or quality of maintenance, such as excessive parts delivery time, overtime, scheduling effectiveness, or failure to use technical data.

10.9.5.2. Review the TCTO program to include scheduling, expeditious action, compliance on spares, kit availability, and documentation.

10.9.5.3. Review safety and fire prevention practices, to include compliance with Air Force 91-series instructions.

10.9.5.4. Review indicators of technical data discipline and familiarity within the activity, such as use of prescribed checklists, use of prescribed workcards, use of proper tools, calibration certification, condition of equipment or tools, technical order improvement program reporting, and the materiel deficiency reporting and investigating system.

10.9.5.5. Review the training program to include scheduling, coordination with unit training or training management, adherence to schedules, maintenance of appropriate documents, and compliance with the training procedures prescribed by this instruction.

10.9.5.6. Review technical order inspection workcards, checklists, and work unit code manuals to include checks for completeness, currency, and availability. Review the method used to advise personnel of changes received, adherence to established policy, and documentation of inspections.

10.9.5.7. Review adherence to MIS procedures to include compliance with TO 00-20 series, timeliness of forms submission, supervisory review of documents, error rates, recurring errors, documents files, maintenance turnaround (TRN) documentation for accuracy and compatibility, and the use of reports by supervisors.

10.9.5.8. Review publications and technical data files for compliance with applicable AFIs and TO 00-5-1.

10.9.5.9. Review adequacy of housekeeping practices.

10.9.5.10. Review reports to include timely and accurate submission, suspense control, procedures for review prior to submission, and coordination with other affected agencies.

10.9.5.11. Review documentation to include adequacy of files, directive compliance, condition of documents, accuracy, and documentation disposition.

10.9.5.12. Review supply procedures and discipline. Include such areas as proper use of priorities, timely turn-in of DIFM items, adequate control of bench stocks and TNB/FOM/PHR areas, and authorization for assigned equipment items.

10.9.5.13. Review the management of items requiring calibration to include currency of calibration due dates, adherence to the PMEL calibration schedule and control of items.

10.9.5.13.1. Assess TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14, Section 3.6.

10.9.5.14. Review the documents maintained by the work centers for support equipment.

10.9.5.15. Review problem areas identified in the preparation phase of the inspection.

10.9.5.16. Review management and technical procedures outlined in this instruction in all areas being inspected. Develop checksheets that include the following questions for functional areas, as applicable, and those special emphasis items most important to the unit mission:

10.9.5.16.1. Are delicate or sensitive items/documents properly protected during handling and movement?

10.9.5.16.2. Are tools and equipment adequate and serviceable to support the unit mission? Are individual and consolidated tool kits adequate to support requirements?

10.9.5.16.3. Are bench stock bins properly filled, flagged, labeled, and shelf life items properly binned and kits being controlled?

10.9.5.16.4. Are personnel properly task qualified? Are maintenance personnel performing nuclear weapon maintenance tasks properly certified IAW AFI 21-204?

10.9.5.16.5. Are cannibalization procedures being complied with as outlined by this instruction and TO 00-20-2?

10.9.5.16.6. Is correct aerospace vehicle status being reported to the MOC? Is the status being reported by MOC in accordance with AFI 21-103?

10.9.5.16.7. Is the shift supervisory distribution compatible with the work force and workload?

10.9.5.16.8. Are supervisors familiar with basic management responsibilities in this instruction?

10.9.5.16.9. Is the activity organized and managed in accordance with AFI 38-101, this instruction, and MAJCOM supplements?

10.9.5.16.10. Is the supervisor scheduling the optimum number of personnel for each shift consistent with shift workloads?

10.9.5.16.11. Is the corrective action taken on problems from previous inspection reports adequate and still valid?

10.9.5.16.12. Are proper procedures for NRTS and condemned items being followed?

10.9.5.16.13. Is war and contingency support planning current and are implementation procedures available?

10.9.5.16.14. Is data in the MIS being accurately completed and reviewed by supervisors prior to processing or filing?

10.9.5.16.15. Are locally published procedures clear and current?

10.9.5.16.16. Is the correct OFP installed on assigned aircraft and (where applicable) is the correct nuclear certified software available and/or installed on assigned aircraft and automated test equipment? A listing of nuclear certified software can be found in the Master Nuclear Certification List at website **https://wwwmil.nwd.kirtland.af.mil/MNCL/default.asp**.

10.9.5.17. Ensure management deficiencies discovered (which are beyond the unit's capability to correct) during the inspection are recorded in the inspection report and are referred to the MXG/CC for action.

10.9.6. Activity Inspection Reports. Activity inspection reports constitute the record of the inspection and subsequent corrective action. They are the vehicle by which the findings are made known to the inspected activity and to the MXG/CC. Activity inspections are subjectively rated as outstanding, excellent, satisfactory, marginal or unsatisfactory. In determining an overall rating and preparing the report, the following guidelines apply.

10.9.6.1. The report must be objective and factual with specific definitions of problem areas. If three bins were empty, the report should so state and not reflect "several bins." Appropriate directive references should also be included. The report should also contain recommended corrective action on major problem areas. If a solution is not readily apparent, or if the inspector believes one solution is better than another, the report should include appropriate comments.

10.9.6.2. Inspection findings are not all of equal importance. Some are major while others, usually the bulk of the report, are minor. When there are a number of minor discrepancies dealing with the same general subject, these items are listed below the broader deficiencies identified in the report. For example, several different instances of improperly posted technical orders should be consolidated. The consolidation may indicate a broader deficiency that may warrant upgrading to a major item category. All activity inspection reports are prepared in the following two-part format: Part I - Synopsis of Inspection Findings; Part II - Major and Minor Discrepancies. Discrepancies shall be grouped and identified as major and minor for a particular flight, section, or work center, with major discrepancies listed first. When answers are required for minor discrepancies, these items are designated by an asterisk. A discrepancy that affects the capability of the activity to effectively support the unit mission, a repeat discrepancy, or a discrepancy involving a safety problem or hazard that could result in injury to personnel or damage to equipment is identified as a major discrepancy. Sound judgment must be used when identifying a minor discrepancy as a repeat. Repeat discrepancies need not be identified as major items if the original condition has shown significant improvement. All major discrepancies require corrective action endorsements. Corrective action endorsements are not required for minor discrepancies except for asterisk items. However, supervisors are responsible for correcting all items. Corrective action must be specific and must be aimed at correcting both the cause and the specifically reported item or condition.

10.9.7. Follow-up Inspections. Depending upon the severity of discrepancies and the overall rating, the MXG/CC may direct specific follow-up inspections by quality assurance. Follow-up inspections are included in the quality assurance inspection schedule and must not cause other inspections to be delayed.

10.9.8. Other Inspections. Quality assurance must conduct follow-up inspections when a maintenance activity receives a rating of “unsatisfactory” or “marginal” during a MAJCOM LSET/MSET inspection. Re-inspect an area within 30 days after the “unsatisfactory” rating or within 60 days after the “marginal” rating is given. The results of follow-up inspections shall be forwarded to the MAJCOM LSET/MSET office by the MXG/CC. The purpose of these inspections is to verify the adequacy of corrective actions. These quality assurance inspections do not replace required activity inspections, but they may be performed concurrently.

**10.10. Maintenance Standardization and Evaluation Program (MSEP).** The MSEP is both a MAJCOM and wing/unit program to ensure maintenance organizations comply with Air Force, MAJCOM and unit directives. MSEPs may be combined with Logistics Standardization and Evaluation Programs (LSEP) which focus on supply, transportation, and logistics plans functions. However, MSEP must have separate evaluation/inspection criteria and checklists.

10.10.1. MAJCOM MSEP. MAJCOMs shall establish an office to implement, manage, and execute the command’s MSEP. The MAJCOM shall develop criteria and create a Maintenance Standardization and Evaluation Team (MSET) to evaluate subordinate wings/units for compliance. The MAJCOM MSET shall conduct recurring unit evaluations to ensure maintenance technician proficiency, equipment condition, and other command-developed focus areas are in compliance with Air Force, MAJCOM, and local maintenance and munitions policies and directives.

10.10.1. (ANG) ANG Compliance and Standardization Requirements Lists (C&SRLs) shall be used as a minimum at the unit level.

10.10.1.1. Scope of MAJCOM MSET. The MSET evaluations are not intended to duplicate MAJCOM IG UCIs. However it is acknowledged there will be some overlap of evaluated areas. While MSET/LSET evaluations are not intended to duplicate other MAJCOM inspections (e.g., IG UCIs), they may be conducted simultaneously to minimize impact on the unit being inspected.

10.10.1.1.1. Types of MSEP Evaluations and Inspections. The following types of evaluations, inspections and observations support the MSEP: Personnel Evaluations (PE), Quality Verification Inspections (QVI), Special Inspections (SI), Management Inspection (MI), Detected Safety Violations (DSV), Technical Data Violations (TDV), Unsatisfactory Condition Reports (UCR), and when directed, Other Inspections (OI). These inspection terms may differ based on MAJCOM QA Databases (QAD) until such time as a standard Air Force QAD is developed.

10.10.1.2. Organization of MAJCOM MSEP. The MAJCOM MSEP office shall have at least one permanent member on their MSET. The MSET may be a sub-organization of the LSET (also comprised of permanent members). Personnel from other MAJCOM staff agencies and/or field units may be used to augment the permanent team members.

10.10.1.3. MAJCOM MSET Evaluation Criteria. MAJCOMS shall develop standard functional checklists from AF and MAJCOM directives for use at the unit level. For evaluations of technician proficiency and equipment condition, applicable technical data is the evaluation standard.

10.10.1.4. MAJCOM MSET Grading. MSET evaluations may or may not be graded. If graded, MAJCOM MSETs should use adjective ratings (Outstanding, Excellent, Satisfactory, Marginal, and Unsatisfactory) and must report findings to the MAJCOM LG or A4. MSET will publish a final report of findings from the evaluation.

10.10.1.4. (ANG) ANG MSEPs shall not be graded.

10.10.1.4.1. Inspections and evaluations performed and graded by the MAJCOM MSET shall be rated “PASS/FAIL”. These may include over-the-shoulder evaluations of unit QA inspectors. The results of the total number of inspections accomplished during the inspection shall be assigned one of the following five tier ratings based on number of inspections passed versus completed. In addition, the results of the total number of inspections accomplished during the inspection shall be rolled up to create a cumulative rating by flight, squadron, and group.

10.10.1.4.1.1. Outstanding 95-100

10.10.1.4.1.2. Excellent 90-94.99

10.10.1.4.1.3. Satisfactory 80-89.99

10.10.1.4.1.4. Marginal 70-79.99

10.10.1.4.1.5. Unsatisfactory 0-69.99

10.10.1.4.2. Technical Data Violations (TDV) and Detected Safety Violations (DSV). Units shall be penalized for TDVs and DSVs. Deduct 0.5 percentage points for each TDV and DSV from the overall percentage grade. For example, a unit earns an overall rating of 92%, “Excellent”. However, the MSET observed 4 TDVs and 3 DSVs. The sum of the TDVs and DSVs is 7, (4+3=7). Multiply the sum (7) by 0.5, (7x0.5=3.5) and subtract the product (3.5) from the original 92%, (92-3.5=88.5). The adjusted total is 88.5%; therefore, the unit is rated “Satisfactory.”

10.10.1.4.3. For each unresolved major CAT I finding and any repeat CAT I and II findings identified by a previous MAJCOM MSET, the unit's MXG/CC must update the MAJCOM LG/A4 through the MAJCOM MSEP office at 6 month intervals until the findings are resolved. (ARC units shall follow MAJCOM guidance).

10.10.1.5. (Added-ANG) ANG MSEP. The purpose of the ANG MSEP is to evaluate key maintenance processes and personnel evaluations to ensure compliance with DoD, AF, ANG, and other directives. The MSET shall fulfill this purpose employing a combination of C&SRL reviews, QVIs, SIs, observations, and personnel evaluations. Units must be evaluated every four years.

10.10.1.5.1. (Added-ANG) MANAGEMENT OF ANG MSEP. The MSEP shall be managed ANG Logistics Readiness Division (ANG/LGRI). The ANG/LGRI shall ensure there is a sufficient amount of trained evaluators to support the MSET and shall ensure funding is available for travel and per diem for the MSET.

10.10.1.5.2. (Added-ANG) The ANG MSEP is administered by utilizing a web based tracking program to provide follow-up and ensure positive and lasting corrective actions in a timely manner. The web site shall be the primary informational interface for the ANG units and include an MSEP library for crosstell purposes.

10.10.1.6. (Added-ANG) TEAM COMPOSITION. The MSETs will be made up of a core leadership team from ANG/LGRI (Team Chief, Assistant Team Chief, and optional Administrative Support), along with approximately 19 field augmented personnel from ANG Units. **Table 10.1. (Added)**, ANG MSET Team Composition (Core from Air National Guard Readiness Center and **Table 10.2. (Added)**, ANG MSET Team Composition (from Field), lists the required functional areas and suggested number of personnel for team composition. ANG/LG functional managers retain team composition oversight by reviewing selected team member lists prior to initial evaluator training. Of the 19 field positions that are not MDS specific these may be augmented from any ANG unit, utilizing a pool of pre-identified individuals who are recognized as resident experts in their respective career fields. For Composite Wings, the MSET will consist of personnel from each of the Composite Wing's MDSs; Composite Wing MSET may include more than the recommended 19 field personnel. The MSET chief for each evaluation shall determine the final team composition.

**Table 10.1. (Added-ANG) ANG MSET Team Composition (Core from Air National Guard Readiness Center).**

| Qty | Title | MD-Specific | Remarks |
|---|---|---|---|
| 1 | Team Chief | No | Field Grade Officer |
| 1 | Assist. Team Chief | No | CMSgt |
| 1 | Admin | No | SSgt or above 3AXXO, proficient in Microsoft Office; could be civilian |
| 3 | *Subtotal* | | |

**Table 10.2. (Added-ANG) ANG MSET Team Composition (from Field).**

| Qty | Title | MD-Specific | Remarks |
|---|---|---|---|
| 1 | Maintenance Officer | Yes | |
| 1 | Maintenance Analysis | No (MDC-specific) | |
| 1 | PS&D | No | Two, if CEMS duties are performed in the unit |
| 1 | Maintenance Training | No | |
| 3 | Quality Assurance | No (TODO) | To include one TODO or a QA member proficient in TODO duties |
| 3 | AMXS | Yes | Includes one member of the three from 2W1XX for CAF units |
| 4 | CRF | Yes | To include one member from Propulsion |
| 5 | EMF | No (AGE and Munitions) | To include one member from AGE, one member from Munitions, and one member from Inspection |
| 19 | *Subtotal* | | |
| 22 | ***Total Team members*** | | |

10.10.1.6.1. (Added-ANG) ANG/LGRI shall coordinate with MDS specific MXG Advisory Council Chairs to identify the number of teams, team composition and manpower pool for team members.

10.10.1.6.2. (Added-ANG) If the team POC cannot fill all of the positions for any given Maintenance Standardization Evaluation (MSE) from the authorized evaluator pool, they are authorized to fill these positions from other MDS evaluator pools.

10.10.1.7. (Added-ANG) MSET TIMELINE. ANG/LGRI shall develop the MSET schedule and publish it annually on the ANG MSEP Web site. This schedule shall be coordinated, in advance, with each unit and must not conflict with: Inspection cycles, AEF commitments, other critical unit schedules, and the National Guard Bureau Inspector General (NGB/IG) schedule. In extreme circumstances, a unit may be able to slip their evaluation per a validated request from the unit MXG/CC and subsequent approval of ANG/LGRI. **Table 10.3. (Added)** is a general MSET timeline.

**Table 10.3. (Added-ANG) MSET Timeline**

| | |
|---|---|
| **Day One** | Team travel |
| **Day Two** | Morning team meeting<br>Unit In-briefing<br>Begin evaluation<br>Afternoon team meeting<br>Team Chief's "how goes it" with unit MXG/CC |
| **Day Three – Five** | Morning Team meeting<br>Evaluation<br>Afternoon Team meeting<br>Team Chief's "how goes it" with unit MXG/CC |
| **Day Six** | Morning Team meeting<br>Validation of findings<br>Preparation of report<br>Team Chief's "how goes it" with unit MXG/CC |
| **Day Seven** | Unit Out-briefing |
| **Day Eight** | Team Travel |

10.10.1.7.1. (Added-ANG) Six months prior to visit:

10.10.1.7.1.1. (Added-ANG) ANG/LGRI notify unit of impending MSE with projected date.

10.10.1.7.1.2. (Added-ANG) ANG/LGRI send out official notification letter to unit.

10.10.1.7.1.3. (Added-ANG) Team chief in coordination with the MDS MXG Council Chair shall appoint team POC who shall be responsible for the coordination of the MSE.

10.10.1.7.1.4. (Added-ANG) Team POC to identify available personnel using the evaluator pool list as a guide to fill shortfalls.

10.10.1.7.1.5. (Added-ANG) Evaluated unit provides ANG/LGRI with name of unit POC.

10.10.1.7.2. (Added-ANG) NLT 90 days prior to visit:

10.10.1.7.2.1. (Added-ANG) ANG/LGRI notifies team POC of the evaluated unit POC.

10.10.1.7.2.2. (Added-ANG) Team POC will confirm all members of the evaluation teams availability and assign specific C&SRLs to each team member.

10.10.1.7.2.3. (Added-ANG) Team POC starts coordination for evaluated unit support items.

10.10.1.7.2.4. (Added-ANG) ANG/LGRI shall coordinate with evaluated unit's POC to establish maximum number of observers. ANG/LGRI will then establish the priority for the observers. Priority shall be as follows: (1) Like MDS units scheduled for a MSEP or UCI within the next 12 months. (2) Members of other MSET teams (if they desire). (3) Other units interested.

10.10.1.7.3. (Added-ANG) NLT 30 days prior to visit:

10.10.1.7.3.1. (Added-ANG) Team POC confirm final Team member roster.

10.10.1.7.3.2. (Added-ANG) Team POC sends information out to team members on billeting arrangements, schedules, meeting area, and other pertinent information.

10.10.1.7.3.3. (Added-ANG) Evaluated unit POC electronically transmits or overnight mail Unit OIs and unit completed C&SRLs to the team POC. Specifically include Wing and Maintenance Group 11, 21, and 91-series instructions.

10.10.1.7.3.4. (Added-ANG) Team POC provide team/observer roster to evaluated unit POC for entry authorization list (EAL).

10.10.1.7.3.5. (Added-ANG) Team POC validates rental car requirements.

10.10.1.7.3.6. (Added-ANG) Team members begin orders and travel arrangement processing (Team members).

10.10.1.7.3.7. (Added-ANG) Evaluated unit provide team chief any unit limiting factors.

10.10.1.7.4. (Added-ANG) NLT 15 days prior to visit:

10.10.1.7.4.1. (Added-ANG) Evaluated unit POC prepares welcome packages.

10.10.1.8. (Added-ANG) MSE EXECUTION.

10.10.1.8.1. (Added-ANG) The MSE shall consist of two key areas:

10.10.1.8.1.1. (Added-ANG) A review of applicable directives with key MXG personnel. Review of all applicable C&SRLs, directives, locally developed checklists and local OIs.

10.10.1.8.1.2. (Added-ANG) PEs, QVIs, SIs and observations on selected maintenance.

10.10.1.8.2. (Added-ANG) The PE shall be selected from the maintenance being performed during the team visit with a goal of at least one PE per workcenter. No "Make work" maintenance shall be generated. If a shop is performing no maintenance during the visit, only the applicable C&SRLs and directives must be evaluated. Additional PEs shall be at the discretion of the Team Chief (e.g., the AMXS would require more than one PE).

10.10.1.9. (Added-ANG) Final Report: The team chief shall provide the MXG/CC the final report prior to leaving the base.

10.10.1.9.1. (Added-ANG) Within five days after the evaluation, the team chief shall submit a copy of the detailed report to ANG/LG. This report, at a minimum, shall consist of observations, findings, best practices, outstanding personnel, and ANG Action Items.

10.10.1.10. (Added-ANG) Corrective Actions: The unit must answer all write-ups categorized as "Findings" and report their answers to ANG/LGRI through the established web-based application. The unit shall have 30 days for critical findings and 90 days for other findings to submit their corrective actions and estimated completion dates, if required.

10.10.1.11. (Added-ANG) Team POC Responsibilities:

10.10.1.11.1. (Added-ANG) Assemble team members in coordination with the team chief.

10.10.1.11.2. (Added-ANG) Coordinate Bureau Directed Travel (BDT) for the team.

10.10.1.11.3. (Added-ANG) Distribute information and team Members Guide NLT 30 days prior.

10.10.1.11.4. (Added-ANG) Ensure team members meet minimum criteria.

10.10.1.11.5. (Added-ANG) Fill team member shortfalls from sister units.

10.10.1.11.6. (Added-ANG) Ensure team members MXG/CC approves participation.

10.10.1.11.7. (Added-ANG) Evaluate lodging and rental car requirements.

10.10.1.11.8. (Added-ANG) Closely coordinate with the team chief on unresolved shortfalls.

10.10.1.11.9. (Added-ANG) Coordinates with evaluated unit POC on evaluated base requirements (MSET workspace, computer requirements, etc.).

10.10.1.11.10. (Added-ANG) Coordinates with ANG/LGRI on all team issues.

10.10.1.11.11. (Added-ANG) Coordinate with evaluated unit POC on EAL list for team members.

10.10.1.12. (Added-ANG) Team Chief Responsibilities:

10.10.1.12.1. (Added-ANG) Reviews and approves proposed team member list.

10.10.1.12.2. (Added-ANG) Team Chief's welcome briefing to the team members.

10.10.1.12.2.1. (Added-ANG) Personal appearance.

10.10.1.12.2.2. (Added-ANG) Professional conduct.

10.10.1.12.2.3. (Added-ANG) Interpersonal relationships.

10.10.1.12.2.4. (Added-ANG) Daily meetings.

10.10.1.12.2.5. (Added-ANG) Filling out daily observation reports.

10.10.1.12.2.6. (Added-ANG) Avoiding conflicts and elevating problems.

10.10.1.12.2.7. (Added-ANG) In brief /out brief times and locations.

10.10.1.12.2.8. (Added-ANG) Travel voucher processing.

10.10.1.12.2.9. (Added-ANG) Local safety issues.

10.10.1.12.2.10. (Added-ANG) Special interest focus areas.

10.10.1.12.2.11. (Added-ANG) Brief benchmarks and honorable mentions.

10.10.1.12.3. (Added-ANG) Conduct daily morning and afternoon team meeting.

10.10.1.12.4. (Added-ANG) Conduct daily “how goes it “meetings with MXG/CC.

10.10.1.12.5. (Added-ANG) Determines and validates unit findings from team evaluations.

10.10.1.12.6. (Added-ANG) Responsible for compiling the report and writing the executive summary.

10.10.1.13. (Added-ANG) Travel. The team POC shall provide team members with travel and lodging information. Individual team members are responsible for making their own travel arrangements and when completed, provide the information to the team POC. Completed final travel voucher settlements from finance must be forwarded to ANG/LGRI office BEFORE the unit can be reimbursed funds.

10.10.1.14. (Added-ANG) Team Member Qualifications. The Team Chief shall determine the final team composition. Team Qualifications (may be adjusted by the Team Chief):

10.10.1.14.1. (Added-ANG) Must be highly proficient in their functional area of expertise.

10.10.1.14.2. (Added-ANG) 7-level NCOs or above.

10.10.1.14.3. (Added-ANG) Possess a secret security clearance and restricted area badge if required for the performance of duties.

10.10.1.14.4. (Added-ANG) Recognized functional expert by superiors and knowledgeable of evaluation procedures.

10.10.1.14.5. (Added-ANG) Demonstrates exceptional interpersonal skills.

10.10.1.14.6. (Added-ANG) Not have any adverse actions pending.

10.10.1.14.7. (Added-ANG) Must have a working knowledge of computers and Microsoft software.

10.10.1.14.8. (Added-ANG) Must attend ANG MSET training.

10.10.1.15. (Added-ANG) Evaluated Unit Support. At a minimum, evaluated unit support shall consist of the following:

10.10.1.15.1. (Added-ANG) Identify a hotel that is reasonably convenient to base and local restaurants within the local per diem lodging rate.

10.10.1.15.2. (Added-ANG) Reserve a block of rooms for the “Air National Guard MSET” based on the numbers and dates provided by the Team POC. Team members shall be responsible for calling the hotel and making their own individual reservations using their government credit card.

10.10.1.15.3. (Added-ANG) Prepare welcome package that shall be available at the check-in desk when team members arrive at the hotel. As a minimum the package should include:

10.10.1.15.3.1. (Added-ANG) Maps of the base and local area.

10.10.1.15.3.2. (Added-ANG) Directions from the hotel to the base and from the gate to the workcenter.

10.10.1.15.3.3. (Added-ANG) Information on the local area.

10.10.1.15.3.4. (Added-ANG) Unit photograph permission/restrictions for MSET.

10.10.1.15.4. (Added-ANG) Coordinate with Team POC to ensure that all team requirements are accomplished IAW this instruction.

10.10.1.15.5. (Added-ANG) Coordinate with Wing Safety office to provide Safety in-brief.

10.10.1.16. (Added-ANG) MSET Workcenter Minimum Support and Requirements.

10.10.1.16.1. (Added-ANG) One room large enough to comfortably accommodate 20-25 members of the MSET.

10.10.1.16.2. (Added-ANG) Two telephones with commercial and DSN access.

10.10.1.16.3. (Added-ANG) Copier or convenient access to one.

10.10.1.16.4. (Added-ANG) Facsimile (FAX) machine with commercial and DSN access or convenient access to one.

10.10.1.16.5. (Added-ANG) The following documents in hard copy available upon MSET arrival:

10.10.1.16.5.1. (Added-ANG) Complete set of current unit Wing and Group OIs.

10.10.1.16.5.2. (Added-ANG) Special Certification Roster.

10.10.1.16.5.3. (Added-ANG) Awaiting Action and Overdue training listing from CAMS/G081.

10.10.1.16.5.4. (Added-ANG) Current automated technical order system product.

10.10.1.16.5.5. (Added-ANG) Wing and Maintenance Group key personnel listings with duty titles, email and phone extensions.

10.10.1.16.5.6. (Added-ANG) List of all quarterly, monthly, weekly and daily maintenance meetings scheduled during the MSET visit.

10.10.1.16.5.7. (Added-ANG) EAL to all access to the flightline, munitions areas, alert and maintenance operations center (MOC) as required. Names, grade, and security clearances shall be provided to the evaluated POC in advance.

10.10.1.16.5.8. (Added-ANG) One base and local telephone book.

10.10.1.16.6. (Added-ANG) Computer support requirements are as follows:

10.10.1.16.6.1. (Added-ANG) Four Computers must be high speed processors, 3.5 and CD-ROM drives.

10.10.1.16.6.2. (Added-ANG) Computers must be loaded with current Microsoft Office® packages, Acrobat Reader ®, Internet access, Form Flow, ICS Viewer, guest email account and connectivity to the base LAN system.

10.10.1.16.6.3. (Added-ANG) High speed printer with LAN connectivity.

10.10.1.16.6.4. (Added-ANG) Convenient access to a color printer.

10.10.1.16.7. (Added-ANG) Administrative supplies:

10.10.1.16.7.1. (Added-ANG) Box of 8 1/2" x 11" paper.

10.10.1.16.7.2. (Added-ANG) Supply of notepads.

10.10.1.16.7.3. (Added-ANG) Other supplies as requested by the Team POC.

10.10.2. Unit MSEP. The unit MSEP must be designed to provide maintenance managers with a method to evaluate the unit's compliance with Air Force, MAJCOM, and local maintenance directives and policies.

10.10.2.1. Scope of the Unit MSEP. Units are responsible for developing their MSEP and conducting local inspections to ensure their programs, maintenance technician proficiency, equipment condition, and other focus areas are in compliance with Air Force, MAJCOM, and local directives.

10.10.2.1.1. Types of MSEP Evaluations and Inspections. The following types of evaluations, inspections and observations support the MSEP: Personnel Evaluations (PE), Quality Verification Inspections (QVI), Special Inspections (SI), Management Inspection (MI), Detected Safety Violations (DSV), Technical Data Violations (TDV), Unsatisfactory Condition Reports (UCR), and when directed, Other Inspections (OI). These inspection terms may differ based on MAJCOM QA Databases (QAD) until such time as a standard Air Force QAD is developed.

10.10.2.1.2. Applicability to Contract Maintenance Organizations. Although the MSEP does not apply to contract maintenance organizations, wings must ensure their contracted maintenance programs are in compliance with applicable directives through evaluations performed by the Contractor Officer Representative(s) using the criteria outlined in the Statement of Work (SOW) and Quality Assurance Surveillance Plan (QASP). When updating the SOW or QASP, review applicable directives and include/update those SOW/QASP items necessary to ensure contract maintenance organizations will comply with applicable directives and inspection criteria.

10.10.2.2. Organization of Unit MSEP. The wing's MSEP is administered by QA, which permits the MXG/CC to focus the unit program on problem areas where improvements are needed. QA plays a vital role to ensure the organizations have compliant programs through various inspections. Personnel from other MXG organizations may be used to augment the unit MSET. Units will develop a local system to track findings until closed.

10.10.2.3. Unit MSEP Evaluation Criteria. Units shall develop standard functional checklists from AF and MAJCOM directives for use at the unit level. For evaluations of technician proficiency and equipment condition, applicable technical data is the evaluation standard.

10.10.2.4. Unit MSEP Grading. Units must grade their MSEP evaluations using adjective ratings (Outstanding, Excellent, Satisfactory, Marginal, and Unsatisfactory). The unit MSEP shall publish a final report of findings from the evaluation for distribution to all inspected organizations.

10.10.2.4.1. Unit MSEP Grading Scale:

10.10.2.4.1.1. Outstanding 95-100

10.10.2.4.1.2. Excellent 90-94.99

10.10.2.4.1.3. Satisfactory 80-89.99

10.10.2.4.1.4. Marginal 70-79.99

10.10.2.4.1.5. Unsatisfactory 0-69.99

10.10.2.4.2. All inspections (Personnel Evaluations, Inspections and Special Inspections) performed by QA shall be rated "PASS/FAIL". The results of the total number of inspections, accomplished during the month (e.g., tow, pre-flight, engine run, etc.) shall be assigned one of the following five tier ratings based on number of inspections passed versus completed. For example, QA inspects 10 aircraft preflights with the following results: 8 "passes" and 2 "failures". Divide the total "passes" by the total inspections (8/10=0.80) 80% for a "Satisfactory" rating. In addition, the results of the total number of inspections accomplished during the month shall be rolled up to create a cumulative rating by flight, squadron, group as directed by the MXG/CC. For example, QA accomplishes the following inspections during the month:

| Squadron | Total Inspections | Pass | Fail | Percent | Rating |
|---|---|---|---|---|---|
| Aircraft Maintenance Squadron | 90 | 80 | 10 | 88.89 | SAT |
| Equipment Maintenance Squadron | 125 | 120 | 5 | 96.00 | OUT |
| Component Maintenance Squadron | 85 | 80 | 5 | 94.12 | EXC |
| Wing Totals | 300 | 280 | 20 | 93.33 | EXC |

NOTE. Percentages are not averaged to arrive at the wing or squadron scores. The total of passed versus the total of inspections is used to determine each level's rating.

10.10.2.4.3. Units shall be penalized for Technical Data Violations (TDV) and Detected Safety Violations (DSV). Deduct 0.5 percentage points for each TDV and DSV from the overall percentage grade. Refer to paragraph **10.10.1.3.** for an example.

10.10.3. Unit MSEP Focus Areas. The MSEP emphasizes compliance-oriented maintenance. The purpose of the MSEP is to measure how well units meet or exceed standards. QA shall assess how well units are meeting compliance goals and look for areas of opportunity for improvement. The results of the evaluations and inspections are organized into a summary. The following areas must be addressed:

10.10.3.1. Compliance with and currency of TOs and directives. Personnel at all levels are responsible and accountable for enforcing this mandatory standard. Ensure all applicable TOs and directives are complete, current, and used.

10.10.3.2. Aircraft and equipment forms documentation. Ensure forms used to document any maintenance related action for aircraft or equipment are documented according to 00-20 series TOs, specific equipment TO requirements and applicable command standards and supplements.

10.10.3.3. Aircraft and Equipment Inspections. Inspect aircraft and equipment (including munitions) according to technical orders and directives.

10.10.3.4. Compliance and Management of Safety, Environmental, and Housekeeping Programs. Personnel at all levels are responsible for minimizing risk to equipment and personnel.

10.10.3.5. Training. Verify training is correctly documented to ensure individuals are qualified to perform evaluated tasks.

10.10.3.6. Unit Directed Programs. Verify units' programs are in compliance with local directives.

10.10.3.7. Key Task List (KTL). The KTL must cover tasks that are complex and those affecting safety of flight. All maintenance actions/functions listed on the KTL must require mandatory call-in to QA each time the maintenance action/function is accomplished. QA evaluators will normally respond and perform an evaluation but on a limited basis may waive the inspection. QA must review and update the list at least annually to ensure it encompasses those maintenance actions/functions that directly affect quality of maintenance. MAJCOMs shall identify KTLs as necessary.

10.10.3.8. Routine Inspection List (RIL). MAJCOMs shall define additional RIL actions and tasks as necessary. QA shall consolidate Maintenance Operations' (MOO/SUPT) inputs/suggested changes and obtain the group commander's approval. Tasks shall not be removed from the routine list without approval from group commander. The RIL must contain the following if applicable to the group:

10.10.3.8.1. Pre-flight, thru-flight, basic post-flight, and HSC inspections.

10.10.3.8.2. Aircraft and equipment forms/MIS documentation.

10.10.3.8.3. Aircraft ground handling and servicing tasks.

10.10.3.8.4. Technical data use and currency.

10.10.3.8.5. CTK management.

10.10.3.8.6. TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14, Section 3.

10.10.3.8.7. AGE maintenance and flight line use.

10.10.3.8.8. Housekeeping.

10.10.3.8.9. Vehicles (including AF Forms 244 and/or 1800-series).

10.10.3.8.10. Aircraft and equipment washes and cleaning procedures.

10.10.3.8.11. Environmental compliance.

10.10.3.8.12. (Added-ANG) Intake/exhaust inspections.

10.10.3.8.13. (Added-ANG) F-15/F-16 Aircraft with F100-PW-100/220/220E 4K Fan Drive Turbine Module, 4th Stage Turbine Blade, Eddy Current Inspection. **NOTE**: Each qualified NDI inspector shall have at least one Personnel Evaluation performed annually.

10.10.3.9. QA must coordinate with Munitions Plans and Scheduling to ensure all required inspections are performed IAW AFI 21-201 and AFI 21-204. Additionally, QA, in coordination with the munitions flight commander or flight chief must develop quarterly standards for the following areas:

10.10.3.9.1. Munitions accountability.

10.10.3.9.2. Munitions storage practices and safety.

10.10.3.9.3. Munitions inspections.

10.10.3.9.4. Munitions material handling and test equipment.

10.10.3.9.5. Munitions stockpile management.

10.10.3.9.6. Tactical missiles records system.

10.10.3.9.7. Munitions infrastructure.

10.10.3.9.8. Munitions training programs.

10.10.3.10. Include high-missed carded items from PEs and Quality Verification Inspections (QVI) in the MSEP summary. A high-missed carded item is defined as any work card item missed at least three times during a one-month period. Units should use the high-missed carded items to enhance maintenance-training programs, detect trends, and basically improve the quality of maintenance. Analysis should review to identify any relationships with repeat, recur, and CND trends.

10.10.4. Evaluation and Inspection Plan. QA develops an evaluation and inspection plan showing areas, types, and numbers of inspections and evaluations that must be conducted. When developing the plan, QA shall:

10.10.4.1. Address the wing weapons manager and maintenance managers' areas of concern in determining inspection/evaluation priorities.

10.10.4.2. Tailor the plan for each squadron, flight, or maintenance section.

10.10.4.3. Review, formalize, and distribute the inspection or evaluation plan.

10.10.4.4. Review and update the plan.

10.10.4.5. Use appropriate statistical tools and methods to assist in determining standards.

10.10.5. Unit MSEP Evaluations and Inspections.

10.10.5.1. Personnel Evaluations (PE). A PE is an over-the-shoulder evaluation of a maintenance action or inspection by an individual or team. Use PEs to evaluate job proficiency, degree of training, and compliance with technical data. Individuals performing, supervising, or evaluating maintenance tasks are subject to a PE. Rate PEs "pass" or "fail" based on established AQLs/standards. Document the PE on AF Form 2419, *Routing and Review of Quality Control Report*, or in the QA Database.

10.10.5.1.1. When performing a PE, the QA inspector briefs the individual or team on the evaluation and how it will be rated. The PE may include an evaluation of the individual's training records, tool box, TMDE and Technical Orders. The evaluation starts when the individual or team begins the task, or portion of the task to be evaluated, and is completed when the job or previously determined portion of the task is finished. Limit the PE to the same inspection card deck or technical data required for the job. When performing an evaluation, the inspector determines if the technician or supervisor performed the job as prescribed by the published technical data and appropriate instructions. Provide feedback to the individual or team and supervision upon completion. The types of PEs are:

10.10.5.1.1.1. Individual Evaluations. This is a QA over-the-shoulder evaluation of a maintenance technician or supervisor while actually performing a job. The evaluator may start or stop the task evaluation at any step. PEs may be performed on individuals working alone or as part of a team. Evaluations must accurately assess the proficiency of each individual under evaluation.

10.10.5.1.1.2. Team Evaluations. This is a QA over-the-shoulder evaluation of maintenance supervisors and technicians completing a team task. A team task is one requiring more than one person (according to approved technical data) to complete the task. Examples could be: refueling, ECM pod up/down loading, bomb build-up, towing, weapons maintenance, pylon installation, etc. The evaluator may start or stop the task evaluation at any step.

10.10.6. Rating Personnel Evaluations. QA rates each evaluation based on AQLs/standards (see paragraph **10.11.** for AQL definitions/standards). A failed PE rating means the specific task was not performed within the established AQL/standards. The rating applies only to the specific task evaluated and not to other tasks that a technician or supervisor is qualified to perform. Upon completion of a failed evaluation, the evaluator must provide on-the-spot feedback. If the work center supervisor determines that an individual should be restricted from performing the task unsupervised, the supervisor annotates the technician's JQS or Career Field Education and Training Plan (CFETP) according to AFI 36-2201. Determine ratings as follows:

10.10.6.1. Pass: Number of discrepancies does not exceed AQL/standards.

10.10.6.2. Fail: An evaluation that results in any of the following:

10.10.6.2.1. Number of discrepancies exceeds the established AQL/standards.

10.10.6.2.2. A technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

10.10.6.2.3. A technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

10.10.6.2.4. A technician demonstrates a lack of technical proficiency or system knowledge and training is not documented.

10.10.6.2.5. A technician commits a safety violation.

10.10.6.2.6. A technician fails to document maintenance actions in appropriate equipment records.

10.10.6.2.7. For nuclear weapons maintenance, an unsatisfactory rating must be given when any of the deficiencies/applicable unsatisfactory conditions in TO 11N-25-1 *Nuclear Weapon Technical Inspections*, or AFI 21-204, *Nuclear Weapons Procedures*, exist.

10.10.7. Quality Verification Inspections (QVI). A QVI is an inspection of equipment condition or a maintenance process, an assessment following a maintenance inspection or repair action, or verification that a technician or supervisor properly completed an inspection or repair action. A QVI may be considered an after-the-fact personnel or team evaluation. QVIs shall not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. Limit QVIs to the same inspection card deck or technical data required for the job. Normally, this inspection does not require disassembling parts, removing stress panels, or like actions. A QVI for required

Dash-6 TO inspections may be accomplished by checking a portion of the required card or area. The QVI report should reflect deficiencies by the individual who accomplished the task and identify specific discrepancies. Document discrepancies in active equipment records and forms (i.e., AFTO Forms 781A, AFTO Forms 244, or AF Forms 2420, *Quality Assurance Inspection Summary*).

10.10.8. Discrepancy Categories.

10.10.8.1. Category I (CAT I). Detected discrepancies discovered during follow-up of an inspection or maintenance action. A required inspection/TO procedural item missed or improperly completed on the last inspection or maintenance action. This category is a specific work card item or TO step, note, caution or warning for a specific condition or action. Use sub-classifications of major or minor to indicate the discrepancy's relative severity.

10.10.8.2. Category II (CAT II). Readily detectable discrepancies discovered during follow-up of an inspection or maintenance action: An obvious defect, which could have been readily detected by a technician or supervisor, but is not a specific work card item or TO step, note, caution or warning for that specific evaluated task. Use sub-classification of major or minor to indicate the discrepancy's relative severity.

10.10.8.3. Definitions of major and minor.

10.10.8.3.1. A major finding is defined as a condition that would endanger personnel, jeopardize equipment or system reliability, affect safety of flight, or warrant discontinuing the process or equipment operation.

10.10.8.3.2. A minor finding is defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation.

10.10.8.4. Reporting. Report the condition of the equipment to the owning and using work centers. QA must provide a reference for identified discrepancies. Review available documents and forms including work cards, job guides, WUC manuals, checklists, AFOSH standards, and 00-series TOs. The review determines accuracy, currency, and compliance with applicable TOs.

10.10.8.5. Rating QVIs. Rate QVIs "pass" or "fail" by comparing the number of discrepancies with the established AQLs/standards.

10.10.8.5.1. Pass: Number of discrepancies does not exceed established AQL/standard.

10.10.8.5.1.1. CAT II minors shall be documented for trends but must not be counted against the AQL.

10.10.8.5.2. Fail: An inspection that results in any of the following:

10.10.8.5.2.1. A technician failed to detect a CAT I major discrepancy after completing an inspection, work card, or task requirement.

10.10.8.5.2.2. Number of CAT I minor discrepancies exceeds the established AQL/standard.

10.10.8.5.2.3. A technician failed to detect a CAT II major discrepancy after completing an inspection, work card, or task requirement.

10.10.8.5.2.4. A technician is not signed off in training records as task qualified.

10.10.8.5.3. Document the QVI on AF Form 2419, or in the QA Database. Each QVI is chargeable to the technician or supervisor who signed off/cleared the "corrected by" block or "inspected by" block of the applicable maintenance form or equipment record. When evaluating the technician who signed off the "inspected by" block, evaluate only the items normally verified by signing off the "Red-X". Only one evaluation shall be scored for each inspection.

10.10.9. Special Inspections (SI). SIs are inspections not covered by QVIs, PEs, or management inspections (MI). SIs may include, but are not limited to, aircraft and equipment forms inspections, CTKs, TO files, vehicle inspections, housekeeping, safety practices, FOD program, etc. SIs may be condition, procedural, or compliance oriented. AF Form 2419 or the QA Database may be used to document special inspections. SIs can be non-rated (e.g., courtesy inspection of jacket file, etc.). If rating a SI, rate them "pass" or "fail" based on established AQLs/standards.

10.10.9.1. Document File Inspections. Review aircraft and equipment status and historical documents for at least the previous 60 days, if available (reference AFMAN 37-139, *Records Disposition Schedule*). The inspection of munitions historical documents includes CAS records or AFTO Forms 15, *Air Munitions Serviceability and Location Record*, for location, lot number and condition entries. Report discrepancies found in historical documents to the appropriate supervisor. Do not correct discrepancies unless they are of a historical nature and can be verified from other available documents. Rate the inspections "Pass" or "Fail" based on the findings; highlight discrepancies and identify as QA inspector found. Annotate AFTO Forms 244/245, *Industrial/Support Equipment Record (Continuation Sheet)* in section IV/the supervisory review block. Document on AF Form 2419 or in a QA Database.

10.10.10. Management Inspection (MI). MIs cover a broad category. Perform these inspections to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. MXG/CC, SQ/CC, or work center supervisors request MIs. MIs may encompass PE/QVI trends and other inspection data; NMC causes; aborts and trends; in-flight emergency trends; high component or system failure rates; suspected training deficiencies, and tasks outlined in aircraft Dash-6 TOs. Report MI results to the requester, and allow them latitude to explore options prior to implementing corrective actions. MIs can be non-rated and may be counted in QA trends. Examples of MIs could be OAP procedures, EOR procedures, management of reparable components, etc.

10.10.11. Detected Safety Violations, Technical Data Violations, and Unsatisfactory Condition Reports (DSV, TDV, UCR). This category represents observed events or conditions with safety implications or technical violations not related to an inspection or evaluation, and are considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate. QA documents any of the following conditions:

10.10.11.1. Detected Safety Violation (DSV). An unsafe act by an individual. The inspector must stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a personnel evaluation since the unsafe act automatically results in a "Fail" rating on the PE. Use the word "Safety" when a safety violation is committed during a PE.

10.10.11.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use. The technician must have knowledge of all general directives associated with the job prior to performing the task. However, those directives need not be present at the job site. Do not document a separate TDV on an individual undergoing a PE, since failure to use technical data automatically results in a "Fail" rating.

10.10.11.3. Unsatisfactory Condition Report (UCR). An unsafe or unsatisfactory condition, other than a DSV, chargeable to the work center supervisor. Document discrepancies as a UCR when it is not possible to determine who created the condition.

10.10.11.4. Acceptance Inspections. Owning work centers perform acceptance inspections to determine equipment condition and adequacy of depot or contractor maintenance as prescribed by TO 00-20-1. The unit performs acceptance inspections when receiving newly assigned equipment or as a result of aircraft transferring from another unit, command, or depot. QA develops procedures for aircraft acceptance and transfer inspections. Personnel who perform acceptance inspections should be familiar with the general work requirements and knowledgeable of the contract specifications of the work performed at depot. Include procedures for:

10.10.11.4.1. Reviewing the depot/contractor maintenance contract requirements (when available locally). This does not apply to MAJCOM-sponsored programs such as PDMs.

10.10.11.4.2. Reporting discrepancies found during acceptance inspections (applicable to equipment received from depot and monitor corrective actions IAW TO 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*). DRs shall be input into DREAMS and fed into DRIS (G021). DRs are sent to the appropriate ALC and appropriate MAJCOM functional manager.

**10.11. Establishing Acceptable Quality Levels (AQL/Standards).** An AQL denotes the maximum allowable number of minor findings that a KTL task, RIL task, process, or product may be charged for the task to be rated "Pass." It must be strict enough that the task, process, or product meets an acceptable level of quality, but isn't so strict that a "pass" rating is unattainable. The AQL is derived from QA performance-based data. Units must develop procedures for determining minimum AQL levels delineating an "attainable" quality level. These levels shall comprise the AQL standards for the weapon system RILs. AQLs must be reviewed at frequencies determined by MXG/CC.

10.11.1. Failure to meet an AQL/standard results in the task being rated as "Fail".

10.11.2. AQLs/baselines for nuclear maintenance, cruise missile maintenance and nuclear weapons handling tasks are defined in AFI 21-204 as four minor errors for weapons maintenance tasks and two minor errors for weapons handling tasks, and shall not be adjusted.

**10.12. QA Database.** Every unit must capture and catalog the minimum data elements depicted in the following paragraphs into their database for trending, crosstell, and benchmarking purposes. Capture assessment and trend data using a database that makes information easily exportable for crosstell and benchmarking purposes. The Air Force is pursuing a standard QA Database (QAD). MAJCOMs can continue to use their current software until QAD is fielded. Every effort should be made to fully utilize Local Area Networks and provide all supervisors with real time access to the database. Minimum data fields contained in the database must be:

**10.12. (ANG)** ANG QuAD shall be used until QAD is fielded.

10.12.1. Work center: Input the shop code whose process was inspected.

10.12.2. Inspector: Enter the employee number of the inspector

10.12.3. Employee: Enter the employee number or equivalent of the person inspected.

10.12.4. Date: Enter the date the inspection was completed.

10.12.5. Time: Enter the time of day when the inspection took place (24-hour clock).

10.12.6. Shift: Enter the shift during which the actual work was performed.

10.12.7. Type Inspection Performed: This code reflects the inspection performed. (e.g., PE, SI, QVI, etc.)

10.12.8. Work Unit Code (WUC) or Type Event Code (TEC): This code reflects the event being evaluated (e.g., CTK, phase, etc.)

10.12.9. AQL/standards: The number of discrepancies allowed for a particular item or process (task).

10.12.10. Inspection Rating: "Pass" or "Fail".

10.12.10. (ANG) May be rated by Maintenance Supervision.

10.12.11. Equipment: Enter the type of equipment assessed.

10.12.12. Equipment ID: Enter the equipment ID. Example of this field would be A/C serial number 91-0387, SG01, etc.

10.12.13. Discrepancy Category: Identify discrepancies as: Major, Minor (CAT I, CAT II).

10.12.14. Remarks: The narrative of inspector findings.

**10.13. Monthly Summary.** QA shall consolidate the results of the unit MSEP monthly. Compile the summary from inspection data, load crew evaluation statistics (provided by WS), and summaries. The MSEP summary should include visual information, graphs, narratives, quality trends identified through inspections and evaluations, discussion of common problem areas, and descriptions of successful programs or initiatives. Include WS evaluations. Care must be taken to ensure that no classified information is included in unclassified MSEP summaries. To ensure the greatest visibility possible for MSEP summaries, classified parts must be published separately from the main summary. Although most portions of the MSEP summary will not be classified, the category of nuclear weapons stockpile, if used, must always be classified. Prior to preparing the narrative report, QA must conduct a careful study of trends. The relationship between personnel evaluation and technical inspection results may indicate strong or weak portions of the program.

**10.13. (ANG)** QA shall publish summaries at least quarterly, may be electronic.

10.13.1. Inconsistencies (e.g., excellent personnel evaluation scores and marginal equipment scores) require careful analysis to determine why high scoring technicians produce low scoring equipment. Consistently high scores in any category may indicate emphasis on that part of the program is not focused on the unit's actual problem areas. Low scoring areas may require a reassessment of the corrective actions taken by management. The monthly summary shall be published and distributed to the wing commander, MXG/CC and appropriate activities in the maintenance complex. The MSEP summary advises the wing commander of the quality of maintenance. As a minimum, the monthly narrative report must contain an analysis of the MSEP results, a summary of significant CAT I and II discrepancies, technical inspections, and recommendations for improvement.

10.13.2. Trend Analysis. Production personnel as well as Maintenance Operations (MOO/SUPT) must have unlimited read-only access to the QA Database. Review previous reports to determine if inspected areas have improved or declined. Cross talk established at routine intervals between MDSA,

Maintenance Operations (MOO/SUPT), and QA personnel is essential. Highlight trends and root causes in the summary.

**10.14. MSEP Meetings.** The unit must conduct quarterly meetings to review MSEP data. The MXG/CC shall chair the meeting. Attendees must include, as a minimum, squadron Maintenance Operations Officers/Superintendents, wing weapons managers, inspectors, and senior analysts. This meeting is a forum to refine MSEP direction, address maintenance issues and resolve problems. It provides cross-feed to all maintenance activities by reviewing QA inspections, evaluations, and trends.

**10.15. QA Programs.** This section describes QA's specific program responsibilities. QA must establish the following:

10.15.1. Product Improvement Program (PIP). The Product Improvement Manager (PIM) promotes deficiency reporting and provides a sound PIP based on inputs from maintenance activities. The PIM emphasizes and promotes product improvement and ensures maintenance personnel are familiar with them by circulating flyers/newsletters, visiting commanders calls, presenting the program at maintenance orientation briefings, and making routine visits to maintenance areas. These systems, together with the day-to-day maintenance data reporting, provide an effective method of improving the reliability and maintainability of equipment. Combined with daily maintenance data reporting, the PIP provides an effective means to improve the Reliability and Maintainability (R&M) of aircraft and equipment. PIP includes the following programs:

10.15.1.1. Configuration Management program; AF Form 1067, *Modification Proposal*; and TCTOs.

10.15.1.2. One Time Inspection (OTI) Program.

10.15.1.3. Deficiency Reporting (DR).

10.15.1.4. Improvement Reporting; AFTO Form 22 and AFTO Form 135.

10.15.1.5. R&M as applicable.

10.15.1.6. Productivity, Reliability, Availability, and Maintainability (PRAM) as applicable.

10.15.1.7. Logistic Service Tests

10.15.1.8. (Added-ANG) AFREP if applicable.

10.15.2. The PIM responsibilities include the following:

10.15.2. (ANG) The PIM is appointed by the QA Superintendent and is assigned to QA and is the wing's aircraft and equipment maintenance focal point for promoting the PIP. The QA Superintendent may elect to delegate day-to-day management of the elements of the PIP.

10.15.2.1. Deficiency Reporting (DR). DR is the process of reporting prescribed by TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*, Deficiency Reporting Entry and Mail Submitter (DREAMS), and TO 00-5-1. The PIM's DR responsibilities are:

10.15.2.1. (ANG) N/A to the UAE owned F-16 block 60 program.

10.15.2.1.1. Monitor the deficiency reporting process to ensure items are properly loaded in MIS database and are accomplished according to TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*. Warranty information is located in AFMAN 64-110. Units support-

ing reconnaissance aircraft comply with warranty deficiency report requirements according to the applicable weapons system logistics support plan (LSP).

10.15.2.1.2. Ensure compliance with acceptance inspection reporting requirements on aircraft returning from depot or contractor maintenance (TO 00-35D-54).

10.15.2.1.3. Ensure procedures are followed for submitting DRs. The DR must be adequately defined, meet the criteria of the governing instruction or TO, and must be investigated, when necessary. DRs must be submitted using DREAMS.

10.15.2.1.4. Ensure background information and precise information on suspected deficiencies are submitted.

10.15.2.1.5. Verify each report against pertinent publications and assign the appropriate precedence and category.

10.15.2.1.6. Screen reported deficiencies for possible unit-unique contributing factors. Initiate management action on unsatisfactory conditions resulting from local procedures or a lack of technical capability.

10.15.2.1.7. Perform/coordinate a technical review of deficiency reports returned to the unit without an adequate response. Determine whether to resubmit with additional information.

10.15.2.1.8. Maintain a file for all R&M deficiencies (non-quality) reported by the maintenance units, but not meeting the criteria for submission to AFMC. These deficiencies are tracked on a product improvement worksheet, according to AFI 21-118*, Improving Aerospace Equipment Reliability and Maintainability* for future PIWG action, if required for specific weapon systems.

10.15.2.1.9. Review the DR prior to releasing to the Air Logistics Center (ALC) or System Program Office (SPO) by following procedures in TO 00-35D-54. Perform exhibit-processing oversight by coordinating with ALC and Logistics Readiness Squadron to ensure proper exhibit control and handling.

10.15.2.2. AFTO Form 22 is used to submit corrections and improvements in TOs. The PIM, as a minimum, must perform the following:

10.15.2.2. (ANG) Paragraph **10.15.2.2.** and all subparagraphs through **10.15.2.4.2.** are N/A to UAE F-16 block 60 program.

10.15.2.2.1. Ensure proper evaluation is performed, and forms are properly filled out and processed IAW TO 00-5-1 and MAJCOM supplements. Weapons Standardization reviews and approves all AFTO Forms 22 for weapons loading TOs. WS must fill in Block 9 and indicate "Approval"/"Disapproval" in Block 1.

10.15.2.2.2. Assign control numbers and forward all AFTO Forms 22 via e-mail transmission or Joint Computer-Aided Acquisition Logistics Support (JCALS) to the appropriate action agency (consult TO 00-5-1 MAJCOM supplement).

10.15.2.2.3. Maintain an AFTO Form 22 suspense file. Note: approved AFTO Forms 22 do not constitute authority to deviate from established TOs.

10.15.2.2.4. Conduct a technical review of disapproved AFTO Forms 22 to determine whether to resubmit with additional information. Evaluate for submission to technical working

groups (e.g., PIWG, MDS maintainer's conferences). Dispose of disapproved AFTO Forms 22 according to AFMAN 37-139, *Records Disposition Schedule*.

10.15.2.3. AFTO Form 135, *Source, Maintenance, and Recoverability Code (SMR) Change Request*: The SMR process is a means for maintenance technicians to recommend routine and priority changes to SMR codes. DREAMS must be used to submit AFTO Forms 135. The PIM shall:

10.15.2.3.1. Process and manage AFTO Forms 135 (IAW TO 00-25-195, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment*) and track the status of AFTO Forms 135.

10.15.2.3.2. Conduct a technical review of AFTO Forms 135 returned from depots and item managers with an unsatisfactory answer to determine whether to resubmit with additional information. Evaluate for submission to technical working groups (e.g., PIWG, MDS maintainer's conferences).

10.15.2.3.3. Coordinate repair evaluation meetings when approved AFTO Forms 135 affect several agencies.

10.15.2.3.4. Serve as focal point for base level repair and manufacturing capability (base self-sufficiency). Interface with maintenance, supply, and the AFREP manager to support enhanced base repair initiatives.

10.15.2.4. Reliability and Maintainability (R&M). At the core of Air Force R&M efforts are technical working groups (e.g., PIWG, MDS maintainers conferences, Component Improvement Program). PIMs must forward inputs IAW AFI 21-118. Assessing unit R&M concerns is a twofold process. First, review all reported R&M deficiencies and determine those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Analysis and the Logistics Readiness Squadron provide the majority of this information. The PIM shall:

10.15.2.4.1. Consolidate functional area reports for each system (e.g., AGE, weapons, PMEL, avionics, engines, commodities and airframe) and prioritize proposed items for a particular system according to weighted factors in AFI 21-118. The PIM conducts R&M working group meetings with supervisors and technicians when it is determined beneficial to ensure quality inputs to technical working groups to solicit ideas to enhance product improvement. These meetings are chaired by the MXG/CC or designated representative. Prepare an agenda and keep meeting minutes.

10.15.2.4.2. Distribute technical working group minutes and ALC corrective actions to appropriate base agencies.

**10.16. Technical Order Distribution Office (TODO).** The TODO manager ensures TOs are managed according to TO 00-5-1, *Air Force Technical Order System*, and AFPD 21-3, *Technical Orders*. Establish the PMEL TODO under the control of the TMDE Flight. TO 00-5-1 provides criteria for establishing levels of TO distribution activities. Unless otherwise specified by the MAJCOM, QA must manage the 11N-series TODO account. Additionally, Group TODO offices shall control electronic technical data configuration IAW **Chapter 13**. Sub-functions of the TODO are described below.

**10.16. (ANG)** All initial distribution and requisition requirements are sent through QA for processing. Based on requirements, QA sets up TO series initial distribution requirements. This ensures receipt of

TCTOs that apply to equipment maintained, owned, or operated within the Wing. If the Wing has implemented the JCALS program, or assumed Wing TO responsibilities, QA shall ensure they are on requirements for all TCTOs series utilized within the Wing. The 162nd FW and LM Aero shall develop written procedures for Technical Publication management for the UAE F-16 block 60 program.

10.16.1. The QA Technical Order Distribution Office (TODO) manager shall:

10.16.1.1. Coordinate with the appropriate QA subject matter expert (SME) for each incoming TCTO to determine applicability.

10.16.1.2. Date stamp TCTOs to reflect the date the hard copy is received. The compliance period start date for an inspection TCTO is upon receipt of the TCTO itself, and it must be completed entirely within the stated time frame or the affected system/equipment must be removed from service. Determine applicability by aircraft serial number for aircraft TCTOs, engine serial number for engine TCTOs, and by part number or other specific criteria for commodity TCTOs. Date stamping all TCTOs with the date received indicates QA has reviewed the TCTO and that it is applicable. Only date stamped TCTOs are authorized for use. All TCTOs received from outside agencies must be routed through QA for the review process.

10.16.1.3. Provide copies of the TCTO to the work centers doing the work. Mark these TCTOs as "working copy". Do not place these working copies in a formal TO file. Upon completion of the TCTO, destroy all working copies.

10.16.1.3. (ANG) Provide a file copy of the TCTO to PS&D.

10.16.1.4. To ensure effective distribution, TODOs must ensure their office is a member of the appropriate Address Information Group (AIG)/Defense Message System (DMS) distribution lists to receive interim TCTOs. TODO must establish AIG/DMS requirements with the AIG/DMS owner as well as the local base distribution center per requirements in TO 00-5-1 and AFMAN 33-326, *Preparing Official Communications*.

10.16.1.5. Ensure all personnel working as a TODO/TODA or on behalf of a TODO/TODA are US Citizens or active duty US military.

10.16.2. QA Central TO File. As a minimum, the QA file must contain general and procedural TOs and copies of all TCTOs pertaining to the equipment owned, operated, or maintained by the group. The file is kept to meet QA requirements, not to duplicate TOs held by maintenance work centers. File TOs IAW TO 00-5-1.

10.16.3. Automated Technical Order Management System (ATOMS). In addition to its designed purpose as established in TO 00-5-1, ATOMS (automated) serves as a locator for maintenance TOs. Updates are based on information from squadron TODA requisitions.

10.16.4. TODOs on-line with Joint Computer Aided Logistic Support (JCALS) must use JCALS as the primary TO management system. All TODOs not on-line with JCALS must use ATOMS to establish and maintain records for all TOs required and distributed by organization shops and offices serviced by the TODO (IAW TO 00-5-1).

10.16.5. Local Work Cards, Job Guides, Page Supplements and Checklists. Limit use of local work cards (LWC), local job guides (LJG), local page supplements (LPS) or local checklists (LCL) to accomplish maintenance on Air Force equipment. Locally prepared technical instructions must not be used to circumvent Air Force Materiel Command's inherent responsibility for technical data (see TO

00-5-1). The TODO must review and manage all locally developed products IAW TOs 00-5-1 and MAJCOM supplements for safety and adequacy of procedures. Ensure LWCs, LJGs, LPSs, and LCLs are reviewed for currency when source reference data changes. Develop local guidance to comply with these policies.

10.16.6. Defense Message System (DMS) Maintenance. To ensure effective and timely TO and TCTO distribution, TODOs are responsible for identifying the proper addressees for message distribution to receive interim Operational/Safety supplement TCTOs. TODO must establish distribution requirements per TO 00-5-1 and AFMAN 33-326, *Preparing Official Communications*.

10.16.7. TO Change Notification. The TODO must prepare a list of all changes and revisions to indexes, TOs, inspection work cards, and checklists. This list must include TO number and date received. Publish and distribute weekly. This list must be included in the wing's weekly maintenance plan and flying schedule. Supervisors must review the list of changes and ensure all personnel are aware a change or revision has been received. Additionally, "Immediate" action TCTOs must be dealt with upon receipt, and "Urgent Action" TCTOs, safety supplements, and interim supplements must be brought to the attention of supervisors within 24 hours of receipt.

10.16.7. (ANG) This list may be published in an electronic format as part of the Weekly Maintenance Plan.

10.16.8. TO File Inspections. The QA TODO shall inspect other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. As a minimum, the TODO must use the TODO and TO Account Checklist provided in TO 00-5-1. As part of this inspection the TODO should evaluate and ensure whether the TODO/TODA has received the proper training.

10.16.8. (ANG) The QA TODO shall inspect other maintenance TODOs/TODAs in the maintenance complex at least every 24 months as part of the Activity Inspection along with performing spot checks of TO files. The TODO must follow-up within 90 days when non-compliance is noted.

**10.17. One-Time Inspections (OTI).** OTIs are normally look-only actions to verify the existence of suspected equipment conditions or malfunctions.

10.17.1. MAJCOM, NAF, and Local OTIs. Process and manage MAJCOM, NAF, or local OTIs with the same procedures as a TCTO issued from ALC. HQ, NAF, or MXG commanders initiate OTIs. OTIs are issued with a data code consisting of a unique alpha prefix and a six character sequence number. MAJCOM OTI data codes shall begin with the second character of their command sequence code (i.e., C for ACC, V for AFSOC, etc.). NAF OTIs shall begin with N, and local OTIs shall begin with L. For MACOM and NAF OTIs, the six remaining characters identify the year, month, and a sequence number. For example, C030601: is the first ACC OTI issued during June 2003. For local OTIs, the six remaining characters identify the originating wing, year issued, and a sequence number (e.g., LXX0301: L for local OTI, XX for tail designation, 03 for the year 2003, and 01 for the first in the sequence). The data code is used to report and control OTI compliance.

10.17.1. (ANG) For G081 users, the first two characters shall be the base specific logical terminal (LTERM) as dictated by G081 management. The six remaining characters identify the year, and a sequence number. For example, data code is ST for Stewart, next two characters are the year, and the remainder is the OTI issued that year chronologically. Therefore the first OTI issued by Stewart in CY 2004 would be ST040001.

10.17.1.1. OTI Contents. Minimum contents include statements of:

10.17.1.1.1. Title.

10.17.1.1.2. Applicable Equipment.

10.17.1.1.3. Date OTI was issued.

10.17.1.1.4. Data Code.

10.17.1.1.5. Type or category (i.e., immediate, urgent, routine action).

10.17.1.1.6. Background, purpose, or reason.

10.17.1.1.7. Compliance period.

10.17.1.1.8. Remove from service date.

10.17.1.1.9. Recession date.

10.17.1.1.10. By whom to be accomplished (AFSC and man-hours required).

10.17.1.1.11. Tools required.

10.17.1.1.12. How work is to be accomplished (give detailed and specific step-by-step instructions).

10.17.1.1.13. Operational checks (if required to verify operational status, list TO references).

10.17.1.1.14. Record actions.

10.17.1.1.15. Compliance reporting (MAJCOMs may require periodic status).

10.17.1.1.16. OPR (the OTI's drafter; include name and telephone number).

10.17.2. OTI Distribution. OTIs are sent to all applicable organizations. The MXG/CC shall determine cross-tell value for OTIs to lead commands for the equipment or MDS.

10.17.2. (ANG) The Quality Assurance Superintendent shall determine crosstell value for OTIs to lead commands for the equipment or MDS.

**10.18. Configuration Management (CM) and Modification.** QA is responsible for monitoring the CM and modification process. This includes reviewing, submitting and tracking unit modification proposals being worked by MAJCOMs, and ensuring proper implementation of approved modification instructions or TCTOs. Follow procedures outlined in **Chapter 15** for specific QA responsibilities in the TCTO process.

10.18.1. QA reviews TCTOs, OTIs, and command modifications to determine their applicability to unit maintained equipment, notifies the MOC, and monitors expended man-hours consumption and the quality of unit compliance actions. Munitions and special weapons TCTOs are reviewed by their respective sections.

10.18.1. (ANG) Monitors compliance of TCTOs and determines evaluation coverage that is directly related to the complexity of the TCTO as well as to the criticality of the system or the component to be modified. QA monitors the quality of the first job and performs kit proofing as required. Report any deficiencies to appropriate agencies. QA is the sole authority for determining applicability.

10.18.2. QA ensures command-directed modifications are documented in the same manner as TCTOs. QA must maintain a copy of command modification instructions on file until they are formally rescinded or removed from the equipment.

10.18.3. (Added-ANG) Participates in all TCTO planning meetings and shall be notified by the performing workcenter when work is started on the first TCTO, OTI, or modification for aircraft and equipment.

**10.19. Functional Check Flights (FCFs).**

**10.19. (ANG) Functional Check Flights (FCFs).** N/A to the ANG. All subparagraphs are also N/A. The following only applies to the ANG: The MXG/CC and OG/CC have joint responsibility for the FCF program. The requirement for an aircraft FCF is based on technical data and decisions exercised by commanders at all levels through their maintenance officers. The guidance contained in this instruction is designed to be used in conjunction with the additional guidance contained in the following directives: AFI 11-401; AFI 11-202, Volume 3, AFI 13-201, TO 1-1-300, TO 00-20-1, and applicable -6 and -1 Technical Orders. This instruction does not provide single source guidance for the implementation and execution of the FCF program. **EXCEPTION**: Units with C-21, C-22, C-26, C-130, C-5, C-17, C-38, C-40, E-8C, and KC-135 series aircraft rarely perform FCFs, and are exempt from the following requirements contained in this instruction: initial checkouts, initial certification letters, annual certifications, and FCF currency requirements. When these aircraft require a FCF, the Operations Group Commander issues temporary written certification designating the most highly qualified crew available. OG/CC, FCF OIC, and QA ensure crews are thoroughly briefed on specific FCF requirements and procedures. File certification letters with the FCF program manager.

10.19.1. FCFs, to include Operational Check Flights (OCF), are performed to ensure an aircraft is airworthy and capable of accomplishing its mission. However, FCFs are not flown when the airworthiness of the aircraft can be determined by maintenance operational checks prescribed by a technical directive. Additional guidance may be found in AFI 11-401, *Flight Management*; AFI 11-202V3, *General Flight Rules*; AFI 13-201, *Air Force Airspace Management*; TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*; TO 00-20-1; and applicable Dash-6 and Dash-1 TO. The OG/CC is responsible for appointing an OIC to manage and administer the program. The MXG/CC and OG/CC must establish and implement local FCF procedures.

10.19.1. (ANG) Responsibilities. Due to the cross-functional nature of the FCF program, effective development and execution of the program requires close coordination between operations and maintenance. MXG/CC and OG/CC shall appoint specific program managers to oversee the functions of the FCF program that specifically relate to their organization. For the MXG this shall be the QA Superintendent. Jointly established OIs shall be developed and implemented on all FCFs. The MXG/CC and OG/CC are responsible for ensuring compliance with these procedures.

10.19.1.1. (Added-ANG) Operations Group FCF OIC. This individual is FCF-qualified in a unit mission aircraft, and can serve as checkout pilot in mission aircraft.

10.19.1.2. (Added-ANG) QA, in conjunction with the operations FCF OIC, is responsible for implementing an effective FCF program.

10.19.2. The FCF Officer in Charge and QA Supervisor of FCFs shall:

10.19.2. (ANG) The operations FCF OIC must ensure that the following crew requirements are met.

10.19.2.1. Develop appropriate FCF checklists and procedures and coordinate them between QA and the Operations Group Standardization/Evaluation Division.

10.19.2.1. (ANG) Normally the number of FCF crews does not exceed four per squadron. Units with unique-mission requirements may waive the number of assigned crews at the discretion of the OG/CC. Crew members required to perform duties/events directed in the FCF flight profile are certified on a locally developed certification letter. This certification is accomplished after the crew member performs the initial checkout and meets flying hour requirements.

10.19.2.2. Establish an FCF training and certification program.

10.19.2.2. (ANG) If the necessity arises for an FCF during a TDY when an FCF crew is not available, the OG/CC may issue temporary certification, designating the most highly qualified crew available to perform such duties. In addition, the OG/CC ensures crews are briefed on the provisions of TO 1-1-300 and are completely familiar with local FCF procedures.

10.19.2.3. Review FCF results on a continuing basis and recommend modified FCF criteria and procedures.

10.19.2.3. (ANG) The initial checkout and annual certification program for applicable crew members consists of, but is not limited to:

10.19.2.3.1. (Added-ANG) A comprehensive briefing by the Operations Program Manager on the following:

10.19.2.3.1.1. (Added-ANG) Procedures listed in this publication.

10.19.2.3.1.2. (Added-ANG) The publications listed in this section.

10.19.2.3.1.3. (Added-ANG) Local FCF procedures for the type of aircraft being flown.

10.19.2.3.1.4. (Added-ANG) The applicable -6 worksheets.

10.19.2.3.1.5. (Added-ANG) FCF procedures for ATD when devices are possessed by the wing.

10.19.2.3.1.6. (Added-ANG) Map of local FCF area or route of flight.

10.19.2.3.2. (Added-ANG) A complete FCF aircraft flight profile (except helicopters) with a certified FCF pilot.

10.19.2.3.3. (Added-ANG) Checkout may be accomplished in conjunction with an actual FCF. A chase aircraft not requiring an FCF or operational check is used for single seat aircraft. Crewmembers for multiple seat aircraft fly a complete FCF profile with an FCF-certified crewmember for the corresponding crew position if aircraft size or seating capability permits.

10.19.2.4. Work with maintenance and operations in areas of flying safety, standardization, and operational maintenance priorities with respect to the FCF program.

10.19.2.4. (ANG) If an ATD is possessed by the wing, a complete ATD FCF profile is flown under the supervision of a certified FCF pilot prior to the aircraft flight.

10.19.2.5. (Added-ANG) Additional FCF checkout sortie requirements are determined locally, based on the complexity of the aircraft and the qualifications/proficiency of the prospective FCF crewmember.

10.19.2.6. (Added-ANG) FCF pilot currency for single seat aircraft is 120 days. To update currency, FCF pilots may accomplish a complete ATD FCF profile or an actual FCF flight. Non-current FCF pilots must not perform FCF duty's until currency is regained. To regain currency, FCF pilots accomplish a FCF in the ATD with a certified FCF pilot. If an ATD is not possessed by the unit, currency may be regained by accomplishing an academic review of the requirements of Paragraph **10.19.2.3.**, and applicable emergency procedures with a current FCF pilot or operations squadron supervisor. Currency may also be regained by flying an FCF profile with a certified FCF pilot, either as a chase or in the rear seat of a two-seat model (if applicable). If an FCF pilot does not accomplish an ATD or aircraft FCF profile for more than one year, the initial checkout procedures in Paragraph **10.19.2.3.**, must be accomplished.

10.19.2.7. (Added-ANG) Any FCF crewmember, who loses AFI 11-401 aircraft qualification for over 6 months, must not perform FCF duties until reaccomplishment of initial checkout.

10.19.2.8. (Added-ANG) For single engine aircraft, pilots maintain Simulated Flameout (SFO), and landing currency IAW applicable 11-MDS series guidance. OGs possessing newly assigned aircraft may waive the minimum hourly criteria of this publication (up to one year from the start of unit conversion) and select the most qualified crewmembers for FCFs.

10.19.2.9. (Added-ANG) Use the following minimum hourly criteria, including student time, to designate pilots to perform FCF duties.

10.19.2.9.1. (Added-ANG) 750 hours total and 200 hours first pilot PAA time.

10.19.2.9.2. (Added-ANG) 650 hours total and 300 hours first pilot PAA time.

10.19.2.9.3. (Added-ANG) 575 hours total and 400 hours first pilot PAA time.

10.19.2.9.4. (Added-ANG) Helicopter pilots designated as FCF co-pilots shall be selected by Unit Commander and must follow minimum qualification criteria listed below:

10.19.2.9.4.1. (Added-ANG) Be current and qualified with a minimum of 200 hours total time and 100 hours assigned airframe time.

10.19.2.9.4.2. (Added-ANG) Complete unit FCF Training Program.

10.19.2.10. (Added-ANG) Flight engineers/flight mechanics must have at least 1250 hours total time and 250 hours PAA time. **EXCEPTION**: Helicopter flight engineers must be current and qualified in type aircraft to be checked.

10.19.2.11. (Added-ANG) Other crewmembers are current and qualified in the type aircraft and crew position to be checked.

10.19.2.12. (Added-ANG) The crew size for an FCF is the minimum crew necessary to perform required maintenance checks and is never less than the minimum crew as stated in the applicable -1 TO.

10.19.3. The QA function shall:

10.19.3. (ANG) Flight Requirements:

10.19.3.1. Ensure the FCF aircrew is briefed (for all FCFs to include OCFs) on the purpose and extent of the flight, previous maintenance problems, and discrepancies recorded on the aircraft or engines related to the FCF.

10.19.3.1. (ANG) Do not shut down engines while airborne unless specified in the -6 TO

10.19.3.2. Review aircraft weight and balance documents.

10.19.3.2. (ANG) Do not fly FCFs in conjunction with other missions or training requirements, unless waived by provisions in TO 1-1-300.

10.19.3.3. Ensure AF Form 2400, *Functional Check Flight Log*, or an automated product is maintained to provide information for evaluation and analysis. Include in the log the date and time of the FCF, aircraft serial number, reason for FCF, name of debriefer, and name of aircraft commander. The Functional Check Flight Log also indicates if the aircraft was released for flight, reasons for any non-release, action taken and date completed, and the date maintenance documents were forwarded to PS&D.

10.19.3.3. (ANG) Follow weather conditions contained in TO 1-1-300 at all times unless aircraft are urgently required for operational commitments. Waiver provisions are outlined in TO 1-1-300 for the type and model of aircraft involved.

10.19.3.4. The following are FCF program management responsibilities:

10.19.3.4. (ANG) Conduct FCFs during daylight hours only, except for aircraft with four or more engines, unless waived by provisions specified in TO 1-1-300.

10.19.3.4.1. Establish local FCF procedures (jointly developed by maintenance and operations) for any specific local aircraft requirements (e.g., configuration), administration, control, and documentation of the FCF, OCF, and high-speed taxi check programs.

10.19.3.4.1. (ANG) Establish local FCF OIs (jointly developed by maintenance and operations) for any specific local aircraft requirements (that is, configuration), administration, control, and documentation of the FCF, OCF, and high-speed taxi check programs.

10.19.3.4.2. Coordinate with the appropriate squadron for an FCF pilot/aircrew and provide squadron operations with the following information: aircraft tail number, reason for the FCF, and anticipated takeoff time.

10.19.3.4.3. Maintain an information file for briefing air crews. As a minimum, this file must contain unit directives concerning FCF procedures, authorization lists for FCF crews, and FCF checklist for each type of assigned aircraft.

10.19.3.4.4. An FCF checklist must be used for each FCF. QA must debrief all FCFs with the appropriate debrief function. During debriefing, the FCF checklist and aircraft forms must be reviewed to determine if all requirements have been accomplished. Each discrepancy discovered during the FCF must be documented on AFTO Form 781A. After completing the review, the checklist must be sent to PS&D for inclusion in the aircraft jacket file.

10.19.3.4.5. Maintain a copy of the AF Form 2400 or automated product for deficiency and trend analysis.

10.19.3.5. The Aircraft Maintenance Unit accomplishes the following:

10.19.3.5. (ANG) Fly and report supersonic flights IAW AFI 13-201.

10.19.3.5.1. Configure the aircraft for FCF/OCF according to technical data and local directives.

10.19.3.5.2. Ensure all maintenance actions are completed and all AFTO Forms 781 are documented properly IAW Dash-6 and 00-series TOs.

10.19.3.5.2.1. All maintenance actions on transient aircraft requiring FCF must be reviewed by QA prior to FCF. If the aircraft type is not the same as assigned at the transient base, then the owning unit must provide a qualified FCF pilot/crew and maintenance as required.

10.19.3.5.3. Flight Requirements. The mandatory requirements for FCF are outlined in TO 1-1-300 and the applicable Dash-6 TO. FCF profiles are normally determined by, and tailored for, the maintenance requirement causing the FCF. The decision to fly a full profile FCF is the MXG/CC's and OG/CC's discretion. Tailor the FCF profile for the discrepancy causing the FCF applying the following guidance:

10.19.3.5.3.1. Require a clean configuration whenever FCFs are flown for flight controls, fuel controls, or engine changes. Do not remove fixed wing pylons, fixed wing tip tanks, and fixed external stores unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signal propagation, etc.

10.19.3.5.3.2. Do not fly FCFs in conjunction with other missions or training requirements, unless waived by provisions in TO 1-1-300.

10.19.3.5.3.3. Follow weather conditions contained in TO 1-1-300 at all times unless aircraft are urgently required for operational commitments. Waiver provisions are outlined in TO 1-1-300 for the type and model of aircraft involved.

10.19.3.5.3.4. FCF Release. An FCF release occurs upon the successful completion of all requirements as determined by the FCF aircrew. The final decision to release rests solely with the aircraft commander. An FCF conditional release may occur when the aircraft does not successfully complete FCF requirements due to a specific system malfunction if the FCF aircrew (in consultation with maintenance) determines the malfunction may be corrected without generating another FCF. If on review of the corrective action the FCF aircrew accepts the maintenance action as a satisfactory repair of the malfunction, they may release the aircraft from FCF.

10.19.3.5.3.5. FCF Aborts. All ground aborts result in a non-release. An aircraft may be released for flight if a malfunction occurs during an FCF, which is not related to the condition generating the FCF, and the original condition checks good.

10.19.3.6. Units must refer to MAJCOM instructions for FCF procedures away from home station.

10.19.3.6. (ANG) Fly FCFs using radar control to the maximum extent possible. Whenever practical, an IFR clearance is filed (except helicopters). In cases where FCF areas are not controlled by ground radar agencies, radar monitoring is used, if available.

10.19.3.7. (Added-ANG) Follow aircraft -6 TO warnings and cautions restricting FCF profile at particular phases of the FCF. Local procedures for FCF profiles include the applicable -6 TO restrictions.

10.19.3.8. (Added-ANG) Fly FCFs for a single engine change on a two-engine aircraft if that aircraft will next fly an extended over-the-water flight, i.e., overseas deployment. This applies to

engines with no operating time since major maintenance. It does not apply to engines obtained from donor aircraft with established operating time.

10.19.3.9. (Added-ANG) Require a clean configuration whenever FCFs are flown for flight controls, fuel controls, or engine changes. Do not remove fixed wing pylons, fixed wing tip tanks, and fixed external stores unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signaling propagation, etc.

10.19.4. (Added-ANG) Unit Procedures. As a minimum, units establish and publish local OI to include, when applicable:

10.19.4.1. (Added-ANG) Fuel Load.

10.19.4.2. (Added-ANG) Expanded preflight check by the aircrew.

10.19.4.3. (Added-ANG) Ground procedures (compass swing, taxi check).

10.19.4.4. (Added-ANG) Radio procedures.

10.19.4.5. (Added-ANG) Radar control procedures.

10.19.4.6. (Added-ANG) Procedures to enter test area.

10.19.4.7. (Added-ANG) Control bailout area.

10.19.4.8. (Added-ANG) Control jettison area.

10.19.4.9. (Added-ANG) Emergency landing base.

10.19.4.10. (Added-ANG) Debriefing procedures.

10.19.4.11. (Added-ANG) Procedures to adequately prepare, perform, and debrief ATD FCFs.

10.19.5. (Added-ANG) QA:

10.19.5.1. (Added-ANG) Monitors all FCFs according to the appropriate -6 technical order, TO 1-1-300, and other pertinent directives.

10.19.5.2. (Added-ANG) Notifies maintenance and operations scheduling as soon as possible when requesting FCF crews.

10.19.5.3. (Added-ANG) Ensures each FCF crew is briefed on the documentation requirements for the AFTO Form 781 series and the -6 TO FCF checklists, when applicable.

10.19.5.4. (Added-ANG) Ensures an information file, may be electronic, for briefing FCF flight crews is maintained. As a minimum, the file contains the following items:

10.19.5.4.1. (Added-ANG) Mission profile for each type of assigned aircraft, consisting of checks to be accomplished, presented in consecutive order.

10.19.5.4.2. (Added-ANG) OIs concerning FCF procedures.

10.19.5.4.3. (Added-ANG) A FCF checklist for each type of assigned aircraft.

10.19.5.4.4. (Added-ANG) TO 1-1-300, or memo of TO location.

10.19.5.4.5. (Added-ANG) List of authorized FCF crewmembers signed by the Operations Group Commander.

10.19.5.5. (Added-ANG) Reviews the FCF checklist and the aircraft forms with the FCF crew during debriefing to determine all requirements were accomplished. Tape recorders may be used IAW AFI 11-206, *General Flight Rules*, to provide detailed accounting of in-flight discrepancies, assist troubleshooting and aid in debriefing. Forwards the completed FCF checklist to the appropriate PS&D for filing in the document file of the aircraft. After corrective action is complete, reviews AFTO Forms 781A for adequacy of the corrective action.

10.19.5.6. (Added-ANG) Reviews the AF IMT 2400, *Functional Check Flight Log* or similar automated product, monthly for trends indicating problems requiring further analysis or corrective actions. If an automated product is used, all information currently tracked on the AF IMT 2400 is tracked in the computer.

10.19.6. (Added-ANG) When an FCF is required on transient aircraft, QA at the transient base serves as the focal point for coordination between the owning organization, the host operations group, and the transient alert function, as required.

10.19.7. (Added-ANG) FCF Aborts. An air abort due to a condition other than the one that generated the FCF is not counted as an FCF non-release, provided the original condition requiring the FCF checked good. Enter new discrepancies on AFTO Forms 781A.

10.19.8. (Added-ANG) Waivers. OGs may authorize temporary waivers to this publication, for aircrew qualification, when operational requirements dictate. Permanent waivers, not otherwise granted in this publication, require ANG Director of Operations (ANG/XO) and ANG/LG approval. Requests for permanent waiver of FCF aircrew qualifications contained in this publication are normally submitted through channels to ANG Operations and Training Division (ANG/XOO).

**10.20. Operational Check Flights (OCF).** Units must establish and publish local procedures. OCFs must be kept to a minimum and are not used to replace –6 FCF requirements. OCFs must be flown by experienced aircrews (not required to be an FCF qualified aircrew) and must be accomplished following the same maintenance criteria as FCFs. Fly OCFs when maintenance has been performed that does not require an FCF. Due to the extent of maintenance performed or history of a maintenance discrepancy, a unit determines if an OCF should be flown before the aircraft is flown by an inexperienced aircrew or on an operational mission.

**10.20. (ANG)** Fly OCFs when an operational check is listed as a -1 or -2 requirement.

**10.21. Inflight Operational Checks.** Maintenance must document the reason for the inflight operational check. Inflight checks are accomplished:

10.21.1. When test equipment does not exist to perform the operational check on the ground.

10.21.2. At the request of maintenance to validate a maintenance action that cannot be fully verified on the ground.

**10.22. High Speed Taxi Checks.** High speed taxi checks may be utilized instead of FCFs with group commander authorization, when a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds to operationally check completed maintenance. This procedure should rarely be used (if at all) due to the potential for aircraft damage; FCFs are preferred over high speed taxi checks. Perform high speed taxi checks with qualified FCF aircrews. If this option is exercised, process aircraft forms through QA using FCF procedures. QA develops an aircrew briefing checklist specifically

for high speed taxi checks, to include the required FCF briefing items and pertinent warnings, cautions, etc.

10.22.1. To minimize brake and tire wear, configure aircraft with the minimum fuel practical to accomplish the high-speed taxi check. Ensure aircraft is prepared for flight and the Exceptional Release (ER) is signed off. Do not conduct high speed taxi tests, self-propelled movement of the aircraft, or any operation where the possibility of becoming airborne exists, with less than the Dash-1's (aircraft flight manual) operational fuel minimums onboard.

10.22.2. Aircrew performing high-speed taxi checks must complete a take-off data card to indicate the highest speed expected to ensure sufficient stopping distance is available for existing runway conditions without exceeding normal brake energy limits. For aircraft equipped with an arresting hook, taxi checks of speeds 100 knots or above require the hook to be lowered once the pilot begins to initiate braking action. For taxi checks below 100 knots, the pilot lowers the hook if there is any doubt about stopping the aircraft within the bounds of the remaining runway.

**10.23. Weight and Balance (W&B) Program.** Maintain strict accounting of aircraft weight and balance for safe flight operations. Each unit manages a W&B program, ensuring accurate inventories of aircraft weight. As the W&B authority, the QA Superintendent shall appoint a QA individual to be the unit W&B program manager.

10.23.1. W&B Program Manager Responsibilities. The W&B program manager must ensure compliance with appropriate TO procedures for weighing aircraft. The W&B program manager carries out his/her responsibilities with assistance of W&B technicians. The QA W&B technician must verify scale readings and accomplishes or oversees the actual computations. The QA W&B technician supervises the preparation, leveling, and weighing of the aircraft IAW TO 1-1B-50. QA W&B Program technicians are not required to participate in aircraft preparation, but are responsible for ensuring preparation is properly accomplished. The W&B program manager ensures:

10.23.1.1. Sufficient personnel are qualified on assigned aircraft IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*.

10.23.1.2. Complete Dash-21, alternate mission equipment, life support equipment, etc., W&B inventories IAW applicable directives and upon return to home station from any ALC or contractor facility where extensive maintenance was performed. Complete weight and balance inventories prior to the first flight after arrival.

10.23.1.3. All assigned aircraft are weighed IAW applicable directives. Keep W&B documents required by TO 1-1B-50 for each assigned aircraft. Use the Automated Weight and Balance System (AWBS), and keep a back-up copy of all W&B documents.

10.23.1.4. Procedures are written by QA for routing completed TCTO and modification information for W&B changes.

10.23.1.5. A QA W&B qualified technician must inspect W&B documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy.

10.23.1.6. Essential weight and balance data and changes to the basic weight and moment are available for appropriate mission planning (e.g., Standard Configuration Loads, updates to supplemental handbook, etc.).

10.23.1.6. (ANG) Electronic or LAN use is encouraged.

10.23.1.7. Units maintain and store W&B equipment.

10.23.1.8. QA and squadron Maintenance Operations (MOO/SUPT) work together in developing a W&B Preparation Checklist if the aircraft Dash-5 TO is not comprehensive enough for the task.

10.23.1.9. W&B manuals are maintained for Class I and II aircraft in a central file. Maintain and store Class I and Class II aircraft W&B handbooks according to TO 1-1B-50. The method of supplemental handbook storage and physical location must be standardized by the lead command for like MDS. NOTE: Manage commercial derivative aircraft according to FAA procedures, contract specifications, and the manufacturer's maintenance manuals. The CLS contractor is responsible for managing W&B programs on these aircraft.

10.23.1.10. The SCR reflects W&B certification.

**10.24. Chafing Program.** This program is mandatory for fighter aircraft units IAW MAJCOM supplements and applicable MDS technical data and optional for other MDS units as directed by the MXG/CC. QA must monitor and track instances of wire, harness, and metal line/tube chafing. A randomly selected 10 percent of assigned aircraft are inspected when notification is received of a potential chafing problem involving like model, lot number, or block of aircraft. Ideally, select aircraft currently undergoing maintenance or scheduled inspection for random sampling to reduce manpower expenditures.

10.24.1. The chief inspector shall recommend initiating an OTI if the majority of the sampled aircraft show chafing, or the detected chafing is an operational safety hazard.

10.24.1. (ANG) N/A to the ANG. The following only applies to the ANG: QA shall recommend initiating an OTI if the majority of the sampled aircraft show chafing, or the detected chafing is an operational safety hazard.

10.24.2. QA evaluates and determines if crosstells, DR's or SR's are required when chaffing is identified and submits when necessary.

10.24.3. QA must develop local chafing inspection work cards for periodic, pre-flight, thru-flight, and basic post-flight inspections, if needed (do not duplicate Dash-6 TOs). Ensure inspectors inspect at least 50% of accessible areas, focusing on known chafing areas and work cards dealing with chafing.

10.24.4. QA must utilize a database for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance cross-tell reports. Consult the database before expending man-hours performing inspections. This could preclude duplication of effort or re-inspection if updated in the automated program.

**10.25. Quality Assurance Evaluator (QAE)/ Quality Assurance Representative (QAR).** If a Contractor Logistic Support (CLS) aircraft or Contract Field Team (CFT) is assigned, a QAE/QAR must be appointed and trained IAW AFI 63-124. A QAR is the government's on-site inspector and is the liaison between contractor and government personnel at each applicable base. Through administrative actions the QAR coordinates, processes, and reviews documents required to successfully implement the contract. The QAR evaluates the contractors' ability to fulfill the requirements of the contract statement of work, documents contract deviations and provides those to the site manager for necessary corrective actions and coordination. Through system malfunctions or anomalies, the QAR determines the need for govern-

ment-requested special inspections. They may coordinate all requests for additional support for the contractor with the host and submit recommended contract changes through appropriate channels. They may review or coordinate on host-tenant support agreements affecting contractor support.

10.25.1. Although contract maintenance organizations are not subject to the MAJCOM/unit MSEP, wings must ensure their contracted maintenance programs are in compliance with applicable directives through evaluations by the Contractor Officer Representative(s) using the criteria outlined in the Statement of Work (SOW) and Quality Assurance Surveillance Plan (QASP).

**10.26. (Added-ANG) Maintenance Functions Located in Operations.** When maintenance functions are located in the Operations group (i.e., Transient Alert) QA provides technical support and conducts evaluations.

## Chapter 11

## IMPOUNDMENT PROCEDURES

**11.1. Aircraft Impoundment.** Aircraft or equipment is impounded when intensified management is warranted due to system or component malfunction or failure of a serious or chronic nature. Group Commanders appoint impoundment authorities and impoundment release authorities. Impounding aircraft and equipment allows investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence. Wings will evaluate the need to establish an OI to address specific requirements in managing impoundment activities for assigned aircraft and equipment.

**11.1. (ANG)** The QA superintendent oversees the Group impoundment program.

**11.2. Impoundment Terms:**

11.2.1. Authorized Personnel. Individuals directly involved in the management, safing, troubleshooting, or repair of an impounded aircraft or equipment.

11.2.2. Impoundment. Intensified aircraft and equipment management due to system or component malfunction or failure of a serious or chronic nature. Immediate aircraft or equipment isolation and controlled personnel access is required. Impoundment is the isolation or control of access to an aircraft or equipment item and applicable historical records after a serious incident so that an intensified investigation can be completed. Investigative efforts and repair actions are hampered or pertinent evidence destroyed by allowing unrestricted access to the aircraft or equipment involved.

11.2.3. Impoundment Official. The impoundment official will hold the minimum rank of MSgt and be appointed by the Impoundment Authority. Impoundment officials are designated as the single point of contact for the affected aircraft or equipment item and are responsible for controlling, monitoring, and investigating the impounded aircraft/equipment.

11.2.4. Impoundment Release Authority. These are individuals authorized to release aircraft or equipment from impoundment. The MXG/CC, or Director has the authority to release aircraft. Delegation of this authority shall be limited and not be delegated lower than Maintenance Operations (MOO/SUPT). If the MXG/CC or Director delegate impoundment release authority, individuals must be designated in writing and tracked on the SCR.

11.2.4. (ANG) QA Inspectors may be considered for Impoundment Release Authority.

11.2.5. Impoundment Authority. Individual authorized to impound aircraft or equipment. Group Commanders will designate in writing and tracked on the SCR, those personnel that have the authority to impound aircraft/equipment. The Impoundment Authority will appoint the impoundment investigator.

11.2.6. Isolation Area. An area designated by the Impoundment Authority to locate impounded aircraft/equipment. Aircraft may be isolated on the flight line or in hangars. The isolation area will be marked off using cones, ropes, or placards indicating the impoundment condition.

**11.3. Reasons for Impoundment of Aircraft or Equipment.** Aircraft and equipment may be impounded for many reasons. Personnel should evaluate the problem and recommend impounding the aircraft or equipment to the Impoundment Authority. Impound aircraft or equipment:

11.3.1. Following an aircraft ground or flight related mishap as defined in AFI 91-204, *Safety Investigations and Reports*.

11.3.2. Following an uncommanded flight control malfunction IAW AFI 91-204. Special attention is required to completely diagnose and correct flight control malfunctions.

11.3.3. When an inadvertent release or an explosive mishap is reported.

11.3.4. When the impoundment authority determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft/equipment or to address any degradation of aircraft airworthiness or serious anomaly.

11.3.5. When authorized procedures are not adequate or the unit is unable to identify or repair loaded nuclear weapons system malfunctions within the criteria of AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapons Systems.*

11.3.6. For engine anomalies to include but not limited to:

11.3.6.1. Unselected propeller reversal

11.3.6.2. Flameout/stagnation (for single engine aircraft).

11.3.6.3. An aircraft experiences an unselected power reversal.

11.3.6.4. Engine case penetration, rupture, or burn-through from an internal engine component

11.3.6.5. When an aircraft experiences a loss of thrust sufficient to prevent maintaining level flight at a safe altitude. This includes all cases of multiple engine power loss or roll back.

11.3.6.6. When an engine has confirmed internal damage due to foreign object damage and is isolated to the engine. Engine will be removed from the aircraft and impounded. Aircraft impoundment is not required.

11.3.7. When an in-flight fire occurs.

11.3.8. When an aircraft experiences an in-flight loss of all pitot-static system instruments or all gyro stabilized attitude or direction indicators.

11.3.9. When there is evidence of intentional damage, tampering, or sabotage.

11.3.10. When there are physiological incidents involving aircraft systems or cargo (crew members become ill during flight).

11.3.11. Impoundment authorities will determine if impoundment is warranted when:

11.3.11.1. A tool or other item has not been found after an extensive search has been conducted.

11.3.11.2. An aircraft landing gear fails to extend or retract.

11.3.11.2.1. (Added-ANG) An aircraft with hung ordinance or jammed gun systems.

11.3.12. DELETED.

11.3.13. DELETED.

**11.4. Impoundment Authorities Responsibilities.**

11.4.1. The Impoundment Authority appoints Impoundment Officials.

11.4.1.1. The Impoundment Official is designated as the single point of contact for impounded aircraft/equipment. They are responsible for controlling and monitoring the investigation of impounded aircraft/equipment. The Impoundment Official ensures only authorized personnel have access to the impounded aircraft/equipment. The Impoundment Official also insures that parts removed from impounded aircraft/equipment are carefully controlled to insure that parts, once confirmed as the cause for impoundment, are available to be processed as deficiency report exhibits.

11.4.2. Quality Assurance acts as the OPR for group impoundment procedures. QA will evaluate the need for development of a local operating instruction.

11.4.2.1. If the cause of the discrepancy could potentially affect other aircraft/equipment in the fleet, QA will consider cross-tell value of the information for up channeling to the MAJCOM weapon system manager and lead commands.

**11.5. Impoundment process and procedures.**

11.5.1. When the impoundment authority directs impoundment, a red X symbol will be placed in the applicable AFTO Form 781A or AFTO Form 244 with a statement indicating the reason for impoundment and the name of the assigned impoundment official.

11.5.2. The Maintenance Operations Center (MOC) will be notified when an impoundment decision has been made.

11.5.3. The impoundment official will use established checklists to guide sequence of actions.

11.5.4. Control access to impounded aircraft/equipment. Establish ECP if required.

11.5.4.1. If an ECP is established, the impoundment official will ensure an access control log (manual or electronic media product) is maintained at the ECP of the impounded aircraft/equipment or storage facility to track personnel entering and leaving the area for the duration of the impoundment.

11.5.4.1.1. The log will contain the following information as a minimum: individual's name, rank and employee number, date arrived/departed, and reason for entry.

11.5.4.1.2. The log will be reviewed daily and initialed by the Impoundment Official.

11.5.4.1.3. The log will be maintained on a daily basis until the impoundment/release authority releases the aircraft and will be disposed of only after the aircraft is successfully repaired.

11.5.5. Aircraft/equipment records will be controlled at the discretion of the Impoundment Official. When required, the impoundment official will:

11.5.5.1. Obtain and secure the current aircraft forms and the aircraft jacket file for aircraft or the AFTO Forms 244, Industrial/Support Equipment Record, for equipment.

11.5.5.2. Notify the MIS data base manager (DBM) to isolate the aircraft/equipment serial number in order to prevent any changes and maintain the integrity of the historical data until the aircraft/equipment is released.

11.5.5.3. Request from the squadron owning the aircraft/equipment any personnel records required to complete the impoundment investigation. These records may include, but are not limited to, individual training records.

11.5.6. Maintenance will be limited on impounded aircraft/equipment until the cause is determined. The Impoundment Official will determine what maintenance can be performed in conjunction with the maintenance required to release the aircraft/equipment from impoundment. Limit maintenance actions to those required to make the aircraft safe.

11.5.6.1. Parts removed from impounded aircraft/equipment will be carefully controlled. This is to insure that parts, once confirmed as the cause for impoundment, are available to be processed as deficiency report exhibits.

11.5.7. The Impoundment Official selects a team of highly qualified technicians dedicated to determine the cause of the problem that led to the impoundment. Impoundment team members will be relieved of all other duties until released by the impoundment official.

11.5.7. (ANG) N/A to the ANG. The following only applies to the ANG: The Impoundment Official selects a team of highly qualified technicians dedicated to determine the cause of the problem that led to the impoundment.

11.5.8. The Impoundment Release Authority determines the need for a one-time flight IAW TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, and requests authorization from the MXG/CC or designated representative with authority over sortie generation.

11.5.9. When an aircraft is away from home station and encounters a problem warranting impoundment, the following procedures must be followed:

11.5.9.1. Established impoundment procedures must be followed. The MXG/CC or designated representative may temporarily delegate impoundment and release authority to the deployed Maintenance Operations Officer (MOO)/Superintendent (SUPT).

11.5.9.1.1. Clear the impoundment discrepancy using "Red X" clearing procedures IAW TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*.

11.5.10. Once the cause of the malfunction or failure has been positively determined, the Impoundment Official briefs the Release Authority on findings, corrective actions, and requests release of the aircraft or equipment from impoundment.

11.5.11. If approved, the Release Authority will clear or direct the impoundment be cleared in the forms by entering "Investigation Complete, All corrective actions have been reviewed, aircraft released" referring to original discrepancy in the "corrective action" block, signing the "inspected by" block and initialing over the red X symbol.

11.5.12. If the cause of a reported malfunction cannot be determined or a positive corrective action cannot be confirmed, the Release Authority will determine if further actions are required.

**11.6. Rules of Impoundment Specifically for Explosive-Related Mishaps.** When an inadvertent release or an explosive mishap is reported, the following procedures apply:

11.6.1. In-flight:

11.6.1.1. When the involved aircraft returns to the de-arm or parking area, the aircraft is impounded. Limit maintenance actions to those required to make the aircraft safe.

11.6.1.2. Inform the group commander and the wing/base safety office of the impoundment action.

11.6.1.3. Park and isolate aircraft with unsafe or hung munitions in an area approved by weapons safety and airfield management.

11.6.1.4. Investigate and report the incident IAW AFI 91-204.

11.6.2. Ground:

11.6.2.1. The senior ground crew member is in charge of the aircraft/equipment until relieved and ensures involved persons remain at the scene.

11.6.2.2. Injured persons receive attention first.

11.6.2.3. Protect other aircraft or equipment located near the incident if an explosive hazard exists.

11.6.2.4. Do not change the position of any switches except as needed for safety. Limit maintenance actions to those actions required to make the aircraft/equipment safe.

11.6.2.5. The investigating Weapons Safety Officer/NCO begins recovery actions for objects/equipment dropped in flight and prevents removal of equipment released or fired on the ground. Keep items in place until the investigating ground safety officer/NCO releases them. Photograph items prior to removal.

11.6.2.6. When unit personnel cannot identify the cause of the failure/malfunction, request AFMC/contractor technical assistance IAW AFI 91-204. When assistance is requested, additional tear down of aircraft or equipment is prohibited until authorized by higher headquarters. If assistance is not provided in 3 days, higher headquarters may release the aircraft for further base investigation.

## Chapter 12

## RETENTION MANAGEMENT OF ACTIVE DUTY ENLISTED MAINTENANCE PERSONNEL

(This chapter is not applicable to the Air Reserve Component)

**12.1. Purpose.** The 1st and 2nd term maintenance airmen are critical to the maintenance team. Our maintenance technicians enable the Air Force to generate sorties and maintain long-term fleet health of each weapons system in support of the myriad of missions the Air Force conducts daily. Without this core of airmen, the Air Force cannot successfully meet its mission. Wing, Group, and Squadron commanders must make retention of enlisted maintenance personnel one of their top priorities and are responsible for implementing this program.

**12.1. (ANG)** This chapter is applicable to the 116th ACW active duty personnel.

**12.2. Keep Enlisted Experience Program (KEEP).** The HQ USAF/ILM KEEP provides commanders and supervisors maintenance-specific tools for retention of airman. The KEEP developed by maintenance experts for maintainers. More information is available at the HQ USAF/ILM KEEP web site, URL: **http://www.il.hq.af.mil/ilm/keep.**

**12.3. Duties and Responsibilities.**

12.3.1. Squadron commanders will:

12.3.1.1. Conduct "Maintenance Retention Calls." The agenda should concentrate on the benefits of Air Force service, selective reenlistment bonus, pay, medical care, education, tuition assistance, etc. as well as career opportunities including maintenance assignment information, Airplane and Powerplant licenses, etc. Commanders will target those airmen (and their spouses as invitees) who are eligible to separate within twelve months. Retention calls may be conducted in conjunction with regularly scheduled "Commander's Calls."

12.3.1.2. Focus career retention efforts towards 3/5-Level maintainers within 18-month window of re-enlistment.

12.3.1.3. Ensure contact with eligible airmen at specific phase points beginning at the 18-month window.

12.3.2. First Sergeant: The first sergeant is the focal point for all retention issues within the squadrons. He/she is the squadron liaison to the Career Assistance Advisors (CAA) at the wing level. First Sergeants will:

12.3.2.1. Establish a strong working relationship with the wing CAA.

12.3.2.2. Ensure the squadron commander is informed of squadron retention issues.

12.3.2.3. Serve as the OPR for squadron commander retention calls

12.3.2.4. Conduct visits, at least monthly, to work centers

12.3.2.5. Obtain lists of airmen eligible for reenlistment from the Military Personnel Flight and make recommendations to the squadron commander

12.3.3. Supervisors play a vital role in maintenance unit retention efforts. Supervisors will:

12.3.3.1. Consider the professional development of their subordinates as a primary responsibility

12.3.3.2. Provide career counseling to subordinates on benefits, entitlements, and opportunities available in an Air Force career

12.3.3.3. Ensure counseling occurs in conjunction with performance feedback or when an individual comes up for quality review under the Selective Reenlistment Program

12.3.3.4. Review with each individual the AF Benefits Fact Sheet, and provide each individual a copy at the end of each counseling session located at **http://www.afpc.randolph.af.mil/enlskills/currentfacts.htm**.

12.3.3.5. Keep unit leadership abreast of adverse trends

**12.4. Key Decision Points.** Commanders must ensure that first and second-term airman are engaged at critical points prior to reenlistment to make sure that these folks get the most current information in order to make the right decisions. Leadership at all levels must be involved.

12.4.1. 18-Month Point

12.4.1.1. The supervisor makes contact with the eligible airmen once notification is received and discusses retention issues. The supervisor ensures the following retention information is discussed and inserted into each eligible airman's Personal Information File (PIF):

12.4.1.1.1. Information on the airmen's reenlistment date

12.4.1.1.2. Results of the initial contact

12.4.1.1.3. Future schedule of attendance at mandatory base-wide briefings

12.4.1.1.4. Tracking log for all future counseling/decision briefs

12.4.1.2. The member will be scheduled to attend a mandatory base wide "Right Decision" type briefing, hosted by the WG/CC and Wing Career Assistance Advisor.

12.4.2. 15-Month Point

12.4.2.1. The Supervisor and Flight Chief will discuss potential career retention with the member to include the following:

12.4.2.1.1. Inform member of his/her status regarding reenlistment

12.4.2.1.2. Determine member's intentions regarding retention. Determine and address reasons affecting separation decision.

12.4.2.1.3. Reviews PIF with member

12.4.2.1.4. Covers facts and benefits sheet

12.4.2.1.5. Counsel member regarding Career Job Reservation or cross training options

12.4.2.1.6. Review HQ USAF/ILM Keep Enlisted Experience program web site URL: **http://www.il.hq.af.mil/ilm/keep**.

12.4.2.1.7. Refers issues regarding assignment or job opportunities for squadron commander engagement.

12.4.3. 13-/12-Month Point

12.4.3.1. Member meets with First Sergeant and supervisor to discuss Selective Reenlistment Program (SRP) and career options.

12.4.3.2. Supervisor forwards package to squadron commander for endorsement.

12.4.3.3. The squadron commander meets with individual before signing the SRP recommendation. He/she counsels the individual on his/her value to the Air Force.

12.4.4. 6-Month Point

12.4.4.1. Member meets with the First Sergeant and supervisor to determine current intentions.

12.4.4.2. If unsuccessful in retaining on active duty, encourage the member to meet with ANG/AFRC recruiters or consider civil service option (e.g. work in the Depot).

12.4.4.3. Make member aware of Palace Chase/Palace Front briefing given by ANG/AFRC recruiter.

12.4.4.4. Brief airman on the Extended Prior Service Program.

12.4.4.5. Discuss airman's options for reentering the Air Force if they decide to separate

# Chapter 13

## TOOL AND EQUIPMENT MANAGEMENT

**13.1. Tool and Equipment Management.** The objectives of the tool and equipment management program are to prevent and eliminate foreign object damage (FOD) to aircraft, engines, missiles, training and support equipment, and to reduce costs through strict effective control and accountability of assets. To ensure standardization among maintenance units, the MXG/CC or equivalent functional authority for maintenance has responsibility for the tool management program. Maintenance Operations (MOO/SUPT) or equivalent are responsible for executing an effective tool program. The tool management program outlined in this instruction represents the AF minimum program requirements; MAJCOMs may dictate additional requirements. Depot teams/factory reps/CFTs shall adhere to AF/MAJCOM/Local guidance for tool control policies and procedures when working on aerospace equipment possessed by the unit.

**13.2. Guidelines for Program Management.**

13.2.1. The MXG/CC or equivalent functional authority for maintenance will develop a group operating instruction to implement the program. As a minimum, group operating instructions will address the following:

13.2.1.1. Standardize procedures for security, control, and accountability (e.g. chits, manual, barcode, etc.) of tools and equipment to include weapons load crew crimpers, die, lead seals, and engine blade blending blue dye.

13.2.1.2. Procedures for inventory. As a minimum, conduct and document an annual inventory of all tools and equipment.

13.2.1.3. Procedures for warranted tool management.

13.2.1.4. Procedures for strict control and management of replacement, expendable and consumable hand tools, HAZMATs, and other items contained in Composite Tool Kits (CTKs).

13.2.1.5. Procedures for transfer of tools/CTKs at the job site (on-site transfers). CTKs are not normally passed from one individual to another at the job site; however, mission needs occasionally require this action to occur. Ensure tool accountability and control is maintained when transfer occurs between the individuals. As a minimum the individuals involved in the transfer will accomplish a joint inventory and document accordingly.

13.2.1.6. Procedures for lost or missing tools.

13.2.1.6. (ANG) Also procedures for broken tools.

13.2.1.7. Assignment of equipment identification designators (EID) for CTKs, non-CA/CRL equipment, and assignment of CTK numbers for tools.

13.2.1.8. Procedures for issue and control of personal protective equipment (e.g., ear protectors, reflective belts, headsets, etc.).

13.2.1.9. Procedures to ensure positive control of rags.

13.2.1.9. (ANG) A rag is defined as a remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) used in general industrial, shop, and flight line operations. Paper product towels are not considered rags.

13.2.1.10. Procedures to limit numbers of personnel authorized to procure tools.

13.2.1.11. Procedures for control of locally manufactured or developed tools and equipment.

13.2.1.12. Procedures for depot teams, factory representatives, and contract field teams (CFT) when working on equipment within the unit.

13.2.1.13. Procedures and responsibilities for situations where two or more work centers operate a single tool room/support section, or when work centers elect to distribute CTKs or peculiar support/test equipment to decentralized locations.

13.2.1.13.1. Procedures for control of crash recovery and hydrazine response equipment permanently stored/located in trailers or vehicles.

13.2.1.13.2. Develop a coordinated wing OI for procedures to control aircrew tools and Life Support Section tool kits that are dispatched to the flight line. Coordinate procedures through Wing Life Support Superintendent.

13.2.1.13.2. (ANG) The OG/CC shall establish procedures, or use MXG OIs, for control of aircrew tools and life support section tool kits dispatched to the flightline.

13.2.1.13.3. Procedures for occasions when a single person must sign in and sign out a tool kit.

13.2.1.13.3. (ANG) Local procedures must, as a minimum, direct a second party or on-duty supervisor inspection of the tool kit. The same individual that signs out a CTK can not sign it back in.

13.2.1.13.4. Procedures for identifying changes in wing operations that require an Environmental Impact Analysis Process (EIAP) assessment. Program planning shall identify large changes in wing operations to the environmental flight for EIAP assessment fund programming as early as possible.

**13.3. General Program Guidelines.**

13.3.1. Design CTKs to provide a quick inventory and accountability of tools. Develop a simple inventory method, a “show” (e.g. a shadow of the tool) and “know” (knowledge of tool or kit location) concept. Clearly mark all CTKs and tools with the owning organization. Develop local procedures to determine which tools are checked out and who has them. Inspect all tools periodically for serviceability according to TO 32-1-101*, Maintenance & Care of Hand Tools*.

13.3.2. The flight commander/chief will designate and document CTK Custodians to manage and control CTKs. CTK custodians are responsible for tool, HAZMAT, and consumable asset (e.g., assets with ERRC XB3, XD2 and XF3) accountability and control within their respective areas.

13.3.3. Flight and Section Chiefs (or their equivalents) determine the type, size, and number of CTKs required for their work centers and approve the master inventory list (MIL). For weapons load crew CTKs, the wing weapons manager (WWM) will approve and sign the MIL.

13.3.4. A MIL is developed for each type of CTK or equipment kit. A copy of the MIL will be kept in the tool and equipment storage facility at all times for inventory purposes. The CTK custodian has the authority to interchange “like” items.

13.3.4. (ANG) A copy of the MIL must remain with the CTK or equipment kit at all times for inventory purposes.

13.3.4.1. Contents are identified by drawer/section indicating the total number and type of items in each drawer/section of the CTK.

13.3.4.2. A MIL is required for each tool kit or series of identical kits and filed by the CTK custodian in the MIL file (may be automated). The MIL remains valid until contents change (MILs do not require replacement solely to update signature.).

13.3.4.3. If chits/dog tags/identification tags or similar tags or dust caps are attached to tools/equipment, they will be secured in a manner that will preclude any possibility of FOD, and they will be listed on the MIL.

13.3.4.4. Document removed/broken CTK items.

13.3.4.5. Arrange CTK contents for ease of inventory. CTK contents will be standardized to the maximum extent possible within functional elements of a squadron that have similar missions, for example, aircraft flights/sections and CASTs.

13.3.4.6. Each tool, item of equipment, or consumable contained in a CTK has an assigned location identified either by inlay cuts in the shape of the item, shadowed layout, label, or silhouette. No more than one item is stored in a cutout, shadow, or silhouette except for tools issued in sets such as drill bits, allen wrenches, apexes, or paired items (e.g. gloves, booties).

13.3.4.7. Consumables may be placed in CTKs. If so, they are identified on the MIL as consumables. Examples of consumables include, safety wire, adhesive, wire bundle lacing, solder, etc. Do not include common hardware items such as bolts, nuts, and (or) screws unless they are required as tools.

13.3.4.8. Equipment and accessories that do not present a FOD potential and are not dispatched from a work center, support section, or tool room, need not be included in a CTK; however, this equipment must have designated storage locations established.

13.3.4.9. Establish designated locations for test equipment and common accessories (e.g. waveguides, attenuators, fittings, cables, adapters, etc.) that are not part of a CTK. Designated locations may be work areas or stations. (e.g. TMDE, avionics flights, propulsion flight, etc.).

13.3.4.10. Industrial shop machinery accessories/attachments (e.g. blades, arbors, chucks, gears, etc.) need not be controlled as tools, however, these items will be maintained in designated storage locations for accountability. As a minimum, storage cabinets/drawers will be labeled to identify the contents.

13.3.4.11. Tools/expendable items used for titanium engine blade blending will be kept in a special purpose kit separate from other tools. In addition to normal CTK identification these kits will be marked “Controlled Items” “For Titanium Engine Blade Blending Only”.

13.3.4.12. Remove pocket clips from tools when possible (flashlights, continuity testers, small screwdrivers, etc.) prior to placement in tool kits.

13.3.4.13. Personal tools not controlled through CTK procedures are NOT authorized on the flight line, or in any maintenance area. (e.g. mini-mag flashlights, leathermans, buck knives, etc.).

Mark and control tools or equipment that a work center assigns to an individual IAW this instruction.

13.3.4.13. (ANG) N/A to the ANG. The following only applies to the ANG: Personal issue tools not controlled through CTK procedures are NOT authorized on the flightline, or in any maintenance area (e.g., mini-mag flashlights, leathermans, buck knives, etc.). Mark and control tools or equipment that a workcenter assigns to an individual IAW this instruction. Personally purchased tools are not authorized.

13.3.4.14. Flashlights, lanterns, portable lighting devices and light sources will conform to the requirements of Article 513 of National Fire Protection Association (National Electric Code), TO 1-1-3, and AFMAN 91-201, *Explosive Safety Standards*. NOTE: Aircraft and equipment technical orders may dictate additional restrictions.

13.3.4.15. For deployment purposes ensure equipment, tools, and HAZMAT items are properly identified, prepared, and documented IAW AFI 10-403, *Deployment Planning and Execution*.

13.3.5. (Added-ANG) Expendable hand tools such as blades, apexes, files, and file cleaners consumed during use may be placed on bench stock. However, strict accountability and control procedures are included in unit procedures. If items are not placed on bench stock, the replacement tool procedures in Paragraph **13.9. (Added)** apply.

**13.4. Marking and Tool Identification.**

13.4.1. All units must mark their tools with the standard nine-digit Equipment Identification Designator (EID) consisting of numbers and letters of which the first four characters will be a unique Worldwide Identification (WWID) code. Units must etch, stamp, or mark assigned CTKs, tools, and dispatchable equipment (NOTE: Dispatchable equipment is defined as items that can be checked out from a support section to perform on-/off-equipment maintenance within or outside the unit). Units may affix non-metallic bar code labels on tools to prevent re-etching as long as the use of the tool and its work environment does not normally result in excessive damage to the label making it unreadable. The first two letters of the WWID in the EID must be selected from within the TAS program (and in many cases, the first two digits of the WWID are the wing's/unit's personnel assignment system (PAS) base code). Multiple wings (or equivalent) at the same base (i.e., ANG, AFRC, and active duty) must have different WWID codes. When needed, request additional "base" codes from HQ SSG/ILM, Gunter Annex, Maxwell AFB, AL. The third and fourth characters designate the unit or shop by using unique/distinguishable characters (i.e., the last two digits of the unit's/shop's office symbol). To ensure tool rooms have unique identifiers, wings (or equivalent) must ensure other units within the same wing or PAS code do not duplicate the first 4 characters of the EID. The unit establishes the remaining five characters (any combination of numbers/letters) for CTKs, tools, and dispatchable equipment identification. (NOTE: The intent is for the four characters of the WWID to identify the base (first and second character), unit (third character), and shop (fourth character) in order to leave the remaining five characters available for tool/CTK/equipment numbering.) Units must place the 9-digit EID on all CTKs, tools, and dispatchable equipment that is of sufficient size. The 9-digit EID must be placed on the outside of dispatchable CTKs. Tools located inside the tool box may be marked with less than 9-digits but must contain the 4-digit WWID and identifying character(s) that ties the tool back to the CTK. For example, tools inside an assigned dispatchable CTK "U6JG00001" may be marked "U6JG1." Small tools or items that cannot be marked as described above (such as drill bits, allen wrench sets, apexes, etc.) are to be maintained in a container marked with the WWID and an

identifying character(s) that ties the tool back to the CTK along with the number of tools contained. The container is counted as one of the items.

13.4.1. (ANG) If using TAS.

13.4.1.1. Do not create a new EID for TMDE assets. Utilize the existing bar code number on the AFTO Form 65 (metallic) or AFTO Form 67 (non-metallic) attached by PMEL.

13.4.2. Mark hand grease guns, dispensing cans, spray bottles, pump oilers, and similar containers with the type of grease, fluid, or other liquids and military specification (MILSPEC) of the contents. If no MILSPEC exists, the manufacturer's name, part number/NSN will be used. Keep hoses and fittings separate for each type of grease. NOTE: If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements of AFOSH Std 161-21, *Hazard Communication*, and local directives are accomplished.

13.4.3. Fiberglass handled hammers are etched on the metal head only (not on handle) in a non-impact area.

13.4.4. CTKs, tools, and dispatchable equipment (excluding TMDE) that may possess a unique serial/tracking number must be marked with an EID number. If the item cannot be marked, etched, or stamped, annotate the additional designator on the CTK contents list.

13.4.5. Items that are assembled and are not intended to be disassembled during use, require only one mark/etch/stamp and one entry in the MIL (e.g. scribes, flashlights, grease guns, etc.).

13.4.6. Remove the EID from unserviceable tools and tools removed from the CTK, and update the MIL accordingly.

**13.5. Tool Accountability, Control, and Inventory.**

13.5.1. All units must use the Air Force approved TAS for accountability and control of items as outlined below in paragraph **13.5.1.1.** ***Exception:*** MAJCOMs can authorize manual tracking for small work centers on a case by case basis. Contractors and MEOs using a non-TAS automated system that was accepted by the government, may continue to use that system until the contract is recompeted and the requirement for using TAS is added to the follow-on contract, or the contractor/MEO voluntarily elects to use TAS at no additional expense to the government. Accountability means knowing where tools are and who has responsibility for them. Flight commanders/chiefs and section chiefs, through CTK custodians, are responsible for tool and equipment accountability and control. When a person signs for a tool or piece of equipment, he or she is accountable for it until it is returned to the tool room and accountability transfers back to the CTK custodian (through a representative or tool room employee). Air Logistics Centers must continue to implement the Facilities and Equipment Maintenance (FEM) tool module as the depot standard.

13.5.1. (ANG) TAS is the only authorized software program for tracking tools. ANG units may use manual tracking instead of TAS when the unit's tools are not commingled with the active forces during AEF, contingencies, deployments, etc. Units shall use a chit system, AF IMT 1297, a MAJCOM, or locally approved form must be used for accountability and control of CTKs, equipment, and tools. To identify items manually (not tracked in TAS): Tools, equipment, and CTKs must be etched, stamped, or marked to aid in inventory. Multiple cabinets may be identified as one CTK. The tools or equipment contained in a CTK must be assigned the number of the parent CTK. Small tools or items belonging to a CTK, which cannot be marked (drill bits, allen wrenches, apexes, containers, lids, etc.)

are maintained in a container marked with the assigned number and the quantity of tools contained therein. The container is counted as one of the items.

13.5.1.1. Units will use TAS to:

13.5.1.1.1. Track, issue, and receipt for all assigned tools, equipment, tool kits, HAZMAT items, T.O.s

13.5.1.1.2. Track authorizations/restrictions for special tools/equipment (by individual)

13.5.1.1.3. Track inspections required by this instruction

13.5.1.1.4. Track spare, lost, and damaged (removed) tools

13.5.1.1.5. DELETED.

13.5.1.1.6. Develop and manage tool/equipment inventories

13.5.1.1.7. Develop and manage deployment kits (import/export)

13.5.1.2. If an automated system is not available (such as at a deployed location), units may use a chit system, AF Form 1297 or, a MAJCOM or locally approved Form for accountability and control of CTKs, equipment, and tools. When using a chit system, chits are controlled as tools to include a beginning and end of shift inventory. Do not issue chits directly to individuals or remove them from tool rooms. Chit control boards are located in secure locations.

13.5.2. Account for all CTKs, tools, and dispatchable equipment at the beginning and end of each shift. Document shift inventories. CTKs present during tool room shift inventories do not need to be opened for inventory.

13.5.2.1. Perform a visual inventory of all CTKs when issued for use, at the completion of job or tasks, and when returned to the tool storage facility. Accomplish a CTK inventory prior to operation of any aircraft or equipment when maintenance actions were performed (engine run, landing gear retraction, flight control operational checks, etc.).

13.5.2.2. At least annually or when the CTK custodian changes, conduct a comprehensive inventory of all tools, non-CA/CRL equipment, and CTKs. The purpose of this inventory is to perform an extensive inspection of all tools and non-CA/CRL equipment, to include condition, identification markings, and accuracy of the MIL. Inspect all tools for serviceability according to TO 32-1-101. CTK custodians document these inventories and maintain the most current inventory documentation on file.

13.5.3. Electronic Tools (E-Tools). The following section contains guidance for maintenance personnel and support sections for the accountability, control and use of E-Tools. Group TODO offices must be used to effectively control the electronic technical data configuration. Workgroup managers shall monitor E-Tool configuration (operating system, virus checkers, etc.) IAW 33-series AFIs.

13.5.3.1. The wing and squadron support sections must establish procedures for local accountability, control and use of Electronic Tools (E-Tools) to include laptops computers, electronic “tablets”, hand-held devices, etc. As a minimum, representatives from unit Communications, the Technical Order Distribution Office, Small Computers, and Maintenance should coordinate on the contents of these procedures.

13.5.3.2. E-Tools purchased and used for the purpose of viewing digital technical data and maintenance documentation must be accounted for as Automated Data Processing Equipment (ADPE) IAW 33-Series AFIs.

13.5.3.2.1. Licenses, certification, maintenance and security of E-Tools (hardware and software) must also be IAW 33-series AFIs and AFI 21-116. Units must make maximum use of E-Tool warranties and ensure that only serviceable E-Tools with fully charged batteries, up to date system software, and current technical data are available for checkout.

13.5.3.2.2. E-Tools purchased by the MAJCOM for viewing digitized data and maintenance documentation must only be used for their intended purpose. Only MAJCOM-authorized software required to directly support maintenance activities shall be loaded/installed on E-Tools.

13.5.3.2.3. An ADPE account specifically designated for E-Tools shall be set up within each support section if applicable. This is to account for E-Tools separately from other small computers within the squadron or support section. A copy of this E-Tool ADPE account must be kept on file by the TODO to facilitate technical data inventory and configuration.

13.5.3.3. The Lead or Group TODO custodian shall be the MAJCOM's POC for coordinating E-Tool requirements to support digitized TOs.

13.5.3.3.1. The TODO shall be the focal point between users, support sections, base Small Computers and system administrators for matters concerning digitized technical data and E-Tools.

13.5.3.3.2. The Lead TODO must maintain a copy of all E-Tool ADPE accounts. The Lead TODO(s) shall work with other TODOs and Technical Order Distribution Accounts (TODA) to ensure E-Tools are configured with current software to support technical order and maintenance documentation.

13.5.3.4. E-Tools must be controlled and issued from the applicable support section using the same procedures used for other support equipment.

13.5.3.4.1. Ensure E-Tools are managed properly IAW their security classification.

**13.6. Locally Manufactured or Developed Tools and Equipment.** QA coordinates on all requests for approval and use of locally designed tools or equipment that carry loads, change torque, or present potential to damage government resources. Group Commanders or their designated representative will have approval authority. NOTE: This procedure does not apply to local manufacture, modification or design of tools authorized in specific technical data. Users will review items and requirements biennially (every two years) for applicability and current configuration.

**13.7. Tool Room Operations and Security.** Limit tool issue sections to no more than one per work center. Establish procedures to ensure custodial control. Set up tool rooms to ensure positive accountability. Process tools that are lost, damaged, or destroyed, due to neglect according to AFMAN 23-220, *Reports of Survey For Air Force Property*.

**13.7. (ANG)** If established.

13.7.1. The tool room must be capable of being locked and afford protective measures such as monitoring, 24-hour coverage, or controlled key access. The section chief authorizes access to tool rooms. When all CTKs are not capable of being secured in the tool room, the section chief will design a pro-

cess to prevent the unauthorized use or access to tools and equipment. Due to space and facility limitations, it may not be possible to store oversized tool kits in the tool room.

13.7.1.1. Tool kit locks will be used to provide a physical barrier to opening the container lid or door and prevent the unauthorized removal of tools. Locks are not required on tools and equipment that are stored within secured tool rooms or work centers.

13.7.1.2. Dispatchable tools, equipment, and CTKs are locked and/or secured when left unattended. Tools and equipment are never secured to the exterior of an aircraft. Unattended tool kits located within the controlled area are required to be locked but do not need to be secured to another object.

13.7.1.3. Modifications to tool containers are authorized unless modification voids the manufacturer's warranty.

13.7.1.4. Tool rooms will not issue tools individually from dispatchable CTKs. When a recurring need exists for common tools to be issued individually, e.g., hammers, screwdrivers, pliers, drills, wrenches, etc., to perform routine, housekeeping or facility tasks within the work center, add the tools to a MIL.

**13.8. Lost Item/Tool Procedures.**

13.8.1. Supervisors ensure all assigned personnel are familiar with lost tool procedures. If an item/tool or a portion of a broken tool is discovered missing, the following procedures apply:

13.8.1.1. The person identifying the missing item/tool will search the immediate work area for the item/tool. If not found, after completing an initial search the individual will notify the expediter/production supervisor or equivalent.

13.8.1.1. (ANG) When a tool/item is discovered missing after an aircraft has taxied the maintenance supervision shall notify the MOC who in turn notifies the pilot and recalls the aircraft, if necessary.

13.8.1.2. Place a red X in the aircraft or equipment forms of all affected aircraft with a description of the tool and a specific, last known, location of the tool.

13.8.1.3. Expediter/production supervisor or equivalent will immediately notify the flight commander or chief, support section, MOC, and QA.

13.8.1.4. Initiate a thorough search for the tool.

13.8.1.5. After a thorough search is completed and the tool is not found, the person issued the item/tool will initiate a lost tool report.

13.8.1.6. If at any time during the investigation the item/tool is found and retrieved, notify the flight commander or chief, support section, MOC, QA, expediter, production supervisor or equivalent, and the owning work center.

13.8.1.7. If not found, the MOC will notify the MXG/CC of the missing item/tool.

13.8.1.8. If the item is not located, Maintenance Operations (MOO/SUPT) shall determine when the search may be discontinued.

13.8.1.8.1. Limit authorization to clear red-X's when a tool cannot be located to no lower than Maintenance Operations (MOO/SUPT).

13.8.1.9. When it is suspected that the item/tool has fallen into an inaccessible or unobservable aircraft area, perform a non-destructive inspection (NDI) or use borescope equipment to locate the lost tool.

13.8.1.9.1. If the item/tool is in an inaccessible area that poses no FOD threat and the action is to leave the item/tool in place, the x-ray (or equivalent) with the identification of the exact tool location and copies of all information concerning the lost tool are maintained in the aircraft historical file until the item/tool is recovered.

13.8.1.10. If at any time during the investigation the item/tool is found but is inaccessible, notify the flight commander or chief, support section, MOC, QA, expediter, production supervisor or equivalent, and the owning work center.

13.8.1.10.1. Maintenance Operations (MOO/SUPT) may explore other possible actions to include having the unit or a depot field team disassemble the aircraft to remove the item/tool.

13.8.1.10.2. If the aircraft MDS is one that has a programmed depot maintenance (PDM) or is scheduled for depot modification, the lost item/tool and location is listed in the AFTO Form 345, **Aerospace Vehicle Transfer Inspection Checklist and Certification**, for removal by the depot.

**13.9. (Added-ANG) Tool Replacement Procedures.** A stock of spare tools is authorized. These tools are used to replace broken, worn, or missing tools to prevent unnecessary work delays. Spare and consumable tools are high pilferage items, and pose a significant potential for fraud, waste, and abuse. CTK custodians authorize the tools and quantities maintained. Inventory replacement tool stocks quarterly. Use a general-purpose form/or computer program (such as AF IMT 3131, *General Purpose*) to annotate log entries when a tool/ item is added or removed from the inventory stock. During the quarterly inventory, the CTK custodian shall validate the quantity of tools/items within each bin. To aid in accountability, control, and inventory, each tool/item shall be separated by use of individual bins or dividers, and sequentially numbered accordingly. Access to spare tools must be limited to the shift supervisor (or equivalent) and CTK custodian.

13.9.1. (Added-ANG) Do not issue replacement tools without a turn-in of the unserviceable tool or documentation indicating the tool is lost and reported accordingly through lost tool procedures. Mark replacement tools with the CTK number prior to issue. If previously issued serviceable tools are to be used as replacement tools, completely de-etch any prior CTK assigned markings.

# Chapter 14

## MOBILITY AIRCRAFT DEFENSIVE SYSTEMS LOADING POLICY

**14.1. Applicability.** Units/bases without 2W1X1 personnel assigned required to install/remove chaff/flare on aircraft (C-141, C-130, etc.) will establish a program to train and qualify their personnel to perform these tasks. These units will use provisions of this chapter to form and organize a training and qualification program. An 7/9-level individual with a maintenance AFSC will be appointed by the MXG commander to perform Weapons Task Qualification Training Manager (WTQM) duties as described in this chapter for the purposes of establishing and maintaining a chaff/flare loading and unloading functions. He/she will appoint personnel as needed to act as the Weapons Task Qualification Crew (WTQC). The WTQM and the WTQC will: 1) ensure chaff/flare loading operations are conducted safely; 2) provide initial and recurring load training; and 3) serve as the focal point for all chaff/flare loading issues, 4) observe only and will not be a part of the load operations during training. The intent is to establish and maintain a viable, safe loading/unloading capability and to train proficient crews. Only qualified personnel are authorized to perform load and unload tasks.

**14.1. (ANG)** At ANG wings assigned with both C-130 and HH-60 aircraft, the procedures located in this chapter shall apply to the C-130 mission. Wing Weapons Managers at combined A-10 and C-130 units shall determine applicability.

**14.2. Training.** All training, proficiency and documentation requirements described in this chapter must be met to include a local OI for launch and recovery of explosives loaded aircraft according to paragraph **14.2.1.8.**

14.2.1. The WTQM develops and oversees the chaff/flare loading standardization program, sets standards, develops local policies and procedures, and interprets tech data/other directives, which govern the chaff/flare loading standardization program. The WTQM is typically a 2A1X7 (EW Craftsman), however, other flight line 2AXXX personnel may perform this function. Individuals selected as the WTQM will be documented on the SCR. The WTQM will:

14.2.1.1. Be assigned to Quality Assurance. At CONUS stations, the WTQM is typically a 2A1X7. The en route WTQM will be 2AX7X minimum skill level.

14.2.1.1. (ANG) N/A to the ANG.

14.2.1.2. Receive initial and recurring load qualification training from a WTQC and maintain currency on chaff/flare loading tasks. Once trained, he/she will develop and administer the unit's chaff/flare load training program. NOTE, In the event that a unit is initially tasked and has no qualified instructors, it will be necessary for the WTQM to travel to a unit with qualified trainers. Once the WTQM is trained and qualified they can train and qualify the home station WTQC personnel.

14.2.1.2. (ANG) N/A to the ANG. The following only applies to the ANG: Receives initial and annual recurring load Qualification training, documented on AF IMT 2419, from qualified personnel from the 139 AW/AATTC, St. Joseph, Missouri for C-130's only, and maintains currency on chaff/flare loading task. For C-5's and C-17's coordinate training with AMC. Once trained, the WTQM develops and administers the unit's chaff/flare load training program.

14.2.1.3. Select, train, evaluate, and qualify a minimum of two personnel as the WTQC on safe and reliable munitions loading procedures. Evaluates and requalifies WTQC semiannually. Designate WTQC members on the SCR.

14.2.1.3. (ANG) Evaluates and requalifies WTQC annually. **NOTE**: In the event that a unit is initially tasked and has no qualified instructors, it shall be necessary for the WTQM to travel to a unit with qualified trainers. Once the WTQM is trained and qualified they can train and qualify the home station WTQC personnel.

14.2.1.4. Designates, in coordination with MXG commander, sufficient personnel to be chaff/flare loading qualified to support the unit's mission. Maintains a qualification status system to depict trained personnel and their qualification status. As a minimum, it identifies the number of qualified personnel, names and employee numbers, MDS qualification, Defensive Systems (DS) equipment type, qualification date, and date(s) when recurring training is due. *NOTE*: Automated systems such as G081 or CAMS may be used.

14.2.1.5. Establishes time standards for initial and recurring loading tasks. The senior evaluator has the discretion to add to the standard if inclement weather or equipment failure is the cause of exceeding the time standard. AMC lead wings develop time standards for each MDS for qualification purposes.

14.2.1.6. Review and approve or disapprove AFTO Forms 22 that pertain to chaff/flare loading tech data.

14.2.1.7. Develops a Task Assignment List (TAL) which may be used during training for all chaff /flare loading operations. AMC lead wings develop MDS-specific TALs. TAL is derived from applicable MDS munitions load checklist (33-1-2 series TO). TAL identifies the load crewmember responsibilities by step.

14.2.1.8. Work with the local explosives safety officer and airfield management to develop an OI for handling chaff/flare-loaded aircraft IAW AFMAN 91-201, *Explosives Safety Standards*, and AFI 91-202, *The USAF Mishap Prevention Program*. As a minimum, this OI will cover launch/recovery procedures for chaff/flare-loaded aircraft; chaff/flare storage and transportation; and partially ejected flare procedures. Annotate chaff/flare loaded on AMC aircraft in G081 using program 9018.

14.2.1.8. (ANG) Work with Wing Safety or the local explosives safety officer and airfield management to develop an OI for handling chaff/flare-loaded aircraft IAW AFMAN 91-201, and AFI 91-202.

14.2.1.9. Ensure standardization of chaff/flare loading CTKs to the maximum extent possible. Chaff/flare loading CTKs must include all tools and equipment necessary to support applicable MDSs and alternate mission equipment configurations.

14.2.1.10. Coordinate the scheduling of personnel for chaff/flare load training. The WTQM may delegate this duty to the WTQC.

14.2.1.11. Coordinate with MOF PS&D, or the Regional Training Center (RTC) if applicable, to obtain chaff/flare dispensing system-equipped aircraft for training purposes.

14.2.1.12. Ensure training magazines match the characteristics and feel of live magazines (e.g. weight, dimensions, etc.)

14.2.1.13. Weapons Task Qualification Crew (WTQC). The WTQC assists the WTQM in managing the chaff/flare loading standardization program. The WTQC's primary purpose is to train and qualify personnel to load chaff/flares, but it may also perform chaff/flare load duties. The lead WTQC member is typically a 7-level 2A1X7 technician. All training will be conducted using training munitions. The number of WTQC members trained should be based on workload, with consideration given to their ability to maintain proficiency on all applicable MDSs. WTQC members are qualified by their WTQM. The WTQC members will:

14.2.1.14. Provide personnel with initial and recurring load qualification training. At least two WTQC members are required to conduct practical training. *NOTE*: On a case-by-case basis, the MXG/CC (or AMSS/CC at en route locations) may grant approval to the AMC en route WTQM who formally requests one person be allowed to serve as WTQC for the purpose of providing practical training and qualification.

14.2.1.14. (ANG) N/A to the ANG. The following only applies to the ANG: Provide personnel with initial and recurring load qualification training.

14.2.1.15. Monitor personnel qualifications to ensure required academic and practical training is completed. Take disqualification action if recurring requirements are not met.

14.2.1.16. Spot-check personnel to evaluate their proficiency. Disqualify personnel who violate safety, tech data, or reliability procedures, or fail to demonstrate proficiency.

14.2.1.17. Develop and coordinate training schedules and provide them to MOF PS&D for inclusion in the appropriate schedule (monthly, weekly, etc.). *NOTE*: En route WTQMs forward training requirements to the unit training manager, who coordinates for ground training aircraft with the RTC.

14.2.1.17. (ANG) N/A to the ANG. The following only applies to the ANG: Develop and coordinate training schedules and provide them to PS&D for inclusion in the appropriate schedule (monthly, weekly, etc.). Provide personnel with initial and recurring load qualification training.

14.2.2. Academic and Practical Training must be provided during initial and recurring load qualification training. Academic training is required before practical training is accomplished. Recurring academic training is administered annually. As a minimum, academic training will include chaff/flare loading publications familiarization, aircraft familiarization, munitions familiarization, safety, security, support equipment familiarization, test equipment, special tools, handling equipment, local requirements (MAJCOM supplements to AFI 36-2201), T.O. 11A-1-33, *Handling and Maintenance on Explosives Loaded Aircraft*, and emergency procedures. Training course control documents are coordinated annually through the wing weapons safety office and the Maintenance Training Flight. Practical training must be completed within 14 days of satisfactorily completing academic training. Practical training should duplicate operational conditions as closely as possible. Recurring practical task qualification is administered at least annually. As a minimum, practical training will include chaff/ flare module serviceability criteria, actual chaff/flare loading, and operation of support equipment/ AGE used during loading operations. *NOTE*: Weapons task qualification academic training may fulfill the requirements for explosive safety training if the requirements of AFI 91-202, *The United States Air Force Mishap Prevention Program*, are included. TALs and the loading technical order (33-1-2) must be available at the load-training site.

14.2.3. A load crew member qualified on a specific task on a specific mission design series (MDS) aircraft is considered qualified to perform that task on all series of that MDS; however, the member

must be familiarized with differences within the MDS (e.g. cockpit switch locations). The WTQM or WTQC provide practical, on-aircraft training on these differences, then document these qualifications for each dispensing system in the qualification status system.

**14.3. Qualifying Chaff/Flare Load Personnel.** Load qualification training consists of academic and practical training. Personnel are considered qualified upon successful completion of training provided by a qualified WTQC. Document initial load qualification training in the qualification status system (see paragraph **14.2.1.4.**) and member's CFETP. Document recurring load qualification training in the qualification status system. Initial qualification will be conducted using training munitions; live munitions may be used during annual qualification to maintain currency.

14.3.1. Current qualification of chaff/flare load personnel is valid worldwide.

14.3.2. Disqualifying Chaff/Flare Load Personnel. Although not all-inclusive, the following criteria constitute grounds for disqualifying personnel from chaff/flare loading duties: 1) failing to complete recurring training; 2) committing a safety or reliability error; or 3) lack of proficiency. Document disqualification in the member's CFETP and the qualification status system.

**14.4. Transient Aircraft.**

14.4.1. Apply the following rules when working transient aircraft:

14.4.1.1. If tech data is not available, then under no circumstances will personnel attempt chaff/flare load operations.

14.4.1.2. If tech data is available, then qualified personnel may perform chaff/flare load operations.

14.4.1.3. If tech data is available, but no one is qualified on the transient aircraft, then the MXG/CC (or AMSS/CC at en route locations) may authorize the WTQC or WTQM to dearm and/or unload the aircraft. *NOTE*: This is a temporary, one-time, authorization to facilitate required maintenance when qualified personnel are not available. The WTQM submits a written request to the MXG/CC (or AMSS/CC at en route locations) identifying personnel selected to perform the task, aircraft type and (if applicable) number of aircraft to be dearmed and unloaded. Maintain approved requests for 90 days from date to provide a paper trail.

**14.5. Identification of Chaff/Flare-Loaded Aircraft.** If an aircraft is chaff/flare-loaded, safe it IAW applicable tech data prior to performing any maintenance. Verify chaff/flare load status of aircraft by checking AFTO Forms 781A/C/H before performing any maintenance. AMC does not require aircraft armament placards, but many restrictions apply when performing maintenance on chaff/flare-loaded aircraft.

14.5.1. Annotate the aircraft 781-series forms IAW TO 00-20-1, this instruction, and applicable AMC directives: 1) AFTO Form 781A, *Maintenance Discrepancy and Maintenance Document*; 2) AFTO Form 781C, *Avionics Configuration and Load Status*; 3) AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*. Before loading chaff/flares, review the AFTO Form 781C, *Avionics Configuration and Load Status Document*, for DS inspection status. NOTE: Do not load chaff/flares if the aircraft is overdue a scheduled DS inspection.

14.5.2. AMC Documents DS software version data and aircraft inspections (e.g. 90-, 120-, or 180-day checks) on AFTO Form 781C, Avionics Configuration and Load Status Document. For soft-

ware version data, enter the following information in the "Remarks" section for each reprogrammable system: type system; installed Operational Flight Program (OFP) version; and/or Mission Data File (MDF) version (e.g. ALE-47, OFP XXXX, MDF XXXX). If a system contains multiple OFPs, list all applicable versions (e.g. ALE-47, Programmer OFP XXXX, Sequencer OFP XXXX, MDF XXXX.

**14.6. Documentation Requirements.** Annotate AF Form 2434, **Munitions Configuration and Expenditure Document**, on all aircraft configured and loaded to release or fire chaff/flares. Record the number and type of chaff/flares in the appropriate munitions column. A locally developed form may be used, as long as it includes all AF Form 2434 data elements.

14.6.1. Guidance pertaining to reconciliation of AF Form 2434 (or equivalent) and reconciliation responsibility:

14.6.1.1. Reconcile and verify expenditures during aircraft debrief.

14.6.1.2. Flight line expediter will ensure visual reconciliation is completed.

14.6.1.3. Homestation reconciliation data is provided to the unit MASO.

14.6.1.4. For enroute aircraft loaded at homestation, 2434 (or equivalent) reconciliation data will be forwarded through the AMOG munitions POC to the applicable homestation MASO.

14.6.1.5. For aircraft loaded at enroute units, 2434 (or equivalent) reconciliation data is forwarded through the AMOG munitions POC to the applicable host unit.

14.6.2. (For ANG only) Receives initial and recurring (if non 2W1XX) load Qualification training, documented on AF Form 2419, from qualified personnel at the 139 AW/AATTC, St. Joseph, MO, and maintains currency on chaff/flare loading task. Once trained, the WTQM develops and administers the unit's chaff/flare load training program.

**14.7. Chaff/Flare Buildup.** Chaff/flare magazine buildup will only be accomplished by 2WO/2W1 personnel. AFRC and ANG individuals may be task-qualified for chaff/flare buildup but must be supervised by a fully qualified 2W0/2W1. Units performing chaff/flare buildup will do so only in approved facilities/locations. Units must have an approved explosive site plan on file with the MAJCOM Weapons Safety prior to initiating chaff/flare buildup or storage operations.

**14.7. (ANG)** Operations involving the build-up of chaff/flare magazines must have a minimum crew size of two qualified munitions personnel.

**14.8. Training Facilities.** An academic classroom with appropriate heating and cooling is required for weapons academics training.

# Chapter 15

## MAINTENANCE PLANS, SCHEDULING AND DOCUMENTATION (PS&D)

**15.1. General.** In CAF units, maintenance schedulers will be assigned to both Maintenance Operations Flight (MOF) and Aircraft Maintenance Unit (AMU) PS&D sections. In MAF units, aircraft maintenance schedulers are centralized in the MOF PS&D section. Maintenance documentation is an integral part of all PS&D functions. PS&D sections maintain historical maintenance data within the maintenance information system (MIS). The accuracy of maintenance document entries is a basic responsibility of the initiator and supervisors. PS&D sections develop wing maintenance plans using MIS aircraft historical data input by all maintenance personnel. The accuracy of entries in the MIS affects the development of plans and is a basic responsibility of all unit personnel.

***NOTE:*** In MAF units, AMU PS&D functions listed throughout this chapter will be performed by MOF PS&D.

**15.1. (ANG)** For the ANG the MOF and AMU PS&D sections are the same and located in the MOF, except for the 116th ACW. The 162nd FW in coordination with LM Aero, GE, and UAE shall develop local written procedures in an OI/Sup addressing all UAE F-16 block 60 program Plans, Scheduling and Documentation requirements.

**15.2. Maintenance Operations Flight (MOF) PS&D Section.**

15.2.1. 2R1XX AFSC Functional Management. The MOF PS&D Superintendent shall serve as the wing 2R1XX functional manager and advisor to all maintenance scheduling activities. The 2R1XX functional manager must ensure the following duties are performed:

15.2.1.1. Collect data monthly for assigned, inbound, and outbound 2R1XX personnel to ensure equitable distribution of personnel in each of the maintenance scheduling sections. Coordinate on all Authorization Change Requests (ACRs) submitted to base manpower involving 2R1XX positions. Not applicable to AFRC.

15.2.1.1. (ANG) N/A to the ANG except for the 116th ACW active duty personnel.

15.2.1.2. Visit all decentralized scheduling activities quarterly (semiannually for contract and civil service organizations) and provide technical assistance where needed. During the visit, ensure squadron maintenance and non-installed historical documents are properly maintained. Provide formal written reports of deficiencies found during visits to the MOS commander, QA and the affected flight supervision and squadron commander. Affected scheduling activities will provide written responses addressing deficiency resolution through their commanders to all addressees. Deficiencies will not be closed until validated by the functional manager.

15.2.1.3. Establish and coordinate plans for rotating 2R1XX personnel through various duty positions to increase field knowledge and experience every 24 months, not to exceed 36 months. This rotation plan applies to TSgts and below as well as 3- or 5-skill level personnel of any rank. Affected commanders will resolve any rotation conflicts. Rotating Civil Service and contractor maintenance personnel is a local/contract management decision.

15.2.1.3. (ANG) N/A to the ANG except for the 116th ACW active duty personnel.

15.2.1.4. Perform initial evaluations for all incoming 2R1X1 personnel. Provide a written assessment of the individual's training needs to the gaining squadron. Initial interviews will be documented on an AF Form 623a, **On-the-Job Training Record Continuation Sheet**, and filed in the individual's training record - for those who require training records.

15.2.1.5. In conjunction with the Maintenance Training Flight and squadron Maintenance Operations Officers (MOOs), develop and periodically review training programs for all 2R1X1 personnel. The training plan must include familiarization with assigned weapons systems, core task training/certification procedures and continued proficiency in scheduling and documentation techniques.

15.2.1.5.1. Ensure personnel receive weapon system familiarization training, if not already familiar, through the MTF/TD within 3 months of assignment. If courses are not available, coordinate with the appropriate AMU for familiarization training. Document familiarization training in the individual's training record.

15.2.1.5.2. Civil Service and contractor maintenance organizations must comply with training plans established in the Performance Work Statement (PWS) or Statement Of Work (SOW).

15.2.1.6. Provide functional expertise on all maintenance scheduling issues and equipment historical document (AFTO Forms 95) management to QA during inspection/evaluations.

15.2.2. Wing Aerospace Vehicle Distribution Officer (AVDO). MOF PS&D performs the AVDO function IAW AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, and maintains the inventory portion of the MIS Inventory, Status and Utilization subsystem. MOF PS&D will:

15.2.2.1. Ensure all assignment/possession changes are properly coordinated through the MAJCOM AVDO IAW AFI 21-103 and AFI 16-402.

15.2.2.2. Develop written procedures for the accounting of aircraft flying hours in the appropriate MIS IAW AFI 21-103. The procedures will provide guidance for daily reconciliations of all sorties flown and will ensure the MIS is reconciled with operations and all changes completed NLT the 4$^{th}$ calendar day of the month.

15.2.2.3. Keep a current serial number listing of aircraft and equipment depot and maintenance repair program schedules in support of AFMC and MAJCOM plans and requirements. This listing will contain all MAJCOM directed modification and maintenance programs. Publish these schedules in the weekly and monthly maintenance plan.

15.2.2.4. Manage the aircraft transfer/depot program. MOF PS&D will coordinate any changes to the transfer/depot/Depot Field Team (DFT)/Contract Field Team (CFT) programs with AMU PS&D sections and all affected agencies. Forward copies of all schedules and changes to the MAJCOM-AVDO.

15.2.2.4. (ANG) N/A to the ANG. The following only applies to the ANG: Manage the aircraft transfer/depot program. MOF PS&D shall coordinate any changes to the transfer/depot/DFT/CFT programs with AMF PS&D sections and all affected agencies.

15.2.2.5. Coordinate with AMU PS&D and QA on all AFTO Forms 103, **Aircraft/Missile Condition Data**, and submit them IAW TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*. Coordinate any resulting changes to the depot program with affected scheduling functions.

15.2.2.6. Comply with -21 equipment accountability requirements in AFI 21-103, and MAJCOM supplements. –21 accountability may be decentralized to AMU PS&D, however MOF PS&D will continue oversight and set policy.

15.2.2.6. (ANG) The MXG/CC may determine which workcenters shall perform this function.

15.2.3. Standardized Procedures. MOF PS&D publishes written guidance to ensure standardization of core scheduling practices across the wing to include:

15.2.3.1. Manual updates for MIS products. Procedures will define the standardized wing method for updating products as changes occur and new products are received.

15.2.3.1.1. (Added-ANG) Paper MIS products are not required when using Maintenance Scheduling Application Tool (MSAT). Units shall develop procedures to update manual products in the event MSAT and the MIS is not available for extended period of time (i.e., more than 48 hours). Back-up plan must ensure access to the most current paper or electronic version of MIS products used in MSAT, in the event MSAT is not available. The MSAT administrator shall be assigned to MOF PS&D.

15.2.3.2. Automated and manual AFTO Form 95 documentation requirements.

15.2.3.3. Standardized aircraft jacket files. Include missing forms policy requirements and semi-annual jacket file review checklists. MOF PS&D must develop and maintain a standardized master aircraft jacket file for use throughout the wing. Wing assigned aircraft jacket files must mirror the standard in organization and appearance. Slight variations in composition are allowed between different MDSs.

15.2.3.4. Aircraft Document Reviews (ADRs). Include instructions for ADRs at home station and deployed locations to supplement requirements in **Chapter 7**. The procedures will identify who initiates the ADR, reviewing agencies (to include the OAP lab), AFTO Form 781 entry requirements and the agency responsible for completing the AFTO Form 781/MIS entry. Procedures will also outline any configuration verification requirements. MIS automated records checks or on-line MIS products may be used to perform the ADR, however the use and update of MIS products will be standardized for all wing assigned units.

15.2.3.4.1. The ADR procedures must outline configuration management verification requirements to include CAMS screen 990 for out-of-configuration condition. Establish a single delayed discrepancy in the aircraft forms for out-of-configuration condition. Add a CAMS/IMDS work center event (WCE) for each WUC and part/serial number item requiring verification to that single delayed discrepancy. If an item data plate is missing or does not have a serial number, contact the MAJCOM system functional manager and ALC item manager for disposition. Items not accessed or visible during routine organizational/field-level maintenance should be identified to MAJCOM and ALC managers for removal from the configuration management table.

15.2.3.5. Pre-dock and post-dock inspection meetings guidance to supplement this chapter and identify minimum required attendees. MOF PS&D will periodically attend meetings and notify the AMXS/CC, MOS/CC and appropriate flight supervisors of any recurring problems.

15.2.3.6. Inspection requirements for historical documents at all decentralized scheduling activities IAW this chapter and MAJCOM guidance.

15.2.3.7. Management of the wing's SI, TCI, TCTO, and Aircraft Configuration Management (ACM) programs IAW this chapter and MAJCOM guidance. Assign specific responsibilities for each work center involved (i.e., egress, life support, survival equipment and AMU PS&D) and establish procedures to ensure configuration data is maintained during routine maintenance actions. TCI and TCTO procedures must outline the requirements for ordering hazardous materials (Example: Batteries). Units must not delegate (CAMS/IMDS only) suspense validation processing for TCIs installed on aircraft to the performing work center unless the written procedures include a list of work centers and specific technicians authorized to process suspenses, a list of the specific suspenses are authorized to be cleared, and the method for notifying AMU scheduling sections of the work completed (an audit trail). Engine management must process all MIS suspense validations for engines and engine components.

15.2.3.7. (ANG) Use of MSAT is mandatory in ANG units using CAMS.

15.2.3.8. Common formats for TCTO folders and monthly/weekly utilization and maintenance schedules across the wing. Folders and schedules will be standardized among same Mission Design Series (MDS) aircraft, but may vary slightly between MDSs.

15.2.3.9. Freezing and consolidating aircraft and equipment records in the event of an accident mishap, or impoundment.

15.2.3.10. Aircraft transfer/equipment transfer inspections IAW this chapter.

15.2.4. Job Standard Master Listing (JML) Management. MOF PS&D maintains (load, change, and delete) the JML for all inspections and time changes listed in the applicable aircraft Dash-6 and commodity TOs. The MOF Engine Management (EM) section maintains the JML for engine inspections and time changes. Maintain JMLs for off-equipment items in the owning work center. Provide written guidance and training for JML management of off-equipment JSTs when MOF PS&D authorizes owning work centers to maintain it. In G081 units, MAJCOM weapon system managers must maintain master inspection and time change requirements. Once Master Job Standard Numbers (MJSNs) are fielded for a weapon system, local PS&D must review TO 00-20-2 for MJSN procedures. MOF PS&D must load, change, and delete JSTs in the MIS as soon as possible after receipt of any Dash-6 or other technical order TCI or inspection change and promptly notify affected AMU PS&D sections for action. MOF PS&D shall:

15.2.4.1. Load Job Standards (JSTs) for all aircraft -6 special/scheduled inspections in the MIS - for G081 units, the AFTO 781D - this is a shared responsibility with the weapons system manager. Periodic, Phase, engine changes and other event type inspections (i.e. hard landing etc.) are loaded as a work package in the MIS. Provide training for maintaining profile JSTs as necessary to support automated forms (CAMS/IMDS units only).

15.2.4.2. Perform a semiannual review of the JML and all JSTs (other than profile JSTs managed by QA) for accuracy and currency. Reconcile TCI and SI JSTs with the aircraft -6 and applicable commodity series TOs. Document the semi-annual review on AF Form 2411, **Inspection Document**.

15.2.4.2. (ANG) Document the semiannual review on AF IMT 2411, or electronic equivalent.

15.2.4.3. Develop a matrix/chart depicting the total number of SI and TCI requirements to be loaded in the MIS for each assigned aircraft. The total number of SIs and TCIs for each aircraft must be checked against MIS totals weekly. Provide AMU PS&D a list of all discrepancies found.

Overdue and uncorrected discrepancies must be briefed weekly during a wing daily production/scheduling meeting.

15.2.4.3. (ANG) Maintain the TCI and SI matrix using MSAT. The briefing and daily wing meeting is N/A to the ANG.

15.2.4.4. Monitor the inspection and time change subsystems in the MIS. Perform a comprehensive quarterly review of all inspections, SIs, and TCI JSTs for each assigned aircraft. Look for missing and/or excess inspections and time change items loaded to the aircraft. Ensure the accuracy of all due dates/times for TCIs and verify the DOM and DOI. When errors are detected, send a report to the appropriate scheduling function for correction. Document the review, establish a suspense date, forward the report to the applicable PS&D, and suspense the report until the corrections are received. Maintain the report on file with corrective actions until replaced by the next review. The use of automated verification tools is encouraged provided the tools use MIS data as the source for verification.

15.2.4.4. (ANG) Units shall use MSAT to conduct semi-annual reviews and ensure accurate data in the MIS. Semi-annually review all inspection and time change job standards against all assigned aircraft.

15.2.5. Maintenance Schedules. MOF PS&D builds, coordinates, publishes, and distributes an integrated aircraft schedule to support required maintenance and flying operations. Plans and schedules may be published via electronic means (i.e. web pages or E-mail) provided operations security is not compromised. Normal daily operations and training schedules are For Official Use Only and should not be restricted to classified systems. MOF PS&D will:

15.2.5.1. In conjunction with MDSA, provide planning factors for aircraft availability and maintenance capability to operations and maintenance managers and inform them of deviations from maintenance schedules.

15.2.5.2. Coordinate development of the wing's annual flying and maintenance program.

15.2.5.3. Participate in the wing quarterly, monthly, and weekly scheduling meetings.

15.2.5.4. Participate in the daily production/scheduling meeting. The purpose of the daily meeting is to verify aircraft and equipment utilization, scheduled maintenance requirements for the current and next day, establish work priorities, and coordinate schedule changes. Ensure SIs, TCIs, TCTOs, DFT/CFT schedules, and shared resource usage concerns are briefed at least weekly. Brief any uncompleted scheduled maintenance from the previous day, each day. Qualified scheduling representatives from each AMU PS&D and EM must attend the wing daily production/scheduling meeting.

15.2.5.5. Monitor aircraft utilization and maintenance resources to ensure wing programs and commitments are met and that shared resources and schedules are deconflicted. Ensure aircraft and equipment are scheduled to meet all training needs. Review weekly and monthly training schedules prior to publication to minimize impact on production and facilities.

15.2.5.6. Compute maintenance scheduling effectiveness IAW MAJCOM instructions and forward data to MDSA.

15.2.5.6.1. (Added-ANG) Aircraft Maintenance Scheduling Effectiveness (MSE) Rate. The MSE rate is the percentage of scheduled aircraft maintenance events that were completed on or

prior to the date printed in the weekly schedule. An event is considered completed when the last step of the actual scheduled event is completed. Examples of this would be the last step listed in the pre-dock work card of a periodic or isochronal inspection.

15.2.5.6.2. (Added-ANG) The purpose of the MSE rate is to measure the success of a unit in executing its planned maintenance schedule. Scheduled maintenance events are weighted using a measurement criteria intended to reflect the relative magnitude of the events. **Table 15.1. (Added)**, Scheduled Maintenance Actions, lists the scheduled maintenance actions and their weight factors.

MSE Rate = (Maintenance points earned/ maintenance points possible) X 100.

Air National Guard Standard is 95 percent.

**Table 15.1. (Added-ANG) Scheduled Maintenance Actions. (Note 1)**

| ITEM | SCHEDULED ACTIONS | POINTS |
|---|---|---|
| **1.** | Phase Inspection: Periodic (PE) or Isochronal (ISO) | 30 |
| **2.** | Home Station Check (HSC)/Hourly Post Flight (HPO) | 20 |
| **3.** | Time Compliance Technical Order (TCTO) | 20 |
| **4.** | Engine Time Change (Note 2) | 20 |
| **5.** | Aircraft Time Change (Note 2) | 20 |
| **6.** | Special Inspection (Note 2) | 15 |
| **7.** | Wash, Corrosion, Prep, and Paint (Note 2) | 15 |
| **8.** | Delayed Discrepancy (Note 2) | 5 |
| **9.** | Document Review | 5 |
| **10.** | Transfer Inspection or Acceptance Inspection | 3 |
| **11.** | Maintenance and Aircrew Trainers/Static Display | 2 |
| **12.** | Other Scheduled Action (Note 3) | 2 |

***NOTES:***

1. Points are only earned for scheduled maintenance events on tail numbers printed in the weekly schedule. Use the event completion month as the basis for when to report points possible and earned.
2. Non-PE, ISO, HSC, or HPO.
3. Action not listed in the first 11 categories.

15.2.5.7. (Added-ANG) Assists workcenters in assigning ID numbers and automated tracking of inspection criteria.

15.2.5.8. (Added-ANG) Ensure that all borescope inspections are loaded against the engine and not the aircraft.

**15.3. Aircraft Maintenance Unit (AMU) PS&D Section.** AMU PS&D will report directly to AMU Supervision, not production supervisors. Refer to MAJCOM instructions for additional AMU PS&D responsibilities. AMU PS&D will:

***NOTE:*** In MAF units, AMU PS&D functions listed throughout this chapter will be performed by MOF PS&D.

15.3.1. Attend and actively participate in daily, weekly, monthly, quarterly, and yearly flying scheduling programs and meetings IAW in this chapter and:

15.3.1.1. Inform AMU supervision and MOF PS&D of maintenance capabilities or limiting factors that could affect maintenance production.

15.3.1.2. Coordinate with AMU Supervision and OS operations schedulers when scheduling AMU aircraft to meet flying requirements.

15.3.1.3. Coordinate the scheduled use of shared resources with MOF PS&D. Changes during the affected week will be documented on an AF Form 2407, **Weekly/Daily Flying Schedule Coordination**.

15.3.1.4. Provide MOF PS&D a listing of Job Control Numbers (JCNs) for next week's scheduled maintenance by 1600 Friday if JCNs are not listed in the weekly flying and maintenance schedule. This list shall be used to track maintenance scheduling effectiveness. AMU PS&D must assist MOF PS&D in determining causes of missed maintenance for reporting maintenance scheduling effectiveness.

15.3.1.5. Develop and maintain long range maintenance plans in as much detail as possible for use as the basis of weekly and monthly planning. All maintenance requirements will be consolidated into a single long-range plan using the AF Form 2401 or similar computer generated form. At a minimum, the long-range plan shows the current and next 2 month's known maintenance requirements (any maintenance event with a due date). Include the next due event for each calendar inspection, calendar TCI, workable TCTO, PDM, and ISO/PE/Phase. Engine changes, hourly requirements, acceptance and transfer inspections, training and cannibalization aircraft will be posted as they become known or planned. Add Alternate Mission Equipment (AME) inspections to the long-range plan if installed on the aircraft during the planned period.

15.3.2. Conduct aircraft document reviews for AMU assigned aircraft IAW **Chapter 7**, MAJCOM and local instructions.

15.3.3. Generate AFTO Form 103, **Aircraft/Missile Condition Data**, to record certified maintenance needs for aircraft programmed depot maintenance IAW T.O. 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment,* and forward it to MOF PS&D.

15.3.4. Manage the following programs for AMU assigned aircraft: TCTOs, TCIs, and SIs (including installed engine inspections) IAW guidance in this chapter. In CAMS, individual work centers accomplishing TCIs are responsible for changing configuration. The performing work center supervisor and AMU PS&D must conduct supervisory reviews of configuration change, TCTO, SI, and TCI events using CAMS on-line capabilities. Unless otherwise specified in local procedures, AMU schedulers must process CAMS/IMDS screen 128 for all removal, installation, TCI, SI and TCTO compliance updates for any items installed on the aircraft. MOF EM must process CAMS/IMDS screen 128 for engines and engine components.

15.3.4.1. Attend Time Compliance Technical Order (TCTO) planning meetings when AMU aircraft or equipment are affected and initiate/maintain folders for applicable TCTOs. TCTO folders will be standardized IAW MOF PS&D guidance. AMU PS&D will attend the monthly TCTO review meeting hosted by MOF PS&D.

15.3.4.2. Manually update CAMS/IMDS/G081 products as changes occur IAW procedures established by MOF PS&D.

15.3.4.3. Correct TCI and SI program discrepancies identified by the MOF PS&D time change monitor as soon as possible. Provide MOF PS&D with MIS products or other documentation of the corrections.

15.3.5. Aircraft Jacket Files. AMU PS&D will establish a file for aircraft and maintenance historical documents (Jacket File) according to AFMAN 37-123, *Management of Records*, and TO 00-20-1 and dispose of documents according to AFMAN 37-139. Aircraft jacket files will be maintained in the AMU PS&D office and standardized IAW the master aircraft historical file developed by MOF PS&D. Documents decentralized to sections maintaining installed-on equipment (e.g., fuel cell records at fuel systems section, landing gear strut records at hydraulics section) are filed by, and the responsibility of, the owning work center. AMU PS&D will list all historical records including those decentralized in the AMU PS&D file plan (or office of record). The Optional Form 21 will be used to cross-reference documents decentralized from AMU PS&D to other sections. AMU PS&D will:

15.3.5. (ANG) DD Form 2861, *Cross Reference*, shall be used in place of Optional Form 21, *Cross Reference*.

15.3.5.1. Ensure individual documents are kept for end items, subsystems, and components in accordance with the TO 00-20 series, this instruction, AFCSM 21-529, AFMAN 37-123, AFMAN 37-139, and the applicable -6 TOs. MIS Automated history (AHE) is used in place of AFTO Forms 95 to document significant historical events on aircraft and engines, AGE and armament equipment. When an AFTO Form 95 is initially automated, an entry will be made on the manual AFTO Form 95 indicating the date and location of the event. Additionally, the following statement will be entered onto the original AFTO Form 95 in ink; “Automated history started this date”. Printed MIS Automated Forms 95 will be attached to the original AFTO Form 95 and filed in the equipment record. Print a new automated 95 for aircraft installed components requiring an AFTO Form 95 (IAW section 5 of the applicable -6 TO) and attach it to the original AFTO Form 95. A copy of a MIS automated history or equivalent must be printed/down loaded (on a disk or CD) annually and be available at all times. Documents for non-powered AGE, training equipment, and common equipment items requiring very little maintenance documentation may be grouped together in a single folder or area to eliminate keeping a record folder on each individual item. When this is done, documents for similar items should be grouped together and the recorded information should be identifiable to particular pieces of equipment.

15.3.5.2. When aircraft are temporarily moved to operating locations away from the unit of assignment, send only those documents necessary to ensure safety of flight and current aircraft status. Units develop written procedures for records taken to deployed location based on duration of TDY, and peculiar operating requirements. The accumulated airframe hours, TCTO status, time change item status data on installed engines, and critical components are sent from the operating location to the parent unit as specified by MAJCOM instructions when pertinent documents are not sent with the aircraft.

15.3.5.3. Review aircraft jacket files and associated decentralized records semi-annually using the MOF PS&D-developed checklist. The last completed checklist must be kept on file in each aircraft jacket file.

15.3.5.4. Maintain inactive (pulled) AFTO 781 series forms IAW AFMAN 37-139. AFTO Form 781s must be reviewed to ensure no forms are missing, page number blocks are correct, and the "from" date matches the "to" date from previous forms IAW TO 00-20-1, before filing. If forms are missing, send a missing forms letter to the appropriate section chief with a 5-duty-day suspense. If a response is not returned within five duty days, notify AMU supervision. If forms cannot be located, file the missing forms letter, endorsed by the section chief and AMU supervision, in the aircraft jacket file in place of the missing forms.

15.3.5.5. Comply with hangar queen aircraft records management procedures in **Chapter 18**.

15.3.6. Pre-Dock Meetings. AMU PS&D will review planned aircraft inspection schedules and initiate an AF Form 2410, **Inspection/TCTO Planning Checklist**, for each aircraft prior to the pre-inspection meeting. When scheduling inspections such as periodic, isochronal, and hourly post-flight (50-hour cycle or greater), AMU PS&D prepares the AF Form 2410 in duplicate. The original is used as "basic inspection" data for planning. AMU PS&D will:

15.3.6.1. Review and list all known aircraft and equipment TCTO, TCI, SI, and other major requirements to be accomplished during the inspection on the AF Form 2410. Identify requirements for kits or parts when availability has not been confirmed.

15.3.6.2. Prior to the pre-inspection meeting, incorporate all requirements against the aircraft into a work package. Deferred Discrepancies (DDs) to be fixed during the inspection will keep the original JCN. Use the AF Form 2410 as an aid in planning for, and conducting the pre-inspection meeting. Block 14 will list the agencies attending the meeting and any discussion items to be presented. Block 15 reflects specialist tasks in addition to normal inspection needs.

15.3.6.3. At the pre-dock meeting, inform representatives of the inspection schedule and scope, including TCTOs, TCIs, SIs, DDs, and special requirements to be accomplished. The representatives inform AMU PS&D of limiting factors that might affect the schedule. Use the AF Form 2410 to record additional information discussed during the pre-inspection meeting. Maintain the original AF Form 2410 on file in the aircraft jacket file for use as a guide when conducting the post-dock meeting. Give a copy to the dock chief.

15.3.6.4. Discuss aircraft configuration during all aircraft pre-dock meetings. AMU PS&D will provide a list of items identified as out-of-configuration to the dock chief in the pre-dock package for verification/correction during the major inspection. The responsible work center will correct verified erroneous data and out-of-configuration items in CAMS/IMDS prior to the post-dock meeting.

15.3.7. Post-Dock Meetings. The dock chief, AMU PS&D, crew chief and other attendees discuss open discrepancies, review any significant inspection events, and identify any problems that may adversely affect future scheduling. The dock chief gives the completed inspection work package to AMU PS&D for filing until it is replaced by the next similar inspection work package. AMU PS&D files a computer-printed listing of completed on-line work orders in the aircraft jacket file.

**15.4. Aircraft Generation Planning.** The AF Form 2408, **Generation Maintenance Plan,** and AF Form 2409, **Generation Sequence Action Schedule** (GSAS), will be used to manage aircraft generation

sequence actions for various unit taskings. The AF Form 2408 reflects the hour sequence of all actions necessary to launch aircraft. This form contains a locally established legend indicating the type aircraft and tasked mission. If the tail number, mission number or specifically tasked no-later-than times are linked, this form becomes classified. The AF Form 2409 shows the actions necessary to generate a specific line number. Use locally established codes for maintenance shown in the action column blocks and to report maintenance actions during generation. The AF Form 2408 and AF Form 2409 are not required for AETC units without a mobility tasking. MOF PS&D will:

15.4.1. In conjunction with AMU, WWM and MXS personnel, develop, coordinate and prepare all aircraft maintenance flow plans.

15.4.2. Prepare the GSAS in sufficient detail to satisfy all generation actions. A completed GSAS requires only the aircraft serial number assignment and the 24-hour clock time annotation. Each plan must not exceed unit resources (i.e. load crews, equipment, convoys per hour, supervision, etc.).

15.4.2. (ANG) To prevent classification, do not include items such as wartime bed down locations, OPLAN title, A-hour (SIOP) timing, or no-later-than timing from OPLANs.

15.4.3. Forward the completed GSAS form to affected activities at the beginning of the generation sequence.

15.4.4. GSAS plans must be compared semi-annually with the unit Designed Operational Capability (DOC) statement to ensure compatibility with the mission.

15.4.5. Attend post exercise/contingency "hot wash" meetings to evaluate flow plans for changes or improvements.

**15.5. Flying and Maintenance Planning Cycle.** MAJCOMs shall develop procedures to ensure the intent of the operational planning cycles is met. The objective of the operational planning cycle is to execute the wing flying hour program consistent with operational requirements and maintenance capabilities. This process requires operations and maintenance cooperation. The operational planning cycle begins with the annual allocation of flying hours and utilization (UTE) rates. Maintenance schedulers must understand operational needs to determine supportability and operations schedulers must consider maintenance capabilities. Maintenance and operations schedulers shall develop a proposed annual flying plan balancing both operational requirements and maintenance capabilities. The annual plan, detailed by month, shall evaluate the capability of maintenance to support the annual flying hour program. The plan shall be coordinated and consolidated by OSS Current Operations Flight Scheduling and forwarded to the Current Operations Flt/CC, the operational SQ/CC, AMXS/CC, MOF/CC, and MOF PS&D. The printed wing plan shall include an assessment of the wing's ability to execute the flying hour program. The plan shall be presented to the OG and MXG CCs for approval before being approved by the WG/CC. Commit the fewest number of aircraft possible to meet programmed UTE rate standards and goals.

**15.6. First Look Requirements.**

**15.6. (ANG)** N/A to the ANG. All subparagraphs in section **15.6.** are also N/A to the ANG.

15.6.1. Every year, on or about 15 March MOF PS&D will task Maintenance Data Systems Analysis (MDSA) to accomplish airframe, personnel, and facility capabilities for each AMU NLT the last workday of March.

15.6.2. MOF PS&D will provide copies of the capability study to each OS and AMU scheduling section. AMU PS&D will provide first look maintenance capability projections in a monthly format IAWMAJCOM procedures and deadlines to AMU supervision, OS operations officers, AMXS/CC, and MOF PS&D. Projections include operational requirements, an assessment of maintenance's ability to support the monthly requirement, and an overall assessment of the unit's maintenance capability to meet the annual flying hour program.

15.6.3. AMXS and OS coordinated responses are sent to OSS Current Operations Flight Scheduling and are consolidated into a comprehensive package that includes a breakdown of the following items by operational squadron:

15.6.3.1. Sortie Utilization (UTE) Rates (N/A to MAF units). Compute UTE rates by month for the entire fiscal year for contracted (required) sorties and scheduled sorties using the formula: (number of sorties per month) divided by (number of PAI aircraft).

15.6.3.2. Sorties contracted/scheduled per day (N/A to AMC units). Compute the number of sorties required per operations and maintenance (O&M) day to meet the operational requirement using the formula: (Number of sorties required) divided by (number of O&M days in a given month). Sorties per day will be computed by month for each AMU for the entire fiscal year.

15.6.3.3. Monthly scheduled sorties (N/A to AMC units). Compute monthly scheduled sortie requirements using the formula: (Number of sorties or hours required) divided by (1 minus the attrition factor). Example: 1,000 sorties or hours required divided by (1 minus 0.15) equals 1,177 sorties or hours to schedule. Remember to round any part to the next whole sortie or hour.

15.6.3.4. Inspection dock capability (N/A to AMC units). Compute the number of Phases/ISO inspections to be accomplished in order to meet operational requirements for each AMU by month for the entire fiscal year. Compute dock capability using the formula (number of O&M days) divided by (number of phase days) times (inspection cycle).

15.6.4. Once compiled, packages shall be presented to the OG/MXG/CCs before being presented to the WG/CC for final approval. Final assessments of maintenance capabilities to support the operations "first look" projections are sent to MAJCOM DO/LG/A4 as necessary.

**15.7. Annual Maintenance Planning Cycle.** MAJCOMs shall develop procedures to ensure the objectives of the annual maintenance planning cycle are met. The annual maintenance planning cycle ensures proper and effective use of maintenance resources. Schedulers use long-range planning to assess maintenance's ability to support flying-hour programs, programmed depot maintenance (PDM) schedules, TCTO programs, scheduled inspections and exercises. Automated products are used to assist in planning. Include all known operational events (e.g., exercises, deployments, surges, etc.) to determine maintenance capability to meet operational needs.

15.7.1. Flying Hour Allocation. Using the MAJCOM Baseline Allocation message, MOF PS&D and OS/OSS scheduling provide affected work centers the following planning factors not later than 20 August each year, or within ten working days after receipt of the flying hour allocations:

15.7.1.1. Updated capabilities computed by MDSA -- provided by MOF PS&D.

15.7.1.2. Required flying hours and estimated sorties and missions -- provided by operations, in monthly increments.

15.7.1.3. Flying days in each month -- provided by operations.

15.7.1.4. Aircraft and aircrew alert requirements -- provided by operations.

15.7.1.5. Known and projected TDY and special mission requirements -- provided by operations.

15.7.1.6. PDM schedule -- provided by MOF PS&D.

15.7.1.7. Configuration and munitions requirements -- provided by operations.

15.7.2. No later than 1 September, or within ten working days after receipt of the planning factors, AMU supervision provides MOF PS&D, MOF/CC, AMXS and AMU supervision, OS and OSS scheduling the following planning factors:

15.7.2.1. Estimated number of aircraft available by month taking aircraft required for training into consideration.

15.7.2.2. A projected airframe capability statement.

15.7.2.3. Forecasted personnel capability taking required annual training for maintenance personnel into consideration (Not applicable to contract maintenance organizations).

15.7.2.4. The number of supportable sorties for each month.

15.7.2.5. An estimated monthly attrition factor (N/A to AMC units) provided by maintenance analysis. This factor combines operations, weather, and material (maintenance and supply) factors. Maintenance is responsible for adding the attrition factor to operational requirements.

15.7.2.6. A recommended block scheduling pattern.

15.7.2.7. A statement of limitations.

**15.8. Quarterly Planning.**

15.8.1. MAJCOMs shall develop procedures to ensure the objectives of the Quarterly Planning cycle are met. Quarterly planning starts with the operational requirement for flying hours, UTE rate, airframe availability, alert, and other related scheduling data. The OS operations officer provides these requirements to AMU supervision and PS&D not later than 25 days before the beginning of the quarter. AMU supervision and the OS operations officer discuss these requirements at the scheduling meeting before the quarter being planned.

15.8.2. Schedulers ensure quarterly plans are as detailed and accurate as possible. Include known special missions, PDM schedules, higher headquarters commitments and lateral command support requirements. Refine and adjust monthly and weekly schedules to meet the quarterly plan objectives within maintenance capabilities. Use the following priority to determine which objectives to support if a lack of resources prevents meeting requirements:

15.8.2.1. Alert commitments

15.8.2.2. Higher-headquarters directed missions.

15.8.2.3. Training.

15.8.3. The OG/CC and MXG/CC chair a quarterly meeting no later than 14 days before the next quarter. OSS Current Operations Flight Scheduling compiles, coordinates and briefs the unit's quarterly plan and includes operational requirements, support capability, and any difficulties expected. Once an approved quarterly plan is established, OSS Current Operations Flight scheduling will for-

ward a copy to OS, AMXS, OG and MXG/CCs along with all scheduling agencies. The plan will be posted so it may be viewed by both maintenance and operations.

15.8.3. (ANG) The schedule can be published electronically.

**15.9. Monthly Planning.** MAJCOMs shall develop procedures to ensure the objectives of the Monthly Planning cycles is met. Forecast and monitor requirements for the current and next two months. Include predictable maintenance factors based on historical data along with other inputs, such as flow times for maintenance, turnaround times and parts replacement schedules. Include all known operational events (e.g., exercises, deployments, surges) to determine maintenance's capability to meet operational needs. The OS operations officers and AMU flight supervision shall review their applicable portion of the monthly maintenance plan and weekly schedule prior to submission to MOF PS&D. To optimize aircraft and munitions support, MXS, AMXS and OS CCs shall ensure the number of aircraft and/or munitions configurations are minimized and standardized. The monthly schedule refines the quarterly plan:

15.9.1. NLT the first weekly scheduling meeting of the month, the OS operations officer provides AMU supervision and PS&D with the estimated operational needs for the following month in as much detail as possible. Include known takeoff times, landing times, and flying hour window. Note: Landing times are not required if the unit has an established and constant average sortie duration.

15.9.2. NLT the second weekly scheduling meeting of the month, AMU supervision tells the OS operations officer whether requirements can be met or limitations exist. Make adjustments to the proposed schedule to satisfy maintenance and operational requirements.

15.9.3. NLT the third weekly scheduling meeting with the OG and MXG CCs, formalize next month's plan prior to presenting it to the WG/CC for approval. During the monthly meeting, OS scheduling outlines past accomplishments, status of flying goals, problems encountered, and detailed needs for the next month. AMU/AMXS outlines projected maintenance capability, and aircraft/equipment availability. If conflicts arise between operational requirements and maintenance capability, present alternatives and limitations. The group and WG CCs decide what portion of the mission to support and to what degree.

15.9.4. When the WG/CC approves the proposed monthly flying plan contract, MOF PS&D includes it as a portion of the monthly flying and maintenance plan. Monthly plans may be published electronically provided local security requirements are met.

15.9.5. The monthly flying and maintenance plan combines all aspects of aircraft utilization and includes:

15.9.5.1. A detailed monthly operations utilization calendar which specifies total aircraft flying hours, total sorties and missions, alert requirements, and scheduled sortie or mission requirements, daily turn plans for each mission design series (MDS) by squadron, group, or wing. Do not assign attrition sorties to a specific aircrew/mission for the monthly planning process.

15.9.5.2. Monthly maintenance requirements (as required):

15.9.5.3. Transient work schedule, if applicable.

15.9.5.4. Scheduled inspections, TCTOs, engine changes, time changes, delayed discrepancies, contract or depot maintenance, washes, corrosion control, training aircraft, and all other known maintenance requirements.

15.9.5.5. SE scheduled inspections, contract or depot maintenance, TCTOs, time changes, delayed discrepancies, washes, and corrosion control.

15.9.5.6. Avionics and other off-equipment maintenance scheduled inspections, TCTOs, assembly or repair operations.

15.9.5.7. Engine/module 6-month removal forecast and in-shop inspection requirements.

15.9.5.8. Munitions, photo, Electronic Countermeasures (ECM) and other mission loading or configuration requirements, including ammunition changes.

15.9.5.9. Total ordnance requirements for aircraft support.

15.9.5.10. Tanks, racks, adapters, and pylons (TRAP) and war reserve material (WRM) scheduled inspections, TCTOs, assembly, or repair operations.

15.9.5.11. Special activities, such as commander's calls, group temporary duty (TDY), and unit formations.

15.9.5.12. Monthly training schedules, if not published separately.

15.9.5.13. Detailed support requirements, including as necessary:

15.9.5.14. Petroleum, oil, and lubricants (POL) servicing.

15.9.5.15. Supply requirements.

15.9.5.16. Food service requirements.

15.9.5.17. Fire department requirements.

15.9.5.18. Security requirements.

15.9.5.19. Civil engineer requirements.

15.9.5.20. Airfield operations.

**15.10. Weekly Scheduling.** The weekly schedule is the final refinement to the monthly plan and results in the weekly flying and maintenance schedule. MAJCOMs shall develop procedures to ensure the objectives of the Weekly Scheduling process are met. To optimize aircraft and munitions support, MXS, AMXS and OS CCs shall ensure the number of aircraft and/or munitions configurations are minimized and standardized. The OS operations officer and AMU supervision shall review and coordinate on the proposed weekly flying and maintenance schedule with OS, AMXS, and MXS prior to presenting it to the OG and MXG CCs. Operations schedulers shall use the Tactical Aircrew Scheduling Airspace Management System (TASAMS) to develop the flying schedule in units where Theater Battle Management Core Systems-Unit Level (TBMCS-UL) is fielded. The group-approved schedule shall be submitted to MOF PS&D for compilation and a complete paper copy shall be given to the WG/CC at the weekly scheduling meeting. At the weekly scheduling meeting, evaluate the past week's accomplishments (to include Flying and Maintenance Scheduling Effectiveness) and negotiate/approve refinements to the coming week's schedule. NOTE: The AF Form 2402, *Weekly Equipment Utilization and Maintenance Schedule*, is used to summarize the upcoming week's schedule. The AF Form 2403, *Weekly Aircraft Utilization/Maintenance Schedule*; and AF Form 2436, *Weekly/Daily Aircraft Utilization Schedule*; are more finite in the depiction of aircraft utilization and maintenance. The AF Form 2403 and AF Form 2436 may be used together or individually. Electronic versions of the above forms are authorized. Whatever forms are used,

all requirements shall be entered. Weekly schedules may be published electronically provided local security requirements are met.

15.10.1. Not later than 2 workdays before this meeting the OS operations officer gives AMU supervision the following information (as required):

15.10.1.1. Aircraft takeoff and landing times.

15.10.1.2. Configuration requirements.

15.10.1.3. Munitions requirements.

15.10.1.4. Fuel loads.

15.10.1.5. Special or peculiar mission support requirements.

15.10.1.6. Alert requirements.

15.10.1.7. Exercise vulnerability.

15.10.1.8. Deployments.

15.10.1.9. Off-base sorties

15.10.1.10. On equipment training requirements.

15.10.1.11. Other special requirements.

15.10.2. Once the Weekly Schedule is reviewed and signed by the OG/CC, MXG/CC, and WG CC, it becomes the final planning guide for both operations and maintenance and the basis for deviation reporting. Follow it as printed or as amended by coordinated changes. Coordinated changes do not negate reporting deviations IAW MAJCOM guidance. MOF PS&D distributes the schedule to each appropriate activity and work center no later than 1200 (1400 for AETC) Friday morning preceding the effective week. Weekly flying and maintenance schedules may be transmitted electronically provided local security requirements are met.

15.10.2.1. Tanker/Airlift Control Center (TACC) tasked units (applicable for MAF units only) shall use the daily flying schedule as the basis for deviation reporting.

15.10.3. Home and deployed units will publish a weekly schedule. Include the following in the weekly flying and maintenance schedule:

15.10.3.1. Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled takeoff and landing times, aircraft or equipment scheduled use times, configurations, and special equipment requirements. Units tasked by Tanker/Airlift Control Center (TACC) need not include aircraft tail numbers. Units that fly a published and constant average sortie duration need not publishing land times.

15.10.3.2. Spare aircraft requirements. Spare requirements are printed by day for each AMU. Generate only the absolute minimum of spare aircraft.

15.10.3.3. Scheduled maintenance actions, by aircraft and equipment serial number, to include inspections, TCTOs, time changes, contract and depot inputs, engine changes, washes or corrosion control, documents review, and deferred discrepancies.

15.10.3.3. (ANG) These items shall be used to track maintenance scheduling effectiveness.

15.10.3.4. Required pre-inspection and other maintenance/scheduling meeting schedules to include minimum attendees.

15.10.3.5. Wash rack use.

15.10.3.6. On-equipment training requirements.

15.10.3.7. AGE inspections or maintenance schedule by type and identification number.

15.10.3.8. A list of new or revised publications, TO indexes, inspection work cards, checklists and -6 codebooks. Include the date of change. Automated systems will be used, if available.

15.10.3.9. MAJCOMs will develop specific procedures to record and coordinate changes to the weekly schedule using an AF Form 2407. Include minimum approval levels for approving changes to the weekly schedule.

15.10.3.9. (ANG) The MXG/CC and OG/CC shall develop specific procedures to record and coordinate changes to the weekly schedule using an AF IMT 2407 or locally devised or computer generated products as long as they provide all the information contained in the AF IMT 2407.

15.10.3.10. Any change to the printed schedule will require an AF Form 2407 with the following exceptions: a change to the original printed takeoff or landing time of 15 minutes or less; a change of aircrew names, ranges, or airspace; or a change arising after the first crew ready time for the squadron's current day's scheduled flying window.

15.10.3.10.1. Changes made during the daily scheduling meeting also require an AF Form 2407.

15.10.3.10.2. The agency requesting the change initiates the AF Form 2407 and coordinates it through the affected production supervisor, Maintenance Operations (MOO/SUPT), and required group staff agencies (i.e., MOC, PS&D, Analysis, etc.) IAW MAJCOM procedures.

15.10.3.10.2. (ANG) IAW MXG/CC and OG/CC procedures.

**15.11. Major Maintenance Work Processing.** MOF PS&D will:

15.11.1. Coordinate on all TO 00-25-107 requests for AFI 21-103 reporting. The work center discovering the discrepancy is responsible for drafting the TO 00-25-107 request and forwarding the request to QA for coordination and release. MOF PS&D is responsible for making the appropriate possession code changes in MIS when AFI 21-103 messages have been released. Depot level assistance provided by contractor support is accomplished IAW contract specifications.

15.11.2. In conjunction with QA, develop procedures for routing all major maintenance requests to ensure all affected parties are informed.

15.11.3. Upon arrival of depot team, MOF PS&D will conduct an initial meeting to validate maintenance support requirements are in place for the depot field team. Meetings will be documented on an AFTO Form 2410.

15.11.4. Once work is completed, MOF PS&D will ensure appropriate possession codes are changed, a completed copy of the work package is placed in the aircraft historical file, and specific work accomplished entries are made on the aircraft/component automated AFTO Form 95s IAW 00-20 series technical orders.

**15.12. TCTO Management.** MOF PS&D administers and manages the overall wing TCTO program. TCTOs and USAF, MAJCOM, or NAF-directed modifications and inspections provide units with instructions for doing a one-time change, modification, or inspection of equipment, (includes applicable Federal Aviation Administration air worthiness directives, original equipment manufacturer service bulletins and service instructions after concurrence by MAJCOM). Use the MIS to process MAJCOM and NAF one-time inspections or modifications in the same manner as TCTOs with compliance periods, remove from service dates, and rescission dates as prescribed in TO 00-5-15, *Air Force Time Compliance Technical Order System*, Table 2-1. MAJCOM, NAF, and local inspections are referred to as one-time inspections (OTIs). Except for immediate and urgent action TCTOs, TCTOs and are considered scheduled maintenance and are integrated into maintenance planning cycles. The concurrent accomplishment of TCTO work with other scheduled or unscheduled maintenance (e.g. Phase, ISO, HSC, HPO) will be considered. When practical, all Peacetime Operating Stock (POS) and Readiness Spares Package (RSP) assets will be modified before in-use or installed items. Manage TCTOs using the MIS and IAW MIS manuals, TO 00-5-15, and specific MAJCOM instructions.

15.12.1. General Management of TCTOs. MOF PS&D manages aircraft and commodity TCTOs, Munitions Scheduling manages munitions-related TCTOs, and MOF Engine Management (EM) manages engine-related TCTOs. However, MOF PS&D still has the overall responsibility to monitor the effective management of the wing's TCTO program. All scheduling, tracking and day-to-day monitoring of TCTOs is accomplished by the owning scheduling agency (MOF PS&D, MOF EM, AMU PS&D, AGE, Armament, Munitions, and PMEL). If schedulers are not designated/assigned to an owning agency, MOF PS&D shall perform the listed owning-agency's responsibilities. For TCTO actions on training equipment assigned to a Training Detachment (TD) or Mobile Training Team (MTT), the parent technical training center manages and schedules all TCTOs.

15.12.1.1. MOF PS&D must review MIS products weekly to ensure proper documentation and management by owning and managing TCTO agencies. When errors are detected, MOF PS&D must advise affected scheduling functions and provide assistance when necessary to correct the discrepancies. MOF PS&D must coordinate with MDSA to ensure MIS TCTO synchronization program is run monthly as appropriate.

15.12.1.2. Significant problems or potential delays in TCTO accomplishment will be brought to the immediate attention of the managing scheduling agency and elevated to squadron and group commanders as appropriate. MOF PS&D will monitor all TCTO status and brief unaccomplished TCTOs within 30 days of grounding at the MXG level each week. MOF PS&D will immediately notify the AMXS and MXG commanders when TCTOs will not be completed before the grounding/rescission date.

15.12.1.3. MOF PS&D will chair a monthly TCTO review meeting attended by all TCTO owning and managing agencies after the monthly supply TCTO reconciliation meeting. The chair will discuss the supply reconciliation, supply status, scheduling factors, current TCTO status and anticipated problems for all active TCTOs. MOF PS&D will produce minutes from the meeting and distribute to all affected agencies.

15.12.1.3. (ANG) N/A to the ANG except for the 116th ACW.

15.12.1.4. Depot-level TCTOs, excluding commodities, are loaded and tracked in the MIS for auditing compliance and applicability. Depot level engine TCTOs are loaded in CEMS only. Units

shall ensure dual reporting of completed depot TCTOs is prevented. All field-level companion TCTOs for commodities must be loaded in the MIS.

15.12.1.5. The reprogramming of passive/active electronic countermeasure equipment is administered as a commodity TCTO for configuration management purposes. MOF PS&D will coordinate with the operations electronic combat pilot/electronic warfare officer before implementing any Computer Program Identification Number (CPIN) changes.

15.12.1.6. When TCTOs are directed for items without serial numbers, assign permanent serial numbers using the procedures in TO 00-20-2. If it is not feasible or impractical to assign a serial number (i.e. air chucks and pilot clipboards) use bulk quantity numbers. For example, if there are 50 air chucks, use serial numbers 1 through 50 in the MIS.

15.12.1.7. Many TCTOs require the modification of installed components. After this type of TCTO has been complied with, ensure modified components are not replaced with unmodified components. If supply issues an unmodified component, it is identified as unmodified and returned to supply.

15.12.1.8. Control and Transfer of TCTO Kits. Transfer aircraft or equipment with any TCTOs still pending completion with their applicable TCTO kits. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. AFMAN 23-110, TO 00-5-15, and TO 00-5-1 contains detailed guidance for the transfer of TCTO kits.

15.12.2. Specific TCTO Responsibilities.

15.12.2.1. QA will:

15.12.2.1.1. Perform an initial evaluation of the TCTO and determine applicability.

15.12.2.1.2. Distribute applicable TCTO copies to the managing agency, performing and assisting flights or sections, the Distribution Flight, and LRS Chief Inspector with a suspensed cover letter to Supply requesting the number of items in supply, including war reserve materiel, affected by the TCTO.

15.12.2.1.3. Report all deficiencies in technical instructions and kit-proofing to the appropriate TCTO manager as directed by TOs 00-5-1 and 00-5-15.

15.12.2.1.4. Attend TCTO planning meetings.

15.12.2.1.5. Provide technical support to performing flights or sections.

15.12.2.2. The appropriate TCTO managing agency (MOF PS&D, MOF EM or Munitions) will:

15.12.2.2.1. Determine the total number of end items applicable to the TCTO.

15.12.2.2.2. Chair a TCTO planning meeting with attendees from QA, owning and performing work centers, and supply. Minutes of this meeting will be recorded on AF Form 2410 and provide an overall plan to implement the TCTO. Minutes will include TCTO applicability by ID number (or applicable part number or serial number for commodity TCTOs), purpose of the inspection or modification, performing work centers, serial number or ID number of equipment QA performs initial verification, training requirements, scheduling parameters, remove from service date, a review of the TCTO procedures, forms entries and any supply requirements identified before the TCTO can be scheduled for accomplishment. All attendees sign

the AF Form 2410 at the conclusion of the planning meeting indicating agreement with the conditions.

15.12.2.2.3. Establish and maintain a TCTO folder for each active TCTO. TCTO folders will mirror a master TCTO folder standard developed by MOF PS&D. The folder will include the basic TCTO and any supplements, completed AF Form 2410, AF Form 2001**, Notification of TCTO Kit Requirements** (if required), messages, and the supply cover memorandum from QA. Once the TCTO has reached its rescission date, print a MIS product showing the current status of equipment and place it in the TCTO folder. Move the folder to an inactive TCTO file. The TCTO managing agency will maintain the folder until the TCTO is rescinded in the applicable TO index and then dispose of it IAW AFI 37-139, *Records Disposition Schedule*. MIS TCTO records will be deleted at that time. TCTOs will not be deleted from the MIS *prior* to the rescission date.

15.12.2.2.4. Initially load the TCTO into the MIS if an initial TCTO load is not received from REMIS. MAJCOM will load TCTOs for G081 users. Add an 802 action for QA when a TCTO affects equipment weight and balance.

15.12.2.2.5. Use the MIS supply interface to order required Kits/Parts/Tools IAW MIS manuals. When a MIS supply interface is not available, initiate 3 copies of the AF Form 2001. Forward 2 copies of the form with a copy of the TCTO to the supply TCTO monitor. For locally obtained parts, prepare an AF Form 2001, listing each item by stock number, noun, and quantity required. Assign ID numbers to kits as they are received. Use Part II of the AF Form 2001 to manage kit/part assignment and track individual end items, date issued, document numbers and the number of kits remaining. The supply TCTO monitor will ensure kits and/or parts are assembled prior to release. The performing work center will order/maintain all hazardous material required to comply with TCTOs and provide document numbers to the TCTO managing agency and supply TCTO monitor.

15.12.2.2.6. Control and release kits from supply for all TCTOs requiring kits.

15.12.2.2.7. Attend the monthly supply TCTO reconciliation meeting (AFMAN 23-110, *USAF Supply Manual*). Using the TCTO reconciliation listing from supply (AFMAN 23-110, Volume II, Part 2, Chapter 24), discuss the number of kits on hand, any "mark for" changes, and estimated delivery dates compared with the time to accomplish parameters, and measured against TCTO remove from service dates.

15.12.2.2.8. Notify appropriate MAJCOM and NAF functional managers, by message, when local managers anticipate a problem with active TCTO compliance within prescribed time limits. Message should include the TCTO number and narrative, total units affected, total units complete, kits on hand, kits on order, estimated delivery date, requisition number, and a narrative of the problem.

15.12.2.2.9. Reports status of TCTOs that cannot be reported under "how malfunctioned" codes 793, 797, 798, 801, 802, or 911 IAW the MIS, and TO 00-20 series.

15.12.2.2.9. (ANG) **NOTE** : For CAMS units only, the PS&D monitor shall coordinate with MDSA to ensure the CAMS/REMIS TCTO synchronization program is run monthly.

15.12.2.2.10. Report interim TCTO status on immediate, urgent, or routine action safety TCTOs as directed by MAJCOM.

15.12.2.3. The owning scheduling agency (MOF PS&D, MOF EM, AMU PS&D, AGE, Armament, Munitions, and PMEL) will:

15.12.2.3.1. Establish and maintain a TCTO folder for each active TCTO. TCTO folders will mirror the master TCTO folder standard developed by MOF PS&D. The folder will include all documentation required by the MOF PS&D master TCTO folder and any section unique management information.

15.12.2.3.2. Schedule, track, and monitor TCTO accomplishment. Prepare a work order in the MIS for each affected end-item, including spares. Agencies owning installed on-equipment TCTOSs will coordinate with AMU /MOF PS&D prior to scheduling on-aircraft TCTOs.

15.12.2.3.3. Review suspense validation inputs prior to processing TCTO suspenses and updating automated historical records.

15.12.2.3.4. Update equipment/aircraft TCTO status as changes occur.

15.12.2.3.5. Annotate manual MIS products as changes occur IAW MOF PS&D guidance.

15.12.2.3.6. Ensure TCTOs are scheduled for completion prior to the grounding date.

15.12.2.3.7. Schedule all workable TCTOs for accomplishment prior to permanent equipment transfer or storage input.

15.12.2.3.8. Notify the appropriate work center when a TCTO requires an entry to be made in current equipment documents.

15.12.2.4. The Performing Flight or Section will:

15.12.2.4.1. Report all deficiencies in technical instructions and application to the TCTO managing agency and QA.

15.12.2.4.2. Attend TCTO planning meetings. Thoroughly review the TCTO prior to the meeting and request clarification of any requirements of QA and the appropriate TCTO managing agency during the meeting.

15.12.2.4.3. Inventory TCTO kits for completeness prior to starting work. If a discrepancy exists, contact the TCTO managing agency to resolve shortages.

15.12.2.4.4. Perform the inspection or modification procedures outlined in the TCTO and documents results or findings in the MIS. The accuracy of documentation is the responsibility of flight and section supervision.

15.12.2.4.5. If a condition or inspection TCTO generates a requirement for parts, the performing work center creates a new JCN and enters the discrepancy in the AFTO Form 781A or applicable equipment record, and orders the required parts as normal wear out and replacement. Condition and inspection TCTOs are complete when the inspection is finished.

15.12.2.4.6. Requisition parts required after the inspection portion of a TCTO that states “inspect and replace if found defective” if the part is not required to start the TCTO.

15.12.2.4.7. Order and maintain all hazardous material required to comply with TCTOs and provide document numbers to the TCTO managing agency and supply TCTO monitor.

15.12.2.4.8. Validate technical instructions and data on AFTO Form 82, *Certificate-Proofing TCTOs/Kits*, when performing TCTO kit proofing (TO 00-5-15).

**15.13. Time Change Items (TCI).** MOF PS&D has over-arching responsibility for the wing TCI program. Engine management (EM) is responsible for monitoring, projecting, and including engine life limited component TCI requirements into aircraft maintenance plans. Schedulers identify, monitor, forecast and schedule only those selected items specifically identified in TO 00-20-9, ***Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items****;* applicable commodity TOs; the aircraft -6 TO, or identified as FSG 13 and Material Management Code AQ Items.

15.13.1. MOF PS&D will:

15.13.1.1. Establish a JST for both the date of manufacture (DOM) and of installation (DOI) for cartridge-actuated devices (CAD), propellant actuated devices (PAD), life sustaining, and other TCI items listed in the aircraft -6 TO and applicable commodity TOs

15.13.1.2. Ensure units forecast TCIs IAW 00-20-9 and AFI 21-201 and consolidate TCI forecasts for selected items listed in TOs 00-20-9, commodity, and aircraft specific -6 TOs. Validate and compile all squadron CAD/PAD forecasts and send to the appropriate MAJCOM representative with an info copy to munitions operations. Consolidate and forward quarterly updated forecasts to munitions operations.

15.13.1.3. Validate and send TCI extension request messages to applicable ALCs. Maintain and monitor a suspense copy of the message to ensure an answer is received prior to the grounding date of the TCI.

15.13.2. AMU (MOF in MAF units) PS&D and MOF EM (as applicable) will:

15.13.2.1. Load only the DOI or DOM JST that comes due first in the MIS against a specific part or serial number. When the DOI and DOM frequencies are identical, maintain the JST for the DOM as a minimum. N/A for G081 units.

15.13.2.2. Monitor and requisition TCI requirements based on projected equipment utilization. Order parts using the MIS supply interface if available. Unless otherwise specified in -11, -14, and -6 technical orders, TCIs are considered due for replacement at the hourly post-flight, phase inspection, periodic inspection, home station check (HSC) or ISO inspection nearest to the replacement date.

15.13.2.2.1. Order all munitions items requiring time change IAW TO 00-20-9 and AFI 21-201. Notify the Munitions Flight of the need to order munitions items IAW AFI 21-201. Forward AF Forms 2005, *Issue/Turn-In Request*, to munitions operations no earlier than 60 days, but not later than 45 days before the beginning of the quarter in which the item is required. Overseas bases shall order munitions items 90-120 days before the required quarter IAW AFI 21-201. Include the validated forecast time change date on the AF Form 2005. CAD/PAD TCIs with 9 months or less service life remaining may be turned into munitions operations and must not be reissued. Maintenance plans must reflect replacement dates to coincide within the 9-month parameter.

15.13.2.2.2. Order non-CAD/PAD or engine time change items up to 60 days (but not less than 10 days) prior to the need date. Ordering date should be based on the availability of items in supply.

15.13.2.3. Schedule the time change in the automated system and incorporate it in the monthly/weekly maintenance plan upon notification by supply that the part is available.

15.13.2.4. Review the data entered by the performing work center and update the suspense validation in the automated maintenance management system when the time change is completed (not applicable to units using G081).

15.13.2.5. Coordinate management of respective time change items with egress, survival equipment, and life support.

15.13.2.6. Schedule drogue chute TCIs, except chute harness, for replacement during the drogue chute repack before the expiration of the component service or shelf life. These components will not be over flown without an approved waiver from the appropriate item manager.

15.13.2.7. When required, forward TCI due date extension requests to MOF PS&D. MOF EM will send requests directly to the ALC. Maintain a copy of approval messages on file until the extended item is replaced when life-sustaining TCIs (identified with an asterisk in the -6) or CAD/PAD items have been extended past their replacement dates by the applicable ALC/SPD.

15.13.2.8. Prepare Time Change Item forecasts IAW TO 00-20-9 and forward to MOF PS&D. Squadrons will submit a forecast for non-munitions items to their supply section. Accurate and timely forecasting to supply is critical to ensure all required TCIs are available before the forecast due date.

15.13.2.9. Validate TCI requirements 45-60 days prior to the next calendar year quarter with the Munitions Accountable System Officer (MASO). Validate current requirements against the annual forecast and make corrections based on aircraft utilization.

**15.14. Aircraft Configuration Management (ACM).** Aircraft Configuration Management (ACM) provides unit managers the capability to determine the actual versus approved configuration of an aircraft. The intent of the configuration management subsystem is to ensure selected serially controlled and/or time change items (TCI) are properly loaded to the MIS database. Of major concern are accurate, approved part numbers, quantity per assembly (QPA) and next higher assembly (NHA) items by work unit code (WUC). MOF PS&D has overall responsibility for the aircraft configuration management subsystem of MIS.

15.14.1. The configuration tables (For F-15s, F-16s, F-117s, B-1s and B-2s) are pushed to each unit from REMIS to CAMS/IMDS as aircraft configuration changes occur. Maintenance personnel discovering a tracked part number not on the approved configuration table will send the part number for validation to the configuration specialist. This is accomplished through CAMS/IMDS TRIC PNV (CAMS/REMIS Part Number Validation). Upon receipt of the part number, the configuration specialist approves or disapproves the new part number in REMIS. If approved, maintenance personnel will load the part number in the CAMS/IMDS. Configuration tables will be changed by the ALC or configuration specialist as a result of a TCTO modification.

15.14.2. MOF PS&D will coordinate the daily resolution of configuration management notices.

15.14.2. (ANG) Using CAMS screen 690.

15.14.3. MOF and AMU PS&D will provide Generic Configuration Status and Accounting Subsystem (GCSAS) assistance to maintenance personnel.

15.14.4. MOF PS&D must develop procedures for verifying configuration items during aircraft phases. AMU PS&D must request CAMS/IMDS DBM process screen 942, Actual Configuration Set-up, using the ID number of the aircraft entering Phase. Once accomplished, the scheduler must

run a CAMS/IMDS screen 990. A copy of this product must be given to the phase dock chief at the pre-dock meeting, for verification/correction of all items out of configuration during the phase inspection. This document must be turned-in to the AMU PS&D during the post dock meeting and forwarded to MOF PS&D. MOF PS&D must request the DBM process screen 942 or run a new screen 990 for the same tail number to verify corrections. Discrepancies must be briefed at the daily production meeting and forwarded to the AMU for corrective action. Completed/verified copies of the output product (screen 942 or 990) must be maintained in MOF PS&D until the next scheduled phase for that aircraft.

15.14.4. (ANG) Discrepancies shall be briefed at the post dock.

15.14.4.1. For those aircraft that do not currently have an established configuration table, use CAMS/IMDS screen 810 to validate the actually installed items against the data in the MIS.

**15.15. Transfer Inspections.** (***Note:*** During temporary loans of an aerospace vehicle the acceptance and transfer inspections can be waived as long as a MOA is agreed upon and signed by both gaining and losing commanders.

15.15.1. MOF PS&D will:

15.15.1.1. In conjunction with QA, develop a local checklist for aircraft and equipment transfer and acceptance inspection. This checklist must meet all TO 00-20-1, 2-1-18, applicable aircraft Dash-6 and -21, as well as AFI 21-103 and MAJCOM specific transfer requirements. Include gathering historical records (i.e., NDI records, Egress records, Weight and Balance records, JOAP records, Strut records, etc.) and other items listed below. Ensure transfer and acceptance inspection checklists for on-equipment maintenance are loaded to a profile JST and scheduled in MIS.

15.15.1.2. Assist with and ensure all AMU PS&D actions are complete prior to permanently transferring an aircraft to another unit and in the MIS.

15.15.2. AMU (MOF in MAF units) PS&D will:

15.15.2.1. Conduct a transfer pre-dock meeting one-duty day prior to start of the aircraft transfer inspection. All items to be accomplished during the transfer inspection will be documented on an AFTO Form 2410 and scheduled in the MIS.

15.15.2.2. Run a MIS planning requirements product and complete a total verification of all time change items installed on the transferring aircraft. Verify the correct computation of all due dates/hour/cycles based on DOM, DOI, installed times, etc. Ensure all propulsion -6 special inspections are accomplished when engine time/cycles are outside TO specified transfer limits.

15.15.2.3. All errors will be annotated on the MIS product and corrected in the MIS. A new MIS product will be run to verify the errors were corrected. The new MIS product will be signed, dated, and placed in the aircraft jacket file.

15.15.2.4. For CAMS/IMDS units only:

15.15.2.4.1. Ensure the CAMS/IMDS - REMIS synchronization programs are processed and errors are corrected prior to transfer. The error correction and synchronization program must be repeated anytime a configuration tracked part is removed or installed in the MIS. Ensure the synchronization program has been successfully processed before transferring the aircraft in CAMS/IMDS.

15.15.2.4.2. Ensure copies of Transfer of Equipment (TRE), Significant Historical Data (SHD), Engine trending and performance data, and Automated Records Check are processed. Data will be saved to a 3½-inch floppy or CD-ROM and placed in aircraft jacket file.

15.15.2.5. Conduct a transfer post dock meeting to ensure all required actions have been completed.

15.15.3. Acceptance Inspections.

15.15.3.1. Units will perform acceptance inspections on all aircraft possession transfers to the wing from outside agencies using the MOF PS&D/QA locally developed checklist. The acceptance inspection will be loaded as a profile JST and scheduled in the MIS.

15.15.3.2. For aircraft returning from depot/CFT work, owning work centers will perform acceptance inspections to determine equipment condition as prescribed to TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, and AFI 21-103. Ensure aircraft acceptance inspections include a validation of completed depot and contractor maintenance requirements including accomplished, and scheduled but not accomplished TCTOs. Use the completed AFTO Form 103 and applicable work specifications, as applicable, as a guide to verify work accomplished.

***NOTE:*** Acceptance inspections by the gaining unit may be accomplished at the losing unit in conjunction with their transfer inspection as long as a MOA between units has been established and approved by the applicable MAJCOM(s).

15.15.3.3. MOF PS&D will request approved configuration tables for B-1, B-2, F-15, F-16 and F-117 units, and actual configuration tables for all other MDSs using CAMS/IMDS screen 334 (CAMS units only).

15.15.3.4. In conjunction with the MDSA Database Manager (DBM), MOF PS&D will processes the aircraft transfer file from REMIS IAW AFCSM 21-576, *Generic Configuration Status Accounting System (GCSAS).*

***NOTE:*** DBMs must process NFS6A0, screen 47 and 942 upon receipt of approved file from REMIS. This must be accomplished prior to processing CAMS program NFS3W0 (actual configuration).

15.15.3.5. Ensure maintenance performs a complete aircraft -21 series TO equipment inventory IAW AFI 21-103.

15.15.3.6. MAJCOMs will publish guidance to determine if egress system CAD/PAD inspections are to be accomplished on newly assigned aircraft and upon those returning from depot/PDM where the egress system has been worked on by depot personnel.

15.15.3.6. (ANG) Cartridge Actuated Device (CAD) / Primary Actuated Device (PAD) inspections are to be accomplished on newly assigned aircraft, and upon those returning from depot/PDM, (except when the aircraft was input for paint only).

15.15.3.7. Aircraft will not be flown until all configuration managed items, TCIs, SIs, TCTOs, engines and engine components are loaded and due dates/times are verified in MIS. MOF PS&D will ensure this validation is accomplished. Completed validations will be filed in the aircraft jacket file.

***NOTE:*** Units using CAMS/IMDS will use the CAMS/REMIS transfer system to populate the CAMS database. Manual loads cause unnecessary rejects from REMIS. TCTO records will auto process provided the TCTO is previously loaded in the gaining unit's CAMS database.

## Chapter 16

## WING WEAPONS MANAGER AND WEAPONS STANDARDIZATION

**16.1. Wing Weapons Manager (WWM).** The wing weapons manager will be a 2W100 CMSgt (within AFRC the Weapons Loading Supervisor performs WWM responsibilities as applicable) who is assigned directly to the MXG/CC. The WWM is the wing's focal point for all weapons loading and armament systems related matters. The WWM's primary efforts focus on compliance, continuity, and standardization. Weapons activities required to support the generation of peacetime training sorties generally do not reinforce primary combat skills. Therefore, the WWM plays a key role in ensuring that the unit is able to produce combat loaded aircraft. The WWM is charged with providing technical and managerial advice to senior leaders in matters of weapons loading and armament systems. The wing weapons manager coordinates with the weapons sections, armament systems flight, wing weapons and tactics, the munitions flight, and other unit agencies on weapons related matters. The WWM has the authority to cross group and squadron functional lines. The WWM:

**16.1. (ANG)** In cases where the function is not represented by full time personnel, the MXG/CC shall appoint a full time representative. In cases where a 2W100 Chief Master Sergeant is not assigned to the Maintenance Group, the MXG/CC may request a waiver for the most qualified 2W1 SMSgt to serve as the WWM for up to 24 months. Submit waivers to ANG/LGMW for approval.

16.1.1. Is the functional manager for all 2W1X1 personnel. The WWM is the wing POC for all 2W1X1 manpower issues within the wing to include coordination on all manning, workcenter and organizational changes, AFSC changes, cross/retraining requests and waivers. The WWM informs the MAJCOM Armament functional manager of any proposed actions that may drive changes in unit manpower requirements (non applicable to ARC).

16.1.1.1. In Bomb Wings where the Armament Systems Flight is organizationally aligned under a Munitions Squadron (MUNS), the Armament Systems Flight will organize, operate and perform duties and responsibilities per **Chapter 4**.

16.1.2. Assigns and balances 2W1X1 grades, experience and skill-levels between all 2W1X1 work centers across the wing. Monitors PRP status of 2W1X1 personnel, if applicable. Rotates 2W1XX personnel between wing work centers (armament flight, weapons sections, WS, QA, etc) as required to provide breadth of experience, promotion and job opportunities within the unit and 2W1 career field. Recommend all personnel be screened and considered for rotation at a maximum of every three years (non applicable to ARC). Ensures only individuals with the 2W1 AFSC are certified/qualified to load/unload munitions items on aircraft (except for those qualification tasks specifically outlined in this AFI).

16.1.3. Designates the loading standardization crew (LSC), academic instructors, and lead crews in writing. LSC and SLC Team Chiefs will be a 2W171 with a minimum grade of TSgt if unit manning permits. Provides load crew training and certification program guidance and monitors implementation.

16.1.4. Informs the MXG/CC and affected SQ/CC and/or Maintenance Operations Officer (MOO) of any issues or problems affecting load crew status, DLO, projected manning, equipment, and other items of concern.

16.1.5. Will review the wing/squadron SORTs report prior to submission to the MAJCOM. Any equipment or load crew shortfalls which affect the wings C-rating in SORTS will be included and comments provided. Comments will provide reason, action taken and proposed get well dates for all 2W1 issues reported in SORTs. SORTS will be reported IAW AFI 10-201.

16.1.6. Monitors overall load crew status and advises the MXG/CC when the number of fully certified load crews falls below the UCML/TTML minimum authorizations. If this occurs and cannot be corrected within 30 days, the following information is sent by secure message, through the MXG/CC, to the appropriate MAJCOM 2W1XX functional manager (**NOTE:** All 2W1X1s working outside their respective workcenter or DAFSC will be qualified/certified if possible to fill load crew shortfalls before sending a message to the MAJCOM):

16.1.6. (ANG) If this occurs and cannot be corrected within 60 days, the following information is sent by secure message, through the MXG/CC, to the ANG/LGMW.

16.1.6.1. Number of 2W1X1 personnel authorized and assigned by work center, skill level (primary AFSC) and grade for the entire wing. Include all work centers to which 2W1X1 personnel are assigned.

16.1.6.2. Number of 2W1X1 personnel working outside the AFSC/workcenter.

16.1.6.3. Number of 2W1X1s not able to perform primary duties and the reason.

16.1.6.4. Number of fully certified crews. Include corrective action, get well date, and 30/60-day load crew status projection. If the standard cannot be reached in 60 days, provide the reason.

16.1.6.5. Number of load crews formed but not fully certified. List crews and specific items for which they are not certified and qualified.

16.1.6.6. Remarks: List limiting factors, equipment shortages, availability of training aircraft, etc.

16.1.7. Reviews DOC Statements, UCML/TTMLs, and O-Plans. Coordinates changes and appendices with the wing weapons and tactics function and the munitions flight.

16.1.7. (ANG) Also coordinates with the AMXS Weapons Element supervisor. They as a collective group shall develop the units SCL, utilizing the UCML as the basis of information.

16.1.7.1. Annually review unit DOC , OPLANS, UCML/TTML, unit tasked UTC's (for equipment and personnel) and UMD to identify any disconnects or problems. Report any findings to MAJCOM.

16.1.8. Resolves scheduling conflicts affecting weapons loading and DLO training programs.

16.1.9. Provides input during development of local exercises involving weapons loading/armament functions, and serves as an advisor/evaluator to the wing exercise evaluation team.

16.1.10. Ensures a recognition program for load crew and armament personnel is established.

16.1.11. Ensures standardization of load crew CTKs by aircraft MDS to the maximum extent possible to provide interoperability of load crews. CTKs should contain all tools to accommodate common loading and maintenance functions. Weapons load crew CTK MILs will be signed by the WWM.

16.1.12. Ensures sufficient quantities of serviceable load crew training munitions are available to support both load crew and DLO training programs. Reviews and validates all Munitions Forecasts submitted by WS and the Armament Flight prior to submission to MAJCOM.

16.1.12.1. Training munitions: These numbers reflect the minimum munitions required exclusively for weapons load crew certification and recurring training (WLT). These munitions are forecasted by and assigned to weapons load training (W1) accounts. Sortie generation and aircrew classroom training munitions must be forecasted for and maintained on separate supply accounts. Munitions required for DLO training must be forecasted on the unit sortie surge account.

16.1.12.2. Units may request additional quantities of munitions than specified on these tables but will not be allocated munitions unless sufficient quantities are available to do so. The UCML/TTML will be the source document for WLT munitions requirements and authorizations.

16.1.12.3. Units with multiple MDS will only be authorized the minimum allocation/authorization of WLT munitions to facilitate load training on all MDS IAW **Table 16.1.** and **Table 16.2.** **EXAMPLE:** If a base has both F-15E and F-16 aircraft assigned and both MDS are tasked on the UCML/TTML for GBU-12 then only two, not four, GBU-12's will be allocated to support both MDS. If a situation exists where the WLT facilities are physically separated and the WWM determines it negatively impacts load crew training to move munitions from one to the other, then each facility will be authorized the minimum number of tasked training munitions.

**Table 16.1. Training Munitions Authorized for Bombers.**

| BOMBERS | B-52 | B-1B | B-2 |
|---|---|---|---|
| AGM-86/B ALCM** | 14 | | |
| AGM-86/C CALCM | 3 | | |
| AGM-129A ACM** | 6 | | |
| M-117 | 9 | | 9 |
| MK-82 LD | 27 | 10 | 20 |
| MK-82 Air | 9 | 28 | 9 |
| MK-84 | 3 | 3 | 3 |
| GBU-10 | 1 | | |
| GBU-12 | 1 | | |
| GBU-37 | | | 1 |
| GBU-31 JDAM/2K MK-84/BLU-109 | 3/1 | 3/1 | 3/1 |
| GBU-32 JDAM/1K | | | |
| CBU-87 CEM | 5 | 5 | 5 |

| BOMBERS | B-52 | B-1B | B-2 |
|---|---|---|---|
| CBU-89 GATOR | 5 | 5 | 5 |
| CBU-97 SFW | 5 | 5 | 5 |
| CBU-103/104/105 WCMD | 3/1/1 | 3/1/1 | 3/1/1 |
| B-61 | 1 | | 8 |
| B-83 | 1 | | 8 |
| MK-62 MINE*** | 2 | 2 | 2 |
| MK-63/65 MINE*** | 1/2 | | |
| GBU-28 | 1 | | 1 |
| EGBU-28 | | | 1 |
| AGM-154 | 3 | 3 | 3 |
| AGM-158 | 3 | 3 | 3 |

**Table 16.2. Training Munitions Authorized for Fighters.**

| FIGHTERS | F-15 C/D | F-15E | F-16 | A-10 | F-117 |
|---|---|---|---|---|---|
| AIM-7 | 2 | 2 | | | |
| AIM-9M / AIM-9X | 2/2 | 2/2 | 2/2 | 2/0 | |
| AIM-120 | 2 | 2 | 2 | | |
| AGM-65 | | 2 | 2 | 2 | |
| AGM-88 | | | 2 | | |
| AGM-130** | | 1 | | | |
| MK-82 conical | | 6 | 3 | 6 | 2 |
| MK-82 air | | 6 | 3 | 6 | |
| MK-84 conical | | 2 | 2 | 2 | 2 |
| MK-84 air | | 2 | 2 | 2 | |
| GBU-10 MK-84/BLU-109 | | 1/1 | 1/1 | | 1/1 |
| GBU-12 | | 2 | 2 | 2 | 2 |
| GBU-15 | | 2 | 2 | | |

| FIGHTERS | F-15 C/D | F-15E | F-16 | A-10 | F-117 |
|---|---|---|---|---|---|
| **EGBU-15** | | 2 | | | |
| **GBU-24 MK-84/BLU-109** | | 1/1 | 1/1 | | |
| **EGBU-27 BLU-109**** | | 2 | 2 | | 2 |
| **GBU-27 BLU-109** | | 2 | 2 | | 2 |
| **EGBU-28 BLU-113**** | | 1 | | | |
| **GBU-28 BLU-113** | | 1 | | | |
| **CBU-87 CEM** | | 3 | 2 | 3 | 2 |
| **CBU-89 GATOR** | | 3 | 2 | 3 | 2 |
| **CBU-97 SFW** | | 3 | 2 | 3 | 2 |
| **CBU-103-5 WCMD** | | 2/1/1 | 2/1/1 | 2/1/1 | 2/1/1 |
| **B-61** | | 2 | 2 | | |
| **2.75 FFAR** | | | 7 | 7 | |
| **LUU FLARES** | | | | 3 | |
| **GBU-31 JDAM/2K MK84/109** | | 2/1 | 2/1 | | 2/1 |
| **GBU-32 JDAM/1K** | | | | | |
| **AGM-154 JSOW** | | 2 | 2 | | 2 |
| **AGM-158 JASSM** | | 2 | 2 | | 2 |

** Denotes the need for a D1 type trainer to allow on aircraft checks/programming of the weapon

*** Mines are not forecasted for, they are obtained directly from the servicing NAVY MOMAG through the applicable MAJCOM.

**Table 16.2. (ANG)**

Add F-15 A/B to F-15 C/D column. Also add two each AIM-7 for ADF F-16 units with AIM-7 capability.

16.1.13. Ensures introductory training is provided to newly assigned personnel on aircraft familiarization, safe for maintenance, explosive safety, weapons release and gun systems maintenance prior to performing duties. Training, certification and qualification required to load munitions on aircraft are only provided by Weapons Standardization. All wing 2W1X1 personnel regardless of duty position will receive initial and recurring weapons academics.

16.1.14. Based on unit taskings, designates the number of load crews, other than the LSC and lead crews, which are certified on support or limited use munitions. In nuclear tasked units the WWM determines the number of load crews required to be certified on applicable nuclear weapons in support

of SIOP/Oplans, when the SIOP DOC does not dictate load crew requirements. All other crews will receive CFL training on conventional and nuclear SM/LMs based on unit taskings.

16.1.15. Develops, in coordination with the explosive safety officer and airfield management, a wing OI or supplement to this AFI for parking, launch and recovery of explosives-loaded aircraft, end of runway procedures, and impoundment of aircraft with hung ordnance or jammed gun systems. The OI or supplement must include requirements to:

16.1.15.1. Arm and de-arm munitions-loaded aircraft in approved areas. Immediately-prior-to-launch and "safing" procedures may be performed in the aircraft parking area for contingencies, unit exercises, and daily training missions as quantity distance clearance allows with the approval of wing safety, airfield management and the MXG/CC.

16.1.15.2. Establish procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. Control access to aircraft until munitions are made safe and cause of hung stores is identified. As a rule, ensure aircraft guns and rockets are "safed" in the de-arm area before aircraft return to open ramp parking areas.

16.1.15.3. DELETED.

16.1.16. Monitors weapons release/gun fire-out rates, malfunctions and corrective actions to assess weapons and armament systems reliability. Takes appropriate action to resolve any problems and contacts MAJCOM for assistance if required.

16.1.16.1. Weapons release reliability rates are calculated by dividing the number of successful releases by the number of attempts (Goal: 99%).

16.1.16.1. (ANG) N/A to the ANG. The following only applies to the ANG: Weapons release reliability rates shall be considered 100 percent unless there is a documented weapons malfunction reported by the aircrew. Rates are calculated by dividing the number of successful releases by the number of pilot reported attempts (Goal: 99 percent).

16.1.16.2. The gun fire-out rate is calculated by dividing the number of successful bursts by the number attempted (Goal: 98%). Once a malfunction occurs, any further attempts for the purpose of clearing the malfunction should not be counted as attempts.

16.1.16.2. (ANG) N/A to the ANG. The following only applies to the ANG: The gun fire-out rate shall be considered 100 percent unless there is a documented gun system malfunction reported by the aircrew. Rates are calculated by dividing the number of successful gun sorties by the total number of gun missions flown (Goal: 98 percent).

16.1.17. Ensures compliance with local accountability procedures for AFI 36-2217, *Munitions Requirements for Aircrew Training,* and AFI 21-201, *Management and Maintenance of Non Nuclear Munitions*. In conjunction with the weapons sections and munitions flight, develops a standard local format for the AF Form 2434, **Munitions Configuration and Expenditure Document**. A computer generated product may be used if it contains all required information.

16.1.18. Coordinates with the MOO, munitions flight, weapons safety and operations plans in developing nuclear weapons operations procedures (e.g., convoy, custody transfer, no-lone-zone, etc.) if applicable.

16.1.19. Ensures sufficient computer systems are assigned to support network and modem interface with the WS, weapons sections, armament systems flight, automated training systems and other agencies.

16.1.20. Ensures approval of locally manufactured equipment (LME) if not included in tech data or listed on the Munitions Materiel Handling Equipment Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road Suite 101, Eglin AFB, FL 32542-6845.

16.1.20.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

16.1.20.2. Munitions/armament LME specifically designed to interface with or support munitions not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, "y"-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME not designed to interface with or support munitions not contained in technical data or on the MMHE Focal Point web site must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

16.1.20.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

16.1.20.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO Forms 244, or equivalent, must be maintained for all LME items (racks, stands, adapters, etc). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

16.1.21. Conducts a wing weapons meeting monthly (quarterly for ARC) with representatives from WS, wing safety, quality assurance, munitions flight, armament flight, and the weapons sections to discuss and resolve any wing weapons issues, concerns or problems. Weapons AFETS are encouraged to attend.

16.1.22. Short tour locations will ensure en route training requirements for inbound 2W1X1 personnel are identified and requested through the MAJCOM Munitions Division

16.1.22. (ANG) N/A to the ANG.

16.1.23. Ensures WRM Rack, Adapter, Pylons (RAP) and guns/components are serviceable to support OPLAN tasking.

16.1.24. Ensures inspections on all aircraft AME, NIE and gun systems are performed on schedule to prevent overdue inspections or overfly of equipment.

16.1.25. Provides monthly manning, equipment and tester status to MAJCOM via e-mail or web site NLT the 5th of each month. Monitors the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of TCTO modifications.

16.1.25. (ANG) Provides quarterly manning, equipment and tester status to MAJCOM via e-mail or web site.

16.1.25.1. Provide a valid document number for all items listed in AWP status in the remarks column of the report if the item is procured through USAF supply channels. If parts are obtained from commercial sources, and purchased using IMPAC card, provide source, date ordered, and status in the remarks column.

16.1.26. Utilize and involve assigned Weapons AFETS in wing aircraft weapons and armament related issues and meetings IAW AFI 21-110.

16.1.27. Inform the MAJCOM, within 24 hours, of any significant weapons or armament related issues such as dropped/hung munitions, equipment and aircraft release reliability or deficiency problems, and weapons safety or mishap issues.

16.1.27.1. If a unit has an incident, it is important to preserve the evidence to the maximum extent allowable by operational requirements and safety. An example would be segregating an aircraft gun versus destroying it if it poses no immediate danger. This allows for evaluation of all the evidence and the ability to recreate the mishap conditions.

16.1.27.2. If a malfunctioning munitions item (live or inert) causes a mishap, also notify OO-ALC/WM's Munitions Rapid Response Team at DSN 777-4865/5155, 775-5507/3208 and 777-AMMO or 775-AMMO, or the Hill AFB Command Post at 777-3007. This team is comprised of experts (engineers, equipment specialists, program managers and safety personnel) from the conventional weapons and munitions programs and can respond within 24 to 48 hours to assist in determining the cause of a failure. Initial contact, as soon as practical, shall allow the team to make travel arrangements and aids response time. For units with 20 or 30MM gun systems use of the team is encouraged (not mandatory unless a safety issue exists) if the cause of a gun system jam cannot be easily determined or for recurring jams. Using the team provides highly valuable information regarding ammunition/gun system problems and allows ALC personnel to see issues first hand.

16.1.28. See **Chapter 15** for information on Aircraft Generation Planning.

16.1.29. On TDY's or Deployments with durations of 30 days or more determine if WS personnel will be deployed to allow the means to provide MPRL and recertification capability to deployed load crews. On TDY's where live munitions are to be fired/expended, regardless of length, determine whether or not WS participation is required.

16.1.30. Performs semi-annual (annual for ARC) self inspections on WS, Weapons Sections and Armament Flights IAW this chapter, interval not to exceed 180 days. Maintain copies of the inspection results for two years.

16.1.30.1. Quarterly (Annually for ARC) validates and documents wing 2W1X1 UTC AEF taskings against existing/squadron docs. Specifically, WWM will ensure no shortfalls exist by aligning required skill level, grade, line remarks and CFETP qualifications against tasked UTCs to include AEF taskings for all assigned 2W1X1 personnel. If a shortfall exists, WWM will immediately start an aggressive training program to eliminated shortfall.

16.1.31. WWM, with concurrence of MXG/CC, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks.

16.1.32. Review **Chapter 18** for requirements dealing with Protective Aircraft Shelter (PAS) Environment.

16.1.33. See **Chapter 12** for KEEP program information.

16.1.34. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

16.1.34. (ANG) N/A to UAE owned F-16 block 60 equipment.

**16.2. Weapons Standardization (WS).** WS is organized under the wing weapons manager and is comprised of the superintendent, the LSC, academic instructor, and lead crews. An LSC may be formed for each MDS in multiple MDS units. One lead crew is normally formed for each AMU, but additional crews can be formed as needed. Lead crews return to an AMU for contingencies, deployments, generations and exercises. WS does not need to be formed in organizations that do not load munitions requiring certification providing the requirements of the weapons task qualification program are met, to include academic, practical, and recurring training. In organizations such as this, the weapons function will be responsible for applicable weapons manager responsibilities and the weapons task qualification program. In a wing, WS is administratively assigned to the MOS but works directly for the WWM.

16.2.1. The key to successful combat/test/training operations is trained load crews proficient at generating aircraft configured to support combat and contingency plans. Units will maintain at least the minimum number of authorized load crews fully certified (as specified on the UCML/TTML). Achieving this standard may require units to certify/qualify weapons personnel who may be assigned duties outside the weapons sections. Although assigned to support sections, dormitory manager duties, etc., 2W1X1 personnel remain accountable for their primary load crew duties, will be managed accordingly, and are counted in wing 2W1X1 manpower totals.

16.2.2. WS Superintendent Responsibilities. The superintendent is responsible to the wing weapons manager, and performs common flight chief and section chief duties outlined in **Chapter 2** of this instruction. The superintendent develops and oversees the weapons standardization program, sets standards, develops local policies and procedures, and interprets all technical data and directives governing the weapons standardization program. The WS superintendent also:

16.2.2.1. Coordinates with the weapons section chiefs to schedule crews for initial training, certification, minimum proficiency requirement loading (MPRL), and quarterly evaluations (QE) training. The WS superintendent documents monthly scheduling effectiveness and submits a summary letter for inclusion in the QAP, including as a minimum:

16.2.2.1.1. Load Crew Scheduling and Training Effectiveness (MRPL/QE) (non applicable to ARC):

16.2.2.1.1.1. Crews scheduled versus completed training events (non applicable to ARC).

16.2.2.1.1.2. Passed versus failed evaluations.

16.2.2.1.1.3. Problems/trends which detracted from scheduling and training.

16.2.2.2. Coordinates with the AMU (MOF in MAF units) PS&D to ensure availability of training aircraft.

16.2.2.3. Manages WLT training munitions, components, and accessories by establishing a supply point with munitions (Munitions Operations) for conventional training munitions. WS will establish an equipment account for nuclear training weapons and accessories, if required. Document and schedule discrepancies requiring repair on training munitions through munitions control.

16.2.2.4. Ensures load crew training munitions are maintained to the same standard as the parent munitions to the maximum extent possible. Training munitions must represent the parent munitions item in configuration, body color and mechanical function. Those having discrepancies, which affect safety, reliability, or detract from load crew training, are not used.

16.2.2.4.1. Load crew training munitions and components are inspected on a 90-day interval by the WS or more frequently if mandated by commodity TOs. Develops a formal agreement with the munitions flight concerning periodic inspection, maintenance, and refurbishment. An AFTO Form 244 (or automated form) is maintained for each AUR training munition.

16.2.2.4.2. AFTO Forms 244 (and/or automated forms for training munitions only)are maintained by the WS and accompany the munition item when turned in for repair or scheduled inspection.

16.2.2.4.3. An AFTO Form 350 accompanies munitions and munitions components when they are turned in to the munitions flight for repair.

16.2.2.5. Use the guidelines established in AFI 21-201 when submitting the annual forecast to the MAJCOM.

16.2.2.6. Orders training munitions and munitions items to meet unit needs.

16.2.2.7. If sufficient training munitions are not available to support DLO training, coordinate use of assigned items from WS supply point for management flexibility.

16.2.2.8. Uses the weapons load crew management program (WLCMP), or equivalent program, to track load crew certification and qualification status. Unless computer systems are networked or modem-interfaced, printed products are produced and distributed at least twice each month to the weapons section chiefs. Printed products are formatted so that manual updates can be made between issues. Monthly, generate a printed product for WS records.

16.2.2.8. (ANG) Provide printed products to weapons section chiefs semi-annually.

16.2.2.9. Upon notification of a deployment or an increased state of alert, takes appropriate action to certify load crews on support munitions if required.

16.2.2.10. Maintains a copy of all Air Force loading TOs for assigned MDS aircraft. Training and test units need only maintain checklists for munitions to support weapons load crew training required to sustain daily flying operations and for munitions undergoing test and evaluation.

16.2.2.11. Coordinates with the AMU Production Super to ensure WLT aircraft are properly configured and safe for use.

16.2.2.12. Develops time standards for integrated loads.

16.2.2.13. Ensures all load crews are qualified to load and unload internal gun system ammunition (including partial loads, at WWM's discretion), and preloaded chaff/flare modules on assigned aircraft.

16.2.2.14. Ensures load crews demonstrate proficiency on all capable aircraft racks and stations prior to certification on that munition. For conventional munitions capable of multiple carriage, both aircraft parent station and multiple carriage loading are required. For nuclear weapons, only the aircraft stations that are maintained in nuclear certified status are loaded.

16.2.2.15. Ensures load crews are familiar with fuze inspection, installation and wiring IAW MDS-33 series TO procedures or TO 11A-1-63 (bombers). Conduct this training during initial certification and annually thereafter. Functional checks must be trained during initial training/certification for all MDS. Functional checks must be evaluated at least quarterly thereafter, must be treated and tracked as a qualification item, and need not be performed in conjunction with an evaluated load. Bomber units are exempted from all functional check requirements stated above.

16.2.2.16. Inspects WS CTKs and equipment quarterly. Ensures CTKs, tool storage area and test equipment are maintained IAW **Chapter 13**.

16.2.2.17. See **Chapter 18** in regards to the Special Certification Roster.

16.2.2.18. See **Chapter 13** in regards to lost tools.

16.2.2.19. Ensures MAJCOM Mandatory Course List (MMCL) requirements are met.

16.2.2.19. (ANG) N/A to the ANG.

16.2.2.20. See **Chapter 12** for KEEP program information.

16.2.2.21. Ensures individual tool kits are set up for each lead crew assigned. These CTKs may be stored in WS or the respective squadron, but are required to be maintained by the Lead Crews. In coordination with the Weapons Section Chief, determines the number of loading tool kits required in bomber units, and those that support only test, evaluation or training missions.

16.2.2.21. (ANG) CTKs shall be maintained as directed by the WWM.

16.2.2.22. (Added-ANG) Maintains an automated system to depict load crew status. As a minimum, the load crew status system reflects the formed crews by number and crew member position, by individual, the next Minimum Proficiency Requirement Loading (MPRL) due date for each munitions, quarterly evaluation due date, preload due date (if applicable), competent familiarity loading (CFL) due date for each type of munitions, and training due date for each weapons task qualification.

**16.3. Loading Standardization Crew (LSC).** The LSC works for the WS Superintendent and conducts the weapons standardization and evaluation program. The wing weapons manager and/or WS Superinten-

dent evaluate and certify the LSC according to criteria in this section. If unit manning permits, the LSC team chief must be at least a TSgt 2W171. The LSC trains, evaluates, and certifies the lead crews and load crews in safe and reliable munitions loading procedures. The LSC:

16.3.1. Conducts and monitors training to ensure personnel maintain a high degree of proficiency in loading unit-committed munitions.

16.3.2. Monitors certification and recurring training documents for accuracy and to ensure all load crew members complete required proficiency and academic training. The LSC takes decertification action if recurring requirements are not met.

16.3.3. Ensures all load crew training is documented.

16.3.4. Reviews and coordinates on all loading related AFTO Form 22's IAW TO 00-5-1.

16.3.5. Develops and coordinates weekly and monthly load training aircraft requirements with the MOF PS&D.

16.3.6. Monitors and evaluates lead crews in the performance of their duties.

16.3.7. Provides non-load crew personnel initial and recurring weapons task qualification training, including practical training on:

16.3.7.1. Weapons system safety devices to include proper use, identification, installation and removal.

16.3.7.2. Munitions item safety requirements.

16.3.7.3. Location of weapons system explosive items used to jettison and release external stores.

16.3.7.4. Stray voltage checks, as required.

16.3.7.5. Location and position of cockpit armament system switches.

16.3.8. Performs spot inspections and evaluations of flightline munitions/explosive handling, loading and postloading operations. Augments wing inspection/evaluation teams during local exercises to assess munitions loading capabilities and activities.

16.3.8. (ANG) May augment wing inspection/evaluation teams during local exercises to assess munitions loading capabilities and activities.

16.3.9. Performs quarterly evaluations on all certified load crews. Lead crewmembers may assist; however, at least one member of the LSC must be present during all quarterly evaluations.

**16.4. Academic Instructor.** A qualified 2W1X1 is assigned to administer the weapons academic training program. The academic instructor may assist in conducting practical training, and is not considered a maintenance instructor. A qualified weapons instructor conducts initial and recurring weapons academic training for all wing 2W1X1 personnel.

**16.5. Lead Crews.** The lead crews are assigned to the WS and assist the LSC in training, evaluating and certifying unit load crews in safe and reliable munitions loading procedures. They document, initiate and maintain the database to reflect qualification, certification status and history of assigned load crew members. Ensure all load crew members complete required proficiency/academic training and take decertification action when recurring requirements are not met. Perform spot inspections and evaluations of flight line munitions/explosive handling and loading operations when not directly involved in WS training func-

tions. Perform flight line loading evaluations when deployed, as required, in addition to their normal load crew duties. These evaluations may be used to satisfy load crew MPRL requirements IAW this chapter.

**16.5. (ANG)** Lead Crews are optional for the ANG.

16.5.1. Initiate and maintain AF Forms 2435, *Load Training and Certification Document*, or locally devised form that covers everything on the 2435, for certified crew members.

**16.6. Training Facilities/Aircraft.**

16.6.1. Practical training is conducted in a facility dedicated to load crew training. The facility is of sufficient size to accommodate required aircraft, training munitions and associated support equipment. It is recommended that bomber aircraft have dedicated load-training facilities, however, where not practical, inside facilities should be provided to the maximum extent possible during periods of extreme inclement weather. Adequate office space and classroom with appropriate heating and cooling are required in the academic and practical training area.

16.6.2. Aircraft will have a fully configured and operational (electrical and mechanical) weapons system for load training purposes. If a permanent Armament Systems Trainer (AST) is assigned, it also will have a fully configured and operational weapons system. In addition, the WS develops a schedule for periodic maintenance to weapons system components.

**16.7. Academic Training.** All 2W1X1's assigned to a wing regardless of duty position, and non 2W1 personnel who maintain specific weapons task qualification, are required to complete initial and recurring academic training. Complete initial academic training before the start of any practical training. Administered annually, recurring academic training may also be part of training and recertification for failed loads. Initial and recurring course outlines may be combined. Coordinate training requirements and course control documents annually through the wing weapons safety office or the safety officer and the Maintenance Training Flight (MTF). The weapons safety office approves all nuclear surety training lesson plans. The wing weapons manager is the final approval authority for course documents.

16.7.1. Course control documents are tailored to unit and contingency needs and, as a minimum, cover the following items:

16.7.1.1. Publications, applicable weapons related local operating procedures or directives.

16.7.1.2. Safety (ground and explosive) and security.

16.7.1.3. Aircraft, munitions, AGE, SE, TMDE, and munitions trailer familiarization.

16.7.1.4. Testers, handling equipment and special tools.

16.7.1.5. Operations in revetments/protective aircraft shelters.

16.7.1.6. Weapons storage and security system vaults (tasked units).

16.7.1.7. Nuclear weapons systems fault isolation and troubleshooting procedures, if applicable.

16.7.1.8. Applicable command unique training requirements, in MAJCOM 36-2201 supplements.

16.7.1.9. Hazards inherent during Concurrent Servicing Operations (CSO).

16.7.2. Load crew academic training may fulfill the requirements for explosive safety and nuclear surety training if requirements of AFI 91-101, *Air Force Nuclear Weapons Surety Program*, and AFMAN 91-201, *Explosive Safety Standards are achieved.*

**16.8. Practical Training.** Practical training starts when academic training is complete. The LSC or lead crews administer practical training to each load crew member on required munitions and aircraft. They ensure practical training duplicates operational conditions to the maximum extent possible and stress requirements such as DLOs, two-person concept, safety wiring and sealing, controlled access and weapon custody receipt and transfer procedures, as required. Load crew members are trained on loading and unloading procedures prior to qualification or certification on munitions.

16.8.1. If a specific type or model of munition has been requisitioned but not received or not available, any type or model of the basic item may be used for load crew training until receipt of the munition. LSC/lead crew personnel will teach the major differences between training and WRM munitions. After initial training on applicable items within the MFG, treat the MFG as a single item and document certification using one line entry in block 7 of the AF Form 2435, **Load Training and Certification Document,** or locally devised form.

16.8.2. Load crews must be familiar with munitions serviceability criteria and munitions tie-down procedures in TO 11-1-38, *Non-nuclear Munitions, Positioning and Tie-Down Procedures* and, as applicable, TO 11N-B1004-1, *Nuclear Weapons Tie-Down Procedures.* Blanket rejection of training munitions during load training is not authorized, and munitions may not be rejected solely because they are inert.

16.8.3. Initial support munitions (SM) training is accomplished concurrent with initial primary munitions (PM) training and certification. When a new PM or SM is designated on the UCML/TTML, crews are certified or competent familiarity loading (CFL) trained within 30 days after receipt of training items.

16.8.3. (ANG) When a new PM or SM is designated on the UCML/TTML, crews are certified or competent familiarity loading (CFL) trained within 90 days after receipt of training items.

16.8.4. Load crew members will be familiar with the operation of AGE and SE which may be used during loading operations, even if the items are not used on a routine basis. Training on this type of equipment is conducted during initial training and certification, and annually thereafter. Training is documented in either WLCMP, MIS, or automated product.

16.8.5. Units with a nuclear tasking that operate from, or deploy to, locations equipped with weapons storage and security system (WS3) vaults in the protective aircraft shelters, will train load crews to unload and load weapons from and into the vault. An approved locally manufactured stand may be used to simulate the storage vaults for load and unload training (drawings are available through the MMHE Focal Point).

16.8.6. All nuclear certified load crews at units with or without WS3 will be trained on trailer handling/tie-down procedures quarterly.

16.8.7. Establish a program for supervisory post-load inspections of explosive loaded aircraft (nuclear and conventional). Supervisors (expediters, shift supervisors, flight chiefs, etc.) performing such inspections require initial and annual qualification training by WS.

16.8.7. (ANG) IAW **Chapter 3** of this instruction.

**16.9. Load Crew Composition.** Load crews consist of two, three or four persons within the 2W1 AFSC as follows (except for those qualification tasks specifically outlined in this AFI):

16.9.1. Two-member crews: MH-53, MC-130E/H/P, and MQ-1 Predator.

16.9.1. (ANG) Also HH-60.

16.9.2. Three-member crews: AC-130H/U, A/OA–10, F–15, F–16, F/A-22 and F–117.

16.9.3. Four member crews: B–1, B–2, and B–52.

**16.10. Task Assignment List (TAL).** A TAL is a functional grouping of procedural steps from applicable -16/-33 series technical orders, by crew position, to be accomplished in sequence by each crew member during a loading operation. TALs are used during training for all loading operations except those for which job oriented procedures have been published (B-2 rotary launcher conventional munitions, and B-52H CALCM pylon and CSRL loading/unloading is accomplished procedurally parallel to the -16 procedures). TALs will include single, DLO and integrated munitions loading procedures (including gun and chaff/flare loading) and aircraft armament electrical functional checks. Their purpose is to standardize procedures and facilitate the training of unit load crews. TALs are not a replacement for TO procedures. Separate TALs will be developed for weapons qualification tasks performed by non-2W1X1 personnel. MPRLs and quarterly evaluations are not considered training operations. The following guidelines establish minimum responsibilities of individual crew members:

16.10.1. Two member load crews:

16.10.1.1. Crew member number one is the load crew chief and is in charge of the loading operation, performs functional checks and attaches stores to the pylon/rack.

16.10.1.2. Crew member number two assists the number one person in performing the pylon/rack preparation and installation of stores to vehicle.

16.10.2. Three member load crews:

16.10.2.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions cockpit switches during functional checks and attaches stores to the pylon/rack.

16.10.2.2. Crew member number two performs the pylon/rack preparation and operates test equipment during functional checks.

16.10.2.3. Crew member number three performs munitions preparation and operates the bomblift truck during loading operations

16.10.3. Four member load crews:

16.10.3.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions the cockpit switches and attaches stores to the pylon/rack.

16.10.3.2. Crew member number two performs the pylon/rack preparation, operates test equipment during functional checks and assists in loading of stores.

16.10.3.3. Crew member number three performs munitions preparation.

16.10.3.4. Crew member number four performs rack/pylon preparation, operates test equipment during functional checks, and operates the bomb lift truck.

**16.11. Weapons Load Training Basic Terms.**

16.11.1. All-Up-Round (AUR). A munitions item which is shipped and stored in a complete, ready to use configuration. An AUR munition requires no pre-assembly.

16.11.2. All-Up-Round Container (AURC). A container used to ship, store, and handle AUR munitions. Some AURCs are designed to load munitions directly from them onto an aircraft.

16.11.3. Competent Familiarity Loading (CFL). The loading of a munition which requires only a satisfactory fundamental knowledge of the loading operation. The performance of CFLs only set a basic level of proficiency in order to make future certification easier. Evaluation criteria in this chapter does not apply to CFLs. CFLs are accomplished annually and are not a substitution for certification.

16.11.4. Dual loading operations (DLO). A conventional munitions loading operation on bomber aircraft accomplished simultaneously by two load crews. (MAJCOM approval required for fighter aircraft).

16.11.5. Integrated Load. The loading of two or more different types of munitions in an authorized configuration during a single operation.

16.11.6. Limited Use Munition (LM). A munition used by a unit for firepower demonstrations, test, aircrew training or like operations, but which a unit would normally not use in a war or a contingency. LMs may be designated on the UCML/TTML. WWM determines the number of crews to be certified.

16.11.7. Munitions Family Group (MFG). A designated grouping of munitions based on similarity of either physical characteristics or procedural commonality. Certification on a MFG is accomplished during initial training on each tasked munition within the MFG (subject to availability of training munitions) then maintained through the MPRL process.

16.11.8. Postload Checks. Power-on checks and/or tasks required by technical data prior to declaring munitions-loaded on aircraft mission ready.

16.11.9. Primary Munition (PM). Munitions which will be the primary weapons used by the unit to execute test/training or their DOC war plan and are designated on the UCML/TTML.

16.11.10. Standard Conventional Load (SCL). The designation, which includes the number, type and configuration of authorized munitions, required for a specific mission and aircraft load.

16.11.11. Support Munition (SM). A munition normally used in support of contingency plans or directives and is designated on the UCML/TTML. WWM determines the number of crews to be certified.

**16.12. Load Crew Certification/Decertification.**

16.12.1. Certification. These guidelines are used to establish the loading standardization and evaluation program. The LSC will establish and manage a program to train, certify and maintain proficiency for each crew on the munitions designated by the UCML/TTML or WWM for SMs/LMs. Certification and training requirements for load crews are based on the following:

16.12.1.1. Except the LSC and lead crews, load crew members are not certified on more than 10 MFGs. Dual position (LSC and SLC) or dual MDS (LSC only) certification of load crew members is authorized; however, they may not be certified on more than 10 MFGs. Personnel certified on two separate MDS aircraft alternate quarterly requirements between the two tasked aircraft. Proficiency requirements are accomplished on both aircraft IAW this chapter. Test wing personnel may be certified on more than 10 MFGs and multiple MDS provided all other requirements for load certification, qualification and evaluations are complied with and authorized by the WWM.

16.12.1.2. LSC, lead crews, and load crews are certified on all PMs. The LSC and lead crews are certified on all SMs to provide the cadre for future certification of unit load crews. The LSC is certified (or qualified for items so identified by unit tasking) on unit LMs. The wing weapons manager determines the number of additional load crews trained and certified on support and limited use munitions.

16.12.1.3. A minimum of two certifying officials are required to evaluate three and four-member load crews. A minimum of one certifying official is required for two-person load crews.

16.12.1.3. (ANG) N/A to the ANG. The following only applies to the ANG: For initial certification a minimum of two certifying officials are required to evaluate three member load crews (if only one crew member is not certified, then, only one certifying official is required). For MPRLs a minimum of one certifying official is required to evaluate three member load crews. QEs require a minimum of two certifying officials (one must be a member of the LSC).

16.12.1.4. Load crew member certification is valid worldwide with gaining WWMs concurrence. Reassignment does not necessarily require recertification by the gaining unit if the individual is certified on the same munitions, aircraft, and load crew position. Units develop procedures to ensure that WLCMP or equivalent data is provided to the individual prior to permanent change of station (PCS) departure. Losing units, therefore, provide gaining units with the AF Forms 2435 or equivalent.

16.12.1.5. Personnel are certified before loading war reserve nuclear weapons. Certified load crews may be evaluated by using war reserve weapons if the weapons are scheduled for loading or movement.

16.12.1.6. Personnel are certified before performing loading of conventional munitions, unless loading under the direct supervision of a minimum of two certifying officials.

16.12.1.7. (Added-ANG) All certified load crews perform Minimum Proficiency Requirement Loading (MPRL) monitored by designated lead crew members or LSC members. The LSC monitors lead crew proficiency loads. When the LSC performs proficiency loadings, the loads are not required to be monitored. Post-load inspections do not meet these proficiency requirements.

16.12.2. Decertify and disqualify individual load crew members if they:

16.12.2.1. Fail an evaluation established by evaluation criteria in this chapter.

16.12.2.2. Fail to complete a required evaluation (QE, MPRL, etc.). If a load crew member is on temporary duty (TDY), on emergency leave, incapacitated, or involved in an unannounced local or higher headquarters exercise/contingency operation, do not decertify or disqualify the member (or the load crew) providing the current month's MPRL and evaluation requirements (plus all past-due evaluations) are completed within 30 days of returning to duty (60 days for ARC). **NOTE:** The WWM may consider the provisions of this paragraph for ordinary leave (i.e. member has approved leave for 45 days).

16.12.2.2. (ANG) MPRLs are performed quarterly in the ANG.

16.12.2.3. Fail to accomplish required recurring academic training. Individuals are decertified and disqualified on all UCML/TTML and qualification items until academic and practical training are completed.

***NOTE:*** In the event of the member's absence due to emergency leave, convalescence leave, or unannounced deployments do not decertify or disqualify. Member must receive academic training within 30 days of returning to duty.

16.12.2.3. (ANG) **NOTE** : Member must receive academic training within 60 days of returning to duty.

16.12.3. AGM-65 tasked units shall load train using both the LAU-88 (if applicable) and LAU-117 launchers and accomplish quarterly loading requirements by alternating launchers (i.e., load the LAU-117 one quarter and the LAU-88 the next). LAU-117 loading need only be accomplished using the pre-load method. LAU-88 loading is accomplished by the single load and pre-load methods. Single AGM-65 loading on LAU-88 launchers is accomplished using both MJ-1 and MHU-83 bomb lift trucks on an alternating basis and consists of a minimum of two missiles (one shoulder and one bottom station). Preloaded LAU-88 launchers are in an unbalanced configuration (one loaded and one empty shoulder station).

(NOTE: Some units may only possess one or two LAU-88s for WLT . These WLT assets are provided to units for training in support of deployed locations/taskings.)

16.12.3. (ANG) N/A to the ANG. The following only applies to the ANG: AGM-65 tasked units shall load train using both the LAU-88 and LAU-117 launchers (accomplish quarterly loading requirements by alternating launchers e.g., load the LAU-117 one quarter and the LAU-88 the next). WS shall provide annual familiarization training on all procedures, and equipment required to accomplish single, preload, and unbalanced configurations. (**NOTE**: Some units may only possess one or two LAU-88s for WLT. These WLT assets are provided to units for training in support of deployed locations/taskings.)

16.12.4. Units which have the AGM-88 as a PM/SM will demonstrate the ability to load the LAU-118 using both the single store and preload methods.

16.12.5. F-15 AIM-120 loading will be alternated between the LAU-128 and LAU-106 launcher.

16.12.6. Personnel certified to load nuclear weapons on aircraft, may perform weapons transfer and tie-down procedures to and from trailers, WS3 vaults, and support stands for which load standardization training has been established and conducted IAW this instruction. They will not require these actions as separate certification items.

16.12.7. Annually perform a SCL while wearing the ground crew chemical-defense ensemble using applicable 33-1-2/33-2-1 procedures (if applicable).

16.12.7. (ANG) If AEF tasked.

16.12.8. Internal and external conventional munitions loads on B-52 aircraft will be documented separately. For munitions loading on B-1 aircraft, loading the 28 carriage conventional bomb module (CBM) does not satisfy requirements for 10 carriage CBMs.

16.12.9. For contingency operations or deployed locations an SLC should be and is normally deployed to perform WS functions. If an SLC is not deployed, the senior 2W1X1 weapons loading person (with WWM coordination) on location will have WS authority. **EXAMPLE:** A new munition or load configuration is required to support operations and crews need to be trained on location (provided Seek Eagle approval has been granted and verified technical data/procedures are available).

16.12.10. Personnel are not certified on more than two types of aircraft, except those assigned to aircraft test programs.

**16.13. Load Configurations.** All munitions loads will be authorized load configurations IAW the dash one flight manual.

16.13.1. For initial training a full complement of munitions (if available) will be loaded a minimum of once on a rotary launcher, TER, BRA, CBM, etc. to provide the crew experience loading a full load.

16.13.2. Sufficient weapons will be loaded during each evaluation to ensure the load crew demonstrates proficiency on loading/unloading each tasked configuration (adjacent stations, upper/lower stations, shoulder/centerline stations, etc.).

**16.14. MPRL.** Each munition for which an individual is certified to load, regardless if it is a primary, support or limited use munition will be loaded at least once within a 90 day period (semi-annual for ARC). One third of the required munitions to be loaded for the quarter will be loaded monthly to provide a monthly evaluation of load crew proficiency (ARC will load half every quarter). For those munitions that no training assets exist (CBU-97, CBU-105, M129, etc.) difference training will be provided prior to initial certification and during annual refresher academics training. Load crews in air defense/air superiority units perform proficiency loads monthly (quarterly for ARC) using all committed munitions. For B-52 units, alternate loads between internal and external stations to the maximum extent possible.

**16.14. (ANG)** N/A to the ANG. The following only applies to the ANG: **Minimum Proficiency Requirement Loading (MPRL).** One half of the munitions family groups (MFG) for which an individual is certified must be loaded quarterly to maintain certification and provide evaluation of load crew proficiency (see **Table 16.6. (Added)** Example of a MPRL Schedule).

16.14.1. Load nuclear PMs monthly. Only one type of munition within a MFG requires loading each month. Nuclear SMs (certified crews), to include single missile, single bomb and, payload exchange (for bombers), are loaded/accomplished at least quarterly. For B-52 SIOP, internal, external, and integrated loads will be rotated monthly within each quarter. Launcher will include post-load checks (MIT/BIT).

16.14.2. MHU-196/204 mate/de-mate operations with live or inert munitions require initial certification and will be evaluated semi-annually.

16.14.3. Load crew integrity should be used to the maximum extent possible. Schedule crew members into load training for monthly loads. In the event a crew member is coded out and unavailable to load, every effort should be made to schedule the remaining crew members with another person. Load training gives our personnel practical training required to maintain a high state of readiness.

16.14.3. (ANG) Certified ANG Load Crew Chiefs may perform MPRLs in any position provided they load under supervision of LSC/Lead Crew using inert training munitions only. This stipulation applies at home station only. No MPRL credit shall be given to those individuals during evaluations unless loading in the position that they are certified. This deviation from policy enables units to have flexibility to evaluate remaining crew members when a member may not be available to form a full crew and should not be used for convenience, but more so a necessity. Schedule crew members into load training for quarterly loads.

16.14.4. (B-52) Except for integrated loads the CSRL or pylon configured with AGM-86C may be used in lieu of nuclear PM for one month of each quarter. Those crews certified for single missile loading/unloading will alternate between internal, external, AGM-129, AGM-86B and AGM-86C.

16.14.5. (Added-ANG) For those munitions that no training assets exist (CBU-97, CBU-105, M129, etc.) difference training shall be provided prior to initial certification and during annual refresher academics training.

16.14.6. (Added-ANG) Load crews in air defense/air superiority units perform proficiency loads quarterly using all committed munitions.

**16.15. Load Crew Quarterly Evaluations.** The LSC evaluates each load crew once a quarter on at least one of the unit PMs (all unit PMs will be used on a rotating basis). Load crew integrity will be maintained to the maximum extent possible. Decertify load crews failing to accomplish quarterly evaluations on all munitions unless exempted IAW provisions in this chapter. Quarterly evaluations are not required for lead crews. If an integrated load is accomplished as the QE (i.e., AIM-9, 120, 7), document the QE accordingly. There is no need to document both QE and MPRL. The intent here is to ensure load crews perform an evaluated load each month.

**16.15. (ANG)** Certified ANG Load Crew Chiefs may perform QEs in any position provided they load under supervision of LSC/Lead Crew using inert training munitions only. This stipulation applies at home station only. No QE credit shall be given to those individuals during evaluations unless loading in the position that they are certified. This deviation from policy enables units to have flexibility to evaluate remaining crew members when a member may not be available to form a full crew and should not be used for convenience, but more so a necessity. Decertify load crews failing to accomplish quarterly evaluations on all munitions within a family group unless exempted IAW provisions in this chapter.

16.15.1. Evaluation Criteria. All certified load crews perform proficiency loads monitored by a lead crew or the LSC. The LSC monitors lead crew proficiency loads. The WWM or WS superintendent will monitor LSC proficiency loads. Post-load inspections do not meet these proficiency requirements. The following criteria apply to initial certification, MPRLs and quarterly evaluations:

16.15.1. (ANG) The WWM, designated individual, or WS superintendent may monitor LSC proficiency loads.

16.15.1.1. Exceeded time standard results in a failed rating for the load crew chief. Time standards will be locally established for load tasks in chemical warfare defense ensemble.

16.15.1.2. A safety or reliability error results in a failed rating for the individual. A failure in this category due to a single sub-task error need not result in complete retraining/recertification for the loading task. At the discretion of the evaluator, sub-task retraining or thorough critique may be used to satisfy retraining/recertification requirements. The decertification and subsequent recertification action will be documented.

16.15.1.2.1. Safety Error: A violation of safety publications, technical order warnings, etc., or an unsafe act that could reasonably lead to personal injury or death.

16.15.1.2.2. Reliability Error: A violation of technical order requirements that could reasonably lead to damage/premature failure of equipment or prevent safe reliable operation of a weapons system or release of a weapon.

16.15.1.3. A demonstrated lack of technical proficiency by an individual load crew member can result in a failed rating. If the time standard is exceeded for this reason, the load crew chief does not need to be decertified.

16.15.1.4. For integrated loads, the evaluator may elect decertification on any one or all munitions loaded. When the same rating is not applied to all munitions loaded during an integrated load, the load crew records will be annotated accordingly.

16.15.1.5. Intervention by an evaluator during loading to prevent injury to personnel or damage to equipment may result in a failed rating.

16.15.1.6. MPRL credit may be given to load crews or personnel performing DLOs or other loading operations on the flightline during exercises, extended deployments or daily operations provided complete loads that satisfy MPRL requirements are performed and evaluated from start to finish. The required number of evaluators, equipment and all other requirements must be met to receive credit for these type evaluations.

16.15.1.6. (ANG) LSCs may evaluate loading operations conducted during deployments, exercises, or contingencies as QEs at the discretion of the WWM.

16.15.1.7. More than three errors per crew member results in a failed rating for the individual.

**16.16. Documenting Load Crew Training.** Manage load crew certification and qualification, quarterly evaluations, MPRLs and CFLs by means of the WLCMP or equivalent.

16.16.1. The LSC keeps load crew records. Include the following documents as a minimum: AF Form 2435 (or equivalent) (front and back) for each crew member and AF Form 2419 recording the most current quarterly evaluation. AF Form 2419's must be maintained in the database for all loads. Maintain either electronic or paper copies of AF Form 2419s for a minimum of 1 year.

16.16.2. If the UCML/TTML contains more than one item from MFG table, the MFG is entered. MFGs are listed as a single entry using the primary tasked item of the group in the title. For example, MK-82 MFG is entered when the MK-82 is the primary tasked item from its group. Separate entries are made for postload checks (if applicable).

16.16.3. Dates are entered upon certification and DLO qualification. Entries in date and certification fields on AF Form 2435, **Load Training and Certification Document** (or equivalent), are deleted for CFLs and other qualification items.

16.16.4. Enter one of the following codes in the month column as applicable. If required loads are not completed and provisions of this chapter apply, use one of the following: temporary duty (TD), emergency leave (LV), incapacitated (ED), exercises/contingency (EX), or weather (WX). Code outs are not to be abused or used as a substitute for ineffective scheduling (WWM has final decision authority on coding disputes). The letter "E" is placed after the date for the quarterly evaluation regardless of rating.

16.16.5. Print AF Form 2419, *Routing and Review of Quality Control Reports*, after quarterly evaluations and route to the weapons section chief, MOO, WWM, and LSC.

16.16.6. Send printouts from the Load Crew Management database with the crew to TDY locations if loading tasks are to be performed. The following statement is added after the last entry on each prod-

uct: "AF Form 2435 reviewed; the member is certified/qualified on the items listed on this product." This statement is followed by the signature and date of a WS certifying official.

16.16.7. Academic and qualification training conducted by the WS is normally documented in (MIS), however the load crew management program may be used for this purpose.

**16.17. Transient Aircraft Responsibilities.** Arming, de-arming, and munitions loading/unloading will only be accomplished on transient aircraft to facilitate required maintenance actions. In such cases, these operations on transient aircraft may be performed by any weapons load crew certified/qualified on the munition and aircraft. The MXG/CC may direct the LSC or a lead crew to arm, de-arm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data and support equipment is available. In such cases, the aircrew will be available for consultations on aircraft to verify flight worthiness of load configuration, and to perform cockpit portions of required functional/stray voltage checks. If these cannot be met, request help from owning unit(s)/higher headquarters. Local procedures must be developed to control impulse cartridges removed from transient aircraft.

**16.18. Dual Loading Operations (DLO).** DLO is only applicable to bomber units (MAJCOM approval required for fighter units). DLOs are the primary method for rapid munitions loading/unloading on bomber aircraft and are authorized provided the following conditions are met:

**16.18. (ANG)** DLO are not authorized in the ANG. All subparagraphs of **16.18.** are also N/A to the ANG.

16.18.1. Both internal and external (B-52) or dual bay (B-1, B-2) loading is required.

16.18.2. Load crew chiefs: Designate one crew chief to be in charge of the entire operation.

16.18.2.1. One will check the aircraft AFTO Form 781 and verify aircraft and armament system status prior to start of the load and brief status during the pre-task briefing.

16.18.2.2. Both are present during the pre-task briefing.

16.18.2.3. Verify all previously loaded munitions are in pre-maintenance status.

16.18.2.4. One will verify cockpit switches are properly positioned during aircraft preparation.

16.18.2.5. Both will check off each step as they are accomplished in their applicable loading checklist.

16.18.3. Load crews conduct independent loading operations from single or separate trailers. NOTE: Loading and fueling operations must not be performed simultaneously due to the hazard of the aircraft settling.

16.18.4. Post-load power-on checks are not accomplished until all munitions are loaded and bay connections accomplished.

16.18.5. Load crew chiefs ensure that the conventional system switches/controls are properly positioned and verify the conventional munitions status and inventory during post-loading inspection.

16.18.6. Initial DLO qualification consists of academic and practical training. Recurring annual training must consist of academic training.

**16.19. Weapons Task Qualification.** A weapons task qualification is a munitions related task that does not require certification. Personnel receive initial and annual recurring academic and practical training for

these tasks. Recurring practical training may be conducted during normal flight line operations. Training is provided, documented and tracked by the WS.

16.19.1. Checklist Qualification: Indicates that the person with the checklist is trained, knowledgeable and in-charge of the overall operation or task.

16.19.2. Full scale inert/practice bombs (i.e. BDU-50). If load crew personnel are certified on a munition, they are considered qualified on its inert version. In the event the live version is a SM and requires only an annual CFL, then load crew personnel require annual training on the inert version and it will also be tracked as a qualification.

**16.20. Other Tasks.**

16.20.1. Two or more qualified personnel in AFSC 2W1X1 may perform the following tasks:

16.20.1.1. Practice Bombs: load and unload BDU-33, BDU-48 and MK-106.

16.20.1.2. Load and unload ammunition in internal and external gun systems (the GAU-8 requires three people).

16.20.1.3. Load and unload single 2.75 rockets.

16.20.2. Two or more qualified personnel in any aircraft maintenance AFSC may perform the following tasks:

16.20.2. (ANG) For rescue units, these can also be a helicopter engineer or an aerial gunner.

16.20.2.1. Install and remove impulse cartridges if the task is not accomplished as a part of a loading operation.

16.20.2.2. (Bomber aircraft) Install and remove practice bomb adapter rack and cluster rack adapters.

16.20.2.3. Pyrotechnics: Load/unload on helicopter.

16.20.2.3. (ANG) N/A to the ANG. The following only applies to the ANG: Pyrotechnics: Load/unload.

16.20.2.4. Install and remove chaff and flare magazines and other defensive countermeasures as required.

16.20.2.5. Perform portions of the conventional loading checklist which pertain to delayed-flight or alert, and IPL/safing procedures

16.20.2.6. Munitions/Missile Isolation: perform procedures to facilitate other maintenance on non-nuclear loaded aircraft only.

16.20.2.7. Install and remove captive AIM-9 missiles, Acceleration Monitor Assemblies (AMA) and Air Combat Maneuvering Instrumentation (ACMI) pods. Academics is not required for AMA and ACMI pods. (Minimum crew size per TO directives) (personnel shall be trained/qualified on the task). AMA and ACMI qualification training are a one time trained item that will be entered on a Form 797.

16.20.2.7. (ANG) Training shall be tracked in MIS or AF IMT 797.

16.20.2.8. Loading and unloading ammunition in the GAU-2 and M240 guns.

16.20.2.8. (ANG) All helicopter gun systems.

16.20.2.8.1. (Added-ANG) Install/remove and checkout all helicopter gun systems.

16.20.2.9. (Added-ANG) Install/remove pre-loaded SUU-25 dispensers.

16.20.3. A weapons load crew chief does not require qualification to perform tasks on which they are certified to load in respect to parent munitions. Other load crew members must be qualified to perform any portion of these tasks for which they have not been certified. **NOTE:** To clarify, the load crew chief may perform in any crew member position. The two and three members can only perform those positions for which they are certified or qualified in.

**16.21. Munitions Load Time Standards.** All munitions listed in a single block comprise a MFG for the respective aircraft mission type. The load time standards apply to all operational users of the munitions or aircraft listed and are the minimum proficiency requirements for weapons load crews. Units may establish more restrictive standards for local use. All items require certification in accordance with this chapter, except as noted.

16.21.1. The standard load times, from the MFG **Table 16.3.-Table 16.5.**, are standard load times for initial and recurring "WLT" training and evaluations for the respective single store (including full munitions preparation) and an applicable aircraft station functional check and installation of impulse cartridges, if required. Except for BRU-57, an additional 10 minutes is allowed for each added aircraft station check on fighter aircraft. An additional 7 minutes is allowed for each like store added to fighter aircraft loads. Load times are additive when more than one type of munition is loaded on fighter aircraft. For example, if an F-16 is to be loaded with two AIM-9s and a MK-82, the load crew shall be allowed 30 minutes for the first AIM-9, 7 minutes for the second AIM-9 plus 10 minutes for the additional station functional check, and 35 minutes for the MK-82, for a total of 82 minutes. Loads may be accomplished without full munitions preparations or functional checks, however, more restrictive time standards must be developed. Units should develop optimum time standards for integrated loads (including nuclear, if tasked).

16.21.2. Unless otherwise noted in **Table 16.3.-Table 16.5.**, the WS Superintendent shall determine and set load time standards for qualification items for integrated loads and for loads performed wearing CWDE.

**Table 16.3. Fighter Aircraft Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
|---|---|---|---|---|---|---|
| AIM-7 | | 35 | | | | |
| AIM-9 | 30 | 30 | 30 | | 30 | |
| AIM-120 | | 35 | 35 | | 40 | |
| AGM-65 | 35 | 35 | 35 | | | NOTE 1,2 |
| AGM-88 | | | 35 | | | |
| AGM-130 | | 45 | | | | NOTE 1,6 |
| B-61 | | 60 | 60 | | | NOTE 3 |

| FAMILY GROUP | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
|---|---|---|---|---|---|---|
| CBU-87/89/97/ 103/104/105/107 | 35 | 35 | 35 | 35 | | NOTE 15 |
| GBU-10/12 | 35 | 35 | 35 | 35 | | NOTE 1 |
| GBU/EGBU-15 | | 45 | | | | NOTE 1,6 |
| GBU/EGBU-24/27 | | 35 | 35 | 35 | | NOTE 1 |
| GBU/EGBU-28 | | 45 | | | | NOTE 1 |
| MK-82/ MK-84/M129/ MK-82 AIR/ MK-84 AIR | 35 | 35 | 35 | 35 | | NOTE 4 |
| GBU-31/32 | | 35 | 35 | 35 | | |
| AGM-154 | | 35 | 35 | | | NOTE 1,15 |
| QUALIFICATIONS | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
| ALE-50 | | | 20 | | | NOTE 5 |
| SUU-25 | 30 | | 30 | | | |
| CHAFF/FLARES | 20 | 10 | 10 | | | NOTE 5 |
| 2.75” ROCKETS | 35 | | 35 | | | |
| 20MM/30MM | 35 | 30 | 35 | | | |

**Table 16.3. (ANG)**

AIM–7, AIM-9, AIM-120 are members of the same family group.

**Table 16.4. Bomber Aircraft Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | B-52 INT | B-52 EXT | B-1 INT | B-2 INT | REMARKS |
|---|---|---|---|---|---|
| AGM-86 / AGM-129 | 60 | 70 | | | NOTE 7, 9, 12 |
| B-61/B-83 | 60 | | | 45 | NOTE 7, 9, 13 |
| AGM-84 | | 45 | | | NOTE 8 |
| MK-82/M117/MK-62/ MK-63/M-129 | 25 | 40 | 40 | 40 | NOTE 10, 14 |
| MK-84/BLU-109/ GBU-37/GBU-31/ AGM-154/AGM-158 | 70 | 40 | 40 | 40 | NOTE 10, 11, 14 |
| CBU-7/89/97/ 103/104/105/107 | 40 | 40 | 40 | 40 | NOTE 10, 11, 14 |
| MK-56/MK -60/MK-65 | 70 | 40 | 40 | | NOTE 7, 10, 14 |
| GBU/EGBU-10/12/28 | 35 | 40 | | | NOTE 10, 14 |

**Table 16.5. Unmanned Aerial Vehicle Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | MQ-1 | REMARKS |
|---|---|---|
| AGM-114 | 20 | NOTE 11 |

***NOTES:***

1. Add 15 minutes for each additional store or LAU-117.
2. Time is for one LAU-117. The time for loading one pre-loaded LAU-88 is 45 minutes; two LAU-88s, 60 minutes; single missile out of container, 35 minutes; for a single missile that must be transferred out of the container, 50 minutes; for three missiles out of the container, 60 minutes; for three missiles in their containers, 90 minutes.
3. Includes a short flight circuit test (FCT), such as F-16, 75060/W-11; or F-15E, A/E24T-199 check. When a long FCT is to be included in a loading operation, add the time standard listed in the applicable Dash-6 tech order to the time standard.
4. Add 5 minutes for each fuze extender used.
5. Time is for one module, magazine or ejector channel. Add 5 minutes per each additional module, magazine or ejector channel.
6. Add 15 minutes when accomplishing IR check.
7. Pre-load

8. DELETED.
9. (B-52 postload for one missile): Add 50 minutes for AGM-86B or AGM-129, 60 minutes for AGM-86D, and 70 minutes for AGM-86C. Add 5 minutes for each additional missile. (B-2 postload): Add 20 minutes if accomplished as part of the load
10. Add 3 minutes for each store. EXCEPTION: Add 10 minutes for GBU/EGBU 10/12/28.
11. Add 5 minutes for each store (B-1, B-2, MQ-1). Add 5 minutes per store if MIL STD 1760 cable installation is required (B-52).
12. Time for single missile loading 70 minutes.
13. Time for single bomb is 40 minutes plus 40 minutes (B-52) or 20 minutes (B-2) if post-load check is performed as part of the load.
14. Add 20 minutes (B-2) or 45 minutes (B-1) if post-load checks are performed as part of the load.
15. (F-16) Add 35 minutes if BRU-57 functional check is performed as part of the load.

**Table 16.6. (Added-ANG) Example of a MPRL Schedule.**

| **1st Quarter** (Jan/Feb/Mar) | **2nd Quarter** (Apr/May/Jun) | **3rd Quarter** (Jul/Aug/Sep) | **4th Quarter** (Oct/Nov/Dec) | **Certified MFGs:** |
|---|---|---|---|---|
| QE = AIM 9 | QE = CBU89 | QE = AGM65 | QE = MK84HD | AIM 9/7/120<br>MK 82/84/LD/HD<br>CBU 87/89/97/103<br>AGM 65<br>GBU 10/12/24 |
| Load 1 = QE<br>Load 2 = MRPL<br>(82HD/AGM 65)<br>Load 3 = MPRL<br>CBU 87 | Load 1 = QE<br>Load 2 = MPRL<br>(AIM120/GBU 10) | Load 1 = QE<br>Load 2 = MPRL<br>Load 3 = MPRL<br>CBU87 | Load 1 = QE<br>Load 2 = MRPL<br>(AIM9/GBU12) | |

**16.22. (Added-ANG) Air Defense Guidance:** (Includes North American Aerospace Defense (NORAD) and Homeland Defense), as applicable.

16.22.1. (Added-ANG) Air Defense Units shall develop Force Generation (FG) plans, and munition employment plans to cover local and deployed operations. A munition employment plan may be included as an annex to the FG plans.

16.22.2. (Added-ANG) Air Defense Units MXG/CC or designated representative shall decide what partial loads may be accomplished on aircraft that are not fully loaded during FGs.

16.22.3. (Added-ANG) Air Defense Units during FG exercises, missile safety devices may be removed. Prior to an aircraft being placed on alert, units located on civilian airports may leave missile safety devices installed.

16.22.4. (Added-ANG) Air Defense Units generated aircraft, without aircrews assigned; do not require missile safety devices to be removed. During FGs, qualified aircrews and ground crews may remove and install aircraft safety pins and missile safety devices.

16.22.5. (Added-ANG) Detached Alert Detachment (DAD) Training Responsibilities and Load Crew Requirements:

16.22.5.1. (Added-ANG) Certification and training of 2W1X1 load crew members shall be the same as home station standards.

16.22.5.2. (Added-ANG) Non 2W1X1 weapons load crew members may be assigned. Certification and training of non 2W1X1 augmentees must be accomplished as follows:

16.22.5.2.1. (Added-ANG) Augmentees must possess an AFSC 2A35X or 2A65X.

16.22.5.2.2. (Added-ANG) Augmentees must be a SSgt or higher and have a minimum five years MDS experience.

16.22.5.2.3. (Added-ANG) Augmentees must successfully complete CDC 2W151.

16.22.5.2.4. (Added-ANG) WWM must submit and receive an approved waiver prior to any formal certification. Waiver shall be coordinated through ANG/LGMW and approved from Headquarters Air Force Munitions, Missiles and Space Plans and Policies Division (HAF/ILMW) for non-2W loading augmentees upon completion of the CDC 2W151. Approved waivers shall be valid for a period not to exceed 12 months.

16.22.5.2.5. (Added-ANG) All of the above requirements must be satisfied prior to any academic or practical load crew training.

16.22.5.3. (Added-ANG) The most qualified 2W171 at the DAD shall be appointed as a member of the parent LSC, and initially certified/evaluated as a load crew chief by the WWM or designated official. The WWM shall determine the appropriate evaluation interval.

16.22.5.4. (Added-ANG) Initial certification of other crew members may be accomplished by the parent unit LSC/lead team member. Crew members may be used to load in other positions at the discretion of the load crew chief. Dual certification is authorized.

16.22.5.5. (Added-ANG) Load crew training and certification must be documented and routed to the parent unit LSC and returned to the DAD for filing.

16.22.5.6. (Added-ANG) Alert aircraft launches and recoveries, to include arm/dearm of loaded munitions, may be performed by any task qualified aircraft maintenance personnel provided the following conditions are met:

16.22.5.6.1. (Added-ANG) Initial and annual academics.

16.22.5.6.2. (Added-ANG) Initial and annual qualification training using the applicable -100 checklist.

## Chapter 17

## AIR AND SPACE EXPEDITIONARY FORCES (AEF) MAINTENANCE POLICY

**17.1. AEF Effectiveness.** An AEF is one of 10 force packages of trained and ready Total Force capabilities. These capabilities are designed to deploy as part of an Air and Space Expeditionary Task Force (AETF) providing the war fighting combatant commander with air and space combat power. Agile Combat Support (ACS) is key to the success of the war fighter, and Centralized Intermediate Repair Facilities (CIRFs) represent an important logistics process that is a subset of ACS. ACS is an Air Force core competency, which encompasses the process of creating, sustaining, and protecting all aerospace capabilities to accomplish mission objectives across the spectrum of operations.

**17.2. AEF Processes.** At the highest level, ACS is the product of six main processes that can be measured to describe the levels of preparedness and combat support capability. As our combat support capability depends on aircraft maintenance effectiveness, these six main processes form the structure for this AEF maintenance policy.

17.2.1. Readying the force – organizing, training, equipping, providing, and planning for the use of forces to produce combat capability.

17.2.2. Preparing the battle space – assessing, base support planning, and posturing for employment.

17.2.3. Positioning the force – tailoring and preparing to deploy, deployment, and beddown of forces.

17.2.4. Employing the force – generating immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration.

17.2.5. Sustaining the force – maintaining effective levels of support for operations worldwide beginning on day one of employment operations.

17.2.6. Recovering the force – redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly.

**17.3. Readying the Force.** Organizing, training, and equipping for the use of forces to produce combat capability.

17.3.1. Organizing for combat capability.

17.3.1.1. MAJCOMs shall establish maintenance Unit Type Codes (UTC) using War Mobilization Plan, Volume 5 (WMP-5) rates or the most stringent scenario to support Major Theater War (MTW) requirements; MAJCOMs may tailor UTCs at execution if required to support deployment requirements.

17.3.1.1. (ANG) Refer to ANGI 10-401, *Air National Guard Unit Type Code Management.*

17.3.1.2. MAJCOMs shall develop modular and scalable UTCs that, in total, represent the unit's capability in terms of equipment and personnel. MAJCOMs shall utilize the Logistics Compositie Model (LCOM) or other approved manpower standard as the baseline for developing UTCs. IAW AFMAN 10-401, *Operation Plan & Concept Plan Development and Implementation*, Vol 1, Chapter 6, the UTC MANFOR shall be proportional to the Unit Manning Document (UMD) requirements, to include 3-skill level positions.

17.3.1.3. MAJCOMs shall develop UTCs that can be used interchangeably for MTW, AEF and CIRF operations. All intermediate level repair capabilities shall be tailored to support various levels of CIRF augmentation requirements.

17.3.1.4. MAJCOM Functional Area Managers (FAM) must maximize use of standard UTCs and limit line remarks.

17.3.1.5. Sourcing conferences are the primary means of matching requirements to capabilities. The AEF Center (AEFC) shall organize and chair a sourcing conference, as required, prior to each 15-month AEF cycle. All MAJCOMs shall send qualified maintenance representatives to each AEF sourcing conference.

17.3.1.5. (ANG) ANG Deployments Division (ANG/XOX) conducts ANG Aviation Maintenance and ECS sourcing conferences for all AEF pairs.

17.3.1.6. The primary purpose of the AEF sourcing conferences is to determine which bases shall provide personnel to fill ULNs in Expeditionary Combat Support (ECS) UTCs. The conference may also include informational briefings, but these must be kept to a minimum.

17.3.1.6. (ANG) ANG/XOX conduct ANG Aviation Maintenance and ECS sourcing conferences for all AEF pairs.

17.3.1.7. Air Staff Maintenance and Munitions Policy Divisions (AF/ILMM and AF/ILMW) shall chair a one-day meeting in conjunction with each sourcing conference to resolve sourcing conflicts and plan for the next AEF rotation or contingency.

17.3.1.8. Every Air Force maintenance member shall be assigned to a UTC (deployable or in-place).

17.3.1.9. MAJCOMs shall source maintenance personnel to fill AEF vacancies after the AEFC accomplishes the nomination process in the following order:

17.3.1.9.1. Lead wing.

17.3.1.9.2. Sister wing.

17.3.1.9.3. Lead AEF.

17.3.1.9.4. Paired AEF.

17.3.1.9.5. Alternate MAJCOM.

17.3.1.9.6. Air Reserve Component (ARC).

17.3.1.10. Quarterly, units must validate and document wing UTCs and AEF taskings against wing/squadron Designated Operational Capability (DOC) statements. Specifically, units must ensure no shortfalls exist by aligning required skill level, grade, line remarks, and Career Field Education and Training Plan (CFETP) qualifications against UTCs, to include AEF taskings, for all assigned personnel. If a shortfall exists, the unit must immediately start an aggressive training program to eliminate shortfall.

17.3.2. Training for combat capability.

17.3.2.1. At Utilization and Training Workshops (U&TW), MAJCOM functional managers must work collectively with AF career field managers to establish/update minimum wartime skills

training requirements by Air Force Specialty Code (AFSC) and Mission Design Series (MDS). These training requirements must be incorporated in personnel training folders as core tasks.

17.3.2.2. Supervisors must ensure their subordinates are adequately trained and qualified before allowing them to work unassisted on aircraft or equipment. Supervisors must place emphasis on upgrade and proficiency training by providing hands-on demonstration and over-the-shoulder evaluations of their subordinates.

17.3.2.3. To the greatest extent possible, without affecting safety, conduct recurring training every 15 months to align with AEF cycles.

17.3.3. Equipping for combat capability.

17.3.3.1. Maintenance commanders must provide tools, facilities, and environmental protection equipment to ensure a safe working environment and mission capable workforce.

17.3.3.2. Maintenance commanders must establish minimum essential equipment levels to measure and report the unit's mission readiness through the Status of Resources and Training System (SORTS). Readiness must also be reported using the AEF UTC Reporting Tool (ART).

17.3.3.3. Total Asset Visibility (TAV). The combatant and supporting-commands need accurate and timely information management systems (i.e., AF Portal CIRF Logistics Information Network, CEMS, CAMS, G081, RAMPOD, SBSS, and REMIS) for all locations with TAV to make swift and accurate logistics command & control decisions. Deployed units, CIRFs and LRCs must report deployed aircraft and asset status by tail/serial number daily.

17.3.4. Establishing Quality of Life.

17.3.4.1. Maintenance commanders shall review site surveys from all deployed locations to ensure living and working conditions are adequate for deploying personnel and notify appropriate base agencies or MAJCOMs as necessary to correct deficiencies.

17.3.4.2. Maintenance commanders must ensure all maintainers are notified of their deployment vulnerability period to allow them to plan personal affairs.

17.3.5. Monitoring the world situation.

17.3.5.1. Based on Threat Working Group recommendations, the maintenance commander, as appropriate, shall inform maintenance personnel of potential threats and direct specific actions be taken to avoid terrorist attack, to prepare for short-notice deployment, to accommodate changes in working hours (shifts, extensions, etc.), to adjust aircraft scheduled maintenance priorities, etc.

17.3.6. Support training for Operations Tempo (OPTEMPO).

17.3.6.1. Maintenance Operations (MOO/SUPT) must ensure work force training requirements and overall maintenance capabilities are considered in the weekly flying and maintenance schedule. Maintenance Group Commanders (MXG/CC) must ensure scheduled maintenance and training events are balanced against sortie production requirements.

17.3.7. Accomplish strategic capability assessments.

17.3.7.1. Units must coordinate with deploying lead wing communications personnel or host base communications personnel to ensure reachback capability is available at the deployed location for maintenance operations.

17.3.7.2. The lead wing must coordinate with participating units prior to deployment to identify communication/information system requirements and ensure all radios are keyed with appropriate frequencies for the deployed location.

17.3.7.3. Unless otherwise directed, units should plan to provide their own flight line communication capabilities and hardware at the deployed location (i.e., radios) to support maintenance operations. Units should contact the lead wing or host base communications to ensure compatibility of hardware and software.

17.3.7.4. Units must prepare to deploy all critical equipment.

17.3.7.5. Whenever deployed locations are identified, the owning MAJCOMs must posture appropriate UTCs at the Forward Support Locations (FSLs). The FSL must be used to store munitions for War Reserve Material (WRM) or at sites for consolidated maintenance activities (such as CIRFs).

17.3.8. Establish procedures to ensure core security of forces.

17.3.8.1. Maintenance commanders must ensure all deploying personnel have completed all training and Unit Personnel Readiness requirements prior to deployment.

17.3.8.2. Flight chiefs must ensure maintenance technicians are aware of their responsibilities to detain/report unidentified persons discovered in restricted or sensitive areas.

**17.4. Preparing the Battle Space** – assessing, base support planning, and posturing for employment.

17.4.1. Monitor theater situations.

17.4.1.1. Maintenance commanders and maintenance supervisors must closely monitor theater situations, and take preemptive measures to avoid degradation of lines of communication.

17.4.1.2. The lead maintenance person must stay abreast of security concerns and intelligence updates and brief subordinates as necessary.

17.4.2. Define employment requirements.

17.4.2.1. Incoming units must coordinate with departing units and supporting CIRFs (where applicable) to develop, maintain, and utilize site survey maintenance planning to pare and tailor UTCs to minimize personnel and equipment footprint at the deployed location. When applicable, units must ensure spare Electronic Counter Measure (ECM) and Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pod containers are available for shipping spare pods to the Area Of Responsibility (AOR) as these containers will be required to transport unserviceable assets to and from CIRF locations.

17.4.2.2. Units planning to deploy to the same location must coordinate with each other prior to requesting airlift to ensure each unit knows what support equipment, test equipment, tools, technical data, spare parts, etc., the other is bringing so as to leverage economies of scale and minimize footprint at deployed location. NOTE: The lead wing has ultimate responsibility for ensuring proper personnel and equipment deploy to support the mission.

17.4.2.3. Maintenance commanders are responsible for ensuring assigned personnel are identified for a specific AEF rotation and briefed concerning their AEF schedules.

17.4.2.4. Maintenance commanders must ensure to the greatest extent possible that supervisors schedule personnel leave, training, and Professional Military Education around the personnel deployment vulnerability window.

17.4.3. Conduct Agile Combat Support feasibility/capability assessments.

17.4.3.1. The lead wing MXG/CC determine maintenance ACS requirements to include CIRFs, utilize smallest UTCs to meet capability, tailor them as required, identify deploying personnel and alternates by name, and take any necessary actions to acquire additional support or equipment as required prior to deployment.

17.4.3.2. Operational mission requirements at deployed locations take precedence over routine home station requirements. Units must take necessary actions to preclude submitting reclama or shortfall of requirements.

17.4.3.3. AEF wings and CIRFs shall report personnel and equipment shortfalls/Limiting Factors (LIMFAC) to the owning MAJCOM FAM who, after review and concurrence, shall in turn forward to the AEF Center for action.

17.4.3.4. Commanders must ensure deploying units plan to use existing CIRFs, and submit to the CIRF-supporting command's Regional Supply Squadron (RSS) the appropriate AF Form 616 fund cite authorizations to repair CIRF commodities no later than 30 days prior to deployment or as soon as possible if deployment is within 30 days. AF Form 616 will cover CIRF supplies, parts and fuel required to repair unit assets. For engines, two AF Form 616s will be required, one for parts and one for fuel.

17.4.3.5. Prior to deployment, the lead wing's senior maintainer must coordinate efforts with the wing Logistics Readiness Squadron/Logistics Readiness Flight (LRS/LRF) to gather base support capabilities and site survey information (e.g., physical layout, facilities, equipment, local capabilities, etc.) from host nation and/or coalition maintenance liaison.

17.4.3.6. Upon arrival, each aircraft maintenance section must create/update base capabilities and site survey information to reflect current situation in the Security Awareness Training and Education (SATE) database. The lead aircraft maintainer must forward this information to his/her MAJCOM logistics plans, who will forward the information to follow-on units so they may better prepare for deployment to that location. MAJCOMs must ensure this information is provided to their Logistics Plans function so that Base Support and Expeditionary Site Plans can be updated as required.

17.4.3.7. Maintenance Operations (MOO/SUPT) shall coordinate with wing plans sections to review Base Support Plans (BSP), JOPES, and SIPRNET (classified) sites.

17.4.4. Acquire, assess, and update deployment destination information.

17.4.4.1. Prior to deployment, the lead wing's senior maintainer must coordinate efforts with the wing Logistics Readiness Squadron/Logistics Readiness Flight (LRS/LRF) to gather base support capabilities and site survey information (e.g., physical layout, facilties, equipment, local capabilities, etc.) from host nation and/or coalition maintenance liaison.

17.4.4.2. Upon arrival, each aircraft maintenance section must create/update base capabilities and site survey information to reflect current situation in the Security Awareness Training and Education (SATE) database. The lead aircraft maintainer must forward this information to his/her MAJ-

COM logisitics plans, who will forwared the information to follow-on units so they may better prepare for deployment to that location. MAJCOMs must ensure t his information is provided to their Logisitcs Plans function so that Base Support and Expeditionary Site Plans can be updated as required.

17.4.5. Define deployment assets.

17.4.5.1. Based on review of BSP, ACS concepts, and assets available at the deployed location, supported commands in conjunction with supporting-commands shall determine deployment and mobility assets needed for maintenance operations. The combatant command must source assets for beddown and sustainment. Deploying units must deliberately plan to use CIRFs to reduce deployment airlift, force protection, and footprint at the FOL.

17.4.6. Pre-positioned assets.

17.4.6.1. Prior to deploying, LRS personnel must review available assets loaded in the pre-positioned CHPMSKs, along with home station RSPs, to determine overall support requirements. MAJCOMs must determine RSP and CHPMSK authorizations, while the supporting RSS provides remaining supply support, including RSP and CHPMSK replenishment.

17.4.6.2. To reduce footprint and airlift requirements, common equipment, such as aerospace ground equipment (AGE), materiel handling equipment (MHE), and/or munitions trailers, should be pre-positioned at AEF sites or at centralized facilities in the AOR.

17.4.6.3. The in-place lead wing must maintain an accurate list of equipment on site and report status and inventory to MAJCOMs and AEF-vulnerable units.

17.4.6.4. MAJCOM WRM Managers must maintain lists of WRM available in the AOR.

17.4.6.5. Supporting-command CIRFs must review CIRF CHPMSK levels to determine if they are sufficient to support the deploying unit and adjust the amount of parts as required. The RSS and MAJCOM providing supply support to the CIRF are responsible for CHPMSK management to include replenishment.

17.4.7. Establish and maintain deployment capability.

17.4.7.1. Units, to include CIRFs, must maintain accurate inventories and status of deployed or deployable equipment, keep special certification rosters current, and manage personnel training and scheduled aircraft maintenance priorities.

17.4.8. Protection of resources.

17.4.8.1. Ensure security considerations and actions taken to protect aircraft, personnel, and equipment are consistent with intelligence assessments. For example, if intelligence reports indicate the threats to property or personnel are highest near the perimeter of the airfield, commanders and maintenance supervisors may direct aircraft parking and maintenance areas to be located a safe distance away.

17.4.9. Prepare employment security actions.

17.4.9.1. All AEF wings should review and become familiar with theater AEF concept of operations (CONOPS) for planning purposes.

**17.5. Positioning the Force.** Tailoring and preparing to deploy, deployment, and beddown of forces.

17.5.1. Account for pre-positioned assets.

17.5.1.1. Lead wings must coordinate with supporting units to ensure only required equipment is deployed and pre-positioned assets, to include CIRF pooled assets, are used to the greatest extent possible.

17.5.1.2. If accurate status of pre-positioned equipment is unavailable prior to deployment, the lead wing must send a team of qualified equipment technicians in the advanced echelon (ADVON) of the main deployment, if possible, to evaluate/report status of pre-positioned assets in theater.

17.5.2. Account for host-nation and coalition assets and support.

17.5.2.1. Deploying units shall estimate the level of maintenance required to be performed at forward operating locations (FOL) based on the organic repair capability, CIRF, and host nation support (HNS) availability. Tailor the personnel equipment and spares in the deploying UTCs to reduce the footprint while ensuring 100% task coverage.

17.5.3. Tailor and prepare deploying assets.

17.5.3.1. Aircraft maintenance units must utilize CIRFs to the greatest extent possible. To that end, MAJCOMs must source personnel and equipment for CIRFs whenever feasible to reduce their footprint at the deployed location and to improve repair efficiencies of units operating in the same AOR. Units shall tailor UTCs appropriately to account for utilization of CIRFs.

17.5.3.1.1. All MAJCOMs must address the use of CIRFs in their feasibility plans to support AEF operations.

17.5.3.2. Deploying units that rely on CIRF support must contact the appropriate CIRF to coordinate support feasibility prior to deployment.

17.5.3.2.1. After validating support by a CIRF activity, deploying units must segregate deploying RSP to remove items that support a “remove, repair, & replace” capability at the deployed location. The removed items may be required, if the mission dictates, to be deployed to the CIRF location.

17.5.3.3. Prior to deployment sourcing, tasked CIRFs shall:

17.5.3.3.1. Determine maximum surge production capability (without and with augmentation) and forward that information through the MAJCOM CIRF manager to the lead wing. The augmentation portion needs to have established trigger points to determine when augmentation will be required (“X” number of aircraft requires “X” amount of augmentation).

17.5.3.4. Identify additional requirements needed to support CIRF maintenance operations for assigned and gained units and forward that information through the MAJCOM CIRF manager to the lead wing.

17.5.3.5. All available options to resolve RSP shortages should be taken prior to on-call status. Depot support must be coordinated through the respective MAJCOM crisis action teams and functional managers as needed.

17.5.4. MAJCOM headquarters shall:

17.5.4.1. Maintain appropriate AEF time phased force deployment document (TPFDD) libraries.

17.5.4.2. Ensure AEF UTCs are appropriately postured.

17.5.4.3. Generate a "prepare to deploy order" (PTDO) when required.

17.5.5. Deploy en route support force.

17.5.5.1. The lead wing must assess the need to deploy an en route support force based on length of flight legs of deploying aircraft; expected delays of aircraft, personnel, or equipment entering the AOR; or requirements for en route support for mission sorties.

17.5.5.2. Commanders must ensure appropriate level of supervision, expertise of technicians, and necessary equipment and facilities are available at the en route location to provide adequate en route support.

17.5.6. Deploy employment elements.

17.5.6.1. MAJCOMs shall develop and deploy modular, scalable UTCs to support typical basic fighting elements (BFE) for combat aircraft. Tailor UTCs as required for non-standard BFEs.

17.5.6.2. Normally deployed airlift and tanker elements will be centrally managed by the tanker/airlift control center (TACC) to ensure units receive reachback support IAW priorities in the AOR.

17.5.6.3. If the Joint Forces Air Component Commander (JFACC) requests additional aircraft at the deployed location, units should be prepared to utilize modular/scalable UTCs for follow-on deployment. That is, if a unit has 24 aircraft and deploys 12, the unit should, for example, have two remaining 6-ship UTCs already built which represent the remainder of the aircraft, personnel, and equipment available within that unit. Using this method, one or both of the 6-ship UTCs may be tailored quickly and deployed. The same applies to ILM support for CIRFs. UTCs should be developed that allow partial deployment of ILM capabilities to augment CIRF operations at a FSL, or the full capability to establish ILM at the FOL.

17.5.6.4. Deploying units must bring minimum Test, Measurement and Diagnostic Equipment (TMDE) to support essential maintenance actions anticipated under the concept of this plan and utilize procedures in Technical Order 00-20-14 for CIRF support. Units must ensure all deployed TMDE will not require calibration during the scheduled deployment period.

17.5.6.5. Deploying units must ensure personnel deploy with proper skill level training, particularly focusing on specialized tasks (e.g., welding of engine flame-holders, fan blade NDIs, etc.)

17.5.6.6. Aircraft should not deploy with Phase or Isochronal Inspections or engine time changes due immediately upon AOR arrival. To the greatest extent possible, units shall forward Phase/ISO plans to owning Air Force Forces (AFFOR) staff within 2 weeks of arrival in AOR. Additionally, units must not deploy electronic counter measures (ECM) pods to the AOR due periodic maintenance inspection (PMI) during their scheduled deployment. If units cannot avoid deploying pods due PMI, they must coordinate this additional PMI requirement with the CIRF-supporting command.

17.5.7. Establish initial operational cadre in the AOR.

17.5.7.1. Lead wing shall deploy ADVON as required and arrive prior to aircraft arrival.

17.5.7.2. Deploying units shall deploy CIRF augmentation personnel, equipment, spares and CHPMSK/RSP as required to the CIRF facility.

17.5.8. Establish initial reachback connectivity.

17.5.8.1. MAJCOM/AFFOR must coordinate reachback requirements for units assigned to their AOR. Reachback requirements may include, but not limited to the following: procedures for arranging transportation or movement of people, equipment, or supplies; use of CIRFs; and standard information management systems to be used by deployed units.

17.5.8.2. Units must contact their MAJCOM and/or AFFOR Command and Control (C2) cell to request maintenance assistance en route to and from the deployed location to coordinate repair actions.

17.5.8.3. Supply support shall be processed through the supporting RSS. Units requiring supply support from Outside Continental United States (OCONUS) and non-USAF base locations must contact the RSS supporting the AOR.

17.5.8.4. MAJCOM policy shall specify the method to determine closure of a request (write procedures to instruct units and resource coordinators regarding how a request will be worked, completed, and what follow-up actions are required).

17.5.8.5. CIRF support shall be coordinated with the MAJCOM/AFFOR who, in-turn, shall coordinate support from the CIRF-supporting command.

17.5.8.6. Units must establish a MOC as soon as possible upon arrival at the deployed location to serve as a single point of information for maintenance operations and higher headquarters reporting. The MOC needs to contact the combatant command/A4 maintenance staff with contact information (i.e., phone numbers, e-mail and SIPR net).

17.5.9. Receive forces.

17.5.9.1. Whenever possible, the lead wing shall send an ADVON team to validate site survey information, revise beddown plans (as required), ensure operating/living sites and facilities are prepared for use/habitation; identify deficiencies and coordinate with combatant commander to fill unmet mission needs (e.g., aircraft parking, security, hangars, taxiway, marshalling areas, equipment storage areas, maintenance back shops and munitions support functions) prior to main aircraft arrival.

17.5.9.2. Commanders must ensure their personnel have adequate facilities, equipment, workspace, vehicles, living quarters, food/water, and supplies to conduct the mission as soon as they arrive at the deployed location.

17.5.10. Recover the force and prepare for combat/operational capability.

17.5.10.1. Maintenance Operations (MOO/SUPT) must effectively plan and manage scheduled maintenance priorities and personnel shifts to meet sortie production requirements.

17.5.10.1.1. Maintenance Operations (MOO/SUPT) must prioritize maintenance actions, to balance sortie production requirements with fleet health considerations and must communicate and coordinate with operations counterparts as required.

17.5.10.1.2. Surges in sortie production may be necessary to support wartime/contingency operations; however, Maintenance Operations (MOO/SUPT) must communicate the impact of long-term surge operations have on personnel, fleet health, and overall sortie production capability.

17.5.11. Secure the operating location.

17.5.11.1. Maintenance Operations (MOO/SUPT) must ensure all sensitive and classified equipment is properly secured and protected in accordance with applicable directives. In addition, deployed units must implement procedures to reduce the possibility of theft or damage of unit equipment or supplies.

17.5.11.2. Maintenance Operations (MOO/SUPT) must coordinate with airfield managers and security forces to ensure aircraft with sensitive or classified components or cargo are adequately protected while parked or maintained.

17.5.12. Begin reachback operations.

17.5.12.1. When parts are required for mission essential equipment, maintenance technicians must utilize deployed supply procedures. If not responsive, Maintenance Operations (MOO/SUPT) must contact the appropriate functional manager in the MAJCOM/AFFOR for assistance.

17.5.12.1.1. If expedited delivery and supply priority warrant, MAJCOM/AFFOR shall source in-theater (lateral) units to support deployed units with parts. Otherwise, deployed units must utilize normal supply ordering procedures for mission capable (MICAP) and lower priority parts.

17.5.12.2. When ILM CIRF support is required or CIRF issues exist, Maintenance Operations (MOO/SUPT) shall contact the appropriate functional manager in the MAJCOM/AFFOR for assistance.

17.5.12.2.1. For CIRF operations to be successful and meet deployed unit expected customer wait times, units must prepare unserviceable assets for shipment as soon as possible (no longer than one day) after CIRF repair is deemed to be warranted.

**17.6. Employing the Force.** Providing immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration.

17.6.1. Structure the deployed combat support contingent to accomplish necessary operations (reference AFDD 2, Organization and Employment of Aerospace Power, and AFI 38-101, Air Force Organization).

17.6.1.1. Deployments to locations with established wing infrastructure. Units deploying to locations with established infrastructures (i.e., U.S. installations or presence at OCONUS locations) shall, with host wing and lead wing coordination, organize in the Combat Wing Organization. Maintenance squadrons shall deploy into existing Maintenance Groups (MXG). Aircraft Maintenance Units (AMUs) shall deploy into the established Aircraft Maintenance Squadrons (AMXS) structure. Back shop personnel shall deploy into the established Maintenance Squadron (MXS) structure or augment CIRF locations as appropriate. Munitions Squadrons (MUNS) and flights shall integrate into existing munitions structure. Additionally, MOC and PS&D personnel shall deploy into the existing Maintenance Operations Squadron (MOS) structure. AMU personnel shall remain tied to the same operations squadron they support in garrison. All deployed maintenance organizations shall coordinate maintenance actions through the host wing as well as attend appropriate maintenance meetings scheduled by the host wing.

17.6.1.2. Deployments to bare-base locations. Units deploying to bare-base locations where there is not an established wing structure, shall organize with all maintenance personnel working

directly for the senior detachment commander, usually the operations squadron commander. The deployed wing leadership shall provide the command structure/key leadership personnel at the deployed location. All accompanying/supporting units shall subordinate to the lead wing by folding its personnel into the command structure of the lead unit. (Numbers of supervisors may be reduced through consolidation.)

17.6.1.2.1. The Air Force commander at the deployed location may separate flight line and back shop and munitions maintenance technicians into separate squadrons or flights under the supervision of officers or SNCOs.

17.6.1.3. An expeditionary maintenance group shall be established IAW the Combat Wing Organization when an Air Expeditionary Wing (AEW) is established.

17.6.1.4. Serious consideration must be given to establishing an expeditionary maintenance group, if one of the following criteria exists:

17.6.1.4.1. A steady-state deployment exists or is envisioned and the size and scope of the operation warrants a group structure.

17.6.1.4.2. The total number of Air Force maintenance personnel exceeds 500, the threshold for a group manpower guidelines established in AFI 38-101.

17.6.1.4.3. Multiple MDS aircraft or multiple squadrons are deployed at the same location.

17.6.1.4.4. The deployed location supports a joint or combined air operation.

17.6.1.4.5. If the major MXS (EMS, CMS) functions are being performed at the deployed location.

17.6.1.5. If size does not warrant multiple squadrons within an established maintenance group, maintenance personnel shall be organized into specialized flights or sections and report directly to the MXG/CC.

17.6.1.6. Tailor Maintenance Operations (MOO/SUPT) to deployed requirements. If a maintenance group leadership is in place, task the lead unit to provide the Maintenance Operations (MOO/SUPT) package.

17.6.2. Generate the force to combat/operational capability.

17.6.2.1. Maintenance personnel and support equipment to recover and regenerate aircraft should be in place prior to aircraft arriving.

17.6.2.2. WRM Fuel Tank build-up shall deploy if required/tasked by the combatant command.

17.6.2.3. Organizational aircraft engine maintenance shall be performed to the maximum extent possible. Once the unit determines an engine requires maintenance beyond their capability, the engine will be shipped to a pre-determined CIRF or to home station. Units shall deploy with the minimum number of spare engines to support the steady-state operations when a centralized pool is established and with full WRE spare levels for operations above steady-state.

17.6.2.4. ILM of line replaceable units (LRUs) shall be primarily confined to could not duplicate (CND) screening (if test stations are deployed). Otherwise, deployed maintenance shall be performed under the “remove & replace” concept, utilizing the readiness spares package (RSP) and CIRF operations to maximum extent possible.

17.6.3. Accomplish force support for continuing operations.

17.6.3.1. During high tempo operations with increased personnel tempo, commanders and supervisors must be aware that performance degradation can occur with increased mission demands under wartime conditions. Commanders must monitor increases in maintenance demands to ensure personnel safety is not jeopardized and that the mission is not adversely affected.

17.6.3.2. Maintenance Operations (MOO/SUPT) must update operations officers and commanders regarding aircraft and personnel status as required.

17.6.3.3. Maintenance Operations (MOO/SUPT) must establish requirements for battle damage assessment teams, crash damage recovery teams, and end-of-runway teams. AFMC CLSS Depot Maintenance/ABDR teams need to be deployed within the AOR early in the operation to provide timely support.

17.6.4. Employ reachback operations.

17.6.4.1. Maintenance and/or supply technicians shall order replenishment spares and consumables IAW standard supply ordering procedures and priorities.

17.6.4.1.1. Deployed units must use reachback procedures to obtain products, services, and applications or forces, equipment or materiel from Air Force organizations that are not forward deployed (AFDD 2, AFDD 1-2). This capability allows commanders to obtain or coordinate support from units not physically located with the forward force. By leveraging advances in communications technology, reachback capabilities make it possible to utilize CIRFs and/or rear-based assets and organizations to perform various functions in support of AEF operations.

17.6.4.1.2. Units must contact their MAJCOM and/or AFFOR to request maintenance assistance en route to and from the deployed location to coordinate repair actions. If requested, units must provide consumption/expenditure information, supply prioritization, projected sortie rates, and fleet mission capable status.

17.6.4.1.3. If RSPs are to be left for a follow-on unit, the departing unit must continue to order all replenishment parts, making every effort to completely fill it for the follow-on unit. Departing and incoming units must also conduct a joint inventory of the RSPs.

17.6.4.1.4. For replacement of in-place or pre-positioned equipment, deployed units must notify the MAJCOM/AFFOR who will in turn notify the FAM. The theater FAM shall validate the requirement and, if possible, source the asset from within theater.

17.6.4.1.5. The organization supplying the equipment shall forward information required for the parent MAJCOM/AFFOR to build the level-4 detail TPFDD in Global Command and Control System (GCCS)/JOPES.

**17.7. Sustaining the Force** . Maintaining effective levels of support for operations worldwide beginning day one of employment operations.

17.7.1. Transition the initial force to mature, steady-state operation.

17.7.1.1. The plan to utilize follow-on maintenance UTCs for sustainment (greater than 30 days) must consider support requirements of the aircraft maintenance complex at the deployed location, not separate AEF unit requirements. Use of CIRFs should be considered first, and planning to employ ILM to the FOL should be avoided whenever possible. Any shortfalls and/or LIMFACs

that prevent using CIRFs should be identified to the appropriate combatant command and CIRF-supporting command.

17.7.2. Optimize communication and resource flows.

17.7.2.1. The lead unit shall consolidate maintenance operations (personnel, facilities, and equipment) when two or more aircraft maintenance units are collocated at the deployed location. This action shall be taken to maximize operational and communications efficiency and to minimize the logistics footprint and redundancy of operations.

17.7.2.2. To the greatest extent possible, collocate other maintenance related operations at the deployed location. Centralized management of scarce resources is directed; however, optimal staging locations may be driven by security considerations.

17.7.3. Maintain operational security.

17.7.3.1. Commanders and Maintenance Operations (MOO/SUPT) must communicate maintenance security priorities not only to security forces personnel, but also to flight line and shop personnel. Ensure all personnel are verbally briefed what the duress word is and how to use it.

17.7.3.1.1. Personnel must declare a Helping Hand if an unauthorized person is discovered in a restricted area and notify the Maintenance Operations Center and/or the security forces.

17.7.3.1.2. Flight line and shop technicians must follow and enforce security procedures, including exercising constant vigilance in the work place, performing end-of-day security checks, and when possible, vary routes and times to and from work.

**17.8. Recovering the Force** – Redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly.

17.8.1. The objective of recovery/redeployment is to ensure a coordinated withdrawal of forces while maintaining Theater integrity. Redeployment is the phase of a mission that involves the transferring a unit, individual(s), and/or supplies deployed in one area to another area for the purpose of further employment. Redeployment includes forward deployment to another FOL, as well as return to home station. Recovery is the phase of a redeployment mission, which returns aircraft and support resources to home base. Contingency plans should be developed in advance for redeployment and/or recovery.

17.8.2. Reduce number of people and amount of equipment/supply to support redeployment.

17.8.2.1. Deployed units must identify preliminary redeployment team members. Unit moves are normally classified and redeployment information should be controlled and provided on a strictly need-to-know basis.

17.8.2.2. A redeployment assistance team (RAT) may be requested by the deployed unit. They are the overall coordinators for accomplishing actions at the deployed site (e.g., redeploying troops, equipment, and supplies back to home station or a forward location). Suggested team composition is as follows: maintenance support, transportation (both air and ground), vehicle operations, logistics plans, supply, services, personnel, and civil engineering representatives.

17.8.2.3. In the event a RAT team is activated, the deployed maintenance commander must identify the equipment custodians for appropriate items to assist the RAT. The RAT is not responsible to prepare, pack, and palletize equipment loads.

17.8.2.4. Utilize packing/load lists/manifests or Custody Authorization/Custodian Responsibility Lists (CA/CRLs) to track assets when forward deployed. Equipment custodians must also track the assets' redeployment status (i.e., destroyed, captured, excessive restoration costs, and reorder information).

17.8.2.5. Units must maintain these documents at the deployed location and must account for equipment, including cargo manifests, load plans, hazardous cargo documentation, etc. Knowing where assets are located, whether they are re-deployable, and where the deployment documentation is, will reduce labor-intensive efforts when the redeployment order is received.

17.8.2.6. Maintain accurate inventories to ensure you know what equipment remains or needs to be returned to other units. This knowledge aids build-up teams when repackaging. Unit should use the deployment documents to aid in estimating actual weights when creating the return load plans and manifests. All unit equipment (CTKs, TMDE, bench stock, RSP, support equipment, and technical data) must be inventoried and prepared for shipment. The lead wing must ensure any changes to airlift requirements have been identified and provided to the logistics-planning cell.

17.8.2.7. The accountable officer at the deployed location has overall responsibility for the inventory and accountability of supply assets. He/she shall work with deployed property custodians to ensure reconciliation of all supply transactions before redeployment, and ship property, properly configured with inventory lists attached to designated reconstitution sites, WRM pre-position sites, or home station. The Munitions Accountable Supply Officer (MASO) at the deployed location has overall responsibility for the inventory and accountability of munitions assets within their possession and control. The MASO must reconcile all Combat Ammunition System (CAS) transactions prior to redeployment and coordinate shipment of all munitions through the Regional/Theater Ammunition Control Point (R/TACP).

17.8.2.8. Units utilizing CIRFs for ILM support shall coordinate repair and return/replacement actions with the combatant command A4 cell and the CIRF location to ensure assets are not left behind. Unserviceable assets that cannot be transported to the CIRF in time to make turnaround repair times should be held at the deployed location to redeploy with the unit or shipped to home station. When necessary, case-by-case situations can be coordinated with the CIRF-supporting command to have repaired engines shipped from the CIRF to the unit's home station.

17.8.3. Protect dynamic reduction in force structure. Commanders shall stage personnel and equipment out of the theater while ensuring complete tasks coverage for all aircraft until the last aircraft is redeployed.

17.8.4. Deploy en route support forces as required. As part of the redeployment plan, Maintenance Operations (MOO/SUPT) must coordinate with operations schedulers to deploy en route support forces, as required.

17.8.5. Launch redeployment forces. Maintenance Operations (MOO/SUPT) shall manage the redeployment of aircraft maintenance technicians along with the redeployment of the aircraft. Sufficient personnel and equipment must remain to close accounts and ship equipment/supplies as necessary.

17.8.6. Redeploy remaining Agile Combat Support resources. Maintenance commanders must ensure personnel are properly trained to prepare equipment for shipment by air, ground, or rail. Personnel must know how to properly fill out the hazardous declaration and shipment forms, build cargo pallets, and who to contact to coordinate shipment method.

17.8.7. Recover forces. Commanders must ensure sortie production requirements are balanced against the fleet health priorities (such as scheduled maintenance inspections and time changes). Additionally, training requirements of both aircrew and maintenance personnel must be balanced to achieve training objectives.

17.8.8. Reconstitute the force.

17.8.8.1. Once the unit returns to home station or is redeployed to another location, actions must be taken to re-attain operational readiness as soon as practical.

17.8.8.2. Commanders must ensure that personnel training and aircraft maintenance requirements are given priority management attention to ensure the unit returns to operational capability quickly.

17.8.8.3. Depleted bench and operating stocks must be replenished. All unit equipment (CTKs, TMDE, bench stock, RSP, support equipment, and technical data) must be inventoried, inspected, tested, or serviced as necessary.

17.8.8.4. Units must ensure that all paperwork associated with replacement of assets due to CIRF replenishment is correct and complete.

**17.9. Centralized Intermediate Repair Facilities (CIRF).** CIRF operations are a logistics option for combatant commanders to exercise in order to consolidate and provide intermediate-level maintenance support for the war fighter.

17.9.1. Reduction of deployment/redeployment airlift, FOL logistics footprint, and force protection issues are the primary reasons to use CIRF operations. Pooling of Air Force assets, leveraging existing technology to provide Total Asset Visibility (TAV), and optimizing logistics systems to balance resources against requirements are consistent with the goals of CIRF and Agile Combat Support (ACS) concepts.

17.9.1.1. CIRFs are scenario dependent and impacted by a number of factors. These factors include, but are not limited to: deployment airlift, the number of aircraft deploying, the number of FOLs to be served, CIRF throughput capacity at the Forward Support Locations (FSL), spare levels, transportation modes and nodes, force protection considerations, FOL capacity, etc.

17.9.1.2. CIRFs are not intended to replace deployable ILM capability, but are intended to work in concert. Depending on scenario and combatant command requirements, a unit may be tasked to deploy all, some, or none of its ILM capability to the FOL or CIRF at a FSL.

17.9.1.3. CIRFs may be utilized as a repair option for virtually any type of reparable item. This may include complete/major maintenance or may include only minor levels of maintenance. Items to be repaired and what repair level (major or minor maintenance) options must be explored between the combatant and the CIRF-supporting commands.

17.9.2. Combatant commands determine support plans and task supporting commands with logistics support requirements. Once a supporting command (which may include a combatant command) is tasked to provide CIRF capability, the supporting command determines requirements necessary to execute the combatant command's Logistics Support Plan (LSP). These requirements shall in turn flow to other MAJCOMs to provide support to the LSP.

17.9.2.1. The combatant command A4 has the final authority on asset distribution. The CIRF-supporting command shall work with the combatant command A4 LRC to meet mission requirements. If the CIRF-supporting command is supporting more than one combatant command, the CIRF-supporting command shall coordinate distribution with the combatant command A-4s.

17.9.2.2. The combatant command A4 LRC shall review status of all operational units daily to determine re-supply and immediate logistics requirements. From the daily data roll-up, the A4 LRC shall coordinate with the CIRF-supporting command to determine the most expedient means to fill requirements.

17.9.3. A MAJCOM tasked to provide CIRF capabilities (CIRF-supporting command) is responsible to determine what capability can be provided using existing facilities, and what additional materiel, equipment, and personnel is needed to support the combatant command's LSP.

17.9.3.1. The CIRF-supporting command shall conduct a thorough review of its capacity with respect to the combatant command's estimated load (i.e., analyze maintenance capability vs. estimated operational sortie and utilization rates). Sourcing additional requirements to meet the workload shall be coordinated with the combatant command, supporting MAJCOMs, and AEF Center (AEFC).

17.9.3.2. The CIRF-supporting command is responsible to determine the best location for the CIRF operation(s), appropriate spare levels (quantities), equipment, personnel, and the concept of operations (CONOP) for each type of asset that shall be supported by the CIRF. The requirements and CONOPs shall be reviewed quarterly, or as requirements dictate to ensure best utilization of AF/DoD resources. This responsibility shall be completed in coordination with the MAJCOM LG/A4 and combatant command A4.

17.9.3.3. The CIRF-supporting command LG/A4 should appoint designated POCs for supply, transportation, and maintenance (normally the MAJCOM functional area manager for the commodity in question). Normally, these positions shall be assigned to current staff personnel as an additional duty. However, during contingency operations the supporting command may request augmentation through the AEFC. The RSS would normally provide the transportation and supply support. The CIRF-supporting command maintenance, supply and transportation POCs, the combatant command A4, and FOL Maintenance Operations Centers shall utilize the AF Portal and CIRF gadgets to report, track, monitor, and measure CIRF commodities (e.g., engines, pods, etc.) and operations.

17.9.3.4. CRPs may be established for steady-state operations. During operations other than steady-state, rotable pools shall be established based upon the combatant command requirements and the assessed CIRF workload versus repair capacity. For increased levels of operations, additional spare assets may be shipped directly to the CIRF or forward. As assets are repaired, the CIRF should retain the repaired/serviceable asset to be part of the pool. Additionally, pools may be established through sourcing from non-deploying units.

17.9.3.5. The CIRF-supporting command, in coordination with the CIRF production supervisor, shall compare CIRF capacity and AOR requirements daily to determine best support options available. The CIRF-supporting command is responsible to coordinate the recommended support options with both the CIRF production supervisor and the combatant command A4 LRC. If this support option cannot be achieved within the CIRF-supporting command, then the combatant command A4 shall be responsible to source the additional requirement.

17.9.3.6. As the situation dictates, the supporting command shall work with the combatant command and deployed units to determine spare CIRF asset shipment. The CIRF production supervisor shall maintain accountability of CIRF assets and report status IAW prescribed instructions. When deployed units ship a reparable asset to the CIRF, the designated CIRF shall ship a replacement asset and ensure all appropriate documentation is completed. The intent of this policy is to back-fill the spare line at the FOL, not the aircraft. Retrograde shipments of reparables to a CIRF shall use premium transportation IAW AFI 24-201, Chapter 2.

17.9.3.7. CIRF-supporting commands are responsible for compiling the data to support CIRF metrics and take appropriate action when indicators are below standard.

17.9.3.8. All MAJCOMs shall appoint an asset manager to interact with the CIRF-supporting command. Together these individuals shall work inter-MAJCOM issues relative to CIRF support to the combatant command. The CIRF-supporting command shall work with the combatant command A4 LRC to ensure mission requirements are met.

# Chapter 18

## SPECIAL PROGRAMS

**18.1. Flying Crew Chiefs (FCC).** Flying crew chiefs are highly qualified in their duty AFSC and are required to obtain, maintain, and apply basic knowledge in several other aircraft maintenance AFSCs. They are responsible for launch, recovery, inspection, servicing, generation, and maintenance of aircraft in austere locations and locations where proper MDS maintenance may not be available. FCCs knowledge, experience, and training have proven to increase global reliability and maintainability.

**18.1. (ANG)** N/A to the ANG. All subparagraphs of **18.1.**, are also N/A to the ANG.

18.1.1. MAJCOMs may authorize/develop a flying crew chief (FCC) program under the direction of HQ USAF/ILMM for maintainers who are required to regularly fly and maintain aircraft. FCCs are selected per mission requirements as directed by MAJCOMs and qualify for Special Duty Assignment Pay (SDAP) IAW AFI 36-3017. SDAP is a program designed to reimburse "C" prefix maintenance AFSC personnel who perform regular aerial flight and maintain special qualifications demanding an unusual degree of responsibility maintaining an airworthy aircraft throughout an assigned mission. An FCC saves the Air Force money and manpower by replacing an entire team of maintenance specialists that would be needed for each mission.

18.1.2. The objective of the FCC program is to enhance mission effectiveness by providing highly qualified maintenance support for aircraft at locations other than home station.

18.1.2.1. DELETED.

18.1.2.2. DELETED.

18.1.3. The FCC program only applies to "C" prefix AFSC maintenance personnel directed to fly regularly as a result of:

18.1.3.1. Department of Defense, Air Force, MAJCOM, or other higher authority written policies directing FCCs to accompany their aircraft for mission accomplishment.

18.1.3.2. Technical Order directed in-flight maintenance (e.g., helicopter functional check flights).

18.1.4. The following situations would not qualify the FCC for SDAP.

18.1.4.1. Occasional flights where the aircraft is used as transportation in lieu of commercial air.

18.1.4.2. Incentive or indoctrination flights.

18.1.4.3. Deployments where additional maintenance personnel are required at the designated location to supplement assigned maintainers.

18.1.5. Qualifying missions. A mission consists of one or more sorties with a mission number as entered on the AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**. For a mission to meet the intent of this program, the mission must meet the criteria in the paragraphs below:

18.1.5.1. A qualifying mission is one where the FCC is required to accomplish maintenance (servicing, maintenance, troubleshooting, engine run, or inspection) at locations other than home station so the aircraft is prepared for its next departure. The mission must also be one where FCCs are

required to fly by higher authority written policies (e.g., special airlift missions, alert missions, special operations, etc.).

18.1.5.2. A qualifying mission is one where FCCs are required by technical order to perform in-flight maintenance (e.g. helicopter functional check flights (FCFs)).

18.1.6. FCC responsibilities.

18.1.6.1. HQ USAF/DPLFA oversees the overall SDAP program and provides program guidance in AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*. Funds are not paid by MAJCOMs. DPLFA programs and budgets for SDAP based on inputs from HQ USAF/ILMM.

18.1.6.2. HQ USAF/ILMM is the SDAP functional manager for FCCs. HQ USAF/ILMM sets criteria for FCCs, validates MAJCOM FCC reports, and forecasts FCC SDAP budget needs. HQ USAF/ILMM approves/disapproves FCC position increases/decreases in coordination with DPLFA.

18.1.6.3. MAJCOM headquarters implements the FCC program: They appoint a program manager to enforce standards and prepare the annual report.

18.1.6.4. MAJCOM program managers determine which squadrons will participate in the FCC program, and will:

18.1.6.4.1. Validate and forward squadron FCC SDAP requests (**Attachment 6**) to HQ USAF/ILMM and DPLFA.

18.1.6.4.2. Annually validate SDAP positions.

18.1.6.4.3. They assign FCC SDAP positions with an AFSC prefix of "C" and an appropriate special experience identifier (SEI) on command manpower documents

18.1.6.4.4. Establish command unique training requirements and set additional qualification standards for their FCCs as needed.

18.1.6.4.5. Maintain Quarterly and annual FCC reports **(Attachment 4** and **Attachment 5**).

18.1.6.4.6. Prepare and submit the command annual FCC report to HQ USAF/ILMM and DPLFA by 15 August each year. Submit the biennial FCC report to HQ USAF/DPLFA upon request.

18.1.6.4.7. Review and approve/disapprove authorization change notices (ACN) for additions, deletions or changes of the “C” prefix to an Air Force Specialty Code (AFSC) on the unit manning document (UMD).

18.1.6.5. MAJCOM XPM, Command Manpower and Organization Responsibilities: XPM will:

18.1.6.5.1. Coordinate and obtain approval/disapproval from MAJCOM for Installation Manpower and Quality Office ACNs pertaining to validation of “C” prefix to AFSCs on the UMD.

18.1.6.5.2. Assign the “C” prefix to AFSCs upon approval from MAJCOM FCC Program Manager. This provides MAJCOM functional manager and unit senior maintenance managers visibility of squadron FCC SDAP positions. *NOTE*: FCC SDAP positions do not effect a unit’s manpower authorizations.

18.1.6.6. Squadron commanders:

18.1.6.6.1. Control their squadron FCC program as prescribed in AFI 36-3017, AFMAN 36-2108, *Airman Classification*, and this instruction.

18.1.6.6.2. Ensure FCCs fly only when needed for the mission.

18.1.6.6.3. Appoint and remove FCCs as outlined in AFMAN 36-2108. Assign FCCs for a minimum of one year, unless removed for cause. If removed, they may not be reassigned for a period of one year.

18.1.6.6.4. Ensure only qualified FCCs and assistant FCCs who meet minimum requirements as outlined in AFI 36-3017 Table 3, *Conditions Affecting Eligibility For Special Duty Assignment Pay*, receive SDAP. In addition, FCCs must fly a minimum of three qualifying missions per quarter. An indicator of having too many FCCs may be reflected in a unit whose FCCs routinely do not meet minimum quarterly requirements.

18.1.6.6.5. Normally, assign no more than two FCCs per aircraft (an FCC and assistant FCC) to each qualifying mission unless approved by MAJCOM. (Assistant FCC's are highly qualified maintainers but not as qualified as FCCs and must be under supervision of the FCC during the entire mission). Exception: Squadron Commander may assign the minimum number of additional FCCs when required to maintain proper work-rest cycles or meet TO requirements.

18.1.6.6.6. Appoint a unit program manager.

18.1.6.7. Unit program managers:

18.1.6.7.1. Perform FCC program administrative duties.

18.1.6.7.2. Track status and prepare unit report.

18.1.6.7.3. Process paperwork identifying FCC/assistant FCC personnel to be awarded a "C" prefix as prescribed in AFI 36-3017. Ensure personnel possess the appropriate SEI for their MDS aircraft.

18.1.6.7.4. Provide a letter to their Installation Manpower and Quality Office and an information copy to MAJCOM Program Manager to change, add, or delete a "C" prefix to the AFSC on the UMD.

18.1.6.7.4.1. The letter will contain the unit designation, function account code, AFSC, position number, and a POC.

18.1.6.7.5. Award FCCs and assistant FCCs a "C" prefix to their control and duty AFSC, assign the duty title "Flying Crew Chief/Assistant Flying Crew Chief," and a position number by processing an AF Form 2096, **Classification/On-the-Job Training Action**, or special order. Prior to submitting an AF Form 2096 or Special Order, a "C" prefix must already be assigned to the AFSC.

18.1.6.7.6. Counsel FCCs and assistant FCCs on SDAP termination. NOTE: AFI 36-3017, Table 3, lists reasons for termination. SDAP stops on the dates listed in this table. As long as a "C" prefix is attached to an AFSC the member shall receive SDAP.

18.1.6.7.7. Review, update, and authenticate the monthly SDAP roster. *NOTE*: If changes are made on the monthly SDAP roster, an AF Form 2096 or special order must be submitted to the Military Personnel Flight (MPF).

18.1.6.7.7.1. Authentication of the monthly SDAP roster validates that each FCC is meeting the full intent of the program. The SDAP roster is the only administrative tool used to continue or stop a FCC pay entitlement. *NOTE*: AFI 36-3017, Table 3 provides commanders conditions concerning pay entitlements.

18.1.6.7.8. Submit SDAP position increase/decrease requests to MAJCOM OPR by message, e-mail, or letter stating the number of positions to be increased/decreased with a brief justification. MAJCOMs will forward requests to HQ USAF/ILMM for final approval.

18.1.6.7.9. Provide information for processing DD Form 1610, **Request and Authorization for TDY Travel of DoD Personnel**, for FCCs. *NOTE:* Aeronautical orders do not apply to this program, as FCCs are not aircrew members.

18.1.6.7.10. Ensure Temporary Duty (TDY) orders authorize FCC to travel in MEGP status

18.1.6.7.11. Monitor training qualifications and currency to ensure only qualified FCCs are scheduled for missions.

18.1.6.7.11.1. As a minimum, maintain a folder for each FCC containing training qualifications and annual indoctrination course currency, immunizations, military passport information, appointment letters, and FCC Mission Reports. If the unit mobility section already maintains these source documents, either electronic or paper copies may be maintained.

18.1.6.7.12. Coordinate scheduling of FCCs through flight chiefs and current operations flights.

18.1.6.7.13. Maintain a Unit FCC Program Manager's Continuity Book which will include (as a minimum): lists of required instructions with web addresses (including AFI 21-101, AFI 36-3017, and AFMAN 36-2108); FCC program manager appointment letter, AF Form 2096 or special orders; manpower correspondence assigning "C" prefix AFSC; quarterly and annual FCC status reports, SDAP position requests and miscellaneous FCC and SDAP correspondence.

18.1.6.7.14. Report program status by fiscal year (FY) quarters to MAJCOM Program Manager no later than the 15$^{th}$ day of the month following each FY quarter and report FY annual program status to the MAJCOM not later than 15 July each year. Annual report will consist of the previous FY 4$^{th}$ quarter and current FY 1$^{st}$, 2$^{nd}$, and 3$^{rd}$ quarters.

18.1.6.7.15. Submit funding requests for flight clothing, per diem, and other related expenses for the annual budget. (For safety during flight, flight clothing is mandatory for FCCs and Assistant FCCs).

18.1.6.8. Installation Manpower and Quality Office. Installation Manpower and Quality Office will:

18.1.6.8.1. Forward ACN to HQ AMC/XPM to add, delete, or change "C" prefixes on AFSCs existing on the UMD.

18.1.6.9. Military Personnel Flight will:

18.1.6.9.1. Update SDAP program actions in the Personnel Data System as prescribed in AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*, and AFMAN 36-2108, *Enlisted Classification*.

18.1.6.9.2. Produce a monthly SDAP roster for squadron commander certification.

18.1.6.9.3. Resolve differences between base, Headquarters Air Force, and Joint Uniform Military Pay System (JUMPS) data files.

18.1.6.9.4. Notify unit 90 days in advance when SDAP decreases or terminates.

18.1.6.10. En route supervisors:

18.1.6.10.1. Will not assign FCCs to work other en route aircraft.

18.1.6.10.2. Will brief FCCs on local safety precautions, maintenance practices, and limitations.

18.1.6.10.3. Coordinate with the FCC and aircraft commander on a work/rest plan and transportation to quarters.

18.1.6.11. Aircraft commanders (AC):

18.1.6.11.1. Establish with the FCC and en route/transient supervisor a work/rest plan based on maintenance and mission requirements. The AC will be the primary decision authority to determine when the FCC begins a rest cycle for the next mission.

18.1.6.11.1.1. Upon arrival at en route/transient locations, FCC's primary job is preparing the aircraft (e.g. inspect, service, maintain) for the next mission. FCCs do not automatically enter crew rest with the aircrew upon arrival at an en route/transient location unless the duty day was exceeded.

18.1.6.11.1.2. If the FCC's safety is jeopardized by fatigue, the FCC's duty day must end.

18.1.6.11.1.3. Any official business required by the FCC interrupts the FCC's rest period. This includes official business conducted on the telephone. Any interruption must be made only under the most exceptional circumstances.

18.1.6.11.2. Arrange quarters with the crew and inform the FCC of billeting location.

18.1.6.11.3. Aircraft commanders will provide feedback on the FCC using AFI 21-101 **Attachment 3** and return it to the squadron FCC Program Manager upon return to home station.

18.1.7. FCC qualifications.

18.1.7.1. Primary FCC:

18.1.7.1.1. Is normally a staff or technical sergeant 5 or 7 skill-level. Qualified technicians of higher rank are eligible. The group commander may appoint SrA technicians in exceptional cases.

18.1.7.1.2. Is more highly qualified than other aircraft maintainers, exceptionally responsible, and possesses the necessary special qualifications. As a minimum, the primary FCC must be qualified and certified on the following MDS applicable items:

18.1.7.1.2.1. Possess a special experience identifier (SEI) of the aircraft assigned to the FCC.

18.1.7.1.2.2. Refuel/defuel member and supervisor; concurrent servicing supervisor (as applicable).

18.1.7.1.2.3. Tow member, tow supervisor, tow brake operator, and tow vehicle operator.

18.1.7.1.2.4. Liquid/gaseous oxygen servicing, nitrogen and tire servicing.

18.1.7.1.2.5. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection.

18.1.7.1.2.6. Auxiliary power unit/gas turbine compressor/air turbine motor operation/ quick air start system.

18.1.7.1.2.7. Engine run.

18.1.7.1.2.8. Kneeling operation and cargo door/ramp/visor operation on applicable MDS.

18.1.7.1.2.9. Clear Red X discrepancies, perform IPIs, clear repeat/recurring discrepancies, clear could not duplicate discrepancies.

18.1.7.1.2.10. All applicable powered/non-powered aerospace ground equipment.

18.1.7.1.2.11. Is well qualified to operate, troubleshoot, service, and perform maintenance on their aircraft's critical systems as required by the MAJCOM.

18.1.7.2. Assistant FCC qualifications:

18.1.7.2.1. May be a 5-level A1C or above with at least a SEI on their assigned aircraft, and must accompany a fully qualified FCC.

18.1.7.2.2. As a minimum, the assistant FCC will be qualified and certified on the following MDS applicable items:

18.1.7.2.2.1. Refuel/defuel member.

18.1.7.2.2.2. Tow member, tow brake operator, and tow vehicle operator.

18.1.7.2.2.3. Liquid/gaseous oxygen servicing, nitrogen and tire servicing.

18.1.7.2.2.4. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection.

18.1.7.2.2.5. Auxiliary power unit/gas turbine compressor/air turbine motor operation/ quick air start system.

18.1.7.2.2.6. Cargo door/ramp/visor operation on applicable MDS.

18.1.7.2.2.7. All applicable powered/non-powered aerospace ground equipment.

18.1.8. Work/rest plan:

18.1.8.1. The FCC duty period starts when the FCC shows at the aircraft prior to departure.

18.1.8.2. Rest is defined as the condition, which allows an individual the opportunity for a minimum of 8 hours uninterrupted sleep in every 24 hours. Any interruptions must be made under the most exceptional circumstances.

18.1.8.3. Maximum shifts under normal conditions are 12 hours, but may be extended for mission requirements. Flying time is considered duty time. The AC is the decision authority for extended shifts.

18.1.9. Program reporting.

18.1.9.1. Units report annually the status of SDAP for flying crew chiefs to the MAJCOM not later than 15 July. MAJCOMs forward their yearly report to USAF/ILMM by 15 August. Use previous FY 4th quarter; and current FY 1st, 2nd, and 3rd quarters. Late reports may postpone FCC waiver requests. Refer to **Attachment 4** and **Attachment 5** for reporting criteria.

18.1.10. Waivers.

18.1.10.1. Forward unit waiver requests to the MAJCOM FCC program manager, who will either disapprove/return to unit, or approve/forward to HQ USAF/ILMM for final approval.

18.1.10.1.1. All approved waivers are reviewed annually as part of the annual report unless otherwise stipulated by the approval authority.

18.1.10.1.2. Waiver renewals: submit a brief justification for waivers requiring renewal.

**18.2. Special Certification Roster (SCR).** The SCR is a valuable management tool that gives supervisors a clear and concise listing of the personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Normally, only maintenance requirements that have a definite potential for personnel injury or damage to equipment shall be included in the SCR. Other tasks requiring special training or qualifications may be considered as SCR-included items. The SCR is used to build personnel rosters for deployments, shift schedules, and assess workforce capability. The SCR must be reviewed and signed quarterly (ANG semi-annually) by the appropriate Maintenance Operations (MOO/SUPT) and work center supervisor to verify that all entries are current and accurate and that task certifications have been completed. See **Table 18.1.** for SCR requirements.

18.2.1. Maintenance Operations (MOO/SUPT) approves individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position. Seven-skill level personnel may be certified outside their primary AFSC only when specific CUT task qualification is documented in their personnel training records.

18.2.1. (ANG) N/A to the ANG. The following only applies to the ANG: Maintenance Supervision recommends individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position through their chain of command. Seven-skill level personnel may be certified outside their primary AFSC only when specific CUT task qualification is documented in personnel training records. The MXG/CC approves individuals for inclusion on the SCR.

18.2.2. The MXG/CC can authorize selected 5-skill level personnel, in the rank of SrA or higher, for tasks normally requiring a 7-skill level requirement to facilitate the production effort. Waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission. Maintenance Operations (MOO/SUPT) or equivalent must maintain file copies of approved waivers. Certified weapons load crew chiefs (load crew member position number 1) by virtue of their task certification and position serve as inspectors for weapons loading activities and do not require waiver. Contractor MAs must submit waiver requests through the QA Chief to the group commander for approval. (The QA Chief, through the contracting officer may disapprove waiver requests without group commander coordination.). Exception: 2W0X0 Certified Munitions Inspectors are exempt from these requirements. Inspectors are CFETP qualified and appointed by the munitions flight chief or commander IAW AFI 21-201 and TO 11A-1-10.

18.2.2. (ANG) File copies of approved waivers (letter, local form, AF IMT 2426, or e-mail, etc.) must be maintained by maintenance supervision or equivalent until the SCR is updated.

18.2.2.1. Exceptional Release/Conditional Release Waiver Policy. NOTE: If local conditions require assignment of other than maintenance officers, senior enlisted or civilian equivalent personnel to sign aircraft Exceptional Releases/Conditional Releases, the GP/CC must request a waiver from MAJCOM. In accordance with provisions in TO 00-20-1, waiver requests must: (1) Fully justify need for the waiver; and (2) Identify actions being taken (or planned) to resolve the problem.

18.2.3. MAJCOMs add other mandatory critical tasks or inspections they deem necessary. Identify each task on the SCR by a specific course code.

18.2.3. (ANG) The MXG/CC may add other mandatory critical tasks or inspections they deem necessary.

18.2.4. SCR Documentation. Flight and section chiefs will review each individual's qualifications prior to recommending approval to perform SCR tasks to the appropriate approval level. The AF Form 2426, **Training Request and Completion Notification** or MAJCOM approved form is used by the work center supervisor to add or remove an individual to the SCR. The appropriate level approves the individual for addition to the SCR. On approval, the Training Management function, loads the approved name into the automated tracking system. Flight and section chiefs retain their copy of nomination until they verify proper loading.

18.2.4. (ANG) N/A to the ANG. The following only applies to the ANG: SCR Documentation. Element and/or workcenter supervisors must review each individual's qualifications prior to recommending approval to perform SCR tasks through their chain of command. The AF IMT 2426, *Training Request and Completion Notification*, or locally approved form is used to add or remove an individual to the SCR. Maintenance Supervision routes the recommendation to the QA Superintendent. The QA Superintendent reviews and verifies the request for currency, qualification and applicability and forwards to the MXG/CC. Once approved by the MXG/CC, the individual is authorized to perform the tasks indicated. On approval, the Training Management function, loads the approved name into the MIS. Element and/or workcenter supervisors retain their copy of nomination until they verify proper loading.

18.2.4.1. Work center supervisor, superintendent, MOO, SQ/CC, or MXG/CC may revoke certification at any time. They follow up those actions by deleting SCR certification.

18.2.5. Ensure a current copy of the SCR is taken on all deployments.

18.2.5. (ANG) This may be in either through hardcopy or MIS format.

**Table 18.1. Mandatory Special Certification Roster (SCR) and Prerequisites.**

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 1 | All Systems "Red-X" (no egress) | MSgt or higher (or civilian equivalent) (Note 1). |
| 2 | Engine Run Certifier | |
| 3 | "Red-X" Down Grade | |
| 4 | All Systems IPI (no egress) | |
| 5 | Exceptional Release (ER) | |
| 6 | Aircraft Inlet/Exhaust Certifier (refer to **Chapter 18**) | Most qualified 7- or 9-skill level 2A6X1X, 2A3X3X, or 2A5X1X, 2A5X2 (or civilian equivalent) or engine AFETS/CETS, if applicable (Note 1). |
| 7 | Flexible Borescope Certifier (refer to **Chapter 18**) | |
| 8 | Blade Blending Certifier (refer to **Chapter 18**) | |
| 9 | "Red-X" by Primary AFSC (PAFSC) and MDS | SSgt or higher (includes MXG/ CC-appointed exceptional SrA as an FCC), minimum 7-skill level (or civilian equivalent); For "Red-X" and IPI egress only, additional requirements contained in AFI 21-112, *Aircraft Egress Systems Maintenance,* must also be satisfied prior to certification (Note 2). |
| 10 | IPI – by PAFSC and MDS | |
| 11 | "Red-X" and/or IPI - limited (per each MDS), for tasks outside PAFSC through cross-utilization training or limited tasks within the PAFSC | SSgt or higher, minimum 7-level (or civilian equivalent), Use for personnel certified on tasks in other AFSCs through cross-utilization training or personnel certified on limited tasks within their AFSC as determined by the unit (Note 2). |
| 12 | MICAP Approval | MSgt or higher, minimum 7-level (or civilian equivalent) (Note 2). |
| 13 | NRTS and Serviceability Tag | SSgt or higher, minimum 7-level (or civilian equivalent) (Notes 2, 3,and 4). |

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 14 | Engine Run by MDS and Engine Type; indicate power settings, as applicable | SrA or higher, minimum 5-skill level, (or civilian equivalent), with a minimum of 6 months time on weapon system. The time on weapon system may be waived by MXG/CC in short tour locations (Note 2). |
| 15 | Engine Blade Blending (refer to **Chapter 18**) | Minimum 5-level 2A3X3, 2A5X1/2, and 2A6X1X or civilian equivalent (Note 2) |
| 16 | Hot Refueling Team Supervisor "A" Member (refer to **Chapter 18**) | Minimum 5-skill level, (or civilian equivalent), with a minimum of 1 year flight line maintenance experience (Note 2). |
| 17 | Uninstalled Engine Operations (Test Stand and Test Cell) (refer to **Chapter 18**) | SSgt or higher 7-skill level 2A6X1A/B (or civilian equivalent). MXG/CC may waive 5-skill level SrA with minimum of 6 months time on weapon system (Note 2). |
| 18 | Engine Inlet/Exhaust Inspections (refer to **Chapter 18**) | Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1X, (or civilian equivalent) (Note 2). |
| 19 | Flexible Borescope Inspections (refer to **Chapter 18**) | Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1X (or civilian equivalent) (Note 2). |
| 20 | Concurrent Servicing Operations Supervisor/ Team Member<br>(Heavy Aircraft) | Minimum 5-skill level with a minimum of 1 year weapons system experience. Time requirement may be waived by MXG/CC in short tour locations (Note 2). |
| 21 | Concurrent Servicing Supervisor<br>(Fighter Aircraft) | For A-10, F-15, F-16 aircraft, minimum<br>7-skill level with a minimum of 1 year weapons system experience. Time requirement may be waived by MXG/CC in short tour locations (Note 2). |
| 22 | Aircraft Ground to Ground Refueling (Aircraft to Aircraft) | Minimum 5-skill level with a minimum<br>of 1 year weapon system experience<br>(Note 2). |
| 23 | Weight and Balance (W&B) Certified | SSgt or higher (or civilian equivalent), with a minimum of 1 year time on weapon system (Note 2). |
| 24 | Impoundment (Authority, Release Authority, and Official) | Refer to **Chapter 11** for Impoundment requirements (Note 1). |

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 25 | APU/GTC/APP Operation (refer to **Chapter 18**) | Minimum 3-skill level or higher maintenance AFSC (Note 2). |
| 26 | Evaluator Personnel Evaluation (EPE) | (Note 1) |
| 27 | Engine Trim Supervisor (refer to **Chapter 18**) | (Note 2) |
| 28 | Engine Trim Box Operator (refer to **Chapter 18**) | (Note 2) |
| 29 | Engine Fan Balance Vibration Analyzer Operator (refer to **Chapter 18**) | (Note 2) |
| 30 | Calibration Limitation Approval | SSgt or higher, minimum 7-skill level (or civilian equivalent) (Notes 2 and 3). |

***NOTES:***

1----Approved by Group Commander

2----Approved by Maintenance Operations (MOO/SUPT)

3----Maintenance Operations (MOO/SUPT) may delegate approval authority to the flight commander/ chief commander/chief

4----Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10, *General Instruction—Munitions Serviceability Procedures*).

**Table 18.1. (ANG) N/A to the ANG. The following only applies to the ANG: Mandatory Special Certification Roster (SCR) Items and Prerequisites.**

| Item | Mandatory SCR Item Titles | Prerequisites |
|---|---|---|
| 1. | All systems Red-X, (except egress, welding, munitions). | Maintenance officers and SNCOs (7-skill level or higher) may clear "all systems" Red X conditions. |
| 2. | Engine Run Certifier. | The most qualified 7- or 9-level 2A6X1A/B, 2A5X1/2, 2A3X3X, holding the rank of MSgt or above. Minimum of one year engine run experience on the applicable MDS and engine TMSM. High/low power.<br>The MXG/CC may waive highly qualified TSgts. |
| 3. | Red X downgrade. | Maintenance officers and senior NCOs (7-skill level or higher) may downgrade Red X conditions. |
| 4. | All Systems IPI (except egress, welding, munitions). | Maintenance officers and SNCOs (7-skill level or higher) may clear and perform "all systems" IPIs. |
| 5. | Exceptional Release (ER). | Maintenance officers and SNCOs (7-skill level or higher) (See Note 4). |
| 6. | Aircraft Intake/Exhaust Certifier. | 7- and 9-level technicians with AFSCs 2A3X3, 2A5X1X, 2A5X2, and 2A6X1X. Successful completion of formal training and practical evaluation by a certifier. |
| 7. | Flexible/rigid Borescope Certifier. | 7- and 9-level technicians with AFSCs 2A3X3, 2A5X1/2, and 2A6X1X. |
| 8. | Blade Blending Certifier. | Must have completed appropriate training. 7- and 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3X) Aircraft Maintenance (2A5X1X) and Helicopter Maintenance (2A5X2). |
| 9. | Red-X-by Primary AFSC (PAFSC) and MDS (i.e., Clear Red X F-16 Electro/environ, Clear Red X F-16 Avionics…). | NCOs (7-skill level or higher). Selected 5-level personnel in the rank of SRA or higher may be authorized clear Red X conditions when the Squadron/flight commander requests the 7-skill level requirement be waived. (See Notes 2 and 3). |
| 10. | IPI - by PAFSC and MDS (i.e., Sign IPI F-16 Electro/environ, Sign IPI F-16 Avionics…). | NCOs (7-skill level or higher). Selected 5-level personnel in the rank of SRA or higher may be authorized to perform IPIs when the Squadron/flight commander requests the 7-skill level requirement be waived. (See Notes 2 and 3). |

| Item | Mandatory SCR Item Titles | Prerequisites |
|---|---|---|
| 11. | Red-X and/or IPI - limited (per each MDS), for tasks outside PAFSC through cross-utilization training or limited tasks within the PAFSC. | NCOs (7-skill level or higher) may be authorized to perform these tasks outside their PAFSC only when specific CUT task qualification is documented. |
| 12. | MICAP Approval. | MSgt or higher, minimum 7-level. |
| 13. | NRTS and Serviceability Tag. | NCOs (7-skill level or higher). Selected 5-level personnel in the rank of SRA or higher may be authorized to sign NRTS and serviceability tags when the Squadron/flight commander requests the 7-skill level requirement be waived. (See Notes 1 and 2). |
| 14a. | Engine run by MDS and engine type; low power. | SrA or higher, minimum 5-skill level with a minimum of six month time on weapon system. Successful completion of all three phases of the engine run certification program. |
| 14b. | Engine run by MDS and engine type; all power settings. | SrA or higher, minimum 5-skill level with a minimum of six month time on weapon system. Successful completion of all three phases of the engine run certification program. |
| 15. | Blade Blending. | 5-, 7-, and 9-level personnel with AFSCs 2A3X3, 2A5X1/2, and 2A6X1X. |
| 16a. | Hot Refuel supervisor "A" member. | Minimum 5-skill level. Individual shall be a refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-level qualification and one year of flightline aircraft maintenance experience. Successfully complete all three phases of “HOT” training. |
| 16b. | Hot Refuel crew "B" member. | Minimum 5-skill level. Refuel crew "B" member. Individual shall be refuel task qualified, possess an aircraft maintenance AFSC, and one year of flightline aircraft maintenance experience. Successfully complete all three phases of “HOT” training. |
| 16c. | Hot Refuel Fuels specialist 2F0X1, "C" member. | Minimum 5-skill level in AFSC 2F0X1 and shall be refuel task qualified. Successfully complete all three phases of “HOT” training. |
| 16d. | Additional Hot Refuel crew "D" member. | Minimum 5-skill level. Individual must be refuel task qualified, possess an aircraft maintenance AFSC, and have one year of flightline maintenance experience. Successfully complete all three phases of “HOT” training. |

| Item | Mandatory SCR Item Titles | Prerequisites |
|---|---|---|
| 16e. | Hot Pad supervisor. | Individual shall possess a 5-level or higher qualification in an aircraft maintenance AFSC and is hot/aircraft-to-aircraft refueling supervisor "A" member qualified. Successfully complete all three phases of 'HOT" training. |
| 17a | Hush House (Test cell) operator. | Be at least a SrA with AFSC 2A6X1A/B or civilian equivalent. Must have a minimum of 6 months' Hush House experience. When the Squadron/flight commander has requested the seven-skill level requirement be waived, the MXG/CC may authorize senior airman possessing a 5-skill level and a minimum of 6 months experience on the applicable TMSM, |
| 17b | T-9/T-10 sound suppressor fire control panel operator. | Be at least a SrA with AFSC 2A6X1A/B or civilian equivalent. Must have a minimum of 6 months' T-9/ T-10 sound suppressor fire control panel operator experience. When the Squadron/flight commander has requested the seven-skill level requirement be waived, the MXG/CC may authorize senior airman possessing a 5-skill level and a minimum of 6 months experience on the applicable TMSM |
| 18. | Engine inlet/exhaust inspections. | Only certified 2A3X3, 2A5X1/2, and 2A6X1X 5, 7-, and 9-skill level technicians or civilian equivalents may perform these inspections. Successful completion of appropriate training and practical evaluation by a certifier. |
| 19. | Flexible/rigid borescope inspections. | 5-, 7-, and 9-level technicians with AFSCs 2A3X3, 2A5X1/2, and 2A6X1X. |
| 20. | Concurrent servicing operations-Chief Servicing Supervisor. (Large frame aircraft). | Minimum 5-skill level with a minimum of one year weapon system experience. |
| 21. | Concurrent Servicing Supervisor (CSS) for SGO (A-10, F-15, F-16). | Minimum 7-skill level 2AXXX or 2WXXX AFSC with a minimum of one-year experience on the MDS. |
| 22. | Aircraft to aircraft ground refueling. | Minimum 5 - skill level with a minimum of one year weapon system experience. |
| 23. | Weight and Balance (W&B) Certified. | SSgt or higher 2AXXX or 2WXXX AFSC with a minimum of one year time on weapon system. Completed training requirements IAW 1-1B-50. Recommendation from the W&B Authority. |

| Item | Mandatory SCR Item Titles | Prerequisites |
|---|---|---|
| 24a. | Impoundment Authority. | Delegation of this authority will be limited and appointed by the MXG/CC. |
| 24b. | Impoundment Release Authority. | Delegation of this authority will be limited (Level shall be no lower than Maintenance Supervision). |
| 25. | APU Operation. | Successful completion of an aircraft APUs/GTCs one-time course. |
| 26. | Evaluator Proficiency Evaluation (EPE). | QA inspectors, whether permanent or augmentees, require initial qualification on EPEs. QA augmentees require an annual EPE on a personnel evaluation or technical inspection. |
| 27. | Engine Trim Supervisor. | Refer to **Chapter 18**. |
| 28. | Engine Trim Box Operator. | Refer to **Chapter 18**. |
| 29. | Engine Fan Balance Vibration Analyzer Operator. | Refer to **Chapter 18**. |
| 30. | Calibration Limitation Approval. | SSgt or higher, minimum 7-skill level (or civilian equivalent) |
| 31. | Crash Recovery Team Chief. | Be a SNCO (MXG/CC may waive grade requirement). |
| 32. | WTQM-Weapons Task Qualification Training Manager. | Minimum 7-skill level 2A1X7, 2AXXX, or 2WXXX, generally a 2A1X7. |
| 33. | WTQC-Weapons Task Qualification Crew. | Minimum 5-skill level 2A1X7 or 2AXXX, generally a 2A1X7. |
| 34. | Hydrazine Response Team Member. | AFSC 2A6X4 or as appointed by the MXG/CC and must have task certification. |

***NOTES:***

1. Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10, *General Instruction-Munitions Serviceability Procedures*).
2. Waived 5-level personnel may perform the assigned certification only in their primary AFSC. The number of waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission.
3. For Egress only, additional requirements contained in AFI 21-112, must also be satisfied prior to certification.
4. If local conditions require assignment of other than maintenance officers and senior enlisted to sign aircraft Exceptional Releases/Conditional Releases, the MXG/CC must request a waiver from ANG/LGMM. In accordance with provisions in TO 00-20-1, waiver requests must: (1) Fully justify need for the waiver; and (2) Identify actions being taken (or planned) to resolve the problem.

**18.3. Lead Technician.**

18.3.1. Lead Technician (Lead Tech) Responsibilities. Units may choose to identify Lead Technicians. A Lead Tech is the flight AFSC subject matter expert and represents all personnel in that AFSC. Their use is especially important where multiple AFSCs are integrated into sections. Units supporting different aircraft types may find it beneficial to identify Lead Tech for each MDS. Serving as a Lead Tech is considered an additional duty, not a duty title or full-time job. Lead Techs will:

18.3.1.1. Work with the Flight Chief /Section Chiefs to ensure personnel in the Lead Tech's AFSC receive proficiency training.

18.3.1.2. Serve as the Flight Chief's technical advisor for matters relating to their AFSC.

18.3.1.3. Work with the Flight Chief/Section Chief to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements.

18.3.1.4. Monitor repair processes to ensure safe, effective repair of unit assets.

18.3.1.5. Evaluate trends and indicators of troubleshooting effectiveness and 2LM efficiency. Unit RTOK "Re-test OK" components (RTOK) are costly and often indicate opportunities to improve troubleshooting or repair processes. If your unit has RTOK data available, review the data monthly for trends. Simple process improvements may result from emphasis on RTOK costs, more in-depth troubleshooting, or (circumstances permitting) reinstalling original line replaceable units (LRUs) when replacement LRUs drawn from supply don't fix the problem

**18.4. Aircraft Decontamination.**

18.4.1. Units must master the Ability To Survive and Operate (ATSO) in a Nuclear, Biological, Chemical (NBC) environment. Based on wartime requirements, maintenance organizations must be capable of performing operational aircraft, vehicle, and support equipment decontamination at all locations. Procedures shall be established IAW AFOSH Std 91-100, *Aircraft Flight Line Ground Operations and Activities*; AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard*; TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material Contaminated with Radioactive Debris*; TO 00-20-1, Table 1-2, *Decontamination Procedures and Documentation*; TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*; TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*; AFMAN 32-4017, *Civil Engineer Readiness Technician's Manual for Nuclear, Biological, and Chemical Defense*; and Air Force Handbook 32-4014, Vols. 1-4, *USAF Operations in a Chemical and Biological (CB) Warfare Environment Survive to Operate Procedures.*

18.4.1.1. Tactics, Techniques, and Procedures (TTP). TTPs provide maintenance activities flexible preparation and response options in a chemical, biological, radiological, nuclear and high-yield environment (CBRNE). The intent is to employ Air Force- and local-developed TTPs in order to maximize combat sortie operations while operating in a CBRNE IAW AFMAN 10-2602, *Nuclear, Biological, Chemical, and Conventional (NBCC) Defense Operations and Standards*. TTPs provide sortie generation activities with fundamental counter-chemical warfare (C-CW) tools to survive and fight.

18.4.2. Aircraft Decontamination Area. An area used to decontaminate returning aircraft that may have been contaminated by radiological fallout or liquid chemical/biological warfare agent. The area should be easily accessible, but should limit exposure to spreading contamination to other areas.

18.4.3. An aircraft suspected of being contaminated will be taxied immediately after landing, by the most direct route to the aircraft decontamination area. CAUTION: To limit the spread of contamination, the prevailing winds and the location of drains should be considered as factors in determining selected isolation areas.

18.4.3.1. A controlled area will be established around the aircraft, and deplaning aircrew members will be monitored and decontaminated, as necessary, under the supervision of the Bioenvironmental Engineer (BE).

## 18.5. Cannibalization Program

18.5.1. Philosophy: Cannibalization (CANN) actions may be necessary when a not mission capable (NMC) condition will prevent the accomplishment of a mission and the required assets are not immediately available from supply. Prior to performing a CANN action, verify that the required component cannot be sourced from supply or back shop assets within the allotted time. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. High risk CANNs should not be performed unless priority aircraft are involved, or lack of ready equipment will impede mission accomplishment. *NOTE*: Commanders should not necessarily view high CANN rates as a negative statistic that reflects poorly on the unit's capability or production effort. CANN rates accurately record the lack of asset availability to the field.

18.5.2. Definition: Cannibalization is the authorized removal of a specific assembly, subassembly, or part from one weapon system, system, support system, or equipment end item for installation on another end item to satisfy an existing supply requisition and to meet priority mission requirements with an obligation to replace the removed item. Weapon system, support systems, or equipment include: aircraft, missiles, drones, Unmanned Aerial Vehicles (UAV), uninstalled engines, uninstalled engine modules, aircrew and/or launch crew training devices, C-E equipment, AGE, TMDE, automatic test equipment, serviceable uninstalled ECM pods, and guns. The three most common CANNs are: aircraft to aircraft, engine to aircraft, and aircraft to readiness spares package (RSP) kits.

18.5.3. Authorization & Control: Commanders, managers, and supervisors will closely control CANN actions. Although immediate benefits can be realized, the process results in excess expendi tures of maintenance resources and may degrade readiness by exposing serviceable equipment to extra handling, assembly, disassembly or removal and reinstallation, and follow-on operational checks.

18.5.4. Group commanders will designate CANN authorities (CA). CA will be senior NCOs and officers (or civilian equivalents). These personnel are normally production supervisors. Personnel permitted to authorize CANN actions must be kept to a minimum. Those who are authorized to approve CANNs will not further delegate their responsibility.

18.5.4.1. CA will inform MOC before executing on-equipment CANNs actions.

18.5.5. Aircraft that have been cannibalized extensively may be identified as "CANN aircraft." Aircraft that are designated as CANN aircraft will have an assigned manager, normally the DCC. This manager will insure daily documentation actions (forms/tags/MIS) remain accurate and complete.

18.5.6. If an assembly is cannibalized to satisfy a condition caused by lack of bits and pieces (for example, washers, nuts, and bolts), the assembly is counted as a CANN and the bits and pieces are considered transfer actions. Bits and pieces removed from an end item (without removing the assembly) for installation on another end item are considered individual CANN actions.

***NOTE:*** An item will not be cannibalized solely to attain a mission capable rate or any other statistical yardstick.

18.5.7. When a required part cannot be delivered and installed on time, the CA may approve the CANN of parts before the initiation of CANN documentation (e.g. red ball maintenance). The CA will give this approval only after confirming the part is not readily available in supply, launch trucks, forward supply points, or back shops. The CA will notify the supply MICAP section to change the mark-for components in the document number. The CA will also ensure complete documentation is accomplished for each CANN action.

18.5.8. When time change items, serially controlled items, or other components with inspection requirements align to specific hourly, calendar, or events are considered for CANN, the CA will coordinate with the appropriate PS&D or EM to ensure adequate time remains on the item to justify the CANN and to ensure appropriate records are updated. If CANN occurs, the performing work center will update MIS and notify PS&D or EM.

18.5.9. Mission ready aircraft are end items. Installed engines are not end items; engines are considered line-replaceable units (LRU) just as a radar component, gun, seat, canopy, radio, multifunction display unit, etc. If a functional LRU is removed from one end item to put on another end item to fill a "hole" which was caused by a supply requisition, (the requisition could be against the LRU), then this will be considered a CANN.

18.5.10. Restrictions:

18.5.10.1. CANN actions involving parts from ABDR aircraft, Air Force Museum aircraft, Maintenance Training Devices (MTDs), Ground Instructional Training Aircraft (GITA) (possession purpose code TX), or Defense Reutilization and Marketing Office (DRMO) shall not be accomplished without authorization from the SPO. If the part is approved for CANN, it must not be put into service until all necessary inspections (NDI, pressure checks, operational checks, TCTOs, etc.) have been performed using specific guidance from the SPO to ensure proper serviceability. Parts shall not be removed from static display/Air Force Museum aircraft except in accordance with AFI 84-103, *Museum System*. Aircraft possessed by AFMC in depot maintenance shall not be cannibalized without first obtaining approval from the applicable AFMC single manager.

18.5.10.2. An aircraft that has been extensively cannibalized will not be launched on an overseas or cross-country sortie/mission on the first flight following CANN status without GP/CC approval.

18.5.11. Documentation and Reporting:

18.5.11.1. Specific documentation procedures for CANNs are prescribed in TO 00-20-2. All CANNs will be properly recorded in the automated MIS. Aircraft recovering from CANN status will be carefully screened and all maintenance documentation thoroughly reviewed before being scheduled for a sortie/mission. The review will ensure all operational checks have been completed and will determine if an operational or functional check flight is required.

18.5.12. Supervisors will ensure personnel are trained to perform and document CANN actions.

**18.6. Hangar Queen Aircraft.**

**18.6. (ANG) Hanger Queen Aircraft.** N/A to the UAE F-16 block 60 program.

18.6.1. General. The objective of this program is to ensure the entire fleet remains healthy and all possible management actions are carried out to ensure aircraft do not remain inoperative for extended periods. MAJCOMs will establish a Hangar Queen program.

18.6.2. Definitions:

18.6.2.1. A Hangar Queen is an aircraft that has not flown for an extended period of time based on possessed calendar days in their assigned possession purpose code IAW AFI 21-103, Attachment 18. If an aircraft is placed in a nonpossessed status for any fraction of a day then the nonpossessed time is not counted. Aircraft placed on alert status for HHQ taskings are exempt from hangar queen reporting throughout the duration of alert status. An aircraft is released from hangar queen status after the first flight.

18.6.2.2. Hangar Queen aircraft are further defined by three categories:

18.6.2.2.1. Category 1--Aircraft that have not flown for 30 to 59 consecutive days.

18.6.2.2.2. Category 2--Aircraft that have not flown for 60 to 89 consecutive days.

18.6.2.2.3. Category 3--Aircraft that have not flown for 90 or more consecutive days.

18.6.3. When an aircraft becomes identified as a hangar queen, management must intensify their efforts to alleviate the condition as soon as possible (e.g., mission impact letters, MAJCOM and item manager assistance, etc.). Aircraft Last Fly Day shall be accessible through the Air Force Portal Fleet Asset Status Gadget.

18.6.3.1. When an aircraft becomes a category 1 Hangar Queen, establish a maintenance recovery plan that minimizes the time needed to get the aircraft airborne. Assign a Hangar Queen manager (typically the aircraft crew chief) to implement the plan. Forming a temporary dedicated recovery team is also an option. Ensure strict management, control, and documentation of all cannibalizations, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status to the squadron commander daily and weekly to the group and wing commanders.

18.6.3.2. When an aircraft becomes a Category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen. The group commander or designated representative must approve any further cannibalizations, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status at the daily wing standup. Report by tail number monthly to the MAJCOM Maintenance Management Division chief the estimated delivery dates for top down-time driver (AWP) parts. In addition, report by tail number monthly to AF/ILP. Cannibalizations shall not be used to return the aircraft to flying status for the sole purpose of preventing hangar queen reporting. Reporting procedures are intended to provide higher level assistance to field units and shall not be construed as a "report card."

18.6.3.2. (ANG) The daily wing standup is not applicable to the ANG. ANG Hanger Queen Category 1, 2, 3 will be reported with comment at web site: (**https://logistics.ang.af.mil/LGM/HangarQueens**) (requires an account (user ID and password) available on this site). ANG/LGM will report Category 2 and 3 Hanger Queen status to the Air Staff.

18.6.3.3. When an aircraft becomes a Category 3 Hangar Queen, aircraft maintenance and supply status shall be briefed at the daily wing standup. Report status to the MAJCOM chief of maintenance, AF/ILP and AF/ILM monthly.

18.6.3.3. (ANG) The daily wing standup is not applicable to the ANG. ANG Hanger Queen Category 1, 2, 3 will be reported with comment at web site: (**https://logistics.ang.af.mil/LGM/HangarQueens**) (requires an account (user ID and password) available on this site). ANG/LGM will report Category 2 and 3 Hanger Queen status to the Air Staff.

18.6.4. Ensure applicable -6 and 00-20 series TO requirements and TCTOs are accomplished.

18.6.5. Inform the maintenance operations center (MOC) of any change in aircraft status.

18.6.6. In coordination with quality assurance (QA), determine the need for an FCF (if not otherwise required by the aircraft specific TO).

18.6.7. Perform a final review of all AFTO Form 781s initiated since the last flight prior to the first flight.

**18.7. Aircraft Battle Damage Repair (ABDR).** The purpose of ABDR is to enhance the wartime repair capability of aircraft maintenance units. ABDR is an effective force multiplier that contributes to wartime sortie production by assessing and repairing damaged aircraft in sufficient time to contribute to current operations. ABDR techniques shall be used in wartime only. However, system program directors may approve ABDR repair techniques during peacetime, but only on a case-by-case basis.

18.7.1. Responsibilities:

18.7.1.1. HQ USAF/ILM shall provide overall policy and guidance for USAF ABDR activities.

18.7.1.2. HQ AFMC (AFMC/LGXC) shall:

18.7.1.2.1. Assign a Combat Logistics Support Squadron (CLSS) Functional Manager.

18.7.1.2.2. Assume management responsibility for the CLSS functional area, which includes the USAF ABDR and Rapid Area Distribution Support (RADS) Programs.

18.7.1.2.3. Publish an AFMC instruction to implement policy and guidance in this instruction.

18.7.1.2.4. Establish policy, guidance, procedures, and standards and provide oversight to CLSS operations.

18.7.1.2.5. Develop and manage ABDR policy for pre-positioning of tools, materiel kits and related support equipment.

18.7.1.2.6. Support development and publication of ABDR technical orders for new weapon systems.

18.7.1.2.7. Maintain Unit Type Codes (UTCs) for AFMC and AFMC gained reserve CLSS deploying forces.

18.7.1.2.8. Plan for and develop repair capability to repair battle-/crash-damaged aircraft. Ensure plans include the option to inject additional repair capabilities into operating locations as well as offer various aircraft evacuation alternatives.

18.7.1.2.9. Plan, program, and submit funding requests to support ABDR efforts.

18.7.1.2.10. Establish an ABDR Program Office to advocate and provide day-to-day management of tasks associated with development, implementation, maintenance, and support needed to enhance the USAF ABDR capability.

18.7.1.2.11. Support AFMC laboratories and System Program Offices (SPO) in determining technical requirements, repair techniques, repair materials, and assessment aids and in research and development efforts.

18.7.1.2.12. Manage the development, publication, and maintenance of Technical Order (TO) 1.1H-39 and the engineering handbook for ABDR engineers. Support all Air Force initiatives to develop, publish, and maintain weapon system specific –39 TOs.

18.7.1.2.13. Manage ABDR training aircraft program.

18.7.1.3. Air Force Research Laboratory (AFRL) shall:

18.7.1.3.1. Assign an advanced technology development program manager to conduct ABDR Research and Development (R&D).

18.7.1.3.2. Support the overall ABDR program through R&D in new technology, repair techniques, and design guidance for new aircraft.

18.7.1.3.3. Fund ABDR R&D efforts related to ABDR technology.

18.7.1.3.4. Provide technical support to AFMC/LGXC and the ABDR Program Office (PO) in the development and publication of ABDR technical orders for new weapon systems.

18.7.1.3.5. Coordinate with the other military services and allied countries on ABDR technology exchange programs.

18.7.1.4. Major Commands (MAJCOMs) shall:

18.7.1.4.1. Establish a command ABDR focal point to work issues with AFMC concerning ABDR. (AFMC is responsible for all ABDR workload).

18.7.1.4.2. In conjunction with AFMC, develop a command ABDR concept of operations and ensure the concept covers unit plans for repair of battle-/crash-damaged aircraft during combat operations.

18.7.1.4.3. Address ABDR in mission need statements of all new weapon systems that support or engage in combat operations.

18.7.1.4.4. Incorporate ABDR in command war planning documents.

18.7.1.4.5. Task AFMC and AFRC CLSS UTCs to support operational plans (OPLAN).

18.7.1.4.6. Develop plans for the reception and employment of AFMC and AFRC ABDR teams at the onset of hostilities.

18.7.1.4.7. Formalize integration and beddown requirements in applicable base support plans.

18.7.1.4.8. USAFE and PACAF will store and maintain serviceability of AFMC owned and provided ABDR trailers located in WRM.

18.7.1.4.9. Provide field level weapon-system-specific tools (other than common hand tools) and equipment needed to repair battle-/crash-damaged aircraft.

18.7.1.4.10. Provide technical support to the ABDR Program Office (PO) when requested, for development and publication of ABDR TOs as well as for live fire or similar testing.

18.7.1.4.11. Insure shelf life items listed in TO 1-1H-39 and weapon system specific –39 TOs are maintained at required levels to support ABDR requirements.

**18.8. The Allied Command Europe (ACE) Aircraft Cross-Servicing (ACS) Program (AMPLE GAIN).** This section translates ACE ACS general procedures found in NATO Standardization Agreement (STANAG) 3430, *Responsibilities for Aircraft Cross-Servicing*; STANAG 3812*, Responsibilities for Aircraft Cross-Servicing Ground Crew Training*; ACE Directives 80-53*, ACE Aircraft Cross-Servicing Program*; and ACE Directive 80-54, *Exercise Ample Gain and Ample Train Planning Directive*. This section also represents the initial appearance of policy and procedures for implementing and managing the ACS program. The ACS program applies only to specifically tasked units identified in the SHAPE OPS-60.

18.8.1. ACS Program Objectives.

18.8.1.1. Promote standardized procedures at NATO bases on NATO tactical aircraft.

18.8.1.2. Training and exercising of host base support personnel and facilities in the area of aircraft recovery, physical protection, and NBC decontamination for aircraft and aircrews (if required).

18.8.1.3. Reconnaissance download and exploitation, intelligence debriefing, aircraft turnaround, re-tasking, mission planning, reconnaissance preparation, and re-launch.

18.8.1.4. Improving operational capability by promoting closer international relations.

18.8.1.5. Exercising the NATO command and control system.

18.8.2. Terms and Definitions. The following are standard terms used in the program:

18.8.2.1. Operational Aircraft Cross-Servicing Requirement (OACSR). An OACSR is defined as having an official commitment to cross-service another nation's aircraft or receive cross-servicing at a NATO host base. The SHAPE OPS-60 contains specific OACSR information. Participating units with OACSRs support the ACS program by establishing and maintaining proficiency in Stage A cross-servicing, as required.

18.8.2.2. Aircraft Cross-Servicing. Services performed on an aircraft by an organization other than that to which the aircraft is assigned, according to an established OACSR, and for which there may be a charge.

18.8.2.3. Host Base. This term refers to any US or NATO base that provides servicing to aircraft other than those permanently assigned. The host base provides facilities, maintenance, trained ground crews, fluids, fuels, etc., as needed to complete an ACS mission. Methods of payment and replacement are discussed in STANAG 3113.

18.8.2.4. Home Base. The US or NATO base to which an aircraft is permanently assigned. Home bases are not required to preposition equipment or supplies at host bases.

18.8.2.5. Stage A Cross-Servicing. The servicing of an aircraft on an aerodrome or ship, which enables the aircraft to be flown on another mission, without change to the weapons configuration. The servicing includes the installation and removal of weapon system safety devices, refueling,

replenishment of fluids and gases, deceleration chutes, starting devices (cartridges) and ground handling. Tasked wings establish Stage A capability within operations squadrons.

18.8.2.6. Stage C cross servicing is the service provided to enable an aircraft to continue its mission to its final destination. The servicing includes marshalling, safe handling and making safe of weapons, chaff and flares. The aircrew of the visiting aircraft is responsible for Stage C servicing performed on the aircraft. This stage is not for the purpose of performing inspections, such as thru flights, but rather focusing on the proper safeing and ground servicing of an aircraft.

18.8.3. Program Management Responsibilities.

18.8.3.1. The GP/CC designates a cross servicing manager (CSM) to administer day-to-day pro-gram requirements. Other base agencies, as required, will be appointed as OCRs. These include aircraft maintenance squadrons, LRS, POL, and MTF. As outlined in ACE Directive 80-53, there's no requirement to exercise Stage A capabilities during peacetime. However, in times of tension and crises, Stage A may be re-established IAW regional contingency operational plans. The maximum flexibility for air operations is achieved if Stage C for tactical aircraft is available. Stage C is the minimum level of ACS that is to be provided at an air base designated with an OACSR.

18.8.3.2. The CSM ensures the wing develops and maintains the capability to perform ACS tasks and monitors and schedules ACS ground crew training. Additionally, the CSM fulfills their responsibilities by:

18.8.3.2.1. Facilitating US Customs and security checks for visiting NATO aircrew members, and informs appropriate headquarters DOTO of problems affecting base capabilities.

18.8.3.2.2. Ensuring the required support equipment and supplies (including deceleration chutes) are available for visiting ACS aircraft. The CSM should make it known to host bases if the base cannot repack or store deceleration chutes.

18.8.3.2.3. Coordinating parking areas for incoming aircraft and notifying home base ACS crews of parking locations.

18.8.3.2.4. Obtaining and distributing ACS guides and other technical data required to service tasked aircraft. The CSM must work at the lowest decision-making level possible within the ACS program by establishing good rapport with their NATO squadron or flight counterparts at host bases. Technical orders, ACS guides, and POCs are listed in SHAPE OPS-60.

18.8.3.2.5. Developing and sending an "EXAG Host Base Message" within 5 duty days after completion of Ample Gain missions. Message format is in ACE Directive 80-54. *NOTE*: Transmit ACS routine messages "US UNCLASSIFIED". Information on unit ACS capabilities or ACS deficiencies will be classified as "US CONFIDENTIAL". Consult with unit security managers for specific guidance.

18.8.3.2.6. Developing and issuing training certificates to present to NATO ground crews that receive training at the base. Maintenance Operations (MOO/SUPT) and the ACS certifier shall sign and date the certificate. Certificates are not required for familiarization training. US crews visiting NATO bases for training should request a certificate when they complete training. Keep certificates in the AF Form 623.

18.8.3.2.7. Operations squadrons/AMXS/MXS (or EMS and CMS), as directed by the GP/CC (based on ACS requirements) establish ACS Stage A and C crews. Stage A and C ACS crew normally consists of two aircraft crew chiefs. Squadron ACS crews are trained to perform Stage A on specific NATO aircraft for which the base has an OACSR. Each squadron should establish a minimum of two ACS crews. Any duty position qualified crew chief can train NATO personnel on Stage A and C for USAF aircraft.

18.8.3.2.8. The OSS OCR coordinates pilot and aircraft scheduling to exercise cross-servicing at the host bases listed in the SHAPE OPS-60. The OSS fulfills these responsibilities by:

18.8.3.2.8.1. Scheduling missions on normal working days. Do not schedule on host base national holidays. Reschedule and complete aborted or canceled missions within the calendar quarter.

18.8.3.2.8.2. Transmitting a priority "EXAG Flight Confirmation" message to the host base 72 hours prior to scheduled take-off time. This allows the base to schedule ACS crew training or request another date; telephone confirmation is recommended. Host base POCs are listed in SHAPE OPS-60; message format is in ACE Directive 80-54.

18.8.3.2.8.3. Maintaining a continuity file or folder concerning host base problems previously encountered by US pilots and recommended solutions.

18.8.3.2.8.4. Insuring US pilots submit an "EXAG Mission Pilot Report" for each AG mission no later than 5 days after mission completion; message format is in ACE Directive 80-54.

18.8.3.2.8.5. Coordinating requirements with the ACS host base.

18.8.3.2.8.6. Designating AG qualifications for pilots. As a minimum:

18.8.3.2.8.6.1. Confirm NOTAM and national flight information prior to each mission. Include the phrase "Exercise Ample Gain" in the flight plan remarks section.

18.8.3.3. Pilots are encouraged to participate as exercise targets for national air defense systems. Include the phrase "Exercise Ample Gain Embellish Yes, Pass to Air Defense" in the flight plan remarks section. Pilots also:

18.8.3.3.1. The CSM ensures the pilot is briefed on requirements and what to expect at the host base.

18.8.3.3.2. Pass the AG mission number to the respective control agency upon initial radio contact.

18.8.3.3.3. Supervise host base ground crews and insure proper technical data is used.

18.8.3.3.4. Accomplish AG turn requirements prior to making "remain overnight" (RON) arrangements.

18.8.3.3.5. Carry US military ID card during all ACS missions.

18.8.3.3.6. Respond to the appropriate alarm conditions while visiting the base.

18.8.3.3.7. Report for re-tasking and keep the command post informed of current location and phone number.

18.8.3.3.8. Accept the aircraft from the host load crew once loading is complete.

18.8.3.4. The appropriate headquarters DOTO is the OPR for executing participation in the ACE ACS program. This responsibility is fulfilled by:

18.8.3.4.1. Determining OACSR tasking, including changes in basing and changes to aircraft and munitions. These changes are addressed to the appropriate NATO operational commander for approval.

18.8.3.4.2. Maintaining liaison with NATO member headquarters staffs and SHAPE concerning ACS actions, and monitoring their progress in implementing objectives.

18.8.3.4.3. Tasking units by transmitting semiannual message or amendments to the Combined Tasking Schedule to exercise ACS capability and forecast semiannual exercise Ample Train (EXAT) participation. EXATs are normally held in the early summer and fall of each calendar year, and rotate between southern and central regions.

18.8.3.4.4. Obtaining and distributing ACS publications, as required.

18.8.3.4.5. Establishing ACS budget requirements in coordination with budget program element managers, and authorizing and monitoring expenditures.

18.8.3.4.6. Processing payment and collection vouchers (STANAG 3113 or other bilateral agreements), as required.

18.8.3.5. Headquarters USAFE/LGMM is the OPR for Stage A ACS. The headquarters USAFE/LGMM ACS program manager fulfills this responsibility by:

18.8.3.5.1. Resolving problems between wing CSM and NATO units. This includes sharing technical manuals and acquisition of supplies and equipment.

18.8.3.5.2. Coordinating and scheduling participating wing personnel for Exercise Ample Train (EXAT) events.

18.8.3.5.3. Monitoring day-to-day activities of units participation in the ACS program.

18.8.3.5.4. Recommending OACSR changes based on manpower and force structure changes.

18.8.4. ACS Training Documentation and Certification. Consult STANAG 3812 for complete information and requirements, documentation guidance, and examples of training forms. Personnel may need to go TDY to a host base to complete familiarization training on another nation's aircraft. Certification of ACS personnel can take place during scheduled AG sorties. The CSMs ensures all opportunities for training are exploited by unit ACS by requesting attendance at EXAT events. Schedule EXAT participation through headquarters USAFE DOT & LGM.

18.8.4.1. Document training as according to STANAG 3812.

18.8.4.2. Requested Training. Initial training is requested from the host base if no certifiers for the OACSR MDS are available. Request training by sending an official message to the host base, with information copies to the national headquarters of the coordinating nations and the Supreme Headquarters Allied Powers in Europe (SHAPE). Samples are provided in Annex B to ACE Directive 80-54. At the completion or cancellation of training, send a message to all of the identified addressees.

18.8.4.2.1. Initial Training. Initial training normally follows a session dedicated to familiarization on a newly tasked aircraft. Either ACS personnel from the host nation or certifiers from the US home base provide initial training at either the host or the home base. The nation own-

ing the aircraft determines the duration (normally three business days) and content of initial training. Use established technical orders to conduct all training on US aircraft.

18.8.4.2.2. Proficiency Training. Once a cross-servicing technician is certified (see initial training), initiate proficiency training no later than the end of the 6th calendar month following the month of certification. The certifier determines the scope of proficiency training. Certification is valid for 180 days.

18.8.4.2.3. Revalidation Training. Revalidation training is conducted with an individual whose training or proficiency has lapsed. Revalidation training is conducted under direct supervision of authorized certifying officials.

18.8.4.2.4. Recertification Training. Stage A and C certifiers for non-US aircraft must receive annual recertification from the home base certifiers. Technicians are qualified to train and certify NATO personnel based on duty position and task qualification.

18.8.4.2.4.1. Aircraft Declared Identical for ACS. ACS crews certified on aircraft declared "identical" do not need to recertify if their home base owns the MDS. The SHAPE OPS-60 lists identical aircraft agreements. Consult STANAG 7028 for details.

18.8.5. Hosting ACS.

18.8.5.1. Training. Wings perform host base duties for ACS ground crew familiarization training when requested by headquarters USAFE DOT/LGM. This training is for NATO nations and is conducted on the assigned US aircraft. Occasionally, NATO personnel arrive for training who have never visited a US base; units must guard against assuming these visitors know and understand US procedures, safety standards, and security prohibitions. Appoint a project officer or NCO (normally the wing CSM) for visit preparations. The project officer or NCO:

18.8.5.1.1. Prepares the invitation message and assures its transmission at least 3 weeks prior to the visit date. The message format is in ACE Directive 80-53.

18.8.5.1.2. Arranges billeting, messing and transportation, as required. Meet the visiting personnel upon arrival.

18.8.5.1.3. Ensures each visitor has the project officer or NCO's office symbol, and home and duty phone numbers. Explain to the visitors who they should contact if any problems arise during the visit. Since language barriers may exist, consider developing a wallet-sized card with POC information for the visitors to carry.

18.8.5.1.4. Closely monitors the visit.

## 18.9. Aircraft Inlet/Exhaust Certification.

18.9.1. This program is applicable to aircraft with ducted intakes (e.g. F16/F15/B1/B2/F117/F22 etc.). MAJCOMs may direct this program to apply to other MDSs. A ducted intake is one that requires personnel to crawl into the intake to accomplish inspection requirements. This program requires affected units to have a comprehensive training program that will ensure minimum standards are met, and proficiency is maintained. The number of individuals authorized to perform engine intake/inlet/exhaust inspections should be sufficient to meet mission requirements and production needs, and ensure competency through regular performance.

18.9.1. (ANG) F-16/F-15 Aircraft Intake Inspections. An engine intake inspection is required between all sorties. If this can not be accomplished while aircraft are off station, and no qualified personnel are available to perform the inspection, the aircrew must document in the AFTO Form 781A, on a Red Dash, that the Preflight, Post Flight, or Thru Flight inspection is overdue, and the reason for non-accomplishment (no tech data, no qualified personnel, etc.). The MXG/CC shall determine in an OI if intake inspections are required after each engine operation (i.e., taxi, INS alignment, sortie cancellation, abort, etc.)

18.9.2. Responsibilities and Management. The Maintenance Training Flight (MTF)/Training Detachments (TD), in coordination with SMEs, will be responsible for development and management of the wing engine inlet/exhaust inspection training program. Group commanders will appoint maintenance personnel, or Training Detachment (TD) instructors and certifiers in writing and tracked on the SCR. *NOTE*: AFETS/CETS may be used as alternate instructors.

18.9.3. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1X 5, 7, and 9 skill-level technicians or civilian equivalents may perform these inspections.

18.9.4. Formal Training. MTF/TD in coordination with the SME will develop and manage training. As a minimum, courses will include care and handling of the equipment, all applicable tech data, FOD prevention, inspection criteria, fault isolation/damage assessment, and performance of an actual engine intake/inlet/exhaust inspection. Training is designed to train aircraft maintenance personnel on techniques required to inspect engine intakes, inlets and exhausts. Prior to placement on the Special Certification Roster for engine intake/inlet/exhaust inspection formal training and certification (MTF or TD course) is mandatory.

18.9.4. (ANG) Training should be conducted on an uninstalled engine to better familiarize each student with engine forward section components.

18.9.4.1. MTF/TD will develop course codes in MIS to track training and certification.

18.9.5. Certification Criteria. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3X) AFSC (Aircraft Maintenance 2A5X1X and Helicopter Maintenance 2A5X2, or Engine AFETS/CETS if applicable) . Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other

18.9.5. (ANG) CETS must not be used to certify.

18.9.5.1. Annual Recertification. Each certified technician is required to be recertified annually by a certifying official. This is accomplished by having the technician demonstrate that they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official.

18.9.6. (Added-ANG) QA shall evaluate engine intake/exhaust inspections as part of the MSEP.

## 18.10. Aircraft Structural Integrity Program (ASIP) and Related Programs.

18.10.1. The aircraft structural integrity and flight loads data recording/individual aircraft tracking programs are established by applicable TOs, and AFI 63-1001, Aircraft Structural Integrity Program, and require coordinated action by a number of base level maintenance activities. An effective struc-

tural data collection program is essential to establish, assess and support inspections, maintenance activities, repairs and modification/replacement actions required.

18.10.2. The group commander ensures an effective local aircraft structural integrity program (ASIP) is established, appoints an officer or NCO as the unit ASIP project officer, and ensures effective measures are in place to capture ASIP data.

18.10.3. The group ASIP project officer will:

18.10.3.1. Act as OPR for a local ASIP directive. As a minimum, the directive will address the following:

18.10.3.1.1. Identification of maintenance activities responsible for changing and submitting storage media.

18.10.3.1.2. Requirements for appointment of flight or section ASIP monitors.

18.10.3.1.3. Procedures to support ASIP equipped aircraft at deployed locations.

18.10.3.1.4. ASIP training requirements, method of documentation, and responsibility for providing training to technicians responsible for maintaining ASIP systems, changing tapes, and to debrief personnel.

18.10.3.1.5. Review ASIP correspondence and ensure requests for action receives prompt attention.

18.10.4. Coordinate supply support of the ASIP program.

18.10.5. Ensure maintenance activities are changing and submitting tapes in a timely manner and ASIP data is being properly recorded during aircraft debriefing.

18.10.6. Maintenance activities responsible for maintaining ASIP systems/changing tapes will:

18.10.6.1. Change and submit tapes as required.

18.10.6.2. Maintain records of tape changes and submissions by aircraft tail number showing the recorder serial number, tape installation date, tape removal date, and date the tape was shipped.

18.10.6.3. Coordinate with appropriate production supervisors to cannibalize ASIP related parts.

18.10.6.4. Inform the group ASIP project officer of backordered parts with unacceptable delivery dates, difficulties in acquiring tapes, etc.

18.10.6.5. AMU (MOF in MAF units) PS&D sections will ensure ASIP equipped aircraft are identified as such in weekly schedules and that the jacket files for these aircraft are clearly marked to show ASIP equipment is installed.

18.10.6.6. Maintenance debriefers will ensure that appropriate ASIP documents are available at the debriefing location and that ASIP data is gathered for each sortie flown by ASIP equipped aircraft.

18.10.7. Periodic Inspection Dock Chief Responsibilities.

18.10.7.1. Establish, maintain and periodically review for accuracy an ASIP inspection list documenting each aircraft's inspections. Ensure the inspection list is annotated as the inspections are completed.

18.10.7.2. Establish preprinted dock worksheets with the required inspections, and ensure that the individuals responsible for the inspection sign off their work once completed.

18.10.7.3. Ensure that the ASIP inspections are required for each periodic inspection input so that erroneous/unnecessary inspections are not accomplished

18.10.7.4. Ensure all ASIP inspections are complied with prior to closing out the periodic inspection.

18.10.7.5. Coordinate all required ASIP inspections with the NDI and Sheet Metal Supervisors.

18.10.7.6. Periodically review the periodic inspection work cards for latest revisions and accuracy.

18.10.8. MOF Plans, Scheduling and Documentation (PS&D) Responsibilities.

18.10.8.1. Establish procedures and ensure that ASIP special inspections are properly loaded in the appropriate Maintenance Information System, and scheduled for all assigned aircraft.

18.10.8.1.1. Notify MAJCOM in the event a special ASIP inspection has not been loaded into MIS, and request the programmer to create the master record.

18.10.8.2. Maintain and ensure the accuracy of the ISO count number and the ISO inspection number for all assigned aircraft.

18.10.8.3. Monitor and ensure that a master record is created for each aircraft assigned.

**18.11. Flexible Borescope Inspection Training and Certification Program.**

**18.11. (ANG)** Also Rigid Borescope.

18.11.1. General. All units maintaining engines with a TO requirement to use a flexible borescope, and those that do not have a TO requirement to use a flexible borescope but do so to enhance inspections, will have a comprehensive training program established. The purpose of the program is to ensure proper care of equipment, minimum standards are met, and standardization and proficiency. The following requirements do not apply to units that do not require or use the flexible borescope.

18.11.1. (ANG) General. All units maintaining engines/helicopter gear boxes with a TO requirement to use a borescope, and those that do not have a TO requirement to use a borescope but do so to enhance inspections, must have a comprehensive training program established.

18.11.2. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1X, 5, 7, and 9 levels or civilian equivalent may perform flexible borescope inspections.

18.11.3. Formal Training. MTF/Training Detachments (TD) will develop and manage training. Group commanders or designated representative will select maintenance instructors or AETC TD instructors to provide training, (AFETS may be used as alternate instructors). As a minimum, courses will include care and handling of the equipment, port location, all applicable tech data, fault isolation/damage assessment/defect size determination, and performance of an actual engine borescope.

18.11.3. (ANG) Maintenance training, in coordination with SMEs shall develop and manage training. Roving Reps/CETS may be used as alternate instructors.

18.11.4. Certification Criteria. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), or Aircraft Maintenance (2A3X3) AFSC (Aircraft Maintenance 2A5X1X and

Helicopter Maintenance 2A5X2,or Propulsion AFETS if applicable) designated by group commander and tracked in the SCR. The number of certifying officials will be limited to the amount needed to meet certification requirements and mission demands. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR.

***NOTE:*** If applicable, assigned AFETS should be used to certify other certifying officials.

18.11.4. (ANG) Engine CETS and Roving Reps shall train certifiers; however, the certifying officials must be certified by the MXG/CC. Certifying officials shall then train and certify the remaining qualified personnel. Units that do not have practical access to CETS or Roving Reps, the unit certifier shall complete the local training course and be appointed by the MXG/CC, based on their technical expertise, knowledge, and experience on the engine.

18.11.5. Documentation. After completing formal training, the instructor signs off the individual's AF Form 623. Upon certification, personnel are placed and tracked on the SCR. Ensure that all borescope inspections are loaded against the engine and not the aircraft.

18.11.5. (ANG) The 120-day proficiency shall be tracked through MIS or a locally developed method by the workcenter supervisor or designated representative.

18.11.6. MTF will develop course codes in MIS to track the following:

18.11.6.1. Formal training borescope course.

18.11.6.2. Initial borescope certification.

18.11.6.3. The following requirements are mandatory for CAF type aircraft. MAJCOMs will determine which of the following apply to MAF type aircraft:

18.11.6.3.1. 120 day proficiency requirement (if applicable).

18.11.6.3.1. (ANG) 120 day proficiency requirement is applicable.

18.11.6.3.2. 180 day proficiency requirement (if applicable).

18.11.6.3.2. (ANG) N/A to the ANG.

18.11.6.3.3. Annual recertification.

18.11.7. Proficiency Requirements. As a minimum, personnel bound by TO requirements for flexible borescope inspections must perform one flexible borescope inspection every 120 days to maintain proficiency. Work center supervisors ensure personnel who do not meet minimum requirement are decertified. In addition, personnel who have an on-condition flexible borescope requirement or units who do not have a TO requirement but choose to use a flexible borescope to enhance their inspections must perform one flexible borescope inspection every 180 days.

18.11.8. Annual Recertification. Each borescope-qualified technician is required to be recertified yearly by a certifying official. This is accomplished by having technicians demonstrate proper inspection requirements, as well as, use and care of equipment.

**18.12. Engine Blade Blending Training and Certification Program.**

18.12.1. General. This program requires all units to have a comprehensive training program that will ensure minimum standards are met, and proficiency is maintained. The number of individuals authorized to inspect and repair blades should be sufficient to meet mission requirements and production needs. Additionally, this program will ensure competency through regular performance.

18.12.1. (ANG) **EXCEPTION** : T56/T64/T400/T700 units shall have a training program for blade blending, but are not required to maintain proficiency.

18.12.2. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1X, 5, 7, and 9 levels or civilian equivalent may perform blade blend inspections and repairs.

18.12.3. Responsibilities and Management. The Maintenance Training Flight (MTF) or Training Detachment (TD) will be responsible for management and development of the wing blade blending training program. As a minimum, course will include care and handling of the equipment, all applicable tech data, fault isolation/damage assessment/defect size determination, and performance of an actual engine blade blend. Training is designed to train aircraft maintenance personnel on techniques required to correctly inspect and repair blades. Prior to placement on the Special Certification Roster for blade blending and certification the formal blade blending training (MTF or TD course) and initial engine blade blending certification is mandatory.

18.12.3. (ANG) Maintenance training, in coordination with SMEs or TD shall be responsible for management and development of the blade blending training program.

18.12.4. Group commanders shall select maintenance instructors, FTD instructors, or AFETS to provide training. MTF shall develop course codes in MIS to track the following:

18.12.4. (ANG) MXG/CC shall select maintenance instructors, engine CETS or Roving Reps to provide training.

18.12.4.1. Formal training, engine blade blending course.

18.12.4.2. Initial engine blade blending certification.

18.12.4.3. Annual engine blade blending certification.

18.12.4.4. 180-day engine blade blending proficiency requirement as required in paragraph **18.12.6.**

18.12.5. Certification Criteria. Certifying officials will be the most qualified 7- or 9-level Aerospace Propulsion (2A6X1X), Aircraft Maintenance (2A3X3X) AFSC (Aircraft Maintenance 2A5X1X and Helicopter Maintenance 2A5X2 or AFETS if applicable) designated by the Group Commander and tracked in the SCR. Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other.

***NOTE:*** If applicable, assigned AFETS should be used to certify other certifying officials. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR.

18.12.5. (ANG) After receiving training by engine CETS/Roving Representatives and having performed a blade blending demonstration, certifying officials must be certified by the MXG/CC.

18.12.6. Proficiency Requirements. As a minimum, B-1, B-2, F-15, F-16, F-117, U-2, personnel must perform one blend repair every 180 days to maintain proficiency. Work center supervisors ensure per-

sonnel who do not meet this requirement are decertified. Ensure all blade blend repairs accomplished on installed engines are loaded against the engine and not the aircraft.

18.12.7. Annual Recertification. Each qualified technician must be recertified annually by a certifying official. This is accomplished by having the technician demonstrate that they can perform the task. A QA PE may be used to satisfy this requirement.

18.12.8. F-15 and F-16 engine blade blending technicians and certifiers require annual recertification. Technicians and certifiers will attend the blade blending inspection course, and be re-certified by a certifying official. Annual formal training is not required for AFETS, maintenance instructors, or TD instructors who have conducted at least one course during a 180-day period.

***NOTE:*** Procedures apply to maintenance performed on either installed or removed engines. (See TO 00-20-1, Aerospace Equipment Maintenance General Policies and Procedures, for documentation guidance).

18.12.9. Blade Blending Documentation Procedures: Blade blending procedures for installed engines:

18.12.9.1. Notify the Wing FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 (automated or manual) and Comprehensive Engine Management System (CEMS), IAW TO 00-20-1.

18.12.9.2. Notify Engine Management Section with the following information for input into engine historical records; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number of maintenance personnel.

18.12.10. Blade blending procedures for uninstalled engines/modules:

18.12.10.1. Notify Wing FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 (automated or manual) and CEMS IAW TO 00-20-1.

18.12.10.2. Fill out Blade Blending/FOD Damage worksheet or applicable form; file in engine/module work package.

18.12.10.3. Engine Management Section document following information for input into engine historical records; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number of maintenance personnel.

18.12.11. (Added-ANG) Personnel who become decertified must receive initial training and exhibit proficiency before being placed back on the SCR.

**18.13. End-of-Runway (EOR) Inspection.**

18.13.1. The EOR inspection is a final visual and/or operational check of designated aircraft systems and components. It applies to aircraft designated in joint agreement between the MAJCOMs and appropriate SM. The SM will list minimum inspection requirements in the applicable -6 and publish in a work card deck.

18.13.2. This inspection is performed immediately prior to take-off at a designated location usually near the end of the runway.

18.13.3. The purpose of the inspection is to detect critical defects that may have developed or have become apparent during ground operation of the aircraft after departing the aircraft parking spot.

18.13.4. Perform this inspection when any applicable aircraft is launched from either home station or a transient USAF base.

18.13.4.1. Alert aircraft launched from alert status for actual Alert, Alert Force Evaluations (AFE), or from sector directed scrambles do not require an EOR inspection. Alert aircraft that launch for training or scheduled missions from alert status require an EOR inspection.

18.13.5. If local requirements dictate, publish additional guidance to technical orders for the inspection in accordance with TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, and TO 00-5-1. Groups must insure standardization by MDSs.

***NOTE:*** Safing, arming, and de-arming of live munitions will be accomplished by personnel qualified IAW **Chapter 16** of this instruction.

18.13.6. The team chief (identified by a reflective vest) carries an EOR checklist and ensures each item is inspected as required. On aircraft with a ground intercom system, units are only required to establish verbal communications with the pilot when communication beyond the standard EOR marshalling hand signals is required. If the aircraft is not equipped with a ground intercom system, ground control talker cards will be used when communication with the aircrew becomes necessary.

18.13.7. Marshaling signals will be IAW AFI 11-218, *Aircraft Operation and Movement on the Ground*.

18.13.8. Units will develop procedures to ensure discrepancies discovered during the EOR are entered in the AFTO Forms 781A and MIS.

**18.14. Flash Blindness Protective Device.**

18.14.1. Flash Blindness Protective Device Maintenance Program. This program standardizes procedures for cleaning, repairing, installing, inspecting, storing, packaging, and sealing of flash blindness protective devices (e.g. shields, thermal curtains and thermal radiation barriers), on applicable aircraft. The MXG/CC is responsible for ensuring effective aircraft thermal protective device maintenance is accomplished according to applicable aircraft technical manuals, maintenance directives, and the requirements of this section. Aircraft flash blindness protective devices/shields are maintained serviceable to provide optimum nuclear thermal/radiation protection to the aircrew during EWO/SIOP conditions.

18.14.2. Aircraft Support Section Responsibilities.

18.14.2.1. The flight commander or chief ensures aircraft thermal protective devices, shields, and associated hardware are maintained according to aircraft technical orders and approved maintenance manuals, maintenance instructions, and this publication.

18.14.2.2. Each flight or section establishes an adequate and effective training program to train and qualify individuals to install, inspect, and when required, seal aircraft thermal protective devices and shields.

***NOTE:*** Units are authorized and encouraged to maintain sufficient condemned thermal curtains to allow maintenance and crew personnel installation practice without using serviceable curtains. Thermal curtains designated for training are plainly labeled "FOR TRAINING ONLY" to preclude inadvertent use for alert

or SIOP/TNO/EWO purposes. Thermal curtains designated for training use are controlled by the flight chief; however, curtains may be furnished to, and retained by, squadrons for classroom purposes.

18.14.3. Do not store training curtains aboard aircraft. Use of training thermal curtains is encouraged during NAF and local generations.

18.14.4. Do not seal thermal-protective devices and shields on a routine basis unless dictated by specific aircraft tech data. However, when operational requirements dictate, crew chiefs may perform this task using the lead-seal-crimping tool. Modify lead-seal crimping tools to reflect the unit numerical code (e.g., Minot-5, Mildenhall-100, Kadena-18) which is reflected on the lead seal after crimping. *NOTE*: Control and account for lead-seal crimping tools according to CTK procedures (**Chapter 13**) and approved aircraft manuals.

18.14.5. Fabrication Flight Responsibilities.

18.14.5.1. The fabrication flight chief ensures aircraft thermal-protective devices and shields are repaired according to appropriate aircraft technical orders.

18.14.5.2. Train and task qualify fabrication and parachute technicians to inspect and repair thermal protective devices and shields.

18.14.5.3. Modify lead-seal crimping tools to reflect the unit numerical code identifier (e.g., Minot-5, Mildenhall-100, Kadena-18) which is reflected on the lead seal after crimping. Control and account for lead seal crimping tools according to CTK procedures (**Chapter 13**) and approved aircraft manuals.

18.14.6. Additional Maintenance Requirements. In addition to the inspection requirements contained in aircraft technical orders, perform the following inspection, certification, and sealing procedures:

18.14.6.1. Conduct a pre-alert inspection of all aircraft thermal-protective devices, shields, and associated hardware according to technical data. Document the pre-alert inspection in the AFTO Form 781A, with the following statement: "Thermal Protective Devices/Shields Inspection Required." During the aircraft pre-alert inspection, a qualified fabric/parachute technician (AFSC 2A7X4) or crew chief (2A5X1) assists the aircrew in accomplishing this inspection. The aircraft commander certifies the aircraft thermal protective devices and shields for alert. Upon certification acceptance, the crew chief signs the "Corrected By" block of the AFTO Form 781A entry, and the aircraft commander signs the "Inspected By" block. *NOTE*: These provisions apply during SIOP generations.

18.14.6.1.1. Pre-deployment inspections are not required once the aircraft thermal-protective devices and shields are inspected and sealed with a seal displaying the installation identifier. However, prior to deployment, inspect the thermal-protective device and shield seals and re-inspect and reseal seals that are broken or not intact.

18.14.6.2. Perform the following sealing procedures on alert aircraft:

18.14.6.2.1. All aircraft thermal-protective devices and shields are sealed either in the opened or closed position or in the storage container, as appropriate, upon certification by the aircraft commander. Appropriate aircraft flight manuals specify thermal protective devices and shields that are sealed in the opened or closed position or storage container.

18.14.6.2.2. Upon aircraft alert termination, a qualified crew chief removes thermal protective devices inspects and reseals devices that are serviceable. Transport unserviceable device to the

survival equipment section for inspection and repair. Devices and shields remaining sealed are not re-inspected. Remove and seal all devices and shields in appropriate storage container, if required.

**18.15. Ground Instructional Trainer Aircraft (GITA).**

18.15.1. Permanently assigned GITA aircraft are those aircraft that are not maintained in airworthy condition. Active GITA are maintained in system/subsystem operational condition for purposes of maintenance training and normally carried in possession code TJ. Inactive GITA are aerospace vehicles either temporarily or permanently grounded for use in personnel training and normally carried in possession code TX. This section does not apply to ABDR training aircraft. ABDR training aircraft are managed by HQ AFMC/LGXC-PO. This chapter does not apply to training equipment maintained by CLS contracts administered by commands other than AETC.

18.15.2. Group Commander Responsibilities:

18.15.2.1. Owning group commanders, unit to which the GITA is assigned, will develop an instruction to define the scope of group training functions for GITA use; functional responsibility for funding, operations, maintenance, and records management.

18.15.2.2. The owning commanders are responsible for the maintenance of GITA used in support of training. Owning units that do not have organic maintenance capability will establish host tenant support agreements or memorandums of understanding assigning maintenance responsibility. GITA maintenance includes on and off equipment maintenance of active systems and subsystems and necessary actions to maintain the aerospace vehicle in a presentable condition. The commander:

18.15.2.2.1. Determines which system and subsystem are required to support the training. Consider present, future, and cross-utilization of systems when making determinations. These systems will be maintained in the same configuration as operational equipment.

18.15.2.2.2. Ensure explosive components are removed.

18.15.2.2.3. Place retained systems and subsystems not currently being used for training into extended storage per applicable technical data.

18.15.2.2.4. Ensures standard maintenance practices regarding inspection appearance, cleanliness, ground safety, and prevention of corrosion are met. Corrosion control procedures are outlined in TO 1-1-691, *Aircraft Weapons System-Cleaning and Corrosion Control*.

18.15.2.2.5. Develops and prepares inspection check sheets for use in inspecting the condition and safety of equipment before use and ensures inspections are performed. Prior-to-use inspections are conducted by the using organization employing a tailored weapon system pre/post dock checklist. Conducts periodic maintenance inspections using a tailored work deck.

18.15.2.2.6. Prepare a separate memorandum for each GITA, addressed to the appropriate ALC SM for the aircraft and informing the SM of the systems and subsystems that will be maintained in operational configuration. When changes in requirements occur, initiate a new memorandum to the SM. Provide copies of all GITA memorandums to the MAJCOM Aerospace Vehicle Distribution Officer (AVDO).

18.15.2.2.7. Ensures accurate aerospace vehicle inventory reporting according to AFI 21-103 as required for ground trainers. Aerospace vehicles used for ground trainers are exempt from status and utilization reporting.

18.15.2.2.8. Ensures accurate maintenance documentation. Document maintenance actions per 00-20 series TO. Use of MIS for GITA records management is mandatory. Owning units not having maintenance capability will establish host tenant support agreements or memorandums of understanding.

18.15.2.2.9. Ensures timely completion of TCTOs on systems designated for configuration management and proper configuration status accounting is maintained. Accomplish TCTOs on systems not designated for configuration management as required to ensure safety of operation or as directed by SM on aircraft coded as "TJ".

18.15.2.2.10. Ensures proper coordination and documentation of parts removed from training aircraft are accomplished as follows:

18.15.2.2.10.1. When an item is removed or replaced, supervisors ensure this action is documented in the AFTO 781 series forms. Include the authority for removal (message number, telecon, letters, and dates, etc.) and condition of installed/replacement items.

18.15.2.2.10.2. When the limited save list actions have been done, forward a copy of the completed list to the documentation function. This copy becomes part of the historical records. Also forward a second copy to the appropriate ALC/SM.

18.15.2.2.10.3. Identify all unserviceable components furnished by ALC in a conspicuous manner (red X or red dot system).

18.15.2.2.10.4. Ensure weight and balance handbook requirements are complied with according to TO 1-1B-50 and applicable -5 series TO.

18.15.2.2.10.5. Ensure operating and maintenance technical data are readily accessible whenever the GITA is in use or undergoing inspection.

18.15.2.2.10.6. Identify an individual to oversee GITA as an additional duty. Individual must possess the technical expertise, management skills, and leadership ability to assure quality maintenance standards of equipment condition, reliability, and safety are attained. Individual is responsible to accomplish and/ or coordinate maintenance actions for the GITA, ensure GITA documentation is accurate and complete, and be qualified to operate GITA systems and appropriate support equipment to conduct GITA maintenance.

18.15.2.3. For equipment designated as trainers, only the systems required for technical training (or those required to ensure safety or system integrity) need to be maintained. (This does not apply to "temporarily" grounded aircraft or operational equipment or systems on loan from MAJCOMs or ALCs.)

18.15.3. Technical Data Applicability:

18.15.3.1. Operational systems on GITAs will be maintained in accordance with applicable technical data. The specific policy governing the use and modification of technical data is contained in TO 00-5-1. Some systems may be operated and maintained with original contractor data because formal technical data was never issued and/or the contractor data was never assigned a TO number.

18.15.3.2. Inspection and lubrication requirements on TX coded aircraft may be adjusted to correspond with training requirements and equipment usage and to prevent over or under inspection. Additionally, where significant savings may be achieved, the commander or contract project manager (in coordination with the functional commander or director) may authorize deviations or changes to technical data requirements, including substitution of materials. In all cases, safety or design function must not be compromised.

18.15.3.3. TCTO Process. The TCTO process is outlined in this instruction, and TO 00-5-15. The QA function or other designated agency is responsible for determining applicability of TCTOs for GITAs.

18.15.4. Maintenance Documentation. Maintenance on configuration controlled or operational training GITAs will be documented in the applicable automated MIS in accordance with 00-20-series TOs.

18.15.4.1. Commanders or contract project managers will determine the documentation requirements for non-configuration controlled and non-operational training GITAs.

18.15.5. GITAs are aerospace vehicles either temporarily or permanently grounded for training. The differences are as follows:

18.15.5.1. Temporarily Grounded. Temporarily grounded aerospace vehicles are subject to recall to the active fleet and are in assignment code TJ (AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination).*

18.15.5.1.1. Only those items requested by the ALC SM will be considered for removal. If the item does not affect training and if approved by MXG/CC, the part will be removed and turned in as per ALC SM instructions.

18.15.5.1.2. Units are responsible for storing uninstalled or removed equipment that is not required for training.

18.15.5.2. Permanently Grounded. Permanently grounded aerospace vehicles are those declared excess to future operation or flying requirements by HQ USAF. Aircraft in this category will be redesignated by the addition of the prefix G to the basic MDS and identified with assignment code TX. Permanently grounded missiles retain their original MDS without a prefix. *NOTE:* Aircraft that have been terminated from the Air Force inventory per AFI 16-402 will not be reported as GITAs. Any questions about the designation of an aircraft used for training should be directed to the MAJCOM AVDO.

18.15.5.2.1. Upon assignment of a permanently grounded GITA, the SM will initiate a preliminary "save list," identifying items to be removed and turned in to supply.

18.15.5.2.2. If an item on the save list is not removed, annotate the reason for not removing it and coordinate with the applicable SM and MXG/CC. If items on the save list are required for training and an unserviceable item will suffice, units should inform the SM.

## 18.16. Land Mobile Radio Management.

18.16.1. Maintenance Communications. Reliable, redundant, and effective communications systems are essential for efficient maintenance operations. These systems should provide accurate, timely, secure, programmable frequency and jam resistant communications needed to accomplish the maintenance mission in a fully deployed isolated mode. MXG/CC designated OPR has the overall

responsibility to ensure adequate communications are available and manage the non-tactical radio program. People receive initial radio operating training before assuming duties involving radio operation AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System;* AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum Management*; and AFI 33-202, *Computer Security*. For effective flight line operation, more non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when host tenant agreements so specify. The following general guidelines apply:

18.16.2. Allowance for specific radios are shown in AS 660, *Equipment Allowances for Non-Weapon Systems Communications Requirements*, *Repair Cycle Data Listing*. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110, *USAF Supply Manual*, and AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System;* AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum Management;* and AFI 33-202, *Computer Security*.

18.16.3. A VHF/UHF radio is authorized to provide communications between aircraft and maintenance. Aircrews may relay advance status information. Coordinate procedures for use of these radio communications with operations.

**18.17. Hot and Aircraft-to-Aircraft Refueling Procedures.**

18.17.1. Hot refueling is the transfer of fuel into an aircraft having one or more engines running. Aircraft-to-aircraft ground refueling (hot or cold) procedure permits the rapid refueling of aircraft in a tactical, forward operating area and also provides a means of refueling an aircraft where appropriate fuel is not available (i.e., JP-7). The purpose of hot refueling is to reduce aircraft ground time, personnel and equipment support requirements and increase system reliability by eliminating system shut down and subsequent restart. Refer to the following sources for additional guidance: TO 00-25-172, TO 00-25-172CL-4, TO 37A9-3-11-lCL-l and AFOSH Standard 91-100. Units possessing A/OA-10, F-15, and F-16 combat coded (CC), or E-4B, and HH-60G combat support coded (CA) aircraft certified for hot/aircraft-to-aircraft refueling develop and maintain the capability to quickly and safely hot refuel those assigned aircraft. This requirement also applies to training funded (TF) units that have specific contingency taskings. This section does not apply to concurrent servicing operations used on large-frame aircraft.

18.17.2. PACAF/USAFE ONLY: MOBs must keep sites certified for hot-pit refueling even if they do not have an active program. MAJCOMs may approve waivers to this direction.

18.17.3. Prerequisites.

18.17.4. Hot/aircraft-to-aircraft refueling is not accomplished until the location, equipment requirements, and personnel qualifications are certified IAW this instruction and TO 00-25-172.

18.17.4.1. Each base fuels management flight will maintain sufficient hot refueling certified fuels specialists for each operations squadron authorized to conduct hot refueling.

18.17.4.2. Site Certification. Hot pit refueling sites must be certified in accordance with TO 00-25-172 and this instruction. The mission support group commander (MSG/CC) will appoint a base site certification team consisting of the following:

18.17.4.2. (ANG) N/A to the ANG. The following only applies to the ANG: Site Certification. Hot pit refueling sites must be certified in accordance with TO 00-25-172 and this instruction including **Table 18.2. (Added)**, Hot Refueling Training/Certification Requirements. Certification involves training a cadre of instructor personnel and approving specific hot refueling sites. After initial ANG certification, unit commanders document by position, a unit certification team to recertify existing hot refueling sites and to approve additional on-base and deployment location hot refueling sites. The base site certification team consisting of the following:

18.17.4.2.1. Field grade maintenance officer as the site certifying official.

18.17.4.2.2. Representative from Operations Support Squadron Airfield Management Office, knowledgeable of aircraft taxiways, parking ramp, and hot refuel safe distance requirements.

18.17.4.2.3. Maintenance AFSC member from MXG QA office, knowledgeable of hot/aircraft-to-aircraft refueling procedures.

18.17.4.2.4. Wing Ground Safety member, minimum SSgt 1S071 or civilian equivalent, task qualified in site certification and knowledgeable of hot/aircraft-to-aircraft refueling operations.

18.17.4.2.5. Fuels management flight member, AFSC 2F0X1.

18.17.4.2.6. Civil engineering member, AFSC 3E271 or civilian equivalent, familiar with aircraft ramp requirements for hot/aircraft-to-aircraft refueling.

18.17.4.2.7. Fire protection member, minimum AFSC 3E771 or civilian equivalent, familiar with fire protection standby requirements in TO 00-25-172 for hot/aircraft-to-aircraft refueling.

18.17.5. QA will be responsible for maintaining all hot pit/aircraft-to-aircraft site certification documentation and a master listing of all hot pit/aircraft-to-aircraft sites. QA will forward a new consolidated hot pit site certification listing to respective MAJCOMs anytime sites are added, changed, or deleted. Each unit hot/aircraft-to-aircraft-refueling site will be re-certified by a unit re-certification team, and approved by MAJCOM, when one of the following occurs:

18.17.5.1. Change in the unit MDS, or an additional MDS.

18.17.5.2. Construction of new hot/aircraft-to-aircraft refueling sites.

18.17.5.3. Change in refueling equipment.

18.17.5.4. Changes in the certified site(s) area which affect/change the previous certification.

18.17.6. Hot pit/aircraft-to-aircraft site master listing. This listing must contain the following information for all hot pit/aircraft-to-aircraft sites on that installation, and are required prior to hot pit refueling site certification:

18.17.6.1. All sites must be identified by coordinates on a map. Each facility that is within the distance identified in TO 00-25-172, must be identified as to its use/contents and its distance in feet from the refueling site/operation. Other refueling sites, aircraft parking areas, etc. also need to be identified. All distances must be shown even if a violation exists. If there are no violations, state so on the request cover letter. Procedures such as aircraft taxi routes should also be shown. Use arrows or dotted lines to show taxi directions both entry and exit. Address any restrictions to normal operations and actions required to comply with TO 00-25-172.

18.17.6.2. State the type of equipment used for hot/aircraft-to-aircraft refueling at each site, i.e., hose carts, truck, etc. Show the location of any fixed fuel pits and usual location of cart or truck if used. Identify unit-approved sites on the aircraft-parking plan. CE, QA, and the Airfield Operations maintain copies of hot refueling sites on file.

18.17.6.2. (ANG) Forward record copies to ANG/LGMM.

18.17.6.3. State whether or not all hot/aircraft-to-aircraft refueling areas comply with the quantity-distance separation requirements of AFMAN 91-201 in relation to surrounding exposed sites/potential explosion sites.

18.17.7. Hot/aircraft-to-aircraft refueling requires detailed procedures published in appropriate technical orders and unit developed checklists. Unit checklists include detailed procedures, normal and emergency, to meet requirements of the local environment.

18.17.7.1. Units forward checklists to MAJCOMs for approval.

18.17.7.1. (ANG) Unit checklists shall be reviewed by ANG/LGMM representative.

18.17.8. Units publish procedures to supplement this section and outline local requirements and additional precautions as necessary for hot/aircraft-to-aircraft refueling, including hot refueling with ordnance, when authorized, IAW TO 00-25-172.

18.17.9. AMXS with CC/TF/CA aircraft will ensure that enough qualified hot/aircraft-to-aircraft refueling crews are available to meet mission requirements. MXS, EMS or CMS maintenance personnel may be used.

18.17.10. The following listing provides questions that must be addressed as part of the site certification. This listing provides pertinent questions for the site, but is not provided as a substitute for TO 00-25-172:

18.17.10.1. Has the aircraft been System Safety Engineering Analysis (SSEA) approved for hot pit/aircraft-to-aircraft refueling?

18.17.10.2. Is adequate area provided to position the aircraft safely (evaluate ability to reposition due to wind direction)?

18.17.10.3. Is the ramp level to prevent drainage causing environmental impact? Request the fire department to dump water to verify flow if questionable.

18.17.10.4. Is the location adequate for the number of aircraft to be serviced?

18.17.10.5. Has a hot brake parking area been established?

18.17.10.6. Is there proper clearance between the hot pit area and hot brake holding area to prevent conflict?

18.17.10.7. Is there proper clearance between the hot pit and Explosive Clear Zone/Hot Cargo Pad/Airfield Clearance Zones to prevent violations of any area/zone?

18.17.10.8. Is the hot pit adequately clear of the aircraft/vehicle traffic area?

18.17.10.9. Is the hot pit and cursory check area of the ramp clear of FOD potential?

18.17.10.10. Does the location provide for rapid access of emergency equipment and egress of aircraft/equipment?

18.17.10.11. Are adequate grounding points available?

18.17.11. Hot or Aircraft-to-Aircraft-Refueling Team Members and Duties.

18.17.11.1. Pad supervisor: Responsible for overall supervision of hot/aircraft-to-aircraft refueling operations when two or more aircraft are simultaneously hot refueled on the same pad (multiple hot/aircraft-to-aircraft refueling). Individual will possess a 5-level or higher qualification in an aircraft maintenance AFSC and is hot/aircraft-to-aircraft refueling supervisor "A" member qualified or qualified aircrew member for the HH-60G aircraft. Supervisors must have full view and control of multiple hot/aircraft-to-aircraft refueling operations.

18.17.11.2. Refuel supervisor "A" member. Individual will be refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-level qualification and 1 year of flight line aircraft maintenance experience, or qualified aircrew member for the HH-60G aircraft.

18.17.11.3. Refuel crew "B" member. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and 1 year of flight line aircraft maintenance experience, or qualified aircrew member for the HH-60G aircraft.

18.17.11.4. Fuels specialist 2F0X1, "C" member. Individual will be refuel task qualified.

18.17.11.5. Additional refuel crew "D" member. Individual will be refuel task qualified, possess an aircraft maintenance AFSC, and have 1 year of flight line maintenance experience. Use "D" members as required by applicable aircraft technical data.

18.17.12. Hot refueling team members and QA certifiers/evaluators may be multi-MDS qualified when more than one weapons system is permanently assigned to a squadron. After initial certification on each MDS, personnel must update their hot refueling currency by performing hot refueling on any weapon system. Section chiefs ensure personnel maintain proficiency on each assigned MDS.

18.17.13. Conducting Hot or Aircraft-to-Aircraft Refueling Training, Certification and Documentation. [For additional information, refer also to AFI 11-235, *Forward Area Refueling Point (FARP) Operations*]. The following apply:

18.17.13.1. Conduct qualification training of hot or aircraft-to-aircraft refueling personnel in three distinct phases. Stress safety requirements, emergency procedures and equipment inspection in all three phases of training. Procedures in TO 37A9-3-11-1CL-1, TO 00-25-172, and TO 00-25-172CL-4 are taught to all team supervisors and members. Conduct phase II and III utilizing joint sessions including 2F0X1 personnel and all maintenance AFSCs. Teach training utilizing joint sessions, using both fuels (2F0X1) and maintenance AFSC instructors. MTF or QA may act as the training OPR for the program.

18.17.13.1. (ANG) The MXG/CC designates a unit OPR for hot refuel training.

**Table 18.2. (Added-ANG) Hot Refueling Training/Certification Requirements.**

| Position | Required Training | Conducted by Whom | Do What | How Often | Special Requirements |
|---|---|---|---|---|---|
| QA T/E/C | I, II, III | Qualified T/E/C or ANG Certification Team | Train Evaluate and Certify | Annually | Evaluation by QA |
| QA Augmentee T/E/C | I, II, III | QA T/E/C | Train Evaluate and Certify | Annually | Evaluation by QA |
| Hot-Pad Supervisor | I, II, III | QA T/E/C or QA Augmentee T/E/C | Supervise or Perform as "A" Member | Two Multiple Hot Refuels Annually | Annual Evaluation QA T/E/C or QA Augmentee T/E/C |
| Hot Refuel A, B, C, D Member | I, II, III | QA T/E/C or QA Augmentee T/E/C | Perform in any Qualified Position | Two Hot Refuels each 180 days, ("C" only – Annually) | Annual Evaluation QA T/E/C or QA Augmentee T/E/C |
| Decertified Hot Pad Supervisor | Repeat II, III | QA T/E/C or QA Augmentee T/E/C | Supervise or Perform, as "A" Member | Two Multiple Hot Refuels Within180 Days of Decertification | None |
| Decertified A, B, C, D Member | Repeat II, III | QA T/E/C or QA Augmentee T/E/C | Perform | Two Hot Refuels Within 180 Days of Decertification | None |
| Decertified QA T/E/C or QA Augmentee T/E/C | Repeat II, III | QA T/E/C or QA Augmentee T/E/C | Perform, Instruct, and Certify | Two Hot Refuels Within 90 Days of Decertification | Evaluation by QA |
| All other Decertified Personnel | Repeat I, II, III | ANG Certification Team | Perform | N/A | Determined Case-by-Case ANG Certification Team |

**Legend**: T/E/C - Trainer/Evaluator/Certifier

18.17.13.1.1. Phase I: "Familiarization" phase. Designated instructors familiarize trainees with applicable technical data, procedures and guidance for hot/aircraft-to-aircraft refueling. Place special emphasis on procedures for hot refueling with ordnance loaded, when authorized.

18.17.13.1.2. Phase II: "Hands-on" phase. Apply information learned in Phase I to develop in-depth knowledge and proficiency in all facets of hot/aircraft-to-aircraft refueling. Include proper operation, preventive maintenance, use of hand signals and emergency procedures.

Simulate hot or aircraft-to-aircraft refueling by performing all hot or aircraft-to-aircraft refueling tasks without aircraft engines running (cold pit). Designated instructors demonstrate tasks, require trainees to perform tasks, practice emergency procedures, critique performance and provide additional training as required.

18.17.13.1.3. Phase III: "Demonstration/Certification" phase. Actual demonstration of hot/aircraft-to-aircraft refueling under the supervision of designated certifiers with aircraft engine(s) running. Squadron Certifier, certifies individuals upon successful demonstration of hot/aircraft-to-aircraft refueling. If Phase III training has not been completed within 30 days (not applicable to ANG) of Phase II training, Phase II training must be repeated.

18.17.13.2. If required, and in coordination with QA, identify personnel as QA augmentees (squadron certifiers) to train, evaluate, and certify unit personnel. QA ensures augmentees conduct evaluations using procedures outlined in this publication, applicable aircraft technical orders and local procedures. .

18.17.13.3. HH-60 aircrew members are trained/certified IAW 58 SOW Formal School Courseware.

18.17.14. Document training for personnel performing, evaluating, supervising or instructing hot refuel operations as follows:

18.17.14.1. Document all aircraft maintenance and 2F0X1 personnel Phases I, II, and III initial training in the job qualification standard (JQS). For AFSCs where “refuel aircraft with engines operating” is not contained in the JQS, use AF Form 797 to document initial hot refuel training. Track recurring hot or aircraft-to-aircraft refueling certification in MIS.

18.17.14.2. AFSC 2F0X1 personnel use AF Form 1098, **Special Tasks Certification and Recurring Training**, to document Phases I, II, and III initial and recurring hot refuel training. Indicate multiple practical performances by placing a number before the letter in column F. File AF Form 1098 in individual’s AF Form 623.

18.17.15. Use the AF Form 2426 to add qualified hot/aircraft-to-aircraft refueling members, by position, to the unit’s SCR.

18.17.16. Proficiency, Certifying, and Decertifying Team Members. Unique requirements for hot or aircraft-to-aircraft refuel team members are outlined in MAJCOM supplements. HH-60G aircrew member currency is maintained IAW AFI 11-2HH-60V1.

## 18.18. Maintenance Recovery Team (MRT) Procedures.

18.18.1. The MXG/CC is responsible for deploying MRTs and equipment to recover aircraft at remote locations, as directed by this instruction and applicable MAJCOM procedures (see **Attachment 7** for MRT chief checksheet). Unit resources, including personnel, supplies, and equipment, will be made available to support en route aircraft recoveries. The MXG/CC may supplement this instruction and MAJCOM guidance in a local directive. The MXG/CC will:

18.18.1.1. Ensure adequate equipment resources, as authorized by applicable allowance standards (AS), are available to perform remote aircraft recoveries.

18.18.1.2. Ensure enough individuals selected for MRTs are qualified to perform and complete all anticipated tasks, including In-Process Inspections (IPI) and Red X sign-offs. Consider the experi-

ence level of the individuals you select when the need is identified to troubleshoot repeat/ recurring discrepancies, especially those that caused in-flight emergencies or involve safety of flight. The MXG/CC has the authority to grant approval for a single person to sign off his/her own work when only one individual deploys on an MRT in accordance with TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*.

18.18.1.3. Ensure sufficient numbers of personnel, across all maintenance AFSCs, have official government passports to reduce deployment limitations and ensure adequate support of MRT taskings.

18.18.1.4. Keep the MOC informed of personnel and equipment deployed in MRTs.

**18.19. Protective Aircraft Shelter (PAS) Environment.** This section outlines general policies and procedures recommended and prescribed by the system safety engineering analysis (SSEA) for peacetime operations, and expanded aircraft servicing, maintenance, and weapons loading in PAS. Guidance is provided for nose-in, nose out, and "double-stuff" using various aircraft operations and servicing.

18.19.1. Procedures and Responsibilities. Use the information in this section, MAJCOM instructions, AFOSH STD 91-100, approved technical data, TO 00-25-172, specific technical orders for aircraft servicing, equipment, and supply storage.

18.19.2. PAS Marking. Develop permanent floor plans to reflect positions for fuel truck, aircraft, chocks, equipment, personnel cubicle, dispersed weapons, etc., for each style of PAS used. When double-stuffing aircraft, use a MXG/CC-approved option for aircraft positioning.

18.19.2.1. Develop floor plans for augmentation forces and include the units procedures to this instruction.

18.19.2.2. Paint aircraft taxi lines on the shelter access pad and continue into the PAS. Paint a yellow or red safety guideline for positioning fuel vehicles, beginning 10 feet from the shelter (outside) and extending into the shelter approximately 10 feet for refueling vehicles. Paint the safety guideline on the driver's side of the vehicle, considering that the refuel vehicle will always be moved backwards into the PAS.

18.19.3. Electrical Requirements. Refer to TO 00-25-172, for second-and third-generation PAS. For first- and modified first-generation PAS, with aircraft placed on centerline in either nose-in or -out configuration, leave electrical power and wall lights on. Do not change switch position until refueling is completed. Leave wall lights and under wing lights on if these lights are explosive-proof and the PAS is equipped with an operating ventilator.

18.19.4. Liquid Oxygen Servicing. For peacetime operations, complete LOX servicing using published aircraft technical data and criteria established in TO 00-25-172.

18.19.5. Refueling/Defueling Operations. For peacetime operations, complete refuel/defuel servicing using published technical data and criteria established in TO 00-25-172. During F-15 operations, the fuel truck may be positioned into the shelter during ammunition loading with the aircraft's left engine running (nose-out configuration only), as long as no part of the fuel truck is directly in front of the F-15 gun firing line. Do not connect the fuel hose to the aircraft until the engine is shut down and the fuel truck is properly grounded to earth and aircraft.

18.19.6. Shelter Doors. Aircraft are sheltered at the end of the duty day unless otherwise directed by local policies. Do not open PAS aircraft doors until ice, snow or debris is removed from the roller

guide track and door roller path. Opening PAS aircraft doors with clogged door roller guides can cause severe damage to the door and door drive system. Ensure personnel have shelter door operating training before authorizing to operate.

18.19.6.1. Fully open all PAS doors (front and rear) when aircraft engines are operated in the PAS. Recommend painting marks on the shelter walls/floors to indicate when at the fully open position.

18.19.6.2. During real world situations when force protection measures are increased, or as directed by commanders, keep all PAS doors closed and secured to the greatest extent possible to protect critical assets.

18.19.6.3. During strike-mission weapons loading operations for local exercises and higher headquarters inspections, open PAS doors to the 10 foot mark, if applicable (depending on the style of door) while powered AGE or bomb lift vehicles are operating. If a PAS protecting critical assets is equipped with ventilation fans and a bioenvironmental survey of predetermined operations inside a PAS with the doors closed has been conducted to ensure no health hazard to personnel, then the PAS doors may be closed while powered AGE or bomb lift vehicles are operating.

18.19.6.4. During normal operations, open PAS doors as specified in wing procedures, to facilitate safety, refueling, and ventilating hazardous exhaust vapors and fumes. Additionally, open PAS doors at least 50 percent when powered AGE is operated inside. With the approval of Wing Safety, PAS doors may remain closed during periods of inclement weather provided there is no safety risk, no refueling operation, no powered AGE operation, and no hazardous vapors/fumes risk within the PAS.

18.19.7. Aircraft Engine Operation. Perform single-engine maintenance operations up to 85 percent RPM (80 percent RPM for F-15 and F-16 aircraft unless waived by MAJCOM) in the PAS if all TO requirements are fulfilled. When performing engine ground operations on the apron outside the shelter, do not direct engine exhaust into the shelter.

18.19.8. Aircraft Positioning inside the PAS. When positioning aircraft in a PAS for engine operation ensure aircraft is correctly positioned to accommodate safe operations and optimum engine performance.

18.19.9. Aircraft Winching (Hot/Cold). Cold winch (aircraft engines not running) aircraft into the shelter using the appropriate aircraft technical data. If aircraft specific technical orders do not exist, units will forward proposed cold-winching checklist to AOR MAJCOM for approval prior to implementing. Hot-winching (aircraft engines are operating) is authorized provided an SSEA has been accomplished (AFOSH STD 91-100).

18.19.9.1. Base civil engineering will set the winch configuration for the shelter based upon the primary assigned aircraft. Host units will develop a PAS maintenance program to ensure safe and efficient operations.

18.19.9.2. During any aircraft winching operation, do not permit personnel aft of the aircraft main landing gear. This is considered a danger zone due to the possibility of winch cable breakage.

18.19.10. Placement and Storage of Munitions in the PAS. Permit the placement or storage of munitions in a PAS only after carefully determining operational advantages to mission accomplishment. Site the PAS for explosives according to AFMAN 91-201, and DoD 6055.9-STD, *DoD Ammunition and Explosive Safety Standards*. Determine the amount of munitions placed in a PAS based upon

expected peacetime, exercise, and wartime taskings. In no case will the sited net explosive weight (NEW) limits be exceeded. Additional guidance on explosive compatibility, angled storage of munitions, and missile separation distances is in AFMAN 91-201, DoD 6055.9-STD, and AFI 91-112, *Safety Rules for US Strike Aircraft*.

18.19.11. In the United Kingdom, each PAS must be licensed by the Royal Air Force in addition to complying with the requirements of AFMAN 91-201, and DOD 6055.9-STD. Elsewhere, obtain host-government concurrence, if necessary, before implementation.

18.19.11.1. Before placing munitions inside a PAS, develop wing procedures to govern storage and movement operations. GP/CCs jointly coordinate on wing procedures. The security police, civil engineer, munitions flight, and weapons and explosives safety officers will assist in preparation of the wing guidance. The WG/CC and host nation commander, where applicable, will approve the procedures. Units will forward a courtesy copy of the procedures to the AOR MAJCOM. Munitions will not be positioned inside a PAS until wing procedures have been approved.

18.19.12. Conventional Munitions in the PAS. In addition to the requirements in AFMAN 91-201 and DoD 6055.9-STD, the following conditions also apply:

18.19.12.1. General purpose bombs and cluster bomb units may be stored in a PAS. Fuze limited quantities (sufficient to meet minimum wartime taskings) provided they are periodically verified as "safe" by qualified munitions personnel (AFSC 2W0XX or 2W1XX). Verify the safety of fuzed munitions as follows:

18.19.12.1.1. Upon initial delivery and positioning of munitions in PAS.

18.19.12.1.2. After every download from an aircraft.

18.19.12.1.3. When refueling with munitions positioned in PAS, provide fire protection (TO 00-25-172).

18.19.13. Maintenance Actions for Emitting Electromagnetic Radiation (EMR). Maintenance actions for emitting electromagnetic radiation (EMR) are as follows:

18.19.13.1. Do not conduct aircraft maintenance requiring antenna radiation while AGM-88 missiles are located inside the PAS or located inside another PAS that is in line with the aircraft transmitting antenna.

18.19.13.2. Comply with the safety requirements of technical data for electro-explosive devices, cluster bomb units, guided bombs, electronic fuzes, missiles, etc., to prevent detonation from EMR.

18.19.14. Security for Low-Risk and Medium-Risk Munitions. Security for low-risk and medium-risk munitions stored in PAS will be as prescribed by AFI 31-101, *The Air Force Installation Security Program*, AFI 31-209, *The Air Force Resource Protection Program* and AFI 31-201, *Security Police Standards and Procedures*.

18.19.14.1. Missiles and Munitions in the PAS. Do not place missiles or munitions inside PAS in direct line of the aircraft exhaust or within 5 feet of the PAS exhaust port opening. Place missiles in PAS on MMHE-approved missile stands (limit quantities to meet minimum wartime taskings), all up-round containers, or on munitions trailers. Establish procedures for detecting tampering with missiles positioned in a PAS. The maximum inspection interval is 7 days.

18.19.14.2. Munitions pre-positioning for one standard conventional load (SCL) of air-to-ground or air-to-air munitions can be accommodated by available floor space within every PAS. Place munitions on Y-stands, wooden dunnage, or specially designed racks. Maximum total munitions to be pre-positioned within any PAS is dependent upon the NEW restriction for that PAS. The unit's SCL governs the types of munitions pre-positioned in shelters.

18.19.14.3. Quantities of air-to-air and air-to-ground missile racks vary, depending on the type of PAS. Generally, four missile racks (eight missiles) will fit into a first generation shelter. Eight missile racks will fit into a modified first-, second-, or third-generation shelter (total 16 missiles per shelter). *NOTE*: Missile racks must possess loading adapter straps providing durable, adjustable, positive locking for holding all types of missiles. Mount these racks to a single surface (PAS wall or PAS floor; not both) within the shelter. Strap missiles down at all times.

18.19.14.4. MMHE-Approved Missile Racks. Place missiles on MMHE-approved missile racks with the nose pointing toward the rear of the shelter. Maintain missile warhead separations (see AFMAN 91-201, Chapter 5, and DoD 6055.9-STD). If missile warhead separation cannot be maintained, alternate missile positions; that is, nose-to-rear, nose-to-front. This should provide proper warhead alignment as directed by AFMAN 91-201 and DoD 6055.9-STD, and preclude any violations to sited NEW. Site missile racks as follows:

18.19.14.4.1. First Generation Shelter. Position AIM-9 racks near the aircraft wings. Position AIM-7 missiles forward of AIM-9 racks. This will enable the bomb lift truck to maneuver between the racks and the aircraft.

18.19.14.4.2. Modified First Generation. Site AIM-9 missile racks closest to the aircraft wings. The AIM-7/AIM-120 racks are sited forward of the AIM-9 racks.

18.19.14.4.3. Second and Third Generation. Site five to seven missile racks along the shelter right wall and one missile rack along the shelter left wall. Locate AIM-9 missile racks closest to the aircraft. *NOTE*: Descriptions allowing differentiation between PAS generations are in TO 00-25-172.

18.19.15. External Fuel Tank Storage. Operational, empty aircraft fuel tanks may be stored within the shelters on fuel tank racks. Ground the fuel tanks according to aircraft TOs (precedence) or TO 00-25-172. Cover fuel standpipes, and the strap down the tanks. The quantity of fuel tanks to be stored inside of a shelter depends upon the assigned MDS and the type of shelter that the aircraft is operating from.

18.19.15.1. In first-generation shelters housing F-16 aircraft, two tanks are stored inside each shelter. Store the tanks one above the other in the rear of the shelter above the aircraft winch. Variations to this configuration may be required due to individual shelter layout.

18.19.15.2. In modified first-generation shelters housing F-15 aircraft, and second and third-generation shelters housing F-15/F-16 aircraft, four external fuel tanks are stored inside each shelter. Site two tanks, one on top of the other, on sides of the shelter within the rear 25 feet of the shelter. As wingtip and horizontal stabilizer clearance is a distinct problem within the modified first-generation shelters, use care when positioning tank racks. *NOTE*: Currently, no requirement exists for A-10 fuel tank pre-positioning.

18.19.16. Collocating Nuclear and Conventional Munitions (Air Force Munitions). Peacetime collocation of conventional munitions and nuclear weapons is not permitted. This does not include aircraft

configured in an authorized strike configuration that are participating in a nuclear generation or alert operations.

18.19.17. General Use and Management of Shelters. The MXG/CC is responsible for management of aircraft shelters at bases with permanently assigned aircraft, unless otherwise stipulated in contracting arrangements. If an aircraft shelter is used for other than its designed purpose, the manpower and equipment must be designated to return each shelter to its required readiness condition prior to receiving augmenting aircraft. Electrical equipment used for quality of life purposes must be designed for Class I Division 2 requirements as specified by the National Electrical Code. Equipment not meeting these requirements may be used only if they are powered by a dedicated circuit that can be de-energized during aircraft refueling by a single Class I Division 2 switch.

**18.20. Red Ball Maintenance.**

18.20.1. The term "Red Ball" is a traditional descriptor, recognized throughout aircraft maintenance, and defines a situation requiring a sense of urgency and priority actions. "Red Ball" maintenance normally occurs two hours prior to launch and until aircrew have released the aircraft back to maintenance. The Red Ball maintenance concept is intended to prevent late takeoffs and aborts by having qualified maintenance personnel available (e.g., in a truck or standby in the shop) during launch and recovery operations to troubleshoot, isolate, and repair system malfunctions. Red Ball maintenance in no way authorizes technicians to take shortcuts or deviate from TOs, personnel safety requirements or fail to properly document the aircraft forms and MIS for completed repair actions. All "Red-X" discrepancies must be cleared from both the aircraft forms and the MIS prior to flight. Units must develop local procedures to ensure "Red-X" discrepancies discovered during time-sensitive maintenance accomplished during red ball, launch, or EOR operations are input and cleared from the forms prior to flight and the MIS is properly documented as soon as possible (local procedures should ensure all maintenance documentation is accomplished prior to flight). If aircraft status changes, an exceptional release must be re-accomplished by a certified individual upon completion of maintenance and before the aircraft is released for flight IAW TO 00-20-1. NOTE: When the MIS is down, develop procedures to ensure the appropriate documentation is completed as soon as the system is operational.

18.20.2. Red Ball Maintenance Procedures.

18.20.2.1. TOs, tools, rags, parts, unused supplies and checklists will be accounted for before the aircraft is allowed to taxi/takeoff.

18.20.2.2. Emphasis will be placed on FOD awareness/prevention during this critical maintenance operation.

18.20.3. If aircraft engines are operating, a safety observer (maintenance or aircrew member) will maintain interphone communications or in full view of the flight crew and be positioned to maintain overall surveillance of the aircraft and personnel performing maintenance.

18.20.3. (ANG) Situational awareness of high-velocity air, moveable surfaces, high-pressure fluids, electrical shock, and other specific system hazards, must be stressed to ensure personnel and equipment safety.

18.20.4. Weapons loaded aircraft will be safed IAW applicable MDS and/or weapons specific technical data.

18.20.5. (Added-ANG) Inlet and/or area inspection must be completed, as applicable, prior to start.

**18.21. Self-Inspection Program.**

18.21.1. The purpose of the unit self-inspection program is to provide commanders and supervisors a management tool to assess unit compliance with existing directives. The self-inspection program is intended to be an on-going process implemented at all organizational levels. Wings will establish standardized program guidelines and develop checklists that incorporate applicable MAJCOM checklists and checklist items from local instructions. The self-inspection program not only enables units to gauge compliance with directives, but also provides a method to assess established processes, identify deficiencies, and implement corrective measures. Continuously assessing, measuring, and improving processes serves to improve mission effectiveness and efficiency and favorably postures units for higher headquarters inspections. Refer to AFI 90-201, *Inspector General Activities*.

18.21.1. (ANG) As a minimum this must be accomplished annually and tracked in the ANG self-inspection database, when established.

18.21.1.1. Group and squadron commanders will conduct a unit self-inspection within 45 days of assuming command.

18.21.2. Program Guidelines: MAJCOMs will develop checklists to be used at the unit level. The unit self-inspection program must be tailored to the organization's structure and mission. It should provide adequate coverage of the mission, resources, training, and people programs. Items not in compliance will be categorized as "Critical" or "Non-critical." Problems identified should be categorized by mission impact and compliance with policies and efforts needed to fix problems. A feedback mechanism and reporting process will be established to ensure non-compliance items are tracked until resolved, waivered, or limiting factors (LIMFAC) are reported formally. Maintain a formal copy of approval for waivered items. Open "Critical" items will be reported to the group commander, tracked, and status updated quarterly until resolved. Open "Non-critical" items will be reported to the squadron commander, tracked, and updated quarterly until resolved.

18.21.2. (ANG) ANG C&SRLs shall be used as a minimum to establish the program. Results collected under this program shall be provided to Quality Assurance for archiving and validation.

18.21.2.1. Definition of Critical: Items identified as key result areas for successful mission accomplishment including, but not limited to, items where non-compliance would affect system reliability or result in serious injury, loss of life, excessive cost, or litigation.

18.21.2.2. Definition of Non-critical: Areas that require special vigilance and are important to the overall performance of the unit, but are not deemed "Critical." Non-compliance could result in some negative impact on mission performance or could result in injury, unnecessary cost, or possible litigation

18.21.2.3. In addition to MAJCOM checklists, use locally developed checklists tailored to specific unit requirements. AFOSH Standards contain sample checklists for unit self-inspections Use Occupational Safety and Health Act (OSHA) inspections for workplaces with civilian personnel. See AFI 91-301.

18.21.2.3. (ANG) In addition to ANG C&SRLs checklists, use locally developed checklists tailored to specific unit requirements if needed.

18.21.3. OSHA inspections of Air Force contractor operations within the 50 states and US territories are authorized. These operations are subject to the enforcement authority of federal and state safety and health officials. See AFI 91-301.

**18.22. Ramp Inspection Program.**

18.22.1. Public Law 99-661 requires a pre flight safety inspection of all internationally scheduled charter missions for the transportation of members of the armed forces departing the United States. Air Mobility Command (AMC) is lead for the DoD in the management and administration of the Ramp Inspection Program. The Ramp Inspection Program ensures all internationally charter missions receive a pre flight safety inspection as outlined in AMC Supplement 1 to AFI 21-101. HQ AMC/LGM will coordinate with other MAJCOMs as required to accomplish ramp inspections to ensure the maximum efficiency and utilization of resources. When requested by AMC, MAJCOMs will provide support to reduce the TDY and manpower impact associated with the execution of this program.

18.22.1. (ANG) ANG units shall contact AMC/LGM when a Ramp Inspection is required.

**18.23. Foreign Object Damage (FOD).** The Vice Wing Commander (CV) is responsible for ensuring an effective foreign object damage (FOD) prevention program is established. All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, AGE, engines, or components thereof will comply with FOD prevention. This section establishes minimum requirements for an effective and meaningful FOD prevention program.

18.23.1. Definition. FOD: Any damage to an aircraft engine, aircraft system, equipment or tire caused by an external foreign object which may or may not degrade the required safety and/or operational characteristic of the engine, aircraft system, or tire.

18.23.2. FOD Prevention.

18.23.2.1. While maintenance is being performed on aircraft, uninstalled engines, and AGE, openings, ports, lines, hoses, electrical connections, and ducts will be properly plugged or capped to prevent foreign objects from entering these systems.

CAUTION: **At no time will items, (e.g., aircraft forms binders, VTR tapes, checklists, etc), be placed in or on engine intakes.**

18.23.2.2. Install intake plugs, FOD strips, or tape and barrier paper (as required by technical data) prior to performing maintenance in or around engine intakes. Ensure engine inlet run-up screens and anti-personnel guards are used as required by applicable weapon system TOs.

18.23.2.3. Prior to engine start/after engine shutdown on maintenance/test cell runs and after any engine intake maintenance, each affected engine intake and exhaust will receive a FOD inspection. The FOD inspection will be documented with a Red X symbol in the applicable form (AFTO Form 781A, or AFTO Form 349). FOD inspections performed on uninstalled test cell engines will be documented on the test cell worksheet.

18.23.2.4. Engine, aircraft and seat pitot tube covers will remain installed on aircraft as close to crew show as possible, based on MDS and local MXG/CC guidance.

18.23.2.5. Use a light source of sufficient illumination to inspect the aircraft intakes and exhaust for foreign objects/damage. A pocketless, zipperless, buttonless bunny-suit, (*NOTE*: Cloth over-boots or stocking feet, boots removed, for intakes only), will be worn whenever physical entry into an aircraft intake or exhaust is required. Suits are not required to be worn if personnel do not physically enter these areas. *NOTE*: A rubber mat may be used instead of cloth over-booties, or boots removed if MDS tech data directs. When performing intake inspections while wearing a chemical ensemble, ensure all pockets are emptied and accessories removed. *NOTE*: If chemical

warfare ensemble metal zippers are exposed, cover them with any type of tape and account for the tape upon completion of the inspection.

18.23.2.6. Flashlights with clips will have the clips removed prior to use on or around aircraft, uninstalled engines, and AGE.

18.23.2.7. All maintenance production areas must have approved foreign object (FO) containers readily accessible to workers. All vehicles normally driven on the flight line must be equipped with secured and lidded FO containers and stenciled with the word "FOD" in contrasting letters no smaller than two inches. Back shops may locally manufacture small FO containers that can be used when an area collection can is not feasible. These containers must be emptied when full or once a day, whichever comes first.

18.23.2.8. Control all work order residue used on or around aircraft, uninstalled engines, and AGE.

18.23.2.9. Rag control applies to organizations and personnel performing on-equipment aircraft maintenance, jet engine maintenance, and other areas as designated by group commanders. Each unit will develop local procedures for rag accountability IAW this instruction.

18.23.2.10. All personnel will remove the AF Form 1199, **USAF Restricted Area Badge** when performing intake/exhaust inspections if they physically enter these areas. Restricted area badges will be secured with a subdued nylon/cotton cord or plastic armband. Metal insignias/badges will not be worn on the flight line. Escorts of visiting personnel will ensure that FOD prevention measures are taken.

18.23.2.11. FOD walks are mandatory to remove foreign objects from ramps, runways, and access roads; in addition vacuum/magnetic sweepers or sweeping by hand are highly encouraged to supplement FOD walks.

18.23.2.12. Each base will develop a local flight line clothing policy aimed at FOD prevention. Specific attention will be given to the wearing of hats on the flight line and the wearing of badges and passes. Climate and safety will be considered. Hats/berets will not be worn within the danger area of an operating jet engine (as defined in the applicable aircraft-specific TO. Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry that may fall off without notice, are not authorized on the flight line.

18.23.2.13. When FOD is discovered on a transient aircraft, depot input/output, or a "Queen Bee" engine, the host FOD monitor or aircrew must notify the owning organization immediately. An informational copy of the FOD report must be provided to the owning organization's safety office to ensure compliance with AFI 91-204. Aircrews must ensure proper documentation in the AFTO Form 781A has been completed.

18.23.2.14. Personal tools are not authorized on the flight line or in any maintenance area. (e.g. mini-mag flashlights, leathermans, buck knives, etc). Government tools permanently assigned to individuals or duty position (e.g. government issued headsets, flashlights, etc.) will be marked IAW with this instruction.

18.23.2.14. (ANG) No personally purchased communications devices shall be allowed on the flightline or hanger areas (cell phones, pagers, etc.).

18.23.2.15. Pilots and aircrew members must account for all equipment and personnel items after each flight and ensure that any items that become lost during flight are documented in the aircraft AFTO Form 781A. Follow the guidelines IAW this instruction for items unaccounted for after flight.

18.23.2.16. Ensure local FOD prevention programs address the elimination of foreign objects in aircraft cockpits and flight decks prior to flight.

18.23.2.17. Use extreme care during engine ground runs. Pilot, aircrew, and ground crew awareness during ground operations (i.e. taxiing and turning) is critical. Jet blast and helicopter hover power check areas must be free of debris that could cause FOD.

18.23.2.18. Ensure newly assigned structural repair technicians are trained and certified on engine intake maintenance.

18.23.2.19. Special emphasis is required for items such as: remove before flight streamer attachment, safing pin condition, hinge pin security, dust and FO prevention cover condition/security, and aircraft forms binder condition. Periodically check these types of items for FO prevention compliance. All aircraft Dash-21 equipment and covers, except weapons AME/NIE and mission specific safing gear, shall be marked with the aircraft serial number or unique identification tracking number on which they are to be installed. Weapons AME/NIE must be accounted for IAW **Chapter 13**. Weapons expediters must ensure all mission specific safing gear is controlled and accounted for to preclude loss and potential FOD.

18.23.2.20. (Added-ANG) The MXG/CC and OG/CC in coordination shall establish a lost object program.

18.23.3. Grounding wires/points:

18.23.3.1. Two allen head screws, or equivalent, will be utilized to secure cable to grounding clip. Unused screws will be removed.

18.23.3.1. (ANG) Fill screw holes with a sealant to prevent screws from backing out or as an option staking these screws in order to prevent the screw from backing out.

18.23.3.2. All grounding points will be kept clean of debris at all times and should be a high interest item for FO walks.

18.23.4. Use of magnetic bars on the flight line is optional. If used, the magnetic bars will be towed, by, or attached to selected vehicles primarily used on the flight line. Magnetic bars will be inspected and made FOD free prior to the beginning of each shift. A locally manufactured tool for removing debris from tire treads is authorized for use and will be identified to the vehicle by using the vehicle ID number.

18.23.5. Remove metal identification bands from all tubing, (except aircraft installed egress system components and cargo straps and chains that have ID tags attached), and cables on the aircraft and from cargo tie-down chains/devices prior to use around aircraft. Do not remove manufacturer installed metal identification bands from hydraulic hoses. Hydraulic lines will be marked IAW TO 42El-l-l, *Aerospace Hose Assembly.*

18.23.6. Use X-ray, borescope, and other state-of-the-art equipment to locate a foreign object in an inaccessible areas.

18.23.7. FOD Prevention Responsibilities.

18.23.7.1. The vice wing commander will be assigned as the FOD Prevention Program Manager and appoint a qualified technical sergeant (or above), or civilian equivalent, or contractor if designated by performance work statement, with at least eight years experience in the maintenance field to the position of FOD monitor and his/her name will be posted in a prominent place within the unit on a locally developed visual aid.

18.23.7.2. To effectively manage the program, the vice wing commander will:

18.23.7.2.1. Ensure unit commanders and MOO/SUPT actively support the FOD Prevention Program.

18.23.7.2.2. Provide local guidance to ensure that each FOD mishap is investigated and action taken to solve any underlying problems.

18.23.7.2.3. Review all unit FOD mishap reports and analyze the reports and other data for trends that identify areas requiring management action.

18.23.7.2.4. Coordinate FO prevention needs with the airfield manager and other agencies when construction is in progress on or near the flight line, or other areas where FOD incidents could occur.

18.23.7.2.5. Ensure that FOD prevention is part of QA inspections.

18.23.8. FOD Monitor: The location of the FOD Monitor is at the discretion of the wing CV, but is normally located within QA. The minimum responsibilities of the wing FOD monitor are to:

18.23.8.1. Inform all wing agencies of FOD hazards.

18.23.8.2. Develop wing procedures to document and perform spot checks of selected areas each week.

18.23.8.2. (ANG) Perform spot checks of selected areas monthly.

18.23.8.3. Be involved in each FOD investigation and help ensure that corrective actions are sound.

18.23.8.4. Monitor and recommend changes (as required) to FOD prevention training. Those units which have several types of aircraft assigned to them will have their own FOD prevention training incorporated into one wing training program. Ensures an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel.

18.23.8.5. Periodically inspect and report damaged pavement, flight line construction, or other hazards in or near aircraft parking ramps or taxiways to the airfield manager and monitor status to ensure timely repairs.

18.23.9. FOD Investigation and Reporting.

18.23.9.1. When suspected or confirmed FOD is discovered, the maintenance operations center (MOC) will be immediately notified. The MOC will notify QA. All aircraft sustaining FOD damage from an unknown cause will be considered for impoundment.

18.23.9.2. FOD incidents are classified as preventable and non-preventable. Only preventable FOD over $20K (parts and labor) will be chargeable. FODs are considered preventable except those listed below:

18.23.9.2.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, sand, and birds. Report this type of damage according to AFI 91-204, *Safety Investigations and Reports*. Do not include these in the FOD rates.

18.23.9.2.2. From internal engine materiel failure, as long as damage is confined to that engine.

18.23.9.2.3. Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

18.23.9.2.4. Found during depot overhaul for maximum operating time.

18.23.9.3. Additionally, the following comments concerning FOD incidents apply:

18.23.9.3.1. Engine damage caused by improper anti-ice/de-ice procedures by either flight or ground crews are considered preventable.

18.23.9.3.2. Engine damage caused by gunnery or rocket mission ricochets is considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

18.23.9.3.3. Helicopter engine damage caused by rocks, stones, wood, or other objects ingested during low hover operations are considered non-preventable, provided mission parameters were not exceeded.

18.23.9.3.3. (ANG) Report this type of damage according to AFI 91-204.

18.23.9.3.4. For FOD incidences leading to blade blending, report IAW paragraphs **18.12.9.1.** and **18.12.10.1.**

18.23.9.4. Preventable FOD incurred at test cell or on trim pad will be chargeable against the unit's rate.

18.23.9.5. Appropriate MAJCOM offices will assist in resolving any FOD issues that are questionable, i.e., preventable or non-preventable.

18.23.9.6. Wing FOD monitor will report all FOD incidents to appropriate MAJCOM FOD manager by telephone, fax or e-mail as soon as the damage is known, but no later than 24 hours after occurrence.

18.23.9.7. FOD rates are computed by MDS as follows: Number of Preventable FODs (damage exceeding $20,000) ÷ Aircraft flying hours X 10,000 = FOD rate.

18.23.9.7.1. MAJCOMs will determine command-reporting procedures.

18.23.10. FOD Prevention Committee Meeting. Wing FOD prevention committee meetings ensure the FOD prevention program is sound and meeting unit needs. The WG/CV is the committee chairperson. The MXG/CC will chair the meeting in the absence of the WG/CV. Minimum attendee representation is group commanders, director(s), commanders of units with maintenance personnel, safety, CE, Airfield Manager, and security forces. The chairperson should designate additional attendees (agencies, detachments, etc.) as required. The host base FOD prevention committee chairperson will direct/incorporate tenant units in the host unit program. Tenant units should establish their own unit FOD committee, but will still participate in the host program and comply with host program requirements. Meetings will be conducted monthly when the unit exceeds the established standard, and quar-

terly if the unit FOD rate is less than the established standard. The meeting will identify negative trends and develop action plans to resolve them. The meeting should also be used to recognize personnel making significant contributions to FOD prevention (e.g. golden bolt program, FOD poster contests, or other FOD recognition programs locally developed at each unit, etc.).

18.23.10.1. Suggested agenda items include:

18.23.10.1.1. Total number of airframe, engine, and tire FOD incidents during the reporting period. Indicate quantity and cause. Current status of all other pending incidents will be discussed.

18.23.10.1.2. Mechanical/vacuum sweeper status.

18.23.10.1.3. Review and refinement of the existing FOD prevention program.

18.23.10.1.4. New operational directives/actions established to minimize FOD.

18.23.10.1.5. Status and condition of applicable engine run-up screens.

18.23.10.1.6. Results of X-rays for FOs during engine bay inspections, acceptance inspections, and phase inspections. Maintenance trends should be discussed when an increase in FO is discovered during these X-rays.

18.23.10.1.7. Identification of potential FOD sources.

18.23.10.1.8. Lost tools/items.

18.23.10.1.9. Increased potential for FOD within the next 30-60 days.

18.23.10.1.10. Dropped objects. Pay particular attention to those that result in downstream FOD.

18.23.10.1.11. Breakdown of FOD inspections/assessments.

18.23.10.1.12. Cockpit FO or lost tool incidents.

18.23.10.1.13. Commanders comments.

18.23.11. Dropped Object Prevention (DOP) Program. A dropped object is any aircraft part, component, surface, or other item lost during aircrew operations, unless intentionally jettisoned from engine start to engine shutdown. Inadvertently released munitions or munitions released in excess of the quantity selected by the aircrew, or a multiple release, are not considered dropped objects and will be reported IAW AFI 91-204.

18.23.11.1. Responsibilities. All units, which fly, service, or maintain aircraft develop a DOP program with the following provisions:

18.23.11.1.1. MAJCOM DOP monitors or aircraft functional managers will act as OPR for all dropped object field inquiries. The Vice Wing Commander or applicable group commander who is responsible for flight line maintenance will serve as the DOP prevention program manager. The Vice Wing Commander or applicable group commander will appoint the wing DOP monitor. The wing DOP monitor may be assigned under QA.

18.23.11.2. Training. The wing DOP monitor will identify and develop training standards. Commanders will ensure all maintenance personnel involved in on-equipment maintenance receive adequate DOP training.

18.23.11.3. Prevention. Effective prevention of dropped objects starts when an aircraft door, panel, or cowling is opened for maintenance and during munitions build-up, loading, and arming. Maintenance personnel will ensure the serviceability of fasteners and the proper fit of doors, panels, connectors, etc. Place special attention on the correct length of fasteners and condition of nut plates and other securing devices. Supervisors place special emphasis on these areas during the inspection of completed maintenance actions.

18.23.11.4. Investigation. The DOP monitor will investigate each dropped object incident. Every effort is made to determine the precise cause to ensure positive corrective action is accomplished. Anytime a materiel or design deficiency is the cause, or suspected cause, a Deficiency Report will be submitted IAW TO 00-35D-54, even when an exhibit is not available. Investigation results will be distributed to each appropriate work center for inclusion in personnel training and education programs.

18.23.11.5. Reporting. Units will follow DOP reporting procedures below:

18.23.11.5.1. Initial dropped object report will be made to the MAJCOM via telephone, e-mail, or message. If it involves casualties, property damage, or if adverse publicity is likely, report IAW AFMAN 10-206, *Operational Reporting*. The wing DOP program monitor notifies the base/wing safety office of all dropped objects. Units will maintain reports for a minimum of 24 months.

18.23.11.5.1. (ANG) N/A to the ANG. The following only applies to the ANG: Dropped Object Reporting. Unit MXG/CC shall ensure maintenance personnel notify the safety office of dropped object incidents. ANG/LGMM shall maintain a database on aircraft dropped objects. Reports must be submitted via the Internet at: (**https://guardian.drc.com/home/homeLG.asp**). The unit Dropped Object Monitor is responsible for entering dropped object data into the website. This requirement is for trend and tracking information only, and is in addition to the dropped object operational reports required in AFMAN 10-206 and AFMAN 10-206/ANG Sup 1, *Operational Reporting*.

18.23.11.5.2. Follow-up formal report will be made to the MAJCOM within 3 duty days after the occurrence. The formal format will be used as listed below:

18.23.11.5.2. (ANG) N/A to the ANG. The following only applies to the ANG: Input to the ANG dropped object website must be made within five duty days after the occurrence. The following subparagraphs are included in the ANG web site.

18.23.11.5.2.1. DOP program report number (unit, year, and month, followed by sequence number -- example, 301FW-010501).

18.23.11.5.2.2. MDS.

18.23.11.5.2.3. Type mission and mission profile

18.23.11.5.2.4. Aircraft tail number.

18.23.11.5.2.5. Owning organization and base.

18.23.11.5.2.6. Origin of sortie.

18.23.11.5.2.7. Date of incident and discovery location (if different than origin of sortie).

18.23.11.5.2.8. Geographical location of object, if known

18.23.11.5.2.9. Item, noun, and description (use information from the applicable aircraft -4 series TOs).

18.23.11.5.2.10. TO, figure, and index.

18.23.11.5.2.11. Part number.

18.23.11.5.2.12. Correct work unit code (WUC) (full five-digit).

18.23.11.5.2.13. Date of last Phase, HSC and ISO inspection.

18.23.11.5.2.14. Last maintenance performed in the area and date.

18.23.11.5.2.15. Investigation findings (cause).

18.23.11.5.2.16. Costs in dollars to repair or replace as appropriate and cost in man-hours to repair.

18.23.11.5.2.17. Actions to prevent recurrence.

18.23.11.5.2.18. DRs submitted?

18.23.11.5.2.19. Unit POC information

18.23.11.5.2.20. Other pertinent information

18.23.11.5.3. Transient Aircraft. The local wing DOP monitor will be responsible to investigate dropped objects from a transient aircraft. The wing DOP monitor will provide the home station DOP monitor with sufficient data to generate a report for trending and tracking purposes.

**18.24. Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) Testing.**

18.24.1. Testing and Reporting. The MXG/CC will appoint a RWR/RTHW manager. The RWR/RTHW manager will coordinate test procedures with the wing electronic warfare combat officer (EWO) and the MXS, if applicable. The RWR/RTHW manager will ensure each AMU accomplishes the required minimum number of checks as defined below.

18.24.1.1. Every test will include a check of one signal per band and continuous wave (CW) if equipped.

18.24.1.2. Check the RWR/RTHW on all applicable aircraft prior to first sortie of the day launched on contingency missions. When an aircraft is found to have a malfunctioning RWR/RTHW system, the aircraft commander determines the course of action based on operational needs and requirements. During non-contingency missions MAJCOMs determine the frequency and requirements.

18.24.1.2. (ANG) Prior to base departure for OCONUS Missions, all deploying aircraft must perform and pass Radar Warning Receiver operational check out. When operating in contingency status, OCONUS Theater procedures for Radar Warning Receiver Testing must be followed.

**18.25. Aircraft Information Program.** The Aircraft Information Program (AIP) supports mishap investigations, Flight Operational Quality Assurance (FOQA), Reliability Centered Maintenance (RCM), Aircraft Structural Integrity Programs (ASIP), and Comprehensive Engine Trending and Diagnostics

(CETADS). AIP program is required for each weapon system IAW AFI-63-1401. Its primary goal is to balance information needs with program resources and operational considerations.

18.25.1. AIP utilizes Flight Data Recorders (FDR) as the means for gathering data to support the programs listed above. Modern digital FDRs are capable of recording hundreds of aircraft parameters for many hours. Their use is not limited to mishap investigation, but data acquisition as well.

18.25.2. FDR shall be mission essential. Actual combat deployments and Single Integrated Operational Plan (SIOP) alert are the only exceptions.

18.25.3. AFPD 63-14 requires periodic review of data collected by AIP recording devices and their associated support equipment to ensure proper operation of the recorder system(s). Applicable technical orders specify the download interval, procedures and instructions on sending data to the appropriate agency.

18.25.3.1. Aircraft with FDRs utilizing magnetic tape: make a copy of the tape and mail to the appropriate agency.

18.25.3.2. Aircraft with solid state FDRs: download data using applicable data transfer device and electronically transfer the data to the appropriate agency.

18.25.4. The group commander ensures an effective local AIP is established, appoints an officer or NCO as the AIP project officer, and ensures effective measures are in place to capture data.

18.25.5. The group AIP project officer will:

18.25.5.1. Identify maintenance activities responsible for downloading FDR and data sent to applicable agency.

18.25.5.2. Ensure flight or section AIP monitors are appointed.

18.25.5.3. Considers pre-deployment actions for deployed aircraft to ensure adequate data storage availability (magnetic tape, data cartridge, memory) in aircraft FDR.

18.25.5.4. Establish AIP training requirements for all technicians who are responsible for maintaining FDR.

18.25.5.5. Ensure training requirements are documented.

18.25.5.6. Review FDR correspondence and ensure requests for action receive prompt attention.

18.25.5.7. Coordinate supply support of the AIP program. Monitor AIP parts on order, validate document numbers, submit supply assistance letters when necessary, and ensure support equipment is available.

18.25.5.8. Ensure maintenance activities are downloading data in a timely manner.

18.25.6. Maintenance activities responsible for FDR systems will:

18.25.6.1. Download data and send to applicable agency. Back-up copies of downloaded files will be stored at the unit until confirmation of receipt from applicable agency. Include the aircraft serial number, reason for FDR download, date/location from which the FDR data was transferred/mailed, and any pertinent information.

18.25.6.2. Be familiar with aircraft special inspection requirements in applicable aircraft -6 inspection technical order for downloading FDR.

18.25.6.3. Use FDR data for troubleshooting other aircraft systems using applicable aircraft technical order (FDR with direct parameter display capability).

18.25.7. Applicable weapon system program office, MAJCOM, logistics group commander, or wing safety office may direct the download of any aircraft FDR for any reason other than mishap investigation. In case where the mishap investigation directs FDR data removal, adhere to procedures contained in AFI 91-204.

**18.26. Engine Run Training and Certification Program.**

18.26.1. A comprehensive engine run certification program will be developed and strictly enforced to prevent safety mishaps and potential loss of life. All maintenance personnel authorized to start and operate aircraft engines, auxiliary power units (APUs), and uninstalled engines will be trained and certified to operate engines at TO determined power settings. Aircraft engine motoring will only be performed by qualified engine run personnel. EXCEPTION: UH-1 maintenance personnel qualified through on-the-job training (OJT) may motor engines as long as the rotor brake will prevent the rotors from turning. The MXG/CC is responsible for ensuring the MTF develops and manages an effective engine run certification program. The following minimum requirements will be used to certify engine run personnel:

18.26.1. (ANG) Aircraft engine motoring must only be performed by qualified engine run personnel. **EXCEPTION**: HH-60 maintenance personnel qualified through OJT may motor engines as long as the rotor brake will prevent the rotors from turning. The MXG/CC is responsible for ensuring an effective engine run certification program is developed.

18.26.1.1. The MTF will serve as the OPR and focal point for the management and development of the engine run certification program, engine run certification test question bank, and written tests for their respective weapon system.

18.26.1.1. (ANG) N/A to the ANG. The following only applies to the ANG: The MXG/CC shall appoint a Unit Engine Run Program Manager, preferably within the engine shop, for the management and development of the engine run certification program. Maintenance training, in coordination with SMEs, shall administer the tests and maintain the engine run certification test question bank. Tests may be automated.

18.26.1.2. Pre-run training is designed to prepare the trainee for successful completion of initial engine-run training. It will be conducted in the trainees work center through OJT. As a minimum, pre-run training should include:

18.26.1.2.1. An evaluation by immediate supervisor or production supervisor to determine the individual's level of maturity and experience prior to being selected for engine-run training.

18.26.1.2.2. The trainee will review and become familiar with engine-run operations to include emergency procedures in accordance with the applicable aircraft dash one and engine run checklist.

18.26.1.2.3. MTFs may develop a handout that facilitates learning engine-run procedures, engine limitations, and emergency procedures.

18.26.2. Engine Run Personnel. Prior to entering engine run training, ensure personnel meet the following requirements:

18.26.2.1. Be a minimum of SrA and have a minimum five-skill level. Group commanders may waive qualified five-skill level personnel for critical manpower shortages. Group commanders may designate contractors in writing to run aircraft engines.

18.26.2.2. Acquired at least 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). The MXG/CC may waive the weapons system experience at short tour bases.

18.26.2.3. Qualified to operate aircraft Auxiliary Power Unit (APU), Gas Turbine Compressor (GTC)/Air Turbine Motor (ATM), or Auxiliary Power Plant (APP).

18.26.2.3.1. DELETED.

18.26.2.3.2. DELETED.

18.26.2.3.3. DELETED.

18.26.2.3.4. DELETED.

18.26.2.4. Familiar with aircraft marshalling signals.

18.26.2.5. Qualified and certified as a tow brake operator.

18.26.2.5. (ANG) N/A to the ANG. The following only applies to the ANG: Qualified in normal and emergency brake system operation.

18.26.2.6. Qualified in basic radio and interphone systems operation.

18.26.2.7. Complete all applicable training courses.

18.26.2.8. (Added-ANG) Have completed the appropriate egress familiarization course.

18.26.3. Certifiers. Aircraft engine-run certifying officials shall hold the rank of MSgt or above and possess one of the following AFSCs: 2A671A/B, 2A571/2, 2A373X (or civilian equivalent), or be a fully qualified/certified contractor or AFETS/CETS representative. The group commander may waive highly qualified TSgts. All certifiers must have a minimum of 1 year engine-run experience on the applicable MDS and engine Type, Make, Series, Modification (TMSM). Instructor pilots (IP) can also be used as certifiers during the practical engine-run demonstration. Certifying officials must maintain proficiency in the same manner as other technicians; certifying officials must re-certify each other.

18.26.3. (ANG) CETS reps are not certifiers.

18.26.4. Instructors. Individuals selected as instructors will hold the rank of staff sergeant or above and possess a 7-skill level in one of the following AFSCs 2A6X1A/B, 2A5X1/2, or 2A3X3X (or civilian equivalent), a qualified contractor, or be a AFETS/CETS representative.

***NOTE:*** AFI 11-218, applicable aircraft and engine TOs, applicable commercial aircraft/engine operating procedures, and special test project engineering procedures (if applicable) will be used to develop engine run certification training programs.

18.26.5. The initial engine run certification program will consist of three phases (Each phase will be successfully completed before progressing to the next phase):

18.26.5.1. Phase 1 is formal classroom training. Classroom instruction will include:

18.26.5.1.1. General aircraft familiarization to include, as a minimum, basic MDS airframe characteristics, aircraft safe-for-maintenance procedures, cockpit configuration and systems, egress, and aircraft system/subsystems operation.

18.26.5.1.2. A thorough review of applicable TO procedures with emphasis on notes, cautions, and warnings.

18.26.5.1.2. (ANG) Also normal emergency brake system operation, and emergency aircraft egress.

18.26.5.1.3. Engine/APU operation, to include normal operational parameters and limitations.

18.26.5.1.4. Ensuring aircraft, engine, and APU emergency procedures are committed to memory.

18.26.5.1.5. Ultra high frequency (UHF)/very high frequency (VHF) radio operation, air traffic control (ATC) tower procedures, and emergency radio transmissions.

18.26.5.1.6. A two part closed book examination consisting of the following:

18.26.5.1.6.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a passing score of 100 percent.

18.26.5.1.6.1.1. Students will successfully complete part I before taking part II.

18.26.5.1.6.2. Part II - Students will be given a written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

18.26.5.1.6.2. (ANG) The normal procedures test shall include 30 questions as a minimum. Questions must include limitations, responses to abnormal conditions, communications and precautions (warnings, cautions, and notes). The questions may be multiple choice or fill-in-the-blank.

18.26.5.1.7. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.5.1.8. Students will not be given the same Part II test during re-testing efforts.

18.26.5.1.9. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

18.26.5.2. Phase 2 is simulator training. All maintenance personnel requiring engine run certification will receive simulator training on each specific aircraft MDS and APU. Training will be accomplished in an ATD, CPT, simulator, or approved FTD trainer. If any of the above are not available, "dry run" procedures will be done in an aircraft, ensuring procedural knowledge.

18.26.5.2.1. As a minimum, students will demonstrate sufficient knowledge and proficiency in the following areas:

18.26.5.2.1.1. Proper run clearance procedures.

18.26.5.2.1.2. UHF/VHF radio operation, air traffic control (ATC) tower procedures, and emergency radio transmissions.

18.26.5.2.1.3. Normal APU/engine start, run, and shutdown procedures.

18.26.5.2.1.4. Normal augmentor operation or thrust reverser (when applicable).

18.26.5.2.1.5. Aircraft systems/subsystems normal operating parameters.

18.26.5.2.1.6. Ensure TO emergency bold face items are committed to memory. Instructors will evaluate the student on response time and ability to handle emergency situations. Proper egress procedures.

18.26.5.3. Phase 3 is practical demonstration. Each individual will receive a practical engine run evaluation after successful completion of classroom and simulator training from a qualified certifier. For fighter type aircraft, it is preferable to conduct the evaluation in a hush house, sound suppresser, or on a trim pad. As a minimum, the student will demonstrate successful completion of the following areas without any discrepancies based on a go/no-go standard:

18.26.5.3. (ANG) The certifier must maintain visual contact and voice communication via the intercom system. For large aircraft, the certifier must be in the cockpit.

18.26.5.3.1. Proper run clearance procedures.

18.26.5.3.2. UHF/VHF radio operation, ATC tower procedures, and emergency radio transmissions.

18.26.5.3.3. Normal APU/engine start, run, and shutdown procedures, including notes, cautions, and warnings.

18.26.5.3.4. Normal augmentor or thrust reverser operation when applicable, including notes, cautions, and warnings.

18.26.5.3.5. Aircraft systems/subsystems normal operating parameters, including notes, cautions, and warnings.

18.26.5.3.6. Ensure TO emergency bold face items are committed to memory. Instructors will evaluate the student on response time and ability to handle emergency situations.

18.26.5.3.7. Proper egress procedures.

***NOTE:*** For vertical lift aircraft, maintenance personnel are not authorized to operate installed engines above ground idle and are not permitted to start and run-up vertical lift aircraft that will not operate without rotor or CV-22 prop-rotor rotation. On rotary wing aircraft, simulator or CPT training is not required for initial engine run qualification.

18.26.5.3.8. (Added-ANG) The student must successfully complete a test developed from engine run technical data, on emergency and normal operating procedures. This test shall consist of a minimum of 30 questions and must be different than the Phase 1 test. The minimum passing score is 100 percent on emergency procedures, and 90 percent on the remainder of the questions, corrected to 100 percent. Failure to achieve a passing score requires further training before re-testing. Use a new set of questions when re-testing.

18.26.5.3.9. (Added-ANG) Accomplish at least two engine runs (engine start to engine shutdown) to ensure that the individual is proficient and to confirm the adequacy of Phase 2 training. Failure to demonstrate proficiency during the practical evaluation requires further training based on the certifying official's determination of deficiencies. Certify individuals after successful completion of Phase 3 training and a minimum time of six months on the MDS.

**NOTE**: For vertical lift aircraft, maintenance personnel are not authorized to operate installed engines above ground idle and are not permitted to start and run-up vertical lift aircraft that will not operate without rotor. On rotary wing aircraft, simulator or CPT training is not required for initial engine run qualification.

18.26.6. Trim Box Requirements. For units possessing F-15 or F-16 aircraft equipped with F100-PW-100 or -200 engines, engine trim box operators for engine trim operation must be certified to perform trim operations. MAJCOMs possessing F-15/F-16 aircraft equipped with F100-PW-100 or -200 engines must establish engine trim box operator training and initial certification and annual recertification programs.

***NOTE:*** Personnel performing engine maintenance ground runs shall fasten seat belts/shoulder harnesses, as applicable, IAW with technical data.

18.26.6. (ANG) The aircraft operator has the primary responsibility for the overall safety of the trim operation.

18.26.7. Annual recertification for certifiers and engine run qualified personnel will be accomplished by successfully completing the written test (Part I and Part II) administered by the MTF and demonstrating knowledge of normal and emergency procedures to a certifying official by operating one of the following: ATD, CPT, authorized TD trainer (if assigned or available), or aircraft as appropriate.

18.26.7.1. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.7.2. Students will not be given the same Part II test during re-testing efforts.

18.26.7.3. After a second failure of either test, the individual will be decertified. The SQ/CC (or equivalent) must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

18.26.7.4. Certified individuals who PCS to the same MDS, and engine TMSM, must be approved by the SQ/CC (or equivalent) and complete an initial evaluation by a certifying official prior to becoming run qualified at the gaining base.

18.26.7.4. (ANG) Must be approved by the MXG/CC.

18.26.7.5. A certifier will conduct an initial evaluation that includes, as a minimum, familiarization of local procedures and requirements.

18.26.8. Aircraft Auxiliary Power Unit (APU), GTC, or APP Operation Training. The following requirements and standards apply to qualifying maintenance personnel on operating the aircraft APU, GTC, and APP:

18.26.8.1. A task certified 3-level or higher maintenance AFSC is required to operate the APU, GTC, or APP.

18.26.8.2. When conducting initial operator qualification training for APU, GTC, or APP, use the applicable video or other training program when available.

18.26.8.3. A two part closed book examination consisting of the following:

18.26.8.3.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent.

18.26.8.3.2. Students will successfully complete part I before taking part II.

18.26.8.3.3. Part II - Students will be given a written examination covering normal APU, GTC, APP run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

18.26.8.4. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.8.5. Students will not be given the same Part II test during re-testing efforts.

18.26.8.6. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

18.26.8.7. Personnel must then accomplish an on-equipment practical evaluation for certification completion.

18.26.8.8. Recertification is required annually, but is not required if the individual is engine run certified and has maintained annual engine-run certification requirements.

18.26.9. Documentation. Qualifications of engine/APU run certifiers, engine/APU run certified personnel, and trim-box operators will be documented in the MIS and entered on the SCR.

18.26.9.1. Units will develop local procedures to track run proficiency requirements in the MIS.

18.26.9.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified.

18.26.10. Proficiency. MAJCOMs will determine proficiency requirements for maintenance personnel authorized to operate engines, trim box, and APUs.

18.26.10.1. (Added-ANG) Engine runs. Individuals must perform one engine run every 90 days and successfully pass a written emergency procedures test every 6 months to maintain proficiency requirements for maintenance personnel authorized to operate engines.

18.26.10.1.1. (Added-ANG) All maintenance personnel required by technical data to occupy the cockpit during maintenance runs are given credit for running an engine. Workcenter supervisors and individual engine operators are responsible for ensuring that they meet this requirement.

18.26.10.1.2. (Added-ANG) The emergency procedures test is tracked in the MIS and requires a 100 percent score to pass.

18.26.10.1.3. (Added-ANG) Personnel who fail to pass the six month emergency procedures test shall not operate engines until they meet testing requirements. Supervisors determine if training is required before re-testing.

18.26.10.1.4. (Added-ANG) Personnel who go overdue any engine run proficiency requirement may remain on the SCR but shall not operate engines until recertified by a engine run certifier and the proficiency requirements are met. The extent of the recertification shall be determined locally or by the certifier.

18.26.10.2. (Added-ANG) Trim box operation. Supervisors shall evaluate and re-certify personnel semiannually.

18.26.10.3. (Added-ANG) APU operation. All personnel who operate aircraft APUs/GTCs must complete a one-time course.

18.26.11. MAJCOMs will determine if maintenance personnel are authorized to taxi aircraft and will develop detailed written guidance.

18.26.11. (ANG) Maintenance personnel shall only taxi aircraft with ANG/LG/XO approval and have completed a locally developed qualification course including marshaling. Personnel authorized for taxi must complete at least one taxi every 90 days to maintain proficiency. A qualified taxi instructor must re-evaluate personnel not maintaining proficiency before they perform their next aircraft taxi.

18.26.12. Engine run certification tests are controlled items and will be handled IAW AFI 36-2201, *Developing, Managing, and Conducting Training*, and administered only by MTF personnel.

18.26.12. (ANG) The Unit Engine Run Program Manager, in coordination with Quality Assurance and Maintenance Training, shall develop the engine run tests. Engine run certification tests are controlled items and must be handled IAW AFI 36-2201, and administered only by Maintenance training or QA personnel if Maintenance training is not available.

18.26.12.1. (Added-ANG) Maintenance training shall maintain the standard test bank for the applicable system(s). As a minimum, it must consist of 75 normal procedure questions, and one question per boldfaced emergency procedures as identified in technical data. The tests shall be developed from the test bank. Both the normal and the emergency tests must be administered closed book.

18.26.12.2. (Added-ANG) The normal procedures test must include 30 questions as a minimum. Questions must include limitations, responses to abnormal conditions, communications and precautions (warnings, cautions, and notes).

18.26.12.3. (Added-ANG) Emergency procedures test must be fill-in-the-blank.

18.26.13. Operation of Engines on Test Stands and Cells. All personnel identified for uninstalled engine and/or small gas turbine engine run qualification will complete an uninstalled engine and/or small gas turbine engine run training program prior to certification. The following minimum requirements will be met prior to receiving uninstalled and/or small gas turbine engine run certification:

18.26.13.1. Certification Requirements. Individuals will be certified for each specific engine TMSM authorized to run. Military/civilian:

18.26.13.1.1. Be at least a staff sergeant and possess a 2A651A/B AFSC (or civilian equivalent). The MXG/CC may waiver highly qualified senior airman possessing a 5-skill level and a minimum of 6 months' experience on the applicable TMSM. If previously qualified on a different TMSM, the 6-month experience requirement may also be waived.

18.26.13.1.2. Be certified and on the SCR to perform intake and exhaust inspections.

18.26.13.1.3. Have a minimum of 6 months current experience on each applicable TMSM, unless previously qualified. Not applicable to short tour assignments.

18.26.14. Certifiers. The MXG/CC designates selected highly qualified technical sergeants or higher 2A671A/B AFSC (or civilian equivalent) or fully qualified/certified contractors or AFETS/CETS representatives, to serve as certifiers. The group commander may waive highly qualified staff sergeants. All certifiers will have a minimum of one year engine run experience on the applicable TMSM. Not applicable to short tour assignments.

18.26.14.1. The MXG/CC may authorize MTF uninstalled engine and small gas turbine engine run instructors as certifying officials.

18.26.14.1. (ANG) N/A to the ANG.

18.26.15. Training. Uninstalled engine/small gas turbine engine run training shall consist of three phases performed sequentially, meeting the objectives of all three, without exception, to the fully qualified level as follows: procedural instruction, control cab (engine not operating) training, and demonstration of engine run proficiency.

18.26.16. Instructors. Individuals selected as instructors will be 7-level staff sergeants or above with a 2A6X1A/B AFSC (or civilian equivalent), a qualified contractor, or an AFETS/CETS representative, and be run certified on each TMSM (if they are to be certifying officials).

18.26.16.1. Phase 1 is formal training. Instruction will include, as a minimum, the following areas:

18.26.16.1.1. General engine familiarization to include, as a minimum, basic engine description, component location, and functions.

18.26.16.1.2. Thorough familiarization of control cabs, test stands, hush houses, and T-9 fire suppression control panels (if applicable).

18.26.16.1.3. Thorough review of applicable TO procedures with emphasis on notes, cautions, and warnings.

18.26.16.1.4. Uninstalled engine and/or small gas turbine engine operation to include normal operational parameters and limitations.

18.26.16.1.5. Ensuring uninstalled engine/small gas turbine engine emergency procedures are committed to memory.

18.26.16.1.6. Local communication procedures.

18.26.16.1.7. A two-part closed book examination consisting of the following:

18.26.16.1.7.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent. Students will successfully complete part I before taking part II.

18.26.16.1.7.2. Part II - Students will be given a written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

18.26.16.1.8. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.16.1.9. Students will not be given the same Part II test during re-testing efforts.

18.26.16.1.10. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

18.26.16.2. Phase 2 is control cab evaluation. After successful completion of formal training, students will properly demonstrate the following minimum requirements to an authorized certifying official without discrepancies using the go/no-go standard:

18.26.16.2.1. Proper uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings (engine not operating).

18.26.16.2.2. Proper uninstalled engine/small gas turbine engine bold face emergency procedures, including notes, cautions, and warnings (engine not operating).

18.26.16.2.3. Knowledge of normal uninstalled engine/small gas turbine engine operating limits, including notes, cautions, and warnings.

18.26.16.2.4. Augmentor or thrust reverser operation, when applicable, including notes, cautions, warnings and emergency procedures.

18.26.16.3. Phase 3 is practical evaluation. Each individual will receive a practical uninstalled engine/small gas turbine run evaluation after successful completion of classroom training and control cab evaluation from an authorized certifier. As a minimum, the student will demonstrate successful completion of the following areas without discrepancies based on a go/no-go standard:

18.26.16.3.1. Proper run clearance procedures.

18.26.16.3.2. Proper emergency communication procedures.

18.26.16.3.3. Normal uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings.

18.26.16.3.4. Normal augmentor or thrust reverser operation (when applicable), including notes, cautions, and warnings.

18.26.16.3.5. Proper emergency procedure corrective actions during all bold face uninstalled engine/small gas turbine engine emergency conditions.

18.26.16.4. Recertification. Annual recertification for certifiers and engine run qualified personnel will be accomplished by successfully completing the written test (Part I and Part II) administered by the MTF, control cab evaluation demonstrating knowledge of normal and emergency procedures to a certifying official, and practical engine run demonstration.

18.26.16.4.1. Personnel failing the written examination will receive additional instruction before being re-tested.

18.26.16.4.2. Students will not be given the same Part II test during re-testing efforts.

18.26.16.4.3. After a second failure of either test, the individual will be decertified. The SQ/CC (or equivalent) must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

18.26.16.5. Proficiency. MAJCOMs will determine proficiency requirements.

18.26.16.5. (ANG) Must perform one engine run every 90 days.

18.26.17. Hush house and T-9 sound suppressor fire control panel. To ensure only qualified personnel are certified to use the hush house and T-9 sound suppressor fire control panel, the following certification requirements apply:

18.26.17. (ANG) Add T-10 sound suppressor for this and all applicable subparagraphs.

18.26.17.1. Be at least a SrA with AFSC 2A6X1A/B or civilian equivalent. Must have a minimum of 6 months' hush house/T-9 experience.

18.26.17.1. (ANG) The MXG/CC can waive the 7 level requirements and approve highly qualified 5-levels to be certified.

18.26.17.2. Training will consist of formal training using TOs and hands on familiarization and will include the following minimum requirements:

18.26.17.2.1. Hush house and T-9 sound suppressor fire control panel familiarization and operation.

18.26.17.2.2. Emergency procedures, including local notification procedures.

18.26.17.3. Hush house and T-9 sound suppressor NCOIC, contractor, AFETS/CETS personnel or designated individual will serve as the certifying official.

18.26.17.4. Hush house and T-9 sound suppressor fire control panel certified personnel require annual recertification.

18.26.17.4.1. Annual recertification requirements will be the same as initial certification requirements.

18.26.17.4.1.1. Certification will be tracked on the SCR.

**18.27. IFF Mode IV Program.**

18.27.1. Perform IFF Mode IV checks on all missions departing CONUS to overseas locations, on all overseas missions, and all missions flying outside US airspace and returning to CONUS. (Missions that originate in Alaska, Hawaii, or U.S. Territories and do not depart U.S. controlled airspace are viewed as if they are missions remaining in CONUS). Do not launch or enter aircraft into a contingency zone with a known inoperative MODE IV system, unless the contingency AOR has established procedures governing inoperative/degraded Mode IV capabilities.

18.27.2. IFF mode IV maintenance operational checks not accomplished due to lack of maintenance test equipment will be written up in the AFTO Form 781A on a red dash. The Mode IV ground operational check will be accomplished at the next overseas location where test assets are available and mission turn-time provides maintenance the opportunity to perform the check.

18.27.2.1. Invalid Mode IV replies will not cause a CONUS training sortie to be aborted; however, a work order will be generated for maintenance after flight

18.27.2.2. 100 percent of IFF equipped possessed aircraft will be checked every 2 months.

18.27.2.3. Testing data and results will be maintained for a minimum of one year.

18.27.2.4. E-3 aircraft front to back Mode 4 testing is adequate for preflight when the back end crew is present. Local flights performed without back end crew must perform external preflight Mode 4 tests prior to sortie

18.27.2.5. OC-135 "OPEN SKIES" Aircraft are exempt from the above program when mission requirements exempt them from keying MODE 4 and are not allowed to carry classified material while performing "OPEN SKIES" related training or operational missions.

18.27.2.6. Testing of aircraft when initially going on alert status satisfies preflight program requirements. This eliminates unnecessary delay of aircraft launch.

18.27.3. (Added-ANG) The MXG/CC and OG/CC shall appoint respective Mode 4 managers.

18.27.3.1. (Added-ANG) The MXG Mode 4 manager shall:

18.27.3.1.1. (Added-ANG) Establish a program to ensure accomplishment of Mode 4 testing in coordination with the OG Mode 4 manager.

18.27.3.1.2. (Added-ANG) Ensure testing and documenting procedures are followed. Local record-keeping procedures must be auditable and reportable when required.

18.27.3.1.3. (Added-ANG) Ensure procedures are in place to notify aircrew members of check results are developed.

18.27.3.2. (Added-ANG) The OG Mode 4 manager shall:

18.27.3.2.1. (Added-ANG) Establish a program to ensure accomplishment of Mode 4 testing in coordination with the MXG Mode 4 manager.

18.27.3.2.2. (Added-ANG) Ensure procedures are in place to verify Mode 4 system operability.

18.27.4. (Added-ANG) May be combined with the RWR systems program at the MXG/CC's option.

**18.28. Sortie Generation Operations.** SGO is a process by which an aircraft are generated in a minimum amount of time, during peacetime or wartime, through concurrent operations that may include refueling, munitions loading/ unloading, aircraft reconfiguration, and -6 inspection and other servicing requirements, according to applicable Mission Design Series (MDS) TOs, TO 11A-1-33, and TO 00-25-172. In conjunction with applicable TOs (once updated), Combat Air Forces (CAF) units will use the procedures in this chapter to accomplish SGO. Procedures can be compressed through pre-positioning resources and concurrent performance of tasks. Manpower for sortie production may be increased through cross utilization of skills, augmentation of key functions, and prepositioning indirect support resources in sortie generation areas. Munitions loading will be accomplished using complete MDS specific 1*X*-*XXX*-33-1-2/-2-1 TO procedures. Aircraft thru-flights will be accomplished in their entirety in accordance with MDS-specific, 1*X*-*XXX*-6 TO work cards. When authorized by MAJCOM, abbreviated AFMC-approved -6 TO quick turn work cards may be used.

**18.28. (ANG)** Abbreviated AFMC-approved -6 TO quick turn work cards may be used.

18.28.1. SGO procedures and SGOs should be built around the operational environment, mission, and expected operations for which a unit is designated to deploy or support during contingencies or taskings. SGO procedures may be used during actual contingencies, scheduled SGO exercises, and daily training. SGO includes the entire regeneration cycle for a mission capable aircraft to include any or all of the following: servicing, inspection, munitions/ammunition loading/unloading, aircraft reconfiguration, and fueling. When authorized by MAJCOM munitions and aircraft maintenance divisions, dual loading operations (DLO) may be conducted as a part of SGO. The emphasis is to accomplish these operations in the most expeditious manner consistent with the operational environment.

18.28.2. Concurrent Servicing Operations (CSO): The simultaneous loading/unloading of munitions, fueling, aircraft reconfiguration, and may include aircraft -6 inspections, and other aircraft servicing. Other servicing may include oil, nitrogen, and hydraulic fluid. Oxygen servicing will not be accomplished during fuel servicing. CSO provide units operational flexibility in managing resources and a rapid means of generating mission ready aircraft. DLO will not be conducted during CSO.

18.28.3. MAJCOMs will supplement this AFI with specific requirements for 2AXXX and 2WXXX training and qualification, and Concurrent Servicing Supervisor (CSS) training and certification.

18.28.3. (ANG) Specific requirements for 2AXXX and 2WXXX training and qualification, and CSS training and certification are identified in Paragraph **18.28.8.**

18.28.4. Manpower. Commanders may train additional aircraft or munitions maintenance personnel to assist in direct sortie production activities.

18.28.4.1. Cross utilization of skilled personnel may be employed to ensure maximum productivity.

18.28.4.2. Direct sortie production functions may be augmented. Wings may develop a program to identify tasks to be performed by augmentees and train, qualify, and document training (tasks may include tank buildup, end-of-runway, etc).

18.28.5. SGO Personnel and Responsibilities.

18.28.5.1. The wing commander implements the base support plan for augmentation force to support SGO.

18.28.5.2. The MXG/CC:

18.28.5.2.1. Provides training for augmentees from base support agencies to support SGO.

18.28.5.2.2. Conducts SGO proficiency-training exercises at least semiannually. (WG/CCs in AFSOC, ARC and AETC shall determine frequency). Coordinates refueling and munitions requirements with the OG/CC prior to each scheduled SGO exercise.

18.28.5.2.3. May elect to arm/de-arm munitions at designated areas other than the quick check/end of runway area.

18.28.6. Concurrent Servicing Supervisor (CSS):

18.28.6.1. Person responsible for on site supervision of all aspects of fuel servicing, munitions loading /unloading, and aircraft reconfiguration while being performed concurrently. The key function requiring the CSS is fueling. When no fueling is taking place, a CSS is not required.

18.28.6.2. Must be at least a 7-skill level with a maintenance (2AXXX or 2WXXX) AFSC and at least 1 year of experience on the MDS. The MXG/CC may waive the 1-year MDS experience requirement at short-tour locations.

18.28.6.3. Is a safety supervisor who will supervise only one CSO at a time and will perform no other functions.

18.28.6.4. Will be designated on the special certification roster and shall receive familiarization training on safety requirements and potential hazards of concurrent servicing operations and be certified as required by AFI 21-101, MAJCOM, and local maintenance/training directives. Reference TO 11A-1-33 procedures for handling and maintenance of explosives-loaded aircraft. Reference TO 00-25-172 for flight line servicing operations.

18.28.7. SGO Locations. SGOs will be conducted in approved explosives and fuels sited areas.

18.28.8. SGO Proficiency-Training Exercises. The purpose of these exercises is to demonstrate unit capability to generate a continuous sustained flow of combat sorties. These exercises are the unit's opportunity to practice total combat sortie generation.

18.28.8.1. Exercises will be conducted semi-annually (Wing commanders in AFSOC, ARC and AETC will determine frequency).

18.28.8.2. Duration should be at least 3 days. (Wing commanders in AFSOC, ARC or AETC will determine duration).

18.28.8.3. The MXG and OG commanders will determine the number of aircraft scheduled to optimize aircrew and sortie generation training. WMP-5 rates (or higher) should be used for planning generation/regeneration of sorties.

18.28.8.4. After firing inspection requirements, aircraft -6, will be performed on all stations that fired. Tools, technical data and expendables will be available at each aircraft for all simulated firings. Applicable task times will be simulated (determined locally) by the BPO crew before moving to another aircraft or task. Half-up/half-down loading procedures will be performed to show reconfiguration of aircraft after actual and simulated inspections are complete. All inspections, actual or simulated, will be documented.

18.28.8.5. Units will upload and download external fuel tanks during each exercise. Units should cycle built-up WRM tanks during these exercises.

18.28.8.5. (ANG) N/A to the ANG. The following only applies to the ANG: Units may upload and download external fuel tanks during each exercise. However, the MXG/CC shall ensure personnel are proficient at uploading and downloading external fuel tanks.

18.28.8.6. Units will perform radar warning receiver and mode 4 checks (as applicable).

18.28.9. During wing SGO exercises, aircraft turnaround time is crucial to meet sortie generation requirements. Units will develop and demonstrate the capability to perform SGO operations. The following procedures will apply:

18.28.9.1. Standard Conventional Loads (SCL) will be selected from known OPlan requirements.

18.28.9.1. (ANG) To optimize munitions support, the number of aircraft munitions configurations must be minimized and standardized as much as possible. Munitions must be pre-assembled to the greatest extent possible. Configuration changes may be performed during training/exercises providing the applicable functional checks are performed to ensure the safety and reliability of the weapons system.

18.28.9.2. Personnel participating in local exercises should be rotated so that all personnel are exposed to SGOs in the training environment.

18.28.10. Conventional munitions operations will be exercised (e.g. breakout, buildup, delivery, loading, resupply, etc.).

18.28.10. (ANG) Munitions support functions shall be managed to support surge efforts IAW AFI 21-201. At the appropriate alert warning, predetermined loads must be assembled, preloaded as applicable, and delivered to a holding area. The munitions controlling agency, through the Munitions Liaison Officer SNCO, shall monitor the projected need for all-up-round munitions.

18.28.11. Each exercise aircraft should be scheduled to fly a simulated combat sortie and generated by loading a complete SCL or half up and half downing a complete SCL which simulates a full SCL.

18.28.12. For each sortie flown, air to air missiles expended will be determined by shots taken, not to exceed the SCL configuration; all other external ordinance will be considered expended. Rockets will

be expended at 50 percent. Ammunition in F-16 and F-15 aircraft will be loaded as required, A-10 aircraft will be loaded when 50 percent expenditures are reached unless mission requirements dictate reloading prior to that.

18.28.12. (ANG) Ammunition in F-16 and F-15 aircraft shall be loaded as required, A-10 aircraft shall be loaded when 50 percent expenditures are reached unless mission requirements dictate reloading (this may be simulated by hooking up all required items and taking the standard loading time).

18.28.12.1. (Added-ANG) Actual expenditures must be tracked using AF IMT 2434 or a locally developed form. The Operations Group shall develop a system to track and report all simulated expenditures i.e., missile shots, bomb drops (by type), chaff/flare dispensed for each sortie flown. At the end of the flying day the form must be forwarded to the Munitions Element for reporting.

18.28.13. (Added-ANG) Training and Documentation Requirements.

18.28.13.1. (Added-ANG) The maintenance supervisor shall establish a coordinated training plan that includes aircraft maintenance personnel, weapons load crews, and fuel specialists.

18.28.13.2. (Added-ANG) Aircraft maintenance personnel must receive training on SGO concepts and the squadron's plan. Knowledge of the plan is the primary means of preventing mishaps. Supervisors must receive training on the plan, their part in it, and hazard/safety considerations.

18.28.13.3. (Added-ANG) APG trainers shall be responsible for the training and documentation of all 2AXXX aircraft maintenance personnel.

18.28.13.4. (Added-ANG) WSS shall be responsible for the training and documentation of all assigned weapons load crews IAW **Chapter 16**.

18.28.13.5. (Added-ANG) Supervisors must ensure training is documented in MIS.

## 18.29. WRM External Nestable Fuel Tank Build-Up (NFTBU).

18.29.1. External fuel tank build-up is a wartime unit type code (UTC) and wing program that provides a critical wartime skill that must compensate for the expenditure of aircraft fuel tanks (refer to **Chapter 4**). With exception of the core 2A6X4 personnel, augmentees may come from any Group or Squadron within the Wing. Units must adhere to the direction outlined in their particular mission capability (MISCAP) statement and designed operational capability (DOC) statement governing the quantity, size, and composition of fuel tank build-up teams. Refer to AFI 90-201 for additional evaluation/inspection guidance.

18.29.2. All 2A6X4 personnel required to be qualified on WRM nestable fuel tank build-up (NFTBU) shall attend AETC FTD initial external fuel tank build-up training. As a minimum, initial training shall be documented in MIS and the individual's AF Form 623, Record of Training. Annual refresher training is required for 2A6X4 personnel, shall be conducted by NFTBU-qualified 2A6X4 personnel, and as a minimum, documented in MIS. NFTBU augmentees shall be trained as required by qualified 2A6X4 personnel. (ARC units will follow established ARC guidance) (PACAF Only: Korean Peninsula bases are not required to maintain standing tank buildup teams and are relieved of the requirement to demonstrate fuel tank build-up. These bases are still responsible for maintaining the equipment/tools required to perform tank build-up, developing a plan/capability to form/train tank build-up teams, and maintaining built-up/nested WRM tanks).

18.29.3. All Unit Deployment Managers (UDM) must ensure only non-wartime tasked personnel are selected as WRM NFTBU team augmentees. The UDM responsible for deploying the 2A6X4 career field is the focal point for team assembly and must maintain a written plan. The plan must be kept current and reviewed annually. As a minimum, it must contain the following:

18.29.3.1. Specific manning positions across the wing to be tasked as tank build-up team augmentees. (The applicable independent NFTBU UTC MANFOR shall be used as a guide to construct the teams)

18.29.3.2. Guidelines for activation of the tank build-up teams.

**18.30. Crashed, Damaged or Disabled Aircraft Repair (CDDAR).**

18.30.1. General. The Crashed, Damaged, or Disabled Aircraft Repair (CDDAR) recovery program applies to all USAF host and tenant organizations and is designed to recover crashed/damaged or disabled aircraft in a minimum time period consistent with the following consideration(s):

18.30.1.1. Requirement to open the runway for operational use.

18.30.1.2. Prevention of secondary damage to the aircraft.

18.30.1.3. Preservation of evidence for mishap or accident investigations.

18.30.2. Recovery Program Responsibilities. The host unit commander is responsible for implementing policy, plans and agreements to ensure compliance with established recovery programs. The MXG/CC is responsible for establishing a CDDAR program. All units (host and tenant) shall publish a unit instruction containing specific responsibilities and procedures for CDDAR. The following references as a minimum are used in developing the unit instruction: Base OPLAN 32-1, AFMAN 32-4004, *Emergency Response Operations*, MAJCOM supplement to AFI 21-101, applicable 91- and 92-Series AFOSH standards, TO 00-105E-9 Aircraft Emergency Rescue Information, AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting,* and aircraft specific Dash–2 and –3 series TOs. As a minimum, the wing instruction must address the following:

18.30.2.1. Responsibilities of each base organization for CDDAR responses. Address responsibilities for transient aircraft.

18.30.2.2. Personnel required for CDDAR operations. Identify specific positions on the CDDAR team(s) (e.g., CDDAR team chief, special vehicle operator, team members, etc.).

18.30.2.3. Equipment, tools, vehicles and other supplies/consumables required for CDDAR operations.

18.30.2.3.1. (Added-ANG) Weatherproof storage for equipment, tools and other supplies to ensure equipment serviceability and accessibility.

18.30.2.4. Personnel Protective Equipment (PPE) required to perform recovery of an aircraft containing composite/hazardous materials as established by technical data and the Base Bio-Environmental Engineering (BEE) office.

18.30.2.5. CDDAR support for geographically separated units as required.

18.30.2.6. Support for CDDAR after normal duty hours.

18.30.2.6.1. Immediate response by the recovery crew is required during normal operating periods or duty hours. Units must develop emergency recall or mobilization rosters to identify and notify required recovery team members outside of normal operating hours.

18.30.2.7. Host/Tenant Base CDDAR Responsibilities.

18.30.2.7.1. Each host base has overall responsibility for recovery of host/tenant crashed /disabled aircraft**.** Since tenant units are responsible for the condition/repair of their aircraft, the tenant units must be actively involved in training to assist host base recovery operations during real world responses. Technical expertise, technical data, MDS-unique tools/special equipment, and airframe/system familiarization are the primary contributions tenant units make to the host CDDAR recovery program.

18.30.2.7.2. Host units provide recovery support for all tenant units as established in support agreements (SA). Ensure CDDAR procedures are coordinated with the Fire Department, Safety, CE, Readiness, EOD, Security, Bioenvironmental, Airfield Manager, and other on/off base agencies as applicable.

18.30.2.7.3. Host units must ensure they are capable to provide and support recovery operations for all base assigned aircraft, to include tenant aircraft. Tenant units are required to participate in host training exercises and equipment inventories.

18.30.2.7.4. Tenant units must coordinate with the host for CDDAR recovery support, training, exercises, and equipment inventories. Develop support agreements (SA) to document requirements.

18.30.2.7.5. Host and tenant commanders are responsible for ensuring sufficient equipment is available for mobility/deployed operations, as authorized in the applicable allowance standards.

18.30.3. Vehicle/Equipment Requirements.

18.30.3.1. The MXG/CC determines unit vehicle/equipment requirements, within the limits provided by allowance standard(s). Units must identify vehicles and recovery support equipment in a local directive to ensure 24-hour availability. Vehicle/ Equipment requirements may include:

18.30.3.2. General purpose radio-equipped truck.

18.30.3.3. Suitable trailer and tow vehicle (for storage and transportation of recovery equipment).

18.30.3.4. All Terrain Forklift

18.30.3.5. Bulldozer

18.30.3.6. Aircraft tow vehicle

18.30.3.7. Crane (e.g., 20 ton, 50 ton, as applicable).

18.30.3.8. 40 ft. flatbed semi trailer and tractor.

18.30.3.9. Light carts.

18.30.3.10. Tow bars.

18.30.3.11. Air Bags

18.30.3.12. Slings, belly bands, snatch cables, chains, etc.

18.30.3.13. Aircraft jacks

***NOTE:*** When base transportation cannot support heavy equipment requirements such as cranes and/or semi tractors and trailers, units may elect to lease from local suppliers.

18.30.3.14. (Added-ANG) TO 00-105E-9.

18.30.4. Inspection and Inventory. Inspect all recovery equipment to include air bags, manifolds, jacks, slings, shoring, etc., for serviceability before and after each exercise and use. Periodic equipment inspections must be accomplished per intervals established in technical orders or as a minimum annually. Perform operational checks according to applicable directives during exercises and/or inventory reviews. Document inspections and maintenance in MIS, on AFTO Forms 244, *Industrial/ Support Equipment Record*, or on MAJCOM approved Form.

18.30.5. Crash Recovery Team Chief Responsibilities.

18.30.5.1. Be a SNCO (MXG/CC may waive grade requirement), appointed in writing by the MXG/CC, and tracked on the SCR.

18.30.5.2. Establish a CDDAR program and is OPR for the unit CDDAR instruction. ***NOTE:*** Aircraft recovery efforts may require AFSC specific personnel to accomplish special tasks such as identifying and handling of classified equipment, life support or egress systems specific tasks, etc.

18.30.5.3. Develop in conjunction with the Maintenance Training Flight course control documents for crash recovery training**.**

18.30.5.4. Review support agreements and base disaster response plans annually. Provide inputs for changes as required.

18.30.5.5. Ensure CDDAR procedures are coordinated with the Fire Department, Safety, CE, Readiness, EOD, Security Police, Bioenvironmental, Airfield Manager, and on/off base agencies (as required) reference AFMAN 32-4004.

18.30.5.6. Inform the MXG/CC in writing of equipment shortages/serviceability that precludes effective CDDAR support

18.30.5.6. (ANG) To include storage shortfalls.

18.30.5.7. Ensure sufficient personnel/teams are trained to support CDDAR operations. This includes:

18.30.5.7.1. Basic equipment operation (e.g., light carts, generators, etc.).

18.30.5.7.2. Familiarization with/training on any unique characteristics/hazards/materials for assigned aircraft (i.e., F-16 EPU hydrazine, C130 ballast depleted uranium, aircraft composite materials, etc.) and document training.

18.30.5.7.3. Proper use of personnel protection equipment (PPE) as determined by technical data and the base Bioenvironmental Engineer.

18.30.5.8. Ensure special qualifications for personnel are identified and documented. Identify individual team member qualifications for specific equipment operations. (e.g., towing, jacking, support equipment, special purpose vehicle, etc.).

18.30.5.9. Ensure adequate tools and support equipment for recovery (i.e., bags, slings, manifolds, tow bars, dunnage/shoring, etc.) is serviceable and available. Maintain a list of all CDDAR tools and equipment.

18.30.5.10. Conduct/participate in annual training exercises. Coordinate with the base Readiness office before exercises.

18.30.5.11. Coordinate with unit QA weight and balance manager when weight and center of gravity (CG) conditions are unknown.

18.30.6. Recovery Team Qualifications:

18.30.6.1. All team members must be qualified in basic CDDAR operations.

18.30.6.2. All qualifications are recorded in CFETP, AF Form 797, or MIS as applicable.

18.30.7. Training Requirements:

18.30.7.1. All team members must be trained in recovery procedures according to this instruction, MDS specific technical data, other applicable Air Force and MAJCOM directives and unit-developed training guide.

18.30.7.2. All recovery team members must receive initial training comprised of both academic and hands on training/exercises and should include actual lifting of an aircraft. Aircraft lifting exercises may be accomplished by using a unit owned aircraft, utilizing training hulks, or participating with other organizations possessing training assets. Ensure all training is documented.

18.30.7.2. (ANG) All recovery team members should participate in an actual aircraft lift once every three years.

18.30.7.3. All recovery team members must receive annual training following initial training comprised of both academic and hands on training/exercises. Ensure all training is documented.

18.30.8. Environmental, Safety, and Health Hazards. The key for developing a safe and effective CDDAR program is communication and coordination. The unit maintenance crash recovery OPR must ensure the BEE is consulted and directly involved in determining personnel health hazards, training required, and appropriate levels of Personnel Protective Equipment (PPE).

***NOTE:*** There are two distinct phases of an aircraft mishap--initial response and recovery. Initial response teams face the probability of an aircraft fire. As the composite material burns, gases, vapors and solid particles are released into the smoke plume. Recovery team members may be exposed to fibers and respirable/inhalable dusts as aircraft parts are moved, modified by cutting, breaking, twisting, or hammering. Personnel tasked to participate in crash or post-crash response, recovery, maintenance, and/or clean up operations must be aware of/briefed on all possible health issues involved. Units must insure local policies and procedures for handling crash damaged composites are addressed; to include training and personnel protective equipment (PPE).

**18.31. Forms Prescribed.**

AF Form 596, *Quick Engine Change Kit Inventory*

AF Form 726, *Transient Aircraft Service Record*

AF Form 861, *Base/Transient Job Control Number Register*

AF Form 864, *Daily Requirement and Dispatch Report*

AF Form 2400, *Functional Check Flight Log*

AF Form 2401, *Equipment Utilization/Maintenance Schedule*

AF Form 2406, *Maintenance Preplan*

AF Form 2407, *Weekly/Daily Flying Schedule Coordination*

AF Form 2408, *Generation Maintenance Plan*

AF Form 2409, *Generation Sequence Action Schedule*

AF Form 2410, *Inspection/TCTO Planning Checklist*

AF Form 2419, *Routing and Review of Quality Control Reports*

AF Form 2420, *Quality Assurance Inspection Summary*

AF Form 2426, *Training Request and Completion Notification*

AF Form 2430, *Specialist Dispatch Control Log*

AF Form 2431, *Aerospace Ground Equipment Status*

AF Form 2434, *Munitions Configuration and Expenditure Document*

AF Form 2435, *Load Training and Certification Document*

AF Form 2521, *Turn-Around Transaction Log*

**18.32. Forms Adopted.**

AF Form 3, *Hazard Abatement Plan*

AF Form 55, *Employee Safety and Health Record*

AF Form 457, *USAF Hazard Report*

AF Form 601, *Equipment Action Request*

AF Form 623, *Individual Training Record*

AF Form 623A, *On-the-Job Training Record Continuation Sheet*

AF Form 797, *Job Qualification Standard Continuation*

AF Form 898, *Field Training Requirements Scheduling Document*

AF Form 979, *Danger Tag*

AF Form 1032, *WRM Spare List*

AF Form 1067, *Modification Proposal*

AF Form 1098, *Special Tasks Certification and Recurring Training*

AF Form 1118, *Notice of Hazard*

AF Form 1199, *USAF Restricted Area Badge*

AF Form 1297, *Temporary Issue Receipt*

AF Form 1492, *Warning Tag*

AF Form 1800, *Operators Inspection Guide and Trouble Report (General Purpose Vehicles)*

AF Form 1815, *Difficulty Report Worksheet*

AF Form 1996, *Adjusted Stock Level*

AF Form 2001, *Notification of TCTO Kit Requirements*

AF Form 2005, *Issue/Turn-In Request*

AF Form 2096, *Classification/On The Job Training Action*

AF Form 2411, *Inspection Document*

AF Form 2413, *Supply Control Log*

AF Form 3215, *Communications-Computer Systems Requirements Document*

AF Form 3525, *CCB Modification Requirements and Approval Document*

AFTO Form 15, *Air Munitions Serviceability and Location Record*

AFTO Form 22, *Technical Manual (TM) Change Recommendation and Reply*

AFTO Form 27, *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval*

AFTO Form 95, *Significant Historical Data*

AFTO Form 103, *Aircraft/Missile Condition Data*

AFTO Form 135, *Source, Maintenance and Recoverability Code Change Request*

AFTO Form 158, *TO Review Comment Sheet*

AFTO Form 242, *Nondestructive Inspection Data*

AFTO Form 244, *Industrial/Support Equipment Record*

AFTO Forms 245, *Industrial/ Support Equipment Record (Continuation Sheet)*

AFTO Form 345, *Aerospace Vehicle Transfer Inspection Checklist and Certification*

AFTO Form 349, *Maintenance Data Collection Record*

AFTO Form 350, *Reparable Item Processing Tag*

AFTO Form 391, *Parachute Log*

AFTO Form 392, *Parachute Repack, Inspection and Component Record*

AFTO Form 781, *AFORMS Aircrew/Mission Flight Data Document*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFTO Form 781C, *Avionics Configuration and Load Status Document*

AFTO Form 781D, *Calendar and Hourly Item Inspection Document*

AFTO Form 781F, *Aerospace Vehicle Flight Report and Maintenance Document*

AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*

AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document*

AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*

DD Form 1149, *Requisition and Invoice or Shipping Document*

DD Form 1348-1A, *DoD Single Line Item Release/Receipt Document*

DD Form 1348-6, *DoD Single Line Item Requisition System Document*

DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*

SF Forms 364, *Report of Discrepancy*

SF Forms 368, *Product Quality Deficiency Report*

**18.33. (Added-ANG) KC-135 Single Integrated Operations Plans (SIOP).** If KC-135 units have a requirement for SIOP duties, they shall establish a written plan or OI outlining as a minimum:

18.33.1. (Added-ANG) Crew Chief qualifications.

18.33.2. (Added-ANG) Minimum "alert bag" contents.

**18.34. (Added-ANG) Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) Magnetic Chip Detector Analysis Program (MCDP).**

18.34.1. (Added-ANG) General. This section establishes procedures for management of the Aircraft Engine Magnetic Chip Detector Analysis Program for all assigned F110-GE-100/-129 engines.

18.34.1.1. (Added-ANG) The Propulsion (primary) and Nondestructive Inspection (alternate) Supervisors shall be the point of contacts for SEM/EDX related matters.

18.34.1.2. (Added-ANG) All organizations requiring recurring chip detector analysis service shall identify by letter primary and alternate MCDP monitors for their unit. The letter must be updated when personnel change.

18.34.1.3. (Added-ANG) All newly assigned MCDP monitors must attend a briefing by the Propulsion Shop. This briefing shall cover the duties and responsibilities of all MCDP monitors.

18.34.1.4. (Added-ANG) All MCDP Monitors or their representatives shall ensure the following:

18.34.1.4.1. (Added-ANG) Magnetic Chip Detectors (MCD) are submitted for debris analysis for their aircraft and assigned engines as per applicable technical order.

18.34.1.4.2. (Added-ANG) Ensure MCD debris analysis is forwarded with the following information: squadron, rank/name, aircraft serial number, engine serial number, total engine hours, date/time, visual chips, and reason for analysis request and sortie number.

18.34.2. (Added-ANG) The Propulsion Shop shall:

18.34.2.1. (Added-ANG) MCD analyses that indicate significant levels of M50 or other critical materials shall be immediately reported to the MOC. MOC shall in-turn contact the owning squadron to arrange for immediate return of affected aircraft to home station.

18.34.2.2. (Added-ANG) Immediately notify test cell personnel of analysis results for engines in test cell.

18.34.2.3. (Added-ANG) Notify the MOC during periods of SEM/EDX downtime.

18.34.3. (Added-ANG) AMXS Supervision shall:

18.34.3.1. (Added-ANG) Be responsible for monitoring the MCDP on the flightline.

18.34.3.2. (Added-ANG) Ensure visual inspection of the MCD is performed IAW applicable technical orders.

18.34.3.3. (Added-ANG) Ensure that one clean MCD is available for each detector submitted for analysis.

18.34.3.4. (Added-ANG) Ensure MCDs are submitted for analysis within 75 minutes after engine shutdown.

18.34.3.5. (Added-ANG) Ensure current SEM/EDX status code is maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results. The following shall be used:

Level 0. Fully MC - No chips detected.

Level 1. Fully MC - Chips detected but within limits.

Level 2. Warning - Material amounts exceeded.

18.34.3.6. (Added-ANG) Coordinate with MOC to recall aircraft determined to be flying with unacceptable levels of debris.

18.34.4. (Added-ANG) The MOC shall:

18.34.4.1. (Added-ANG) Serve as primary communication link for transfer of SEM/EDX information between the Propulsion Shop and its customers.

18.34.4.2. (Added-ANG) Ensure current SEM/EDX status code is maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results.

18.34.4.3. (Added-ANG) Immediately notify the owning AMXS/Flying Squadron (transient aircraft) when MCD analysis indicates unacceptable levels of debris so they can coordinate recall of affected aircraft.

18.34.5. (Added-ANG) Cross Country/Deployed MCDP Analysis Requirements.

18.34.5.1. (Added-ANG) NDI must be notified prior to deployments to determine if MCDP support will be available at the deployed location.

18.34.5.2. (Added-ANG) If it is determined that MCDP is not available, visual MCD inspections must be performed IAW applicable engine directives.

**18.35. (Added-ANG) Combat Readiness Training Centers (CRTCs).** Training Centers have ground support equipment and maintenance shop facilities IAW AFMAN 91-201; Paragraph 6.12.1. Ensure applicable site plans and maps are maintained within the flight to be used by deployed forces. These forces need the use of CRTC bases and gunnery ranges for short term exercises and annual deployments. CRTC personnel maintain the support equipment and facilities and do not have aircraft or maintenance personnel for direct support of the deployed unit. Deployed units operate under their own management procedures.

18.35.1. (Added-ANG) The CRTC has shops and equipment needed to support limited maintenance. Once issued to the deployed unit, the maintenance of the support equipment and operation of the

shops is the responsibility of the deployed unit. However, the responsibility for the assigned equipment remains with the CRTC.

18.35.2. (Added-ANG) The CRTC is organized as a consolidated maintenance function. Due to its small size, several management functions may be assigned to one individual. CRTC personnel shall not be integrated into the organization of deployed units. The CRTC remains a separate and independent function.

18.35.3. (Added-ANG) The Maintenance Superintendent and/or Chief Enlisted Manager (CEM) for the CRTC shall establish management procedures following the guidelines of this publication. The Maintenance Superintendent/Enlisted Manager shall:

18.35.3.1. (Added-ANG) Publish necessary OIs/supplements.

18.35.3.2. (Added-ANG) Publish a directive with responsibilities and requirements for the CRTC and deployed units.

18.35.3.3. (Added-ANG) Ensures deployed unit maintenance supervisors are briefed as a minimum on their responsibilities for the use of the facilities, safety, equipment and their relationship to the CRTC.

18.35.3.4. (Added-ANG) Ensure deployed units use their own supply support to the maximum extent possible.

18.35.3.5. (Added-ANG) Ensure assigned support equipment and facilities are maintained.

18.35.3.6. (Added-ANG) Ensure supply discipline by assigned personnel.

18.35.3.7. (Added-ANG) Ensures compliance with FOD program.

18.35.3.8. (Added-ANG) Oversees the CRTC maintenance safety program.

18.35.3.9. (Added-ANG) Establish a quality assessment program.

18.35.4. (Added-ANG) Quality Assurance Overview: The primary role of the CRTC QA is to identify areas of concern by determining the maintainability of aircraft, equipment condition, and personnel proficiency and training through the process of inspections and evaluations. It is understood that quality must be built into any system or operating methodology up front. CRTC shall use the ANG QuAD for documenting QA evaluations.

18.35.5. (Added-ANG) Maintenance Standardization Evaluation Program (MSEP): The MSEP emphasizes compliance-oriented maintenance. The purpose of the MSEP is to measure how well units meet or exceed standards. ANG CRTC MSEP focus areas are:

18.35.5.1. (Added-ANG) Compliance and Currency of Technical Orders and Directives.

18.35.5.2. (Added-ANG) Aircraft and Equipment Forms Documentation.

18.35.5.3. (Added-ANG) Aircraft and Equipment Inspection.

18.35.5.4. (Added-ANG) Compliance and Management of Safety, Environmental, and Housekeeping Programs.

18.35.5.5. (Added-ANG) Adequacy, Currency, and Validity of Training.

18.35.5.6. (Added-ANG) Personnel Proficiency. **NOTE**: QA shall make recommendations for increasing maintenance effectiveness and is available for involvement in process improvement.

QA offers on-the-spot assistance and in-depth investigations to find appropriate corrective action to identified problem areas.

18.35.6. (Added-ANG) Quality Assurance training for CRTCs: In an effort to enhance continuity and communication within the QA program the dedicated instructor course shall be utilized to the maximum extent possible. Due to manning situations, the Director of Logistics (LG) and Director of Operations (OG) of the CRTC shall appoint a Chief Inspector as an additional duty and attendance to the formal QA inspector training course is recommended. Since the functional areas are not manned to support a full-time position in QA, selected qualified technicians may be assigned as augmentees. Document augmentee training on AF IMT 797 or MIS.

18.35.6.1. (Added-ANG) Evaluator Proficiency Evaluation (EPE). An over the shoulder evaluation of a QA inspector while performing a personnel evaluation and technical inspection. An EPE is required for initial qualification of QA inspectors and augmentees. Augmentees shall require annual re-certification.

18.35.7. (Added-ANG) Quality Assurance Routine Inspection List (RIL): The number of inspections are forecasted but, due to manning or unit mission demand during the specified time period, it may not be possible for QA to accomplish 100 percent of the targeted tasks. The list, as contained in **Table 18.3. (Added)**, CRTC Routine Inspection List (RIL), shall contain but is not limited to the following:

18.35.7.1. (Added-ANG) Aircraft and equipment forms/MIS documentation.

18.35.7.2. (Added-ANG) Aircraft ground handling and servicing tasks.

18.35.7.3. (Added-ANG) Technical data use and currency.

18.35.7.4. (Added-ANG) CTK management.

18.35.7.5. (Added-ANG) Housekeeping/Safety.

18.35.7.6. (Added-ANG) Vehicles (including AF IMT 244 and 1800).

18.35.7.7. (Added-ANG) Environmental Compliance.

18.35.7.8. (Added-ANG) AGE maintenance.

18.35.7.9. (Added-ANG) Munitions Material, Support and test equipment.

18.35.7.10. (Added-ANG) Munitions Inspections.

18.35.7.11. (Added-ANG) Munitions Storage Practices and Safety.

18.35.7.12. (Added-ANG) Munitions Accountability.

18.35.7.13. (Added-ANG) Munitions Stockpile.

18.35.7.14. (Added-ANG) Munitions Control 2000 (MC2K).

**Table 18.3. (Added-ANG) CRTC Routine Inspection List (RIL).**

| MAINTENANCE | AQL | TYPE | REQUIREMENT |
|---|---|---|---|
| Aircraft and Equipment forms | 3 | SI | Two per quarter |
| Aircraft ground handling and servicing tasks | 3 | SI | Two semi-annually |
| Technical data use and currency | 2 | SI | One per quarter |
| CTK management | 4 | SI | Six annually |
| AGE flight line use | 3 | QVI | One per quarter |
| Housekeeping | 4 | SI | One per quarter |
| Vehicles (including AF IMT 1800 and 1806) | 2 | SI | One per quarter |
| Aircraft launch/recovery procedures | 2 | QVI | Two semi-annually |
| EOR procedures | 2 | QVI | Two semi-annually |
| Shop support equipment (including AF IMT 244) | 2 | SI | Two annually |
| Foreign Object Damage (FOD) | 2 | SI | One per quarter |
| AGE Maintenance Powered (Periodic) | 2 | SI | One per quarter |
| AGE Maintenance Powered (Annual/Special) | 2 | SI | One per quarter |
| AGE Maintenance Non-Power (Periodic) | 2 | SI | One per quarter |
| AGE Maintenance Non-Power (Annual/Spec) | 2 | SI | One per quarter |
| **MUNITIONS** | | | |
| Munitions Accountability | 2 | SI | One per quarter |
| Storage Practices and Safety | 2 | SI | Semi-annually |
| Material, Support and Test Equipment | 2 | QVI | Semi-annually |
| Munitions Stockpile Management | 3 | SI | One per quarter |
| Munitions Control 2000 (MC2K) | 2 | SI | One per quarter |
| Munitions Inspections | 2 | QVI | Semi-annually |
| Housekeeping Practices | 2 | SI | One per quarter |
| Vehicles | 2 | SI | One per quarter |
| CTK management | 3 | SI | One per quarter |

***NOTE:*** Items that are semi-annually are due to Alpena/Volk Field CRTC seasonal traffic. TEC codes shall be provided by the ANG QuAD.

18.35.8. (Added-ANG) Quality Assurance Program Quarterly Summary: Provides information for senior level management. Data profile for the Quarterly Summary is a compilation of the Quality control reports for the quarter.

18.35.9. (Added-ANG) Technical Order Distribution Office (TODO): TO 00-5-1 explains the procedures of ATOMS and Joint Computer Aided Acquisition and Logistic Support (JCALS), including filing, distributing, posting, ordering, establishing Local Checklists, Work cards, and Job Guides. The

TODO/JCALS Administrator is the unit point of contact for Technical Orders, inspects the TODAs in the maintenance complex at least annually, and performs spot checks of TO files.

18.35.10. (Added-ANG) Discrepancy Categories (Refer to **Chapter 10**).

18.35.11. (Added-ANG) MSEP Grading. Units must grade their MSET evaluations IAW Paragraph **10.10.2.4.** Inspectors/assessors rate each inspection based on whether the end product meets the established AQL. The AQL is the maximum number of minor discrepancies allowed in order to meet an established quality level.

18.35.12. (Added-ANG) Inspection Routing.

18.35.12.1. (Added-ANG) Routing Passed Inspections: All inspections rated pass are routed to all offices as needed and shall require no response unless directed locally. Maintenance Superintendent/CEM shall maintain access to the ANG QuAD database for reports reviews and analysis.

18.35.12.2. (Added-ANG) Routing Failed Inspections: All failed evaluations/inspections require a response from the section supervisor within five workdays from the receipt of the notice via e-mail. The Maintenance Superintendent/CEM forwards the report to the applicable Group commander or designated representative. Suspense for subsequent reviewing is three working days.

18.35.13. (Added-ANG) Personnel Evaluations (PE): A PE is an over-the-shoulder evaluation of a maintenance action or inspection by an individual or team. The purpose of the PE is to evaluate technician/supervisor job proficiency, degree of training, and compliance with technical data. Individuals performing, supervising, or evaluating maintenance tasks are subject to a PE. QA Inspectors shall brief individuals on results of the evaluation prior to leaving. Evaluations do not replace supervisor/manager responsibility of ensuring a well-trained, technically proficient work force.

18.35.13.1. (Added-ANG) Individual Evaluation: A QA over-the-shoulder evaluation of a maintenance technician or supervisor while actually performing a task. The evaluator may start or stop the task evaluation at any step. PEs may be performed on individuals working alone or while working as part of a team. Evaluations must accurately assess the proficiency of each individual under evaluation. Team Evaluation: A QA over-the-shoulder evaluation of maintenance supervisors and technicians completing a team task. A team task is one requiring more than one person (according to approved technical data) to complete the task. For example, refueling, towing, etc.

18.35.14. (Added-ANG) Rating Personnel Evaluations: QA rates each evaluation based on AQLs/standards. A failed PE rating means the specific task was not performed within established AQL/standards. The rating applies only to the specified task evaluated and not to other tasks that a technician or supervisor is qualified to perform. Upon completion of a failed evaluation, the evaluator must provide on-the-spot feedback or training.

18.35.14.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.14.1.1. (Added-ANG) Technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

18.35.14.1.2. (Added-ANG) Technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

18.35.14.1.3. (Added-ANG) Technician demonstrates a lack of technical proficiency or system knowledge, or training is not documented.

18.35.14.1.4. (Added-ANG) Technician commits a safety violation.

18.35.14.1.5. (Added-ANG) Technician fails to document maintenance actions in appropriate equipment records.

18.35.14.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.14.2.1. (Added-ANG) Documentation errors.

18.35.14.2.2. (Added-ANG) Deviation from tech data without advising evaluator.

18.35.15. (Added-ANG) Quality Verification Inspection (QVI): A QVI is an inspection of equipment conditions following a maintenance inspection or repair action and verifies that a technician or supervisor properly completed the inspection or repair action. The QVI report reflects deficiencies by the individual who accomplished the task and identifies specific discrepancies. Discrepancies are documented in active equipment records and forms (i.e., AFTO Forms 781A or AFTO Form 244).

18.35.16. (Added-ANG) Rating Quality Verification Inspections.

18.35.16.1. (Added-ANG) Major Discrepancies: Category I and II major discrepancies are findings that indicate the weapon system, support system, or support equipment are considered unsafe for flight or use. Weapons system or equipment is not flown or used until unsatisfactory discrepancy is corrected. A major discrepancy results in a failed inspection.

18.35.16.2. (Added-ANG) Minor Discrepancies: Unsatisfactory condition that does not warrant aircraft grounding or discontinuing use of equipment. Refer to the TEC and AQL/Standards for the total number of minor points allowed to determine a pass rating.

18.35.17. (Added-ANG) Special Inspections (SI): SIs are inspections not covered by Quality Verification Personnel, and Management Inspections. SIs may include, but are not limited to, aircraft and equipment forms inspections, CTK, TO files, vehicle inspections, housekeeping, safety practices, FOD program, etc. These inspections may be condition or procedural compliance oriented. Known and suspected problem areas must be targeted by the use of SIs. Other areas shall continue to be inspected on a sampling basis.

18.35.17.1. (Added-ANG) Rating Special Inspections: SIs must be rated pass or fail based on established AQL/standard. SIs can be non-rated (i.e., courtesy inspection of jacket file, etc.).

18.35.18. (Added-ANG) Transient Alert.

18.35.18.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.18.1.1. (Added-ANG) Erasure of a symbol.

18.35.18.1.2. (Added-ANG) Red X discrepancies not entered or cleared.

18.35.18.1.3. (Added-ANG) Tool inventory not completed.

18.35.18.1.4. (Added-ANG) Exceptional Release entry not cleared prior to flight.

18.35.18.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.18.2.1. (Added-ANG) Signature, employee number, rank/grade improperly entered.

18.35.18.2.2. (Added-ANG) Vehicle 1800 not signed and or vehicle dirty.

18.35.18.2.3. (Added-ANG) FOD check not performed before aircraft arrival.

18.35.19. (Added-ANG) Aerospace Ground Equipment: Equipment is inspected for obvious defects, irregularities affecting operation, and AFTO Form 244, *Industrial/Support Equipment Record*, documentation. Emphasis is placed on serviceability of equipment.

18.35.19.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.19.1.1. (Added-ANG) AFTO Form 244 missing.

18.35.19.1.2. (Added-ANG) Discrepancies noted rendering equipment unserviceable (RED X).

18.35.19.1.3. (Added-ANG) Notable flammable fluid leak.

18.35.19.1.4. (Added-ANG) Power-on check failure (after Periodic Inspection).

18.35.19.1.5. (Added-ANG) Work cards not on hand if applicable.

18.35.19.1.6. (Added-ANG) Lanyard broken or missing.

18.35.19.1.7. (Added-ANG) Supervisor review of forms not complied with per TO 00 series.

18.35.19.1.8. (Added-ANG) Inspection due but not entered on AFTO Form 244.

18.35.19.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.19.2.1. (Added-ANG) Cleanliness.

18.35.19.2.2. (Added-ANG) Documentation errors in AFTO Form 244.

18.35.19.2.3. (Added-ANG) Fluid levels/lube not IAW Technical Data.

18.35.19.2.4. (Added-ANG) Markings not IAW Technical Data.

18.35.19.2.5. (Added-ANG) Minor corrosion/cracks.

18.35.19.2.6. (Added-ANG) Required reflective tape and/or bumper padding missing.

18.35.19.2.7. (Added-ANG) Identification markings ambiguous.

18.35.20. (Added-ANG) Bench Stock:

18.35.20.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.20.1.1. (Added-ANG) Label missing.

18.35.20.1.2. (Added-ANG) Shadow board not properly maintained (if used).

18.35.20.1.3. (Added-ANG) Pilferable items not safeguarded.

18.35.20.1.4. (Added-ANG) Precious metal recoverable container not secured.

18.35.20.1.5. (Added-ANG) Deleted items still in original bin.

18.35.20.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.20.2.1. (Added-ANG) Co-mingled bench stock.

18.35.20.2.2. (Added-ANG) Indicators missing if applicable (shelf life, precious metals, etc.).

18.35.20.2.3. (Added-ANG) Out dated S04, Master Inventory.

18.35.20.2.4. (Added-ANG) Shop Stock not properly sub-located.

18.35.20.2.5. (Added-ANG) Sub-located items not referencing original bins.

18.35.21. (Added-ANG) Composite Tool Kit (CTK)/Special Tools: Inspections are performed IAW **Chapter 13**.

18.35.21.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.21.1.1. (Added-ANG) Annual inventory not accomplished.

18.35.21.1.2. (Added-ANG) Unserviceable tools.

18.35.21.1.3. (Added-ANG) CTK Inventory does not match contents of toolbox.

18.35.21.1.4. (Added-ANG) CTK sign-in/sign-out not accomplished.

18.35.21.1.5. (Added-ANG) Overdue inspection of tools requiring calibration/inspection.

18.35.21.1.6. (Added-ANG) Tool not shadowed or no longer in use.

18.35.21.1.7. (Added-ANG) Tools improperly etched (illegibly marked, no etching, double etched, does not match box).

18.35.21.1.8. (Added-ANG) Tool missing and not documented.

18.35.21.1.9. (Added-ANG) Torque wrench not set at lowest setting when stored.

18.35.21.1.10. (Added-ANG) Count of all dispatchable CTKs and equipment not performed at beginning and end of each shift.

18.35.21.1.11. (Added-ANG) Foreign object found in CTK.

18.35.21.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.21.2.1. (Added-ANG) Damaged but serviceable.

18.35.21.2.2. (Added-ANG) Foam padding or shadow deteriorated to the point affecting the shadow of the tool.

18.35.21.2.3. (Added-ANG) Minor corrosion.

18.35.21.2.4. (Added-ANG) Minor CTK Inventory documentation errors

18.35.22. (Added-ANG) Foreign Object Inspections: Inspections are performed on parking ramps along the flight line, hangars, work areas, facilities, aircraft, and equipment.

18.35.22.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.22.1.1. (Added-ANG) Failure to comply with FOD prevention directives.

18.35.22.1.2. (Added-ANG) Failure to empty F.O. containers on a daily basis.

18.35.22.1.3. (Added-ANG) Failure to install protective covers on ducts, tubes, hoses, leads, intakes, etc., to prevent FOD.

18.35.22.1.4. (Added-ANG) Failure to wear proper attire when entering an engine intake.

18.35.23. (Added-ANG) Housekeeping: Inspections are accomplished IAW AFOSH 91-100. This inspection shall evaluate the cleanliness/safety of offices and work areas. Housekeeping during and following maintenance is considered. **NOTE**: For Munitions Storage Areas; In addition to the above mentioned areas, there must be inspections performed IAW AFMAN 91-201.

18.35.23.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.):

18.35.23.1.1. (Added-ANG) Any obstacles in passageway compromising safety and travel.

18.35.23.1.2. (Added-ANG) Fire extinguisher inspection overdue, under serviced, or unserviceable.

18.35.23.1.3. (Added-ANG) Fire hazard or improperly stowed flammable material.

18.35.23.1.4. (Added-ANG) Self-closing lids not used for combustible waste, rags, etc.

18.35.23.1.5. (Added-ANG) Spills left on floor causing a potential safety hazard.

18.35.23.1.6. (Added-ANG) Electrical cords and compressed air lines not stowed.

18.35.23.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.23.2.1. (Added-ANG) Garbage containers not emptied on a routine basis.

18.35.23.2.2. (Added-ANG) Trash and buildup of dirt on office or work area floors.

18.35.24. (Added-ANG) Shop Support Equipment/Test Equipment: Inspections are performed IAW guidelines in applicable Technical Data and service manuals to determine serviceability.

18.35.24.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.24.1.1. (Added-ANG) Overdue inspections.

18.35.24.1.2. (Added-ANG) Calibrated Inspection overdue.

18.35.24.1.3. (Added-ANG) Missing AFTO Forms 244/245.

18.35.24.1.4. (Added-ANG) Bare power cords or wiring on equipment.

18.35.24.1.5. (Added-ANG) Defect affecting serviceability.

18.35.24.1.6. (Added-ANG) Equipment parts missing.

18.35.24.1.7. (Added-ANG) Connector Pins corroded/bent/recessed/broke.

18.35.24.1.8. (Added-ANG) Hoses left uncapped.

18.35.24.1.9. (Added-ANG) Missing guards on flywheels, pulleys, etc.

18.35.24.1.10. (Added-ANG) Overrated fuses installed in equipment.

18.35.24.1.11. (Added-ANG) Leaks.

18.35.24.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.24.2.1. (Added-ANG) Minor corrosion.

18.35.24.2.2. (Added-ANG) Minor cracks.

18.35.24.2.3. (Added-ANG) Cleanliness.

18.35.24.2.4. (Added-ANG) Documentation errors in AFTO Forms 244/245.

18.35.24.2.5. (Added-ANG) Documentation errors on PMEL Tags resulting in identification errors.

18.35.25. (Added-ANG) Technical Order File: Inspections of Technical Order Files are accomplished by the TODO. QA shall perform spot inspections on the Technical Orders.

18.35.25.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.25.1.1. (Added-ANG) Changes, Supplements, Technical Order Page Supplements (TOPS), etc., not filed within 5 working days or within five days of aircraft return to home station.

18.35.25.1.2. (Added-ANG) Deleted pages not removed from tech data.

18.35.25.1.3. (Added-ANG) List of Effective Pages (LEP) overdue/not accomplished.

18.35.25.1.4. (Added-ANG) Missing pages in Technical Data.

18.35.25.1.5. (Added-ANG) Incorrectly filing Supplements, TOPS, changes, etc.

18.35.25.1.6. (Added-ANG) Supplements not annotated against the affected paragraph.

18.35.25.1.7. (Added-ANG) TOs missing from files (unaccounted for).

18.35.25.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.25.2.1. (Added-ANG) Technical Order Binder Labels improperly completed.

18.35.25.2.2. (Added-ANG) Requisition follow-up overdue.

18.35.25.2.3. (Added-ANG) Title page not properly annotated.

18.35.25.2.4. (Added-ANG) Unserviceable TO binder.

18.35.26. (Added-ANG) Vehicle: Inspections are accomplished IAW AFI 24-301 VOL I, AFI 24-302, and the applicable vehicle inspection card. The inspection shall evaluate the overall condition of each assigned vehicle to determine operational capability.

18.35.26.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.26.1.1. (Added-ANG) Battery level low (core exposed).

18.35.26.1.2. (Added-ANG) Daily inspection not accomplished.

18.35.26.1.3. (Added-ANG) Fire bottle unserviceable.

18.35.26.1.4. (Added-ANG) Hazardous material left in vehicle.

18.35.26.1.5. (Added-ANG) Major fluid leak.

18.35.26.1.6. (Added-ANG) Gear belts missing or inoperative.

18.35.26.1.7. (Added-ANG) Tire worn below wear marks/flat.

18.35.26.1.8. (Added-ANG) Undocumented damage rendering the vehicle unserviceable.

18.35.26.1.9. (Added-ANG) Any inoperative light listed in checklist under Major.

18.35.26.1.10. (Added-ANG) Low fluid level.

18.35.26.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.26.2.1. (Added-ANG) Battery terminal clamps loose or corroded.

18.35.26.2.2. (Added-ANG) Loose/worn belts.

18.35.26.2.3. (Added-ANG) Low tire pressure not within plus or minus 10 PSI.

18.35.26.2.4. (Added-ANG) Any lights inoperative not listed under Major.

18.35.26.2.5. (Added-ANG) Windshield wiper worn.

18.35.26.2.6. (Added-ANG) Minor undocumented fuel/oil/coolant leaks.

18.35.27. (Added-ANG) Munitions Accountability: Inspections are accomplished IAW AFI 21-201 and Quality Control **Table 16.1.** This inspection shall evaluate the overall inventory/ accountability processes and supporting documentation.

18.35.27.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.27.2. (Added-ANG) Stock balance discrepancies.

18.35.27.2. (ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.27.2.1. (Added-ANG) Missing required stamp(s).

18.35.27.2.2. (Added-ANG) Missing transaction number.

18.35.27.2.3. (Added-ANG) Document filed in wrong sequence.

18.35.27.3. (Added-ANG) Not accomplished or incomplete inventories.

18.35.27.4. (Added-ANG) Supporting documentation and or required signatures/information missing.

18.35.27.5. (Added-ANG) Missing or outdated documents of authorization.

18.35.27.6. (Added-ANG) MASO not appointed by proper authority.

18.35.28. (Added-ANG) Munitions Storage Practices and Safety: Inspections are accomplished IAW AFMAN 91-201 and AF 21-201. This inspection shall evaluate the overall storage practices/movement processes and safety.

18.35.28.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.28.1.1. (Added-ANG) Improper storage of hazard classes/groups (compatibility).

18.35.28.1.2. (Added-ANG) Exceeding NEW for storage location.

18.35.28.1.3. (Added-ANG) Improper packaging.

18.35.28.1.4. (Added-ANG) Wrong condition code marked on item.

18.35.28.1.5. (Added-ANG) Unserviceable assets not segregated from serviceable.

18.35.28.1.6. (Added-ANG) Custody account assets not identified properly.

18.35.28.1.7. (Added-ANG) Custody account assets not segregated/stored properly.

18.35.28.1.8. (Added-ANG) Assets not stored with more than normal lot-to-lot separation.

18.35.28.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.28.2.1. (Added-ANG) Improper use of dunnage.

18.35.28.2.2. (Added-ANG) Missing/or improperly annotated location markers.

18.35.28.2.3. (Added-ANG) Missing seal.

18.35.28.2.4. (Added-ANG) Improper container markings or missing information i.e., NSN, DODIC, Qty, etc.

18.35.28.2.5. (Added-ANG) Movement control procedures not properly adhered to or documented using AF IMT 4147, *Munitions Movement Control Worksheet*.

18.35.28.2.6. (Added-ANG) AF IMT 4147, blocks are missing information and not quality checked by Storage.

18.35.28.2.7. (Added-ANG) Crew briefings not accomplished prior to explosive operation.

18.35.29. (Added-ANG) Munitions Material, Support and Test Equipment: Inspections are accomplished IAW Item TO.

18.35.29.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.):

18.35.29.1.1. (Added-ANG) Overdue inspections.

18.35.29.1.2. (Added-ANG) Missing AFTO Forms 244/245.

18.35.29.1.3. (Added-ANG) Bare power cords or wiring on equipment.

18.35.29.1.4. (Added-ANG) Defect affecting serviceability.

18.35.29.1.5. (Added-ANG) Equipment parts missing.

18.35.29.1.6. (Added-ANG) Connector Pins corroded/bent/recessed/broke.

18.35.29.1.7. (Added-ANG) Hoses left uncapped.

18.35.29.1.8. (Added-ANG) Missing guards on flywheels, pulleys, etc.

18.35.29.1.9. (Added-ANG) Overrated fuses installed in equipment.

18.35.29.1.10. (Added-ANG) Overdue calibration inspection.

18.35.29.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.29.2.1. (Added-ANG) Minor corrosion.

18.35.29.2.2. (Added-ANG) Minor cracks.

18.35.29.2.3. (Added-ANG) Cleanliness.

18.35.29.2.4. (Added-ANG) Documentation errors in AFTO Forms 244/245.

18.35.29.2.5. (Added-ANG) Leaks.

18.35.30. (Added-ANG) Munitions Stockpile: Inspections are accomplished IAW Item TO and AFI 21-201.

18.35.30.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.30.1.1. (Added-ANG) Allocations not properly forecasted.

18.35.30.1.2. (Added-ANG) Assets issued without allocation.

18.35.30.1.3. (Added-ANG) Missing courtesy storage agreement.

18.35.30.1.4. (Added-ANG) Failure to notify customer/custodians of restricted/suspended issued assets.

18.35.30.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.30.2.1. (Added-ANG) Failure to report/identify excess assets to ANG.

18.35.30.2.2. (Added-ANG) Not receiving assets on accountable records within five workdays.

18.35.30.2.3. (Added-ANG) Did not update shipment in-transit information in CAS.

18.35.31. (Added-ANG) Munitions Control 2000 (MC2K): Inspection is IAW this publication and AFI 21-201. Work order program, equipment records, facility records, and fire symbol/hazard class division information.

18.35.31.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.31.1.1. (Added-ANG) Work orders not being input/reviewed and updated.

18.35.31.1.2. (Added-ANG) Equipment form information not being updated (AFTO Form 244).

18.35.31.1.3. (Added-ANG) Equipment information loaded in error, i.e., serial number, model etc.

18.35.31.1.4. (Added-ANG) Fire symbol log not updated.

18.35.31.1.5. (Added-ANG) Explosive limits loaded in error.

18.35.31.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.31.2.1. (Added-ANG) Work orders missing information.

18.35.31.2.2. (Added-ANG) AWM/AWP information missing or incomplete, i.e., supply document number, etc.

18.35.32. (Added-ANG) Munitions Inspection: Inspection is IAW Item TO and AFI 21-201. Inspection processes that ensure a qualified appointed munitions inspector and a program that dictates proper tagging, marking, packing and serviceability of munitions assets.

18.35.32.1. (Added-ANG) Major Discrepancies: (Listed below are examples but not limited to.)

18.35.32.1.1. (Added-ANG) Inspections not being accomplished as required (PI, SI, SII, SMI, etc.).

18.35.32.1.2. (Added-ANG) Senior Munitions Inspector not properly appointed.

18.35.32.1.3. (Added-ANG) Munitions Inspectors not properly trained/re-certified.

18.35.32.1.4. (Added-ANG) Missing authorization letters for appointment of residue/Demil certified inspectors.

18.35.32.1.5. (Added-ANG) Shelf/Service Life not being monitored.

18.35.32.2. (Added-ANG) Minor Discrepancies: (Listed below are examples but not limited to.)

18.35.32.2.1. (Added-ANG) General Inspection Procedures not adhered to.

18.35.32.2.2. (Added-ANG) AF IMT 102's not filled out properly.

18.35.32.2.3. (Added-ANG) 12 months of AF IMT 102's not on file.

18.35.32.2.4. (Added-ANG) Lot history info not updated.

18.35.33. (Added-ANG) Management Inspection (MI): MIs cover a broad category. This inspection is used to follow up on trends, conduct investigations, or conduct research to identify the root of prob-

lems. Inspections are performed when directed/requested by the Group Commander, QA or work center supervisors. MIs may encompass PE/QVI trends and other inspection data, NMC causes, aborts and trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft -6 technical orders. MI inspection results are reported to the requester. MIs can be non-rated and may be used to identify negative trends.

18.35.34. (Added-ANG) Safety and Technical Violations: Quality Assurance, upon observing conditions, must stop task and note infractions.

18.35.34.1. (Added-ANG) Detected Safety Violation (DSV): An unsafe act by an individual observed by the Quality Assurance. A DSV is not documented on an individual undergoing a personnel evaluation since the unsafe act automatically results in a fail rating on the PE.

18.35.34.2. (Added-ANG) Technical Data Violation (TDV): Maintenance performed without the use of technical data and observed by Quality Assurance. When an individual fails to utilize tech data during a PE, it is a failure of the evaluation and not addressed as a TDV.

18.35.34.3. (Added-ANG) Unsatisfactory Condition Report (UCR): An unsafe condition other than a DSV. The UCR is charged to the work center supervisor. Discrepancies are documented as a UCR when it is not possible to determine who created the condition.

**18.36. (Added-ANG) Transient Aircraft.** Provide maintenance for all transient aircraft as required.

18.36.1. (Added-ANG) The scope and depth of required technical data to support transient aircraft shall be determined by the MXG/CC. If technical data and qualified personnel are not available then the pilot or qualified air crew member must remain at the aircraft while basic servicing operations are performed. Under no circumstances shall maintenance be performed on transient aircraft without technical data and qualified personnel.

**18.37. (Added-ANG) Forward Operating Location (FOL), Fort Drum, New York.** The mission of this unit is to provide effective combat readiness training to all Northeast CAF units for all aspects of maintenance, support, and aircrew combat training pertaining to live ordinance training. Additionally the FOL produces sorties for Northeast CAF units without the need for the using unit to deploy their personnel. FOL personnel shall perform thruflight, launch, recovery, minor repair, and service of deployed aircraft, on/off equipment maintenance and support equipment maintenance within the capability of assigned personnel, equipment, and facilities. Personnel shall also be tasked to load specific munitions items once designated by Detachment Commander, (DETCO) and task certified. Cross utilization training is used exclusively by the detachment as prescribed by this instruction.

18.37.1. (Added-ANG) Maintenance Organization. Maintenance Management latitude is given to the Pro Super. Detachment manning based on assigned equipment, scheduled sorties, and available facilities at the detachment. Unit's schedule sorties through the Pro Super that are within the capabilities of assigned personnel. The Pro Super shall manage, schedule, plan, control, and direct the use of all maintenance resources and be responsible for the following:

18.37.1.1. (Added-ANG) Ensure a quality assessment program is developed.

18.37.1.2. (Added-ANG) Control the assignment and use of maintenance personnel. Ensure all work shifts are adequately manned.

18.37.1.3. (Added-ANG) Coordinate with the range facility on the monthly schedule of aircraft that shall utilize the FOL.

18.37.1.4. (Added-ANG) Control assignment and use of facilities and equipment at the detachment.

18.37.1.5. (Added-ANG) Administer the detachment Safety program.

18.37.1.6. (Added-ANG) Ensure supply management procedures are accomplished.

18.37.1.7. (Added-ANG) Monitor the detachment Load Crew Training program as follows:

18.37.1.7.1. (Added-ANG) Ensure the 174th WWM appoints the detachment weapons load crew by letter as an LSC.

18.37.1.7.2. (Added-ANG) Ensure the detachment LSC maintains certification as outlined in **Chapter 16** of this instruction.

18.37.1.7.3. (Added-ANG) Ensure the detachment LSC is certified under a TTML jointly developed with the units it services.

18.37.1.8. (Added-ANG) Establish an Oil Analysis Program.

18.37.1.9. (Added-ANG) Establish a Maintenance Training Program.

18.37.1.10. (Added-ANG) Manage the detachment Financial Management program.

18.37.1.11. (Added-ANG) Monitor and coordinate requirements to support the maintenance mission and include the plans, programs, and host-tenant agreements.

18.37.1.12. (Added-ANG) Control the Hot Refueling program.

18.37.1.13. (Added-ANG) Provide liaison between the detachment, deploying unit MXG personnel, and Fort Drum, NY personnel. Provide support in nationally recognized Global Exercises with all flying units and support units that are deployed to Fort Drum, NY.

18.37.1.14. (Added-ANG) Develop and administer a FOD program for the detachment.

18.37.1.15. (Added-ANG) Ensure TMDE is calibrated IAW TO 00-20-14.

18.37.1.16. (Added-ANG) Work in conjunction with Detachment Commander to ensure maintenance activities are within the means of assigned personnel.

18.37.1.17. (Added-ANG) Ensure an effective CTK and Bench Stock System is utilized.

18.37.1.18. (Added-ANG) Assign vehicle control officers for assigned government vehicles at detachment.

18.37.1.19. (Added-ANG) Establish ADPE account for detachment. Ensure a LAN system is established with assigned unit for effective accountability of assigned equipment, CAS, and personnel and to ensure effective communications is established with host unit and Air National Guard Readiness Center (ANGRC).

18.37.1.20. (Added-ANG) Develop and publish necessary OIs.

18.37.1.21. (Added-ANG) Develop a program for accountability of all munitions and fuels that are utilized at the attachment. Units utilizing the FOL for live ordnance training must coordinate with detachment personnel for all flying activities.

18.37.2. (Added-ANG) The detachment commander shall authorize production inspectors.

**18.38. (Added-ANG) Alert Detachment.**

18.38.1. (Added-ANG) Detached Alert:

18.38.1.1. (Added-ANG) Maintenance Organization. Detachment manning is based on workload, aircraft type, and location of alert detachments. Each detachment maintenance organization shall have a CEM who shall ensure its efficient operation. Management latitude is given to the CEM in recognition of the factors affecting each alert detachment.

18.38.1.2. (Added-ANG) Detachment provides for immediate launch, recovery, repair, and service of alert aircraft; on/off support equipment maintenance within capability of assigned personnel, equipment, and facilities.

18.38.1.3. (Added-ANG) CEM manages detachment maintenance complex. CEM shall plan, schedule, control, and direct use of all maintenance resources and be responsible for the following:

18.38.1.3.1. (Added-ANG) Ensure a MSEP is established.

18.38.1.3.2. (Added-ANG) Control assignment and use of maintenance personnel. Ensure all shifts are adequately supervised.

18.38.1.3.3. (Added-ANG) Coordinate with detachment Operation activities in establishing maintenance requirements.

18.38.1.3.4. (Added-ANG) Ensure requirements to support mission are included in plans, programs, and host-tenant agreements.

18.38.1.3.5. (Added-ANG) Control assignment and use of maintenance facilities and equipment.

18.38.1.3.6. (Added-ANG) Administer safety program.

18.38.1.3.7. (Added-ANG) Administer FOD program.

18.38.1.3.8. (Added-ANG) Designate production inspectors.

18.38.1.3.9. (Added-ANG) Manage financial program.

18.38.1.3.10. (Added-ANG) Establish an OI.

18.38.1.3.11. (Added-ANG) Develop a munitions Employment/Re-supply Plan.

18.38.1.3.12. (Added-ANG) Establish a maintenance-training program and designate an alert training manager.

18.38.1.3.13. (Added-ANG) Ensure supply management procedures are accomplished.

18.38.1.3.14. (Added-ANG) Monitor the load crew/personnel certification/qualification program.

18.38.1.3.15. (Added-ANG) Establish an Oil Analysis Program for assigned equipment.

18.38.1.3.16. (Added-ANG) Establish a debriefing program.

18.38.1.3.17. (Added-ANG) Comply with calibration requirements established by either the host base or supporting unit.

18.38.1.3.18. (Added-ANG) Establish necessary security programs.

18.38.1.3.19. (Added-ANG) Liaison between detachment and parent unit.

18.38.1.3.20. (Added-ANG) Ensure detachment has required tools and equipment and are controlled IAW **Chapter 3** of this publication.

18.38.1.3.21. (Added-ANG) Ensure detachment has required support equipment.

18.38.1.4. (Added-ANG) The Alert section shall consist of selected personnel who have received training to perform preflight, postflight, servicing, launching, to include arm/dearm of missiles provided the following conditions are met:

18.38.1.4.1. (Added-ANG) Complete initial and annual weapons academics and weapons task qualification training using the applicable MDS 33-1-2 procedures and track training in the MIS or WLCMP.

18.38.1.5. (Added-ANG) Weapons Training Responsibilities and Load Crew Requirements:

18.38.1.5.1. (Added-ANG) Senior most qualified 2W171 at detachment shall be designated by WWM in writing as a member of the parent LSC and must be initially certified/evaluated as a load crew chief by the WWM or designated official.

18.38.1.5.2. (Added-ANG) Certification and training of 2W1X1 load crewmembers must be the same as home station standards.

18.38.1.5.3. (Added-ANG) Load crew training and certification must be documented and routed to parent unit LSC and returned to the detachment for filing.

18.38.1.5.4. (Added-ANG) Initial certification of other crewmembers may be accomplished by parent unit LSC/lead team member. Crewmembers may be used to load in other positions at discretion of load crew chief. Dual certification is authorized.

18.38.1.6. (Added-ANG) Other aircraft maintenance personnel may be certified as augmentee loaders IAW **Chapter 6**.

18.38.1.7. (Added-ANG) Load crewmembers/load augmentees may accomplish captive missile inspections provided they are qualified to perform these inspections.

18.38.1.8. (Added-ANG) At least two assigned 2W1X1s shall be certified as load crew chiefs.

18.38.2. (Added-ANG) Home station Alert.

18.38.2.1. (Added-ANG) Maintenance Organization. Alert manning is based on workload, aircraft type, and location of alert areas. Each maintenance organization shall have an Alert Supervisor who shall ensure its efficient operation. Management latitude is given to the Alert Supervisor in recognition of the factors affecting the alert area.

18.38.2.2. (Added-ANG) Alert area provides for immediate launch, recovery, repair, and service of alert aircraft; on/off equipment and support equipment maintenance within the capability of assigned personnel, equipment, and facilities.

18.38.2.3. (Added-ANG) Alert Supervisor manages the alert maintenance complex. This shall be the sole responsibility of the Alert Supervisor. Alert Supervisor plans and schedules use of maintenance resources and is responsible for the following:

18.38.2.3.1. (Added-ANG) With coordination through the parent unit, Quality Assurance ensure alert is included and participates in MSEP.

18.38.2.3.2. (Added-ANG) Control assignment and use of maintenance personnel. Ensure all shifts are adequately supervised.

18.38.2.3.3. (Added-ANG) Ensure compliance with established wing safety program.

18.38.2.3.4. (Added-ANG) Ensure compliance with established wing FOD program.

18.38.2.3.5. (Added-ANG) Ensure requirements to support mission are included in parent unit plans and programs.

18.38.2.3.6. (Added-ANG) Establish OIs as required.

18.38.2.3.7. (Added-ANG) Develop a munitions Employment/Re-supply Plan.

18.38.2.3.8. (Added-ANG) Establish a maintenance training program and designate an alert training manager.

18.38.2.3.9. (Added-ANG) Ensure supply management procedures are accomplished.

18.38.2.3.10. (Added-ANG) Monitor the load crew/personnel certification/qualification program.

18.38.2.3.11. (Added-ANG) Ensure compliance with established wing Oil Analysis Program for assigned equipment.

18.38.2.3.12. (Added-ANG) Ensure compliance with established wing debriefing program.

18.38.2.3.13. (Added-ANG) Ensure compliance with established wing calibration requirements.

18.38.2.3.14. (Added-ANG) Ensure necessary security programs are implemented and followed.

18.38.2.3.15. (Added-ANG) Ensure required tools and equipment and are controlled IAW **Chapter 3** of this publication and applicable group OIs.

18.38.2.3.16. (Added-ANG) Ensure required support equipment is available.

18.38.2.4. (Added-ANG) The Alert section shall consist of selected personnel who have received training to perform preflight, postflight, servicing, launching, to include arm/dearm of missiles provided the following conditions are met:

18.38.2.4.1. (Added-ANG) Complete initial and annual weapons academics and weapons task qualification training using the applicable MDS 33-1-2 procedures and track training in the MIS or WLCMP.

**18.39. (Added-ANG) Torque Wrench Calibration Site.** Units listed in TO 00-20-14 and approved by the AFMETCAL Det 1 as a Limited User/Owner Torque Calibration/Repair Capability must ensure torque devices are calibrated per any applicable CMS or TO 33K-1-100-1/2.

18.39.1. (Added-ANG) Only approved Torque Calibration Standards or equivalent equipment meeting accuracy requirements as per calibration procedures shall be used to certify torque devices. Torque Calibration Standards must be calibrated by an AFMETCAL program PMEL.

18.39.2. (Added-ANG) Only torque devices owned by the organization shall be calibrated on this site. Torque devices beyond the capability of the organization to calibrate, shall be sent to the Unit's supporting PMEL and must be included as part of their PMEL TMDE inventory.

18.39.3. (Added-ANG) Ensure all personnel performing torque calibrations have been properly trained. At a minimum, an individual must have had training either by possessing a 2P0X1 AFSC, have attended Torque Wrench Calibration Course # E2RST2P031 002 or have successfully participated in an OJT program.

18.39.4. (Added-ANG) Maintain a Certification Roster of all qualified personnel performing torque calibrations.

18.39.5. (Added-ANG) Ensure there is a capability (Chart Recorder) to monitor and record the environment in the calibration area. The torque calibrator/standard must be maintained at a temperature of 73°F ± 9°F during the 24 hour period prior to the torque devices being calibrated. Torque devices have specific "soak' time requirements as per TO 33K procedures. The requirement for Relative Humidity (RH) between 15 and 70 percent applies only while the actual calibration procedure is being performed. Environmental charts shall be retained from the date of the last AFMETCAL on-site assessment.

18.39.6. (Added-ANG) Ensure a complete inventory of all torque devices calibrated at unit level is maintained current, and it is made available on request by AFMETCAL Det 1. This inventory should be kept in an automated format to facilitate scheduling and data collection.

18.39.7. (Added-ANG) The Torque Calibration Site supervisor must develop an internal QP specifically tailored to the torque calibration function. At a minimum, establish a process to randomly select three percent of the completed monthly calibrations (but not less than two certified torque devices per month) for a Quality Review (QR) and every six months accomplish a Process Review (PR) on each qualified technician. The QR is an internal inspection where a separate qualified technician re-accomplishes the calibration on a recently certified torque device prior to it leaving the calibration area and returning it to the customer. The PR is an internal review where a separate qualified technician observes the overall process in action; including training/qualifications, documentation, calibration standard status, and technical data. The supervisor shall manage the internal Quality Program and maintain a log/record of all QRs/PRs. Supervision shall initial or sign the log/record when findings result in failure and initiate corrective action as necessary. The log/record must be maintained for a minimum of two years.

18.39.8. (Added-ANG) Provide MDC to AFMETCAL every six months. MDC data from January through June is due to AFMETCAL by 31 July, and data from July through December is due by 31 January. Send the MDC electronically to: (**mailto:AFMETCAL.MDC@afmetcal.af.mil**).

18.39.9. (Added-ANG) Participate in AFMETCAL Det 1's Proficiency Testing. Testing shall consist of performing measurements on an artifact provided by the Air Force Primary Standards Laboratory (AFPSL) by applying the same calibration methods used to calibrate their own torque devices. Frequency of proficiency testing at each site shall be determined at the discretion of AFMETCAL Det 1 (from zero to two times annually). AFMETCAL Det 1 shall notify the units in advance and shall provide specific instructions as to how to conduct the testing, report results and shipping of the artifact.

18.39.10. (Added-ANG) Torque Calibration Sites shall be subject to random evaluations by AFMET-CAL Det 1.

DONALD J. WETEKAM, Lt General, USAF
DCS/Installations and Logistics

## Attachment 1

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

***References***

**Table A1.1. - AFOSH Standards (AFOSHSTD).**

**AFOSHSTD** 48-1, *Respiratory Protection Program*

**AFOSHSTD** 48-8, *Controlling Exposures to Hazardous Materials*

**AFOSHSTD** 48-9, *Radio Frequency Radiation (RFR) Safety Program*

**AFOSHSTD** 48-19, *Hazardous Noise Program*

**AFOSHSTD** 48-101, *Aerospace Medical Operations*

**AFOSHSTD** 48-137, *Respiratory Protection Program*

**AFOSHSTD** 91-2, *Vehicle-mounted Elevating and Rotating Work Platforms, Manually-Propelled and Self-Propelled Mobile Work Platforms, and Scaffolds (Towers)*

**AFOSHSTD** 91-5, *Welding, Cutting and Brazing*

AFOSHSTD 91-12, Machinery

**AFOSHSTD** 91-17, *Interior Spray Painting*

**AFOSHSTD** 91-22, *Walking Surfaces, Guarding Floor and Wall Openings and Holes, Fixed Industrial Stairs, and Portable and Fixed Ladders*

**AFOSHSTD** 91-25, *Confined Spaces*

**AFOSHSTD** 91-31, *Personal Protective Equipment*

AFOSHSTD 91-32, Emergency Shower and Eyewash Units

**AFOSHSTD** 91-38, *Hydrocarbon Fuels General*

AFOSHSTD 91-43, Flammable and Combustible Liquids

**AFOSHSTD** 91-44, *Safety Color Coding, Labeling, and Marking For Piping Systems*

**AFOSHSTD** 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*

**AFOSHSTD** 91-46, *Materials Handling and Storage Equipment*

**AFOSHSTD** 91-50, *Communications Cable, Antenna and Communications – Electronic (C-E) Systems*

AFOSHSTD 91-56, Fire Protection and Prevention

**AFOSHSTD** 91-66, *General Industrial Operations*

AFOSHSTD 91-67, Liquid Nitrogen and Oxygen Safety

AFOSHSTD 91-68, Chemical Safety

**AFOSHSTD** 91-90, *Precision Measurement Equipment Laboratory (PMEL)*

**AFOSHSTD** 91-100, *Aircraft Flight Line Ground Operations and Activities*

**AFOSHSTD** 91-110, *Nondestructive Inspection and Oil Analysis Program*

**AFOSHSTD** 91-119, *Process Safety Management (PSM) of Highly Hazardous Chemicals*

AFOSHSTD 91-501, Air Force Consolidated Occupational Safety Standard

**AFOSHSTD** 161-2, *Industrial Ventilation*

**AFOSHSTD** 161-17, *Standardized Occupational Health Program*

**AFOSHSTD** 161-20, *Hearing Conservation Program*

**AFOSHSTD** 161-21, *Hazard Communication*

**Table A1.2. - Air Force Instructions and Pamphlets.**

AFI 10-201, *Status of Resources and Training System*

AFI 10-207, *Command Post*

AFI 10-215, *Personnel Support For Contingency Operations (PERSCO)*

AFI 10-229, *Responding to Severe Weather Events*

AFI 10-401, *Operations Plan and Concept Plan Development and Implementation*

AFI 10-403, *Deployment Planning*

AFI 10-404, *Basic Support Planning*

AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*

AFI 10-703, *Electronic Warfare Integrated Reprogramming*

AFI 11-202 v3, *General Flight Rules*

AFI 11-218, Aircraft Operations and Movement on the Ground

AFI 11-235, *Forward Area Refueling Point (FARP) Operations*

AFI 11-301, *Aircrew Life Support (ALS) Program*

AFI 11-401, *Flight Management*

AFI 13-201, *Air Force Airspace Management*

AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*

AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*

AFI 21-104, *Selected Management of Selected Gas Turbine Engines*

AFI 21-105, *Aerospace Equipment Structural Maintenance*

AFI 21-110, *Engineering and Technical Services, Management and Control*

AFI 21-112, *Aircrew Egress System Maintenance*

AFI 21-113, Air Force Metrology and Calibration (AFMETCAL) Program

AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*

AFI 21-123, *The Air Force Repair Enhancement Program*

AFI 21-124, *Air Force Oil Analysis Program*

AFI 21-129, *Two Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment*

AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*

AFI 21-204, Nuclear Weapons Procedures

AFI 21-401, *Engineering Data Storage, Distribution, and Control*

AFI 21-403, *Acquiring Engineering Data*

AFI 23-101, *Centrally Managed Equipment*

AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*

AFI 23-204, *Organizational Fuel Tanks*

AFI 24-301, *Vehicle Operations*

AFPAM 24-317, *Vehicle Control*

AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*

AFI 25-201, *Support Agreements*

AFI 31-209, *The Air Force Resource Protection Program*

AFI 31-401, *Information Security Program Management*

AFI 32-4001, *Disaster Preparedness Planning and Operations*

AFI 32-7001, *Environmental Budgeting*

AFI 32-7002, *Environmental Information Management System*

AFI 32-7005, *Environmental Protection Committees*

AFI 32-7040, *Air Quality Compliance*

AFI 32-7041, *Water Quality Compliance*

AFI 32-7042, *Solid and Hazardous Waste Compliance*

AFPAM 32-7043, *Hazardous Waste Management Guide*

AFI 32-7044, *Storage Tank Compliance*

AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)*

AFI 32-7061, *The Environmental Impact Analysis Process*

AFI 32-7064, *Integrated Natural Resources Management*

AFI 32-7065, *Cultural Resources Management*

AFI 32-7080, *Pollution Prevention Program*

AFI 32-7086, *Hazardous Materials Management*

AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*

AFI 33-115, Vol 1, *Network Management*

AFI 33-202, *Computer Security (COMPUSEC)*

AFI 33-211, *Communication Security (COMSEC) User Requirements*

AFI 33-212, *Reporting COMSEC Deviations*

AFI 33-322, *Records Management Program*

AFI 33-332, *Air Force Privacy Act Information*

AFI 33-360V1, *Publication Management Program, Volume 1*

AFI 34-217, *Air Force Aero Club Program*

AFI 36-2101, *Classifying Military Personnel*

AFI 36-2115, *Assignments within the Reserve Components*

AFI 36-2201, *Air Force Training Program*

AFI 36-2217, *Munitions Requirements for Aircrew Training*

AFI 36-2232, *Maintenance Training*

AFI 36-2611, *Officer Professional Development*

AFI 36-2619, *Military Personnel Appropriation Man-Day Program*

AFI 36-2629, *Individual Mobilization Augmentee Management*

AFI 36-2818, *USAF Logistics Awards Program*

AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*

AFI 36-3209, *Separation and Retirement Procedures For Air National Guard and Air Force Reserve Members*

AFI 36-8001, *Reserve Personnel Participation and Training Procedures*

AFI 37-139, *Records Disposition—Procedures and Responsibilities*

AFI 38-101, *Air Force Organization*

AFI 63-104, *The SEEK EAGLE Program*

AFI 63-124, *Performance Based Service Contracts (PBSC)*

AFI 63-1001, *Aircraft Structural Integrity Program*

AFI 63-1101, *Modification Management*

AFI 63-1201, *Assurance of Operational Safety, Suitability, and Effectiveness*

AFI 65-601, *Volume 1, Budget Guidance and Procedures*

AFI 84-103, U.S. Air Force Heritage Program

AFI 90-901, *Operational Risk Management (ORM) Program*

AFI 91-101, *Air Force Nuclear Weapons Surety Program*

AFI 91-103, *Air Force Nuclear Safety Certification Program*

AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs*

AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems*

AFI 91-112, *Safety Rules for U.S. Strike Aircraft*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 91-205, *Non-Nuclear Munitions Safety Board*

AFPAM 91-215, *Operational Risk Management (ORM) Guidelines and Tools*

AFI 91-301, *Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Program*

AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*

**Table A1.3. - Air Force Policy Directives and Program Action Directives.**

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 21-1, *Managing Aerospace Equipment Maintenance*

AFPD 21-3, *Technical Orders*

AFPD 32-70, *Environmental Quality*

AFPD 62-4, *Standards of Airworthiness for Passenger Carrying Commercial Derivative Transport Aircraft*

AFPD 63-11, *Modification System*

AFPD 63-12, *Assurance of Operational Safety, Suitability, and Effectiveness*

AFPD 90-8, *Environmental Safety, and Occupational Health*

AFPD 91-3, *Occupational Safety and Health*

PAD 02-05, Implementation of the CSAF Direction to Establish a New Combat Wing Organization Structure, 20 Jun 02

**Table A1.4. - Air Force Manuals.**

AFMAN 10-206, *Operational Reporting*

AFMAN 10-401, *Operations Plan and Concept Plan Development*

AFMAN 23-110, *USAF Supply Manual*

AFMAN 23-220, *Reports of Survey For Air Force Property*

AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*

AFMAN 24-306, *Manual For Wheeled Vehicle Driver*

AFMAN 32-4004, *Emergency Response Operations*

AFMAN 32-4017, *Civil Engineer Readiness Technician's Manual for Nuclear,*

Biological, and Chemical Defense

AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*

AFMAN 33-326, *Preparing Official Correspondence*

AFMAN 36-2108, *Airman Classification*

AFMAN 37-123, *Management of Records*

AFMAN 37-139, *Records Disposition Schedule*

AFMAN 64-110, *Manual for Weapon Systems Warranties*

AFMAN 91-201, *Explosives Safety Standards*

**Table A1.5. - Air Force Technical Orders.**

TO 00-5-1, *AF Technical Order System*

TO 00-5-15, *Air Force Time Compliance Technical Order System*

TO 00-5-17, *Users Manual -- USAF Computer Program Identification Numbering System (CPIN)*

TO 00-5-18, *USAF Technical Order Numbering System*

TO 00-20-1, *Aerospace Equipment Maintenance General Policy and Procedures*

TO 00-20-2, *Maintenance Data Documentation*

TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*

TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*

TO 00-20-5-1, *Instructions for Jet Engine Parts Tracking and Fatigue Limit Control*

TO 00-20-14, *AF Metrology and Calibration Program*

TO 00-20B-5, *USAF Motor Vehicle and Equipment*

TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*

TO 00-25-107, *Maintenance Assistance*

TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*

TO 00-25-195, *AF Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons Systems, and Equipment*

TO 00-25-223, *Integrated Pressure Systems and Components (Portable and Installed)*

TO 00-25-240, *Uniformed Repair/Replacement Criteria for USAF Support Equipment (SE)*

TO 00-25-252, *Certification of USAF Aircraft and Missile Welders*

TO 00-25-254-1, *System Manual-Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures*

TO 00-25-254-2, *System Manual – Comprehensive Engine Management System for DSD: D042*

TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*

TO 00-105E-9, *Aircraft Emergency Rescue Information (Fire Protection)*

TO 00-110A-Series, *Inspection Maintenance Instruction, Storage, and Disposition of Aircraft*

TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*

TO 1-1-8, *Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft*

TO 1-1A-15, *General Maintenance Instructions For Support Equipment*

TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*

TO 1-1H-39, *Aircraft Battle Damage Repair General Technical Manual*

TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*

TO 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control*

TO 4T-1-3, *Tires and Tubes*

TO 4W-1-61, *Maintenance Instruction - All Types Aircraft Wheels*

TO 11A-1-33, *Handling and Maintenance of Explosive Loaded Aircraft*

TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*

TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*

TO 31R2-1-251, *General Instructions–Transmission of False Distress Signals on Emergency Frequencies*

TO 32-1-2, *Use of Hand Tools (International Business Mechanical)*

TO 32-1-101, *Use and Care of Hand Tools and Measuring Tools*

TO 33B1-1, *Nondestructive Inspection Methods*

TO 33K-1-100-CD-1, *TMDE Calibration Notes Maintenance Data Collection Codes CAL Measurement Summaries, Calibration Procedure, Calibration Interval, and Work Unit Code Reference Manual*

TO 33K-1-100, *Technical Manual TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*

TO 34-1-3, *Inspection and Maintenance of Machinery and Shop Equipment*

TO 34W4-1-5, *Operator Manual-Welding Theory and Application*

TO 34Y1-1-171, *Installation, Operation, Maintenance and Inspection of Air Compressors*

TO 35-1-3, *Corrosion Prevention, Painting and Marking USAF Equipment*

TO 35-1-4, *Processing and Inspection of Support Equipment for Storage and Shipment*

TO 35-1-24, *General Instruction-AF Repair/Replacement for Selected San Antonio ALC Managed Support Equipment (SE)*

TO 35-1-25, *Economic Repair Criteria for Support Equipment (SE)*

TO 35-1-26, *General Instruction-AF Repair/Replacement for Selected SM/ALC Managed Support Equipment (SE)*

TO 36-1-58, *General Requirement For Repair, Maintenance and Testing of Lifting Devices*

TO 36-1-191, *Technical and Managerial Reference for Motor Vehicle Maintenance*

TO 38-1-23, *Inspection and Installation of Spark Arrestors and Exhaust Purifiers On Non-Aircraft*

TO 42A-1-1, *Safety, Fire Precaution, and Health Promotion Aspects of Painting, Doping and Paint Removal*

TO 42B-5-1-2, *Gas Cylinder (Storage Type) Use, Handling and Maintenance*

TO 44B-1-15, *General Instructions - Jet Engine Anti-friction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities*

**Table A1.6. - Air Force Computer Service Manuals.**

AFCSM 21-303, *PAMS, Software User Manual*

AFCSM 21-556, *Software Center Operator Manual, Software User Manual*

AFCSM 21-558, *Comprehensive Engine Management System (CEMS), Software User Manual*

AFCSM 21-561, *Maintenance Event Subsystem, Software User Manual*

AFCSM 21-563, *Job Data Documentation (JDD), Software User Manual*

AFCSM 21-564, *Status and Inventory Reporting, Software User Manual*

AFCSM 21-565, *Operational Events Subsystem, Software User Manual*

AFCSM 21-566, *Inspection and Time Change, Software User Manual*

AFCSM 21-568, *Time Compliance Technical Order (TCTO), Software User Manual*

AFCSM 21-570, *Training Management, Software User Manual*

AFCSM 21-573, *Automated Scheduling Module, Software User Manual*

AFCSM 21-574, *Automated Debriefing, Software User Manual*

AFCSM 21-575, *Job Control, Automated Maintenance Operation Control Center, Software User Manual*

AFCSM 21-576, *Generic Configuration Status Accounting System (GCSAS , Software User Manual*

AFCSM 21-578, *Product Quality Deficiency Reporting System (PQDR), Software User Manual* (To be deleted when CAMS Central Database "7R1" is fielded)

AFCSM 21-579, *Maintenance-Supply Interface, Software User Manual*

AFCSM 25-524, *REMIS, Software User Manual*

***Abbreviations and Acronyms***

**2LM—**Two Level Maintenance

**A/R—**Aerospace Repair

**ABDR—**Aircraft Battle Damage Repair

**AC—**Aircraft Commander

**ACC—**Air Combat Command

**ACE—**Allied Command Europe

**ACN—**Authorization Change Notice

**ACM—**Aircraft Configuration Management

**ACMI—**Air Combat Maneuvering Instrumentation

**ACPINS—**Automated Computer Program Identification Number System

**ACR—**Authorization Change Requests

**ACS—**Aircraft Cross-Servicing / Agile Combat Support

**ADCC—**Assistant Dedicated Crew Chief

**ADF—**Automatic Direction Finder

**ADN—**Aircraft Directive Numbers

**ADPE—**Automated Data Processing Equipment

**ADR—**Aircraft Document Review / Ammunition Disposition Report

**ADS—**Automated Data System

**ADVON—**Advanced Echelon

**AEF—**Aerospace Expeditionary Force

**AEFC—**AEF Center

**AETC—**Air Education and Training Command

**AETF—**Air and Space Expeditionary Task Force

**AFCSM—**Air Force Computer Security Manual

**AFDD—**Air Force Doctrine Document

**AFETS—**Air Force Engineering and Technical Service

**AFFOR—**Air Force Forces

**AFI—**Air Force Instruction

**AFIND—**Air Force Index

**AFJMAN—**Air Force Joint Manual

**AFKS—**Air Force Knowledge Services (formerly EDW)

**AFMAN—**Air Force Manual

**AFMC—**Air Force Materiel Command

**AFMETCAL—**Air Force Metrology and Calibration Program

**AFNCC—**Air Force Network Control Center

**AFORMS—**Automated Forms

**AFOSH—**Air Force Occupational Safety and Health

**AFP—**Air Force Portal

**AFPAM—**Air Force Pamphlet

**AFPC—**Air Force Personnel Center

**AFPD—**Air Force Policy Directive

**AFRC—**Air Force Reserve Command

**AFREP—**Air Force Repair and Enhancement Program

**AFSATCOM—**Air Force Satellite Communications

**AFSC—**Air Force Specialty Code

**AFCSM—**Air Force Computer Systems Manual

**AFSOC—**Air Force Special Operations Command

**AFSPC—**Air Force Space Command

**AFIT—**Air Force Institute of Technology

**AFP—**Air Force Portal

**AFRL—**Air Force Research Laboratory

**AFTO—**Air Force Technical Order

**AFU—**Automated Functional Unit

**AGE—**Aerospace Ground Equipment

**AGETS—**Automated Ground Engine Test Set

**AGM—**Air Surface Attack Guided Missile

**AHE—**Automated History Event

**AHRS—**Attitude Heading Reference System

**AIG—**Address Indicating Group

**AIMS—**Air Intercept Missile System

**AIP—**Aircraft Information Program

**ALA—**Ammunition Loading Assemblies

**ALC—**Air Logistics Center

**ALS—**Ammunition Loading System

**AMA—**Acceleration Monitor Assemblies

**AMC—**Air Mobility Command

**AME—**Alternate Mission Equipment

**AMU—**Aircraft Maintenance Unit

**AMOG—**Air Mobility Operations Group

**AMQP—**Aircraft Maintenance Qualification Program

**AMSG—**Air Mobility Support Group

**AMSS—**Air Mobility Support Squadron

**AMXS—**Aircraft Maintenance Squadron

**ANG—**Air National Guard

**AOR—**Area of Responsibility

**APG—**Airplane General

**APP—**Auxiliary Power Plant

**APU—**Auxiliary Power Unit

**AQL—**Acceptable Quality Level

**AR—**Attrition Reserve

**ARC—**Air Reserve Component

**ART—**Air Reserve Technician

**AS—**Allowance Standard

**ASAP—**As Soon As Possible

**ASF—**Aircraft Support Flight (MAF)

**ASIP—**Aircraft Structural Integrity Program

**ASIMIS—**Aircraft Structural Integrity Management Information System

**ASM—**Aircraft Structural Maintenance / Automated Scheduling Message

**AST—**Armament Systems Trainer

**ATC—**Air Traffic Control

**ATD—**Aircrew Training Devices

**ATERS—**Automatic Test Reporting System

**ATF—**After-the-Fact

**ATM—**Air Turbine Motor

**ATO—**Air Tasking Order

**ATOMS—**Automated Technical Order Management System

**ATSO—**Ability To Survive and Operate

**AUR—**Accomplishment Utilization Report / All-Up-Round

**AURC—**All-Up-Round Container

**AVDO—**Aerospace Vehicle Distribution Office

**AVTR—**Airborne Videotape Recorder

**AWBS—**Automated Weight and Balance System

**AWI—**Awaiting Installation

**AWM—**Awaiting Maintenance

**AWP—**Awaiting Parts

**BAI—**Backup Aerospace Vehicle (Aircraft) Inventory

**BCS—**Bench Check Serviceable

**BFE—**Basic Fighting Element

**BITE—**Built-In Test Equipment

**BNCC—**Base Network Control Center

**BPO—**Basic Post-flight

**BRA—**Bomb Rack Assembly

**BRAAT—**Base Recovery After Attack

**BRU—**Bomb Rack Unit

**BSL—**Basic Systems Listing

**BSP—**Base Support Plan

**C4—**Command, Control, Communications, and Computers

**CA—**Cannibalization Authority / Combat Support Coded

**CAA—**Career Assistance Advisor

**CA/CRL—**Custodian Authorization/Custody Receipt Listing

**CAD—**Computer Aided Design

**CAD/PAD—**Cartridge/Propellant Activated Device

**CAF—**Combat Air Forces

**CAFSC—**Control Air Force Specialty Code

**CALCM—**Conventional Air Launched Cruise Missile

**CAMS—**Core Automated Maintenance System

**CANN—**Cannibalization

**CAPCODE—**Capability/Reliability Code

**CAS—**Combat Ammunition System

**CASS—**Consolidated Aircraft Support System

**CAST—**Combat Armament Support Team / Command Aircraft Systems Training

**CATM—**Captive Air Training Munition

**CBM—**Carriage Conventional Bomb Module

**CBM+—**Condition-Based Maintenance Plus

**CBRNE—**Chemical, Biological, Radiological, Nuclear and high-yield Environment

**CBT—**Computer-Based Training

**CBU—**Cluster Bomb Unit

**CC—**Commander / Combat Coded

**CCB—**Configuration Control Board

**CCD—**Course Control Document

**CCI—**Controlled Cryptographic Item

**CCMS—**Compass Call Mission Simulator

**C-CW—**Counter-Chemical Warfare

**CCY—**Calculated Cycles

**CD—**Command Disable / Deputy Commander (e.g., MXG/CD)

**CDB—**Central Database

**CDC—**Career Development Course

**CDDAR—**Crashed, Damaged, or Disabled Aircraft Repair

**CDS—**Command Disablement System

**CE—**Civil Engineer / Communications Electronics

**CEMS—**Comprehensive Engine Management System

**CETADS—**Comprehensive Engine Trending and Diagnostics

**CETS—**Contractor Engineering and Technical Services

**CERP—**Centralized Engine Rotable Pool

**CFL—**Competent Familiarity Loading

**CFETP—**Career Field Education and Training Plan

**CFRS—**Computerized Fault Reporting System

**CFT—**Conformal Fuel Tank / Contract Field Team

**CGP—**Central Ground Processors

**CHPMSK—**Centralized High Priority Mission Support Kit

**CIP—**Control Indicator Programmer

**CIRF—**Centralized Intermediate Repair Facility

**CITS—**Central Integrated Test System

**CL—**Checklist

**CLS—**Contract Logistics Support

**CLSS—**Combat Logistics Support Squadron

**CM—**Configuration Management

**CMS—**Component Maintenance Squadron

**CND—**Can Not Duplicate

**CO—**Contracting Officer

**COB—**Collocated Operating Base

**COMAFFOR—**Commander, Air Force Forces

**COMBS—**Contractor Operated and Maintained Base Supply

**COMPUSEC—**Computer Security

**COMSEC—**Communications Security

**CONUS—**Continental United States

**CONOPS—**Concept of Operations

**CONS—**Console Monitoring

**COSO—**Combat Oriented Supply Organization

**COT—**Current Operating Time

**COTS—**Commercial Off-The-Shelf

**CPIN—**Computer Program Identification Numbering

**CPR—**Cardio-Pulmonary Resuscitation

**CPT—**Cockpit Trainer

**CR—**Component Repair

**CRB—**Configuration Review Board

**CRP—**Centralized Rotable Pool

**CSC—**Central Security Control

**CSM—**Cross-Servicing Manager

**CSO—**Concurrent Servicing Operation

**CSRD—**Computer System Requirement Document

**CSRL—**Code Selected Reconciliation Listing / Conventional Stores Rotary Launcher

**CSS—**Concurrent Servicing Supervisor

**CSSM—**Combat Supply Support for Maintenance

**CTK—**Composite Tool Kit

**CTR—**Consolidated Training Request

**CTVS—**Cockpit Television Sensor

**CUT—**Cross Utilization Training

**CV—**Vice Commander

**CVR—**Cockpit Voice Recorder

**CW—**Chemical Warfare / Continuous Wave

**DAFSC—**Duty Air Force Specialty Code

**DASS—**Decentralized Asset Supply Support

**DBA—**Database Administrator

**DBE—**Database Editor

**DBL—**Database Look

**DBM—**Database Manager

**DCC—**Dedicated Crew Chief / Deployment Control Center

**DCMA—**Defense Contract Management Agency

**DD—**Delayed Discrepancy

**DDN—**Defense Data Network

**DDR—**Daily Demand Rate

**DDS—**Deferred Discrepancy Summary

**DDTS—**Data Display Training Set

**DECC—**Defense Enterprise Computer Center

**DEFCON—**Defense Readiness Condition

**DET—**Detachment

**DFAS—**Defense Finance & Accounting Service

**DFT—**Depot Field Team

**DIFM—**Due-in From Maintenance

**DIREP—**Difficulty Report

**DIT—**Data Integrity Team

**DLC—**Distance Learning Center

**DLIR—**Downward-Looking Infrared Radar

**DLM—**Depot Level Maintenance

**DLO—**Dual Loading Operation

**DMS—**Defense Message System

**DOC—**Designed Operational Capability

**DoD—**Department of Defense

**DOI—**Date of Installation

**DOM—**Date of Manufacture

**DOP—**Dropped Object Prevention

**DOR—**Due-Out Release

**DR—**Deficiency Report

**DREAMS—**Deficiency Report Entry and Mail Submitter (System)

**DRIS—**Deficiency Reporting Information System

**DRMO—**Defense Reutilization and Marketing Office

**DS—**Defensive Systems

**DSE—**Dedicated Support Element

**DSN—**Defense Switching Network

**DSV—**Detected Safety Violations

**DTRA—**Defense Threat Reduction Agency

**DUO—**Due-Out

**DVP—**Document Validation Priority

**DVR—**Document Validation Report

**E-Tools—**Electronic Tools

**E&E—**Electro-Environmental

**EA—**Electronic Attack

**EAID—**Equipment Authorization Inventory Data

**ECAMP—**Environmental Compliance Assessment & Management Program

**ECM—**Electronic Countermeasures

**ECP—**Engineering Change Proposal

**ECS—**Environmental Control System

**ECU—**Environmental Control Unit

**EDD—**Earliest Delivery Date

**EDM—**Emergency Destruction of Munitions

**EDSC—**Engineering Data Service Center

**EHR—**Event History Recorder

**EID—**Event Identification Description / Equipment Identification Designator

**EIMSURS—**Equipment Inventory, Multiple Status and Utilization Reporting Subsystem

**EIP—**Equipment Inoperative for Parts

**ELT—**Emergency Locator Transmitter

**EM—**Engine Management Section

**EMB—**Engine Management Branch

**EMOC—**Enhanced Maintenance Operations Center

**EMR—**Electromagnetic Radiation

**EMS—**Equipment Maintenance Squadron

**ENMCB—**Engine Not Mission Capable-Both

**ENMCM—**Engine Not Mission Capable-Maintenance

**ENMCS—**Engine Not Mission Capable-Supply

**EOD—**Explosive Ordnance Disposal

**EOQ—**Economic Order Quantity

**EOR—**End of Runway

**EOT—**Engine Operating Time

**EPA—**Environmental Protection Agency

**EPE—**Evaluator Proficiency Evaluation

**ER—**Exceptional Release

**ERRC—**Expendability, Recoverability, Reparability Code

**ESOH—**Environmental Safety and Occupational Health

**ESS—**Electrical Standards Set

**ESTS—**Electronic System Test Set

**ETTAS—**Engine Test Trim Automated System

**ETA—**Expected Time of Arrival

**ETIC—**Expected Time in Commission

**ETS—**Engineering and Technical Service

**ET&D—**Engine Trending and Diagnostics

**EVS—**Electro-optical Viewing System

**EW—**Electronic Warfare

**EWO—**Emergency War Order

**EWS—**Electronic Warfare System

**EX—**Exercises/Contingencies

**EXPRESS—**Execution and Prioritization of Repair Support System

**FAA—**Federal Aviation Administration

**FAC—**Functional Area Chief / Functional Account Code

**FAD—**Force Activity Designator

**FADM—**Functional Area Documentation Manager

**FAM—**Functional Area Manager

**FAR—**Federal Acquisition Regulation

**FCC—**Flying Crew Chief

**FCF—**Functional Check Flight

**FCIF—**Flight Crew Information File

**FCT—**Flight Circuit Test

**FDR—**Flight Data Recorder

**FDSE—**Flight Line Dedicated Support Element

**FECP—**Field Engineering Change Proposal

**FIT—**Facility for Interoperability Testing

**FK—**Air Force Stock Record Account Number Prefix (munitions)

**FLIR—**Forward-Looking Infrared Radar

**FMC—**Fully Mission Capable

**FO—**Foreign Object

**FOD—**Foreign Object Damage

**FOL—**Forward Operating Location

**FOM—**Facilitate Other Maintenance

**FOQA—**Flight Operational Quality Assurance

**FOUO—**For Official Use Only

**FPCON—**Force Protection Condition

**FS—**Fighter Squadron

**FSAS—**Fuel Savings Advisory System

**FSC—**Flight Service Center

**FSE—**Field Service Evaluation

**FSL—**Full Systems Listing / Forward Support Location

**FTD—**Field Training Detachment

**FUD—**File Update Mode

**FY—**Fiscal Year

**G081—**CAMS for Mobility

**GBL—**Government Bill of Lading

**GBU—**Guided Bomb Unit

**GCCS—**Global Command and Control System

**GCSAS—**Generic Configuration Status Accounting Subsystem

**GDSS—**Global Decision Support System

**GEOLOC—**Geographical Location

**GITA—**Ground Instructional Trainer Aircraft

**GN—**Gaseous Nitrogen

**GOTS—**Government Off-The-Shelf

**GOX—**Gaseous Oxygen

**GP—**Group

**GP/CC—**Group Commander

**GPC—**Government Purchase Card

**GPS—**Global Positioning System

**GPWS—**Ground Proximity Warning System

**GS—**General Schedule

**GSA—**General Services Administration

**GSAS—**Generation Sequence Action Schedule

**GTC—**Gas Turbine Compressor

**HAF—**Headquarters, US Air Force

**HAS—**Hardened Aircraft Shelters

**HAZCOM—**Hazard Communication

**HAZMAT—**Hazardous Material

**HD-LD—**High Demand-Low Density

**HEI—**High Explosive Incendiary

**HF—**High Frequency

**HHQ—**Higher Headquarters

**HMXS—**Helicopter Maintenance Squadron

**HNS—**Host Nation Support

**HPO—**Hourly Post-flight

**HQ—**Headquarters

**HSC—**Home Station Check

**HYT—**High Year of Tenure

**I&SG—**Interchangeable and Substitute Group

**IAW—**In Accordance With

**IBL—**Inspection Baseline

**IC—**Interim Change (for Regulations, Publications, etc.)

**ICW—**In Compliance With

**ID—**Identification

**IDAS—**Intrusion Detection Alarm System

**IDEA—**Innovation Development through Employee Awareness

**I-Deck—**Initialization Deck

**IEU—**Individual Equipment

**IFE—**In-Flight Emergency

**IFF—**Identification Friend or Foe

**IG—**Inspector General

**ILM—**Intermediate Level Maintenance

**IM—**Item Manager

**IMA—**Individual Mobilization Augmentation

**IMDS—**Integrated Maintenance Data System

**IMF—**Integrated Maintenance Facility

**INS—**Inertial Navigation System

**INW—**In Work

**IP—**Instructor Pilot

**IPA—**In-Process Assessment

**INW—**In-Work

**IPB—**Illustrated Parts Breakdown

**IPI—**In-Process Inspection

**IPL—**Immediately Prior to Launch

**IQU—**Integrated Query Utility

**IRADS—**Infrared Acquisitions/Designation System

**IRC—**Inspection Record Card

**IREP—**Intermediate Repair Enhancement Program

**IRRI—**Immediate Response Readiness Inspection

**IRSP—**In-place Readiness Spares Packages

**ISD—**Instructional System Development

**ISO—**Isochronal Inspection

**ISSL—**Initial Spares Support List

**ITAL—**Initial Task Assignment List

**ITDS—**Integrated Technical Data System

**ITO—**Initial Tasking Order

**I&E—**Inspection and Evaluation

**JA/ATT—**Joint Airborne/Air Transportability Training

**JCALS—**Joint Computer-Aided Acquisition and Logistics Support

**JCN—**Job Control Number

**JDD—**Job Data Documentation

**JDMP—**Joint Depot Maintenance Program

**JEIM—**Jet Engine Intermediate Maintenance

**JETCC—**Jet Engine Test Cell/Stand Calibrator

**JFACC—**Joint Forces Air Component Commander

**JML—**Job Standard Master Listing

**JOPES—**Joint Operations Planning and Execution System

**JQS—**Job Qualification Standard

**JSOW—**Joint Stand Off Weapon

**JST—**Job Standard

**JTIDS—**Joint Tactical Information Distribution System

**JUMPS—**Joint Uniform Military Pay System

**KEEP—**Keep Enlisted Experience Program

**KTL—**Key Task List

**LAN—**Local Area Network

**LANTIRN—**Low Altitude Navigation and Targeting Infrared for Night

**LCF—**Low-Cycle Fatigue

**LCL—**Local Checklist

**LCOM—**Logistics Composite Model

**LD-HD—**Low Density-High Demand

**LGR—**Logistics Readiness Division

**LIMFAC—**Limiting Factor

**LJG—**Local Job Guides

**LLC—**Limited Life Component

**LM—**Limited-use Munition

**LME—**Locally Manufactured Equipment

**LMR—**Land Mobile Radio

**LO—**Low Observable

**LOGMOD—**Logistics Module

**LOGNET—**Logistics Network

**LOP—**Local Overprint

**LORAN—**Long Range Aid to Navigation

**LOX—**Liquid Oxygen

**LPS—**Local Page Supplement

**LPT—**Loaded Pylon Test

**LRS—**Logistics Readiness Squadron

**LRU—**Line Replaceable Unit

**LSC—**Load Standardization Crew

**LSET—**Logistics Standardization and Evaluation Team

**LSEP—**Logistics Standardization and Evaluation Program

**LSM—**Logistics Supply Manager

**LSP—**Logistics Support Plan

**LV—**Leave

**LWC—**Local Work cards

**M&I—**Maintenance and Inspection

**MADAR—**Malfunction Detection, Analysis, and Recording System

**MAF—**Mobility Air Forces

**MAJCOM—**Major Command

**MASO—**Munitions Accountable System Officer

**MASS—**Mission Capable (MICAP) Asset Sourcing System

**MC—**Mission Capable

**MCC—**Mission Capability Code

**MDC—**Maintenance Data Collection

**MDF—**Mission Data File

**MDR—**Materiel Deficiency Report

**MDS—**Mission Design Series

**MDSA—**Maintenance Data Systems Analysis

**MEGP—**Mission Essential Ground Personnel

**MEL—**Minimum Essential Level

**MEO—**Most Efficient Organization

**MER—**Multiple Ejection Rack

**MESL—**Mission Essential Subsystems List

**MFG—**Munitions Family Group

**MHE—**Materiel Handling Equipment

**MI—**Management Inspection

**MICAP—**Mission Capable

**MISCAP—**Mission Capability

**MIL—**Master Inventory List

**MILSPEC—**Military Specification

**MIS—**Maintenance Information Systems

**MMCL—**MAJCOM Mandatory Course List

**MMHE—**Munitions Materiel Handling Equipment

**MMR—**Maintenance Manpower Requests

**MOA—**Memorandum of Agreement

**MOB—**Main Operating Base

**MOC—**Maintenance Operations Center

**MOF—**Maintenance Operations Flight

**MOL—**Main Operating Location

**MOO—**Maintenance Operations Officer (formerly Maintenance Supervisor)

**MOU—**Munitions Operation Unit

**MOS—**Maintenance Operations Squadron

**MPC—**Maintenance Priority Code / Mission Planning Cell

**MPF—**Military Personnel Flight

**MPL—**Maintenance Personnel Listing

**MPR—**Maintenance Personnel Roster (listing)

**MPRL—**Minimum Proficiency Requirement Loading

**MQC—**Maintenance Qualification Centers

**MQT—**Maintenance Qualification Training

**MRS—**Mission Route Support

**MRT—**Maintenance Recovery Team / Mission Ready Technician

**MSA—**Munitions Storage Area

**MSB—**Main Support Base

**MSD—**Material Support Division

**MSE—**Munition Support Equipment

**MSEP—**Maintenance Standardization & Evaluation Program

**MSET—**Maintenance Standardization & Evaluation Team

**MSIM—**Mission Simulator

**MSK—**Mission Support Kit

**MSL—**Maintenance Supply Liaison

**MSPE—**Maintenance Safety and Protection Equipment

**MTBF—**Mean Time Between Failures

**MTBM—**Mean Time Between Maintenance

**MTD—**Maintenance Training Device

**MTF—**Maintenance Training Flight

**MTP—**Maintenance Training Plan

**MTR—**Military Travel Request

**MTT—**Mobile Training Team

**MTW—**Major Theater War

**MUNS—**Munitions Squadron

**MX—**Maintenance

**MXG—**Maintenance Group

**MXS—**Maintenance Squadron

**NAF—**Numbered Air Force

**NAS—**National Aerospace Standard

**NATO—**North Atlantic Treaty Organization

**NAVAIDS—**Navigational Aids

**NBC—**Nuclear, Biological, Chemical

**NDI—**Non-Destructive Inspection

**NEW—**Net Explosive Weight

**NHA—**Next Higher Assembly

**NIE—**Normally Installed Equipment

**NLT—**Not Later Than

**NMC—**Not Mission Capable

**NMCB—**Not Mission Capable - Both (maintenance & supply)

**NMCM—**Not Mission Capable - Maintenance

**NMCS—**Not Mission Capable - Supply

**NOCM—**Nuclear Ordnance Controlled Management

**NOTAM—**Notice To Airmen

**NPA—**Non-Powered AGE

**NRTS—**Not Repairable This Station

**NSN—**National Stock Number

**NSS—**Noise Suppression System

**O&M—**Operations and Maintenance

**OACSR—**Operational Aircraft Cross-Servicing Requirement

**OAP—**Oil Analysis Program

**OAS—**Offensive Avionics System

**OBTS—**On-Board Test System

**OCF—**Operational Check Flight

**OCONUS—**Outside Continental U.S.

**OCR—**Office of Collateral Responsibility

**OFP—**Operations Flight Program

**OG—**Operations Group

**OGP—**OBTS Ground Processor

**OI—**Operating Instruction

**OIC—**Officer in Charge

**OJT—**On-the-Job Training

**OL—**Operating Location

**OLO—**Operations Liaison Officer

**OPLAN—**Operational Plan

**OPORD—**Operations Order

**OPR—**Office of Primary Responsibility

**OPSTEMPO—**Operations Tempo

**ORI—**Operational Readiness Inspection

**ORM—**Operational Risk Management

**OSHA—**Occupational Safety and Health Administration

**OS—**Operational Squadron

**OSS—**Operations Support Squadron

**OSS&E—**Operational Safety Suitability and Effectiveness

**OT&E—**Operational Test and Evaluation

**OTI—**One Time Inspection

**OTS—**Over-The-Shoulder

**OTU—**Operating Time Update

**OWC—**Owning Work Center

**P-S—**Permanent-Safety

**PAA—**Primary Aerospace Vehicle (Aircraft) Authorized

**PACAF—**Pacific Air Forces

**PAI—**Primary Aerospace Vehicle (Aircraft) Inventory

**PAL—**Permissive Action Link

**PAMS—**PMEL Automated Management System

**PAS—**Protective Aircraft Shelter / Personnel Assignment (Code)

**PATEC—**Portable Automatic Test Equipment Calibrator

**PBR—**Percent of Base Repair

**PC—**Personal Computer

**PCA—**Permanent Change of Assignment

**PCS—**Permanent Change of Station

**PD—**Program Document

**PDM—**Programmed Depot Maintenance

**PDO—**Publications Distribution Office

**PE—**Personnel Evaluation

**PEC—**Program Element Code

**PERSCO—**Personnel Support for Contingency Operations

**PHR—**Panel Holding Rack

**PI—**Product Improvement

**PIF—**Personal Information File

**PIM—**Product Improvement Manager

**PIP—**Product Improvement Program

**PIWG—**Product Improvement Working Group

**PGM—**Precision Guided Munitions

**PM—**Primary Munition / Preventive Maintenance

**PMC—**Partially Mission Capable

**PMCB—**Partially Mission Capable - Both (maintenance & supply)

**PMCM—**Partially Mission Capable - Maintenance

**PMCS—**Partially Mission Capable - Supply

**PMEL—**Precision Measurement Equipment Laboratory

**PMI—**Preventive Maintenance Inspection

**PMO—**Program Management Office

**PNAF—**Prime Nuclear Airlift Force

**PO—**Program Office

**POC—**Point of Contact

**POI—**Plans of Instruction

**POL—**Petroleum, Oil, and Lubricants

**POM—**Program Objective Memorandum

**POMX—**Point Of Maintenance

**POS—**Peacetime Operating Stock

**PPC—**Possession Purpose Code

**PPE—**Personal Protective Equipment

**PPR—**Product Planning Requirements / Prior Permission Required

**PPS—**Product Performance Subsystem

**PRAM—**Productivity, Reliability, Availability and Maintainability

**PRD—**Pilot Reported Discrepancy

**PRP—**Personnel Reliability Program

**PS&D—**Plans, Scheduling, and Documentation

**PSP—**Primary Supply Point

**PTDO—**Prepare to Deploy Order

**PTM—**Production Team Maintenance

**PTR—**Pressure Test Record

**PWC—**Performing Work Center

**PWS—**Performance Work Statement

**QA—**Quality Assurance

**QAA—**Quality Assurance Assessment

**QAD—**Quality Assurance Data-base

**QAP—**Quality Assurance Program

**QAR—**Quality Assurance Representative

**QASP—**Quality Assurance Surveillance Plan

**QAT—**Quality Assessment Tracking

**QC—**Quality Control

**QE—**Quarterly Evaluation

**QEC—**Quick Engine Change

**QLP—**Query Language Processor

**QP—**Quality Program

**QPA—**Quantity Per Assembly

**QRC—**Quick Reaction Capability

**QRL—**Quick Reference List

**QT—**Qualification Training

**QVA—**Quality Verification Assessment

**QVI—**Quality Verification Inspection

**QVR—**Quality Verification Result

**RAL—**Routine Assessment List

**RAM—**Radar Absorbent Material

**RAMPOD—**Reliability, Availability, Maintainability for Pods

**RAMTIP—**Reliability and Maintainability Technology Insertion Program

**RASCAL—**Rapid Assistance Support for Calibrations

**RAT—**Redeployment Assistance Team

**RCM—**Repair Cycle Monitor

**RCS—**Report Control Symbol

**RCT—**Repair Cycle Time

**RDCO—**Refueling Documents Control Officer

**RDD—**Required Delivery Date

**RDT&E—**Research, Development, Test, and Evaluation

**REMIS—**Reliability and Maintainability Information System

**RIL—**Routine Inspection List

**ROD—**Report Of Discrepancy

**ROID—**Report Of Item Discrepancy

**ROS—**Report Of Survey

**RPIE—**Real Property Installed Equipment

**RPC—**Regional Processing Center

**RPM—**Revolutions Per Minute

**RS—**Reentry System

**RSP—**Readiness Spares Package / Render Safe Procedure

**RSS—**Regional Supply Squadron

**RTACP—**Regional/Theater Ammunition Control Point

**RTC—**Regional Training Center

**RTHW—**Radar Threat Warning

**RTL—**Routine Task List

**RTS—**Radar Test Set

**RTOK—**Re-Test O.K.

**RV—**Reentry Vehicle

**RWR—**Radar Warning Receiver

**R&M—**Reliability and Maintainability

**R&R—**Repair and Reclamation

**SA—**Special Assessment

**SART—**Strategic Aircraft Reconstitution Team

**SATE—**Security Awareness Training and Education

**SATCOM—**Satellite Communication

**SAV—**Staff Assistance Visit

**SBSS—**Standard Base Supply System

**SCL—**Standard Conventional Load

**SCR—**Special Certification Roster

**SDAP—**Special Duty Assignment Pay

**SE—**Support Equipment

**SEI—**Special Experience Identifier

**SF—**Security Forces

**SGA—**Selective Generation Aircraft

**SGO—**Sortie Generation Operations

**SHAPE—**Supreme Headquarters Allied Powers, Europe

**SHD—**Significant Historical Data

**SHDR—**Significant History Data Recorder

**SI—**Special Inspection

**SIOP—**Single Integrated Operational Plan

**SIPRNET—**Secret Internet Protocol Router Network

**SIT—**System Interface Test

**SLT—**Simulated Laser Target

**SM—**Single Manager / Support Munitions

**SME—**Subject Matter Expert

**SMR—**Source of Maintenance and Recoverability

**SN—**Serial Number

**SNCO—**Senior Non-Commissioned Officer

**SO—**Single Observation

**SOF—**Supervisor Of Flying

**SORTS—**Status Of Resources and Training System

**SOT—**Status Of Training

**SOW—**Statement Of Work

**SPD—**Servicing/Pick-up/Delivery / System Program Director

**SPO—**System Program Office

**SPRAM—**Special Purpose Recoverables Authorized Maintenance

**SQ—**Squadron

**SQ/CC—**Squadron Commander

**SQT—**Special Qualification Training

**SR—**Service Report / Strategic Radar

**SRAN—**Stock Record Account Number

**SRD—**Standard Reporting Designator

**SRP—**Selective Reenlistment Program

**SRU—**Shop Replaceable Unit

**SSEA—**System Safety Engineering Analysis

**SSG—**Standard Systems Group

**SSM—**System Support Manager

**STAMP—**Standard Air Munitions Package

**STANAG—**Standardized NATO Agreement

**SUPT—**Maintenance Superintendent (Enlisted Duties)

**SW—**Special Weapons

**SWIM—**Special Weapons Information Management

**SY—**Sympathy

**TAC—**Total Accumulated Cycles

**TACAN—**Tactical Air Navigation

**TACC—**Tanker/Airlift Control Center

**TACP—**Theater Ammunition Control Point

**TAI—**Total Active Inventory (aircraft)

**TAL—**Task Assignment List

**TALCE—**Tanker/Airlift Control Element

**TAS—**Tool Accountability System

**TAV—**Total Asset Visibility

**NFTBU—**Tank Build-Up

**TBMCS—**Theater Battle Management Core System

**TCAS—**Traffic Collision Avoidance System

**TCI—**Time Change Item

**TCN—**Transportation Control Number

**TCS—**TCTO Status Report

**TCTO—**Time Compliance Technical Order

**TD—**Training Detachment / Temporary Duty

**TDI—**Time Distribution Index

**TDV—**Technical Data Violation

**TDY—**Temporary Duty

**TE—**Technical Engineer

**TEC—**Type Event Code

**T/E/C—**Trainer/Evaluator/Certifier

**TEMS—**Turbine Engine Management System

**TEP—**Technical Engineering Program

**TER—**Triple Ejection Rack

**TF—**Training Funded

**TFCU—**Transportable Field Calibration Unit

**TIN—**Turn In

**TISL—**Target Identification Set Laser

**TMATS—**Transmitter/Modulator Assembly Test Set

**TMDE—**Test Measurement and Diagnostic Equipment

**TMO—**Traffic Management Office

**TMRS—**Tactical Missile Reporting System

**TMSM—**Type Make Series Modification

**TNB—**Tail Number Bin

**TNMC—**Total Not Mission Capable

**TNMCB—**Total Not Mission Capable - Both

**TNMCM—**Total Not Mission Capable - Maintenance

**TNMCS—**Total Not Mission Capable - Supply

**TNO—**Theater Nuclear Option

**TO—**Technical Order

**TOA—**Table Of Allowances

**TODA—**Technical Order Distribution Account

**TODO—**Technical Order Distribution Office

**TOS—**Time On Station

**TOT—**Task Oriented Training

**TPFDD—**Time Phased Force Deployment Document

**TRAP—**Tanks, Racks, Adapters, and Pylons

**TRE—**Transfer of Equipment

**TRIC—**Transaction Identification Code

**TRN—**Turnaround Transaction

**TRSS—**Training Support Squadron

**TRU—**Tester Replaceable Unit

**TSSE—**Test Station Support Equipment

**TSS—**TCTO Status Summary

**TTML—**Test/Training Munitions List

**TTP—**Tactics, Techniques & Procedures

**TVI—**Technical Validation Inspection

**U&TW—**Utilization and Training Workshop

**UAV—**Unmanned Aerial Vehicle

**UCAV—**Unmanned Combat Aerial Vehicle

**UCI—**Unit Compliance Inspection

**UCML—**Unit Committed Munitions List

**UCR—**Unsatisfactory Condition Report

**UDM—**Unit Deployment Manager

**UETM—**Unit Education and Training Manager

**UEM—**Unit Engine Manager

**UGT—**Upgrade Training

**UHF—**Ultra High Frequency

**UJC—**Urgency Justification Code

**ULN—**Unit Line Number

**UMD—**Unit Manning Document

**UND—**Urgency of Need Designator

**UPMR—**Unit Personnel Management Roster

**USAF—**United States Air Force

**USAFE—**United States Air Forces in Europe

**UT—**Upgrade Training

**UTA—**Unit Training Assembly

**UTC—**Unit Type Code

**UTE—**Utilization (rate)

**UTM—**Unit Training Manager

**UXO—**Unexploded Ordnance

**VHF—**Very High Frequency

**VTT—**Video Tele-Training

**W&B—**Weight and Balance

**W&T—**Wheel and Tire

**W/B/T—**Weapon Bay Fuel Tanks

**WCDO—**War Consumables Distribution Objective

**WCE—**Work Center Event

**WCS—**Weapons Control System

**WG—**Wing / Wage Grade

**WG/CC—**Wing Commander

**WG/CV—**Vice Wing Commander

**WL—**Wage Leader

**WLCMP—**Weapons Load Crew Management Program

**WLT—**Weapons Load Training

**WMP—**War Mobilization Plan

**WR—**War Reserve

**WRCS—**Weapons Release Control System

**WRE—**War Ready Engine (level/rate)

**WRM—**War Reserve Materiel

**WRMO—**War Reserve Materiel Officer

**WS—**Weapons Standardization / Wage Supervisor

**WS3—**Weapons Storage and Security System

**WSCM—**Weapon System Compatible Munition

**WSE—**Weapons Standardization Evaluator

**WSEP—**Weapons System Evaluation Program

**WSLO—**Weapons System Liaison Officer

**WSLU—**Weapons System Lead Unit

**WTD—**Weapons Training Detachment

**WTQC—**Weapons Task Qualification Crew

**WTQM—**Weapons Task Qualification Training Manager

**WTS—**Weapons Training Site

**WW—**Worldwide

**WWID—**Worldwide Identification (code for TAS)

**WWM—**Wing Weapons Manager

**WX—**Weather

**WUC—**Work Unit Code

***Terms***

**Aircraft Impoundment—**Isolation of an aircraft due to an unknown malfunction or condition making it unsafe for flight.

**Aircraft Maintenance Qualification Program (AMQP)—**Conducts training in an environment that is not in competition with sortie production. Ensures personnel arrive at their work center with the necessary skills to be immediately productive.

**Aircrew Training Device (ATD)—**Weapons systems simulator or designated training aircraft.

**AF Portal Gadgets—**Computer displays that provide the functional capability to track and update asset status.

**Aircraft B-Status Possession Codes—**Sample B-status codes (specified in AFI 21-103): BJ=crash/battle damage awaiting AFMC assist/decision; BK=command programmed maintenance; BL=extended transit maintenance; BN=crash damaged (unit repairable); BO=battle damage; BQ=major maintenance awaiting AFMC decision/action; BR= major maintenance awaiting parts; BT=aerospace vehicle transfer; BU=depot level maintenance; BW=weather/bird strike damage awaiting AFMC assist/decision; BX=weather/bird strike damage repairable by unit.

**Aircraft D-Status Possession Codes—**Sample D-status codes (specified in AFI 21-103): DJ=awaiting depot level maintenance work; DK=contract work; DL=depot delivery flight; DM=undergoing depot level maintenance; DO=programmed depot maintenance; DR=post depot/contractor maintenance.

**Allowance Standard (AS)—**Authorized document that identifies the amount and type of equipment for an organization.

**Alternate Mission Equipment (AME)—**Equipment identified to a higher end-item, not listed in the table of allowance. Normally, Dash-21 equipment.

**Awaiting Maintenance (AWM)—**Designation for a deferred discrepancy on an aircraft awaiting maintenance.

**Awaiting Parts (AWP)—**Designation for a deferred discrepancy on an aircraft awaiting parts.

**Bench Stocks—**Stores of expendability, recoverability, reparability coded (ERRC) XB3 items kept on-hand in a work center to enhance maintenance productivity.

**Cannibalization—**Authorized removals of a specific assembly, subassembly, or part from one weapons system, system, support system, or equipment end-item for installation on another end-item to meet priority mission requirements with an obligation to replace the removed item.

**Certified Load Crew Member—**A load crew member trained and certified by position according to **Chapter 16**

**Class I and Class II Aircraft—**Classification categories used when calculating aircraft's weight and balance.

**Code 1, Code 2, Code 3, Code 4, Code 5—**Landing status codes used by aircrew to inform maintenance of their inbound aircraft's condition. A Code 1 aircraft has no additional discrepancies other than those it had when it last departed; a code 2 aircraft has minor discrepancies, but is capable of further mission assignments; a code 3 aircraft has major discrepancies in mission-essential equipment that may require repair or replacement prior to further mission tasking; a code 4 indicates suspected or known nuclear, biological, or chemical contamination; and a code 5 indicates battle damage. Codes 4 and 5 are entered into the MIS as code 8.

**Combat Air Forces (CAF)—**Term to collectively describe all ACC, AFRC, ANG, PACAF, and USAFE fighter/bomber units.

**Commodity Time Compliance Technical Order—**TCTO concerning a designated item, subsystem, or system that is not identified as a weapon or military system.

**Composite Tool Kit (CTK)—**A controlled area or container used to store tools or equipment and maintain order, positive control, and ease of inventory. CTKs are assembled as a kit and designed to provide quick, easy visual inventory and accountability of all tools and equipment. CTKs may be in the form of a toolbox, a shadow board, shelves, system of drawers (Stanley Vidmar, Lista, etc.), cabinets, or other similar areas or containers. The CTK contains tools and equipment necessary to accomplish maintenance tasks, troubleshooting, and repair.

**Condition-Based Maintenance Plus—**A set of maintenance processes and capabilities derived from real-time assessment of weapon system condition obtained from embedded sensors and/or external tests and measurements using portable equipment. The goal of CBM+ is to perform maintenance only when internal/external sensors indicate the need instead of performing maintenance on a periodic basis.

**Course Control Documents (CCD)—**Set of documents that dictate how a course is taught. These documents include a course training standard, course chart, and a plan of instruction.

**Crash Damaged or Disable Aircraft Recovery (CDDAR)—**The ability to move damaged or disabled aircraft using specialized equipment

**Crosstells—**Cross tells are used to highlight trends, benchmarks or safety conditions relating to maintenance equipment, personnel, training or processes. A crosstell is initiated to assist other maintenance or logistics personnel with similar equipment to do their jobs more safely and/or efficiently. Typically a crosstell will be initiated when a condition or trend is discovered regarding (but not limited to) a weapon system or common components that should be shared with other users or potential users. This information should be transmitted using DMS to ensure widest dissemination and ensure it is brought to the attention of unit commanders in order to prevent or mitigate mishaps, injury or damage to AF personnel, equipment or property. Typically crosstells will provide relevant background information and history and can include such information as NSNs, part numbers, specific location of problem areas, etc.

**Customer Wait Time (CWT)—**CWT for LRUs is the total elapsed time between the issuance of a customer order and satisfaction of that order, regardless of source (immediate issues or backorders), and can include issues from wholesale and/or retail stocks as well as various other arrangements. CWT for end items (engines and pods) includes time for the retrograde and serviceable transportation legs.

**Debriefing—**Program designed to ensure malfunctions identified by aircrews are properly reported and documented.

**Decertification—**The removal of certification status from a person for a specific task

**Dedicated Crew Chief—**DCCs are first-level supervisors in the flight line management structure who manage and supervise all maintenance on their aircraft, and are selected on the basis of initiative, management and leadership ability, and technical knowledge.

**Delayed or Deferred Discrepancies—**Malfunctions or discrepancies not creating NMC or PMC status that are not immediately corrected.

**Depot Level Maintenance—**Maintenance consisting of those on- and off-equipment tasks performed using the highly specialized skills, sophisticated shop equipment, or special facilities of a supporting command; commercial activity; or inter service agency at a technology repair center, centralized repair

facility, or, in some cases, at an operating location. Maintenance performed at a depot may also include organizational or intermediate level maintenance as negotiated between operating and supporting commands.

**Dispatchable CTK—**CTK issued out to perform a specific task or for use by a specific AFSC and is designed to be used outside the tool room or work center.

**Equipment Custodian—**Individual responsible for all in-use equipment at the organizational level whose duties include requisitioning, receiving, and controlling of all equipment assets.

**Equipment Identification Designator (EID)—**A number assigned to a piece of shop equipment, used to track status and accountability.

**Equipment Items—**Item authorized in the allowance standard within an organization.

**Evaluated Load—**A loading task that is assessed according to **Chapter 16**.

**Flight Chief—**NCO responsible to the maintenance officer or superintendent for management, supervision, and training of assigned personnel.

**FK or FV —**Prefix used to identify the munitions supply account. FV denotes units utilizing the Combat Ammunition System-Base (CAS-B) system and FK denotes units utilizing SBSS or manual records supply point within a munitions'' operations unit for conventional munitions.

**Immediately Prior to Launch (IPL)—**Specific tasks accomplished immediately prior to launching an aircraft.

**In-Process Inspection (IPI)—**Inspection performed during the assembly or reassembly of systems, subsystems, or components with applicable technical orders.

**Individual Tools and Equipment—**Tools and equipment that are available for individual sign-out but stored in the tool room in storage bins, cabinets, shelves, etc., with every item having an assigned location (e.g., flashlights, ladders, etc.).

**Intermediate-Level Maintenance—**Maintenance consisting of those off-equipment tasks normally performed using the resources of the operating command at an operating location or at a centralized intermediate repair facility.

**Lead Crews—**A load crew certified by the load standardization crew (LSC), which is assigned to WS to assist in conducting the weapons standardization program.

**Levels—**Computed and authorized requirements for a quantity of assets.

**Loading Standardization Crew (LSC)—**A load crew designated by the wing weapons manager and the WS superintendent to administer the weapons standardization program. LSC members have certification and decertification authority

**Loading Task—**The actions required by one crew member, in a designated position, to accomplish a munitions load

**Local Commander—**The group commander with responsibility for maintenance (as applicable to loading technical data).

**Locked Out or Tag Out—**Energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which or through which a lock can be affixed. Tag out devices, shall be substantial enough to prevent inadvertent or accidental removal.

**Mobility Air Forces (MAF)—**Term to collectively describe all AFRC, ANG, AMC, PACAF, and USAFE airlift/tanker units.

**Maintenance Training—**Any proficiency, qualification, or certification tasking required by a technician to perform duties in their primary AFSC.

**Master Inventory List (MIL)—**Primary source document for inventory of CTKs. The MIL indicates the total number of items in each drawer or section of the tool kit. MIL may be automated.

**Mission Design Series (MDS)—**Alpha and numeric characters denoting primary mission and model of a military weapons system.

**Minimum Proficiency Requirement Loading (MPRL)—**Recurring loading of munitions for which a person is certified.

**Munitions Decertification—**Removal of the certification status of a person that precludes them from loading a specific type munitions or MFG.

**Normally Installed Equipment (NIE)—**Bomb racks, launchers, and pylons normally installed on an aircraft.

**No-Lone Zone—**Area where the two-man concept must be enforced because it contains nuclear weapons, nuclear weapons systems, or certified critical components.

**Non-Release—**System malfunction in which a weapon does not release from the delivery system.

**Off-Equipment Maintenance—**Maintenance tasks that are not or cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

**On-Equipment Maintenance—**Maintenance tasks that are or can be effectively performed on or at the weapon system or end-item of equipment.

**Operating Stock—**The bits and pieces needed to support a maintenance work center that does not meet the criteria of bench stock. It includes reusable items such as dust covers, hydraulic line covers, caps, items leftover from work orders, TCTOs, and items deleted from bench stock.

**Operational Readiness Inspection (ORI)—**Inspection that measures a unit's war fighting readiness.

**Organizational Level Maintenance—**Maintenance consisting of those on-equipment tasks normally performed using the resources of an operating command at an operating location.

**Permissive Action Link (PAL)—**Device included in or attached to a nuclear weapons system to preclude arming and launching until insertion of a prescribed discrete code or combination.

**Personnel Protective Equipment (PPE)—**Equipment required to do a job or task in a safe manner.

**Preload—**A complete munition and suspension equipment package ready for loading

**Possession Purpose Code (PPC)—**Also known as Purpose Identifier Code, it is a two-letter code that indicates ownership (possession) of the asset. For example, "BQ" = major maintenance awaiting AFMC decision/action; "CC" = combat; "DO" = depot level maintenance possession for depot work; etc.

**Primary Aerospace Vehicle Authorized (PAA)—**Aircraft authorized for performing a unit's mission (e.g., combat, combat support, training, test & evaluation, etc.). The PAA forms the basis for allocating operating resources to include manpower, support equipment, and flying hour funds. The operating

command determines the PAA required to meet their assigned missions. "Authorized" refers to the number and type of aircraft an organization is programmed to possess.

**Primary Aerospace Vehicle Inventory (PAI)—**Aircraft assigned to meet the PAA. "Inventory" refers to the number of aircraft actually assigned to a unit and identified against a corresponding authorization.

**Production Supervisor—**Senior NCO responsible for squadron maintenance production. Directs the maintenance repair effort.

**Programmed Depot Maintenance (PDM)—**Inspection requiring skills, equipment, or facilities not normally possessed by operating locations.

**Quality Assurance QA)—**Individual who monitors a contractor on a daily basis and who is involved in every aspect of a contract to ensure the contractor is in compliance with that contract.

**Quarterly Evaluation (QE)—**Recurring calendar task evaluations required by munitions and weapons personnel.

**Queen Bee—**A facility that performs engine repair for a specified region.

**Quick Reference List (QRL)—**Listing of fast moving, high use items required for primary mission aircraft. The basic purpose of the QRL is to provide maintenance personnel with a speedy way to place a demand on the supply system.

**Rag—**A remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) used in general industrial, shop, and flight line operations.

**Reclama—**A request to a duly constituted authority to re-consider its decision or its proposed action (see JP 1-02).

**Recurring Discrepancy—**A recurring discrepancy is one that occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

**Repair Cycle Asset—**Any recoverable item with an expendability, recoverability, reparability code (ERRC) category of XD or XF.

**Repeat Discrepancy—**One repeat discrepancy occurs on the next sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

**Retrograde—**Returning assets (particularly reparable assets) from the field to their source of repair.

**Shop CTK—**Tool kits (not dispatched) used by work center personnel during a shift, provided a single person is responsible for the tool kit.

**Shop Stock—**Includes items such as sheet metal, electrical wire, fabric, and metal stock, used and stored within a maintenance work center to facilitate maintenance.

**Single Integrated Operational Plan (SIOP)—**Operational plan for using special weapons.

**Spares—**Serviceable assets that are available for future use, and in the logistics pipeline. The term spare carries the assumption that there are already enough assets in the Air Force inventory to satisfy end item or quantity per aircraft requirements.

**Special Certification Roster (SCR)—**Management tool that provides supervisors a listing of personnel authorized to perform, evaluate, and inspect critical work.

**Special Purpose CTK—**Small individually issued tool kits that because of the nature of contents or type of container could preclude shadowing or silhouetting (e.g., launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits, etc).

**Subcrew—**Two or more certified and/or qualified personnel who may perform specific tasks

**Supply Point—**Forward warehouse located within or near the maintenance work center.

**Tail Number Bins (TNB)—**Locations established and controlled to store issued parts awaiting installation and parts removed to "facilitate other maintenance" (FOM). Holding bins are set up by tail number, serial number, or identification number.

**Task Assignment List (TAL)—**Functional grouping of procedural steps from applicable -33 series TOs, by crew position, to be accomplished in sequence by each crew member during an operation.

**Technical Administrative Function—**Function responsible for ordering and posting instructions, processing all orders, enlisted performance ratings, and general administrative tasks for the section.

**Technical Order Distribution Office (TODO)—**Function required to maintain records on TOs received and distributed.

**Time Compliance Technical Order (TCTO)—**Authorized method of directing and providing instructions for modifying equipment, and performing or initially establishing one-time inspections.

**Tool Storage Facility/Tool Room—**A controlled area within a work center designated for storage and issue of tools and equipment.

**Total Asset Visibility—**The capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies. It also includes the capability to act upon that information to improve overall performance of the Department of Defense's logistic practices.

**Unit Committed Munitions List (UCML)—**List of primary, support, and limited-use munitions necessary to meet unit operational/training requirements.

**Unmanned Aerial Vehicle (UAV)—**An unmanned aircraft that is either remotely piloted (e.g., Predator) or programmed (e.g., Global Hawk).

**Urgency Justification Code (UJC)—**Two-digit code used to reflect the impact and type of need. The urgency of need designator (UND) fills the first position of the UJC. Use of UND 1, A and J is restricted and is verified by designated personnel.

**Utilization Rate (UTE Rate)—**Average number of sorties or hours flown per primary assigned aircraft per period. Usually time period is based on a monthly rate.

**Weapons Certification—**The act of verifying and documenting a person's ability to load a particular type of aircraft, and munition or MFG within established standards

**Weapons Locally-Manufactured Equipment (LME)—**All equipment that measures, tests, or verifies system, subsystem, component, or item integrity. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. It does not include

simple adapter cables and plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs.

**Weapons Standardization (WS)—**Organization comprised of the wing weapons manager, a Superintendent, the Load Standardization Crew, an academic instructor, and lead crews.

**Weapons Task Qualification—**A munitions related task not requiring certification

**Weight and Balance (W&B) Program—**Program used in calculating, verifying, updating, and computing weight and balance on a weapon system.

## Attachment 1 (ANG)

## GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

***References***

AFMAN 10-206/ANG Sup 1, *Operational Reporting*

AFI 11-206, *General Flight Rules*

ANGI 10-401, *Air National Guard Unit Type Code Management*

ANGI 21-105, *Corrosion Control, Nondestructive inspection, and Oil Analysis Programs*

ANGPAM 21-103, *Maintenance Data Systems Analysis Guide*

TO 00-20-5-1-1*, Engine Historical Records F-100-PW-100/200/220 Engines.*

TO 00-25-113, *Conservation and Segregation of Critical Alloys and Precious Metal Bearing Parts and Scrap*

TO 00-85-20, *Engine Shipping Instructions*

TO 11A-1-10, *General Instruction-Munitions Serviceability Procedures*

TO 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*

***Abbreviations and Acronyms***

**ACW—**Air Control Wing

**AFPSL—**Air Force Primary Standards Laboratory

**AIS—**Avionics Intermediate Shop

**ALMS—**Automated Logistics Management System

**AMF—**Aircraft Maintenance Flight

**ANGRC—**Air National Guard Readiness Center

**ATS—**Automated Training Management Sub-System

**BDT—**Bureau Directed Travel

**C&SRL—**Compliance and Standardization Requirements Lists

**CANN—**Cannibalization

**CAD—**Cartridge Actuated Device

**CAF—**Combat Air Forces

**CEM—**Chief Enlisted Manager

**CIRF—**Centralized Intermediate Repair Facilities

**CMS—**Calibration Measurement summaries

**COMPES—**Contingency Operations/Mobility Planning and Execution System

**CONR—**Continental United States NORAD

**CRF—**Component Repair Flight

**CSM—**Computer Systems Manager

**CSR—**Customer Service Representative

**CTOCU—**Central Technical Order Control Unit

**DAD—**Detached Alert Detachment

**DETCO—**Detachment Commander

**DLR—**Depot Level Repairables

**DMC—**Defense Mega Center

**EAL—**Entry Authorization List

**EDW—**Enterprise Data Warehouse

**EMF—**Equipment Maintenance Flight

**EW—**Electronic Warfare

**FAX—**Facsimile

**FG—**Force Generation

**FSA—**Functional Server Administrator

**FW—**Fighter Wing

**GE—**General Electric

**GCS—**Guidance Control System

**HMMP—**Hazardous Material Management Process

**IATS—**Intermediate Automated Test Station

**IMT—**Information Management Tools

**JEDMICS—**Joint Engineering Data Management Information and Control System

**LEP—**List of Effective Pages

**LOGMOD—**Logistics Module

**LTERM—**Logical Terminal

**LM—**Lockheed Martin

**M/C—**Munitions Control

**MAF—**Mobility Air Forces

**MC2K—**Munitions Control 2000

**MCD —**Magnetic Chip Detectors

**MCDP—**Magnetic Chip Detector Analysis Program

**MDD—**Maintenance Data Documentation

**MSAT—**Maintenance Scheduling Application Tool

**MSE—**Maintenance Standardization Evaluation

**MSE—**Maintenance Scheduling Effectiveness

**MXG—**Maintenance Group

**N/A—**Not Applicable

**NCO—**Non-Commissioned Officer

**NFTBU—**Nestable Fuel Tank Build Up

**NORAD—**North American Aerospace Defense (NORAD)

**OCR—**Office of Collateral Responsibility

**PAA—**Primary Aerospace Vehicle (Aircraft) Authorized

**PAD—**Primary Actuated Device

**P2—**Pollution Prevention

**PAFSC—**Primary AFSC

**PR—**Process Review

**Pro Super—**Production Supervisor

**QPL—**Qualified Products Listing

**QR—**Quality Review

**QuAD—**Quality Assurance Database

**RH—**Relative Humidity

**RNRIU—**Ruggedized Nuclear Remote Interface Units

**SEM/EDX—**Scanning Electron Microscope/Energy Dispersive X-Ray

**SFO—**Simulated Flameout

**SMO—**Squadron Maintenance Officer

**SPOC—**Single Point of Contact

**STU—**Secure Telephone Unit

**T/A—**Transient Alert

**T/E/C—**Trainer/Evaluator/Certifier

**TIM—**Technical Interchange Meeting

**TOPS—**Technical Order Page Supplements

**UAE—**United Arab Emirates

**UEC—**Unit Environmental Coordinator

**UGT—**Upgrade Training

**UPMR—**Unit Personnel Manpower Roster

***Terms***

**Missed Carded Item—**A carded item that is either not complied with or was improperly completed.

## Attachment 2

## SUPPLY REPORTS AND LISTINGS

**Repair Cycle Asset Management Listing (D23).** This listing is used to monitor repair cycle assets and as a management product to monitor the stock position and repair cycle status of repairable (DIFM) assets. It may be produced in several sequences and is provided to the customer daily. Refer to AFMAN 23-110, *USAF Supply Manual*.

**Repairable Support Division.(RSD) Due In From Maintenance (DIFM) Report.** Provides senior managers, flight OIC, and flight chiefs information on assets remaining in the repair cycle over a user defined number of days (e.g. 10 days) which are tying up large amounts unit O&M funds (e.g. over $10,000). This listing allows management to spot check the health of the repair cycle under the RSD concept and is available on request. Use this list to avoid penalty charges for DIFM items in the repair cycle greater than 60 days.

**AWP Validation Listing (D19).** Provides AWP due-outs and corresponding due-in and status details. This information helps determine the status of AWP end items and their corresponding bits and pieces and identifies cross-cannibalization candidates. It is a daily listing and is provided to all work centers involved with AWP management.

**MICAP Status Report (R49).** This report provides the current status of all active MICAP requirements and provides the data in clear text. Use this product to validate serial numbers of parts required for MICAP end items. In units supported by a base supply using the MICAP Asset Sourcing System (MASS), the E-40 may be used in lieu of the R49.

**Priority Monitor Report (D18).** Use this report to monitor due-outs and their corresponding status. It is provided to organizations having due-outs at a locally determined frequency (i.e. daily for UND A, weekly for UND B).

**Due-out Validation Listing (M30).** Provide the user a list of all outstanding due-outs for their organization as reflected in the supply system. Ensure all due-outs are valid and still required. If changes are required, annotate the listing and return a copy to base supply. The listing is provided monthly.

**Daily Document Register (D04).** The D04 is used to monitor and validate supply transactions, which have occurred against a unit's supply account. Review daily for all charges, credits, and other transactions (ISUs, TINs, DORs, etc.) affecting your account.

**Organizational Bench Stock Listing (S04).** This is a listing of all items and quantities authorized on the work center bench stock. The listing is provided semiannually or as requested.

**Bench Stock Review Listing (M04).** Listing of recommended additions, changes, and deletions to organizational bench stocks based on consumption patterns. Do not automatically make additions/deletions based on this listing but rather on expected future demands. The M04 is provided monthly.

**Repair Cycle Data List (Q04).** Provides data applicable to each repair cycle item. Data provided includes history of past repair, NRTS, condemn actions, percent of base repair and repair activity. The listing is provided quarterly.

**Supply Point Listing (Q13).** This listing provides all supply point details, with the quantity authorized, on-hand, and due-out for each detail. It also identifies shortages, excesses and shelf-life items. Q13 is provided quarterly or as requested.

**Special Level Review Listing (R35).** Provides information on all items with adjusted stock levels.

**Organization Effectiveness Report (M24).** The M24 reflects the level of supply effectiveness in meeting unit requirements. Percentages of effectiveness in issue/support and bench stock support for the past month are provided. Potential support problems may be indicated by the percentage of support provided in each area. This is a monthly product.

**Monthly TCTO Reconciliation Listing.** This listing provides TCTO kit status and is used to identify or reconcile differences between supply computer records and maintenance TCTO documents. Refer to AFMAN 23-110, *USAF Supply Manual*. Use monthly to perform this reconciliation.

**TCTO Status Report (TCS).** The TCS is a CAMS background product that identifies serial numbers, TCTO status codes, and kit, part, and tool requirements for equipment requiring modification, as well as a summary of affected equipment by TCTO status codes.

**Document Validation Report (DVR).** Used to validate parts request records by end item serial number (e.g. when performing 14 day records checks).

**Event List (EVL).** This is an on-line CAMS unique inquiry that provides supply document numbers, aircraft discrepancies and equipment ID by event ID.

**MICAP Record Retrieval/Update (1MM).** An on-line SBSS inquiry that lists information on current MICAP conditions by equipment ID.

**MICAP (NMCS/PMCS) Supply Data Inquiry (NSD).** An on-line CAMS inquiry that lists MICAP information by equipment ID.

**Serial Number Record Inquiry.** This on-line SBSS inquiry provides all due-out requirements (MICAPs, deferred discrepancies, etc. ) for an equipment ID.

## Attachment 3

## AIRCRAFT COMMANDER FEEDBACK ON FCC

MEMORANDUM FOR <Unit Designation/Office Symbol>
*Date*
<Street>
<Base, State, and Zip Code>

FROM: <Aircraft Commander>
<Street>
<Base, State, and Zip Code>

SUBJECT: Aircraft Commander Feedback of the Flying Crew Chief (FCC)

Was the FCC knowledgeable of the aircraft and the systems?
a - Extremely knowledgeable c - Lacks knowledge
b - Sufficient knowledge d - Not observed

Did the FCC know the status of PMC and NMC discrepancies?
a - Always c - Rarely
b - Most of the time d - Never

Did the FCC perform duties willingly and enthusiastically?
a - Always c - Never
b - Sometimes d - Not Observed

What type of working relationship did the FCC have with the aircrew?
a - Outstanding c - Fair
b - Good d - Poor

Rate the overall maintenance support provided by the FCC:
a - Outstanding c - Fair
b - Good d - Poor

This FCC was:
a - An asset to the FCC program c - Just getting by.
b - A hard worker, but needs more experience d - Detriment to the FCC program

Remarks:

POC is <FCC Program Manager's Name, office symbol, duty phone number>.

<signed>
Aircraft Commander
*NOTE:* Please fold and return to the squadron FCC Program Manager upon return to home station.

## Attachment 4

## QUARTERLY FCC REPORT FORMAT

MEMORANDUM FOR HQ MAJCOM/LGM
*Date*

FROM: <Unit Designation/Office Symbol>
<Street>
<Base and Zip Code>

SUBJECT: <State fiscal quarter (e.g. FY98/3)> Quarterly Flying Crew Chief Report (RCS: HAF-ILM(Q&A)0011)

In accordance with AFI 21-101 <unit designations> report is submitted.

Number of C-coded FCC positions on the Unit Manpower Document entitled to be filled. Include approved changes (losses/increases):

Number of people filling C-coded positions:

Number of qualifying missions flown per quarter by C-coded crew chiefs. Include the number of TO directed missions:

Number of qualifying missions flown by personnel without C-coded prefix. Include TO directed missions flown by non c-coded prefix personnel:

Number of all missions away from home station that required FCCs:

Total number of days TDY for all C-coded crew chiefs on qualifying missions:

Total number of days TDY for all non C-coded crew chiefs on qualifying missions:

Unit and MAJCOM remarks and overall program assessment. Include remarks to justify vacant positions:

FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>

Commander, <Unit Designation>

## Attachment 5

## ANNUAL FCC REPORT

MEMORANDUM FOR HQ MAJCOM/LGM or DOM
*Date*

FROM: <Unit Designation/Office Symbol>

<Street>

<Base and Zip Code>

SUBJECT: <state fiscal year (e.g. FY98)> Annual Flying Crew Chief Report RCS: HAF-ILM(Q&A)0011)

In accordance with AFI 21-101<unit designations> report is submitted.

Number of C-coded FCC positions on the Unit Manpower Document entitled to be filled. Include approved changes (losses/increases):

Number of people filling C-coded positions:

Number of qualifying missions flown per quarter by C-coded crew chiefs. Include the number of TO directed missions:

Number of qualifying missions flown by personnel without C-coded prefix. Include TO directed missions flown by non c-coded prefix personnel:

Number of all missions away from home station that required FCCs:

Total number of days TDY for all C-coded crew chiefs on qualifying missions:

Total number of days TDY for all non C-coded crew chiefs on qualifying missions:

Unit and MAJCOM remarks and overall program assessment. Include remarks to justify vacant positions:

FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>

Commander, <Unit Designation>

## Attachment 6

## FCC SDAP REQUEST

MEMORANDUM FOR HQ MAJCOM/LGM or DOM

*Date.*

FROM: <Unit Designation/Office Symbol>
<Street>
<Base and Zip Code>

SUBJECT: Flying Crew Chief (FCC) SDAP Positions <Increase/Decrease> Request

In accordance with <unit designations> requests <increase or decrease> of <state quantity of positions>.

Provide brief justification; include comments about force structure changes, additional mission requirements, etc.

FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>

Commander, <Unit Designation>

## Attachment 7

## MAINTENANCE RECOVERY TEAM (MRT) TASKING CHECKLIST.

**A7.1.** The MRT POC will:

A7.1.1. Record the following:

A7.1.1.1. Aircraft MDS and tail number.

A7.1.1.2. Location.

A7.1.1.3. Point of contact (POC) and phone number.

A7.1.1.4. All discrepancies requiring support.

A7.1.1.5. Type of and desired skill level of needed technician.

A7.1.1.6. Parts requirements.

A7.1.1.7. Equipment requirements (including tools, testers, etc.)

A7.1.1.8. Mode of transportation and projected date/time of departure. Evaluate capabilities and determine the best mode of transportation (military airlift, commercial, or government vehicle).

A7.1.1.9. Passport/Visa/Immunization requirements for personnel.

A7.1.2. Contact the applicable maintenance supervision to review requirements and request support from the responsible units to assemble an MRT.

A7.1.3. Brief MRT personnel concerning their duties and responsibilities. Ensure the MRT chief understands the responsibilities Emphasize the following:

A7.1.3.1. The MRT is required to call the home station MOC upon arrival to provide a phone number where they can be contacted.

A7.1.3.2. The MRT is responsible for their equipment and parts:

A7.1.3.2.1. Verify necessary parts are available. Open each container to ensure the right part(s) are in the box prior to departure.

A7.1.3.2.2. Check special tools, support and test equipment for serviceability prior to departure.

A7.1.4. Ensure TDY orders are generated for MRT. Consider the following authorizations and provide as required:

A7.1.4.1. Mission Route Support (MRS) or Mission Essential Ground Personnel (MEGP).

A7.1.4.1.1. MRS permits the bumping of cargo to allow space for the MRT and their equipment.

A7.1.4.1.2. MEGP allows MRT to bypass passenger terminals processing.

A7.1.4.2. Advance per diem.

A7.1.4.3. Commercial travel.

A7.1.4.4. Rental car.

A7.1.4.5. Variations:

A7.1.5. Direct the responsible shop to order the required parts and the applicable unit to select the required equipment items. If requirements are not known, make contact with the AC/flight engineer/ crew chief to determine what items are required.

A7.1.5.1. Items too large or heavy to be carried will be coordinated with MAJCOM and processed by the responsible shop and given to the Traffic Management Office (TMO) for shipment.

A7.1.5.2. If parts can not be sourced locally, consider directing cannibalization.

A7.1.6. Commercial transportation of a MRT and equipment is, in many cases, the most expeditious method. Consider the following:

A7.1.6.1. Airline:

A7.1.6.2. Surface (bus, rail, and limousine).

A7.1.6.3. Air Express Small Package Service.

A7.1.7. Coordinate transportation requirements with TMO. Review the following:

A7.1.7.1. Destination, and priority.

A7.1.7.2. Selected mode of transportation and itinerary.

A7.1.7.3. Names for MRT personnel and nomenclature of equipment items and parts.

A7.1.7.4. Authorization for excess baggage allowance if necessary.

A7.1.7.5. Record TCNs, government bills of lading (GBL), and any applicable billing or shipment numbers.

***NOTE:*** Shipment of large or heavy items by commercial airline mandates prior coordination with airline personnel by MOC or the MRT. To maintain control of parts/equipment, they must be hand-carried or checked as baggage. If an item is not accepted as carry-on luggage or checked as baggage, purchase of an extra seat to accommodate it must be considered and is recommended. Advance coordination with the airline is the key to a successful movement without unnecessary delays.

A7.1.8. Maintain contact with the MRT or the unit responsible for the parts/equipment shipment to ensure that all resources arrive in time to make the scheduled departure.

## Attachment 8

## MRT CHIEF RESPONSIBILITIES

**A8.1.** Prior to Departure. The MRT chief will:

A8.1.1. Receive complete MRT briefing.

A8.1.2. Read and understand all MRT chief responsibilities.

A8.1.3. Ensure all personnel on the MRT are prepared and aware of their part in recovery actions.

A8.1.4. Ensure all equipment/parts/tool kits/technical orders are properly prepared for shipment.

A8.1.4.1. Verify necessary parts are available. Open containers to ensure the right part(s) are in the box.

A8.1.4.2. Check special tools, support and test equipment for serviceability.

**A8.2.** Upon Arrival. The MRT chief will:

A8.2.1. Contact home station MRT POC.

A8.2.2. Report to the mission commander and/or MOC.

A8.2.3. If possible, debrief air crew and make initial determination of discrepancy.

A8.2.4. Compute MRT duty day:

A8.2.4.1. Emphasize safety.

A8.2.4.2. Your initial duty day begins at the time you reported to work prior to MRT tasking. The total duty day (home station duty, travel, and recovery site duty) will not exceed 16 hours for any team member. Technicians will be afforded a minimum 8 hours uninterrupted rest. (Refer to **Chapter 1**)

A8.2.4.3. MRT work starts immediately upon arrival unless duty day has expired en route.

A8.2.4.4. Normal work/rest period at recovery site is 12 hours of work, followed by 12 hours of rest. The 12-hour work period may be extended with concurrence of the MAJCOM and/or the group commander at the deployment site. Do not overwork your team and compromise safety. You are responsible for their care.

A8.2.4.5. If any questions arise consult the AC, group commander, senior maintenance representative, or MAJCOM.

A8.2.5. Report to home station MRT POC with the following information.

A8.2.5.1. Specific discrepancies.

A8.2.5.2. Estimated time in-commission (ETIC).

A8.2.5.3. Billeting room/phone (if applicable).

A8.2.5.4. Expiration time of MRT duty day.

**A8.3.** During recovery, report to the MRT POC to the following schedule:

A8.3.1. Upon initial assessment of actual discrepancy.

A8.3.2. If maintenance/supply status changes.

A8.3.3. As additional requirements become known (parts, equipment, expertise, etc.).

A8.3.4. At the end of shift or upon job completion.

**A8.4.** Upon completion of recovery. The MRT chief will:

A8.4.1. Assemble all parts/equipment/tools and prepare them for return shipment. Reparable assets brought with you or shipped to you from your home unit must be returned to your unit. Reparable assets issued at the recovery location will require turn-in at the recovery location. If in doubt about disposition, contact the home station MRT POC.

**A8.5.** Upon return to home station. The MRT chief will notify MRT POC of return.

## Attachment 9

## MRT CHIEF TASKING CHECKLIST

**A9.1.** Team Chief:

Name Rank AFSC

**A9.2.** Other Personnel:

Name Rank AFSC

**A9.3.** Recovery Location:

**A9.4.** Aircraft Type:

**A9.5.** Tail Number:

**A9.6.** Mission Number:

**A9.7.** Next Destination:

**A9.8.** Mission Commander: Room/Phone:

**A9.9.** Senior Rep/Maintenance Operations (MOO/SUPT):

**A9.10.** Communications at Recovery Site:

**A9.11.** Specific Discrepancies:

**A9.12.** Equipment Required: Item: TCN:

**A9.13.** Part(s) Required: NSN: TCN:

Nomenclature:

Have required parts been bench checked before packing? Y / N / NA

**A9.14.** Tool Kits Required: Kit Number: TCN:

**A9.15.** Support Acft Tail No:

**A9.16.** Mission Number:

**A9.17.** Show Time:

**A9.18.** Orders Prepared? Y / N

**A9.19.** ETD:

**A9.20.** Passport/Visa required? Y / N

**A9.21.** Required Clothing/Money/Shot Records/etc.:

**A9.22.** Military Travel Request (MTR) prepared? Y / N

## Attachment 10

## IC 2004-1 TO AFI 21-101 AEROSPACE EQUIPMENT MAINTENANCE MANAGEMENT

**1 JUNE 2004**

***SUMMARY OF REVISIONS***

This interim change clarifies policy and corrects errors established in the October 2002 edition of AFI 21-101. Major changes include replacing the duty title "Maintenance Supervisor" with "Maintenance Operations Officer", renaming "Maintenance Supervision" as "Maintenance Operations", and adding the "A4" term throughout the document. This IC includes maintenance management aircraft and flying metrics with emphasis on their importance (paragraph **1.10.**); clarification on management information systems (paragraph **1.14.**); a section to describe MXG/CD duties that include chairing the daily maintenance production meeting, it's focus and attendees (paragraph **2.3.2.**); requirements for TMDE flight to utilize TAS, participate in the Activity Inspection Program and MSEP (paragraphs **4.14.**); a section that describes QA permanent and augmentee personnel duties and training requirements, and outlines the MSEP and grading criteria (**Chapter 10**); emphasizes units must ensure their contracted maintenance programs comply with applicable directives (although they may be organized differently from AFI requirements for active duty/ARC units), and are evaluated by contractor officer representatives according to the SOW and QASP (paragraph **10.10.**). The IC also establishes the framework required to transition to standard maintenance information systems; clarifies policy on using the Tool Accountability System (paragraph **13.4.1.**); updates Lead Crew duties and munitions family group tables; corrects terms for flying/maintenance planning and scheduling cycles (paragraphs **15.5.**-**15.10.**); includes a revised **Chapter 17**, Air and Space Expeditionary Forces Maintenance Policy, in its entirety with guidance for CONUS/OCONUS Centralized Intermediate Repair Facilities. Additionally, **Chapter 18** includes new special program guidance for Nestable Fuel Tank Build-Up, and Crash, Damaged or Disabled Aircraft Repair. A bar ( | ) indicates a revision from the previous edition.

**1.6**. **Use of Technical Orders (TO) and Supplements.** Use of the prescribed technical data to maintain aerospace equipment is mandatory and is described in 00-5 series technical orders. The Air Force is modernizing the Air Force TO program using the Technical Order Concept of Operations (TO CONOPS) as a foundation. The goal of the modernization effort is to provide user friendly, technically accurate, and up-to-date digital technical data at the point of use that is acquired, sustained, distributed and available in digital format from a single point of access for all technical data users. TO users shall access technical data using a viewing device called an Electronic Tool (E-Tool). E-Tools (desktop and laptop computers, hand held devices, etc.) are common infrastructure allowing access to all logistics information systems and shall automatically update TOs, provide automated change requests (similar to AFTO 22s) and integrate with other Maintenance Information Systems (MIS). Air Force TOs shall be available for downloading via the Air Force Portal either automatically or on a case-by-case basis. Bases with WLAN capability should use the Air Force Portal to the maximum extent possible to view TOs. Air Force maintenance personnel shall use E-Tools once they become available.

1.6.1.2. Establish and manage TO and supplement programs according to TO 00-5-1, *Air Force Technical Order System*, and AFI 33-360, *Publications Management Program*.

1.6.1.3. Establish procedures for shipping TOs, E-Tools, support equipment associated with E-Tools, and supplements to support mobility requirements.

1.6.1.4. Ensure availability of required TOs, supplements, and E-Tools in work centers. Paper media must not be used to supplement digital TOs IAW AFI 21-303, paragraph 2.4.2.

1.6.2.3. Ensure *w*aivers to, deviations from, or additional technical data procedures are issued using approved official communication methods (i.e., signed letter, organizational E-mail, DMS message or authorized automated TO 00-25-107 technical assistance request system). Ensure all authorized technical data variances are kept with aircraft/equipment historical records until no longer applicable.

1.8.1. Contractors have historically provided significant support to the U.S. Armed Forces. Contractor support can augment existing capabilities, provide expanded sources of supplies and services, bridge gaps in the deployed force structure, leverage assets, and reduce dependence on U.S.-based maintenance. The war fighter's link to the contractor is through the contracting officer or the contracting officer's representative.

1.8.2. Developing Performance-Based Requirements Documents. Performance-based requirements documents focus on desired outcomes and performance standards that communicate what the contactor is asked to provide. Requirements documents provide desired outcomes, performance standards, milestones (if appropriate), and metrics which not only measure the contractor's performance but reflect the management imperatives and initiatives that drive the Air Force (e.g., Mission Capable Rate) and other key efficiency and effectiveness metrics. Requirements documents do not provide "how to" details that dictate the contractor's organization, management, personnel development, or approach to completing work. The only exceptions are safety, environmental management, and security when the contractor operates on a military installation. Additionally, the contractor is required to follow applicable Technical Orders when performing maintenance. Contractor operations and personnel are not supervised by government personnel. Any changes to the scope of the requirements must be reflected in a revision to the requirements document, which is provided to the contracting officer for inclusion in the contract.

1.8.4.3. Specifies the forms, methods of documentation, and frequency of reporting used to assess contract maintenance and ensures these requirements are included in the Quality Assurance Surveillance Plan (QASP) or Performance Management Plan (PMP).

1.8.5.1. Designates a focal point for all functional, technical, and quality assurance matters pertaining to contract aircraft maintenance. Ensures the organizational relationship, physical location, and lines of communication between the Functional Director/Commander, quality assurance personnel, contracting officer, and the contractor performing contract aircraft maintenance, promote efficiency and continuity of operations. If maintenance requires depot level assistance for evaluation and/or repair beyond unit capability, the request shall be made IAW TO 00-25-107, *Maintenance Assistance*.

**1.10. Maintenance Management Metrics.** Leaders, supervisors and technicians must have accurate and reliable information to make decisions. Primary concerns of maintenance managers are how well the unit is meeting mission requirements, how to improve equipment performance, identifying emerging support problems, and projecting future trends. Maintenance management metrics—sometimes called quality performance measures or indicators—are a crucial form of information used by maintenance leaders to improve the performance of maintenance organizations, equipment and people when compared with established goals and standards. Metrics often take the form of an "MC Rate Graph" or a "Status of Personnel Training Slide," presenting a gauge of an organization's effectiveness and efficiency. Properly used, metrics are roadmaps that help determine where you've been, where you're going, and how (or if) you're going to get there.

1.10.1. The overarching objective of Air Force maintenance is to maintain aerospace equipment in a safe, serviceable and ready condition to meet mission needs. Maintenance management metrics serve this overarching objective and shall be established or maintained by Headquarters Air Force, Major Commands, Wings and/or Squadrons to evaluate/improve equipment condition, personnel skills and long-term fleet health. Metrics shall be used at all levels of command to drive improved performance and adhere to well-established guidelines.

1.10.1.1. Metrics must be accurate and useful for decision-making.

1.10.1.2. Metrics must be consistent and clearly linked to goals/standards.

1.10.1.3. Metrics must be clearly understood and communicated.

1.10.1.4. Metrics must be based on a measurable, well-defined process.

1.10.2. Analysis is crucial to improving organizational performance and is the key component of the metrics management process. Commanders and maintenance managers must properly evaluate maintenance metrics and rely upon the maintenance analysis section for unbiased information. Analysis sections shall draw upon information from various maintenance information systems for data. The Core Automated Maintenance System (CAMS)/Integrated Maintenance Data System (IMDS), G081 (CAMS for Mobility), Reliability and Maintainability Information System (REMIS), Standard Base Supply System (SBSS), Air Force Knowledge System (AFKS), and AF/IL-approved command-unique analysis tools are the primary data sources. A good maintenance manager does not strive to "chase numbers" for the sake of looking good. However, the manager uses metrics to focus resources and personnel to improve maintenance processes. Managers must also clearly understand and communicate the crucial linkage between goals, standards and metrics. The Air Force sets goals and standards for organizations, personnel and weapons systems that facilitate evaluation, comparisons and improvements. These standards are published separately by senior leadership and should be clearly understood at all levels of command. Leaders at every level must also support analysis and review metrics to properly drive improved performance. Maintenance analysts manage and track this process, but maintenance metrics, and the resulting improvements they drive, are inherently a leadership responsibility.

1.10.3. Primary Maintenance Metrics. Metrics are often grouped into various categories, including leading or lagging indicators. Leading indicators show a problem first, as they directly impact maintenance's capability to provide resources to execute the mission. Lagging indicators follow and show firmly established trends. Maintenance leaders must review sortie production and maintenance health constantly and be knowledgeable about maintenance indicators that highlight trends before they become problems. This section lists the primary maintenance metrics alphabetically with a description and formula as prescribed in AFI 21-103, Attachment 2 (for aircraft status formulas); and TO 00-20-2, Appendix L (for flying formulas). An example (figure) is also included with several of the key metrics.

1.10.3.1. Abort (Total) Rate (AR). A unit's abort rate is a leading indicator of both aircraft reliability and quality of maintenance performed. It is the percentage of missions aborted in the air and on the ground. An abort is a sortie that ends prematurely and must be re-accomplished. The abort rate may be measured separately as ground or air aborts.

1.10.3.1.1. Total AR (%) = $\frac{\text{Air + Ground Aborts}}{\text{Total Sorties Flown + Ground Aborts}} \times 100$

1.10.3.1.2. Maintenance aborts are those sorties ended prematurely on the ground or in the air caused by system failures/maintenance problems. Maintenance abort rates can gauge both aircraft reliability and

quality of maintenance performed. Maintenance abort rates can be calculated using the following formulas.

1.10.3.1.2.1. Maintenance Air AR (%) = $\frac{\text{Air Aborts (Maintenance)}}{\text{Total Sorties Flown}} \times 100$

1.10.3.1.2.2. Maintenance Ground AR (%) = $\frac{\text{Ground Aborts (Maintenance)}}{\text{Total Sorties Flown + Ground Aborts}} \times 100$

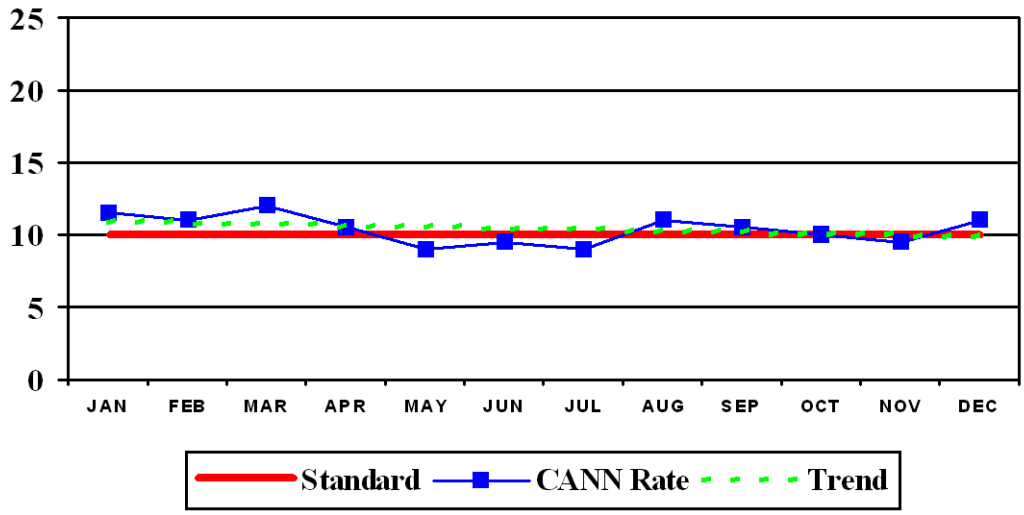
1.10.3.2. Break Rate (BR). The break rate is a leading, flying-related metric. It is the percentage of aircraft that land in "Code-3", or "Alpha-3" for Mobility Air Force (MAF), status (unable to complete at least one of its primary missions). This metric primarily indicates aircraft system reliability. It may also reflect the quality of aircraft maintenance performed. If Fix Rates (refer to paragraph **1.10.3.6.**) are used as a measurement of maintainability, the Break Rate is the complementary measurement of reliability. For true evaluation of equipment/system reliability, measurements must be taken at the system/subsystem level. It is also an excellent predictor of parts demand. Several indicators that follow break rate are Mission Capable (MC), Total Not Mission Capable for Supply (TNMCS), Cannibalization Rate (CR) and Repeat/Recur (R/R).

1.10.3.2.1. BR (%) = $\frac{\text{Number of Sorties that Land "Code-3"}}{\text{Total Sorties Flown}} \times 100$

1.10.3.3. Cannibalization Rate (CR). The CR is a leading indicator that reflects the number of cannibalization (CANN) actions (removal of a serviceable part from an aircraft or engine to replace an unserviceable part on another aircraft or engine or to fill an RSP). In most cases, a cannibalization action takes place when base supply cannot deliver the part when needed and mission requirements demand the aircraft be returned to an MC status. The CR is the number of cannibalization actions for total sorties flown. This rate includes all aircraft-to-aircraft, engine-to-aircraft, and aircraft/engine to RSP cannibalization actions. Since supply relies on the back shops and depot for replenishment, this indicator can also be used, in part, to indicate back shop and depot support.

1.10.3.3.1. CR (%) = $\frac{\text{Number of Aircraft and Engine CANNs}}{\text{Total Sorties Flown}} \times 100$

**Figure 1.1. Sample Metric of CANN Rate Aggregate.**




1.10.3.4. Deferred (or Delayed) Discrepancy (DD) Rate (DDR). The DDR is a leading indicator that should be closely evaluated in comparison to other metrics. This rate represents the average deferred discrepancies across the unit's average possessed aircraft fleet. Discrepancies are considered deferred when: a) they are discovered and the decision is made to defer them, b) discrepancies are scheduled with a start date greater than 5 days after the discovery date, or c) discrepancies are awaiting parts with a valid off base requisition. Delayed discrepancies may be Awaiting Maintenance (AWM) or Awaiting Parts (AWP). Although minor maintenance actions must sometimes be deferred or delayed to a more opportune time, maintenance should try to keep this rate as low as possible. If delayed discrepancies can't be scheduled/ combined with a more extensive maintenance action, maintenance schedulers should routinely schedule their aircraft down for a day when required to work deferred discrepancies. The DDR metric measures AWM + AWP rates, though individual AWM and AWP rates can and should also be monitored.

1.10.3.4.1. Total DDR (%) = $\frac{\text{Total (Snapshot) AWM + AWP Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.2. AWM DDR (%) = $\frac{\text{Total (Snapshot) AMW Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.3. AWP DDR (%) = $\frac{\text{Total (Snapshot) AWP Discrepancies}}{\text{Average Aircraft Possessed}}$

1.10.3.4.4. Aircraft Possession. A key factor in metrics involves aircraft "possession". The Air Force mandates each aircraft will always be owned or "possessed" by a designated organization. Possession is an indicator of an organization's or aircraft fleet's health. Aircraft that are under the control of their owning base are possessed by that organization. An aircraft that flies to depot for maintenance/inspection or is repaired by a depot team at the base is temporarily possessed by depot. In calculating the various aircraft maintenance metrics, possession is calculated in units of hours normally for specific time periods (e.g., monthly, annual, etc.).

1.10.3.5. Departure (Logistics) Reliability (DR) Rate (DRR). This is a broader leading metric used primarily for airlift aircraft that may show a composite of supply, saturation or maintenance problems. The on-time standard for departures are those within 15 minutes of the daily scheduled departure time. The metric provides the commander with an objective measure of the health of the air mobility system and reflects the percentage of departures that are on-time. The main focus of the departure reliability metric is to strengthen the air mobility system through accountability for process improvement. This metric may also be subdivided into other categories (e.g., worldwide departure or en route).

1.10.3.5.1. DRR (%) = $\frac{\text{Number of Departures – Number of Logistics Delays}}{\text{Number of Departures}} \times 100$

1.10.3.6. Fix Rate (FR). The FR is a leading indicator showing how well the repair process is being managed. It is a percentage of aircraft landing with CAP Code-3 or 4 pilot reported discrepancies (PRDs) returned to flyable status in a certain amount of time (clock hours). Problems found by maintenance after the aircraft lands (ground found) are not considered in the fix time. The fix time stops when all CAP Code-3 or 4 PRDs are fixed even if the aircraft remains NMC. This metric is an excellent tool to track "dead time" in aircraft repair processes because it measures the speed of repair and equipment maintainability. The common, standard interval for this metric is 12-hours. However, fighter units typically measure fix rate at shorter intervals (4 and/or 8 hours) along with the 12-hour rate.

1.10.3.6.1. FR (%) = $\frac{\text{“Code-3” Breaks Fixed Within 12 Hours of Landing}}{\text{Total “Code-3” Breaks}} \times 100$

1.10.3.7. Flying Schedule Effectiveness (FSE) Rate. This leading indicator is a measure of how well the unit planned and executed the weekly flying schedule. The flying scheduled developed by tail number is the baseline upon which the FSE is derived by comparing each day’s deviations. Deviations that decrease the FSE from 100% include: scheduled sorties not flown because of maintenance, supply, operations, weather, HHQ, air traffic control, sympathy, or other reasons; scheduled sorties that takeoff more than 30 minutes prior to scheduled takeoff; scheduled sorties that takeoff more than 15 minutes after their scheduled takeoff time (30 minutes for RC-135, EC-135, and U-2 aircraft); and sorties that are added to the schedule. Disruptions to the flying schedule can cause turmoil on the flight line, send a ripple effect throughout other agencies, and adversely impact scheduled maintenance actions. [Adjusted Sorties Scheduled = Total Sorties Scheduled - Sorties Cancelled for Monthly/Yearly Utilization (UTE) Rate Achievement + Sorties Added for End of Fiscal Year UTE Close Out]. Some MAF units calculate FSE using the formula in paragraph **1.10.3.7.2.**

1.10.3.7.1. FSE (%) = $\frac{\text{Adjusted Sorties Scheduled – Chargeable Deviations}}{\text{Adjusted Sorties Scheduled}} \times 100$

1.10.3.7.2. MAF FSE (%) = $\frac{\text{Sorties Scheduled – Total Deviations}}{\text{Sorties Scheduled}} \times 100$

1.10.3.8. Hangar Queen (HQ) (Average) Rate. A Hangar Queen is an aircraft that has not flown for at least 30 consecutive days in their possessed status, or not flown within 10 days after being gained from depot possession (in “D/B-Status” codes). Refer to **Chapter 18** for HQ categories/criteria. This indicator is used to evaluate management of the Hangar Queen program and to assist units with problems beyond their control. The HQ rate captures the average number of aircraft hangar queen days (all categories) for a specified reporting period.

1.10.3.8.1. HQ (%) = $\frac{\text{Total Acft Days in all HQ Categories (in report period)}}{\text{Days (in report period)}} \times 100$

1.10.3.9. Home-Station Logistics Departure Reliability (HSLDR) Rate. This is a leading metric used primarily by the MAF for airlift aircraft. This delineates down to only first-leg departures of unit-owned aircraft departing home station.

1.10.3.9.1. HSLDR Rate (%) = $\frac{\text{\# of HS Departures – \# of HS Logistics Delays}}{\text{\# of HS Departures}} \times 100$

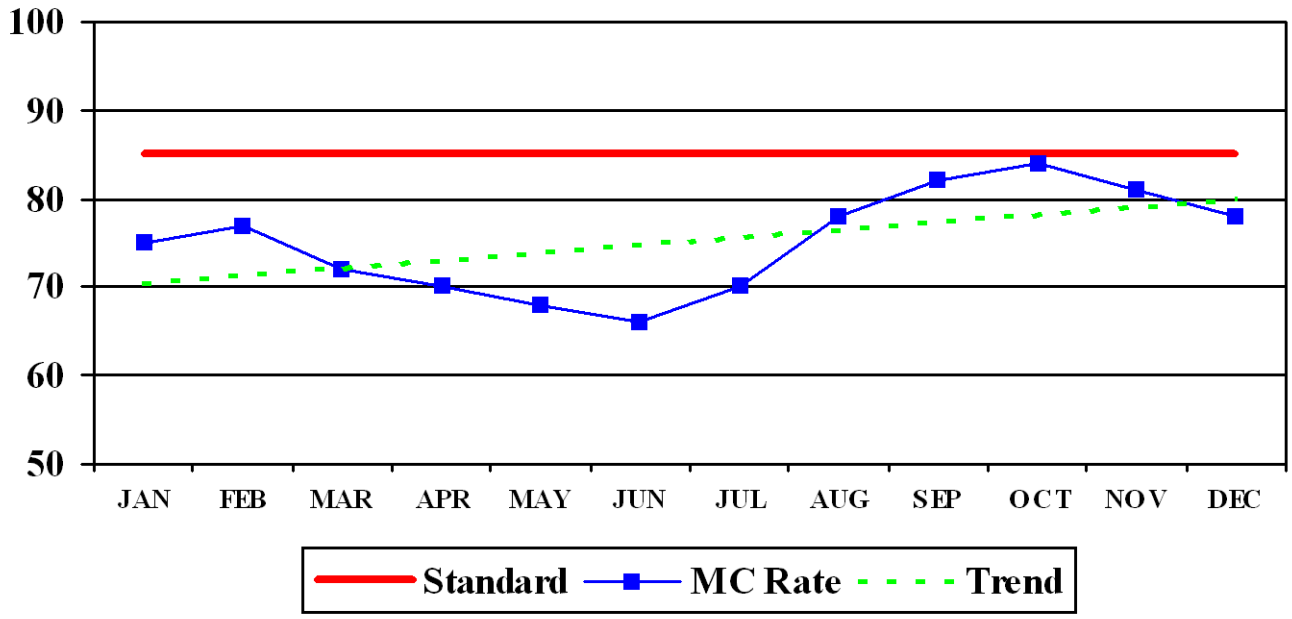
1.10.3.10. Maintenance Schedule Effectiveness (MSE). This is a leading indicator that measures success in the unit's ability to plan and complete inspections and periodic maintenance on-time per the maintenance plan. Deviations to the plan are recorded. A low MSE rate may indicate a unit is experiencing turbulence on the flight line or in the back shops. This indicator is primarily used as feedback to maintenance managers on the success and adherence to scheduled maintenance plans and actions.

1.10.3.10.1. MSE (%) = $\frac{\text{Number of Scheduled Mx Actions Completed On-Time}}{\text{Total Number of Mx Actions Scheduled}} \times 100$

1.10.3.11. Mission Capable (MC) Rate. The MC rate is perhaps the best-known yardstick for measuring a unit's performance. It is the percentage of possessed hours (excluding aircraft in "B-Type" possession purpose code/purpose identifier code status: BJ, BK, BL, BN, BO, BQ, BR, BT, BU, BW, BX) for aircraft that are FMC or PMC for specific measurement periods (e.g., monthly or annual). This metric is a lagging indicator and represents a broad composite of many processes and metrics. A low MC rate may indicate a unit is experiencing many hard breaks, parts supportability shortfalls or workforce management issues. Maintenance managers should look for workers deferring repairs to other shifts, inexperienced workers, lack of parts from supply, poor in-shop scheduling, high cannibalization rates or training deficiencies. High commitment rates may also contribute to a lower MC rate. The key is to focus on negative trends and identify systemic, underlying causes. Further, the root factors of the MC rate should be measured, evaluated and reported through the use of the TNMCM, TNMCS and NMCB rates.

1.10.3.11.1. MC (%) = $\frac{\text{FMC Hours + PMC Hours - "B-Type" Status Hours}}{\text{Possessed Hours}} \times 100$

**Figure 1.2. Sample Metric of MC Rate for Fighter Aircraft.**




1.10.3.11.2. Total Not Mission Capable Maintenance (TNMCM) Rate. Though a lagging indicator, the TNMCM rate is perhaps the most common and useful metric for determining if maintenance is being performed quickly and accurately. It is the average percentage of possessed aircraft (calculated monthly/annually) that are unable to meet primary assigned missions for maintenance reasons (excluding aircraft in "B-Type" possession identifier code status). Any aircraft that is unable to meet any of its wartime missions is considered Not Mission Capable (NMC). The TNMCM is the amount of time aircraft are in NMCM plus Not Mission Capable Both (NMCB) status. Maintenance managers should look for a relationship between other metrics such as R/R, BR and FR to the TNMCM Rate. A strong correlation could indicate heavy workloads (e.g., people are over tasked), poor management, training problems or poor maintenance practices. The TNMCM is also called "out for maintenance."

1.10.3.11.2.1. TNMCM (%) = $\frac{\text{NMCM Hrs + NMCB Hrs - "B-Type" Status Hrs}}{\text{Possessed Hours}}$ x 100

1.10.3.11.3. Total Not Mission Capable Supply (TNMCS) Rate. Though this lagging metric may seem a "supply responsibility" because it is principally driven by availability of spare parts, it is often directly indicative of maintenance practices. For instance, maintenance can keep the rate lower by consolidating feasible cannibalization actions to as few aircraft as practical. This monthly/annual metric is the average percentage of possessed aircraft that are unable to meet primary missions for supply reasons. The TNMCS rate is the time aircraft are in NMCS plus NMCB status. TNMCS is based on the number of airframes out for MICAP parts that prevent the airframes from performing their mission (NMCS is not the

number of parts that are MICAP). Maintenance managers must closely monitor the relationship between the Cannibalization Rate (CR) and TNMCS. TNMCS is also called "out for supply."

1.10.3.11.3.1. TNMCS (%) = $\frac{\text{NMCS Hrs + NMCB Hrs - “B-Type” Status Hrs}}{\text{Possessed Hours}}$ x 100

1.10.3.12. Primary Aerospace Vehicle Authorized (PAA) vs. Possessed (P/P) Rate. PAA are those aircraft authorized for a unit to perform their operational mission(s). It forms the basis to allocate operating resources to include manpower, support equipment, and flying hour funds. This metric shows a comparison of the unit’s PAA versus average possessed aircraft for a particular time period. It identifies units below PAA so MAJCOM/ HAF can assist in reallocating resources to support contingency taskings or to reduce flying hour requirements.

1.10.3.12.1. P/P (%) = $\frac{\text{Average Number of Possessed Aircraft}}{\text{Total Unit Aircraft PAA}}$ x 100

1.10.3.13. Personnel Availability (PA). Personnel availability simply provides a measure of manning status. It compares the number of personnel authorized to the number of personnel available. A maintenance manager may find it useful to review data based on skill level. In which case, compare the personnel authorized to the number of personnel holding a specific skill level. The number authorized is based on the Unit Manning Document. The number available includes only those available for duty, which excludes those who are reassigned, on leave, TDY, etc.

1.10.3.13.1. PA (%) = $\frac{\text{Total Number of Personnel Available}}{\text{Total Number of Personnel Authorized}}$ x 100

1.10.3.14. Phase Flow (PF) Average. A phase time-distribution interval (TDI) is a product that shows hours remaining until the next phase on each aircraft possessed by a unit. This leading metric measures the average phase time remaining on the fleet. It should be approximately half the inspection interval and should appear as a diagonal line when the fleet PF average is portrayed graphically in a TDI (e.g., “scatter gram”). However, a unit may have good reasons to manage its phase flow so the data points define a pattern other than a diagonal line. For example, in preparation for a long-distance overseas deployment, a unit may need to build up the average phase time remaining on its fleet, because phase capability may be limited for a short time. Beware of gaps or groupings, especially on aircraft with less than half the time remaining to phase.

1.10.3.14.1. PF = $\frac{\text{Total Hours of All Possessed Aircraft Until Next Phase}}{\text{Total Possessed Aircraft Assigned}}$

1.10.3.15. Repair Cycle Processing (RCP) Total Time/Rate. Though primarily considered a “supply-related metric,” this indicator can be an excellent local management tool. It is the average time expressed in days that an unserviceable asset spends in the repair cycle at a unit. This indicator is for repairable aircraft parts only; it does not include engines or support equipment. The clock begins when the replacement part is issued to the flight line and ends when the serviceable asset is returned from the repair facility to the parts store for reissue. To improve the process of repairing parts, the different steps in that process must be measured.

1.10.3.15.1. RCP (%) = $\frac{\text{(Pre-Mx + Repair + Post-Mx Days) – AWP Days}}{\text{Number of Items Turned In}}$ x 100

1.10.3.16. Repeat/Recurring (R/R) Discrepancy Rate. This metric is a leading indicator and perhaps the most important and accurate measure of the unit’s maintenance quality. It is the average number of repeat

and recur system malfunctions compared to the total number of aircrew discrepancies. A repeat discrepancy is when the same malfunction occurs in a system/subsystem on the next sortie/sortie attempt after the discrepancy originally occurred and was cleared by maintenance (including CNDs/no-defect-noted, etc). A recurring discrepancy is when the same system/subsystem malfunction occurs on the 2nd thru 4th flights/attempted flights after the original flight in which the malfunction occurred and was cleared by maintenance (including CNDs/no-defect-noted, etc). A high R/R rate may indicate lack of thorough troubleshooting; inordinate pressure to commit aircraft to the flying schedule for subsequent sorties; or a lack of experienced, qualified or trained technicians. The more complex the weapon system and the greater the operations tempo, the more susceptible a unit is for repeat or recurring discrepancies. Examine each R/R discrepancy and seek root causes and lasting fixes. The goal should be to keep all repeat and recurring discrepancies to a minimum.

1.10.3.16. $\text{R/R (\%)} = \dfrac{\text{Total Repeats + Total Recurs}}{\text{Total Pilot Reported Discrepancies}} \times 100$

1.10.3.17. Upgrade Training (UT) Rate. This metric reflects the percentage of technicians in upgrade training. The goal should be to keep the combined total less than 40 percent because the higher the number, the greater the training burden. Training should be given high priority, as the number of personnel in training (and more importantly, the quality of the maintenance training program) invariably affects other aircraft metrics (e.g., R/R or FR) in ways that may not be immediately obvious.

1.10.3.17.1. $\text{UT (\%)} = \dfrac{\text{Number of Technicians in Upgrade Training}}{\text{Total Number of Technicians}} \times 100$

1.10.3.18. Utilization (UTE) Rate. The UTE rate is a leading indicator, but serves as a yardstick for how well the maintenance organization supports the unit's mission. The UTE rate is the average number of sorties or hours flown per primary aerospace vehicle inventory (PAI) aircraft per month. This measurement is primarily used by operations in planning the unit's flying hour program. Maintenance uses this measurement to show usage of assigned aircraft. Since UTE rates are used for planning, actual UTE rates (computed at the end of the month) are used to evaluate the unit's monthly accomplishment against the annual plan. Typically, CAF units measure the sortie UTE rate, while MAF units measure the hourly UTE rate to more accurately measure the combined performance of operations and maintenance.

1.10.3.18.1. $\text{UTE Rate} = \dfrac{\text{Sorties (or hours) Flown per Month}}{\text{PAI Aircraft per Month}}$

**1.13. Communications and Transportation.** Effective maintenance requires efficient communications and transportation. Radios must be available to expedite personnel, equipment, materiel, and maintenance data throughout the maintenance complex. A communication system must be selected with the capability to effectively support the maintenance communication requirements, including mobility and host base interoperability IAW AFI 33-202, *Computer Security*. Wireless LANs (WLANs) must comply with all applicable Air Force 33-series publications. Radios shall be frequency-programmable. Unit commanders shall develop communication plans according to mission requirements. The Designated Approving Authority (DAA) must approve the use of all non-licensed wireless devices to support maintenance and transportation needs.

**1.14. Management Information Systems (MIS).** MIS refers to automated maintenance information systems including Core Automated Maintenance System/Integrated Maintenance Data System (CAMS/IMDS), G081 (CAMS for Mobility), Reliability and Maintainability Information System (REMIS), Comprehensive Engine Management System (CEMS), PMEL Automated Management System (PAMS), Reli-

ability, Availability, Maintainability for Pods (RAMPOD), and Air Force Knowledge Services (AFKS) formerly known as Enterprise Data Warehouse (EDW). Other applications are often referred to as MIS; examples include Tool Accountability System (TAS), Point of Maintenance (POMX), Fleet Asset Status Gadget, Centralized Intermediate Repair Facility (CIRF) Logistics Information Network (LIN), and Enhanced Maintenance Operations Center (EMOC) software package. MIS provides maintenance supervisors at all levels with products to evaluate organizational effectiveness and to aid in the decision-making process. Therefore, deploying units must ensure that any and all appropriate hardware (e.g., computers, servers, etc.) are available at the deployed locations to ensure connectivity. Reference paragraphs **5.8.19.2.** and **5.8.19.3.** AF/ILM has central authority for policy and guidance covering all MIS IAW applicable Air Force 33-series publications. According to the AF/IL Information Systems Strategic Architecture Plan, two of the AF/IL's strategic goals are to provide integrated, trusted data and to eliminate or consolidate information systems. In support of these goals, AF/ILM is focusing MIS modernization efforts towards eventual fielding of a single, integrated MIS. To facilitate this drive to a single system, MAJCOM LGs and AF/ILM must have control over the proliferation of unit- or MAJCOM-unique MIS. If a unit desires to use a system other than the authorized standard MIS, whether commercial off-the-shelf (COTS), government off-the-shelf (GOTS) or locally generated, the unit must submit a request for permission to their MAJCOM 3-digit Maintenance Management Division (e.g., LGM, A4M, etc.). MAJCOM 3-digits functional managers shall coordinate on all requests and forward through the MAJCOM 2-digit to AF/ILM for final consideration/approval via written or e-mail means.

1.14.1. MIS Data Classification. Data contained, entered, and retrieved in MIS is classified as "Sensitive/FOUO." Safeguards have been put in place to ensure control of this "Sensitive/FOUO" data with access through "military only" systems. Use is limited to authorized personnel who have been granted access through a controlled process. Each MIS has additional protection with unique, individually granted, need-to-know USERID/Password assurances. It is vital, especially during contingency operations, to capture maintenance data at every location to provide in-depth current/after action analysis of Air Force, MAJCOM, and unit efforts for deployments and contingencies.

1.14.2. CAMS Graphical User Interface (GUI). The CAMS GUI was fielded as the front-end to CAMS/IMDS in March 2002. Use of the GUI to access CAMS/IMDS is mandated. On a "case-by-case" basis, AF/ILMM shall grant exceptions due to technical interface requirements.

1.19.2. Cross-Utilization Training (CUT). CUT provides the unit internal flexibility by training individuals to perform tasks that are outside their primary AFSC. This training can offset periods of austere or low skill level manning. It also enhances combat capability by developing a pool of qualified personnel to draw upon during surges. Use care not to create a dependency upon CUT-trained personnel for every task. CUT is not a long-term fix or management solution for an AFSC shortfall. 3-levels shall not participate in CUT, except for those individuals who have satisfied all 5-skill level upgrade training requirements in their primary AFSC and have completed 15 months on-the-job training (OJT) IAW AFI 36-2201, *Air Force Training Program*, Vol 2, Chapter 1. Ensure the training records of individual's receiving CUT are appropriately documented. Address questions regarding CUT to the applicable AFSC Career Field Manager.

1.19.4.2.2. Identify, by name, those individuals assigned to a base/unit with more than 36 months TOS and not awarded a SEI applicable to that base/unit. Provide this list to the Maintenance Group Commander/Maintenance Operations Officer(s)/Superintendent(s) for analysis/investigation.

1.19.4.4. Maintenance Operations Officer (MOO)/Superintendent (SUPT) is the unit focal point for SEI management. The unit commander/Maintenance Operations (MOO/SUPT) shall:

1.19.4.5.1. The total number of personnel by CAFSC who have been assigned to a SEI coded or uncoded position with TOS of 18-24, 25-36, and more than 36 months who do not have a unit relevant SEI awarded to any AFSC, must be reported IAW the format contained in HQ USAF/ILMM website URL: **http://140.185.52.73/ilm/ilmm/acmaint/sei.htm.** In addition, provide specific reasons/logic for each individual without a SEI awarded and greater than 36 months TOS.

1.19.5. MAJCOMs must ensure that only those positions where relevant hands-on experience can be gained are coded with the weapons system specific SEI. Code unit manning document (UMD) positions in the following manner:

1.19.5.3. Code positions with the weapons system SEI: 2A0X1A/B, 2A3X1X, 2A3X2, 2A3X3X, 2A5X1A, 2A5X2, 2A5X3X, 2A6X3, 2A6X4, 2A6X5, 2A6X6, and 2W1X1 (including armament back shops).

1.19.5.3.1. Code positions with weapons systems/avionics systems as determined by the lead command for MAF/CAF or HQ AFSOC: 2A0X1C/D, 2A5X3A/C.

1.19.5.10. Triggers: The trigger point is where MAJCOMs must review unit experience/manning levels for further action. MAJCOMs may develop their own trigger point, with justification, based on total number of personnel assigned in the AFSC vs. the number of personnel holding a wing applicable awarded SEI. As a minimum, the experience baseline shall be 60%. If experience levels in a specific AFSC fall below this point, MAJCOMs should consider steps to help alleviate the situation. These may include Temporary Duty (TDY), manning assistance, assignment availability codes, using SEIs in the overseas selection/returnee allocations cycle, when available, to direct people with the required SEI into a particular location, or command leveling using skill level, SEI, and time on station as the assignment selection criteria. Any request for assistance to AFPC must be accompanied by justification to include total personnel assigned in the AFSC, number of personnel in the wing holding an awarded, relevant SEI and the number of personnel with greater than 36 months time on station without an award of an SEI. Units with personnel on station longer than 36 months with no SEI awarded will have difficulty justifying their need for assistance. *NOTE*: this trigger point does not affect or prevent SEI selection rates approved by MAJCOMs or AFPC through normal channels.

1.21.7. Personnel who handle/load nuclear weapons and/or conventional munitions and egress explosives are limited to a 12-hour continuous duty period followed by a normal rest period. During emergencies and advanced readiness condition, the Group Commander or equivalent may waive this requirement. This rest period may not be waived for exercises or inspections.

1.22.1. Live and inert missiles (or electrical simulators) of the same type **must not be** loaded or flown together on an aircraft for any purpose. Live and inert (to include training or practice) bombs **must not be** loaded in/on the same dispenser/rack or flown on an aircraft load together. Any request to deviate from or waiver to this policy must be coordinated through the Wing Weapons Manager (WWM), and must be submitted via official message to the MAJCOM Munitions Division, Weapons Safety, and Operations Weapons and Tactics/Training Divisions. The MAJCOM Munitions Division is the sole approval authority for these deviations/waivers. Test organizations may load and fly live and inert munitions on the same aircraft **for test missions only**, as long as the flight profile is IAW an approved test directive that has been through a Safety Review Board process and flight clearance through the applicable SPO/Seek Eagle office has been properly obtained.

**1.28. Requests for Depot Level Assistance.** If maintenance requires depot level assistance for evaluation and/or repair beyond unit capability, the request must be made IAW TO 00-25-107, *Maintenance Assistance*, and TO 00-20-14, *AF Metrology and Calibration Program*.

**2.3. Maintenance Group Commander (MXG/CC) Responsibilities.** MXG/CCs (or equivalents) are responsible for aerospace equipment maintenance required to ensure balance between sortie production and fleet management. In addition to the responsibilities listed below, the MXG/CC must also ensure Special Programs in **Chapter 18** of this instruction are complied with.

2.3.1.22. Establish local procedures for management and maintenance of assigned ground training aircraft to ensure they remain useful and safe within guidelines stated in AFI 84-103, *U.S. Air Force Heritage Program*, and AFMAN 23-110-series, *USAF Supply Manual*.

2.3.1.23. Manages the wing oil analysis program (OAP) and ensures compliance IAW AFI 21-124, *Air Force Oil Analysis Program.*

2.3.1.27. Approve depot-level assistance requests (TO 00-25-107) after they are coordinated with PS&D, QA, all applicable maintenance organizations, and then forwards the requests to the MAJCOM for review and approval.

2.3.1.36. Ensure aircraft maintenance data is accurate by establishing and supporting a data integrity team (DIT). This team is not required in contract and civil service organizations unless specified in the SOW. If the contract/civil service organization does not have a DIT, they shall establish a process to ensure data integrity is maintained (commercial derivative aircraft are exempted and shall comply with guidance in AFI 21-107). Ensure members assigned to the DIT are suitably qualified and provided sufficient time to accurately assess the data. Ensure each aircraft maintenance work center performs a review of all documentation entered into CAMS/G081 daily IAW TO 00-20-2, *Maintenance Data Documentation.*

2.3.1.36.1. The MXG/CC must ensure the Maintenance Operations Flight (MOF) develops procedures to update and ensure Geographical Location (GEOLOC) codes for on-station possessed and for off-station possessed aircraft are updated/correct in IMDS location subsystem. (G081 units are exempt as long as a HHQ agency accomplishes this requirement.)

2.3.1.42. DELETED.

2.3.1.47. Ensure that a focal point be identified as the MXG Environmental Coordinator for weapon system Environmental, Safety, and Occupational Health requirements, compliance, and worker protection issues. See also AFPD 90-8/AFI 32-7080/7086 for additional guidance.

2.3.1.71. Manages the group's maintenance/munitions-training program to include course development content, ancillary, qualification, and maintenance training activities. Publishes monthly training schedules outlining specific aircraft course and equipment requirements. The MXG/CC has overall responsibility for the training of maintenance personnel.

2.3.1.81.4. DELETED.

2.3.1.81.5. DELETED.

2.3.1.85. TMDE Collection Point. Ensure MXG activities serviced by an off-base PMEL establish a TMDE collection point. The collection point coordinator is the single point-of-contact between the MXG work centers and the servicing TMDE Flight and is trained by the servicing TMDE Flight. MXG/CC shall designate the collection point primary and alternate coordinator in writing. The TMDE collection point has the same responsibilities as those in paragraph **4.14.4.** Production Control Section, of this instruction.

2.3.1.86. For nuclear capable units, ensure additional responsibilities in AFI 21-204, *Nuclear Weapons Procedures*, are complied with.

2.3.2. Maintenance Group Deputy Commander (MXG/CD) Responsibilities. The MXG/CD assists the MXG/CC with responsibilities in Paragraph **2.3.1.** and **Chapter 18**.

2.3.2.1. The MXG/CD chairs the daily production meeting and ensures all maintenance requirements are effectively scheduled and flying schedule problems are resolved. As the meeting chairperson, the MXG/CD shall:

2.3.2.1.1. Ensure meeting topics, as a minimum, include: aircraft status, MICAP status, high visibility aircraft (impounded aircraft, hangar queens, etc.), AF Form 2407 actions, flying and maintenance schedule deviations, supply MICAPs, prioritizing aircraft requiring/competing for shared resources, and review SIs, TCIs, TCTOs, DFT/CFT schedules.

2.3.2.1.2. Ensure meeting attendees, as a minimum, include the MOF/CC, AMU and squadron production supervisors, AMU schedulers, and representatives from MOC, MSL, MOF PS&D, MOF EM, and QA.

2.3.2.2. Develop maintenance capability in conjunction with the production activities.

2.3.2.3. Coordinate between maintenance and operations.

2.3.2.4. Ensure critical equipment, facilities, and materiel resources are allocated and establish overall priorities.

2.3.2.5. Resolve all conflicts concerning who has responsibility for performing a specific maintenance task.

2.3.3. Maintenance Group (MXG) Superintendent Responsibilities. The MXG Superintendent ensures consistent maintenance practices according to technical data and management procedures throughout the group. The MXG Superintendent ensures QA and maintenance training programs meet the needs of the group and the intent of higher headquarters instructions. The MXG Superintendent oversees maintenance facilities, aircraft support equipment procurement and maintenance, resolves conflicting maintenance requirements between units, and in coordination with unit leadership, rotates personnel, as necessary, to enhance mission accomplishment and develop individual experience and knowledge. The MXG Superintendent is directly responsible to the MXG/CC and shall:

2.3.3.1. Serve as a technical advisor to the MXG/CC.

2.3.3.2. Advise the MXG/CC on personnel, morale, and welfare issues

2.3.3.4. Provide liaison between the staff and production supervisors.

2.3.3.4. Advise the MXG/CC on problems not identified through maintenance data systems or quality control inspection reports.

2.3.2.5. Serve as the group's focal point for enlisted manning.

2.4.11. Monitors new requirements for training, equipment authorizations, special tools, E-Tools, workspace, facilities, and manning for impact on unit's capability to perform its mission.

**2.5. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MOO/SUPT is also referred to as Maintenance Operations (formerly maintenance supervision). As applicable, Maintenance Operations advises the squadron commander on technical matters, leads a mission-focused maintenance effort, and manages resources necessary to accomplish the mission. They provide necessary

administration to manage assigned responsibilities. They control maintenance through production supervisors, flight chiefs, section, and shop chiefs. MOO responsibilities differ only in degree and are common and applicable to all maintenance functions. The Superintendent is responsible to the Maintenance Operations Officer. Maintenance Operations:

2.5.5. Manages the Special Certification Roster (SCR). Ensures the SCR is reviewed quarterly (ANG semi-annually) by appropriate work center supervisors to verify that all entries are current and accurate, and that prerequisites including applicable training, testing, evaluation, or other requirements for task certification have been completed. Takes appropriate, timely action to decertify/recertify personnel affected by non-judicial punishment actions or other administrative actions affecting maintenance qualifications. The MOO/SUPT must sign the SCR, signifying personnel listed on the roster are certified and qualified to accomplish tasks that require certification and inspector authorizations.

2.5.44. If a functional area warrants QA augmentation, technicians are recommended by the MOO/SUPT and approved by the QA supervisor.

**2.6. Aircraft Maintenance Unit (AMU) OIC/NCOIC or Flight Commander/Flight Chief.** The AMU OIC/NCOIC and Flight Commander/Flight Chief is responsible to the MOO for the leadership, supervision, and training of all assigned personnel. AMU OICs/NCOICs and Flight Commanders/Chiefs may delegate responsibilities involving day-to-day functioning of sections and elements, as appropriate. Some responsibilities listed may only apply to particular flights or squadrons, and therefore only apply if the function is performed. AMU OICs/NCOICs and Flight Commanders/Chiefs shall:

2.6.1. Enforce strict adherence to technical data and management procedures. Ensure all supervisors understand the importance of using current technical data, advocate use of the TO improvement program, and ensure work center TO files are maintained according to TO 00-5-1.

2.6.3. Coordinate the work shift schedule with the production supervisor and Maintenance Operations (MOO/SUPT) to ensure sufficient people are available to support the mission.

2.6.6. Ensure operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, And Procedures*.

2.6.8. Select qualified personnel to perform production inspections (e.g., SCR items) and forward names to Maintenance Operations (MOO/SUPT) for approval.

2.6.9. Review/update flight In Process Inspection (IPI) requirements listing annually and route through Maintenance Operations (MOO/SUPT) for consolidation and MXG/CC approval. Forward to QA for review, standardization, and publication.

2.6.14. Monitor shift manpower distribution, including distribution of supervision, and make necessary adjustments. Imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades, are identified to Maintenance Operations (MOO/SUPT).

2.6.41. Ensures Maintenance Operations (MOO/SUPT) is aware of any critical shortages of personnel, aircraft, equipment, or components.

2.7.1. Enforces strict adherence to technical data and management procedures. Ensures all supervisors understand the importance of using current technical data, advocates use of the TO improvement program, and ensures work center TO files are maintained according to TO 00-5-1. Conducts face-to-face counseling with personnel who violate directives.

2.7.15. Determines maintenance tasks requiring IPI. Forward IPI listing through the flight chief to the AMU OIC/NCOIC (for AMXS flights only), and Maintenance Operations (MOO/SUPT) for consolidation.

2.7.25. Manages the Bad Actor Program according to TO 00-35D-54, *Deficiency Reporting*.

2.7.17.4. Initial job data documentation training to section users.

2.8.14. Signs the Exceptional Release (ER) IAW TO 00-20-1.

**3.3. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MOO/SUPT is responsible to the SQ/CC for maintenance production. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the MOO/SUPT:

3.3.3.1. Supervises EOR activities for unit-assigned aircraft. Ensures sufficient personnel, equipment, and facilities are assigned/maintained/provided to properly perform EOR inspections IAW **Chapter 18**.

3.3.11. Oversees and coordinates daily hot pit operations as needed.

3.3.15. Coordinates with WWM on all issues affecting AFSC 2W1X1 personnel to include: work center/organizational manpower authorization change requests (ACR), AFSC changes, cross training, re-training, special duty requests, special assignment actions (SWAP, Palace Chase, etc), and physical profile changes.

**3.5. Aircraft Maintenance Unit OIC/NCOIC Responsibilities.** The AMU OIC/NCOIC is responsible to the MOO for sortie generation and the management/supervision/training of assigned personnel. The AMU OIC/NCOIC allocates personnel and resources to the production effort. In addition to the common responsibilities in **Chapter 2**, the AMU OIC/NCOIC:

3.5.5. Chairs a daily AMU maintenance production meeting.

3.8.1.1. When fault reporting manuals are not published for the weapon system, units shall develop aircrew debriefing guides.

3.8.2. Debriefing sections shall develop guides, if not already provided by the MAJCOM, that contain detailed procedures identifying responsibilities for dropped object reporting, aborts or In-Flight Emergencies (IFE), flight control impoundment actions, and engine malfunctions. Debriefing guides are reviewed and approved by QA.

3.8.12. Debriefers enter one of the deviation cause codes (from **Table 3.3.**) into the MIS to indicate the reason for the deviation and the agency that caused a deviation (AFCSM 21-574, *Automated Debriefing*).

3.9.2. Dedicated Crew Chief (DCC). DCCs are first-level supervisors in the flight line management structure. The objective of the DCC program is to directly assign a maintenance person to each aircraft to provide continuity/accuracy of aircraft forms, aircraft status, scheduled maintenance, and improve aircraft cosmetics. The DCC program is the “backbone” of aircraft serviceability and mission capability. This program offers longevity to aircraft and has the potential to save the Air Force unnecessary expenses through preventive maintenance measures. Before being assigned as a DCC, the technician must have a minimum of 6 months experience on the MDS, be a staff sergeant or higher, and possess a 2A3X3A/B/J or 2A5X1/2 AFSC. The MXG/CC retains the authority to waive other aircraft maintenance AFSCs and time/rank requirements to be a DCC. The MXG/CC shall brief the WG/CC monthly on the DCC experience levels/grades and on any need to waive requirements. DCCs manage and supervise all maintenance on their aircraft. DCCs are selected on the basis of initiative, management and leadership ability, and technical

knowledge. Only the best maintainers should be assigned as a DCC and Assistant Dedicated Crew Chief (ADCC). "Crew Chief" is a job description and not an Air Force specialty. DCCs and ADCCs are qualified according to the applicable MDS Job Qualification Standards (JQS). Each assigned aircraft must have an assigned DCC (optional for contractor and civil service maintenance functions as determined by the MAJCOM). If possible, the DCC should be the reporting official for the ADCC(s) assigned to his/her aircraft. The DCC keeps the section chief and the flight line expeditor informed of aircraft status. ARC organizations shall reference MAJCOM policy for determination and assignment of crew chiefs. The DCC/ADCC also:

3.10.6.6.1. When FOD is identified, other than minor sand nicks or scratches, notify the Wing FOD Monitor prior to blade blending. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 IAW TO 00-20-1.

3.11.1.2. Advises the MOO and notifies the Wing Weapons Manager regarding factors which affect training, weapons loading or maintenance capabilities, load crew or Personnel Reliability Program (PRP) status, equipment and tester shortfalls and other key weapons related issues.

3.11.1.4. Ensures the minimum load crews as stated on the UCML/TTML are trained and certified to perform the mission (within the ARC, UCML minimums are determined by the MAJCOM). Maintains load crew integrity during training and evaluations to the maximum extent possible. Ensures all load crews are trained to perform aircraft functional checks.

3.11.1.5. Ensures safe and reliable loading and maintenance procedures are used. Do not use more than one load crew to accomplish weapon loading and unloading tasks (DLO) on fighter/attack aircraft, unless authorized by the MAJCOM.

3.11.1.9. Ensures a checklist for each Primary Munition (PM) and Support Munition (SM) is on hand for each assigned load crew CTK. In coordination with the WWM, determines required quantities in test organizations.

3.11.1.12. Ensures approval of Locally Manufactured Equipment (LME) if not included in tech data or on the Munitions Materiel Handling Equipment (MMHE) Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845.

3.11.1.12.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

3.11.1.12.2. Munitions/armament LME, specifically designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, "y"-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings must be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME, not designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site, must be approved at the

unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

3.11.1.12.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

3.11.1.12.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO 244s, or equivalent, shall be maintained for all LME items (racks, stands, adapters, etc.). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

3.11.1.12.5. DELETED

3.11.1.15. Tracks all assigned in-use AME by aircraft tail number and position installed, and/or storage location (must be tracked in the MIS).

3.11.1.26. Provides WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, armament testers, support equipment, and personnel assigned (to include physical profiles/security status, and mal-assigned if applicable) by the first of each month.

3.11.1.34. Ensures appropriate amount of Dash-21 armament equipment is on-hand and accounted for IAW AFI 21-103.

3.11.1.35. Ensures individual tool kits are set up for each load crew (as specified on the UCML/TTML; numbers include lead crews). In coordination with the WWM, determines the number of loading tool kits required for load crews in bomber units, and those that support only test, evaluation or training operations. Coordinates with WWM on assigned weapons load crew CTKs for approval/signature of the Master MIL prior to signature by the AMU MIL approval authority (**Chapter 13**). The WWM must indicate approval by signing the master weapons load crew MIL.

3.11.1.36. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

3.11.3.1. Is responsible for and controls all actions concerning the aircraft during loading and unloading. No one is authorized access to the aircraft without load crew chief approval. The load crew chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which would jeopardize safety, hamper loading operations, or violate tech data. Access to the cockpit and/or applying power to the aircraft by other than the load crew during loading operations is prohibited unless coordinated through and approved by the weapon load crew team chief. **EXCEPTION:** During loading and unloading when CSOs (including fueling) are utilized, the CSS is in charge.

3.12.1. Personnel are formed into maintenance teams, are qualified to perform on/off equipment maintenance, and do not load ammunition on the helicopter. This is performed by the flight engineer or aerial gunner.

3.12.2.1. Maintain qualification to install/remove chaff/flare and install/remove guns.

3.12.2.2. Weapons sections do not maintain aircrew/mobility small arms weapons (i.e., M9, M16, etc.).

3.12.2.3. DELETED.

3.12.2.4. DELETED.

**3.13. MQ-1 Predator Units.**

3.13.1. All 2W1X1 manpower positions earned to support the MQ-1 Predator shall be formed under a single work center designated as a Weapons Flight. The Weapons Flight shall support and perform training and certification/qualification for all Predator weapons loading, armament systems, and suspension equipment inspections and maintenance.

**3.15. Support Section.** The section may include the following sections/functions to support flight line maintenance and generation activities; support section (CTKs/special tools, E-Tools, test equipment, TOs, bench stock), Dash-21 equipment, alternate mission equipment, vehicles, mobility equipment and dedicated supply support functions to support the production effort. Mobility Air Force (MAF) and Low Density-High Demand (LD-HD) units shall combine aircraft support functions into one Aircraft Support Flight (ASF) per PAD 02-05, Annex U. The ASF in the AMXS shall support all AMUs. Due to geographical separation, the CTK function may be decentralized to the AMUs. The NCOIC must be a highly motivated NCO with a maintenance-related AFSC. Assign highly qualified personnel for a minimum of 12 months. 2W1X1 personnel may be required to maintain task qualification/certification. Group commander approval is required for rotation under 12 months. Units are strongly encouraged to benchmark off of other support sections to leverage the benefits of standardization between units. Refer to **Chapter 8** of this instruction and applicable AFMAN 23-110 series publications for guidance on supply procedures. Refer to **Chapter 13** of this instruction for tool control guidance. Supply support procedures in this section do not apply to aircraft supported by Contractor Operated and Maintained Base Supply (COMBS). The support section:

3.15.1. Maintains technical orders (TO 00-5-1).

3.15.3. Ensures maintenance, control and storage of assigned Alternate Mission Equipment (AME), Dash-21 equipment, and Maintenance, Safety, and Protective Equipment (MSPE) IAW AFI 21-103. Develops local procedures to control and store non-specified configuration items using AFI 21-103 guidelines.

3.15.6.2. Comply with TO 33K-1-100, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*; TO 00-20-14, *AF Metrology and Calibration Program*; and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

3.15.6.3. DELETED.

**4.3. Maintenance Operations Officer (MOO)/Superintendent (SUPT) Responsibilities.** The MXS Maintenance Operations Officer (MOO) is responsible to the Squadron Commander for maintenance production. The MOO, assisted by the Maintenance Superintendent (SUPT), manages the resources to accomplish the workload. In addition to general responsibilities in **Chapter 2**, the MOO/SUPT:

4.3.2. Coordinates with the AMXS Maintenance Operations (MOO/SUPT) to develop and execute a rotation plan that balances grade, skill level and experience of personnel between Aircraft Maintenance Units

and back shops. Ensures military personnel are rotated, as necessary, to enhance individual experience and knowledge. The wing weapons manager shall perform this function for AFSC 2W1X1.

4.3.7. Ensures EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM supplements.

4.4.4. Identifies production requirements and shortfalls to the MOO/SUPT.

4.6.3.6.4. DELETED.

4.6.3.9. Ensures the section “safes” aircraft according to 00-80-series and weapon system TOs.

4.6.4.1.8.2.4. Fuels System personnel shall attend initial nestable fuel tank build up (NFTBU) training at a FTD. The Fuels Section shall establish and conduct annual refresher NFTBU training classes for all Fuel Systems personnel tasked as a NFTBU cadre member for any UTC and document completed training in MIS. The Fuels System personnel trained by FTD must conduct the annual refresher training for other section personnel (refer to **Chapter 18**).

4.6.4.1.8.2.5. Meets quarterly with the MXG WRMO/WRM NCO and MTF to identify Fuel Systems personnel for WRM NFTBU teams. (Units are no longer required to maintain ready-trained augmentees. Commanders must provide NFTBU augmentees to fill UTC requirements at the time of tasking). Reviews WRM NFTBU mission capability (MISCAP) statement as it applies to the unit's tasking and ensures availability of trained Fuel Systems personnel and serviceable equipment/tools to support requirements.

4.7.1. General. The AGE Flight provides powered and non-powered AGE as defined in TO 00-20-1 to support the wing mission. The flight:

4.7.1.1. Maintains AGE in direct support of sortie production and back shop maintenance activities. Applicable AGE should be listed in the respective Allowance Standards (AS).

4.7.1.4. Manages all support equipment maintenance and inspection scheduling activities for AGE maintained by the flight. To the fullest extent possible, ensures maintained equipment is placed on the AGE Flight/work center equipment account.

4.7.1.7. Maintains facility waste water standards IAW AFI 32-7041, Chapter 2, and IAW applicable federal, state, local, DoD, AF, MAJCOM, and installation requirements/guidance.

4.7.2.6. Ensures the uniform repair and replacement criteria program is implemented IAW TOs 00-25-240, 35-1-24, 35-1-25, and 35-1-26. The fight chief must ensure replacement assets are placed on order with the appropriate backorder priority.

4.7.2.7. Reviews all Dull Sword reports for MMHE listed in the Master Nuclear Certification List at website: **https://wwwmil.nwd.kirtland.af.mil/MNCL/default.asp** that are maintained by the AGE Flight.

4.7.2.15. Ensures quarterly equipment inventory listings are submitted to the respective MAJCOM AGE functional manager by the 15th day following the closeout of each quarter. Listings must identify all AS-driven AGE maintained by the flight and all supply requisition/due-out information.

4.7.2.17. Report instances of SE abuse and misuse to Maintenance Operations (MOO/SUPT) for corrective action.

4.7.6.1. Performs servicing inspections on powered AGE according to equipment work cards to ensure proper fuel and oil operating levels and other servicing requirements are met.

4.7.6.10. Maintains non-hazardous Absorbed Glass Matt-type batteries (e.g., Optima brand) utilized in powered AGE.

4.7.7.9. DELETED.

4.8.1. The Armament Flight normally performs off-equipment maintenance for assigned fighter aircraft armament systems, guns, pylons, racks, launchers and adapters. For B-52 units, the Armament Flight shall assist with performing weapons system on-equipment periodic phase inspections. An AFSC 2R1X1 scheduler, 2S0X1 supply specialist, and 3A0X1 information management specialist may be assigned to the flight. The flight normally consists of three sections: maintenance, alternate mission equipment (AME), and support. The WWM, with GP/CC concurrence, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks. MAJCOMs must determine applicable portions of the weapons and armament responsibilities for contract and civil service organizations.

NOTE: Armament flights are not normally formed in MQ-1 Predator units or those supporting helicopters. The AMU Weapons Section in these units is responsible for complying with applicable portions of this chapter.

4.8.3.2. Advises the MOO and the wing weapons manager regarding factors which affect armament systems, gun maintenance, and other related programs.

4.8.3.7. Establishes a SPRAM account to track F-16 “Ruggedized” Nuclear Remote Interface Units (RNRIU) and a munitions account for dummy test rounds and issued LAU-131 launchers if required.

4.8.3.16. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

4.8.4.2. Performs the off-equipment portion of major inspections, and in bomber units, assists with the on-equipment portion of major aircraft inspections that pertain to the armament system.

4.8.5.2. Maintains all weapons assigned, non-load box-configured (bomber aircraft), F-2 type trailers. Trailers placed in-use receive pre- and post-use serviceability inspections. Develops periodic inspection requirements (maximum interval of 18 months) for trailers in storage to include:

4.8.6.6. Ensures approval of Locally Manufactured Equipment (LME) if not included in tech data or on the Munitions Materiel Handling Equipment (MMHE) Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845.

4.8.6.6.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards, and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

4.8.6.6.2. Munitions/armament LME, specifically designed to interface with or support munitions, which is not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, “y”-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit

level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME, not designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site, must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

4.8.6.6.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

4.8.6.6.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO Forms 244, or equivalent, must be maintained for all LME items (racks, stands, adapters, etc.). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

4.9.2.6. Implements the "Bad Actor" program IAW TO 00-35D-54. A Bad Actor is a component or assembly repeatedly identified as the source of failures within a specific time frame.

4.9.8. Historical Records. Section chiefs maintain AFTO Forms 95 on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system Dash-6 manuals. Historical records should be automated (TO 00-20-1). The section chief ensures:

4.9.15.3. Reports Electronic Attack (EA) pod status to Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD) if maintaining EA pod equipment. Other EWS status is reported In accordance with TOs 00-20-1 and 00-20-2, *Maintenance Data Documentation*.

4.9.21.2. Controlled Cryptographic Items (CCI): Aircraft-installed CCI and keying materials shall be handled IAW AFI 21-109, *COMSEC Equipment Maintenance and Maintenance Training*; AFI 33-211, *Communication Security (COMSEC) User Requirements*; AFI 33-212, *Reporting COMSEC Deviations*; and AFMAN 23-110, *USAF Supply Manual.* Document aircraft CCI removal and installation in AFTO Form 781B using procedures in TO 00-20-1, Chapter 3.

4.11.2.1. Ensures compliance with Crashed, Damaged, or Disabled Aircraft Repair (CDDAR) program responsibilities (refer to **Chapter 18**).

4.11.5.7. All discrepancies discovered during the inspection are documented IAW TO 00-20-1. Approved, locally developed discrepancy sheets may be used to identify and track discrepancies during the inspection, however, all open discrepancies shall be transferred to applicable AFTO Form 781s prior to post-dock.

4.11.7. Transient Aircraft Maintenance Section, when assigned, is responsible for recovering, servicing, inspecting, maintaining, and launching transient aircraft. Procedures in this section apply to military, contract, and civil service transient maintenance functions. Transient aircraft are those aircraft not assigned to a base that are en route from one location to another that may require routine servicing. Aircraft deploying to or staging from a base for the purpose of flying sorties or conducting training with a squadron assigned

to the base, with or without the necessary maintenance support from the home base, are not considered transient aircraft. MOC coordinates specialist support for transient aircraft through appropriate squadrons. TO 00-20-1 contains general requirements for TA maintenance. In addition to the responsibilities outlined in **Chapter 2**, the section chief:

4.11.7.3. Performs maintenance IAW TO 00-20-1 and completes reimbursement documentation. Optional use of AF Form 726, *Transient Aircraft Service Record*, is authorized for the documentation of maintenance servicing requirements and necessary billing information.

4.11.7.11. Ensures EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM supplements.

4.12.1. Munitions Accountable Systems Officer (MASO). The MASO is responsible for the accountability of munitions. The MASO reports transactions that affect the accountable records of items in the munitions account. MASO responsibilities are outlined in AFIs 21-201, 21-204, and 23-111. Organizations with Special Weapons Information Management (SWIM) or Defense Integration and Management of Nuclear Data Services (DIAMONDS) items may appoint separate accountable officers for conventional and nuclear accounts, provided separate SRANS (FK and FV) are established.

4.13.2.12. Coordinates with Equipment Maintenance Squadron and/or base civil engineering to provide maintenance on NSS and engine test cells. If the wing or squadron is a tenant, incorporate this maintenance requirement into the host-tenant support agreement. Ensures maintenance contract is established IAW AFI 32-1001, Section D.

4.13.2.13. Ensures an uninstalled engine run qualification/certification program is established IAW AFI 11-218 *Aircraft Operations and Movement on the Ground,* and **Chapter 18** of this instruction.

4.13.3.1.7.2. Advises Maintenance Operations (MOO/SUPT), MOC and the owning work center of abnormal OAP trends.

4.13.6.4. Maintains facility waste water standards IAW AFI 32-7041, Chapter 2, and IAW applicable federal, state, local, DoD, AF, MAJCOM, and installation requirements/guidance.

**4.14. Test, Measurement, and Diagnostic Equipment (TMDE) Flight.**

4.14.1. General. The TMDE flight maintains, calibrates, and certifies TMDE, traceable through the Air Force Primary Standards Laboratory (AFPSL) to the National Institute of Standards and Technology, or other AFMETCAL-approved source. It consists of a Precision Measurement Equipment Laboratory (PMEL), production control section, a Quality Program (QP) section, and a TODO or TODA. A Rapid Assistance Support for Calibration (RASCAL) may also be assigned. The PMEL normally includes work areas such as voltage, impedance, time/frequency, microwave, temperature, mechanical-dimensional, and optics. The PMEL performs in-laboratory and on-site calibration and repair using laboratory equipment and calibration standards, Transportable Field Calibration Unit (TFCU), Portable Automatic Test Equipment Calibrator (PATEC), Jet Engine Test Cell/Stand Calibrator (JETSC), or RASCAL. The TMDE flight provides base-level support of aircraft, precision guided munitions, ground systems, and other equipment assigned to the base or geographically separated units. The PMEL calibrates, certifies, and maintains TMDE in accordance with TOs 00-20-14, 33K-1-100, and the supported Calibration and Measurement Summaries (CMS).

4.14.1.1. When a RASCAL mobile facility is assigned to the base, the TMDE flight maintains the facility, associated calibration standards, computers, environmental control units (ECU), power transformers, etc., for immediate peacetime or wartime deployment. The flight uses base resources (e.g., civil engineering,

AGE flight, etc.) to the maximum extent possible to maintain RASCAL facilities, ECUs, and power transformers. The TMDE flight shall maintain sufficient PMEL journeymen-craftsmen with documented qualifications to maintain, complex, and de-complex the RASCAL structure.

4.14.2. Flight Commander/Chief Responsibilities. The TMDE flight chief is responsible for common flight supervisor duties in **Chapter 2** of this instruction. Specifically, the flight chief shall:

4.14.2.1. Use this instruction, TOs 00-20-14, *AF Metrology and Calibration Program*; 33K-1-100 *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*; CMSs; AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program*; and AFMAN 32-1094, *Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction,* to maintain PMEL certification.

4.14.2.2. Ensure calibration and repair support for TMDE that is designated as a PMEL responsibility in TO 33K-1-100 or appropriate CMS for host, tenant, and off-base supported activities.

4.14.2.3. Establish and maintain a priority maintenance support plan for mission essential support equipment. As a minimum, the plan must ensure qualified PMEL personnel are readily available to support mission essential maintenance requirements.

4.14.2.4. Establish a customer relations program to provide technical assistance and advice and to obtain customer feedback on TMDE matters. The program must include periodic visits to, telecommunications contact with, or locally-developed customer survey letters sent to all on- and off-base owning work center (OWC) customers. All customers must be contacted annually as a minimum. Maintains records documenting these visits, contacts, and surveys. The supported activities' representatives are also encouraged to visit the TMDE flight.

4.14.2.5. Ensure the PMEL Automated Management System (PAMS) is administered, maintained, and operated in accordance with Air Force 33-series publications and 5000-series Air Force System Security Instructions and Memorandums (see AFIND 5, *Numerical Index of Specialized Information Protection Publications*) and AFCSM 21-303(V2), *PMEL Automated Management System (PAMS) - Software Users Manual*.

4.14.2.6. Ensure PMEL management responsibilities outlined in TO 00-20-14, Section 3, are fulfilled.

4.14.2.7. Ensure RASCAL, JETSC, PATEC, and TFCU are maintained as complete sets and available for immediate peacetime or wartime deployment.

4.14.2.8. Approve priority calibration or repair requests and may delegate this authority.

4.14.2.9. Establish and manage a TODO or TODA to meet in-place and deployment requirements.

4.14.2.10. Maintain equipment and TO accounts as necessary for the purpose of identifying mobilization equipment.

4.14.2.11. Establish a training program that includes identifying advanced training requirements.

4.14.2.12. Ensure a system is established to periodically review all TMDE in deferred and in-maintenance status.

4.14.2.13. Establish a preventive maintenance program IAW TO 00-20-1 and track inspections using Tool Accountability System requirements in **Chapter 13** (AFI 21-101). The program must include recurring events such as solid state/wet standard cell checks, plenum chamber hydrostatic test, vacuum pump servicing, weekly temp/humidity monitor check, RASCAL shelter maintenance, periodic standard resistor

checks, NDI of eye hooks and chains, JETSC trailer maintenance, 28 VDC rectifier checks, filter cleaning, etc.

4.14.2.14. Establish security procedures to protect classified TMDE in compliance with AFI 31-401, *Managing the Information Security Program*.

4.14.2.15. Identify earned reimbursements to the local DFAS accounting liaison (or alternate office) for billing and collection NLT 30 days after the month in which the reimbursement was earned. Reimbursement documentation shall include, as a minimum, receipts for materiel expenses (i.e., DD Form 1348-1, *Issue Release/Receipt Document*, or commercial supplier equivalent) and data for labor expenses (i.e., category of labor, total hours expended, civilian/military pay grade). TMDE flight shall retain reimbursement source documents on file in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.2.16. Comply with this instruction's **Chapter 13** Tool and Equipment Management Program.

4.14.2.17. Ensure support agreements with off-base non-MXG receivers (tenants) require establishment of TMDE Collection Points (preferably one per combat group or equivalent), see this instruction paragraph **2.3.1.85.** This requirement applies to off-base ANG activities (MXG and non-MXG) too.

4.14.3. PMEL Quality Program (QP). The QP is established by the TMDE flight chief. The PMEL QP outlined in TO 00-20-14, Section 9, and this chapter shall be used instead of the QAP in **Chapter 10**. However, the TMDE flight must participate in the **Chapter 10** Activity Inspection Program and MSEP, excluding over-the-shoulder inspections.

4.14.3.1. The TMDE Flight Chief shall:

4.14.3.1.1. Appoint highly qualified AFSC 2P0X1 TMDE personnel, 7-skill level when possible, as PMEL Quality Assurance (PQA) evaluators and may appoint PQA augmentees. The flight chief may appoint highly qualified 5-skill level personnel when necessary.

4.14.3.1.2. Publish a monthly QP summary and route it through squadron supervision to at least the SQ/CC (or organizational equivalent). The report format should comply with TO 00-20-14 and meet local requirements.

4.14.3.2. PMEL Quality Assurance evaluators shall:

4.14.3.2.1. Perform technical evaluations and reviews of TMDE production processes, products, and services to assess equipment condition, process compliance, calibration traceability, personnel proficiency and competency, quality of training; and inform the TMDE flight chief of findings.

4.14.3.2.2. Perform systematic follow-up and provide remedial instruction (if required) in correcting identified nonconformities. Evaluate nonconformity and problem areas to find the root cause in accordance with TO 00-20-14. Log nonconformities, root causes, and corrective actions in PAMS/MIS.

4.14.3.2.3. Establish a system to track the status of technical order improvement reports and DRs for compliance IAW TOs 00-5-1 and 00-35D-54. Download monthly TO Improvement Status (TOIS) Listing from the AFMETCAL Det 1 METWEB homepage.

4.14.3.2.4. Verify requests for calibration responsibility determinations (AFTO Form 45, *Request for Calibration Responsibility Determination*) and maintain a suspense file until changes are incorporated into work-unit code manuals. Download and review Calibration Determination Listing from the AFMETCAL Det 1 METWEB homepage.

4.14.3.2.5. Manage items in PAMS statuses: item calibrated (awaiting QR), item selected for SR, MDR exhibit and items waiting PR (see TO 00-20-14).

4.14.3.2.6. Inspect completed PAMS job documentation in conjunction with QR and SR for time accounting, accuracy, completeness, and compatibility of action taken and how mal codes. Report trends monthly to TMDE flight chief.

4.14.4. Production Control Section. The production control section consists of customer service, production scheduling, traffic management, and maintenance supply liaison functions. Additionally, an AFSC 2S0X1-Supply Management individual should be assigned. Production control uses PAMS/MIS to maintain an accurate master identification listing, process equipment, and to provide current status of all TMDE.

4.14.4.1. Customer Service Function. Establishes procedures for turn-in and pick-up of TMDE. Emergency equipment is accepted at any time. In addition, the customer service function shall:

4.14.4.1.1. Process incoming TMDE using PAMS/MIS equipment schedules, PAMS/MIS directives, and TOs. Inspect each item of incoming TMDE to determine exterior condition IAW TO 33-1-27, *Logistics Support of Precision Measurement Equipment,* and, for unscheduled TMDE malfunctions, determine adequacy of discrepancy documentation on AFTO Forms 350. Notify the OWC of inadequately documented, excessively dirty, or incomplete paperwork and/or TMDE. The TMDE flight may return these items for correction of the discrepancies prior to processing into PMEL.

4.14.4.1.2. Produce monthly TMDE schedules and quarterly master ID lists at least five work days before the first duty day of the month and distribute to OWCs for correction and verification. Schedules for OWCs are not required when there are no items in maintenance or overdue status. Establish a tracking and a suspense system for return of corrected listings.

4.14.4.1.3. Notify OWC monitors within 10 calendar days (20 calendar days for remote or off-base locations) of TMDE not delivered on or before the scheduled date due calibration. Maintain a log of all contacts concerning overdue TMDE. For remote and off-base locations, notification is not required if the PMEL has received an advance copy of shipping documentation. Overdue calibration notifications shall include a statement to remove TMDE from service according to Air Force instructions unless a date due calibration extension has been requested and approved by the owning MAJCOM IAW TO 00-20-14. Notify the OWC commander (or equivalent) by letter when the OWC routinely fails to deliver or schedule delivery within a reasonable period following notification.

4.14.4.1.4. Train OWC TMDE monitors. Maintain a database or log of coordinator training (dates, names, organizations, etc.).

4.14.4.2. Production Scheduling Function shall:

4.14.4.2.1. Accept TMDE from customers and may reject TMDE until the OWC complies with their organizational responsibilities in TOs 00-20-14; 15X-1-102, *General Care and Cleaning of Oxygen Gauges and Oxygen Device Related Test Equipment*; 33-1-27, *Logistic Support of TMDE*; and 37C11-1-1, *Cleaning of Pressure Gauges Used on Liquid Oxygen Systems* (e.g., submit equipment with batteries, set torque wrenches at the lowest setting prior to delivery, deliver accessories with TMDE, etc.).

4.14.4.2.2. Establish a workload leveling program through daily coordination with customers to maintain a level incoming workload. Advise TMDE flight chief through section chief of significant increases in workload or deviations from monthly schedule.

4.14.4.2.3. Establish a “Hold Area” for TMDE requiring technical data or accessories, awaiting instructions from item managers, etc. Maintain a separate “Hold Area” database or file for this TMDE. Notify OWCs of the change to a deferred status. Return items awaiting technical data or accessories if the OWC does not respond in a timely manner after being notified.

4.14.4.2.4. Establish an “awaiting shipment” area for TMDE shipped to another organization and maintain a database or file with associated documents.

4.14.4.2.5. Use PAMS/MIS to control TMDE processed for maintenance. Ensure the current status of all TMDE processed into the PMEL for repair and calibration is reflected in the PAMS/MIS database.

4.14.4.2.6. Correct the PAMS/MIS master ID database not later than three workdays after receipt of customer corrections.

4.14.4.2.7. Notify customers of completed TMDE. Take action to resolve problems with customers who fail to pick-up completed TMDE within a reasonable period.

4.14.4.2.8. Manage and schedule TMDE TCTOs as per instructions in **Chapter 15**.

4.14.4.2.9. Schedule TMDE using one of the following categories. To avoid abuse of the TMDE priority system, the TMDE flight chief shall assist OWC personnel in locating TMDE to meet their mission requirements. The OWC should attempt to meet mission requirements prior to requesting emergency or mission essential support.

4.14.4.2.9.1. EMERGENCY Calibration or Repair: One-of-a-kind TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage. A letter of justification signed by the OWC Maintenance Operations (MOO/SUPT) must accompany the TMDE. The letter may be handwritten to prevent delay, and telephone verification between the OWC and PMEL is encouraged. PMEL must accept emergency TMDE any time and immediately place it into work, with calibration or continuous repair action until repair/calibration is completed or status of the item changes (e.g., AWP, deferred for lack of standards or technical data, etc.). The TMDE flight or section chief may require an OWC technician familiar with the TMDE to accompany the TMDE to and remain at the PMEL to provide technical assistance until the work is completed or placed in an interim-complete status. The owning or using organization must pick up the TMDE immediately upon notification of completion.

4.14.4.2.9.2. MISSION ESSENTIAL Calibration or Repair: One-of-a-kind or one-deep TMDE that is part of a unit’s deployment package, or is critical to daily peacetime operations, or TMDE assets falling below critical availability levels. A letter of justification signed by the OWC flight chief or equivalent shall accompany the TMDE. The OWC flight chief or equivalent may pre-identify, by letter, TMDE that meets the mission essential definition as approved by the TMDE flight chief or delegated approval authority. PMEL must accept mission essential TMDE any time during duty hours and schedule it with sufficient priority to ensure the calibration/repair is complete, or the maintenance status changes (i.e., from INW to AWP, DEF, etc.), by the date and time specified by the customer. The OWC or using organization must pick up the TMDE immediately upon notification of completion.

4.14.4.2.9.3. ROUTINE Calibration or Repair: TMDE not categorized as emergency or mission essential. PMEL must accept routine TMDE during normal turn-in and pick-up hours.

4.14.4.3. TMDE Traffic Management Function. Processes TMDE items needing contract, warranty, depot or lateral calibration/repair and return through local traffic management office in compliance with this instruction and AFI 24-201, *Cargo Movement*. This function shall:

4.14.4.3.1. Process TMDE shipped off base for calibration or repair and return, including warranty and contract items. TMDE is accountable property with an expiration date (date-due calibration) and it must be shipped by traceable means. All installation TMDE items must be shipped through the flight according to TO 00-20-14 and other applicable publications.

4.14.4.3.2. Retain and file hard copy source documents for all inbound and outbound (contract, warranty, depot and lateral) shipments in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.4.3.3. Use the PAMS shipping module to the fullest extent possible. If PAMS is not available, manual backup methods shall be employed.

4.14.4.3.4. Track TMDE in PAMS maintenance statuses “DEPOT” and “CONTR”. Maintain file consisting of all supporting documentation for each type of shipment.

4.14.4.3.5. Establish and implement a reusable container program in compliance with AFI 24-202, *Preservation and Packing*.

4.14.4.3.6. Outbound Shipments. Prepare DD Form 1149, *Requisition and Invoice or Shipping Document*, for each shipment. All copies of the DD Form 1149 are stamped "TMDE" in one-inch letters using red ink. The form must contain the words "DO NOT POST/ PROJECT CODE 571" in block 4, and "SUPPLY INSPECTION NOT REQUIRED—SHIP BY TRACEABLE MEANS ONLY"; and either "CONTAINS HAZARDOUS MATERIAL" or "CONTAINS NON-HAZARDOUS MATERIAL." in section B.

4.14.4.3.6.1. Use AF Form 537, *PME Shipping*, for all TMDE shipments delivered to the packing and crating activity. Include an AFTO Form 350 with each item of unserviceable TMDE.

4.14.4.3.6.2. Retain two legible copies of the DD Form 1149 signed by packing and crating. Ensure these copies contain sufficient information to identify the owner or user, part number, NSN, ID or serial number, nomenclature, and the TCN assigned by the transportation activity.

4.14.4.3.6.3. Retain one copy of the DD Form 1149 until the shipment is received at the destination point, then file the DD Form 1149 IAW AFMAN 37-139, *Records Disposition Schedule*; mark the other copy as "Advance Copy" and mail/electronically transmit it to the destination point. Initiate tracer action if shipping time exceeds standards in AFI 24-201 and follow-up with the destination point within 30 calendar days of the shipping date.

4.14.4.3.7. Inbound Shipments. Place the “Advance Copy” of the DD Form 1149 received from the shipping organization in a suspense file. Notify the traffic management office to initiate tracer action if shipping time exceeds standards in AFI 24-201.

4.14.4.3.7.1. Reconcile the inbound “Advance Copy” DD Form 1149 with the shipping document (DD Form 1149) and clear the suspense. Sign the “Advance Copy” and mail/ electronically transmit it to the originator.

4.14.4.3.7.2. Update the PAMS maintenance file ID listing and route the TMDE through designated official for incoming inspection. Report damage attributable to shipping through the Transportation Management Office, Cargo Movement Inbound Section, to initiate SF Forms 361 or 364, Damage Reports, via the Cargo Movement Operations System (CMOS). Retain copies of the report of damage with the respective DD Form 1149.

4.14.5. Maintenance Supply Support (MSS) Section. MSS manages maintenance-supply actions and provides assistance to other flight personnel to resolve supply problems. The MSS shall:

4.14.5.1. Establish an "AWP/Equipment Inoperative for Parts (EIP)" storage area, and maintain accountability and control of TMDE and expendable parts. Track status of TMDE in PAMS using maintenance status “AWP/EIP” and “in-service AWP”.

4.14.5.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify and monitor Urgency Justification Codes (UJCs) and Standard Reporting Designator (SRD) codes.

4.14.5.3. Maintain bench, operating, and shop stocks. Dispose of property containing precious metals in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.5.4. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

4.14.5.5. Monitor status of backordered requisitions and maintain liaison with Logistics Readiness Squadron personnel. Initiate supply assistance requests for supply difficulties. Submit follow-up actions (document identifier code "AFC") to Logistics Readiness Squadron for requisitions with unacceptable status or unacceptable estimated delivery dates.

4.14.5.5.1. Coordinate with customers to obtain mission impact statements to substantiate supply assistance requests. Establish a suspense system and follow-up to ensure correspondence is received and acted on.

4.14.5.5.2. Consider assigning NRTS codes to TMDE exceeding 60 days in “AWP/EIP” status. Supply personnel must initiate follow up action with the item manager of the repair parts beginning at the 60th day in status. If delivery of the parts does not occur by the 90th day in status then supply personnel must contact the item manager of the end item for disposition instructions.

4.14.5.6. Maintain accountability for issues and turn-ins of Due In From Maintenance (DIFM) repair cycle assets (see TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*).

4.14.5.7. Establish a TMDE flight precious metals recovery program in compliance with AFMAN 23-110, *USAF Supply Manual*, retain and file records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.5.8. Establish TMDE flight shelf life program in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.5.9. Assist GPC holders in administering and coordinating purchases.

4.14.5.10. Requisition and control TCTO kits in compliance with this instruction and TO 00-5-15, *Air Force Time Compliance Technical Order System*.

4.14.6. Type II PMEL Chief. The Type II PMEL chief is responsible to the TMDE flight chief. In addition to the general section chief responsibilities listed in **Chapter 2** of this instruction and in TO 00-20-14, the PMEL chief shall:

4.14.6.1. Ensure timely verification (see TO 00-5-3, *AF Technical Manual Acquisition Procedures*) of new and updated calibration TOs distributed to the PMEL for review, including beta tests of software. Annotate comments (enhancements and discrepancies) on AFTO Form 158, *TO Review Comment Sheet*.

4.14.6.2. Ensure currency of software used in manual/automated calibration procedures and software used to pass/fail TMDE parameters. All such software must possess a valid Computer Program Identification Number (CPIN), see TO 00-5-17.

4.14.6.3. Identify sufficient training requirements for AETC advanced and supplemental training to the flight chief to ensure constant availability of military personnel for peacetime and wartime deployment. Furnish task-certified primary and alternate military personnel for the duration of any PMEL deployment taskings.

4.14.6.4. Daily evaluate adequacy of total days in lab (referred to as cycle time or turnaround time) for TMDE awaiting maintenance (AWM), AWM from deferred, and in-work (INW). Initiate corrective action as necessary to balance workload and capacity (production). Workable backlog must not exceed 7 days. The source document for data is the PAMS Daily Workload Report or equivalent. The formula for workable backlog (expressed in days) is: workable backlog (number of pieces) divided by the average daily production.

4.14.6.5. Ensure work area supervisors perform and document follow-ups weekly on TMDE in deferred (DEF) status.

4.14.6.6. Annually identify and code PMEL owned TMDE in PAMS as working standard or not applicable; document the review and retain on file until a subsequent review.

4.14.6.7. Designate sufficient work area supervisors and delegate authority to:

4.14.6.7.1. Supervise and direct the work efforts of the work area team and share responsibility for the quality of maintenance. Work area supervisors must establish processes to ensure that work area maintenance practices produce traceable, clean, safe to use TMDE with optimal physical condition, and accurate documentation.

4.14.6.7.2. Ensure PAMS accurately reflects correct maintenance status for all TMDE applicable to the work area. Also, ensure accuracy and completeness of MDC/JDD data entered in PAMS.

4.14.6.7.3. When authorized on the SCR, perform production and supervisory inspections: i.e., sign condition tags, validate/verify NRTS conditions, identify/clear repeat and CND discrepancies, etc.

4.14.6.7.4. Resolve production difficulties for TMDE in maintenance, typically when the in maintenance cycle time exceeds seven calendar days.

4.14.6.7.5. Ensure work area team members formally report instances of substandard materiel or supplier performance. Prepare and submit AF Form 1815, *Difficulty Report Worksheet*; AFTO Forms 22, *TO Improvement Report and Reply*; SF Form 368, *Product Quality Deficiency Report*; and all other supplier feedback documents pertinent to PMEL processes. Route all documents through the QP section for coordination and tracking.

4.14.7. TMDE Technical Order Distribution Office (TODO)/Technical Order Distribution Account (TODA). Responsible for maintaining TO, TCTO, CPIN and commercial data files in compliance with TOs 00-5-1, *AF Technical Order System*; and 00-5-17, *USAF Computer Program Identification Numbering (CPIN) System*. In addition to all applicable TO supplements, the TODO/TODA shall:

4.14.7.1. Follow up monthly on TMDE in deferred maintenance status for lack of TOs or commercial data.

4.14.7.2. Maintain preliminary (draft) TO files and associated documentation from TO verification and post publication reviews.

4.14.7.3. Review AFMETCAL Det 1 METWEB homepage weekly for new ISSs and IOSs.

4.14.7.4. Retain and file TODO Account Reconciliation Listing (ARL), and other related TO records in compliance with AFMAN 37-139, *Records Disposition Schedule*.

4.14.10. TMDE Technical Order Distribution Office (TODO). Responsible for maintaining TO, TCTO, CPIN and commercial data files in compliance with TOs 00-5-1, *AF Technical Order System*; and 00-5-17. In addition to all applicable TO supplements, the TODO shall:

**4.15. Centralized Intermediate Level Maintenance and Rotable Equipment Pools.**

4.15.1. General. Intermediate-Level Maintenance performed by one unit in support of another is a maintenance support concept that is coming into increasing use across the AF. In the future, CONUS and OCONUS Centralized Intermediate Repair Facilities (CIRFs) will become commonplace for maintenance and logistics support. The following section provides generalized guidance on CONUS and OCONUS centralized maintenance and centralized pools of Stock Class VII end items. Management and control procedures for these activities may vary depending on specific logistics characteristics of the asset/commodity as well as the type of aircraft and geographical region supported. CIRFs may be established for any intermediate-level repair asset.

4.15.2. CIRF operations shall use the AF Portal to report daily status of assets. Logistics personnel and maintainers need accurate and timely information management systems to make swift and accurate logistics command & control decisions on available serviceable and unserviceable assets across the entire repair cycle.

4.15.3. Rotable Pools. Customer wait time (CWT) and transportation constraints may drive MAJCOMs to establish a Centralized Rotable Pool (CRP). CRPs are established by placing additional Class VII assets at the maintenance facility to be maintained by the CIRF. This pool of spare assets may provide sufficient numbers to allow direct shipment of serviceable assets to the supported units as soon as the need is communicated. Use of a CRP reduces CWT by replacing unserviceable assets with serviceable as soon as the need is communicated rather than waiting for the unserviceable asset to be shipped to the CIRF, repaired and returned to the FOL. CRP rules for operating these pools should be mutually agreed upon by the participating MAJCOMs. Establishment of CRPs for contingency operations shall be agreed upon by the combatant command, CIRF-supporting command, and other supporting MAJCOMs during the deliberate planning phase. CRPs may be built in one of three ways.

4.15.3.1. Spare assets may be shipped to a CIRF from non-deploying units to build the CRP.

4.15.3.2. Additional spares may be shipped to the CIRF from deploying units.

4.15.3.3. CRPs may be built from unserviceable assets shipped from the FOL to the CIRF for repair. Once repaired, these serviceable assets would be retained at the CIRF as CRP assets until established trigger points are reached at the FOLs.

4.15.4. During steady-state and contingency operations it is possible that maintenance, beyond the capability of the CIRF, is required on CRP assets. When this occurs, the CIRF-supporting command functional manager must coordinate with the appropriate MAJCOM functional manager to develop an alternate course of action for repair.

4.15.5. Engines. For engine types using a CRP the designated engine manager must maintain accountability of CRP engines and report status IAW prescribed instructions. When supported units ship a reparable engine to the CIRF, the designated engine manager shall ship a replacement engine and ensure all appropriate Centralized Engine Management System (CEMS) documentation is completed (to include engine transfers).

4.15.5.1. Process to determine candidate engines for CIRF repair. MAJCOMs are responsible for developing specific procedures for minor and major engine maintenance.

4.15.6. Pods. The CIRF-supporting command shall establish a CRP as necessary to meet customer wait times acceptable to the war fighter.

4.15.6.1. Process to determine candidate pods for CIRF repair. MAJCOMs are responsible for developing specific procedures and criteria for minor and major maintenance.

4.15.6.2. All spare pods must be containerized for shipment. Deploying units must ship all spare pods in containers to ensure sufficient containers are available to support pod shipments from and to the AOR.

4.15.7. Transportation. Successfully moving CIRF assets to reduce CWT requires total asset visibility and effective shipment planning between the deployed unit and the CIRF. All modes of military and commercial air/surface transportation shall be used.

4.15.7.1. The transportation goal for retrograde and serviceable CIRF assets to/from each CIRF location shall be established by agreement between the CIRF and the supported units. Transportation time begins as soon as the asset is in-checked into the Defense Transportation System and ends with transportation receipt at the CIRF or FOL.

4.15.7.2. To ensure transportation time is kept to a minimum; deployed units must ship unserviceable CIRF assets as soon as possible and by the most expeditious means. Retention of unserviceable CIRF assets must be approved by the combatant command A4.

4.15.8. Repair Funding. The CIRFs receive repair dollars by using the AF Form 616 for a fund cite authorization. Units using a CIRF activity to support their operations shall contact the supporting-command's Regional Supply Squadron (RSS) to establish a Form 616 account. If an asset is repaired, the cost of repairs shall be charged to the owning unit's Form 616 account; likewise, when the asset is repaired and turned in to SBSS, the same account shall be credited accordingly.

**5.2. Squadron Commander Responsibilities.** The MOS/CC performs command functions outlined by public law or directives common to all Air Force squadron commanders. The MOS/CC shall be a maintenance officer and is responsible to the MXG/CC for overall squadron management. As a key maintenance executive responsible for marshalling wing maintenance resources to support peacetime, contingency and wartime orders, the MOS/CC monitors squadron capability and takes necessary actions to ensure that all resources are available and effectively utilized to meet mission requirements. General responsibilities are outlined in **Chapter 2**. The squadron commander recommends and the MXG/CC approves flight commander appointments.

5.2.1. DELETED.

5.2.2. DELETED.

5.2.3. DELETED.

5.2.4. DELETED.

5.2.5. DELETED.

**5.4. Maintenance Training Flight (MTF).** Provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary Air Force Specialty Code (AFSC). Organizations that do not have a Maintenance Training Flight must complete skill training in the individual work centers. Training for combat skills is critical. Maintenance training is an essential

element of improving and sustaining unit capability; it must receive priority treatment by Squadron Commanders and Maintenance Operations (MOO/SUPT). When balancing resources (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), maintenance training carries an equal priority with the operational training mission. Accomplish maintenance training away from the production/test environment (whenever possible) to eliminate/minimize distractions. Training requirements may be satisfied through Air Education and Training Command (AETC) in-resident classes, Field Training Detachment (FTD), MTF, Mobile Training Team (MTT), Air Force Institute of Technology (AFIT), Career Development Courses (CDC), Air Force Engineering Technical Services (AFETS), civilian institutions, Computer Based Training (CBT), Video Tele-Training (VTT), Regional Training Centers (RTC), Maintenance Qualification Centers (MQC), or any combination thereof. The MTF assists SQ/CCs by providing unit training managers to manage the enlisted specialty training program. The MTF consists of the Training Management Section and the Development and Instructor Section. Establish maintenance training according to AFI 36-2201, AFI 36-2232, *Maintenance Training*, and MAJCOM supplements. Civil service and contract organizations shall perform training as outlined in their training plans as accepted by the government, their respective performance work statement and MAJCOM instructions.

5.4.2.13. Coordinate with PS&D function and the production supervisor or Maintenance Operations (MOO/SUPT) for selecting training aircraft. The MTF shall forward training requirements in a monthly format (including configuration and time periods) to MOF PS&D by the end of the second week of each month for inclusion in the monthly maintenance schedule. Training requirements must be updated weekly and forwarded to MOF and AMU PS&D for inclusion in the weekly maintenance plan. The MTF is responsible for scheduled maintenance training aircraft (in conjunction with the AMU) to include maintaining aircraft forms and coordinating on- and off-equipment maintenance.

**5.5. Maintenance Operations Flight (MOF).** This flight is the central agency for managing the health of the fleet. The flight is comprised of the following sections: Engine Management; Maintenance Supply Liaison (see Paragraph **5.6.**); Plans, Scheduling and Documentation; Maintenance Data Systems Analysis; and the Maintenance Operations Center. In addition to directing the day-to-day activities of the flight, the MOF commander (MOF/CC) is responsible for managing the health of the aircraft fleet. In coordination with AMXS and MXS (or EMS and CMS) Maintenance Operations (MOOs/SUPTs), the MOF/CC is responsible through the MOS/CC to the MXG/CC to develop and publish the wing flying/maintenance schedule, determine long-range fleet health maintenance priorities, coordinate and prioritize the use of shared maintenance resources, provide trend analysis information to the MXG/CC and squadron commanders, and provide supply liaison and engine management support for flight line and back shop maintenance requirements. The MOF/CC will develop procedures for and ensure Geographical Location (GEOLOC) codes for all possessed aircraft, especially off-station possessed aircraft, are updated/correct in the IMDS location subsystem (G081 units are exempt as long as a HHQ agency accomplishes this requirement). An AFSC 2RXXX SNCO must fill the MOF Superintendent position.

5.5.1.2. Attend the daily production meeting and coordinate with MOF PS&DE, MOF EM, AMU PS&D, and propulsion flight on engine and component maintenance, TCIs, SIs, TCTOs and modifications. Manage engine SIs, TCTOs and TCIs IAW **Chapter 15**.

5.5.1.6. Ensure all engine/module inspections/TCIs tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc. are loaded/tracked in the MIS and CEMS databases. A matrix by engine type should be developed to depict specific inspection and TCT quantities for each. Inspections tracked by flight hours must only be loaded in the MIS.

5.5.1.8. Manage time changes on all engines and components, and ensure forecast parts requests are submitted to supply up to 60 days (but not less than 10 days) prior to the need date of the scheduled time change or JEIM/ERRC induction. See **Chapter 15** for further guidance.

5.5.1.9. Maintain and update historical documents for all assigned engines, modules, and major assemblies using MIS automated history. Perform and document semi-annual reviews of both paper (if applicable/maintained) and automated engine records.

***NOTE***: Paper history can be maintained in conjunction with automated history. In addition to TO 00-20-5-1 requirements, the following historical entries in automated history are required for serially tracked engines, modules, components and major assemblies:

5.5.1.9.1. When engines are removed, conduct a detailed records review to ensure utilization was properly recorded against the engine and sub-components. A removal narrative is required for all removal actions, except for HOW MAL codes 866, 879, and 800. Use the correct Automated History Event indicator when processing MIS transactions to ensure removal times are posted to automated AFTO Forms 95. Include the reason for removal and other pertinent data. Ensure utilization is updated in the MIS before processing the engine removal.

5.5.1.12. In coordination with the Propulsion Flight Chief, develop a detailed 6-month engine and module TCI removal forecast to smooth peaks and valleys in the engine maintenance workload and publish the forecast in the monthly flying and maintenance plan. This 6-month forecast must be accomplished monthly using CEMS product E373/MIS products and the projected unscheduled removals based on Unscheduled Removal Rate (total number of unscheduled removals divided by flying hours times/1000). Provide a copy of the forecast to maintenance leaders, MOF and AMU PS&D, and the command engine manager. The forecast must be published in the monthly aircraft and maintenance utilization plan.

5.5.1.17. Develop local engine tracking procedures and documentation methods to be used at deployed locations. Procedures must include the method of communication (message, e-mail or FAX), documentation and shipping responsibilities with SRAN addresses, and reporting procedures for CANNs and engine removals. The procedures must ensure units take immediate action to correct all reporting errors between the base MIS and CEMS using the engine manager's data list.

5.5.1.20.3. DELETED.

5.5.1.20.10. Perform annual EM training for all affected personnel (back shop, test cell, flight line, aircraft maintenance scheduler, etc.) who report engine status or are responsible for engine documentation and scheduling IAW AFCSM 21-558, Vol 2; AMCI 21-112; TO 00-25-254-1/2 and TO 00-20-1.

5.5.1.20.13. Ensure engines are prepared for shipment according to TO 2J-1-18, and TO 00-85-20, *Engine Shipping Instructions*. Engines requiring off-base shipment must be delivered to transportation within 24 hours of notification/decision to ship the engine and/or the engine change is complete. Notify MAJCOM engine management and the owning SRAN if this time frame cannot be met.

**5.6. Maintenance Supply Liaison (MSL) Section.** The MSL monitors the overall maintenance and supply interface, resolves supply support problems, and coordinates supply related training needs. If MAJCOMs opt to establish the MSL function, the LRS/CC must organize a MSL capability within the Management & Systems (M&S) Flight as part of the Customer Service Center. MSL personnel are authorized on the LRS UMD and report to the LRS/CC through the M&S Flight. Where needed, the LRS/CC may decentralize the MSL capability to physically reside in the aircraft maintenance activity. The LRS/

CC, through the MSL, is the liaison between maintenance units and Regional Supply Squadrons (RSS). Refer to **Chapter 8** of this instruction for additional duties.

5.8.20. Maintenance Information Systems (MIS). See **Chapter 1**, paragraph **1.14.** of this instruction for the definition of MIS. For management of CAMS/IMDS and REMIS, follow AFCSM 21-series, AFCSM 25-524, REMIS, MAJCOM and unit procedures, and REMIS user manuals. Personal computers and software used as "stand-alone" systems are not considered MIS and shall not be managed by MDSA, with the exception of desktop systems required by the MDSA section. However, when any of these systems are connected to a MIS via LAN or WLAN (e.g., using TELNET, INFOCONNECT, AF Portal, etc.), they become de facto "smart terminals" for the MIS they are interfacing with. They are then subject to any parameters, conventions, and publications affecting the MIS and must be certified and accredited in accordance with AFI 33-202, *Computer Security* and AFI 33-115, Vol 1, *Network Management*.

5.8.20.1. CAMS/IMDS and G081. CAMS/IMDS and G081 are integrated production and management information systems. With the exception of REMIS, the systems interface with SBSS at base level. The Air Force is pursuing a Point of Maintenance (POMX) capability, which will be the maintenance data documentation interface to IMDS. The MDSA section has overall responsibility for system database management. Work centers throughout the organization manage those applications and functions applicable to their environment. The integrated application in CAMS/IMDS and G081 requires close coordination between on-equipment and off-equipment work centers and the staff.

5.8.20.2. IMDS is comprised of maintenance systems: CAMS, CEMS, G081, PAMS, RAMPOD, REMIS, and various other application/automation tools. The Standard Systems Group (SSG), Maxwell AFB Gunter Annex, Alabama is the Air Force agency responsible for oversight and systems management to ensure all existing and any new system functionality is incorporated in IMDS's functional baseline. Any request to modify/create new functionality within IMDS must be documented on an AF Form 3215, *Information Technology/National Security System Requirements Document* (ITSRD) on the HQ SSG/ILM Maintenance Information System web site at (**https://web2.ssg.gunter.af.mil/ilm/index.html**). The validation, approval, ranking, and subsequent inclusion of these ITSRDs into IMDS are controlled by a formal Functional Requirements Board (FRB) and Configuration Control Board (CCB) processes as described in the IMDS FRB and CCB charters. System problems (e.g., unusual errors) should be coordinated IAW local procedures (i.e., system administrators, database managers, Field Assistance Branch (FAB)/Help Desk) as these are not considered new or modified functionality. System response and/or connectivity issues should generally be worked first locally, and at a minimum, coordinated with the local Administrator/POC/DBM and Communications Squadron, prior to calling the FAB/Help Desk.

5.8.20.4.1. Use any NIPRNET web connection to access CAMS via AF Portal.

5.8.20.6.3. Develop methods preventing unauthorized use of MIS equipment and data within the purview of AFI 33-332, *AF Privacy Act Information*; and AFI 33-202, *Computer Security*. Ensures proper control of MIS passwords. Specific instructions for REMIS passwords are as follows:

5.8.20.13. CAMS/G081 Users Group. Establish a CAMS/G081 Users Group to identify user problems, provide on the spot training to correct user documentation problems, and to discuss other issues relating to operation of the system. A senior maintenance leader shall chair the working group. Meetings must be held at least quarterly and conducted prior to loading a CAMS release/G081 major program change to ensure all personnel are aware of the changes. An agenda must be published and sent to all work centers prior to all meetings. Meeting minutes must be published and sent to all work centers.

5.10.2. Manage manpower and assignments for the group with the exception of AFSC 2W1X1 and 2R1XX personnel who are managed by wing functional managers.

5.10.3. Serve as the focal point within maintenance group for management of facilities.

5.10.7. DELETED.

5.10.8. DELETED.

**6.1. General.** The MOC monitors and coordinates sortie production, maintenance production, and execution of the flying and maintenance schedules while maintaining visibility of fleet health indicators. The aircraft maintenance squadron sets priorities for the production effort to meet mission requirements. Through coordination with maintenance units, the MOC establishes priorities for competing limited resources (such as fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (e.g., egress) based on daily flying schedule and maintenance priorities. The exchange of information between squadrons and the MOC must be in detail sufficient enough to allow the MOC to comply with reporting requirements and to identify potential problems. The Air Force is developing the Enhanced Maintenance Operations Center (EMOC) software as the standard MOC tool for the near future. During periods of contingency tasking (simulated or actual), the MOC assumes increased responsibility for the coordination effort. Command and control differs for internal and external conditions and states of readiness: Internal control is exercised when all resources are in a single squadron; external control is exercised when more than one squadron must share facilities or resources. Command and control, as exercised by the battle staff through the MOC, primarily concerns the maintenance squadron(s) actions to facilitate and expedite production in the AMUs. Additional guidance is outlined in MAJCOM supplements if applicable. Specific responsibilities are:

6.1.1. Maintains visual aids (electronic or manual), using EMOC when available, to show the status and location of each aircraft on station, maintained or supported by the wing. Units should ensure status boards depicting aircraft status comply with program security guidelines.

6.1.8.1. Procedural checksheets are required for use during actions such as mass loads, Broken Arrow, Dull Swords, Bent Spear, aircraft crash, flight line fire, severe weather warning or evacuation, runway closure, Quick Reaction Checksheets, and any other unusual circumstances deemed necessary. For SIOP notification, use the plan implementation checksheets. Use unit operational plans as a guide in developing these checksheets. Checksheets contain those actions required to be taken by functional area(s). The MOC maintains checksheets IAW TO 00-5-1.

**6.4. Visual Aids.** Use visual aids to provide ready access to critical data. Computer terminals may be used in place of visual aids. If this option is used, develop procedures for retrieval of printed products on a regular basis providing contingency working documents in case of system failure. Visual aids show the following:

**7.1. Aircraft/Equipment Forms Documentation.** Aircraft forms documentation must be accomplished IAW TOs 00-20-1 and 00-20-2.

7.4.1. Clearing Repeat/Recur discrepancies. Clearing these types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher and/or equivalent civilian personnel can clear appropriate symbols IAW TO 00-20-1. (EXCEPTION: The MXG/CC may appoint exceptional 5-skill level SrA assigned as a Flying Crew Chief (FCC) to clear repeat/recur discrepancies).

7.5.1.2. IAW TO 00-20-1, when any corrective action involves more than one work center, personnel having the primary responsibility for repair must not initial over the symbol until personnel from all participating work centers have completed and documented their work. Each work center must make a separate form entry referencing the original discrepancy. The additional form entries must be referenced in the corrective action block of the original discrepancy.

**7.7. In-Process Inspections (IPI).** An IPI is an additional inspection or verification step at a critical point in the installation, assembly, or reassembly of a system, subsystem or component. These inspections are either TO, MAJCOM, or locally directed and are accomplished by qualified personnel as identified in the SCR. The weapon system lead command as defined in AFPD 10-9, *Lead Operating Command Weapon Systems Management*, shall determine minimum IPI requirements and incorporate these requirements into applicable technical orders. Maintenance Operations (MOO/SUPT) compiles a list of squadron tasks requiring IPIs. The list must include work unit code, nomenclature, specific TO, paragraph, and step number within the technical order task where the IPI will be called for. When developing the IPI list, consult with QA on trends or problem areas that continually warrant extra supervisory attention. Squadrons submit their on- and off-equipment lists to QA for consolidation, MXG/CC approval, and publication as the group IPI listing. IPIs must be reviewed annually for applicability. All personnel must clear symbols IAW TO 00-20-1. NOTE: Some IPIs are already specified in applicable tech data. There is no requirement to include TO-directed IPI tasks in the local listing.

8.1.1. Readiness Spares Package (RSP) Review. Maintainers have a critical role in the annual RSP review process. This role includes active Maintenance participation in the base level validation process conducted by the Logistics Readiness Squadron (LRS) and their MAJCOM during the annual RSP pre-review process in preparation for the Air Logistics Center (ALC)/System Program Division (SPD) final review. Close maintenance-supply collaboration is essential to ensure RSPs are properly sized to support contingency maintenance requirements.

8.2.1.12. Discuss product improvement initiatives (AFTO Form 22, *Technical Manual Change Recommendation and Reply*; AFTO Form 27, *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval*; AFTO Form 135, *Source, Maintenance and Recoverability Code Change Request*; Deficiency Reports (DRs), maintenance related Innovation Development through Employee Awareness (IDEA) forms, etc.).

8.5.3. See TO 00-20-1, and AFMAN 23-110, *USAF Supply Manual*, when ordering parts for transient aircraft. Use demand code N (non-recurring) for transient aircraft requests. Use demand code R (recurring) if the item is for a base assigned aircraft or for regularly scheduled transient flights.

8.6.2. Shop Stock. Maintain shop stock for day-to-day operations. Monitor shop stock to prevent materials from becoming excessive or outdated. Includes gas cylinders, random length bar stock, sheet metal, plastic, fabric, electrical wire, and similar items not normally included in bench stocks. Shop stock should not normally exceed 90 days usage, or the unit of issue or unit pack, whichever is greater. Store shop stock near/adjacent to bench stock items, if practical, but do not mix them together. Clearly identify materials as "Shop Stock" and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable.

8.6.5. Adjusted Stock Levels. Adjust base supply stock levels to prevent an out of stock condition. Adjusted levels are used when the demand level or consumption is inadequate to support the requirement. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level. It may indicate a need to review demand data for accuracy. Use AF Form 1996, *Adjusted Stock*

*Level*, to establish supply levels for support of special projects, special operating requirements, or if existing demand data is insufficient to support mission requirements. Work centers, with assistance from supply personnel, must prepare the AF Form 1996 and route it through MOO/SUPT for review prior to sending to Logistics Readiness Squadron customer service/stock control. See AFMAN 23-110, *USAF Supply Manual*, for criteria and procedures to submit these requests. Prior to submitting to LRS, ensure the AF Form 1996 contains adequate justification and is approved by the group commander. Examples of adequate justification include: seasonal material requirements, long lead-time items, unserviceable components forcing a "no fly" or NMC condition for extended periods of time and fleet-wide versus single aircraft impacts. Work centers must maintain a master file of adjusted stock levels and must follow-up on requests. Supply personnel and the appropriate work center must accomplish a validation of adjusted stock levels according to AFMAN 23-110, *USAF Supply Manual*.

8.9.4. DELETED.

8.9.4.1. DELETED.

8.9.4.2. DELETED.

8.9.4.3. DELETED.

**8.11. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming.** Maintenance sections must identify items requiring functional checks, calibration, or operational flight programming prior to use by preparing a list of items, (including the repair section's organization and section code) and sending the list through the Flight/CC or Flight/Section Chief or AMU OIC/NCOIC (if applicable) and Maintenance Operations (MOO/SUPT) to the LRS chief inspector. This list shall be updated/validated semi-annually IAW AFMAN 23-110, Vol 2, Pt 2, Chapter 14. Supply issues the items using procedures in AFMAN 23-110, Vol 2, Pt 2, Chapter 14, paragraph 14.40. to repair sections when functional checks, calibration, or programming is due or when serviceability is doubtful. If a part issues requiring a functional check, ensure it is not restricted in the weapon system Dash-6 TO. Do not use an aircraft as a test bed for parts. Refer to TO 00-20-3, Section 3.9 for functional check and frequency requirements.

**8.12. Supply Points.** Establish supply points within individual work centers when time or resources required to move items dictate a need. Storage space for the supply points is provided by the supported work center. Determine management of the supply point by agreement between the group commanders. Inventory supply point assets annually. The work center supervisor assists Logistics Readiness Squadron with the reconciliation and inventory. Establishment of an aircraft parts store and/or flight service center within the maintenance complex reduces the dependence on supply points and or bench stocks. Supply maintains warehouses in both these facilities, stocking assets closer to the point of use. Expenditure of funds and manpower may be reduced by use of these facilities.

**8.16. Deficiency Report (DR) Exhibit**. Material deficiency report exhibit procedures for issue, turn-in, and storage are contained in TO 00-35D-54 and AFMAN 23-110, *USAF Supply Manual*. They shall be input into the Deficiency Report Entry and Mail Submitter (DREAMS) system. DREAMS is the feeder system into the Deficiency Reporting Information System (DRIS) (G021).

**8.25. Maintenance Turn-In to Supply.** Work centers must properly tag and secure repair cycle assets in their reusable container. The repair shop must comply with environmental control requirements as specified in TOs, and place documentation with the container. Include AFTO Form 350, Parts I and II, and a condition tag or label with all items turned into supply. Enter the correct action taken code on AFTO Form

350, Part II. Accomplish proper reclamation and demilitarization actions on condemned repair cycle assets.

8.26.2. Ensure MIS products accompany all engine serial tracked items according to TO 00-20-1, and MAJCOM directives.

**9.3. Air Force Mishap Prevention Program.** Implement and follow AFI 91-202 to protect Air Force resources. All Air Force personnel have the responsibility under the mishap prevention program to identify workplace hazards, to include equipment and environmental situations that places Air Force personnel, equipment, or facilities at risk. After hazards have been identified, assess the risks associated with each hazard, determine and take action(s) needed to reduce the risk by: engineering the hazard out; or imposing procedural actions (operational limits, frequent inspections, protective equipment, or stopping until corrective action is taken); and/or educating and training personnel on the hazards and the safety procedures to be followed to reduce the chances of a mishap occurring. Ensure all personnel receive safety, fire protection, and health on-the job training upon initial assignment and whenever there is a change in equipment, procedures, processes or safety, fire protection, and health requirements. Well-trained and educated personnel are the greatest deterrent to mishaps in the workplace. Supervisors must document safety-related training on AF Form 55, **Employee Safety and Health Record,** IAW AFI 91-301.

**Chapter 10 (Drop in replacement)**

**QUALITY ASSURANCE (QA)**

**10.1. General.** Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of quality assurance personnel, maintenance leaders, and technicians are necessary to ensure high quality maintenance production and equipment reliability. Maintenance leaders are responsible for safety of flight, safety of equipment operation, and quality maintenance production. The quality assurance staff evaluates the quality of maintenance accomplished in the maintenance organization and performs necessary functions to manage the organization's Maintenance Standardization and Evaluation Program (MSEP). The MSEP provides an objective sampling of both the quality of equipment and the qualifications of maintenance personnel. Quality assurance personnel are not an extension of the work force and shall not be tasked to perform production inspections as a portion of the MSEP. Quality assurance serves as the primary technical advisory agency in the maintenance organization, helping production supervisors and the MXG/CC to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of quality assurance. This activity identifies underlying causes of poor quality in the maintenance production effort. By finding causes of problems and recommending corrective actions to supervisors, quality assurance can significantly affect the quality of maintenance within the maintenance complex. Aircraft and equipment condition and personnel proficiency are validated through the MSEP and shall be recorded using the Quality Assurance Database (QAD) when fielded. MAJCOMs can continue to use their own systems in the interim. Civil service and contracted organizations shall use the accepted quality program outlined in their respective contract.

**10.2. QA Responsibilities.**

10.2.1. Responsible to the MXG/CC to perform as the primary technical advisory agency for maintenance, assisting work center supervisors.

10.2.2. Implements and administers the MSEP.

10.2.3. Manages the Product Improvement Programs (PIP) and other programs to include:

10.2.3.1. Deficiency Reporting (DR).

10.2.3.2. Product Improvement Working Group (PIWG).

10.2.3.3. R&M Working Groups.

10.2.3.4. Technical Order Distribution Office (TODO).

10.2.3.5. One-Time Inspections (OTI).

10.2.3.6. Functional Check Flight (FCF) program.

10.2.3.7. Weight and Balance (W&B) program.

10.2.3.8. Hot Refuel Program.

10.2.3.9. Aircraft and Equipment Impoundment program IAW **Chapter 11** of this instruction.

10.2.4. Reviews aircraft aborts, in-flight emergencies (IFE), and other incidents as required using MIS or MAJCOM form.

10.2.5. Assists MOF PS&D and the Munitions Flight with the Configuration Management Program IAW **Chapter 15**.

10.2.6. Assists MOF PS&D with the Time Compliance Technical Order (TCTO) program IAW **Chapter 15**.

10.2.7. Implements the unit chafing awareness program as applicable.

10.2.8. Flight line weapons loading inspections/evaluations are the responsibility of Weapons Standardization (WS) evaluators. QA inspectors may augment these evaluations at the request of Weapons Standardization.

10.2.9. QA uses their technical expertise to assist the MXG to arrive at informed decisions when coordinating with higher headquarters, Air Force Materiel Command (AFMC), Defense Contract Management Agency (DCMA), and other outside agencies.

10.2.10. Evaluates unit maintenance management procedures, including locally developed forms, publications, operating instructions, etc., for accuracy, intent, and necessity.

10.2.11. Ensures management/evaluation of the programs in **Chapter 18** and other programs as assigned by the group commander.

10.2.12. Manages the Air Force Repair and Enhancement Program (AFREP) IAW AFI 21-123.

**10.3. QA Superintendent Responsibilities.** In addition to common responsibilities outlined in **Chapter 2**, the Quality Assurance Superintendent shall:

10.3.1. Make recommendations to the MXG/CC to enhance the quality of maintenance.

10.3.2. Develop the MSEP, using a Quality Assurance Tracking (QAT) program. Make every effort to fully use a LAN to provide all local supervisors access to MSEP data.

10.3.3. Act as group focal point to ensure appropriate actions are taken to notify the MAJCOM when deficiencies are found in Air Force or MAJCOM instructions.

10.3.4. Review local OIs and forms annually for accuracy, intent, and necessity.

10.3.5. Designate individuals to fill the following key positions:

10.3.5.1. Chief Inspector.

10.3.5.2. W&B program manager.

10.3.5.3. FCF managers.

10.3.5.4. PIM.

10.3.5.5. TODO manager.

10.3.6. Perform management inspections.

10.3.6.1. Take action to evaluate group maintenance staff functions (e.g., scheduling, training management) as well as technical activities, and ensure these areas are periodically evaluated.

10.3.7. Ensure the group portion of the FOD prevention program is conducted IAW **Chapter 18** of this instruction.

10.3.8. Oversee and implement the group impoundment program IAW **Chapter 11** of this instruction.

10.3.9. As assigned, manage and oversee the prevention of dropped objects and assist in investigating incidents IAW **Chapter 18** of this instruction.

10.3.10. Ensure group maintenance actions relating to hot pit refueling are IAW TO 00-25-172, **Chapter 18** of this instruction, applicable technical data, and MAJCOM supplements.

10.3.11. Coordinate on requests for locally designed tools or equipment. QA must maintain records of all approved locally designed tools and equipment, including pictures or drawings, a description of the use for each item, and the owning work center. If a TO contains the option of a locally designed tool, QA does not need to coordinate or maintain the records on that tool as long as the tool remains approved by the TO (see paragraph **13.6.**). NOTE: Weapons loading and weapons maintenance locally designed equipment must be coordinated through the Wing Weapons Manager. Locally manufactured munitions equipment must meet the requirements of this instruction.

10.3.12. Monitor the aircraft structural integrity program (ASIP) IAW **Chapter 18** of this instruction.

10.3.13. Review, verify (annually), and publish group IPI listings.

10.3.14. Evaluate maintenance TO files that are kept on the aircraft (G files).

10.3.15. Monitor flight control maintenance.

10.3.16. Review wing depot-level assistance requests developed IAW TO 00-25-107.

10.3.17. In conjunction with Maintenance Operations (MOO/SUPT), develop key task and routine inspection listings, and provide copies of approved lists to all affected organizations.

10.3.18. Ensure standardized Acceptable Quality Levels (AQL)/standards are developed for all tasks including key tasks and routine inspection lists.

10.3.19. Ensure agendas and presentations are compiled for the QA review.

10.3.20. If applicable, evaluate and document contractor's performance IAW the Quality Assurance Surveillance Plan and AFI 63-124.

**10.4. QA Chief Inspector Responsibilities.** The Chief Inspector is responsible to the QA Superintendent for ensuring functions listed below are performed. The Chief Inspector may delegate day-to-day management responsibility for each area, as appropriate. Each QA Chief Inspector is responsible for appropriate section chief duties in **Chapter 2** and shall:

10.4.1. Provide on-the-spot assistance through assigned inspectors to correct problems.

10.4.2. Spot-check TOs, in-use inspection work cards, checklists, job guides, and code manuals during evaluations and inspections for currency and serviceability.

10.4.3. Assist the analysis section with investigations and studies.

10.4.4. Review weekly summary inputs for accuracy and content, as applicable.

10.4.5. Initiate actions when additional attention is required to resolve adverse maintenance trends or training problems. Actions include preparing crosstell information bulletins and messages for group commander release to other similarly-equipped units when necessary.

10.4.6. Review and compile inputs annually for consolidated group IPI listings. A copy of the approved IPI listing must be kept and annotated with the signature and date of review/certification. The IPI listings must be approved by MXG/CC.

10.4.7. Standardize the group's master AFTO Forms 781-series IAW TO 00-20-1.

10.4.8. Review wing depot-level assistance requests developed IAW TO 00-25-107.

10.4.9. Ensure all assigned 2W1X1, 2W0X1, 2W2X1, and 2M0X0 QA inspectors complete all required explosive safety and nuclear surety training. Additionally, load crew academic training is required initially and annually thereafter for all 2W1X1's.

10.4.10. Review Category II major discrepancies quarterly for trends. If frequency or severity of identified discrepancies warrant inclusion of that item into a specific TO governing an action or inspection, the QA Chief Inspector must submit an AFTO Form 22 or develop a local work card, local page supplement, or checklist (TO 00-5-1).

10.4.11. Establish procedures for inspectors to document completion of inspections.

10.4.12. Determine the duties and responsibilities of inspectors.

10.4.13. Perform inspections on ground training aircraft IAW **Chapter 18** of this instruction.

**10.5. QA Inspector Responsibilities.**

10.5.1. Evaluate flight line and back shop maintenance tasks and inspections (only weapons qualified inspectors with a 2W1 AFSC shall inspect 2W1 maintenance tasks).

10.5.2. Enter inspection and evaluation reports into the QA Database.

10.5.3. Perform QA review of Dull Swords, Unsatisfactory Reports, DRs, and Service Reports (SR). In addition, review all AFTO Forms 22 and local operating instructions (OI).

10.5.4. Evaluate forms documentation and MIS inputs.

10.5.5. Perform WRM tank build-up evaluations or inspections (in units with a tank build-up tasking).

**10.6. QA Training.**

10.6.1. Develop a local training plan to train all QA personnel, including QA augmentees, to ensure uniformity in application of inspection and evaluation (I&E) techniques and philosophy. This local training package must cover such things as setting standards for I&E techniques to facilitate objective inspections, how to properly document inspection worksheet information, and appropriate actions to take to prevent personnel injury or equipment damage if a major finding is detected. The formal QA inspector course

may be used to supplement the training requirement. Document QA Inspector training in individuals' training records using the AF Form 797, *Job Qualification Standard Continuation Sheet* and/or utilize the MIS to track inspector training.

10.6.2. Conduct an Evaluator Proficiency Evaluation (EPE) on each inspector while they are performing one evaluation and one inspection. Each QA inspector shall be trained and must pass the EPE prior to performing unsupervised evaluations and inspections. All EPEs must be tracked on the SCR. Additional requirements for nuclear weapons certifying officials are located in AFI 21-204.

10.6.2.1. QA inspectors, whether permanent or augmentee, require initial qualification on EPEs. QA augmentees require an annual EPE on a personnel evaluation or technical inspection.

10.6.3. Document all training on AF Forms 797 and/or utilize the MIS. Personnel must be familiar with all tasks they evaluate/inspect. If not mandated otherwise, the Chief Inspector must determine which tasks inspectors must be JQS qualified and certified on before an evaluation or inspection is performed.

10.6.4. Ensure QA inspectors and QA augmentees complete AFI 21-112 certification before evaluating egress tasks and comply with TO 00-25-252 before evaluating welding operations.

10.6.5. QA personnel, including augmentees, who conduct engine run evaluations are not required to maintain the engine run proficiency requirements outlined in **Chapter 18** of this instruction and AFI 11-218, *Aircraft Operation and Movement on the Ground*. However, if QA evaluators run engines, they must maintain the applicable aircraft proficiency requirements.

10.6.6. QA inspectors must be trained on all associated safety requirements prior to performing inspections on fuel systems or fuel maintenance facilities IAW TO 1-1-3, *Inspection and Repair of Aircraft, Integral Tanks, and Fuel Cells*.

**10.7. QA Augmentation.** If a functional area does not warrant a full-time position in QA or specialized expertise is warranted, select qualified technicians that are recommended by their Maintenance Operations (MOO/SUPT) to be augmentees. QA must maintain a listing of current augmentees. In coordination with Maintenance Operations (MOO/SUPT), QA shall establish augmentee duties.

**10.8. Rotation of QA Personnel.** The MXG/CC is responsible for developing/executing a plan to rotate QA personnel. As a minimum, personnel must have 6 months' time in the unit before being selected as a QA inspector and must be assigned to QA for a minimum of 24 months. Personnel receiving specialized training (e.g., Weight and Balance, AFREP, etc.) should be assigned for 36 months to ensure program continuity. (Time requirements not applicable at OCONUS long and short tour locations and not applicable to ARC).

**10.9. Activity Inspections.**

10.9.1. General Information. QA must ensure all maintenance activities and staff functions are inspected at least every two years. This inspection may be accomplished as a phased inspection divided into increments and performed throughout the specified inspection cycle. The activity inspection is designed to give managers a comprehensive, objective evaluation of mission capabilities and compliance with technical and management directives for each function. The following procedures apply:

10.9.1.1. The MXG/CC must ensure the depth and detail of the activity inspection is sufficient to evaluate the management capability of the maintenance organization. This is achieved by expanding the minimum requirements outlined herein or by adding special subject items. The Quality Assurance Superintendent

recommends adjustments to the requirements based on trends and problem areas identified by QA personnel, MAJCOM and Air Force IG/LSEP/MSEP inspections, or audit reports.

10.9.1.2. Activity inspections are management and compliance oriented. Management and procedural deficiencies are most often identified by investigating production problems or poor discipline resulting in excessive overtime and failure of personnel to be dispatched to a job on time. Inspectors must not only identify discipline, housekeeping, and technical discrepancies, but must also attempt to identify the underlying cause for the deficiencies.

10.9.1.3. Following a detailed compliance inspection by MAJCOM or Air Force teams, the MXG/CC may postpone a portion of the activity inspection schedule to allow activities a chance to clear identified/recorded discrepancies. If the activity inspection schedule is postponed, the MXG/CC must ensure that all activities are rescheduled for inspection within 24 months following the higher headquarters compliance inspection.

10.9.1.4. The activity inspection must encompass all flights of the organization being inspected and all facets of the operation within each flight. Whenever possible, locally required inspections conducted by outside agencies (e.g., wing safety, training, security, Logistics Readiness Squadron, base bioenvironmental/environmental, or the fire department) should be accomplished in conjunction with the Quality Assurance activity inspection. This reduces the number of disruptions to the organization being inspected and also increases the comprehensiveness of the activity inspection. The quality assurance superintendent, in conjunction with the MXG/CC, attempts to set up a concurrent inspection program with the necessary outside agencies. When these agencies are required by their governing directives to file formal reports and their inspections are performed in conjunction with the activity inspection, the findings shall be included as separate attachments to the basic report. The inspected activity must answer the activity inspection report and attachments directly to QA. QA reviews all responses and forwards the original attachments with responses to the outside agency. A copy of each attachment with responses must be filed as part of the inspection report in QA. The QA Superintendent, when determining an overall inspection rating of the organization, must consider the outside agencies' findings.

10.9.2. Activity Inspection Scheduling. Activity inspections must be scheduled and included in monthly planning. Quality assurance coordinates the inspection schedule with the Maintenance Operations Flight to ensure minimum disruption of other schedules. To facilitate preparation of the schedule, quality assurance must maintain a record that shows all activities to be inspected, date of last inspection, and the month the next inspection is due.

10.9.3. Inspection Preparation. The quality of the inspection is largely dependent upon thorough preparation for each inspection by the individual inspectors. As a minimum, preparations include the following:

10.9.3.1. Review the mission, organizational structure, current projects and programs, and past performance of the unit or activity to be inspected. Sources of information for this review include previous inspection/staff visit reports, manning authorization listings, equipment authorization and inventory documents, Allowance Standards (AS), deficiency analysis files, in-depth analysis of available automated reports or listings from the MIS and current directives applicable to the function.

10.9.4. Conducting the Inspection. The following procedures are essential to a meaningful activity inspection program.

10.9.4.1. Since an effective activity inspection program depends on the managerial knowledge and experience of the individuals conducting the inspection, team members who have specialized training in spe-

cific areas may be used to assist the activity inspection team chief. For example, the TO file expert may inspect TO files during all activity inspections, thus permitting consistent inspection coverage.

10.9.4.2. The inspection team chief initially reports to the commander (AFRC - Squadron Leadership) of the activity to be inspected. At this time, the team chief advises the commander of special subject areas to be inspected, items of concern to the squadron commander or MXG/CC, and major problem areas included in the last activity inspection report. The quality assurance superintendent must be present at the initial meeting and should visit the unit being inspected as often as possible during the inspection.

10.9.4.3. The inspection must be conducted as rapidly as possible, consistent with the depth and detail desired by the MXG/CC. The supervisor of each activity being inspected should be available within the unit to discuss suspected problem areas if required.

10.9.4.4. Inspectors must be impartial, and their comments factual. It is essential that the inspector provide specific references to the directives to support each of the findings for procedural, safety and technical discrepancies. This aids the activity supervisor in defining and correcting discrepancies. When unfavorable trends are identified a recommended solution should be given. If recommendations are the opinion of the inspector, they should be identified as such. To ensure accuracy and completeness, the inspector must record both favorable and unfavorable findings. The accuracy and completeness of the inspection report depends upon the notes taken by the inspector during the inspection. These notes must reflect the actual conditions and should include all related factors that will aid in preparing the report.

10.9.4.5. Following the inspection and before the report is published, the inspection team must brief the commander (for AFRC - Squadron Leadership) and key personnel of the inspected activity. The team should present the inspection findings, give the inspectors' impressions and recommendations, and provide information on those items that require immediate managerial attention. This briefing permits a person-to-person discussion of items of conjecture or disagreement. The quality assurance superintendent must attend this briefing and resolve any disagreement prior to finalizing the report. Supervisors must be advised of discrepancies that require prompt correction. The briefing should stress management deficiencies, when appropriate.

10.9.5. Inspection Requirements. When conducting an activity inspection, the activity inspection team headed by QA must address internal problems of the unit and problems caused by other activities outside the jurisdiction of the inspected unit. The inspection is primarily management oriented; however, portions of the inspection include a determination of technical compliance. Quality Assurance must address the following areas, as they apply to the activity:

10.9.5.1. Report discrepancies affecting production or quality of maintenance, such as excessive parts delivery time, overtime, scheduling effectiveness, or failure to use technical data.

10.9.5.2. Review the TCTO program to include scheduling, expeditious action, compliance on spares, kit availability, and documentation.

10.9.5.3. Review safety and fire prevention practices, to include compliance with Air Force 91-series instructions.

10.9.5.4. Review indicators of technical data discipline and familiarity within the activity, such as use of prescribed checklists, use of prescribed workcards, use of proper tools, calibration certification, condition of equipment or tools, technical order improvement program reporting, and the materiel deficiency reporting and investigating system.

10.9.5.5. Review the training program to include scheduling, coordination with unit training or training management, adherence to schedules, maintenance of appropriate documents, and compliance with the training procedures prescribed by this instruction.

10.9.5.6. Review technical order inspection workcards, checklists, and work unit code manuals to include checks for completeness, currency, and availability. Review the method used to advise personnel of changes received, adherence to established policy, and documentation of inspections.

10.9.5.7. Review adherence to MIS procedures to include compliance with TO 00-20 series, timeliness of forms submission, supervisory review of documents, error rates, recurring errors, documents files, maintenance turnaround (TRN) documentation for accuracy and compatibility, and the use of reports by supervisors.

10.9.5.8. Review publications and technical data files for compliance with applicable AFIs and TO 00-5-1.

10.9.5.9. Review adequacy of housekeeping practices.

10.9.5.10. Review reports to include timely and accurate submission, suspense control, procedures for review prior to submission, and coordination with other affected agencies.

10.9.5.11. Review documentation to include adequacy of files, directive compliance, condition of documents, accuracy, and documentation disposition.

10.9.5.12. Review supply procedures and discipline. Include such areas as proper use of priorities, timely turn-in of DIFM items, adequate control of bench stocks and TNB/FOM/PHR areas, and authorization for assigned equipment items.

10.9.5.13. Review the management of items requiring calibration to include currency of calibration due dates, adherence to the PMEL calibration schedule and control of items.

10.9.5.13.1. Assess TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14, Section 3.6.

10.9.5.14. Review the documents maintained by the work centers for support equipment.

10.9.5.15. Review problem areas identified in the preparation phase of the inspection.

10.9.5.16. Review management and technical procedures outlined in this instruction in all areas being inspected. Develop checksheets that include the following questions for functional areas, as applicable, and those special emphasis items most important to the unit mission:

10.9.5.16.1. Are delicate or sensitive items/documents properly protected during handling and movement?

10.9.5.16.2. Are tools and equipment adequate and serviceable to support the unit mission? Are individual and consolidated tool kits adequate to support requirements?

10.9.5.16.3. Are bench stock bins properly filled, flagged, labeled, and shelf life items properly binned and kits being controlled?

10.9.5.16.4. Are personnel properly task qualified? Are maintenance personnel performing nuclear weapon maintenance tasks properly certified IAW AFI 21-204?

10.9.5.16.5. Are cannibalization procedures being complied with as outlined by this instruction and TO 00-20-2?

10.9.5.16.6. Is correct aerospace vehicle status being reported to the MOC? Is the status being reported by MOC in accordance with AFI 21-103?

10.9.5.16.7. Is the shift supervisory distribution compatible with the work force and workload?

10.9.5.16.8. Are supervisors familiar with basic management responsibilities in this instruction?

10.9.5.16.9. Is the activity organized and managed in accordance with AFI 38-101, this instruction, and MAJCOM supplements?

10.9.5.16.10. Is the supervisor scheduling the optimum number of personnel for each shift consistent with shift workloads?

10.9.5.16.11. Is the corrective action taken on problems from previous inspection reports adequate and still valid?

10.9.5.16.12. Are proper procedures for NRTS and condemned items being followed?

10.9.5.16.13. Is war and contingency support planning current and are implementation procedures available?

10.9.5.16.14. Is data in the MIS being accurately completed and reviewed by supervisors prior to processing or filing?

10.9.5.16.15. Are locally published procedures clear and current?

10.9.5.16.16. Is the correct OFP installed on assigned aircraft and (where applicable) is the correct nuclear certified software available and/or installed on assigned aircraft and automated test equipment? A listing of nuclear certified software can be found in the Master Nuclear Certification List at website **https://wwwmil.nwd.kirtland.af.mil/MNCL/default.asp**.

10.9.5.17. Ensure management deficiencies discovered (which are beyond the unit's capability to correct) during the inspection are recorded in the inspection report and are referred to the MXG/CC for action.

10.9.6. Activity Inspection Reports. Activity inspection reports constitute the record of the inspection and subsequent corrective action. They are the vehicle by which the findings are made known to the inspected activity and to the MXG/CC. Activity inspections are subjectively rated as outstanding, excellent, satisfactory, marginal or unsatisfactory. In determining an overall rating and preparing the report, the following guidelines apply.

10.9.6.1. The report must be objective and factual with specific definitions of problem areas. If three bins were empty, the report should so state and not reflect "several bins." Appropriate directive references should also be included. The report should also contain recommended corrective action on major problem areas. If a solution is not readily apparent, or if the inspector believes one solution is better than another, the report should include appropriate comments.

10.9.6.2. Inspection findings are not all of equal importance. Some are major while others, usually the bulk of the report, are minor. When there are a number of minor discrepancies dealing with the same general subject, these items are listed below the broader deficiencies identified in the report. For example, several different instances of improperly posted technical orders should be consolidated. The consolidation may indicate a broader deficiency that may warrant upgrading to a major item category. All activity inspection reports are prepared in the following two-part format: Part I - Synopsis of Inspection Findings; Part II - Major and Minor Discrepancies. Discrepancies shall be grouped and identified as major and minor for a particular flight, section, or work center, with major discrepancies listed first. When answers

are required for minor discrepancies, these items are designated by an asterisk. A discrepancy that affects the capability of the activity to effectively support the unit mission, a repeat discrepancy, or a discrepancy involving a safety problem or hazard that could result in injury to personnel or damage to equipment is identified as a major discrepancy. Sound judgment must be used when identifying a minor discrepancy as a repeat. Repeat discrepancies need not be identified as major items if the original condition has shown significant improvement. All major discrepancies require corrective action endorsements. Corrective action endorsements are not required for minor discrepancies except for asterisk items. However, supervisors are responsible for correcting all items. Corrective action must be specific and must be aimed at correcting both the cause and the specifically reported item or condition.

10.9.7. Follow-up Inspections. Depending upon the severity of discrepancies and the overall rating, the MXG/CC may direct specific follow-up inspections by quality assurance. Follow-up inspections are included in the quality assurance inspection schedule and must not cause other inspections to be delayed.

10.9.8. Other Inspections. Quality assurance must conduct follow-up inspections when a maintenance activity receives a rating of "unsatisfactory" or "marginal" during a MAJCOM LSET/MSET inspection. Re-inspect an area within 30 days after the "unsatisfactory" rating or within 60 days after the "marginal" rating is given. The results of follow-up inspections shall be forwarded to the MAJCOM LSET/MSET office by the MXG/CC. The purpose of these inspections is to verify the adequacy of corrective actions. These quality assurance inspections do not replace required activity inspections, but they may be performed concurrently.

**10.10. Maintenance Standardization and Evaluation Program (MSEP).** The MSEP is both a MAJCOM and wing/unit program to ensure maintenance organizations comply with Air Force, MAJCOM and unit directives. MSEPs may be combined with Logistics Standardization and Evaluation Programs (LSEP) which focus on supply, transportation, and logistics plans functions. However, MSEP must have separate evaluation/inspection criteria and checklists.

10.10.1. MAJCOM MSEP. MAJCOMs shall establish an office to implement, manage, and execute the command's MSEP. The MAJCOM shall develop criteria and create a Maintenance Standardization and Evaluation Team (MSET) to evaluate subordinate wings/units for compliance. The MAJCOM MSET shall conduct recurring unit evaluations to ensure maintenance technician proficiency, equipment condition, and other command-developed focus areas are in compliance with Air Force, MAJCOM, and local maintenance and munitions policies and directives.

10.10.1.1. Scope of MAJCOM MSET. The MSET evaluations are not intended to duplicate MAJCOM IG UCIs. However it is acknowledged there will be some overlap of evaluated areas. While MSET/LSET evaluations are not intended to duplicate other MAJCOM inspections (e.g., IG UCIs), they may be conducted simultaneously to minimize impact on the unit being inspected.

10.10.1.1.1. Types of MSEP Evaluations and Inspections. The following types of evaluations, inspections and observations support the MSEP: Personnel Evaluations (PE), Quality Verification Inspections (QVI), Special Inspections (SI), Management Inspection (MI), Detected Safety Violations (DSV), Technical Data Violations (TDV), Unsatisfactory Condition Reports (UCR), and when directed, Other Inspections (OI). These inspection terms may differ based on MAJCOM QA Databases (QAD) until such time as a standard Air Force QAD is developed.

10.10.1.2. Organization of MAJCOM MSEP. The MAJCOM MSEP office shall have at least one permanent member on their MSET. The MSET may be a sub-organization of the LSET (also comprised of per-

manent members). Personnel from other MAJCOM staff agencies and/or field units may be used to augment the permanent team members.

10.10.1.3. MAJCOM MSET Evaluation Criteria. MAJCOMS shall develop standard functional checklists from AF and MAJCOM directives for use at the unit level. For evaluations of technician proficiency and equipment condition, applicable technical data is the evaluation standard.

10.10.1.4. MAJCOM MSET Grading. MSET evaluations may or may not be graded. If graded, MAJCOM MSETs should use adjective ratings (Outstanding, Excellent, Satisfactory, Marginal, and Unsatisfactory) and must report findings to the MAJCOM LG or A4. MSET will publish a final report of findings from the evaluation.

10.10.1.4.1. Inspections and evaluations performed and graded by the MAJCOM MSET shall be rated "PASS/FAIL". These may include over-the-shoulder evaluations of unit QA inspectors. The results of the total number of inspections accomplished during the inspection shall be assigned one of the following five tier ratings based on number of inspections passed versus completed. In addition, the results of the total number of inspections accomplished during the inspection shall be rolled up to create a cumulative rating by flight, squadron, and group.

10.10.1.4.1.1. Outstanding 95-100

10.10.1.4.1.2. Excellent 90-94.99

10.10.1.4.1.3. Satisfactory 80-89.99

10.10.1.4.1.4. Marginal 70-79.99

10.10.1.4.1.5. Unsatisfactory 0-69.99

10.10.1.4.2. Technical Data Violations (TDV) and Detected Safety Violations (DSV). Units shall be penalized for TDVs and DSVs. Deduct 0.5 percentage points for each TDV and DSV from the overall percentage grade. For example, a unit earns an overall rating of 92%, "Excellent". However, the MSET observed 4 TDVs and 3 DSVs. The sum of the TDVs and DSVs is 7, (4+3=7). Multiply the sum (7) by 0.5, (7x0.5=3.5) and subtract the product (3.5) from the original 92%, (92-3.5=88.5). The adjusted total is 88.5%; therefore, the unit is rated "Satisfactory."

10.10.1.4.3. For each unresolved major CAT I finding and any repeat CAT I and II findings identified by a previous MAJCOM MSET, the unit's MXG/CC must update the MAJCOM LG/A4 through the MAJCOM MSEP office at 6 month intervals until the findings are resolved. (ARC units shall follow MAJCOM guidance).

10.10.2. Unit MSEP. The unit MSEP must be designed to provide maintenance managers with a method to evaluate the unit's compliance with Air Force, MAJCOM, and local maintenance directives and policies.

10.10.2.1. Scope of the Unit MSEP. Units are responsible for developing their MSEP and conducting local inspections to ensure their programs, maintenance technician proficiency, equipment condition, and other focus areas are in compliance with Air Force, MAJCOM, and local directives.

10.10.2.1.1. Types of MSEP Evaluations and Inspections. The following types of evaluations, inspections and observations support the MSEP: Personnel Evaluations (PE), Quality Verification Inspections (QVI), Special Inspections (SI), Management Inspection (MI), Detected Safety Violations (DSV), Technical Data Violations (TDV), Unsatisfactory Condition Reports (UCR), and when directed, Other Inspections

(OI). These inspection terms may differ based on MAJCOM QA Databases (QAD) until such time as a standard Air Force QAD is developed.

10.10.2.1.2. Applicability to Contract Maintenance Organizations. Although the MSEP does not apply to contract maintenance organizations, wings must ensure their contracted maintenance programs are in compliance with applicable directives through evaluations performed by the Contractor Officer Representative(s) using the criteria outlined in the Statement of Work (SOW) and Quality Assurance Surveillance Plan (QASP). When updating the SOW or QASP, review applicable directives and include/update those SOW/QASP items necessary to ensure contract maintenance organizations will comply with applicable directives and inspection criteria.

10.10.2.2. Organization of Unit MSEP. The wing's MSEP is administered by QA, which permits the MXG/CC to focus the unit program on problem areas where improvements are needed. QA plays a vital role to ensure the organizations have compliant programs through various inspections. Personnel from other MXG organizations may be used to augment the unit MSET. Units will develop a local system to track findings until closed.

10.10.2.3. Unit MSEP Evaluation Criteria. Units shall develop standard functional checklists from AF and MAJCOM directives for use at the unit level. For evaluations of technician proficiency and equipment condition, applicable technical data is the evaluation standard.

10.10.2.4. Unit MSEP Grading. Units must grade their MSEP evaluations using adjective ratings (Outstanding, Excellent, Satisfactory, Marginal, and Unsatisfactory). The unit MSEP shall publish a final report of findings from the evaluation for distribution to all inspected organizations.

10.10.2.4.1. Unit MSEP Grading Scale:

10.10.2.4.1.1. Outstanding 95-100

10.10.2.4.1.2. Excellent 90-94.99

10.10.2.4.1.3. Satisfactory 80-89.99

10.10.2.4.1.4. Marginal 70-79.99

10.10.2.4.1.5. Unsatisfactory 0-69.99

10.10.2.4.2. All inspections (Personnel Evaluations, Inspections and Special Inspections) performed by QA shall be rated "PASS/FAIL". The results of the total number of inspections, accomplished during the month (e.g., tow, pre-flight, engine run, etc.) shall be assigned one of the following five tier ratings based on number of inspections passed versus completed. For example, QA inspects 10 aircraft preflights with the following results: 8 "passes" and 2 "failures". Divide the total "passes" by the total inspections (8/10=0.80) 80% for a "Satisfactory" rating. In addition, the results of the total number of inspections accomplished during the month shall be rolled up to create a cumulative rating by flight, squadron, group as directed by the MXG/CC. For example, QA accomplishes the following inspections during the month:

| Squadron | Total Inspections | Pass | Fail | Percent | Rating |
|---|---|---|---|---|---|
| Aircraft Maintenance Squadron | 90 | 80 | 10 | 88.89 | SAT |

| | | | | | |
|---|---|---|---|---|---|
| Equipment Maintenance Squadron | 125 | 120 | 5 | 96.00 | OUT |
| Component Maintenance Squadron | 85 | 80 | 5 | 94.12 | EXC |
| Wing Totals | 300 | 280 | 20 | 93.33 | EXC |

NOTE. Percentages are not averaged to arrive at the wing or squadron scores. The total of passed versus the total of inspections is used to determine each level's rating.

10.10.2.4.3. Units shall be penalized for Technical Data Violations (TDV) and Detected Safety Violations (DSV). Deduct 0.5 percentage points for each TDV and DSV from the overall percentage grade. Refer to paragraph **10.10.1.3.** for an example.

10.10.3. Unit MSEP Focus Areas. The MSEP emphasizes compliance-oriented maintenance. The purpose of the MSEP is to measure how well units meet or exceed standards. QA shall assess how well units are meeting compliance goals and look for areas of opportunity for improvement. The results of the evaluations and inspections are organized into a summary. The following areas must be addressed:

10.10.3.1. Compliance with and currency of TOs and directives. Personnel at all levels are responsible and accountable for enforcing this mandatory standard. Ensure all applicable TOs and directives are complete, current, and used.

10.10.3.2. Aircraft and equipment forms documentation. Ensure forms used to document any maintenance related action for aircraft or equipment are documented according to 00-20 series TOs, specific equipment TO requirements and applicable command standards and supplements.

10.10.3.3. Aircraft and Equipment Inspections. Inspect aircraft and equipment (including munitions) according to technical orders and directives.

10.10.3.4. Compliance and Management of Safety, Environmental, and Housekeeping Programs. Personnel at all levels are responsible for minimizing risk to equipment and personnel.

10.10.3.5. Training. Verify training is correctly documented to ensure individuals are qualified to perform evaluated tasks.

10.10.3.6. Unit Directed Programs. Verify units' programs are in compliance with local directives.

10.10.3.7. Key Task List (KTL). The KTL must cover tasks that are complex and those affecting safety of flight. All maintenance actions/functions listed on the KTL must require mandatory call-in to QA each time the maintenance action/function is accomplished. QA evaluators will normally respond and perform an evaluation but on a limited basis may waive the inspection. QA must review and update the list at least annually to ensure it encompasses those maintenance actions/functions that directly affect quality of maintenance. MAJCOMs shall identify KTLs as necessary.

10.10.3.8. Routine Inspection List (RIL). MAJCOMs shall define additional RIL actions and tasks as necessary. QA shall consolidate Maintenance Operations' (MOO/SUPT) inputs/suggested changes and obtain the group commander's approval. Tasks shall not be removed from the routine list without approval from group commander. The RIL must contain the following if applicable to the group:

10.10.3.8.1. Pre-flight, thru-flight, basic post-flight, and HSC inspections.

10.10.3.8.2. Aircraft and equipment forms/MIS documentation.

10.10.3.8.3. Aircraft ground handling and servicing tasks.

10.10.3.8.4. Technical data use and currency.

10.10.3.8.5. CTK management.

10.10.3.8.6. TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14, Section 3.

10.10.3.8.7. AGE maintenance and flight line use.

10.10.3.8.8. Housekeeping.

10.10.3.8.9. Vehicles (including AF Forms 244 and/or 1800-series).

10.10.3.8.10. Aircraft and equipment washes and cleaning procedures.

10.10.3.8.11. Environmental compliance.

10.10.3.9. QA must coordinate with Munitions Plans and Scheduling to ensure all required inspections are performed IAW AFI 21-201 and AFI 21-204. Additionally, QA, in coordination with the munitions flight commander or flight chief must develop quarterly standards for the following areas:

10.10.3.9.1. Munitions accountability.

10.10.3.9.2. Munitions storage practices and safety.

10.10.3.9.3. Munitions inspections.

10.10.3.9.4. Munitions material handling and test equipment.

10.10.3.9.5. Munitions stockpile management.

10.10.3.9.6. Tactical missiles records system.

10.10.3.9.7. Munitions infrastructure.

10.10.3.9.8. Munitions training programs.

10.10.3.10. Include high-missed carded items from PEs and Quality Verification Inspections (QVI) in the MSEP summary. A high-missed carded item is defined as any work card item missed at least three times during a one-month period. Units should use the high-missed carded items to enhance maintenance-training programs, detect trends, and basically improve the quality of maintenance. Analysis should review to identify any relationships with repeat, recur, and CND trends.

10.10.4. Evaluation and Inspection Plan. QA develops an evaluation and inspection plan showing areas, types, and numbers of inspections and evaluations that must be conducted. When developing the plan, QA shall:

10.10.4.1. Address the wing weapons manager and maintenance managers' areas of concern in determining inspection/evaluation priorities.

10.10.4.2. Tailor the plan for each squadron, flight, or maintenance section.

10.10.4.3. Review, formalize, and distribute the inspection or evaluation plan.

10.10.4.4. Review and update the plan.

10.10.4.5. Use appropriate statistical tools and methods to assist in determining standards.

10.10.5. Unit MSEP Evaluations and Inspections.

10.10.5.1. Personnel Evaluations (PE). A PE is an over-the-shoulder evaluation of a maintenance action or inspection by an individual or team. Use PEs to evaluate job proficiency, degree of training, and compliance with technical data. Individuals performing, supervising, or evaluating maintenance tasks are subject to a PE. Rate PEs "pass" or "fail" based on established AQLs/standards. Document the PE on AF Form 2419, *Routing and Review of Quality Control Report*, or in the QA Database.

10.10.5.1.1. When performing a PE, the QA inspector briefs the individual or team on the evaluation and how it will be rated. The PE may include an evaluation of the individual's training records, tool box, TMDE and Technical Orders. The evaluation starts when the individual or team begins the task, or portion of the task to be evaluated, and is completed when the job or previously determined portion of the task is finished. Limit the PE to the same inspection card deck or technical data required for the job. When performing an evaluation, the inspector determines if the technician or supervisor performed the job as prescribed by the published technical data and appropriate instructions. Provide feedback to the individual or team and supervision upon completion. The types of PEs are:

10.10.5.1.1.1. Individual Evaluations. This is a QA over-the-shoulder evaluation of a maintenance technician or supervisor while actually performing a job. The evaluator may start or stop the task evaluation at any step. PEs may be performed on individuals working alone or as part of a team. Evaluations must accurately assess the proficiency of each individual under evaluation.

10.10.5.1.1.2. Team Evaluations. This is a QA over-the-shoulder evaluation of maintenance supervisors and technicians completing a team task. A team task is one requiring more than one person (according to approved technical data) to complete the task. Examples could be: refueling, ECM pod up/down loading, bomb build-up, towing, weapons maintenance, pylon installation, etc. The evaluator may start or stop the task evaluation at any step.

10.10.6. Rating Personnel Evaluations. QA rates each evaluation based on AQLs/standards (see paragraph 10.11. for AQL definitions/standards). A failed PE rating means the specific task was not performed within the established AQL/standards. The rating applies only to the specific task evaluated and not to other tasks that a technician or supervisor is qualified to perform. Upon completion of a failed evaluation, the evaluator must provide on-the-spot feedback. If the work center supervisor determines that an individual should be restricted from performing the task unsupervised, the supervisor annotates the technician's JQS or Career Field Education and Training Plan (CFETP) according to AFI 36-2201. Determine ratings as follows:

10.10.6.1. Pass: Number of discrepancies does not exceed AQL/standards.

10.10.6.2. Fail: An evaluation that results in any of the following:

10.10.6.2.1. Number of discrepancies exceeds the established AQL/standards.

10.10.6.2.2. A technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

10.10.6.2.3. A technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

10.10.6.2.4. A technician demonstrates a lack of technical proficiency or system knowledge and training is not documented.

10.10.6.2.5. A technician commits a safety violation.

10.10.6.2.6. A technician fails to document maintenance actions in appropriate equipment records.

10.10.6.2.7. For nuclear weapons maintenance, an unsatisfactory rating must be given when any of the deficiencies/applicable unsatisfactory conditions in TO 11N-25-1 *Nuclear Weapon Technical Inspections*, or AFI 21-204, *Nuclear Weapons Procedures*, exist.

10.10.7. Quality Verification Inspections (QVI). A QVI is an inspection of equipment condition or a maintenance process, an assessment following a maintenance inspection or repair action, or verification that a technician or supervisor properly completed an inspection or repair action. A QVI may be considered an after-the-fact personnel or team evaluation. QVIs shall not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. Limit QVIs to the same inspection card deck or technical data required for the job. Normally, this inspection does not require disassembling parts, removing stress panels, or like actions. A QVI for required Dash-6 TO inspections may be accomplished by checking a portion of the required card or area. The QVI report should reflect deficiencies by the individual who accomplished the task and identify specific discrepancies. Document discrepancies in active equipment records and forms (i.e., AFTO Forms 781A, AFTO Forms 244, or AF Forms 2420, *Quality Assurance Inspection Summary*).

10.10.8. Discrepancy Categories.

10.10.8.1. Category I (CAT I). Detected discrepancies discovered during follow-up of an inspection or maintenance action. A required inspection/TO procedural item missed or improperly completed on the last inspection or maintenance action. This category is a specific work card item or TO step, note, caution or warning for a specific condition or action. Use sub-classifications of major or minor to indicate the discrepancy's relative severity.

10.10.8.2. Category II (CAT II). Readily detectable discrepancies discovered during follow-up of an inspection or maintenance action: An obvious defect, which could have been readily detected by a technician or supervisor, but is not a specific work card item or TO step, note, caution or warning for that specific evaluated task. Use sub-classification of major or minor to indicate the discrepancy's relative severity.

10.10.8.3. Definitions of major and minor.

10.10.8.3.1. A major finding is defined as a condition that would endanger personnel, jeopardize equipment or system reliability, affect safety of flight, or warrant discontinuing the process or equipment operation.

10.10.8.3.2. A minor finding is defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation.

10.10.8.4. Reporting. Report the condition of the equipment to the owning and using work centers. QA must provide a reference for identified discrepancies. Review available documents and forms including work cards, job guides, WUC manuals, checklists, AFOSH standards, and 00-series TOs. The review determines accuracy, currency, and compliance with applicable TOs.

10.10.8.5. Rating QVIs. Rate QVIs "pass" or "fail" by comparing the number of discrepancies with the established AQLs/standards.

10.10.8.5.1. Pass: Number of discrepancies does not exceed established AQL/standard.

10.10.8.5.1.1. CAT II minors shall be documented for trends but must not be counted against the AQL.

10.10.8.5.2. Fail: An inspection that results in any of the following:

10.10.8.5.2.1. A technician failed to detect a CAT I major discrepancy after completing an inspection, work card, or task requirement.

10.10.8.5.2.2. Number of CAT I minor discrepancies exceeds the established AQL/standard.

10.10.8.5.2.3. A technician failed to detect a CAT II major discrepancy after completing an inspection, work card, or task requirement.

10.10.8.5.2.4. A technician is not signed off in training records as task qualified.

10.10.8.5.3. Document the QVI on AF Form 2419, or in the QA Database. Each QVI is chargeable to the technician or supervisor who signed off/cleared the "corrected by" block or "inspected by" block of the applicable maintenance form or equipment record. When evaluating the technician who signed off the "inspected by" block, evaluate only the items normally verified by signing off the "Red-X". Only one evaluation shall be scored for each inspection.

10.10.9. Special Inspections (SI). SIs are inspections not covered by QVIs, PEs, or management inspections (MI). SIs may include, but are not limited to, aircraft and equipment forms inspections, CTKs, TO files, vehicle inspections, housekeeping, safety practices, FOD program, etc. SIs may be condition, procedural, or compliance oriented. AF Form 2419 or the QA Database may be used to document special inspections. SIs can be non-rated (e.g., courtesy inspection of jacket file, etc.). If rating a SI, rate them "pass" or "fail" based on established AQLs/standards.

10.10.9.1. Document File Inspections. Review aircraft and equipment status and historical documents for at least the previous 60 days, if available (reference AFMAN 37-139, *Records Disposition Schedule*). The inspection of munitions historical documents includes CAS records or AFTO Forms 15, *Air Munitions Serviceability and Location Record*, for location, lot number and condition entries. Report discrepancies found in historical documents to the appropriate supervisor. Do not correct discrepancies unless they are of a historical nature and can be verified from other available documents. Rate the inspections "Pass" or "Fail" based on the findings; highlight discrepancies and identify as QA inspector found. Annotate AFTO Forms 244/245, *Industrial/Support Equipment Record (Continuation Sheet)* in section IV/the supervisory review block. Document on AF Form 2419 or in a QA Database.

10.10.10. Management Inspection (MI). MIs cover a broad category. Perform these inspections to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. MXG/CC, SQ/CC, or work center supervisors request MIs. MIs may encompass PE/QVI trends and other inspection data; NMC causes; aborts and trends; in-flight emergency trends; high component or system failure rates; suspected training deficiencies, and tasks outlined in aircraft Dash-6 TOs. Report MI results to the requester, and allow them latitude to explore options prior to implementing corrective actions. MIs can be non-rated and may be counted in QA trends. Examples of MIs could be OAP procedures, EOR procedures, management of reparable components, etc.

10.10.11. Detected Safety Violations, Technical Data Violations, and Unsatisfactory Condition Reports (DSV, TDV, UCR). This category represents observed events or conditions with safety implications or technical violations not related to an inspection or evaluation, and are considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate. QA documents any of the following conditions:

10.10.11.1. Detected Safety Violation (DSV). An unsafe act by an individual. The inspector must stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a personnel evaluation since the unsafe act automatically results in a "Fail" rating on the PE. Use the word "Safety" when a safety violation is committed during a PE.

10.10.11.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use. The technician must have knowledge of all general directives associated with the job prior to performing the task. However, those directives need not be present at the job site. Do not document a separate TDV on an individual undergoing a PE, since failure to use technical data automatically results in a "Fail" rating.

10.10.11.3. Unsatisfactory Condition Report (UCR). An unsafe or unsatisfactory condition, other than a DSV, chargeable to the work center supervisor. Document discrepancies as a UCR when it is not possible to determine who created the condition.

10.10.11.4. Acceptance Inspections. Owning work centers perform acceptance inspections to determine equipment condition and adequacy of depot or contractor maintenance as prescribed by TO 00-20-1. The unit performs acceptance inspections when receiving newly assigned equipment or as a result of aircraft transferring from another unit, command, or depot. QA develops procedures for aircraft acceptance and transfer inspections. Personnel who perform acceptance inspections should be familiar with the general work requirements and knowledgeable of the contract specifications of the work performed at depot. Include procedures for:

10.10.11.4.1. Reviewing the depot/contractor maintenance contract requirements (when available locally). This does not apply to MAJCOM-sponsored programs such as PDMs.

10.10.11.4.2. Reporting discrepancies found during acceptance inspections (applicable to equipment received from depot and monitor corrective actions IAW TO 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*). DRs shall be input into DREAMS and fed into DRIS (G021). DRs are sent to the appropriate ALC and appropriate MAJCOM functional manager.

**10.11. Establishing Acceptable Quality Levels (AQL/Standards).** An AQL denotes the maximum allowable number of minor findings that a KTL task, RIL task, process, or product may be charged for the task to be rated "Pass." It must be strict enough that the task, process, or product meets an acceptable level of quality, but isn't so strict that a "pass" rating is unattainable. The AQL is derived from QA performance-based data. Units must develop procedures for determining minimum AQL levels delineating an "attainable" quality level. These levels shall comprise the AQL standards for the weapon system RILs. AQLs must be reviewed at frequencies determined by MXG/CC.

10.11.1. Failure to meet an AQL/standard results in the task being rated as "Fail".

10.11.2. AQLs/baselines for nuclear maintenance, cruise missile maintenance and nuclear weapons handling tasks are defined in AFI 21-204 as four minor errors for weapons maintenance tasks and two minor errors for weapons handling tasks, and shall not be adjusted.

**10.12. QA Database.** Every unit must capture and catalog the minimum data elements depicted in the following paragraphs into their database for trending, crosstell, and benchmarking purposes. Capture assessment and trend data using a database that makes information easily exportable for crosstell and benchmarking purposes. The Air Force is pursuing a standard QA Database (QAD). MAJCOMs can continue to use their current software until QAD is fielded. Every effort should be made to fully utilize Local

Area Networks and provide all supervisors with real time access to the database. Minimum data fields contained in the database must be:

10.12.1. Work center: Input the shop code whose process was inspected.

10.12.2. Inspector: Enter the employee number of the inspector

10.12.3. Employee: Enter the employee number or equivalent of the person inspected.

10.12.4. Date: Enter the date the inspection was completed.

10.12.5. Time: Enter the time of day when the inspection took place (24-hour clock).

10.12.6. Shift: Enter the shift during which the actual work was performed.

10.12.7. Type Inspection Performed: This code reflects the inspection performed. (e.g., PE, SI, QVI, etc.)

10.12.8. Work Unit Code (WUC) or Type Event Code (TEC): This code reflects the event being evaluated (e.g., CTK, phase, etc.)

10.12.9. AQL/standards: The number of discrepancies allowed for a particular item or process (task).

10.12.10. Inspection Rating: “Pass” or “Fail”.

10.12.11. Equipment: Enter the type of equipment assessed.

10.12.12. Equipment ID: Enter the equipment ID. Example of this field would be A/C serial number 91-0387, SG01, etc.

10.12.13. Discrepancy Category: Identify discrepancies as: Major, Minor (CAT I, CAT II).

10.12.14. Remarks: The narrative of inspector findings.

**10.13. Monthly Summary.** QA shall consolidate the results of the unit MSEP monthly. Compile the summary from inspection data, load crew evaluation statistics (provided by WS), and summaries. The MSEP summary should include visual information, graphs, narratives, quality trends identified through inspections and evaluations, discussion of common problem areas, and descriptions of successful programs or initiatives. Include WS evaluations. Care must be taken to ensure that no classified information is included in unclassified MSEP summaries. To ensure the greatest visibility possible for MSEP summaries, classified parts must be published separately from the main summary. Although most portions of the MSEP summary will not be classified, the category of nuclear weapons stockpile, if used, must always be classified. Prior to preparing the narrative report, QA must conduct a careful study of trends. The relationship between personnel evaluation and technical inspection results may indicate strong or weak portions of the program.

10.13.1. Inconsistencies (e.g., excellent personnel evaluation scores and marginal equipment scores) require careful analysis to determine why high scoring technicians produce low scoring equipment. Consistently high scores in any category may indicate emphasis on that part of the program is not focused on the unit’s actual problem areas. Low scoring areas may require a reassessment of the corrective actions taken by management. The monthly summary shall be published and distributed to the wing commander, MXG/CC and appropriate activities in the maintenance complex. The MSEP summary advises the wing commander of the quality of maintenance. As a minimum, the monthly narrative report must contain an analysis of the MSEP results, a summary of significant CAT I and II discrepancies, technical inspections, and recommendations for improvement.

10.13.2. Trend Analysis. Production personnel as well as Maintenance Operations (MOO/SUPT) must have unlimited read-only access to the QA Database. Review previous reports to determine if inspected areas have improved or declined. Cross talk established at routine intervals between MDSA, Maintenance Operations (MOO/SUPT), and QA personnel is essential. Highlight trends and root causes in the summary.

**10.14. MSEP Meetings.** The unit must conduct quarterly meetings to review MSEP data. The MXG/CC shall chair the meeting. Attendees must include, as a minimum, squadron Maintenance Operations Officers/Superintendents, wing weapons managers, inspectors, and senior analysts. This meeting is a forum to refine MSEP direction, address maintenance issues and resolve problems. It provides cross-feed to all maintenance activities by reviewing QA inspections, evaluations, and trends.

**10.15. QA Programs.** This section describes QA's specific program responsibilities. QA must establish the following:

10.15.1. Product Improvement Program (PIP). The Product Improvement Manager (PIM) promotes deficiency reporting and provides a sound PIP based on inputs from maintenance activities. The PIM emphasizes and promotes product improvement and ensures maintenance personnel are familiar with them by circulating flyers/newsletters, visiting commanders calls, presenting the program at maintenance orientation briefings, and making routine visits to maintenance areas. These systems, together with the day-to-day maintenance data reporting, provide an effective method of improving the reliability and maintainability of equipment. Combined with daily maintenance data reporting, the PIP provides an effective means to improve the Reliability and Maintainability (R&M) of aircraft and equipment. PIP includes the following programs:

10.15.1.1. Configuration Management program; AF Form 1067, *Modification Proposal*; and TCTOs.

10.15.1.2. One Time Inspection (OTI) Program.

10.15.1.3. Deficiency Reporting (DR).

10.15.1.4. Improvement Reporting; AFTO Form 22 and AFTO Form 135.

10.15.1.5. R&M as applicable.

10.15.1.6. Productivity, Reliability, Availability, and Maintainability (PRAM) as applicable.

10.15.1.7. Logistic Service Tests

10.15.2. The PIM responsibilities include the following:

10.15.2.1. Deficiency Reporting (DR). DR is the process of reporting prescribed by TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*, Deficiency Reporting Entry and Mail Submitter (DREAMS), and TO 00-5-1. The PIM's DR responsibilities are:

10.15.2.1.1. Monitor the deficiency reporting process to ensure items are properly loaded in MIS database and are accomplished according to TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*. Warranty information is located in AFMAN 64-110. Units supporting reconnaissance aircraft comply with warranty deficiency report requirements according to the applicable weapons system logistics support plan (LSP).

10.15.2.1.2. Ensure compliance with acceptance inspection reporting requirements on aircraft returning from depot or contractor maintenance (TO 00-35D-54).

10.15.2.1.3. Ensure procedures are followed for submitting DRs. The DR must be adequately defined, meet the criteria of the governing instruction or TO, and must be investigated, when necessary. DRs must be submitted using DREAMS.

10.15.2.1.4. Ensure background information and precise information on suspected deficiencies are submitted.

10.15.2.1.5. Verify each report against pertinent publications and assign the appropriate precedence and category.

10.15.2.1.6. Screen reported deficiencies for possible unit-unique contributing factors. Initiate management action on unsatisfactory conditions resulting from local procedures or a lack of technical capability.

10.15.2.1.7. Perform/coordinate a technical review of deficiency reports returned to the unit without an adequate response. Determine whether to resubmit with additional information.

10.15.2.1.8. Maintain a file for all R&M deficiencies (non-quality) reported by the maintenance units, but not meeting the criteria for submission to AFMC. These deficiencies are tracked on a product improvement worksheet, according to AFI 21-118*, Improving Aerospace Equipment Reliability and Maintainability* for future PIWG action, if required for specific weapon systems.

10.15.2.1.9. Review the DR prior to releasing to the Air Logistics Center (ALC) or System Program Office (SPO) by following procedures in TO 00-35D-54. Perform exhibit-processing oversight by coordinating with ALC and Logistics Readiness Squadron to ensure proper exhibit control and handling.

10.15.2.2. AFTO Form 22 is used to submit corrections and improvements in TOs. The PIM, as a minimum, must perform the following:

10.15.2.2.1. Ensure proper evaluation is performed, and forms are properly filled out and processed IAW TO 00-5-1 and MAJCOM supplements. Weapons Standardization reviews and approves all AFTO Forms 22 for weapons loading TOs. WS must fill in Block 9 and indicate “Approval”/“Disapproval” in Block 1.

10.15.2.2.2. Assign control numbers and forward all AFTO Forms 22 via e-mail transmission or Joint Computer-Aided Acquisition Logistics Support (JCALS) to the appropriate action agency (consult TO 00-5-1 MAJCOM supplement).

10.15.2.2.3. Maintain an AFTO Form 22 suspense file. Note: approved AFTO Forms 22 do not constitute authority to deviate from established TOs.

10.15.2.2.4. Conduct a technical review of disapproved AFTO Forms 22 to determine whether to resubmit with additional information. Evaluate for submission to technical working groups (e.g., PIWG, MDS maintainer’s conferences). Dispose of disapproved AFTO Forms 22 according to AFMAN 37-139, *Records Disposition Schedule*.

10.15.2.3. AFTO Form 135, *Source, Maintenance, and Recoverability Code (SMR) Change Request*: The SMR process is a means for maintenance technicians to recommend routine and priority changes to SMR codes. DREAMS must be used to submit AFTO Forms 135. The PIM shall:

10.15.2.3.1. Process and manage AFTO Forms 135 (IAW TO 00-25-195, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment*) and track the status of AFTO Forms 135.

10.15.2.3.2. Conduct a technical review of AFTO Forms 135 returned from depots and item managers with an unsatisfactory answer to determine whether to resubmit with additional information. Evaluate for submission to technical working groups (e.g., PIWG, MDS maintainer's conferences).

10.15.2.3.3. Coordinate repair evaluation meetings when approved AFTO Forms 135 affect several agencies.

10.15.2.3.4. Serve as focal point for base level repair and manufacturing capability (base self-sufficiency). Interface with maintenance, supply, and the AFREP manager to support enhanced base repair initiatives.

10.15.2.4. Reliability and Maintainability (R&M). At the core of Air Force R&M efforts are technical working groups (e.g., PIWG, MDS maintainers conferences, Component Improvement Program). PIMs must forward inputs IAW AFI 21-118. Assessing unit R&M concerns is a twofold process. First, review all reported R&M deficiencies and determine those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Analysis and the Logistics Readiness Squadron provide the majority of this information. The PIM shall:

10.15.2.4.1. Consolidate functional area reports for each system (e.g., AGE, weapons, PMEL, avionics, engines, commodities and airframe) and prioritize proposed items for a particular system according to weighted factors in AFI 21-118. The PIM conducts R&M working group meetings with supervisors and technicians when it is determined beneficial to ensure quality inputs to technical working groups to solicit ideas to enhance product improvement. These meetings are chaired by the MXG/CC or designated representative. Prepare an agenda and keep meeting minutes.

10.15.2.4.2. Distribute technical working group minutes and ALC corrective actions to appropriate base agencies.

**10.16. Technical Order Distribution Office (TODO).** The TODO manager ensures TOs are managed according to TO 00-5-1, *Air Force Technical Order System*, and AFPD 21-3, *Technical Orders*. Establish the PMEL TODO under the control of the TMDE Flight. TO 00-5-1 provides criteria for establishing levels of TO distribution activities. Unless otherwise specified by the MAJCOM, QA must manage the 11N-series TODO account. Additionally, Group TODO offices shall control electronic technical data configuration IAW **Chapter 13**. Sub-functions of the TODO are described below.

10.16.1. The QA Technical Order Distribution Office (TODO) manager shall:

10.16.1.1. Coordinate with the appropriate QA subject matter expert (SME) for each incoming TCTO to determine applicability.

10.16.1.2. Date stamp TCTOs to reflect the date the hard copy is received. The compliance period start date for an inspection TCTO is upon receipt of the TCTO itself, and it must be completed entirely within the stated time frame or the affected system/equipment must be removed from service. Determine applicability by aircraft serial number for aircraft TCTOs, engine serial number for engine TCTOs, and by part number or other specific criteria for commodity TCTOs. Date stamping all TCTOs with the date received indicates QA has reviewed the TCTO and that it is applicable. Only date stamped TCTOs are authorized for use. All TCTOs received from outside agencies must be routed through QA for the review process.

10.16.1.3. Provide copies of the TCTO to the work centers doing the work. Mark these TCTOs as "working copy". Do not place these working copies in a formal TO file. Upon completion of the TCTO, destroy all working copies.

10.16.1.4. To ensure effective distribution, TODOs must ensure their office is a member of the appropriate Address Information Group (AIG)/Defense Message System (DMS) distribution lists to receive interim TCTOs. TODO must establish AIG/DMS requirements with the AIG/DMS owner as well as the local base distribution center per requirements in TO 00-5-1 and AFMAN 33-326, *Preparing Official Communications*.

10.16.1.5. Ensure all personnel working as a TODO/TODA or on behalf of a TODO/TODA are US Citizens or active duty US military.

10.16.2. QA Central TO File. As a minimum, the QA file must contain general and procedural TOs and copies of all TCTOs pertaining to the equipment owned, operated, or maintained by the group. The file is kept to meet QA requirements, not to duplicate TOs held by maintenance work centers. File TOs IAW TO 00-5-1.

10.16.3. Automated Technical Order Management System (ATOMS). In addition to its designed purpose as established in TO 00-5-1, ATOMS (automated) serves as a locator for maintenance TOs. Updates are based on information from squadron TODA requisitions.

10.16.4. TODOs on-line with Joint Computer Aided Logistic Support (JCALS) must use JCALS as the primary TO management system. All TODOs not on-line with JCALS must use ATOMS to establish and maintain records for all TOs required and distributed by organization shops and offices serviced by the TODO (IAW TO 00-5-1).

10.16.5. Local Work Cards, Job Guides, Page Supplements and Checklists. Limit use of local work cards (LWC), local job guides (LJG), local page supplements (LPS) or local checklists (LCL) to accomplish maintenance on Air Force equipment. Locally prepared technical instructions must not be used to circumvent Air Force Materiel Command's inherent responsibility for technical data (see TO 00-5-1). The TODO must review and manage all locally developed products IAW TOs 00-5-1 and MAJCOM supplements for safety and adequacy of procedures. Ensure LWCs, LJGs, LPSs, and LCLs are reviewed for currency when source reference data changes. Develop local guidance to comply with these policies.

10.16.6. Defense Message System (DMS) Maintenance. To ensure effective and timely TO and TCTO distribution, TODOs are responsible for identifying the proper addressees for message distribution to receive interim Operational/Safety supplement TCTOs. TODO must establish distribution requirements per TO 00-5-1 and AFMAN 33-326, *Preparing Official Communications*.

10.16.7. TO Change Notification. The TODO must prepare a list of all changes and revisions to indexes, TOs, inspection work cards, and checklists. This list must include TO number and date received. Publish and distribute weekly. This list must be included in the wing's weekly maintenance plan and flying schedule. Supervisors must review the list of changes and ensure all personnel are aware a change or revision has been received. Additionally, "Immediate" action TCTOs must be dealt with upon receipt, and "Urgent Action" TCTOs, safety supplements, and interim supplements must be brought to the attention of supervisors within 24 hours of receipt.

10.16.8. TO File Inspections. The QA TODO shall inspect other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. As a minimum, the

TODO must use the TODO and TO Account Checklist provided in TO 00-5-1. As part of this inspection the TODO should evaluate and ensure whether the TODO/TODA has received the proper training.

**10.17. One-Time Inspections (OTI).** OTIs are normally look-only actions to verify the existence of suspected equipment conditions or malfunctions.

10.17.1. MAJCOM, NAF, and Local OTIs. Process and manage MAJCOM, NAF, or local OTIs with the same procedures as a TCTO issued from ALC. HQ, NAF, or MXG commanders initiate OTIs. OTIs are issued with a data code consisting of a unique alpha prefix and a six character sequence number. MAJCOM OTI data codes shall begin with the second character of their command sequence code (i.e., C for ACC, V for AFSOC, etc.). NAF OTIs shall begin with N, and local OTIs shall begin with L. For MACOM and NAF OTIs, the six remaining characters identify the year, month, and a sequence number. For example, C030601: is the first ACC OTI issued during June 2003. For local OTIs, the six remaining characters identify the originating wing, year issued, and a sequence number (e.g., LXX0301: L for local OTI, XX for tail designation, 03 for the year 2003, and 01 for the first in the sequence). The data code is used to report and control OTI compliance.

10.17.1.1. OTI Contents. Minimum contents include statements of:

10.17.1.1.1. Title.

10.17.1.1.2. Applicable Equipment.

10.17.1.1.3. Date OTI was issued.

10.17.1.1.4. Data Code.

10.17.1.1.5. Type or category (i.e., immediate, urgent, routine action).

10.17.1.1.6. Background, purpose, or reason.

10.17.1.1.7. Compliance period.

10.17.1.1.8. Remove from service date.

10.17.1.1.9. Recession date.

10.17.1.1.10. By whom to be accomplished (AFSC and man-hours required).

10.17.1.1.11. Tools required.

10.17.1.1.12. How work is to be accomplished (give detailed and specific step-by-step instructions).

10.17.1.1.13. Operational checks (if required to verify operational status, list TO references).

10.17.1.1.14. Record actions.

10.17.1.1.15. Compliance reporting (MAJCOMs may require periodic status).

10.17.1.1.16. OPR (the OTI's drafter; include name and telephone number).

10.17.2. OTI Distribution. OTIs are sent to all applicable organizations. The MXG/CC shall determine cross-tell value for OTIs to lead commands for the equipment or MDS.

**10.18. Configuration Management (CM) and Modification.** QA is responsible for monitoring the CM and modification process. This includes reviewing, submitting and tracking unit modification proposals being worked by MAJCOMs, and ensuring proper implementation of approved modification instructions

or TCTOs. Follow procedures outlined in **Chapter 15** for specific QA responsibilities in the TCTO process.

10.18.1. QA reviews TCTOs, OTIs, and command modifications to determine their applicability to unit maintained equipment, notifies the MOC, and monitors expended man-hours consumption and the quality of unit compliance actions. Munitions and special weapons TCTOs are reviewed by their respective sections.

10.18.2. QA ensures command-directed modifications are documented in the same manner as TCTOs. QA must maintain a copy of command modification instructions on file until they are formally rescinded or removed from the equipment.

**10.19. Functional Check Flights (FCFs).**

10.19.1. FCFs, to include Operational Check Flights (OCF), are performed to ensure an aircraft is airworthy and capable of accomplishing its mission. However, FCFs are not flown when the airworthiness of the aircraft can be determined by maintenance operational checks prescribed by a technical directive. Additional guidance may be found in AFI 11-401, *Flight Management*; AFI 11-202V3*, General Flight Rules*; AFI 13-201, *Air Force Airspace Management*; TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*; TO 00-20-1; and applicable Dash-6 and Dash-1 TO. The OG/CC is responsible for appointing an OIC to manage and administer the program. The MXG/CC and OG/CC must establish and implement local FCF procedures.

10.19.2. The FCF Officer in Charge and QA Supervisor of FCFs shall:

10.19.2.1. Develop appropriate FCF checklists and procedures and coordinate them between QA and the Operations Group Standardization/Evaluation Division.

10.19.2.2. Establish an FCF training and certification program.

10.19.2.3. Review FCF results on a continuing basis and recommend modified FCF criteria and procedures.

10.19.2.4. Work with maintenance and operations in areas of flying safety, standardization, and operational maintenance priorities with respect to the FCF program.

10.19.3. The QA function shall:

10.19.3.1. Ensure the FCF aircrew is briefed (for all FCFs to include OCFs) on the purpose and extent of the flight, previous maintenance problems, and discrepancies recorded on the aircraft or engines related to the FCF.

10.19.3.2. Review aircraft weight and balance documents.

10.19.3.3. Ensure AF Form 2400, *Functional Check Flight Log*, or an automated product is maintained to provide information for evaluation and analysis. Include in the log the date and time of the FCF, aircraft serial number, reason for FCF, name of debriefer, and name of aircraft commander. The Functional Check Flight Log also indicates if the aircraft was released for flight, reasons for any non-release, action taken and date completed, and the date maintenance documents were forwarded to PS&D.

10.19.3.4. The following are FCF program management responsibilities:

10.19.3.4.1. Establish local FCF procedures (jointly developed by maintenance and operations) for any specific local aircraft requirements (e.g., configuration), administration, control, and documentation of the FCF, OCF, and high-speed taxi check programs.

10.19.3.4.2. Coordinate with the appropriate squadron for an FCF pilot/aircrew and provide squadron operations with the following information: aircraft tail number, reason for the FCF, and anticipated take-off time.

10.19.3.4.3. Maintain an information file for briefing air crews. As a minimum, this file must contain unit directives concerning FCF procedures, authorization lists for FCF crews, and FCF checklist for each type of assigned aircraft.

10.19.3.4.4. An FCF checklist must be used for each FCF. QA must debrief all FCFs with the appropriate debrief function. During debriefing, the FCF checklist and aircraft forms must be reviewed to determine if all requirements have been accomplished. Each discrepancy discovered during the FCF must be documented on AFTO Form 781A. After completing the review, the checklist must be sent to PS&D for inclusion in the aircraft jacket file.

10.19.3.4.5. Maintain a copy of the AF Form 2400 or automated product for deficiency and trend analysis.

10.19.3.5. The Aircraft Maintenance Unit accomplishes the following:

10.19.3.5.1. Configure the aircraft for FCF/OCF according to technical data and local directives.

10.19.3.5.2. Ensure all maintenance actions are completed and all AFTO Forms 781 are documented properly IAW Dash-6 and 00-series TOs.

10.19.3.5.2.1. All maintenance actions on transient aircraft requiring FCF must be reviewed by QA prior to FCF. If the aircraft type is not the same as assigned at the transient base, then the owning unit must provide a qualified FCF pilot/crew and maintenance as required.

10.19.3.5.3. Flight Requirements. The mandatory requirements for FCF are outlined in TO 1-1-300 and the applicable Dash-6 TO. FCF profiles are normally determined by, and tailored for, the maintenance requirement causing the FCF. The decision to fly a full profile FCF is the MXG/CC's and OG/CC's discretion. Tailor the FCF profile for the discrepancy causing the FCF applying the following guidance:

10.19.3.5.3.1. Require a clean configuration whenever FCFs are flown for flight controls, fuel controls, or engine changes. Do not remove fixed wing pylons, fixed wing tip tanks, and fixed external stores unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signal propagation, etc.

10.19.3.5.3.2. Do not fly FCFs in conjunction with other missions or training requirements, unless waived by provisions in TO 1-1-300.

10.19.3.5.3.3. Follow weather conditions contained in TO 1-1-300 at all times unless aircraft are urgently required for operational commitments. Waiver provisions are outlined in TO 1-1-300 for the type and model of aircraft involved.

10.19.3.5.3.4. FCF Release. An FCF release occurs upon the successful completion of all requirements as determined by the FCF aircrew. The final decision to release rests solely with the aircraft commander. An FCF conditional release may occur when the aircraft does not successfully complete FCF requirements due to a specific system malfunction if the FCF aircrew (in consultation with maintenance) determines the malfunction may be corrected without generating another FCF. If on review of the corrective action the FCF aircrew accepts the maintenance action as a satisfactory repair of the malfunction, they may release the aircraft from FCF.

10.19.3.5.3.5. FCF Aborts. All ground aborts result in a non-release. An aircraft may be released for flight if a malfunction occurs during an FCF, which is not related to the condition generating the FCF, and the original condition checks good.

10.19.3.6. Units must refer to MAJCOM instructions for FCF procedures away from home station.

**10.20. Operational Check Flights (OCF).** Units must establish and publish local procedures. OCFs must be kept to a minimum and are not used to replace –6 FCF requirements. OCFs must be flown by experienced aircrews (not required to be an FCF qualified aircrew) and must be accomplished following the same maintenance criteria as FCFs. Fly OCFs when maintenance has been performed that does not require an FCF. Due to the extent of maintenance performed or history of a maintenance discrepancy, a unit determines if an OCF should be flown before the aircraft is flown by an inexperienced aircrew or on an operational mission.

**10.21. Inflight Operational Checks.** Maintenance must document the reason for the inflight operational check. Inflight checks are accomplished:

10.21.1. When test equipment does not exist to perform the operational check on the ground.

10.21.2. At the request of maintenance to validate a maintenance action that cannot be fully verified on the ground.

**10.22. High Speed Taxi Checks.** High speed taxi checks may be utilized instead of FCFs with group commander authorization, when a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds to operationally check completed maintenance. This procedure should rarely be used (if at all) due to the potential for aircraft damage; FCFs are preferred over high speed taxi checks. Perform high speed taxi checks with qualified FCF aircrews. If this option is exercised, process aircraft forms through QA using FCF procedures. QA develops an aircrew briefing checklist specifically for high speed taxi checks, to include the required FCF briefing items and pertinent warnings, cautions, etc.

10.22.1. To minimize brake and tire wear, configure aircraft with the minimum fuel practical to accomplish the high-speed taxi check. Ensure aircraft is prepared for flight and the Exceptional Release (ER) is signed off. Do not conduct high speed taxi tests, self-propelled movement of the aircraft, or any operation where the possibility of becoming airborne exists, with less than the Dash-1's (aircraft flight manual) operational fuel minimums onboard.

10.22.2. Aircrew performing high-speed taxi checks must complete a take-off data card to indicate the highest speed expected to ensure sufficient stopping distance is available for existing runway conditions without exceeding normal brake energy limits. For aircraft equipped with an arresting hook, taxi checks of speeds 100 knots or above require the hook to be lowered once the pilot begins to initiate braking action. For taxi checks below 100 knots, the pilot lowers the hook if there is any doubt about stopping the aircraft within the bounds of the remaining runway.

**10.23. Weight and Balance (W&B) Program.** Maintain strict accounting of aircraft weight and balance for safe flight operations. Each unit manages a W&B program, ensuring accurate inventories of aircraft weight. As the W&B authority, the QA Superintendent shall appoint a QA individual to be the unit W&B program manager.

10.23.1. W&B Program Manager Responsibilities. The W&B program manager must ensure compliance with appropriate TO procedures for weighing aircraft. The W&B program manager carries out his/her responsibilities with assistance of W&B technicians. The QA W&B technician must verify scale readings

and accomplishes or oversees the actual computations. The QA W&B technician supervises the preparation, leveling, and weighing of the aircraft IAW TO 1-1B-50. QA W&B Program technicians are not required to participate in aircraft preparation, but are responsible for ensuring preparation is properly accomplished. The W&B program manager ensures:

10.23.1.1. Sufficient personnel are qualified on assigned aircraft IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*.

10.23.1.2. Complete Dash-21, alternate mission equipment, life support equipment, etc., W&B inventories IAW applicable directives and upon return to home station from any ALC or contractor facility where extensive maintenance was performed. Complete weight and balance inventories prior to the first flight after arrival.

10.23.1.3. All assigned aircraft are weighed IAW applicable directives. Keep W&B documents required by TO 1-1B-50 for each assigned aircraft. Use the Automated Weight and Balance System (AWBS), and keep a back-up copy of all W&B documents.

10.23.1.4. Procedures are written by QA for routing completed TCTO and modification information for W&B changes.

10.23.1.5. A QA W&B qualified technician must inspect W&B documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy.

10.23.1.6. Essential weight and balance data and changes to the basic weight and moment are available for appropriate mission planning (e.g., Standard Configuration Loads, updates to supplemental handbook, etc.).

10.23.1.7. Units maintain and store W&B equipment.

10.23.1.8. QA and squadron Maintenance Operations (MOO/SUPT) work together in developing a W&B Preparation Checklist if the aircraft Dash-5 TO is not comprehensive enough for the task.

10.23.1.9. W&B manuals are maintained for Class I and II aircraft in a central file. Maintain and store Class I and Class II aircraft W&B handbooks according to TO 1-1B-50. The method of supplemental handbook storage and physical location must be standardized by the lead command for like MDS. NOTE: Manage commercial derivative aircraft according to FAA procedures, contract specifications, and the manufacturer's maintenance manuals. The CLS contractor is responsible for managing W&B programs on these aircraft.

10.23.1.10. The SCR reflects W&B certification.

**10.24. Chafing Program.** This program is mandatory for fighter aircraft units IAW MAJCOM supplements and applicable MDS technical data and optional for other MDS units as directed by the MXG/CC. QA must monitor and track instances of wire, harness, and metal line/tube chafing. A randomly selected 10 percent of assigned aircraft are inspected when notification is received of a potential chafing problem involving like model, lot number, or block of aircraft. Ideally, select aircraft currently undergoing maintenance or scheduled inspection for random sampling to reduce manpower expenditures.

10.24.1. The chief inspector shall recommend initiating an OTI if the majority of the sampled aircraft show chafing, or the detected chafing is an operational safety hazard.

10.24.2. QA evaluates and determines if crosstells, DR's or SR's are required when chaffing is identified and submits when necessary.

10.24.3. QA must develop local chafing inspection work cards for periodic, pre-flight, thru-flight, and basic post-flight inspections, if needed (do not duplicate Dash-6 TOs). Ensure inspectors inspect at least 50% of accessible areas, focusing on known chafing areas and work cards dealing with chafing.

10.24.4. QA must utilize a database for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance cross-tell reports. Consult the database before expending man-hours performing inspections. This could preclude duplication of effort or re-inspection if updated in the automated program.

**10.25. Quality Assurance Evaluator (QAE)/ Quality Assurance Representative (QAR).** If a Contractor Logistic Support (CLS) aircraft or Contract Field Team (CFT) is assigned, a QAE/QAR must be appointed and trained IAW AFI 63-124. A QAR is the government's on-site inspector and is the liaison between contractor and government personnel at each applicable base. Through administrative actions the QAR coordinates, processes, and reviews documents required to successfully implement the contract. The QAR evaluates the contractors' ability to fulfill the requirements of the contract statement of work, documents contract deviations and provides those to the site manager for necessary corrective actions and coordination. Through system malfunctions or anomalies, the QAR determines the need for government-requested special inspections. They may coordinate all requests for additional support for the contractor with the host and submit recommended contract changes through appropriate channels. They may review or coordinate on host-tenant support agreements affecting contractor support.

10.25.1. Although contract maintenance organizations are not subject to the MAJCOM/unit MSEP, wings must ensure their contracted maintenance programs are in compliance with applicable directives through evaluations by the Contractor Officer Representative(s) using the criteria outlined in the Statement of Work (SOW) and Quality Assurance Surveillance Plan (QASP).

11.2.4. Impoundment Release Authority. These are individuals authorized to release aircraft or equipment from impoundment. The MXG/CC, or Director has the authority to release aircraft. Delegation of this authority shall be limited and not be delegated lower than Maintenance Operations (MOO/SUPT). If the MXG/CC or Director delegate impoundment release authority, individuals must be designated in writing and tracked on the SCR.

11.3.11.1. A tool or other item has not been found after an extensive search has been conducted.

11.3.11.2. An aircraft landing gear fails to extend or retract.

11.3.12. DELETED.

11.3.13. DELETED.

11.5.9.1. Established impoundment procedures must be followed. The MXG/CC or designated representative may temporarily delegate impoundment and release authority to the deployed Maintenance Operations Officer (MOO)/Superintendent (SUPT).

12.3.3.4. Review with each individual the AF Benefits Fact Sheet, and provide each individual a copy at the end of each counseling session located at
**http://www.afpc.randolph.af.mil/enlskills/currentfacts.htm**.

**13.1. Tool and Equipment Management.** The objectives of the tool and equipment management program are to prevent and eliminate foreign object damage (FOD) to aircraft, engines, missiles, training and

support equipment, and to reduce costs through strict effective control and accountability of assets. To ensure standardization among maintenance units, the MXG/CC or equivalent functional authority for maintenance has responsibility for the tool management program. Maintenance Operations (MOO/SUPT) or equivalent are responsible for executing an effective tool program. The tool management program outlined in this instruction represents the AF minimum program requirements; MAJCOMs may dictate additional requirements. Depot teams/factory reps/CFTs shall adhere to AF/MAJCOM/Local guidance for tool control policies and procedures when working on aerospace equipment possessed by the unit.

13.2.1.13.2. Develop a coordinated wing OI for procedures to control aircrew tools and Life Support Section tool kits that are dispatched to the flight line. Coordinate procedures through Wing Life Support Superintendent.

13.2.1.7. Assignment of equipment identification designators (EID) for CTKs, non-CA/CRL equipment, and assignment of CTK numbers for tools.

13.2.1.8. Procedures for issue and control of personal protective equipment (e.g., ear protectors, reflective belts, headsets, etc.).

13.3.1. Design CTKs to provide a quick inventory and accountability of tools. Develop a simple inventory method, a "show" (e.g. a shadow of the tool) and "know" (knowledge of tool or kit location) concept. Clearly mark all CTKs and tools with the owning organization. Develop local procedures to determine which tools are checked out and who has them. Inspect all tools periodically for serviceability according to TO 32-1-101*, Maintenance & Care of Hand Tools*.

13.3.2. The flight commander/chief will designate and document CTK Custodians to manage and control CTKs. CTK custodians are responsible for tool, HAZMAT, and consumable asset (e.g., assets with ERRC XB3, XD2 and XF3) accountability and control within their respective areas.

13.3.4.7. Consumables may be placed in CTKs. If so, they are identified on the MIL as consumables. Examples of consumables include, safety wire, adhesive, wire bundle lacing, solder, etc. Do not include common hardware items such as bolts, nuts, and (or) screws unless they are required as tools.

13.3.4.15. For deployment purposes ensure equipment, tools, and HAZMAT items are properly identified, prepared, and documented IAW AFI 10-403, *Deployment Planning and Execution*.

13.4.1. All units must mark their tools with the standard nine-digit Equipment Identification Designator (EID) consisting of numbers and letters of which the first four characters will be a unique Worldwide Identification (WWID) code. Units must etch, stamp, or mark assigned CTKs, tools, and dispatchable equipment (NOTE: Dispatchable equipment is defined as items that can be checked out from a support section to perform on-/off-equipment maintenance within or outside the unit). Units may affix non-metallic bar code labels on tools to prevent re-etching as long as the use of the tool and its work environment does not normally result in excessive damage to the label making it unreadable. The first two letters of the WWID in the EID must be selected from within the TAS program (and in many cases, the first two digits of the WWID are the wing's/unit's personnel assignment system (PAS) base code). Multiple wings (or equivalent) at the same base (i.e., ANG, AFRC, and active duty) must have different WWID codes. When needed, request additional "base" codes from HQ SSG/ILM, Gunter Annex, Maxwell AFB, AL. The third and fourth characters designate the unit or shop by using unique/distinguishable characters (i.e., the last two digits of the unit's/shop's office symbol). To ensure tool rooms have unique identifiers, wings (or equivalent) must ensure other units within the same wing or PAS code do not duplicate the first 4 characters of the EID. The unit establishes the remaining five characters (any combination of numbers/letters) for CTKs, tools, and dispatchable equipment identification. (NOTE: The intent is for the four characters

of the WWID to identify the base (first and second character), unit (third character), and shop (fourth character) in order to leave the remaining five characters available for tool/CTK/equipment numbering.) Units must place the 9-digit EID on all CTKs, tools, and dispatchable equipment that is of sufficient size. The 9-digit EID must be placed on the outside of dispatchable CTKs. Tools located inside the tool box may be marked with less than 9-digits but must contain the 4-digit WWID and identifying character(s) that ties the tool back to the CTK. For example, tools inside an assigned dispatchable CTK "U6JG00001" may be marked "U6JG1." Small tools or items that cannot be marked as described above (such as drill bits, allen wrench sets, apexes, etc.) are to be maintained in a container marked with the WWID and an identifying character(s) that ties the tool back to the CTK along with the number of tools contained. The container is counted as one of the items.

13.4.1.1. Do not create a new EID for TMDE assets. Utilize the existing bar code number on the AFTO Form 65 (metallic) or AFTO Form 67 (non-metallic) attached by PMEL.

13.4.4. CTKs, tools, and dispatchable equipment (excluding TMDE) that may possess a unique serial/ tracking number must be marked with an EID number. If the item cannot be marked, etched, or stamped, annotate the additional designator on the CTK contents list.

13.4.6. Remove the EID from unserviceable tools and tools removed from the CTK, and update the MIL accordingly.

13.5.1. All units must use the Air Force approved TAS for accountability and control of items as outlined below in paragraph **13.5.1.1.** ***Exception:*** MAJCOMs can authorize manual tracking for small work centers on a case by case basis. Contractors and MEOs using a non-TAS automated system that was accepted by the government, may continue to use that system until the contract is recompeted and the requirement for using TAS is added to the follow-on contract, or the contractor/MEO voluntarily elects to use TAS at no additional expense to the government. Accountability means knowing where tools are and who has responsibility for them. Flight commanders/chiefs and section chiefs, through CTK custodians, are responsible for tool and equipment accountability and control. When a person signs for a tool or piece of equipment, he or she is accountable for it until it is returned to the tool room and accountability transfers back to the CTK custodian (through a representative or tool room employee). Air Logistics Centers must continue to implement the Facilities and Equipment Maintenance (FEM) tool module as the depot standard.

13.5.1.1.5. DELETED.

13.5.2. Account for all CTKs, tools, and dispatchable equipment at the beginning and end of each shift. Document shift inventories. CTKs present during tool room shift inventories do not need to be opened for inventory.

13.5.2.2. At least annually or when the CTK custodian changes, conduct a comprehensive inventory of all tools, non-CA/CRL equipment, and CTKs. The purpose of this inventory is to perform an extensive inspection of all tools and non-CA/CRL equipment, to include condition, identification markings, and accuracy of the MIL. Inspect all tools for serviceability according to TO 32-1-101. CTK custodians document these inventories and maintain the most current inventory documentation on file.

13.5.3. Electronic Tools (E-Tools). The following section contains guidance for maintenance personnel and support sections for the accountability, control and use of E-Tools. Group TODO offices must be used to effectively control the electronic technical data configuration. Workgroup managers shall monitor E-Tool configuration (operating system, virus checkers, etc.) IAW 33-series AFIs.

13.5.3.1. The wing and squadron support sections must establish procedures for local accountability, control and use of Electronic Tools (E-Tools) to include laptops computers, electronic “tablets”, hand-held devices, etc. As a minimum, representatives from unit Communications, the Technical Order Distribution Office, Small Computers, and Maintenance should coordinate on the contents of these procedures.

13.5.3.2. E-Tools purchased and used for the purpose of viewing digital technical data and maintenance documentation must be accounted for as Automated Data Processing Equipment (ADPE) IAW 33-Series AFIs.

13.5.3.2.1. Licenses, certification, maintenance and security of E-Tools (hardware and software) must also be IAW 33-series AFIs and AFI 21-116. Units must make maximum use of E-Tool warranties and ensure that only serviceable E-Tools with fully charged batteries, up to date system software, and current technical data are available for checkout.

13.5.3.2.2. E-Tools purchased by the MAJCOM for viewing digitized data and maintenance documentation must only be used for their intended purpose. Only MAJCOM-authorized software required to directly support maintenance activities shall be loaded/installed on E-Tools.

13.5.3.2.3. An ADPE account specifically designated for E-Tools shall be set up within each support section if applicable. This is to account for E-Tools separately from other small computers within the squadron or support section. A copy of this E-Tool ADPE account must be kept on file by the TODO to facilitate technical data inventory and configuration.

13.5.3.3. The Lead or Group TODO custodian shall be the MAJCOM’s POC for coordinating E-Tool requirements to support digitized TOs.

13.5.3.3.1. The TODO shall be the focal point between users, support sections, base Small Computers and system administrators for matters concerning digitized technical data and E-Tools.

13.5.3.3.2. The Lead TODO must maintain a copy of all E-Tool ADPE accounts. The Lead TODO(s) shall work with other TODOs and Technical Order Distribution Accounts (TODA) to ensure E-Tools are configured with current software to support technical order and maintenance documentation.

13.5.3.4. E-Tools must be controlled and issued from the applicable support section using the same procedures used for other support equipment.

13.5.3.4.1. Ensure E-Tools are managed properly IAW their security classification.

13.8.1.8. If the item is not located, Maintenance Operations (MOO/SUPT) shall determine when the search may be discontinued.

13.8.1.8.1. Limit authorization to clear red-X’s when a tool cannot be located to no lower than Maintenance Operations (MOO/SUPT).

13.8.1.10.1. Maintenance Operations (MOO/SUPT) may explore other possible actions to include having the unit or a depot field team disassemble the aircraft to remove the item/tool.

14.5.1. Annotate the aircraft 781-series forms IAW TO 00-20-1, this instruction, and applicable AMC directives: 1) AFTO Form 781A, *Maintenance Discrepancy and Maintenance Document*; 2) AFTO Form 781C, *Avionics Configuration and Load Status*; 3) AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*. Before loading chaff/flares, review the AFTO Form 781C, *Avionics Configuration and Load Status Document*, for DS inspection status. NOTE: Do not load chaff/flares if the aircraft is overdue a scheduled DS inspection.

15.2.1. 2R1XX AFSC Functional Management. The MOF PS&D Superintendent shall serve as the wing 2R1XX functional manager and advisor to all maintenance scheduling activities. The 2R1XX functional manager must ensure the following duties are performed:

15.2.1.5. In conjunction with the Maintenance Training Flight and squadron Maintenance Operations Officers (MOOs), develop and periodically review training programs for all 2R1X1 personnel. The training plan must include familiarization with assigned weapons systems, core task training/certification procedures and continued proficiency in scheduling and documentation techniques.

15.2.1.5.1. Ensure personnel receive weapon system familiarization training, if not already familiar, through the MTF/TD within 3 months of assignment. If courses are not available, coordinate with the appropriate AMU for familiarization training. Document familiarization training in the individual's training record.

15.2.2.1. Ensure all assignment/possession changes are properly coordinated through the MAJCOM AVDO IAW AFI 21-103 and AFI 16-402.

15.2.3.3. Standardized aircraft jacket files. Include missing forms policy requirements and semi-annual jacket file review checklists. MOF PS&D must develop and maintain a standardized master aircraft jacket file for use throughout the wing. Wing assigned aircraft jacket files must mirror the standard in organization and appearance. Slight variations in composition are allowed between different MDSs.

15.2.3.4.1. The ADR procedures must outline configuration management verification requirements to include CAMS screen 990 for out-of-configuration condition. Establish a single delayed discrepancy in the aircraft forms for out-of-configuration condition. Add a CAMS/IMDS work center event (WCE) for each WUC and part/serial number item requiring verification to that single delayed discrepancy. If an item data plate is missing or does not have a serial number, contact the MAJCOM system functional manager and ALC item manager for disposition. Items not accessed or visible during routine organizational/field-level maintenance should be identified to MAJCOM and ALC managers for removal from the configuration management table.

15.2.3.7. Management of the wing's SI, TCI, TCTO, and Aircraft Configuration Management (ACM) programs IAW this chapter and MAJCOM guidance. Assign specific responsibilities for each work center involved (i.e., egress, life support, survival equipment and AMU PS&D) and establish procedures to ensure configuration data is maintained during routine maintenance actions. TCI and TCTO procedures must outline the requirements for ordering hazardous materials (Example: Batteries). Units must not delegate (CAMS/IMDS only) suspense validation processing for TCIs installed on aircraft to the performing work center unless the written procedures include a list of work centers and specific technicians authorized to process suspenses, a list of the specific suspenses are authorized to be cleared, and the method for notifying AMU scheduling sections of the work completed (an audit trail). Engine management must process all MIS suspense validations for engines and engine components.

15.2.4. Job Standard Master Listing (JML) Management. MOF PS&D maintains (load, change, and delete) the JML for all inspections and time changes listed in the applicable aircraft Dash-6 and commodity TOs. The MOF Engine Management (EM) section maintains the JML for engine inspections and time changes. Maintain JMLs for off-equipment items in the owning work center. Provide written guidance and training for JML management of off-equipment JSTs when MOF PS&D authorizes owning work centers to maintain it. In G081 units, MAJCOM weapon system managers must maintain master inspection and time change requirements. Once Master Job Standard Numbers (MJSNs) are fielded for a weapon system, local PS&D must review TO 00-20-2 for MJSN procedures. MOF PS&D must load, change, and

delete JSTs in the MIS as soon as possible after receipt of any Dash-6 or other technical order TCI or inspection change and promptly notify affected AMU PS&D sections for action. MOF PS&D shall:

15.2.4.3. Develop a matrix/chart depicting the total number of SI and TCI requirements to be loaded in the MIS for each assigned aircraft. The total number of SIs and TCIs for each aircraft must be checked against MIS totals weekly. Provide AMU PS&D a list of all discrepancies found. Overdue and uncorrected discrepancies must be briefed weekly during a wing daily production/scheduling meeting.

15.2.4.4. Monitor the inspection and time change subsystems in the MIS. Perform a comprehensive quarterly review of all inspections, SIs, and TCI JSTs for each assigned aircraft. Look for missing and/or excess inspections and time change items loaded to the aircraft. Ensure the accuracy of all due dates/times for TCIs and verify the DOM and DOI. When errors are detected, send a report to the appropriate scheduling function for correction. Document the review, establish a suspense date, forward the report to the applicable PS&D, and suspense the report until the corrections are received. Maintain the report on file with corrective actions until replaced by the next review. The use of automated verification tools is encouraged provided the tools use MIS data as the source for verification.

15.2.5.4. Participate in the daily production/scheduling meeting. The purpose of the daily meeting is to verify aircraft and equipment utilization, scheduled maintenance requirements for the current and next day, establish work priorities, and coordinate schedule changes. Ensure SIs, TCIs, TCTOs, DFT/CFT schedules, and shared resource usage concerns are briefed at least weekly. Brief any uncompleted scheduled maintenance from the previous day, each day. Qualified scheduling representatives from each AMU PS&D and EM must attend the wing daily production/scheduling meeting.

15.3.1. Attend and actively participate in daily, weekly, monthly, quarterly, and yearly flying scheduling programs and meetings IAW in this chapter and:

15.3.1.4. Provide MOF PS&D a listing of Job Control Numbers (JCNs) for next week's scheduled maintenance by 1600 Friday if JCNs are not listed in the weekly flying and maintenance schedule. This list shall be used to track maintenance scheduling effectiveness. AMU PS&D must assist MOF PS&D in determining causes of missed maintenance for reporting maintenance scheduling effectiveness.

15.3.4. Manage the following programs for AMU assigned aircraft: TCTOs, TCIs, and SIs (including installed engine inspections) IAW guidance in this chapter. In CAMS, individual work centers accomplishing TCIs are responsible for changing configuration. The performing work center supervisor and AMU PS&D must conduct supervisory reviews of configuration change, TCTO, SI, and TCI events using CAMS on-line capabilities. Unless otherwise specified in local procedures, AMU schedulers must process CAMS/IMDS screen 128 for all removal, installation, TCI, SI and TCTO compliance updates for any items installed on the aircraft. MOF EM must process CAMS/IMDS screen 128 for engines and engine components.

15.3.5.3. Review aircraft jacket files and associated decentralized records semi-annually using the MOF PS&D-developed checklist. The last completed checklist must be kept on file in each aircraft jacket file.

15.3.5.4. Maintain inactive (pulled) AFTO 781 series forms IAW AFMAN 37-139. AFTO Form 781s must be reviewed to ensure no forms are missing, page number blocks are correct, and the "from" date matches the "to" date from previous forms IAW TO 00-20-1, before filing. If forms are missing, send a missing forms letter to the appropriate section chief with a 5-duty-day suspense. If a response is not returned within five duty days, notify AMU supervision. If forms cannot be located, file the missing forms letter, endorsed by the section chief and AMU supervision, in the aircraft jacket file in place of the missing forms.

15.4.4. GSAS plans must be compared semi-annually with the unit Designed Operational Capability (DOC) statement to ensure compatibility with the mission.

**15.5. Flying and Maintenance Planning Cycle.** MAJCOMs shall develop procedures to ensure the intent of the operational planning cycles is met. The objective of the operational planning cycle is to execute the wing flying hour program consistent with operational requirements and maintenance capabilities. This process requires operations and maintenance cooperation. The operational planning cycle begins with the annual allocation of flying hours and utilization (UTE) rates. Maintenance schedulers must understand operational needs to determine supportability and operations schedulers must consider maintenance capabilities. Maintenance and operations schedulers shall develop a proposed annual flying plan balancing both operational requirements and maintenance capabilities. The annual plan, detailed by month, shall evaluate the capability of maintenance to support the annual flying hour program. The plan shall be coordinated and consolidated by OSS Current Operations Flight Scheduling and forwarded to the Current Operations Flt/CC, the operational SQ/CC, AMXS/CC, MOF/CC, and MOF PS&D. The printed wing plan shall include an assessment of the wing's ability to execute the flying hour program. The plan shall be presented to the OG and MXG CCs for approval before being approved by the WG/CC. Commit the fewest number of aircraft possible to meet programmed UTE rate standards and goals.

15.6.3.1. Sortie Utilization (UTE) Rates (N/A to MAF units). Compute UTE rates by month for the entire fiscal year for contracted (required) sorties and scheduled sorties using the formula: (number of sorties per month) divided by (number of PAI aircraft).

15.6.4. Once compiled, packages shall be presented to the OG/MXG/CCs before being presented to the WG/CC for final approval. Final assessments of maintenance capabilities to support the operations "first look" projections are sent to MAJCOM DO/LG/A4 as necessary.

**15.7. Annual Maintenance Planning Cycle.** MAJCOMs shall develop procedures to ensure the objectives of the annual maintenance planning cycle are met. The annual maintenance planning cycle ensures proper and effective use of maintenance resources. Schedulers use long-range planning to assess maintenance's ability to support flying-hour programs, programmed depot maintenance (PDM) schedules, TCTO programs, scheduled inspections and exercises. Automated products are used to assist in planning. Include all known operational events (e.g., exercises, deployments, surges, etc.) to determine maintenance capability to meet operational needs.

**15.8. Quarterly Planning.**

15.8.1. MAJCOMs shall develop procedures to ensure the objectives of the Quarterly Planning cycle are met. Quarterly planning starts with the operational requirement for flying hours, UTE rate, airframe availability, alert, and other related scheduling data. The OS operations officer provides these requirements to AMU supervision and PS&D not later than 25 days before the beginning of the quarter. AMU supervision and the OS operations officer discuss these requirements at the scheduling meeting before the quarter being planned.

**15.9. Monthly Planning.** MAJCOMs shall develop procedures to ensure the objectives of the Monthly Planning cycles is met. Forecast and monitor requirements for the current and next two months. Include predictable maintenance factors based on historical data along with other inputs, such as flow times for maintenance, turnaround times and parts replacement schedules. Include all known operational events (e.g., exercises, deployments, surges) to determine maintenance's capability to meet operational needs. The OS operations officers and AMU flight supervision shall review their applicable portion of the monthly maintenance plan and weekly schedule prior to submission to MOF PS&D. To optimize aircraft

and munitions support, MXS, AMXS and OS CCs shall ensure the number of aircraft and/or munitions configurations are minimized and standardized. The monthly schedule refines the quarterly plan:

15.9.4. When the WG/CC approves the proposed monthly flying plan contract, MOF PS&D includes it as a portion of the monthly flying and maintenance plan. Monthly plans may be published electronically provided local security requirements are met.

15.9.5. The monthly flying and maintenance plan combines all aspects of aircraft utilization and includes:

15.9.5.1. A detailed monthly operations utilization calendar which specifies total aircraft flying hours, total sorties and missions, alert requirements, and scheduled sortie or mission requirements, daily turn plans for each mission design series (MDS) by squadron, group, or wing. Do not assign attrition sorties to a specific aircrew/mission for the monthly planning process.

15.9.5.4. Scheduled inspections, TCTOs, engine changes, time changes, delayed discrepancies, contract or depot maintenance, washes, corrosion control, training aircraft, and all other known maintenance requirements.

15.9.5.5. SE scheduled inspections, contract or depot maintenance, TCTOs, time changes, delayed discrepancies, washes, and corrosion control.

15.9.5.7. Engine/module 6-month removal forecast and in-shop inspection requirements.

**15.10. Weekly Scheduling.** The weekly schedule is the final refinement to the monthly plan and results in the weekly flying and maintenance schedule. MAJCOMs shall develop procedures to ensure the objectives of the Weekly Scheduling process are met. To optimize aircraft and munitions support, MXS, AMXS and OS CCs shall ensure the number of aircraft and/or munitions configurations are minimized and standardized. The OS operations officer and AMU supervision shall review and coordinate on the proposed weekly flying and maintenance schedule with OS, AMXS, and MXS prior to presenting it to the OG and MXG CCs. Operations schedulers shall use the Tactical Aircrew Scheduling Airspace Management System (TASAMS) to develop the flying schedule in units where Theater Battle Management Core Systems-Unit Level (TBMCS-UL) is fielded. The group-approved schedule shall be submitted to MOF PS&D for compilation and a complete paper copy shall be given to the WG/CC at the weekly scheduling meeting. At the weekly scheduling meeting, evaluate the past week's accomplishments (to include Flying and Maintenance Scheduling Effectiveness) and negotiate/approve refinements to the coming week's schedule. NOTE: The AF Form 2402, *Weekly Equipment Utilization and Maintenance Schedule*, is used to summarize the upcoming week's schedule. The AF Form 2403, *Weekly Aircraft Utilization/Maintenance Schedule*; and AF Form 2436, *Weekly/Daily Aircraft Utilization Schedule*; are more finite in the depiction of aircraft utilization and maintenance. The AF Form 2403 and AF Form 2436 may be used together or individually. Electronic versions of the above forms are authorized. Whatever forms are used, all requirements shall be entered. Weekly schedules may be published electronically provided local security requirements are met.

15.10.2.1. Tanker/Airlift Control Center (TACC) tasked units (applicable for MAF units only) shall use the daily flying schedule as the basis for deviation reporting.

15.10.3.10.2. The agency requesting the change initiates the AF Form 2407 and coordinates it through the affected production supervisor, Maintenance Operations (MOO/SUPT), and required group staff agencies (i.e., MOC, PS&D, Analysis, etc.) IAW MAJCOM procedures.

15.12.1. General Management of TCTOs. MOF PS&D manages aircraft and commodity TCTOs, Munitions Scheduling manages munitions-related TCTOs, and MOF Engine Management (EM) manages

engine-related TCTOs. However, MOF PS&D still has the overall responsibility to monitor the effective management of the wing's TCTO program. All scheduling, tracking and day-to-day monitoring of TCTOs is accomplished by the owning scheduling agency (MOF PS&D, MOF EM, AMU PS&D, AGE, Armament, Munitions, and PMEL). If schedulers are not designated/assigned to an owning agency, MOF PS&D shall perform the listed owning-agency's responsibilities. For TCTO actions on training equipment assigned to a Training Detachment (TD) or Mobile Training Team (MTT), the parent technical training center manages and schedules all TCTOs.

15.12.1.1. MOF PS&D must review MIS products weekly to ensure proper documentation and management by owning and managing TCTO agencies. When errors are detected, MOF PS&D must advise affected scheduling functions and provide assistance when necessary to correct the discrepancies. MOF PS&D must coordinate with MDSA to ensure MIS TCTO synchronization program is run monthly as appropriate.

15.12.1.4. Depot-level TCTOs, excluding commodities, are loaded and tracked in the MIS for auditing compliance and applicability. Depot level engine TCTOs are loaded in CEMS only. Units shall ensure dual reporting of completed depot TCTOs is prevented. All field-level companion TCTOs for commodities must be loaded in the MIS.

15.12.2.1.2. Distribute applicable TCTO copies to the managing agency, performing and assisting flights or sections, the Distribution Flight, and LRS Chief Inspector with a suspensed cover letter to Supply requesting the number of items in supply, including war reserve materiel, affected by the TCTO.

15.13.2.2.1. Order all munitions items requiring time change IAW TO 00-20-9 and AFI 21-201. Notify the Munitions Flight of the need to order munitions items IAW AFI 21-201. Forward AF Forms 2005, *Issue/Turn-In Request*, to munitions operations no earlier than 60 days, but not later than 45 days before the beginning of the quarter in which the item is required. Overseas bases shall order munitions items 90-120 days before the required quarter IAW AFI 21-201. Include the validated forecast time change date on the AF Form 2005. CAD/PAD TCIs with 9 months or less service life remaining may be turned into munitions operations and must not be reissued. Maintenance plans must reflect replacement dates to coincide within the 9-month parameter.

15.13.2.3. Schedule the time change in the automated system and incorporate it in the monthly/weekly maintenance plan upon notification by supply that the part is available.

15.14.4. MOF PS&D must develop procedures for verifying configuration items during aircraft phases. AMU PS&D must request CAMS/IMDS DBM process screen 942, Actual Configuration Set-up, using the ID number of the aircraft entering Phase. Once accomplished, the scheduler must run a CAMS/IMDS screen 990. A copy of this product must be given to the phase dock chief at the pre-dock meeting, for verification/correction of all items out of configuration during the phase inspection. This document must be turned-in to the AMU PS&D during the post dock meeting and forwarded to MOF PS&D. MOF PS&D must request the DBM process screen 942 or run a new screen 990 for the same tail number to verify corrections. Discrepancies must be briefed at the daily production meeting and forwarded to the AMU for corrective action. Completed/verified copies of the output product (screen 942 or 990) must be maintained in MOF PS&D until the next scheduled phase for that aircraft.

15.14.4.1. For those aircraft that do not currently have an established configuration table, use CAMS/IMDS screen 810 to validate the actually installed items against the data in the MIS.

**15.15. Transfer Inspections.** (***Note:*** During temporary loans of an aerospace vehicle the acceptance and transfer inspections can be waived as long as a MOA is agreed upon and signed by both gaining and losing commanders.

15.15.1.1. In conjunction with QA, develop a local checklist for aircraft and equipment transfer and acceptance inspection. This checklist must meet all TO 00-20-1, 2-1-18, applicable aircraft Dash-6 and -21, as well as AFI 21-103 and MAJCOM specific transfer requirements. Include gathering historical records (i.e., NDI records, Egress records, Weight and Balance records, JOAP records, Strut records, etc.) and other items listed below. Ensure transfer and acceptance inspection checklists for on-equipment maintenance are loaded to a profile JST and scheduled in MIS.

16.1.4. Informs the MXG/CC and affected SQ/CC and/or Maintenance Operations Officer (MOO) of any issues or problems affecting load crew status, DLO, projected manning, equipment, and other items of concern.

16.1.12.1. Training munitions: These numbers reflect the minimum munitions required exclusively for weapons load crew certification and recurring training (WLT). These munitions are forecasted by and assigned to weapons load training (W1) accounts. Sortie generation and aircrew classroom training munitions must be forecasted for and maintained on separate supply accounts. Munitions required for DLO training must be forecasted on the unit sortie surge account.

**Table 16.1. Training Munitions Authorized for Bombers.**

| BOMBERS | B-52 | B-1B | B-2 |
|---|---|---|---|
| AGM-86/B ALCM** | 14 | | |
| AGM-86/C CALCM | 3 | | |
| AGM-129A ACM** | 6 | | |
| M-117 | 9 | | 9 |
| MK-82 LD | 27 | 10 | 20 |
| MK-82 Air | 9 | 28 | 9 |
| MK-84 | 3 | 3 | 3 |
| GBU-10 | 1 | | |
| GBU-12 | 1 | | |
| GBU-37 | | | 1 |
| GBU-31 JDAM/2K MK-84/BLU-109 | 3/1 | 3/1 | 3/1 |

| BOMBERS | B-52 | B-1B | B-2 |
|---|---|---|---|
| GBU-32 JDAM/1K | | | |
| CBU-87 CEM | 5 | 5 | 5 |
| CBU-89 GATOR | 5 | 5 | 5 |
| CBU-97 SFW | 5 | 5 | 5 |
| CBU-103/104/105 WCMD | 3/1/1 | 3/1/1 | 3/1/1 |
| B-61 | 1 | | 8 |
| B-83 | 1 | | 8 |
| MK-62 MINE*** | 2 | 2 | 2 |
| MK-63/65 MINE*** | 1/2 | | |
| GBU-28 | 1 | | 1 |
| EGBU-28 | | | 1 |
| AGM-154 | 3 | 3 | 3 |
| AGM-158 | 3 | 3 | 3 |

16.1.15. Develops, in coordination with the explosive safety officer and airfield management, a wing OI or supplement to this AFI for parking, launch and recovery of explosives-loaded aircraft, end of runway procedures, and impoundment of aircraft with hung ordnance or jammed gun systems. The OI or supplement must include requirements to:

16.1.15.1. Arm and de-arm munitions-loaded aircraft in approved areas. Immediately-prior-to-launch and "safing" procedures may be performed in the aircraft parking area for contingencies, unit exercises, and daily training missions as quantity distance clearance allows with the approval of wing safety, airfield management and the MXG/CC.

16.1.15.2. Establish procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. Control access to aircraft until munitions are made safe and cause of hung stores is identified. As a rule, ensure aircraft guns and rockets are "safed" in the de-arm area before aircraft return to open ramp parking areas.

16.1.15.3. DELETED.

16.1.18. Coordinates with the MOO, munitions flight, weapons safety and operations plans in developing nuclear weapons operations procedures (e.g., convoy, custody transfer, no-lone-zone, etc.) if applicable.

16.1.20. Ensures approval of locally manufactured equipment (LME) if not included in tech data or listed on the Munitions Materiel Handling Equipment Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point at AAC/WMO, 615 Apalachicola Road Suite 101, Eglin AFB, FL 32542-6845.

16.1.20.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

16.1.20.2. Munitions/armament LME specifically designed to interface with or support munitions not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, "y"-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME not designed to interface with or support munitions not contained in technical data or on the MMHE Focal Point web site must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on the MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

16.1.20.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program*.

16.1.20.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series technical data. AFTO Forms 244, or equivalent, must be maintained for all LME items (racks, stands, adapters, etc). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

16.1.25. Provides monthly manning, equipment and tester status to MAJCOM via e-mail or web site NLT the 5th of each month. Monitors the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of TCTO modifications.

16.1.25.1. Provide a valid document number for all items listed in AWP status in the remarks column of the report if the item is procured through USAF supply channels. If parts are obtained from commercial sources, and purchased using IMPAC card, provide source, date ordered, and status in the remarks column.

16.1.27.1. If a unit has an incident, it is important to preserve the evidence to the maximum extent allowable by operational requirements and safety. An example would be segregating an aircraft gun versus destroying it if it poses no immediate danger. This allows for evaluation of all the evidence and the ability to recreate the mishap conditions.

16.1.27.2. If a malfunctioning munitions item (live or inert) causes a mishap, also notify OO-ALC/WM's Munitions Rapid Response Team at DSN 777-4865/5155, 775-5507/3208 and 777-AMMO or 775-AMMO, or the Hill AFB Command Post at 777-3007. This team is comprised of experts (engineers, equipment specialists, program managers and safety personnel) from the conventional weapons and munitions programs and can respond within 24 to 48 hours to assist in determining the cause of a failure. Initial contact, as soon as practical, shall allow the team to make travel arrangements and aids response time. For units with 20 or 30MM gun systems use of the team is encouraged (not mandatory unless a safety issue exists) if the cause of a gun system jam cannot be easily determined or for recurring jams. Using the team provides highly valuable information regarding ammunition/gun system problems and allows ALC personnel to see issues first hand.

16.1.30. Performs semi-annual (annual for ARC) self inspections on WS, Weapons Sections and Armament Flights IAW this chapter, interval not to exceed 180 days. Maintain copies of the inspection results for two years.

16.1.34. Ensures requirements for submitting AFTO Forms 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

16.2.2.15. Ensures load crews are familiar with fuze inspection, installation and wiring IAW MDS-33 series TO procedures or TO 11A-1-63 (bombers). Conduct this training during initial certification and annually thereafter. Functional checks must be trained during initial training/certification for all MDS. Functional checks must be evaluated at least quarterly thereafter, must be treated and tracked as a qualification item, and need not be performed in conjunction with an evaluated load. Bomber units are exempted from all functional check requirements stated above.

16.2.2.21. Ensures individual tool kits are set up for each lead crew assigned. These CTKs may be stored in WS or the respective squadron, but are required to be maintained by the Lead Crews. In coordination with the Weapons Section Chief, determines the number of loading tool kits required in bomber units, and those that support only test, evaluation or training missions.

**16.3. Loading Standardization Crew (LSC).** The LSC works for the WS Superintendent and conducts the weapons standardization and evaluation program. The wing weapons manager and/or WS Superintendent evaluate and certify the LSC according to criteria in this section. If unit manning permits, the LSC team chief must be at least a TSgt 2W171. The LSC trains, evaluates, and certifies the lead crews and load crews in safe and reliable munitions loading procedures. The LSC:

**16.5. Lead Crews.** The lead crews are assigned to the WS and assist the LSC in training, evaluating and certifying unit load crews in safe and reliable munitions loading procedures. They document, initiate and maintain the database to reflect qualification, certification status and history of assigned load crew members. Ensure all load crew members complete required proficiency/academic training and take decertification action when recurring requirements are not met. Perform spot inspections and evaluations of flight line munitions/explosive handling and loading operations when not directly involved in WS training functions. Perform flight line loading evaluations when deployed, as required, in addition to their normal load crew duties. These evaluations may be used to satisfy load crew MPRL requirements IAW this chapter.

16.7.1.9. Hazards inherent during Concurrent Servicing Operations (CSO).

16.8.7. Establish a program for supervisory post-load inspections of explosive loaded aircraft (nuclear and conventional). Supervisors (expediters, shift supervisors, flight chiefs, etc.) performing such inspections require initial and annual qualification training by WS.

16.9.1. Two-member crews: MH-53, MC-130E/H/P, and MQ-1 Predator.

16.9.2. Three-member crews: AC-130H/U, A/OA–10, F–15, F–16, F/A-22 and F–117.

16.12.1.1. Except the LSC and lead crews, load crew members are not certified on more than 10 MFGs. Dual position (LSC and SLC) or dual MDS (LSC only) certification of load crew members is authorized; however, they may not be certified on more than 10 MFGs. Personnel certified on two separate MDS aircraft alternate quarterly requirements between the two tasked aircraft. Proficiency requirements are accomplished on both aircraft IAW this chapter. Test wing personnel may be certified on more than 10 MFGs and multiple MDS provided all other requirements for load certification, qualification and evaluations are complied with and authorized by the WWM.

16.12.1.3. A minimum of two certifying officials are required to evaluate three and four-member load crews. A minimum of one certifying official is required for two-person load crews.

16.12.3. AGM-65 tasked units shall load train using both the LAU-88 (if applicable) and LAU-117 launchers and accomplish quarterly loading requirements by alternating launchers (i.e., load the LAU-117 one quarter and the LAU-88 the next). LAU-117 loading need only be accomplished using the pre-load method. LAU-88 loading is accomplished by the single load and pre-load methods. Single AGM-65 loading on LAU-88 launchers is accomplished using both MJ-1 and MHU-83 bomb lift trucks on an alternating basis and consists of a minimum of two missiles (one shoulder and one bottom station). Preloaded LAU-88 launchers are in an unbalanced configuration (one loaded and one empty shoulder station).

(NOTE: Some units may only possess one or two LAU-88s for WLT . These WLT assets are provided to units for training in support of deployed locations/taskings.)

**16.15. Load Crew Quarterly Evaluations.** The LSC evaluates each load crew once a quarter on at least one of the unit PMs (all unit PMs will be used on a rotating basis). Load crew integrity will be maintained to the maximum extent possible. Decertify load crews failing to accomplish quarterly evaluations on all munitions unless exempted IAW provisions in this chapter. Quarterly evaluations are not required for lead crews. If an integrated load is accomplished as the QE (i.e., AIM-9, 120, 7), document the QE accordingly. There is no need to document both QE and MPRL. The intent here is to ensure load crews perform an evaluated load each month.

16.16.1. The LSC keeps load crew records. Include the following documents as a minimum: AF Form 2435 (or equivalent) (front and back) for each crew member and AF Form 2419 recording the most current quarterly evaluation. AF Form 2419's must be maintained in the database for all loads. Maintain either electronic or paper copies of AF Form 2419s for a minimum of 1 year.

16.16.5. Print AF Form 2419, *Routing and Review of Quality Control Reports*, after quarterly evaluations and route to the weapons section chief, MOO, WWM, and LSC.

**16.18. Dual Loading Operations (DLO).** DLO is only applicable to bomber units (MAJCOM approval required for fighter units). DLOs are the primary method for rapid munitions loading/unloading on bomber aircraft and are authorized provided the following conditions are met:

16.18.3. Load crews conduct independent loading operations from single or separate trailers. NOTE: Loading and fueling operations must not be performed simultaneously due to the hazard of the aircraft settling.

16.18.6. Initial DLO qualification consists of academic and practical training. Recurring annual training must consist of academic training.

16.21.1. The standard load times, from the MFG **Table 16.3.-Table 16.5.**, are standard load times for initial and recurring "WLT" training and evaluations for the respective single store (including full munitions preparation) and an applicable aircraft station functional check and installation of impulse cartridges, if required. Except for BRU-57, an additional 10 minutes is allowed for each added aircraft station check on fighter aircraft. An additional 7 minutes is allowed for each like store added to fighter aircraft loads. Load times are additive when more than one type of munition is loaded on fighter aircraft. For example, if an F-16 is to be loaded with two AIM-9s and a MK-82, the load crew shall be allowed 30 minutes for the first AIM-9, 7 minutes for the second AIM-9 plus 10 minutes for the additional station functional check, and 35 minutes for the MK-82, for a total of 82 minutes. Loads may be accomplished without full munitions preparations or functional checks, however, more restrictive time standards must be developed. Units should develop optimum time standards for integrated loads (including nuclear, if tasked).

16.21.2. Unless otherwise noted in **Table 16.3.-Table 16.5.**, the WS Superintendent shall determine and set load time standards for qualification items for integrated loads and for loads performed wearing CWDE.

**Table 16.3. Fighter Aircraft Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
|---|---|---|---|---|---|---|
| AIM-7 | | 35 | | | | |
| AIM-9 | 30 | 30 | 30 | | 30 | |
| AIM-120 | | 35 | 35 | | 40 | |
| AGM-65 | 35 | 35 | 35 | | | NOTE 1,2 |
| AGM-88 | | | 35 | | | |
| AGM-130 | | 45 | | | | NOTE 1,6 |
| B-61 | | 60 | 60 | | | NOTE 3 |
| CBU-87/89/97/ 103/104/105/107 | 35 | 35 | 35 | 35 | | NOTE 15 |
| GBU-10/12 | 35 | 35 | 35 | 35 | | NOTE 1 |
| GBU/EGBU-15 | | 45 | | | | NOTE 1,6 |
| GBU/EGBU-24/27 | | 35 | 35 | 35 | | NOTE 1 |
| GBU/EGBU-28 | | 45 | | | | NOTE 1 |

| FAMILY GROUP | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
|---|---|---|---|---|---|---|
| MK-82/<br>MK-84/M129/<br>MK-82 AIR/<br>MK-84 AIR | 35 | 35 | 35 | 35 | | NOTE 4 |
| GBU-31/32 | | 35 | 35 | 35 | | |
| AGM-154 | | 35 | 35 | | | NOTE 1,15 |
| QUALIFICATIONS | A/OA-10 | F-15 | F-16 | F-117 | F/A-22 | REMARKS |
| ALE-50 | | | 20 | | | NOTE 5 |
| SUU-25 | 30 | | 30 | | | |
| CHAFF/FLARES | 20 | 10 | 10 | | | NOTE 5 |
| 2.75” ROCKETS | 35 | | 35 | | | |
| 20MM/30MM | 35 | 30 | 35 | | | |

**Table 16.4. Bomber Aircraft Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | B-52 INT | B-52 EXT | B-1 INT | B-2 INT | REMARKS |
|---|---|---|---|---|---|
| AGM-86 / AGM-129 | 60 | 70 | | | NOTE 7, 9, 12 |
| B-61/B-83 | 60 | | | 45 | NOTE 7, 9, 13 |
| AGM-84 | | 45 | | | NOTE 8 |
| MK-82/M117/MK-62/<br>MK-63/M-129 | 25 | 40 | 40 | 40 | NOTE 10, 14 |
| MK-84/BLU-109/<br>GBU-37/GBU-31/<br>AGM-154/AGM-158 | 70 | 40 | 40 | 40 | NOTE 10, 11, 14 |
| CBU-7/89/97/<br>103/104/105/107 | 40 | 40 | 40 | 40 | NOTE 10, 11, 14 |
| MK-56/MK -60/MK-65 | 70 | 40 | 40 | | NOTE 7, 10, 14 |
| GBU/EGBU-10/12/28 | 35 | 40 | | | NOTE 10, 14 |

**Table 16.5. Unmanned Aerial Vehicle Munitions Family Group and Load Training Time Standards (in minutes).**

| FAMILY GROUP | MQ-1 | REMARKS |
|---|---|---|
| AGM-114 | 20 | NOTE 11 |

***NOTES:***

1. Add 15 minutes for each additional store or LAU-117.

2. Time is for one LAU-117. The time for loading one pre-loaded LAU-88 is 45 minutes; two LAU-88s, 60 minutes; single missile out of container, 35 minutes; for a single missile that must be transferred out of the container, 50 minutes; for three missiles out of the container, 60 minutes; for three missiles in their containers, 90 minutes.

3. Includes a short flight circuit test (FCT), such as F-16, 75060/W-11; or F-15E, A/E24T-199 check. When a long FCT is to be included in a loading operation, add the time standard listed in the applicable Dash-6 tech order to the time standard.

4. Add 5 minutes for each fuze extender used.

5. Time is for one module, magazine or ejector channel. Add 5 minutes per each additional module, magazine or ejector channel.

6. Add 15 minutes when accomplishing IR check.

7. Pre-load

8. DELETED.

9. (B-52 postload for one missile): Add 50 minutes for AGM-86B or AGM-129, 60 minutes for AGM-86D, and 70 minutes for AGM-86C. Add 5 minutes for each additional missile. (B-2 postload): Add 20 minutes if accomplished as part of the load

10. Add 3 minutes for each store. EXCEPTION: Add 10 minutes for GBU/EGBU 10/12/28.

11. Add 5 minutes for each store (B-1, B-2, MQ-1). Add 5 minutes per store if MIL STD 1760 cable installation is required (B-52).

12. Time for single missile loading 70 minutes.

13. Time for single bomb is 40 minutes plus 40 minutes (B-52) or 20 minutes (B-2) if post-load check is performed as part of the load.

14. Add 20 minutes (B-2) or 45 minutes (B-1) if post-load checks are performed as part of the load.

15. (F-16) Add 35 minutes if BRU-57 functional check is performed as part of the load.

## Chapter 17

## AIR AND SPACE EXPEDITIONARY FORCES (AEF) MAINTENANCE POLICY

**17.1. AEF Effectiveness.** An AEF is one of 10 force packages of trained and ready Total Force capabilities. These capabilities are designed to deploy as part of an Air and Space Expeditionary Task Force

(AETF) providing the war fighting combatant commander with air and space combat power. Agile Combat Support (ACS) is key to the success of the war fighter, and Centralized Intermediate Repair Facilities (CIRFs) represent an important logistics process that is a subset of ACS. ACS is an Air Force core competency, which encompasses the process of creating, sustaining, and protecting all aerospace capabilities to accomplish mission objectives across the spectrum of operations.

**17.2. AEF Processes.** At the highest level, ACS is the product of six main processes that can be measured to describe the levels of preparedness and combat support capability. As our combat support capability depends on aircraft maintenance effectiveness, these six main processes form the structure for this AEF maintenance policy.

17.2.1. Readying the force – organizing, training, equipping, providing, and planning for the use of forces to produce combat capability.

17.2.2. Preparing the battle space – assessing, base support planning, and posturing for employment.

17.2.3. Positioning the force – tailoring and preparing to deploy, deployment, and beddown of forces.

17.2.4. Employing the force – generating immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration.

17.2.5. Sustaining the force – maintaining effective levels of support for operations worldwide beginning on day one of employment operations.

17.2.6. Recovering the force – redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly.

**17.3. Readying the Force.** Organizing, training, and equipping for the use of forces to produce combat capability.

17.3.1. Organizing for combat capability.

17.3.1.1. MAJCOMs shall establish maintenance Unit Type Codes (UTC) using War Mobilization Plan, Volume 5 (WMP-5) rates or the most stringent scenario to support Major Theater War (MTW) requirements; MAJCOMs may tailor UTCs at execution if required to support deployment requirements.

17.3.1.2. MAJCOMs shall develop modular and scalable UTCs that, in total, represent the unit's capability in terms of equipment and personnel. MAJCOMs shall utilize the Logistics Compositie Model (LCOM) or other approved manpower standard as the baseline for developing UTCs. IAW AFMAN 10-401, *Operation Plan & Concept Plan Development and Implementation*, Vol 1, Chapter 6, the UTC MANFOR shall be proportional to the Unit Manning Document (UMD) requirements, to include 3-skill level positions.

17.3.1.3. MAJCOMs shall develop UTCs that can be used interchangeably for MTW, AEF and CIRF operations. All intermediate level repair capabilities shall be tailored to support various levels of CIRF augmentation requirements.

17.3.1.4. MAJCOM Functional Area Managers (FAM) must maximize use of standard UTCs and limit line remarks.

17.3.1.5. Sourcing conferences are the primary means of matching requirements to capabilities. The AEF Center (AEFC) shall organize and chair a sourcing conference, as required, prior to each 15-month AEF cycle. All MAJCOMs shall send qualified maintenance representatives to each AEF sourcing conference.

17.3.1.6. The primary purpose of the AEF sourcing conferences is to determine which bases shall provide personnel to fill ULNs in Expeditionary Combat Support (ECS) UTCs. The conference may also include informational briefings, but these must be kept to a minimum.

17.3.1.7. Air Staff Maintenance and Munitions Policy Divisions (AF/ILMM and AF/ILMW) shall chair a one-day meeting in conjunction with each sourcing conference to resolve sourcing conflicts and plan for the next AEF rotation or contingency.

17.3.1.8. Every Air Force maintenance member shall be assigned to a UTC (deployable or in-place).

17.3.1.9. MAJCOMs shall source maintenance personnel to fill AEF vacancies after the AEFC accomplishes the nomination process in the following order:

17.3.1.9.1. Lead wing.

17.3.1.9.2. Sister wing.

17.3.1.9.3. Lead AEF.

17.3.1.9.4. Paired AEF.

17.3.1.9.5. Alternate MAJCOM.

17.3.1.9.6. Air Reserve Component (ARC).

17.3.1.10. Quarterly, units must validate and document wing UTCs and AEF taskings against wing/squadron Designated Operational Capability (DOC) statements. Specifically, units must ensure no shortfalls exist by aligning required skill level, grade, line remarks, and Career Field Education and Training Plan (CFETP) qualifications against UTCs, to include AEF taskings, for all assigned personnel. If a shortfall exists, the unit must immediately start an aggressive training program to eliminate shortfall.

17.3.2. Training for combat capability.

17.3.2.1. At Utilization and Training Workshops (U&TW), MAJCOM functional managers must work collectively with AF career field managers to establish/update minimum wartime skills training requirements by Air Force Specialty Code (AFSC) and Mission Design Series (MDS). These training requirements must be incorporated in personnel training folders as core tasks.

17.3.2.2. Supervisors must ensure their subordinates are adequately trained and qualified before allowing them to work unassisted on aircraft or equipment. Supervisors must place emphasis on upgrade and proficiency training by providing hands-on demonstration and over-the-shoulder evaluations of their subordinates.

17.3.2.3. To the greatest extent possible, without affecting safety, conduct recurring training every 15 months to align with AEF cycles.

17.3.3. Equipping for combat capability.

17.3.3.1. Maintenance commanders must provide tools, facilities, and environmental protection equipment to ensure a safe working environment and mission capable workforce.

17.3.3.2. Maintenance commanders must establish minimum essential equipment levels to measure and report the unit's mission readiness through the Status of Resources and Training System (SORTS). Readiness must also be reported using the AEF UTC Reporting Tool (ART).

17.3.3.3. Total Asset Visibility (TAV). The combatant and supporting-commands need accurate and timely information management systems (i.e., AF Portal CIRF Logistics Information Network, CEMS, CAMS, G081, RAMPOD, SBSS, and REMIS) for all locations with TAV to make swift and accurate logistics command & control decisions. Deployed units, CIRFs and LRCs must report deployed aircraft and asset status by tail/serial number daily.

17.3.4. Establishing Quality of Life.

17.3.4.1. Maintenance commanders shall review site surveys from all deployed locations to ensure living and working conditions are adequate for deploying personnel and notify appropriate base agencies or MAJCOMs as necessary to correct deficiencies.

17.3.4.2. Maintenance commanders must ensure all maintainers are notified of their deployment vulnerability period to allow them to plan personal affairs.

17.3.5. Monitoring the world situation.

17.3.5.1. Based on Threat Working Group recommendations, the maintenance commander, as appropriate, shall inform maintenance personnel of potential threats and direct specific actions be taken to avoid terrorist attack, to prepare for short-notice deployment, to accommodate changes in working hours (shifts, extensions, etc.), to adjust aircraft scheduled maintenance priorities, etc.

17.3.6. Support training for Operations Tempo (OPTEMPO).

17.3.6.1. Maintenance Operations (MOO/SUPT) must ensure work force training requirements and overall maintenance capabilities are considered in the weekly flying and maintenance schedule. Maintenance Group Commanders (MXG/CC) must ensure scheduled maintenance and training events are balanced against sortie production requirements.

17.3.7. Accomplish strategic capability assessments.

17.3.7.1. Units must coordinate with deploying lead wing communications personnel or host base communications personnel to ensure reachback capability is available at the deployed location for maintenance operations.

17.3.7.2. The lead wing must coordinate with participating units prior to deployment to identify communication/information system requirements and ensure all radios are keyed with appropriate frequencies for the deployed location.

7.3.7.3. Unless otherwise directed, units should plan to provide their own flight line communication capabilities and hardware at the deployed location (i.e., radios) to support maintenance operations. Units should contact the lead wing or host base communications to ensure compatibility of hardware and software.

17.3.7.4. Units must prepare to deploy all critical equipment.

17.3.7.5. Whenever deployed locations are identified, the owning MAJCOMs must posture appropriate UTCs at the Forward Support Locations (FSLs). The FSL must be used to store munitions for War Reserve Material (WRM) or at sites for consolidated maintenance activities (such as CIRFs).

17.3.8. Establish procedures to ensure core security of forces.

17.3.8.1. Maintenance commanders must ensure all deploying personnel have completed all training and Unit Personnel Readiness requirements prior to deployment.

17.3.8.2. Flight chiefs must ensure maintenance technicians are aware of their responsibilities to detain/ report unidentified persons discovered in restricted or sensitive areas.

**17.4. Preparing the Battle Space** – assessing, base support planning, and posturing for employment.

17.4.1. Monitor theater situations.

17.4.1.1. Maintenance commanders and maintenance supervisors must closely monitor theater situations, and take preemptive measures to avoid degradation of lines of communication.

17.4.1.2. The lead maintenance person must stay abreast of security concerns and intelligence updates and brief subordinates as necessary.

17.4.2. Define employment requirements.

17.4.2.1. Incoming units must coordinate with departing units and supporting CIRFs (where applicable) to develop, maintain, and utilize site survey maintenance planning to pare and tailor UTCs to minimize personnel and equipment footprint at the deployed location. When applicable, units must ensure spare Electronic Counter Measure (ECM) and Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) pod containers are available for shipping spare pods to the Area Of Responsibility (AOR) as these containers will be required to transport unserviceable assets to and from CIRF locations.

17.4.2.2. Units planning to deploy to the same location must coordinate with each other prior to requesting airlift to ensure each unit knows what support equipment, test equipment, tools, technical data, spare parts, etc., the other is bringing so as to leverage economies of scale and minimize footprint at deployed location. NOTE: The lead wing has ultimate responsibility for ensuring proper personnel and equipment deploy to support the mission.

17.4.2.3. Maintenance commanders are responsible for ensuring assigned personnel are identified for a specific AEF rotation and briefed concerning their AEF schedules.

17.4.2.4. Maintenance commanders must ensure to the greatest extent possible that supervisors schedule personnel leave, training, and Professional Military Education around the personnel deployment vulnerability window.

17.4.3. Conduct Agile Combat Support feasibility/capability assessments.

17.4.3.1. The lead wing MXG/CC determine maintenance ACS requirements to include CIRFs, utilize smallest UTCs to meet capability, tailor them as required, identify deploying personnel and alternates by name, and take any necessary actions to acquire additional support or equipment as required prior to deployment.

17.4.3.2. Operational mission requirements at deployed locations take precedence over routine home station requirements. Units must take necessary actions to preclude submitting reclama or shortfall of requirements.

17.4.3.3. AEF wings and CIRFs shall report personnel and equipment shortfalls/Limiting Factors (LIMFAC) to the owning MAJCOM FAM who, after review and concurrence, shall in turn forward to the AEF Center for action.

17.4.3.4. Commanders must ensure deploying units plan to use existing CIRFs, and submit to the CIRF-supporting command's Regional Supply Squadron (RSS) the appropriate AF Form 616 fund cite authorizations to repair CIRF commodities no later than 30 days prior to deployment or as soon as possi-

ble if deployment is within 30 days. AF Form 616 will cover CIRF supplies, parts and fuel required to repair unit assets. For engines, two AF Form 616s will be required, one for parts and one for fuel.

17.4.4.1. Prior to deployment, the lead wing's senior maintainer must coordinate efforts with the wing Logistics Readiness Squadron/Logistics Readiness Flight (LRS/LRF) to gather base support capabilities and site survey information (e.g., physical layout, facilities, equipment, local capabilities, etc.) from host nation and/or coalition maintenance liaison.

17.4.4.2. Upon arrival, each aircraft maintenance section must create/update base capabilities and site survey information to reflect current situation in the Security Awareness Training and Education (SATE) database. The lead aircraft maintainer must forward this information to his/her MAJCOM logistics plans, who will forward the information to follow-on units so they may better prepare for deployment to that location. MAJCOMs must ensure this information is provided to their Logistics Plans function so that Base Support and Expeditionary Site Plans can be updated as required.

17.4.4.3. Maintenance Operations (MOO/SUPT) shall coordinate with wing plans sections to review Base Support Plans (BSP), JOPES, and SIPRNET (classified) sites.

17.4.5. Define deployment assets.

17.4.5.1. Based on review of BSP, ACS concepts, and assets available at the deployed location, supported commands in conjunction with supporting-commands shall determine deployment and mobility assets needed for maintenance operations. The combatant command must source assets for beddown and sustainment. Deploying units must deliberately plan to use CIRFs to reduce deployment airlift, force protection, and footprint at the FOL.

17.4.6. Pre-positioned assets.

17.4.6.1. Prior to deploying, LRS personnel must review available assets loaded in the pre-positioned CHPMSKs, along with home station RSPs, to determine overall support requirements. MAJCOMs must determine RSP and CHPMSK authorizations, while the supporting RSS provides remaining supply support, including RSP and CHPMSK replenishment.

17.4.6.2. To reduce footprint and airlift requirements, common equipment, such as aerospace ground equipment (AGE), materiel handling equipment (MHE), and/or munitions trailers, should be pre-positioned at AEF sites or at centralized facilities in the AOR.

17.4.6.3. The in-place lead wing must maintain an accurate list of equipment on site and report status and inventory to MAJCOMs and AEF-vulnerable units.

17.4.6.4. MAJCOM WRM Managers must maintain lists of WRM available in the AOR.

17.4.6.5. Supporting-command CIRFs must review CIRF CHPMSK levels to determine if they are sufficient to support the deploying unit and adjust the amount of parts as required. The RSS and MAJCOM providing supply support to the CIRF are responsible for CHPMSK management to include replenishment.

17.4.7. Establish and maintain deployment capability.

17.4.7.1. Units, to include CIRFs, must maintain accurate inventories and status of deployed or deployable equipment, keep special certification rosters current, and manage personnel training and scheduled aircraft maintenance priorities.

17.4.8. Protection of resources.

17.4.8.1. Ensure security considerations and actions taken to protect aircraft, personnel, and equipment are consistent with intelligence assessments. For example, if intelligence reports indicate the threats to property or personnel are highest near the perimeter of the airfield, commanders and maintenance supervisors may direct aircraft parking and maintenance areas to be located a safe distance away.

17.4.9. Prepare employment security actions.

17.4.9.1. All AEF wings should review and become familiar with theater AEF concept of operations (CONOPS) for planning purposes.

**17.5. Positioning the Force.** Tailoring and preparing to deploy, deployment, and beddown of forces.

17.5.1. Account for pre-positioned assets.

17.5.1.1. Lead wings must coordinate with supporting units to ensure only required equipment is deployed and pre-positioned assets, to include CIRF pooled assets, are used to the greatest extent possible.

17.5.1.2. If accurate status of pre-positioned equipment is unavailable prior to deployment, the lead wing must send a team of qualified equipment technicians in the advanced echelon (ADVON) of the main deployment, if possible, to evaluate/report status of pre-positioned assets in theater.

17.5.2. Account for host-nation and coalition assets and support.

17.5.2.1. Deploying units shall estimate the level of maintenance required to be performed at forward operating locations (FOL) based on the organic repair capability, CIRF, and host nation support (HNS) availability. Tailor the personnel equipment and spares in the deploying UTCs to reduce the footprint while ensuring 100% task coverage.

17.5.3. Tailor and prepare deploying assets.

17.5.3.1. Aircraft maintenance units must utilize CIRFs to the greatest extent possible. To that end, MAJCOMs must source personnel and equipment for CIRFs whenever feasible to reduce their footprint at the deployed location and to improve repair efficiencies of units operating in the same AOR. Units shall tailor UTCs appropriately to account for utilization of CIRFs.

17.5.3.1.1. All MAJCOMs must address the use of CIRFs in their feasibility plans to support AEF operations.

17.5.3.2. Deploying units that rely on CIRF support must contact the appropriate CIRF to coordinate support feasibility prior to deployment.

17.5.3.2.1. After validating support by a CIRF activity, deploying units must segregate deploying RSP to remove items that support a “remove, repair, & replace” capability at the deployed location. The removed items may be required, if the mission dictates, to be deployed to the CIRF location.

17.5.3.3. Prior to deployment sourcing, tasked CIRFs shall:

17.5.3.3.1. Determine maximum surge production capability (without and with augmentation) and forward that information through the MAJCOM CIRF manager to the lead wing. The augmentation portion needs to have established trigger points to determine when augmentation will be required (“X” number of aircraft requires “X” amount of augmentation).

17.5.3.2. Identify additional requirements needed to support CIRF maintenance operations for assigned and gained units and forward that information through the MAJCOM CIRF manager to the lead wing.

17.5.3.4. All available options to resolve RSP shortages should be taken prior to on-call status. Depot support must be coordinated through the respective MAJCOM crisis action teams and functional managers as needed.

17.5.4. MAJCOM headquarters shall:

17.5.4.1. Maintain appropriate AEF time phased force deployment document (TPFDD) libraries.

17.5.4.2. Ensure AEF UTCs are appropriately postured.

17.5.4.3. Generate a "prepare to deploy order" (PTDO) when required.

17.5.5. Deploy en route support force.

17.5.5.1. The lead wing must assess the need to deploy an en route support force based on length of flight legs of deploying aircraft; expected delays of aircraft, personnel, or equipment entering the AOR; or requirements for en route support for mission sorties.

17.5.5.2. Commanders must ensure appropriate level of supervision, expertise of technicians, and necessary equipment and facilities are available at the en route location to provide adequate en route support.

17.5.6. Deploy employment elements.

17.5.6.1. MAJCOMs shall develop and deploy modular, scalable UTCs to support typical basic fighting elements (BFE) for combat aircraft. Tailor UTCs as required for non-standard BFEs.

17.5.6.2. Normally deployed airlift and tanker elements will be centrally managed by the tanker/airlift control center (TACC) to ensure units receive reachback support IAW priorities in the AOR.

17.5.6.3. If the Joint Forces Air Component Commander (JFACC) requests additional aircraft at the deployed location, units should be prepared to utilize modular/scalable UTCs for follow-on deployment. That is, if a unit has 24 aircraft and deploys 12, the unit should, for example, have two remaining 6-ship UTCs already built which represent the remainder of the aircraft, personnel, and equipment available within that unit. Using this method, one or both of the 6-ship UTCs may be tailored quickly and deployed. The same applies to ILM support for CIRFs. UTCs should be developed that allow partial deployment of ILM capabilities to augment CIRF operations at a FSL, or the full capability to establish ILM at the FOL.

17.5.6.4. Deploying units must bring minimum Test, Measurement and Diagnostic Equipment (TMDE) to support essential maintenance actions anticipated under the concept of this plan and utilize procedures in Technical Order 00-20-14 for CIRF support. Units must ensure all deployed TMDE will not require calibration during the scheduled deployment period.

17.5.6.5. Deploying units must ensure personnel deploy with proper skill level training, particularly focusing on specialized tasks (e.g., welding of engine flame-holders, fan blade NDIs, etc.)

17.5.6.6. Aircraft should not deploy with Phase or Isochronal Inspections or engine time changes due immediately upon AOR arrival. To the greatest extent possible, units shall forward Phase/ISO plans to owning Air Force Forces (AFFOR) staff within 2 weeks of arrival in AOR. Additionally, units must not deploy electronic counter measures (ECM) pods to the AOR due periodic maintenance inspection (PMI) during their scheduled deployment. If units cannot avoid deploying pods due PMI, they must coordinate this additional PMI requirement with the CIRF-supporting command.

17.5.7. Establish initial operational cadre in the AOR.

17.5.7.1. Lead wing shall deploy ADVON as required and arrive prior to aircraft arrival.

17.5.7.2. Deploying units shall deploy CIRF augmentation personnel, equipment, spares and CHPMSK/RSP as required to the CIRF facility.

17.5.8. Establish initial reachback connectivity.

17.5.8.1. MAJCOM/AFFOR must coordinate reachback requirements for units assigned to their AOR. Reachback requirements may include, but not limited to the following: procedures for arranging transportation or movement of people, equipment, or supplies; use of CIRFs; and standard information management systems to be used by deployed units.

17.5.8.2. Units must contact their MAJCOM and/or AFFOR Command and Control (C2) cell to request maintenance assistance en route to and from the deployed location to coordinate repair actions.

17.5.8.3. Supply support shall be processed through the supporting RSS. Units requiring supply support from Outside Continental United States (OCONUS) and non-USAF base locations must contact the RSS supporting the AOR.

17.5.8.4. MAJCOM policy shall specify the method to determine closure of a request (write procedures to instruct units and resource coordinators regarding how a request will be worked, completed, and what follow-up actions are required).

17.5.8.5. CIRF support shall be coordinated with the MAJCOM/AFFOR who, in-turn, shall coordinate support from the CIRF-supporting command.

17.5.8.6. Units must establish a MOC as soon as possible upon arrival at the deployed location to serve as a single point of information for maintenance operations and higher headquarters reporting. The MOC needs to contact the combatant command/A4 maintenance staff with contact information (i.e., phone numbers, e-mail and SIPR net).

17.5.9. Receive forces.

17.5.9.1. Whenever possible, the lead wing shall send an ADVON team to validate site survey information, revise beddown plans (as required), ensure operating/living sites and facilities are prepared for use/habitation; identify deficiencies and coordinate with combatant commander to fill unmet mission needs (e.g., aircraft parking, security, hangars, taxiway, marshalling areas, equipment storage areas, maintenance back shops and munitions support functions) prior to main aircraft arrival.

17.5.9.2. Commanders must ensure their personnel have adequate facilities, equipment, workspace, vehicles, living quarters, food/water, and supplies to conduct the mission as soon as they arrive at the deployed location.

17.5.10. Recover the force and prepare for combat/operational capability.

17.5.10.1. Maintenance Operations (MOO/SUPT) must effectively plan and manage scheduled maintenance priorities and personnel shifts to meet sortie production requirements.

17.5.10.1.1. Maintenance Operations (MOO/SUPT) must prioritize maintenance actions, to balance sortie production requirements with fleet health considerations and must communicate and coordinate with operations counterparts as required.

17.5.10.1.2. Surges in sortie production may be necessary to support wartime/contingency operations; however, Maintenance Operations (MOO/SUPT) must communicate the impact of long-term surge operations have on personnel, fleet health, and overall sortie production capability.

17.5.11. Secure the operating location.

17.5.11.1. Maintenance Operations (MOO/SUPT) must ensure all sensitive and classified equipment is properly secured and protected in accordance with applicable directives. In addition, deployed units must implement procedures to reduce the possibility of theft or damage of unit equipment or supplies.

17.5.11.2. Maintenance Operations (MOO/SUPT) must coordinate with airfield managers and security forces to ensure aircraft with sensitive or classified components or cargo are adequately protected while parked or maintained.

17.5.12. Begin reachback operations.

17.5.12.1. When parts are required for mission essential equipment, maintenance technicians must utilize deployed supply procedures. If not responsive, Maintenance Operations (MOO/SUPT) must contact the appropriate functional manager in the MAJCOM/AFFOR for assistance.

17.5.12.1.1. If expedited delivery and supply priority warrant, MAJCOM/AFFOR shall source in-theater (lateral) units to support deployed units with parts. Otherwise, deployed units must utilize normal supply ordering procedures for mission capable (MICAP) and lower priority parts.

17.5.12.2. When ILM CIRF support is required or CIRF issues exist, Maintenance Operations (MOO/SUPT) shall contact the appropriate functional manager in the MAJCOM/AFFOR for assistance.

17.5.12.2.1. For CIRF operations to be successful and meet deployed unit expected customer wait times, units must prepare unserviceable assets for shipment as soon as possible (no longer than one day) after CIRF repair is deemed to be warranted.

**17.6. Employing the Force.** Providing immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration.

17.6.1. Structure the deployed combat support contingent to accomplish necessary operations (reference AFDD 2, Organization and Employment of Aerospace Power, and AFI 38-101, Air Force Organization).

17.6.1.1. Deployments to locations with established wing infrastructure. Units deploying to locations with established infrastructures (i.e., U.S. installations or presence at OCONUS locations) shall, with host wing and lead wing coordination, organize in the Combat Wing Organization. Maintenance squadrons shall deploy into existing Maintenance Groups (MXG). Aircraft Maintenance Units (AMUs) shall deploy into the established Aircraft Maintenance Squadrons (AMXS) structure. Back shop personnel shall deploy into the established Maintenance Squadron (MXS) structure or augment CIRF locations as appropriate. Munitions Squadrons (MUNS) and flights shall integrate into existing munitions structure. Additionally, MOC and PS&D personnel shall deploy into the existing Maintenance Operations Squadron (MOS) structure. AMU personnel shall remain tied to the same operations squadron they support in garrison. All deployed maintenance organizations shall coordinate maintenance actions through the host wing as well as attend appropriate maintenance meetings scheduled by the host wing.

17.6.1.2. Deployments to bare-base locations. Units deploying to bare-base locations where there is not an established wing structure, shall organize with all maintenance personnel working directly for the senior detachment commander, usually the operations squadron commander. The deployed wing leadership shall provide the command structure/key leadership personnel at the deployed location. All accompanying/supporting units shall subordinate to the lead wing by folding its personnel into the command structure of the lead unit. (Numbers of supervisors may be reduced through consolidation.)

17.6.1.2.1. The Air Force commander at the deployed location may separate flight line and back shop and munitions maintenance technicians into separate squadrons or flights under the supervision of officers or SNCOs.

17.6.1.3. An expeditionary maintenance group shall be established IAW the Combat Wing Organization when an Air Expeditionary Wing (AEW) is established.

17.6.1.4. Serious consideration must be given to establishing an expeditionary maintenance group, if one of the following criteria exists:

17.6.1.4.1. A steady-state deployment exists or is envisioned and the size and scope of the operation warrants a group structure.

17.6.1.4.2. The total number of Air Force maintenance personnel exceeds 500, the threshold for a group manpower guidelines established in AFI 38-101.

17.6.1.4.3. Multiple MDS aircraft or multiple squadrons are deployed at the same location.

17.6.1.4.4. The deployed location supports a joint or combined air operation.

17.6.1.4.5. If the major MXS (EMS, CMS) functions are being performed at the deployed location.

17.6.1.5. If size does not warrant multiple squadrons within an established maintenance group, maintenance personnel shall be organized into specialized flights or sections and report directly to the MXG/CC.

17.6.1.6. Tailor Maintenance Operations (MOO/SUPT) to deployed requirements. If a maintenance group leadership is in place, task the lead unit to provide the Maintenance Operations (MOO/SUPT) package.

17.6.2. Generate the force to combat/operational capability.

17.6.2.1. Maintenance personnel and support equipment to recover and regenerate aircraft should be in place prior to aircraft arriving.

17.6.2.2. WRM Fuel Tank build-up shall deploy if required/tasked by the combatant command.

17.6.2.3. Organizational aircraft engine maintenance shall be performed to the maximum extent possible. Once the unit determines an engine requires maintenance beyond their capability, the engine will be shipped to a pre-determined CIRF or to home station. Units shall deploy with the minimum number of spare engines to support the steady-state operations when a centralized pool is established and with full WRE spare levels for operations above steady-state.

17.6.2.4. ILM of line replaceable units (LRUs) shall be primarily confined to could not duplicate (CND) screening (if test stations are deployed). Otherwise, deployed maintenance shall be performed under the "remove & replace" concept, utilizing the readiness spares package (RSP) and CIRF operations to maximum extent possible.

17.6.3. Accomplish force support for continuing operations.

17.6.3.1. During high tempo operations with increased personnel tempo, commanders and supervisors must be aware that performance degradation can occur with increased mission demands under wartime conditions. Commanders must monitor increases in maintenance demands to ensure personnel safety is not jeopardized and that the mission is not adversely affected.

17.6.3.2. Maintenance Operations (MOO/SUPT) must update operations officers and commanders regarding aircraft and personnel status as required.

17.6.3.3. Maintenance Operations (MOO/SUPT) must establish requirements for battle damage assessment teams, crash damage recovery teams, and end-of-runway teams. AFMC CLSS Depot Maintenance/ABDR teams need to be deployed within the AOR early in the operation to provide timely support.

17.6.4. Employ reachback operations.

17.6.4.1. Maintenance and/or supply technicians shall order replenishment spares and consumables IAW standard supply ordering procedures and priorities.

17.6.4.1.1. Deployed units must use reachback procedures to obtain products, services, and applications or forces, equipment or materiel from Air Force organizations that are not forward deployed (AFDD 2, AFDD 1-2). This capability allows commanders to obtain or coordinate support from units not physically located with the forward force. By leveraging advances in communications technology, reachback capabilities make it possible to utilize CIRFs and/or rear-based assets and organizations to perform various functions in support of AEF operations.

17.6.4.1.2. Units must contact their MAJCOM and/or AFFOR to request maintenance assistance en route to and from the deployed location to coordinate repair actions. If requested, units must provide consumption/expenditure information, supply prioritization, projected sortie rates, and fleet mission capable status.

17.6.4.1.3. If RSPs are to be left for a follow-on unit, the departing unit must continue to order all replenishment parts, making every effort to completely fill it for the follow-on unit. Departing and incoming units must also conduct a joint inventory of the RSPs.

17.6.4.1.4. For replacement of in-place or pre-positioned equipment, deployed units must notify the MAJCOM/AFFOR who will in turn notify the FAM. The theater FAM shall validate the requirement and, if possible, source the asset from within theater.

17.6.4.1.5. The organization supplying the equipment shall forward information required for the parent MAJCOM/AFFOR to build the level-4 detail TPFDD in Global Command and Control System (GCCS)/JOPES.

**17.7. Sustaining the Force**. Maintaining effective levels of support for operations worldwide beginning day one of employment operations.

17.7.1. Transition the initial force to mature, steady-state operation.

17.7.1.1. The plan to utilize follow-on maintenance UTCs for sustainment (greater than 30 days) must consider support requirements of the aircraft maintenance complex at the deployed location, not separate AEF unit requirements. Use of CIRFs should be considered first, and planning to employ ILM to the FOL should be avoided whenever possible. Any shortfalls and/or LIMFACs that prevent using CIRFs should be identified to the appropriate combatant command and CIRF-supporting command.

17.7.2. Optimize communication and resource flows.

17.7.2.1. The lead unit shall consolidate maintenance operations (personnel, facilities, and equipment) when two or more aircraft maintenance units are collocated at the deployed location. This action shall be taken to maximize operational and communications efficiency and to minimize the logistics footprint and redundancy of operations.

17.7.2.2. To the greatest extent possible, collocate other maintenance related operations at the deployed location. Centralized management of scarce resources is directed; however, optimal staging locations may be driven by security considerations.

17.7.3. Maintain operational security.

17.7.3.1. Commanders and Maintenance Operations (MOO/SUPT) must communicate maintenance security priorities not only to security forces personnel, but also to flight line and shop personnel. Ensure all personnel are verbally briefed what the duress word is and how to use it.

17.7.3.1.1. Personnel must declare a Helping Hand if an unauthorized person is discovered in a restricted area and notify the Maintenance Operations Center and/or the security forces.

17.7.3.1.2. Flight line and shop technicians must follow and enforce security procedures, including exercising constant vigilance in the work place, performing end-of-day security checks, and when possible, vary routes and times to and from work.

**17.8. Recovering the Force** – Redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly.

17.8.1. The objective of recovery/redeployment is to ensure a coordinated withdrawal of forces while maintaining Theater integrity. Redeployment is the phase of a mission that involves the transferring a unit, individual(s), and/or supplies deployed in one area to another area for the purpose of further employment. Redeployment includes forward deployment to another FOL, as well as return to home station. Recovery is the phase of a redeployment mission, which returns aircraft and support resources to home base. Contingency plans should be developed in advance for redeployment and/or recovery.

17.8.2. Reduce number of people and amount of equipment/supply to support redeployment.

17.8.2.1. Deployed units must identify preliminary redeployment team members. Unit moves are normally classified and redeployment information should be controlled and provided on a strictly need-to-know basis.

17.8.2.2. A redeployment assistance team (RAT) may be requested by the deployed unit. They are the overall coordinators for accomplishing actions at the deployed site (e.g., redeploying troops, equipment, and supplies back to home station or a forward location). Suggested team composition is as follows: maintenance support, transportation (both air and ground), vehicle operations, logistics plans, supply, services, personnel, and civil engineering representatives.

17.8.2.3. In the event a RAT team is activated, the deployed maintenance commander must identify the equipment custodians for appropriate items to assist the RAT. The RAT is not responsible to prepare, pack, and palletize equipment loads.

17.8.2.4. Utilize packing/load lists/manifests or Custody Authorization/Custodian Responsibility Lists (CA/CRLs) to track assets when forward deployed. Equipment custodians must also track the assets' redeployment status (i.e., destroyed, captured, excessive restoration costs, and reorder information).

17.8.2.5. Units must maintain these documents at the deployed location and must account for equipment, including cargo manifests, load plans, hazardous cargo documentation, etc. Knowing where assets are located, whether they are re-deployable, and where the deployment documentation is, will reduce labor-intensive efforts when the redeployment order is received.

17.8.2.6. Maintain accurate inventories to ensure you know what equipment remains or needs to be returned to other units. This knowledge aids build-up teams when repackaging. Unit should use the deployment documents to aid in estimating actual weights when creating the return load plans and manifests. All unit equipment (CTKs, TMDE, bench stock, RSP, support equipment, and technical data) must

be inventoried and prepared for shipment. The lead wing must ensure any changes to airlift requirements have been identified and provided to the logistics-planning cell.

17.8.2.7. The accountable officer at the deployed location has overall responsibility for the inventory and accountability of supply assets. He/she shall work with deployed property custodians to ensure reconciliation of all supply transactions before redeployment, and ship property, properly configured with inventory lists attached to designated reconstitution sites, WRM pre-position sites, or home station. The Munitions Accountable Supply Officer (MASO) at the deployed location has overall responsibility for the inventory and accountability of munitions assets within their possession and control. The MASO must reconcile all Combat Ammunition System (CAS) transactions prior to redeployment and coordinate shipment of all munitions through the Regional/Theater Ammunition Control Point (R/TACP).

17.8.2.8. Units utilizing CIRFs for ILM support shall coordinate repair and return/replacement actions with the combatant command A4 cell and the CIRF location to ensure assets are not left behind. Unserviceable assets that cannot be transported to the CIRF in time to make turnaround repair times should be held at the deployed location to redeploy with the unit or shipped to home station. When necessary, case-by-case situations can be coordinated with the CIRF-supporting command to have repaired engines shipped from the CIRF to the unit's home station.

17.8.3. Protect dynamic reduction in force structure. Commanders shall stage personnel and equipment out of the theater while ensuring complete tasks coverage for all aircraft until the last aircraft is redeployed.

17.8.4. Deploy en route support forces as required. As part of the redeployment plan, Maintenance Operations (MOO/SUPT) must coordinate with operations schedulers to deploy en route support forces, as required.

17.8.5. Launch redeployment forces. Maintenance Operations (MOO/SUPT) shall manage the redeployment of aircraft maintenance technicians along with the redeployment of the aircraft. Sufficient personnel and equipment must remain to close accounts and ship equipment/supplies as necessary.

17.8.6. Redeploy remaining Agile Combat Support resources. Maintenance commanders must ensure personnel are properly trained to prepare equipment for shipment by air, ground, or rail. Personnel must know how to properly fill out the hazardous declaration and shipment forms, build cargo pallets, and who to contact to coordinate shipment method.

17.8.7. Recover forces. Commanders must ensure sortie production requirements are balanced against the fleet health priorities (such as scheduled maintenance inspections and time changes). Additionally, training requirements of both aircrew and maintenance personnel must be balanced to achieve training objectives.

17.8.8. Reconstitute the force.

17.8.8.1. Once the unit returns to home station or is redeployed to another location, actions must be taken to re-attain operational readiness as soon as practical.

17.8.8.2. Commanders must ensure that personnel training and aircraft maintenance requirements are given priority management attention to ensure the unit returns to operational capability quickly.

17.8.8.3. Depleted bench and operating stocks must be replenished. All unit equipment (CTKs, TMDE, bench stock, RSP, support equipment, and technical data) must be inventoried, inspected, tested, or serviced as necessary.

17.8.8.4. Units must ensure that all paperwork associated with replacement of assets due to CIRF replenishment is correct and complete.

**17.9. Centralized Intermediate Repair Facilities (CIRF).** CIRF operations are a logistics option for combatant commanders to exercise in order to consolidate and provide intermediate-level maintenance support for the war fighter.

17.9.1. Reduction of deployment/redeployment airlift, FOL logistics footprint, and force protection issues are the primary reasons to use CIRF operations. Pooling of Air Force assets, leveraging existing technology to provide Total Asset Visibility (TAV), and optimizing logistics systems to balance resources against requirements are consistent with the goals of CIRF and Agile Combat Support (ACS) concepts.

17.9.1.1. CIRFs are scenario dependent and impacted by a number of factors. These factors include, but are not limited to: deployment airlift, the number of aircraft deploying, the number of FOLs to be served, CIRF throughput capacity at the Forward Support Locations (FSL), spare levels, transportation modes and nodes, force protection considerations, FOL capacity, etc.

17.9.1.2. CIRFs are not intended to replace deployable ILM capability, but are intended to work in concert. Depending on scenario and combatant command requirements, a unit may be tasked to deploy all, some, or none of its ILM capability to the FOL or CIRF at a FSL.

17.9.1.3. CIRFs may be utilized as a repair option for virtually any type of reparable item. This may include complete/major maintenance or may include only minor levels of maintenance. Items to be repaired and what repair level (major or minor maintenance) options must be explored between the combatant and the CIRF-supporting commands.

17.9.2. Combatant commands determine support plans and task supporting commands with logistics support requirements. Once a supporting command (which may include a combatant command) is tasked to provide CIRF capability, the supporting command determines requirements necessary to execute the combatant command's Logistics Support Plan (LSP). These requirements shall in turn flow to other MAJCOMs to provide support to the LSP.

17.9.2.1. The combatant command A4 has the final authority on asset distribution. The CIRF-supporting command shall work with the combatant command A4 LRC to meet mission requirements. If the CIRF-supporting command is supporting more than one combatant command, the CIRF-supporting command shall coordinate distribution with the combatant command A-4s.

17.9.2.2. The combatant command A4 LRC shall review status of all operational units daily to determine re-supply and immediate logistics requirements. From the daily data roll-up, the A4 LRC shall coordinate with the CIRF-supporting command to determine the most expedient means to fill requirements.

17.9.3. A MAJCOM tasked to provide CIRF capabilities (CIRF-supporting command) is responsible to determine what capability can be provided using existing facilities, and what additional materiel, equipment, and personnel is needed to support the combatant command's LSP.

17.9.3.1. The CIRF-supporting command shall conduct a thorough review of its capacity with respect to the combatant command's estimated load (i.e., analyze maintenance capability vs. estimated operational sortie and utilization rates). Sourcing additional requirements to meet the workload shall be coordinated with the combatant command, supporting MAJCOMs, and AEF Center (AEFC).

17.9.3.2. The CIRF-supporting command is responsible to determine the best location for the CIRF operation(s), appropriate spare levels (quantities), equipment, personnel, and the concept of operations

(CONOP) for each type of asset that shall be supported by the CIRF. The requirements and CONOPs shall be reviewed quarterly, or as requirements dictate to ensure best utilization of AF/DoD resources. This responsibility shall be completed in coordination with the MAJCOM LG/A4 and combatant command A4.

17.9.3.3. The CIRF-supporting command LG/A4 should appoint designated POCs for supply, transportation, and maintenance (normally the MAJCOM functional area manager for the commodity in question). Normally, these positions shall be assigned to current staff personnel as an additional duty. However, during contingency operations the supporting command may request augmentation through the AEFC. The RSS would normally provide the transportation and supply support. The CIRF-supporting command maintenance, supply and transportation POCs, the combatant command A4, and FOL Maintenance Operations Centers shall utilize the AF Portal and CIRF gadgets to report, track, monitor, and measure CIRF commodities (e.g., engines, pods, etc.) and operations.

17.9.3.4. CRPs may be established for steady-state operations. During operations other than steady-state, rotable pools shall be established based upon the combatant command requirements and the assessed CIRF workload versus repair capacity. For increased levels of operations, additional spare assets may be shipped directly to the CIRF or forward. As assets are repaired, the CIRF should retain the repaired/serviceable asset to be part of the pool. Additionally, pools may be established through sourcing from non-deploying units.

17.9.3.5. The CIRF-supporting command, in coordination with the CIRF production supervisor, shall compare CIRF capacity and AOR requirements daily to determine best support options available. The CIRF-supporting command is responsible to coordinate the recommended support options with both the CIRF production supervisor and the combatant command A4 LRC. If this support option cannot be achieved within the CIRF-supporting command, then the combatant command A4 shall be responsible to source the additional requirement.

17.9.3.6. As the situation dictates, the supporting command shall work with the combatant command and deployed units to determine spare CIRF asset shipment. The CIRF production supervisor shall maintain accountability of CIRF assets and report status IAW prescribed instructions. When deployed units ship a reparable asset to the CIRF, the designated CIRF shall ship a replacement asset and ensure all appropriate documentation is completed. The intent of this policy is to back-fill the spare line at the FOL, not the aircraft. Retrograde shipments of reparables to a CIRF shall use premium transportation IAW AFI 24-201, Chapter 2.

17.9.3.7. CIRF-supporting commands are responsible for compiling the data to support CIRF metrics and take appropriate action when indicators are below standard.

17.9.3.8. All MAJCOMs shall appoint an asset manager to interact with the CIRF-supporting command. Together these individuals shall work inter-MAJCOM issues relative to CIRF support to the combatant command. The CIRF-supporting command shall work with the combatant command A4 LRC to ensure mission requirements are met.

18.1.1. MAJCOMs may authorize/develop a flying crew chief (FCC) program under the direction of HQ USAF/ILMM for maintainers who are required to regularly fly and maintain aircraft. FCCs are selected per mission requirements as directed by MAJCOMs and qualify for Special Duty Assignment Pay (SDAP) IAW AFI 36-3017. SDAP is a program designed to reimburse “C” prefix maintenance AFSC personnel who perform regular aerial flight and maintain special qualifications demanding an unusual degree of responsibility maintaining an airworthy aircraft throughout an assigned mission. An FCC saves the Air

Force money and manpower by replacing an entire team of maintenance specialists that would be needed for each mission.

18.1.2. The objective of the FCC program is to enhance mission effectiveness by providing highly qualified maintenance support for aircraft at locations other than home station.

18.1.2.1. DELETED.

18.1.2.2. DELETED.

18.1.3. The FCC program only applies to "C" prefix AFSC maintenance personnel directed to fly regularly as a result of:

18.1.5.1. A qualifying mission is one where the FCC is required to accomplish maintenance (servicing, maintenance, troubleshooting, engine run, or inspection) at locations other than home station so the aircraft is prepared for its next departure. The mission must also be one where FCCs are required to fly by higher authority written policies (e.g., special airlift missions, alert missions, special operations, etc.).

18.1.6.1. HQ USAF/DPLFA oversees the overall SDAP program and provides program guidance in AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*. Funds are not paid by MAJCOMs. DPLFA programs and budgets for SDAP based on inputs from HQ USAF/ILMM.

18.1.6.2. HQ USAF/ILMM is the SDAP functional manager for FCCs. HQ USAF/ILMM sets criteria for FCCs, validates MAJCOM FCC reports, and forecasts FCC SDAP budget needs. HQ USAF/ILMM approves/disapproves FCC position increases/decreases in coordination with DPLFA.

18.1.6.4.1. Validate and forward squadron FCC SDAP requests (**Attachment 6**) to HQ USAF/ILMM and DPLFA.

18.1.6.4.6. Prepare and submit the command annual FCC report to HQ USAF/ILMM and DPLFA by 15 August each year. Submit the biennial FCC report to HQ USAF/DPLFA upon request.

18.1.6.6.4. Ensure only qualified FCCs and assistant FCCs who meet minimum requirements as outlined in AFI 36-3017 Table 3, *Conditions Affecting Eligibility For Special Duty Assignment Pay*, receive SDAP. In addition, FCCs must fly a minimum of three qualifying missions per quarter. An indicator of having too many FCCs may be reflected in a unit whose FCCs routinely do not meet minimum quarterly requirements.

18.1.6.7.6. Counsel FCCs and assistant FCCs on SDAP termination. NOTE: AFI 36-3017, Table 3, lists reasons for termination. SDAP stops on the dates listed in this table. As long as a "C" prefix is attached to an AFSC the member shall receive SDAP.

**18.2. Special Certification Roster (SCR).** The SCR is a valuable management tool that gives supervisors a clear and concise listing of the personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Normally, only maintenance requirements that have a definite potential for personnel injury or damage to equipment shall be included in the SCR. Other tasks requiring special training or qualifications may be considered as SCR-included items. The SCR is used to build personnel rosters for deployments, shift schedules, and assess workforce capability. The SCR must be reviewed and signed quarterly (ANG semi-annually) by the appropriate Maintenance Operations (MOO/SUPT) and work center supervisor to verify that all entries are current and accurate and that task certifications have been completed. See **Table 18.1.** for SCR requirements.

18.2.1. Maintenance Operations (MOO/SUPT) approves individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position. Seven-skill level personnel may be certified outside their primary AFSC only when specific CUT task qualification is documented in their personnel training records.

18.2.2. The MXG/CC can authorize selected 5-skill level personnel, in the rank of SrA or higher, for tasks normally requiring a 7-skill level requirement to facilitate the production effort. Waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission. Maintenance Operations (MOO/SUPT) or equivalent must maintain file copies of approved waivers. Certified weapons load crew chiefs (load crew member position number 1) by virtue of their task certification and position serve as inspectors for weapons loading activities and do not require waiver. Contractor MAs must submit waiver requests through the QA Chief to the group commander for approval. (The QA Chief, through the contracting officer may disapprove waiver requests without group commander coordination.). Exception: 2W0X0 Certified Munitions Inspectors are exempt from these requirements. Inspectors are CFETP qualified and appointed by the munitions flight chief or commander IAW AFI 21-201 and TO 11A-1-10.

18.2.2.1. Exceptional Release/Conditional Release Waiver Policy. NOTE: If local conditions require assignment of other than maintenance officers, senior enlisted or civilian equivalent personnel to sign aircraft Exceptional Releases/Conditional Releases, the GP/CC must request a waiver from MAJCOM. In accordance with provisions in TO 00-20-1, waiver requests must: (1) Fully justify need for the waiver; and (2) Identify actions being taken (or planned) to resolve the problem.

18.2.4.1. Work center supervisor, superintendent, MOO, SQ/CC, or MXG/CC may revoke certification at any time. They follow up those actions by deleting SCR certification.

**Table 18.1. Mandatory Special Certification Roster (SCR) and Prerequisites.**

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 1 | All Systems "Red-X" (no egress) | MSgt or higher (or civilian equivalent) (Note 1). |
| 2 | Engine Run Certifier | |
| 3 | "Red-X" Down Grade | |
| 4 | All Systems IPI (no egress) | |
| 5 | Exceptional Release (ER) | |
| 6 | Aircraft Inlet/Exhaust Certifier (refer to **Chapter 18**) | Most qualified 7- or 9-skill level 2A6X1X, 2A3X3X, or 2A5X1X, 2A5X2 (or civilian equivalent) or engine AFETS/CETS, if applicable (Note 1). |
| 7 | Flexible Borescope Certifier (refer to **Chapter 18**) | |
| 8 | Blade Blending Certifier (refer to **Chapter 18**) | |
| 9 | "Red-X" by Primary AFSC (PAFSC) and MDS | SSgt or higher (includes MXG/ CC-appointed exceptional SrA as an FCC), minimum 7-skill level (or civilian equivalent); For "Red-X" and IPI egress only, additional requirements contained in AFI 21-112, *Aircraft Egress Systems Maintenance,* must also be satisfied prior to certification (Note 2). |
| 10 | IPI – by PAFSC and MDS | |
| 11 | "Red-X" and/or IPI - limited (per each MDS), for tasks outside PAFSC through cross-utilization training or limited tasks within the PAFSC | SSgt or higher, minimum 7-level (or civilian equivalent), Use for personnel certified on tasks in other AFSCs through cross-utilization training or personnel certified on limited tasks within their AFSC as determined by the unit (Note 2). |
| 12 | MICAP Approval | MSgt or higher, minimum 7-level (or civilian equivalent) (Note 2). |
| 13 | NRTS and Serviceability Tag | SSgt or higher, minimum 7-level (or civilian equivalent) (Notes 2, 3,and 4). |

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 14 | Engine Run by MDS and Engine Type; indicate power settings, as applicable | SrA or higher, minimum 5-skill level, (or civilian equivalent), with a minimum of 6 months time on weapon system. The time on weapon system may be waived by MXG/CC in short tour locations (Note 2). |
| 15 | Engine Blade Blending (refer to **Chapter 18**) | Minimum 5-level 2A3X3, 2A5X1/2, and 2A6X1X or civilian equivalent (Note 2) |
| 16 | Hot Refueling Team Supervisor "A" Member (refer to **Chapter 18**) | Minimum 5-skill level, (or civilian equivalent), with a minimum of 1 year flight line maintenance experience (Note 2). |
| 17 | Uninstalled Engine Operations (Test Stand and Test Cell) (refer to **Chapter 18**) | SSgt or higher 7-skill level 2A6X1A/B (or civilian equivalent). MXG/CC may waive 5-skill level SrA with minimum of 6 months time on weapon system (Note 2). |
| 18 | Engine Inlet/Exhaust Inspections (refer to **Chapter 18**) | Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1X, (or civilian equivalent) (Note 2). |
| 19 | Flexible Borescope Inspections (refer to **Chapter 18**) | Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1X (or civilian equivalent) (Note 2). |
| 20 | Concurrent Servicing Operations Supervisor/ Team Member (Heavy Aircraft) | Minimum 5-skill level with a minimum of 1 year weapons system experience. Time requirement may be waived by MXG/CC in short tour locations (Note 2). |
| 21 | Concurrent Servicing Supervisor (Fighter Aircraft) | For A-10, F-15, F-16 aircraft, minimum 7-skill level with a minimum of 1 year weapons system experience. Time requirement may be waived by MXG/CC in short tour locations (Note 2). |
| 22 | Aircraft Ground to Ground Refueling (Aircraft to Aircraft) | Minimum 5-skill level with a minimum of 1 year weapon system experience (Note 2). |
| 23 | Weight and Balance (W&B) Certified | SSgt or higher (or civilian equivalent), with a minimum of 1 year time on weapon system (Note 2). |
| 24 | Impoundment (Authority, Release Authority, and Official) | Refer to **Chapter 11** for Impoundment requirements (Note 1). |

| | A | B |
|---|---|---|
| **Item** | **Mandatory SCR Item Titles** | **Prerequisites** |
| 25 | APU/GTC/APP Operation (refer to **Chapter 18**) | Minimum 3-skill level or higher maintenance AFSC (Note 2). |
| 26 | Evaluator Personnel Evaluation (EPE) | (Note 1) |
| 27 | Engine Trim Supervisor (refer to **Chapter 18**) | (Note 2) |
| 28 | Engine Trim Box Operator (refer to **Chapter 18**) | (Note 2) |
| 29 | Engine Fan Balance Vibration Analyzer Operator (refer to **Chapter 18**) | (Note 2) |
| 30 | Calibration Limitation Approval | SSgt or higher, minimum 7-skill level (or civilian equivalent) (Notes 2 and 3). |

***NOTES:***

1----Approved by Group Commander

2----Approved by Maintenance Operations (MOO/SUPT)

3----Maintenance Operations (MOO/SUPT) may delegate approval authority to the flight commander/ chief commander/chief

4----Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10, *General Instruction—Munitions Serviceability Procedures*).

18.4.1. Units must master the Ability To Survive and Operate (ATSO) in a Nuclear, Biological, Chemical (NBC) environment. Based on wartime requirements, maintenance organizations must be capable of performing operational aircraft, vehicle, and support equipment decontamination at all locations. Procedures shall be established IAW AFOSH Std 91-100, *Aircraft Flight Line Ground Operations and Activities*; AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard*; TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material Contaminated with Radioactive Debris*; TO 00-20-1, Table 1-2, *Decontamination Procedures and Documentation*; TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*; TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*; AFMAN 32-4017, *Civil Engineer Readiness Technician's Manual for Nuclear, Biological, and Chemical Defense*; and Air Force Handbook 32-4014, Vols. 1-4, *USAF Operations in a Chemical and Biological (CB) Warfare Environment Survive to Operate Procedures.*

18.4.1.1. Tactics, Techniques, and Procedures (TTP). TTPs provide maintenance activities flexible preparation and response options in a chemical, biological, radiological, nuclear and high-yield environment (CBRNE). The intent is to employ Air Force- and local-developed TTPs in order to maximize combat sortie operations while operating in a CBRNE IAW AFMAN 10-2602, *Nuclear, Biological, Chemical, and*

*Conventional (NBCC) Defense Operations and Standards*. TTPs provide sortie generation activities with fundamental counter-chemical warfare (C-CW) tools to survive and fight.

18.5.10.1. CANN actions involving parts from ABDR aircraft, Air Force Museum aircraft, Maintenance Training Devices (MTDs), Ground Instructional Training Aircraft (GITA) (possession purpose code TX), or Defense Reutilization and Marketing Office (DRMO) shall not be accomplished without authorization from the SPO. If the part is approved for CANN, it must not be put into service until all necessary inspections (NDI, pressure checks, operational checks, TCTOs, etc.) have been performed using specific guidance from the SPO to ensure proper serviceability. Parts shall not be removed from static display/Air Force Museum aircraft except in accordance with AFI 84-103, *Museum System*. Aircraft possessed by AFMC in depot maintenance shall not be cannibalized without first obtaining approval from the applicable AFMC single manager.

18.6.2.1. A Hangar Queen is an aircraft that has not flown for an extended period of time based on possessed calendar days in their assigned possession purpose code IAW AFI 21-103, Attachment 18. If an aircraft is placed in a nonpossessed status for any fraction of a day then the nonpossessed time is not counted. Aircraft placed on alert status for HHQ taskings are exempt from hangar queen reporting throughout the duration of alert status. An aircraft is released from hangar queen status after the first flight.

18.6.3. When an aircraft becomes identified as a hangar queen, management must intensify their efforts to alleviate the condition as soon as possible (e.g., mission impact letters, MAJCOM and item manager assistance, etc.). Aircraft Last Fly Day shall be accessible through the Air Force Portal Fleet Asset Status Gadget.

18.6.3.2. When an aircraft becomes a Category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen. The group commander or designated representative must approve any further cannibalizations, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status at the daily wing standup. Report by tail number monthly to the MAJCOM Maintenance Management Division chief the estimated delivery dates for top down-time driver (AWP) parts. In addition, report by tail number monthly to AF/ILP. Cannibalizations shall not be used to return the aircraft to flying status for the sole purpose of preventing hangar queen reporting. Reporting procedures are intended to provide higher level assistance to field units and shall not be construed as a “report card.”

18.6.3.3. When an aircraft becomes a Category 3 Hangar Queen, aircraft maintenance and supply status shall be briefed at the daily wing standup. Report status to the MAJCOM chief of maintenance, AF/ILP and AF/ILM monthly.

18.8.3.2.6. Developing and issuing training certificates to present to NATO ground crews that receive training at the base. Maintenance Operations (MOO/SUPT) and the ACS certifier shall sign and date the certificate. Certificates are not required for familiarization training. US crews visiting NATO bases for training should request a certificate when they complete training. Keep certificates in the AF Form 623.

18.8.3.2.7. Operations squadrons/AMXS/MXS (or EMS and CMS), as directed by the GP/CC (based on ACS requirements) establish ACS Stage A and C crews. Stage A and C ACS crew normally consists of two aircraft crew chiefs. Squadron ACS crews are trained to perform Stage A on specific NATO aircraft for which the base has an OACSR. Each squadron should establish a minimum of two ACS crews. Any duty position qualified crew chief can train NATO personnel on Stage A and C for USAF aircraft.

18.9.3. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1X 5, 7, and 9 skill-level technicians or civilian equivalents may perform these inspections.

18.12.4. Group commanders shall select maintenance instructors, FTD instructors, or AFETS to provide training. MTF shall develop course codes in MIS to track the following:

18.12.4.1. Formal training, engine blade blending course.

18.12.4.2. Initial engine blade blending certification.

18.12.4.3. Annual engine blade blending certification.

18.12.4.4. 180-day engine blade blending proficiency requirement as required in paragraph **18.12.6.**

18.12.9.1. Notify the Wing FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 (automated or manual) and Comprehensive Engine Management System (CEMS), IAW TO 00-20-1.

18.12.10.1. Notify Wing FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 (automated or manual) and CEMS IAW TO 00-20-1.

18.13.4.1. Alert aircraft launched from alert status for actual Alert, Alert Force Evaluations (AFE), or from sector directed scrambles do not require an EOR inspection. Alert aircraft that launch for training or scheduled missions from alert status require an EOR inspection.

18.17.14.1. Document all aircraft maintenance and 2F0X1 personnel Phases I, II, and III initial training in the job qualification standard (JQS). For AFSCs where “refuel aircraft with engines operating” is not contained in the JQS, use AF Form 797 to document initial hot refuel training. Track recurring hot or aircraft-to-aircraft refueling certification in MIS.

18.19.6. Shelter Doors. Aircraft are sheltered at the end of the duty day unless otherwise directed by local policies. Do not open PAS aircraft doors until ice, snow or debris is removed from the roller guide track and door roller path. Opening PAS aircraft doors with clogged door roller guides can cause severe damage to the door and door drive system. Ensure personnel have shelter door operating training before authorizing to operate.

18.19.6.1 Fully open all PAS doors (front and rear) when aircraft engines are operated in the PAS. Recommend painting marks on the shelter walls/floors to indicate when at the fully open position.

18.19.6.2. During real world situations when force protection measures are increased, or as directed by commanders, keep all PAS doors closed and secured to the greatest extent possible to protect critical assets.

18.19.6.3. During strike-mission weapons loading operations for local exercises and higher headquarters inspections, open PAS doors to the 10 foot mark, if applicable (depending on the style of door) while powered AGE or bomb lift vehicles are operating. If a PAS protecting critical assets is equipped with ventilation fans and a bioenvironmental survey of predetermined operations inside a PAS with the doors closed has been conducted to ensure no health hazard to personnel, then the PAS doors may be closed while powered AGE or bomb lift vehicles are operating.

18.19.6.4. During normal operations, open PAS doors as specified in wing procedures, to facilitate safety, refueling, and ventilating hazardous exhaust vapors and fumes. Additionally, open PAS doors at least 50 percent when powered AGE is operated inside. With the approval of Wing Safety, PAS doors may remain

closed during periods of inclement weather provided there is no safety risk, no refueling operation, no powered AGE operation, and no hazardous vapors/fumes risk within the PAS.

18.20.1. The term "Red Ball" is a traditional descriptor, recognized throughout aircraft maintenance, and defines a situation requiring a sense of urgency and priority actions. "Red Ball" maintenance normally occurs two hours prior to launch and until aircrew have released the aircraft back to maintenance. The Red Ball maintenance concept is intended to prevent late takeoffs and aborts by having qualified maintenance personnel available (e.g., in a truck or standby in the shop) during launch and recovery operations to troubleshoot, isolate, and repair system malfunctions. Red Ball maintenance in no way authorizes technicians to take shortcuts or deviate from TOs, personnel safety requirements or fail to properly document the aircraft forms and MIS for completed repair actions. All "Red-X" discrepancies must be cleared from both the aircraft forms and the MIS prior to flight. Units must develop local procedures to ensure "Red-X" discrepancies discovered during time-sensitive maintenance accomplished during red ball, launch, or EOR operations are input and cleared from the forms prior to flight and the MIS is properly documented as soon as possible (local procedures should ensure all maintenance documentation is accomplished prior to flight). If aircraft status changes, an exceptional release must be re-accomplished by a certified individual upon completion of maintenance and before the aircraft is released for flight IAW TO 00-20-1. NOTE: When the MIS is down, develop procedures to ensure the appropriate documentation is completed as soon as the system is operational.

18.23.2.7. All maintenance production areas must have approved foreign object (FO) containers readily accessible to workers. All vehicles normally driven on the flight line must be equipped with secured and lidded FO containers and stenciled with the word "FOD" in contrasting letters no smaller than two inches. Back shops may locally manufacture small FO containers that can be used when an area collection can is not feasible. These containers must be emptied when full or once a day, whichever comes first.

18.23.2.13. When FOD is discovered on a transient aircraft, depot input/output, or a "Queen Bee" engine, the host FOD monitor or aircrew must notify the owning organization immediately. An informational copy of the FOD report must be provided to the owning organization's safety office to ensure compliance with AFI 91-204. Aircrews must ensure proper documentation in the AFTO Form 781A has been completed.

18.23.2.19. Special emphasis is required for items such as: remove before flight streamer attachment, safing pin condition, hinge pin security, dust and FO prevention cover condition/security, and aircraft forms binder condition. Periodically check these types of items for FO prevention compliance. All aircraft Dash-21 equipment and covers, except weapons AME/NIE and mission specific safing gear, shall be marked with the aircraft serial number or unique identification tracking number on which they are to be installed. Weapons AME/NIE must be accounted for IAW **Chapter 13**. Weapons expediters must ensure all mission specific safing gear is controlled and accounted for to preclude loss and potential FOD.

18.23.7.2.1. Ensure unit commanders and MOO/SUPT actively support the FOD Prevention Program.

18.23.9.2.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, sand, and birds. Report this type of damage according to AFI 91-204, *Safety Investigations and Reports*. Do not include these in the FOD rates.

18.26.2.3. Qualified to operate aircraft Auxiliary Power Unit (APU), Gas Turbine Compressor (GTC)/Air Turbine Motor (ATM), or Auxiliary Power Plant (APP).

18.26.2.3.1. DELETED.

18.26.2.3.2. DELETED.

18.26.2.3.3. DELETED.

18.26.2.3.4. DELETED.

18.26.2.4. Familiar with aircraft marshalling signals.

18.26.2.5. Qualified and certified as a tow brake operator.

18.26.2.6. Qualified in basic radio and interphone systems operation.

18.26.2.7. Complete all applicable training courses.

18.26.3. Certifiers. Aircraft engine-run certifying officials shall hold the rank of MSgt or above and possess one of the following AFSCs: 2A671A/B, 2A571/2, 2A373X (or civilian equivalent), or be a fully qualified/certified contractor or AFETS/CETS representative. The group commander may waive highly qualified TSgts. All certifiers must have a minimum of 1 year engine-run experience on the applicable MDS and engine Type, Make, Series, Modification (TMSM). Instructor pilots (IP) can also be used as certifiers during the practical engine-run demonstration. Certifying officials must maintain proficiency in the same manner as other technicians; certifying officials must re-certify each other.

18.26.6. Trim Box Requirements. For units possessing F-15 or F-16 aircraft equipped with F100-PW-100 or -200 engines, engine trim box operators for engine trim operation must be certified to perform trim operations. MAJCOMs possessing F-15/F-16 aircraft equipped with F100-PW-100 or -200 engines must establish engine trim box operator training and initial certification and annual recertification programs.

***NOTE:*** Personnel performing engine maintenance ground runs shall fasten seat belts/shoulder harnesses, as applicable, IAW with technical data.

18.26.13.1.1. Be at least a staff sergeant and possess a 2A651A/B AFSC (or civilian equivalent). The MXG/CC may waiver highly qualified senior airman possessing a 5-skill level and a minimum of 6 months' experience on the applicable TMSM. If previously qualified on a different TMSM, the 6-month experience requirement may also be waived.

18.26.13.1.2. Be certified and on the SCR to perform intake and exhaust inspections.

18.26.15. Training. Uninstalled engine/small gas turbine engine run training shall consist of three phases performed sequentially, meeting the objectives of all three, without exception, to the fully qualified level as follows: procedural instruction, control cab (engine not operating) training, and demonstration of engine run proficiency.

18.26.16.2.1. Proper uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings (engine not operating).

18.26.16.2.2. Proper uninstalled engine/small gas turbine engine bold face emergency procedures, including notes, cautions, and warnings (engine not operating).

18.26.17.1. Be at least a SrA with AFSC 2A6X1A/B or civilian equivalent. Must have a minimum of 6 months' hush house/T-9 experience.

18.27.1. Perform IFF Mode IV checks on all missions departing CONUS to overseas locations, on all overseas missions, and all missions flying outside US airspace and returning to CONUS. (Missions that originate in Alaska, Hawaii, or U.S. Territories and do not depart U.S. controlled airspace are viewed as if

they are missions remaining in CONUS). Do not launch or enter aircraft into a contingency zone with a known inoperative MODE IV system, unless the contingency AOR has established procedures governing inoperative/degraded Mode IV capabilities.

18.28.5.2.2. Conducts SGO proficiency-training exercises at least semiannually. (WG/CCs in AFSOC, ARC and AETC shall determine frequency). Coordinates refueling and munitions requirements with the OG/CC prior to each scheduled SGO exercise.

18.28.6.2. Must be at least a 7-skill level with a maintenance (2AXXX or 2WXXX) AFSC and at least 1 year of experience on the MDS. The MXG/CC may waive the 1-year MDS experience requirement at short-tour locations.

**18.29. (Drop in replacement) WRM External Nestable Fuel Tank Build-Up (NFTBU).**

18.29.1. External fuel tank build-up is a wartime unit type code (UTC) and wing program that provides a critical wartime skill that must compensate for the expenditure of aircraft fuel tanks (refer to **Chapter 4**). With exception of the core 2A6X4 personnel, augmentees may come from any Group or Squadron within the Wing. Units must adhere to the direction outlined in their particular mission capability (MISCAP) statement and designed operational capability (DOC) statement governing the quantity, size, and composition of fuel tank build-up teams. Refer to AFI 90-201 for additional evaluation/inspection guidance.

18.29.2. All 2A6X4 personnel required to be qualified on WRM nestable fuel tank build-up (NFTBU) shall attend AETC FTD initial external fuel tank build-up training. As a minimum, initial training shall be documented in MIS and the individual's AF Form 623, Record of Training. Annual refresher training is required for 2A6X4 personnel, shall be conducted by NFTBU-qualified 2A6X4 personnel, and as a minimum, documented in MIS. NFTBU augmentees shall be trained as required by qualified 2A6X4 personnel. (ARC units will follow established ARC guidance) (PACAF Only: Korean Peninsula bases are not required to maintain standing tank buildup teams and are relieved of the requirement to demonstrate fuel tank build-up. These bases are still responsible for maintaining the equipment/tools required to perform tank build-up, developing a plan/capability to form/train tank build-up teams, and maintaining built-up/nested WRM tanks).

18.29.3. All Unit Deployment Managers (UDM) must ensure only non-wartime tasked personnel are selected as WRM NFTBU team augmentees. The UDM responsible for deploying the 2A6X4 career field is the focal point for team assembly and must maintain a written plan. The plan must be kept current and reviewed annually. As a minimum, it must contain the following:

18.29.3.1. Specific manning positions across the wing to be tasked as tank build-up team augmentees. (The applicable independent NFTBU UTC MANFOR shall be used as a guide to construct the teams)

18.29.3.2. Guidelines for activation of the tank build-up teams.

**18.30. Crashed, Damaged or Disabled Aircraft Repair (CDDAR).**

18.30.1. General. The Crashed, Damaged, or Disabled Aircraft Repair (CDDAR) recovery program applies to all USAF host and tenant organizations and is designed to recover crashed/damaged or disabled aircraft in a minimum time period consistent with the following consideration(s):

18.30.1.1. Requirement to open the runway for operational use.

18.30.1.2. Prevention of secondary damage to the aircraft.

18.30.1.3. Preservation of evidence for mishap or accident investigations.

18.30.2. Recovery Program Responsibilities. The host unit commander is responsible for implementing policy, plans and agreements to ensure compliance with established recovery programs. The MXG/CC is responsible for establishing a CDDAR program. All units (host and tenant) shall publish a unit instruction containing specific responsibilities and procedures for CDDAR. The following references as a minimum are used in developing the unit instruction: Base OPLAN 32-1, AFMAN 32-4004, Emergency Response Operations, MAJCOM supplement to AFI 21-101, applicable 91- and 92-Series AFOSH standards, TO 00-105E-9 Aircraft Emergency Rescue Information, AFI 21-103, Equipment Inventory, Status, and Utilization Reporting, and aircraft specific Dash-2 and -3 series TOs. As a minimum, the wing instruction must address the following:

18.30.2.1. Responsibilities of each base organization for CDDAR responses. Address responsibilities for transient aircraft.

18.30.2.2. Personnel required for CDDAR operations. Identify specific positions on the CDDAR team(s) (e.g., CDDAR team chief, special vehicle operator, team members, etc.).

18.30.2.3. Equipment, tools, vehicles and other supplies/consumables required for CDDAR operations.

18.30.2.4. Personnel Protective Equipment (PPE) required to perform recovery of an aircraft containing composite/hazardous materials as established by technical data and the Base Bio-Environmental Engineering (BEE) office.

18.30.2.5. CDDAR support for geographically separated units as required.

18.30.2.6. Support for CDDAR after normal duty hours.

18.30.2.6.1. Immediate response by the recovery crew is required during normal operating periods or duty hours. Units must develop emergency recall or mobilization rosters to identify and notify required recovery team members outside of normal operating hours.

18.30.2.7. Host/Tenant Base CDDAR Responsibilities.

18.30.2.7.1. Each host base has overall responsibility for recovery of host/tenant crashed /disabled aircraft**.** Since tenant units are responsible for the condition/repair of their aircraft, the tenant units must be actively involved in training to assist host base recovery operations during real world responses. Technical expertise, technical data, MDS-unique tools/special equipment, and airframe/system familiarization are the primary contributions tenant units make to the host CDDAR recovery program.

18.30.2.7.2. Host units provide recovery support for all tenant units as established in support agreements (SA). Ensure CDDAR procedures are coordinated with the Fire Department, Safety, CE, Readiness, EOD, Security, Bioenvironmental, Airfield Manager, and other on/off base agencies as applicable.

18.30.2.7.3. Host units must ensure they are capable to provide and support recovery operations for all base assigned aircraft, to include tenant aircraft. Tenant units are required to participate in host training exercises and equipment inventories.

18.30.2.7.4. Tenant units must coordinate with the host for CDDAR recovery support, training, exercises, and equipment inventories. Develop support agreements (SA) to document requirements.

18.30.2.7.5. Host and tenant commanders are responsible for ensuring sufficient equipment is available for mobility/deployed operations, as authorized in the applicable allowance standards.

18.30.3. Vehicle/Equipment Requirements.

18.30.3.1. The MXG/CC determines unit vehicle/equipment requirements, within the limits provided by allowance standard(s). Units must identify vehicles and recovery support equipment in a local directive to ensure 24-hour availability. Vehicle/ Equipment requirements may include:

18.30.3.2. General purpose radio-equipped truck.

18.30.3.3. Suitable trailer and tow vehicle (for storage and transportation of recovery equipment).

18.30.3.4. All Terrain Forklift

18.30.3.5. Bulldozer

18.30.3.6. Aircraft tow vehicle

18.30.3.7. Crane (e.g., 20 ton, 50 ton, as applicable).

18.30.3.8. 40 ft. flatbed semi trailer and tractor.

18.30.3.9. Light carts.

18.30.3.10. Tow bars.

18.30.3.11. Air Bags

18.30.3.12. Slings, belly bands, snatch cables, chains, etc.

18.30.3.13. Aircraft jacks

**NOTE:** When base transportation cannot support heavy equipment requirements such as cranes and/or semi tractors and trailers, units may elect to lease from local suppliers.

18.30.4. Inspection and Inventory. Inspect all recovery equipment to include air bags, manifolds, jacks, slings, shoring, etc., for serviceability before and after each exercise and use. Periodic equipment inspections must be accomplished per intervals established in technical orders or as a minimum annually. Perform operational checks according to applicable directives during exercises and/or inventory reviews. Document inspections and maintenance in MIS, on AFTO Forms 244, Industrial/Support Equipment Record, or on MAJCOM approved Form.

18.30.5. Crash Recovery Team Chief Responsibilities.

18.30.5.1. Be a SNCO (MXG/CC may waive grade requirement), appointed in writing by the MXG/CC, and tracked on the SCR.

18.30.5.2. Establish a CDDAR program and is OPR for the unit CDDAR instruction. ***NOTE:*** Aircraft recovery efforts may require AFSC specific personnel to accomplish special tasks such as identifying and handling of classified equipment, life support or egress systems specific tasks, etc.

18.30.5.3. Develop in conjunction with the Maintenance Training Flight course control documents for crash recovery training**.**

18.30.5.4. Review support agreements and base disaster response plans annually. Provide inputs for changes as required.

18.30.5.5. Ensure CDDAR procedures are coordinated with the Fire Department, Safety, CE, Readiness, EOD, Security Police, Bioenvironmental, Airfield Manager, and on/off base agencies (as required) reference AFMAN 32-4004.

18.30.5.6. Inform the MXG/CC in writing of equipment shortages/serviceability that precludes effective CDDAR support

18.30.5.7. Ensure sufficient personnel/teams are trained to support CDDAR operations. This includes:

18.30.5.7.1. Basic equipment operation (e.g., light carts, generators, etc.).

18.30.5.7.2. Familiarization with/training on any unique characteristics/hazards/materials for assigned aircraft (i.e., F-16 EPU hydrazine, C130 ballast depleted uranium, aircraft composite materials, etc.) and document training.

18.30.5.7.3. Proper use of personnel protection equipment (PPE) as determined by technical data and the base Bioenvironmental Engineer.

18.30.5.8. Ensure special qualifications for personnel are identified and documented. Identify individual team member qualifications for specific equipment operations. (e.g., towing, jacking, support equipment, special purpose vehicle, etc.).

18.30.5.9. Ensure adequate tools and support equipment for recovery (i.e., bags, slings, manifolds, tow bars, dunnage/shoring, etc.) is serviceable and available. Maintain a list of all CDDAR tools and equipment.

18.30.5.10. Conduct/participate in annual training exercises. Coordinate with the base Readiness office before exercises.

18.30.5.11. Coordinate with unit QA weight and balance manager when weight and center of gravity (CG) conditions are unknown.

18.30.6. Recovery Team Qualifications:

18.30.6.1. All team members must be qualified in basic CDDAR operations.

18.30.6.2. All qualifications are recorded in CFETP, AF Form 797, or MIS as applicable.

18.30.7. Training Requirements:

18.30.7.1. All team members must be trained in recovery procedures according to this instruction, MDS specific technical data, other applicable Air Force and MAJCOM directives and unit-developed training guide.

18.30.7.2. All recovery team members must receive initial training comprised of both academic and hands on training/exercises and should include actual lifting of an aircraft. Aircraft lifting exercises may be accomplished by using a unit owned aircraft, utilizing training hulks, or participating with other organizations possessing training assets. Ensure all training is documented.

18.30.7.3. All recovery team members must receive annual training following initial training comprised of both academic and hands on training/exercises. Ensure all training is documented.

18.30.8. Environmental, Safety, and Health Hazards. The key for developing a safe and effective CDDAR program is communication and coordination. The unit maintenance crash recovery OPR must ensure the BEE is consulted and directly involved in determining personnel health hazards, training required, and appropriate levels of Personnel Protective Equipment (PPE).

**NOTE:** There are two distinct phases of an aircraft mishap--initial response and recovery. Initial response teams face the probability of an aircraft fire. As the composite material burns, gases, vapors and solid particles are released into the smoke plume. Recovery team members may be exposed to fibers and respira-

ble/inhalable dusts as aircraft parts are moved, modified by cutting, breaking, twisting, or hammering. Personnel tasked to participate in crash or post-crash response, recovery, maintenance, and/or clean up operations must be aware of/briefed on all possible health issues involved. Units must insure local policies and procedures for handling crash damaged composites are addressed; to include training and personnel protective equipment (PPE).

**18.31. Forms Prescribed.**

AF Form 596, *Quick Engine Change Kit Inventory*

AF Form 726, *Transient Aircraft Service Record*

AF Form 861, *Base/Transient Job Control Number Register*

AF Form 864, *Daily Requirement and Dispatch Report*

AF Form 2400, *Functional Check Flight Log*

AF Form 2401, *Equipment Utilization/Maintenance Schedule*

AF Form 2406, *Maintenance Preplan*

AF Form 2407, *Weekly/Daily Flying Schedule Coordination*

AF Form 2408, *Generation Maintenance Plan*

AF Form 2409, *Generation Sequence Action Schedule*

AF Form 2410, *Inspection/TCTO Planning Checklist*

AF Form 2419, *Routing and Review of Quality Control Reports*

AF Form 2420, *Quality Assurance Inspection Summary*

AF Form 2426, *Training Request and Completion Notification*

AF Form 2430, *Specialist Dispatch Control Log*

AF Form 2431, *Aerospace Ground Equipment Status*

AF Form 2434, *Munitions Configuration and Expenditure Document*

AF Form 2435, *Load Training and Certification Document*

AF Form 2521, *Turn-Around Transaction Log*

**18.32. Forms Adopted.**

AF Form 3, *Hazard Abatement Plan*

AF Form 55, *Employee Safety and Health Record*

AF Form 457, *USAF Hazard Report*

AF Form 601, *Equipment Action Request*

AF Form 623, *Individual Training Record*

AF Form 623A, *On-the-Job Training Record Continuation Sheet*

AF Form 797, *Job Qualification Standard Continuation*

AF Form 898, *Field Training Requirements Scheduling Document*

AF Form 979, *Danger Tag*

AF Form 1032, *WRM Spare List*

AF Form 1067, *Modification Proposal*

AF Form 1098, *Special Tasks Certification and Recurring Training*

AF Form 1118, *Notice of Hazard*

AF Form 1199, *USAF Restricted Area Badge*

AF Form 1297, *Temporary Issue Receipt*

AF Form 1492, *Warning Tag*

AF Form 1800, *Operators Inspection Guide and Trouble Report (General Purpose Vehicles)*

AF Form 1815, *Difficulty Report Worksheet*

AF Form 1996, *Adjusted Stock Level*

AF Form 2001, *Notification of TCTO Kit Requirements*

AF Form 2005, *Issue/Turn-In Request*

AF Form 2096, *Classification/On The Job Training Action*

AF Form 2411, *Inspection Document*

AF Form 2413, *Supply Control Log*

AF Form 3215, *Communications-Computer Systems Requirements Document*

AF Form 3525, *CCB Modification Requirements and Approval Document*

AFTO Form 15, *Air Munitions Serviceability and Location Record*

AFTO Form 22, *Technical Manual (TM) Change Recommendation and Reply*

AFTO Form 27, *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval*

AFTO Form 95, *Significant Historical Data*

AFTO Form 103, *Aircraft/Missile Condition Data*

AFTO Form 135, *Source, Maintenance and Recoverability Code Change Request*

AFTO Form 158, *TO Review Comment Sheet*

AFTO Form 242, *Nondestructive Inspection Data*

AFTO Form 244, *Industrial/Support Equipment Record*

AFTO Forms 245, *Industrial/ Support Equipment Record (Continuation Sheet)*

AFTO Form 345, *Aerospace Vehicle Transfer Inspection Checklist and Certification*

AFTO Form 349, *Maintenance Data Collection Record*

AFTO Form 350, *Reparable Item Processing Tag*

AFTO Form 391, *Parachute Log*

AFTO Form 392, *Parachute Repack, Inspection and Component Record*

AFTO Form 781, *AFORMS Aircrew/Mission Flight Data Document*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFTO Form 781C, *Avionics Configuration and Load Status Document*

AFTO Form 781D, *Calendar and Hourly Item Inspection Document*

AFTO Form 781F, *Aerospace Vehicle Flight Report and Maintenance Document*

AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance Document*

AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document*

AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*

DD Form 1149, *Requisition and Invoice or Shipping Document*

DD Form 1348-1A, *DoD Single Line Item Release/Receipt Document*

DD Form 1348-6, *DoD Single Line Item Requisition System Document*

DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*

SF Forms 364, *Report of Discrepancy*

SF Forms 368, *Product Quality Deficiency Report*

**Attachment 1**

**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION**

***References***

**Table A1.1. - AFOSH Standards (AFOSHSTD).**

**AFOSHSTD** 48-1, *Respiratory Protection Program*

**AFOSHSTD** 48-8, *Controlling Exposures to Hazardous Materials*

**AFOSHSTD** 48-9, *Radio Frequency Radiation (RFR) Safety Program*

**AFOSHSTD** 48-19, *Hazardous Noise Program*

**AFOSHSTD** 48-101, *Aerospace Medical Operations*

**AFOSHSTD** 48-137, *Respiratory Protection Program*

**AFOSHSTD** 91-2, *Vehicle-mounted Elevating and Rotating Work Platforms, Manually-Propelled and Self-Propelled Mobile Work Platforms, and Scaffolds (Towers)*

**AFOSHSTD** 91-5, *Welding, Cutting and Brazing*

**AFOSHSTD** 91-12, *Machinery*

**AFOSHSTD** 91-17, *Interior Spray Painting*

**AFOSHSTD** 91-22, *Walking Surfaces, Guarding Floor and Wall Openings and Holes, Fixed Industrial Stairs, and Portable and Fixed Ladders*

**AFOSHSTD** 91-25, *Confined Spaces*

**AFOSHSTD** 91-31, *Personal Protective Equipment*

**AFOSHSTD** 91-32, *Emergency Shower and Eyewash Units*

**AFOSHSTD** 91-38, *Hydrocarbon Fuels General*

**AFOSHSTD** 91-43, *Flammable and Combustible Liquids*

**AFOSHSTD** 91-44, *Safety Color Coding, Labeling, and Marking For Piping Systems*

**AFOSHSTD** 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags*

**AFOSHSTD** 91-46, *Materials Handling and Storage Equipment*

**AFOSHSTD** 91-50, *Communications Cable, Antenna and Communications – Electronic (C-E) Systems*

**AFOSHSTD** 91-56, *Fire Protection and Prevention*

**AFOSHSTD** 91-66, *General Industrial Operations*

**AFOSHSTD** 91-67, *Liquid Nitrogen and Oxygen Safety*

**AFOSHSTD** 91-68, *Chemical Safety*

**AFOSHSTD** 91-90, *Precision Measurement Equipment Laboratory (PMEL)*

**AFOSHSTD** 91-100, *Aircraft Flight Line Ground Operations and Activities*

**AFOSHSTD** 91-110, *Nondestructive Inspection and Oil Analysis Program*

**AFOSHSTD** 91-119, *Process Safety Management (PSM) of Highly Hazardous Chemicals*

**AFOSHSTD** 91-501, *Air Force Consolidated Occupational Safety Standard*

**AFOSHSTD** 161-2, *Industrial Ventilation*

**AFOSHSTD** 161-17, *Standardized Occupational Health Program*

**AFOSHSTD** 161-20, *Hearing Conservation Program*

**AFOSHSTD** 161-21, *Hazard Communication*

**Table A1.2. - Air Force Instructions and Pamphlets.**

AFI 10-201, *Status of Resources and Training System*
AFI 10-207, *Command Post*
AFI 10-215, *Personnel Support For Contingency Operations (PERSCO)*
AFI 10-229, *Responding to Severe Weather Events*
AFI 10-401, *Operations Plan and Concept Plan Development and Implementation*
AFI 10-403, *Deployment Planning*
AFI 10-404, *Basic Support Planning*
AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*
AFI 10-703, *Electronic Warfare Integrated Reprogramming*
AFI 11-202 v3, *General Flight Rules*
AFI 11-218, *Aircraft Operations and Movement on the Ground*
AFI 11-235, *Forward Area Refueling Point (FARP) Operations*
AFI 11-301, *Aircrew Life Support (ALS) Program*
AFI 11-401, *Flight Management*
AFI 13-201, *Air Force Airspace Management*
AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*
AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*
AFI 21-104, *Selected Management of Selected Gas Turbine Engines*
AFI 21-105, *Aerospace Equipment Structural Maintenance*
AFI 21-110, *Engineering and Technical Services, Management and Control*
AFI 21-112, *Aircrew Egress System Maintenance*
AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program*
AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*
AFI 21-123, *The Air Force Repair Enhancement Program*
AFI 21-124, *Air Force Oil Analysis Program*
AFI 21-129, *Two Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment*
AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*
AFI 21-204, *Nuclear Weapons Procedures*
AFI 21-401, *Engineering Data Storage, Distribution, and Control*
AFI 21-403, *Acquiring Engineering Data*
AFI 23-101, *Centrally Managed Equipment*
AFI 23-202, *Buying Petroleum Products and Other Supplies and Services Off-Station*

AFI 23-204, *Organizational Fuel Tanks*

AFI 24-301, *Vehicle Operations*

AFPAM 24-317, *Vehicle Control*

AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*

AFI 25-201, *Support Agreements*

AFI 31-209, *The Air Force Resource Protection Program*

AFI 31-401, *Information Security Program Management*

AFI 32-4001, *Disaster Preparedness Planning and Operations*

AFI 32-7001, *Environmental Budgeting*

AFI 32-7002, *Environmental Information Management System*

AFI 32-7005, *Environmental Protection Committees*

AFI 32-7040, *Air Quality Compliance*

AFI 32-7041, *Water Quality Compliance*

AFI 32-7042, *Solid and Hazardous Waste Compliance*

AFPAM 32-7043, *Hazardous Waste Management Guide*

AFI 32-7044, *Storage Tank Compliance*

AFI 32-7045, *Environmental Compliance Assessment and Management Program (ECAMP)*

AFI 32-7061, *The Environmental Impact Analysis Process*

AFI 32-7064, *Integrated Natural Resources Management*

AFI 32-7065, *Cultural Resources Management*

AFI 32-7080, *Pollution Prevention Program*

AFI 32-7086, *Hazardous Materials Management*

AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*

AFI 33-115, Vol 1, *Network Management*

AFI 33-202, *Computer Security (COMPUSEC)*

AFI 33-211, *Communication Security (COMSEC) User Requirements*

AFI 33-212, *Reporting COMSEC Deviations*

AFI 33-322, *Records Management Program*

AFI 33-332, *Air Force Privacy Act Information*

AFI 33-360V1, *Publication Management Program, Volume 1*

AFI 34-217, *Air Force Aero Club Program*

AFI 36-2101, *Classifying Military Personnel*

AFI 36-2115, *Assignments within the Reserve Components*

AFI 36-2201, *Air Force Training Program*

AFI 36-2217, *Munitions Requirements for Aircrew Training*

AFI 36-2232, *Maintenance Training*

AFI 36-2611, *Officer Professional Development*

AFI 36-2619, *Military Personnel Appropriation Man-Day Program*

AFI 36-2629, *Individual Mobilization Augmentee Management*

AFI 36-2818, *USAF Logistics Awards Program*

AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*

AFI 36-3209, *Separation and Retirement Procedures For Air National Guard and Air Force Reserve Members*

AFI 36-8001, *Reserve Personnel Participation and Training Procedures*

AFI 37-139, *Records Disposition—Procedures and Responsibilities*

AFI 38-101, *Air Force Organization*

AFI 63-104, *The SEEK EAGLE Program*

AFI 63-124, *Performance Based Service Contracts (PBSC)*

AFI 63-1001, *Aircraft Structural Integrity Program*

AFI 63-1101, *Modification Management*

AFI 63-1201, *Assurance of Operational Safety, Suitability, and Effectiveness*

AFI 65-601, *Volume 1, Budget Guidance and Procedures*

AFI 84-103, *U.S. Air Force Heritage Program*

AFI 90-901, *Operational Risk Management (ORM) Program*

AFI 91-101, *Air Force Nuclear Weapons Surety Program*

AFI 91-103, *Air Force Nuclear Safety Certification Program*

AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs*

AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems*

AFI 91-112, *Safety Rules for U.S. Strike Aircraft*

AFI 91-202, *The US Air Force Mishap Prevention Program*

AFI 91-204, *Safety Investigations and Reports*

AFI 91-205, *Non-Nuclear Munitions Safety Board*

AFPAM 91-215, *Operational Risk Management (ORM) Guidelines and Tools*

AFI 91-301, *Air Force Occupational And Environmental Safety, Fire Protection, And Health (AFOSH) Program*

AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*

**Table A1.3. - Air Force Policy Directives and Program Action Directives.**

AFPD 10-9, *Lead Operating Command Weapon Systems Management*

AFPD 21-1, *Managing Aerospace Equipment Maintenance*

AFPD 21-3, *Technical Orders*

AFPD 32-70, *Environmental Quality*

AFPD 62-4, *Standards of Airworthiness for Passenger Carrying Commercial Derivative Transport Aircraft*

AFPD 63-11, *Modification System*

AFPD 63-12, *Assurance of Operational Safety, Suitability, and Effectiveness*

AFPD 90-8, *Environmental Safety, and Occupational Health*

AFPD 91-3, *Occupational Safety and Health*

PAD 02-05, *Implementation of the CSAF Direction to Establish a New Combat Wing Organization Structure, 20 Jun 02*

**Table A1.4. - Air Force Manuals.**

AFMAN 10-206, *Operational Reporting*

AFMAN 10-401, *Operations Plan and Concept Plan Development*

AFMAN 23-110, *USAF Supply Manual*

AFMAN 23-220, *Reports of Survey For Air Force Property*

AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*

AFMAN 24-306, *Manual For Wheeled Vehicle Driver*

AFMAN 32-4004, *Emergency Response Operations*

AFMAN 32-4017, *Civil Engineer Readiness Technician's Manual for Nuclear,*
Biological, and Chemical Defense

AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*

AFMAN 33-326, *Preparing Official Correspondence*

AFMAN 36-2108, *Airman Classification*

AFMAN 37-123, *Management of Records*

AFMAN 37-139, *Records Disposition Schedule*

AFMAN 64-110, *Manual for Weapon Systems Warranties*

AFMAN 91-201, *Explosives Safety Standards*

**Table A1.5. - Air Force Technical Orders.**

TO 00-5-1, *AF Technical Order System*

TO 00-5-15, *Air Force Time Compliance Technical Order System*

TO 00-5-17, *Users Manual -- USAF Computer Program Identification Numbering System (CPIN)*

TO 00-5-18, *USAF Technical Order Numbering System*

TO 00-20-1, *Aerospace Equipment Maintenance General Policy and Procedures*

TO 00-20-2, *Maintenance Data Documentation*

TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*

TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*

TO 00-20-5-1, *Instructions for Jet Engine Parts Tracking and Fatigue Limit Control*

TO 00-20-14, *AF Metrology and Calibration Program*

TO 00-20B-5, *USAF Motor Vehicle and Equipment*

TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*

TO 00-25-107, *Maintenance Assistance*

TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*

TO 00-25-195, *AF Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons Systems, and Equipment*

TO 00-25-223, *Integrated Pressure Systems and Components (Portable and Installed)*

TO 00-25-240, *Uniformed Repair/Replacement Criteria for USAF Support Equipment (SE)*

TO 00-25-252, *Certification of USAF Aircraft and Missile Welders*

TO 00-25-254-1, *System Manual-Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures*

TO 00-25-254-2, *System Manual – Comprehensive Engine Management System for DSD: D042*

TO 00-35D-54, *USAF Deficiency Reporting and Investigating System*

TO 00-105E-9, *Aircraft Emergency Rescue Information (Fire Protection)*

TO 00-110A-Series, *Inspection Maintenance Instruction, Storage, and Disposition of Aircraft*

TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*

TO 1-1-8, *Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft*

TO 1-1A-15, *General Maintenance Instructions For Support Equipment*

TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*

TO 1-1H-39, *Aircraft Battle Damage Repair General Technical Manual*

TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*

TO 1-1-691, *Aircraft Weapons Systems Cleaning and Corrosion Control*

TO 4T-1-3, *Tires and Tubes*

TO 4W-1-61, *Maintenance Instruction - All Types Aircraft Wheels*

TO 11A-1-33, *Handling and Maintenance of Explosive Loaded Aircraft*

TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*

TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*

TO 31R2-1-251, *General Instructions–Transmission of False Distress Signals on Emergency Frequencies*

TO 32-1-2, *Use of Hand Tools (International Business Mechanical)*

TO 32-1-101, *Use and Care of Hand Tools and Measuring Tools*

TO 33B1-1, *Nondestructive Inspection Methods*

TO 33K-1-100-CD-1, *TMDE Calibration Notes Maintenance Data Collection Codes CAL Measurement Summaries, Calibration Procedure, Calibration Interval, and Work Unit Code Reference Manual*

TO 33K-1-100, *Technical Manual TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*

TO 34-1-3, *Inspection and Maintenance of Machinery and Shop Equipment*

TO 34W4-1-5, *Operator Manual-Welding Theory and Application*

TO 34Y1-1-171, *Installation, Operation, Maintenance and Inspection of Air Compressors*

TO 35-1-3, *Corrosion Prevention, Painting and Marking USAF Equipment*

TO 35-1-4, *Processing and Inspection of Support Equipment for Storage and Shipment*

TO 35-1-24, *General Instruction-AF Repair/Replacement for Selected San Antonio ALC Managed Support Equipment (SE)*

TO 35-1-25, *Economic Repair Criteria for Support Equipment (SE)*

TO 35-1-26, *General Instruction-AF Repair/Replacement for Selected SM/ALC Managed Support Equipment (SE)*

TO 36-1-58, *General Requirement For Repair, Maintenance and Testing of Lifting Devices*

TO 36-1-191, *Technical and Managerial Reference for Motor Vehicle Maintenance*

TO 38-1-23, *Inspection and Installation of Spark Arrestors and Exhaust Purifiers On Non-Aircraft*

TO 42A-1-1, *Safety, Fire Precaution, and Health Promotion Aspects of Painting, Doping and Paint Removal*

TO 42B-5-1-2, *Gas Cylinder (Storage Type) Use, Handling and Maintenance*

TO 44B-1-15, *General Instructions - Jet Engine Anti-friction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities*

**Table A1.6. - Air Force Computer Service Manuals.**

AFCSM 21-303, *PAMS, Software User Manual*

AFCSM 21-556, *Software Center Operator Manual, Software User Manual*

AFCSM 21-558, *Comprehensive Engine Management System (CEMS), Software User Manual*

AFCSM 21-561, *Maintenance Event Subsystem, Software User Manual*

AFCSM 21-563, *Job Data Documentation (JDD), Software User Manual*

AFCSM 21-564, *Status and Inventory Reporting, Software User Manual*

AFCSM 21-565, *Operational Events Subsystem, Software User Manual*

AFCSM 21-566, *Inspection and Time Change, Software User Manual*

AFCSM 21-568, *Time Compliance Technical Order (TCTO), Software User Manual*

AFCSM 21-570, *Training Management, Software User Manual*

AFCSM 21-573, *Automated Scheduling Module, Software User Manual*

AFCSM 21-574, *Automated Debriefing, Software User Manual*

AFCSM 21-575, *Job Control, Automated Maintenance Operation Control Center, Software User Manual*

AFCSM 21-576, *Generic Configuration Status Accounting System (GCSAS , Software User Manual*

AFCSM 21-578, *Product Quality Deficiency Reporting System (PQDR), Software User Manual* (To be deleted when CAMS Central Database "7R1" is fielded)

AFCSM 21-579, *Maintenance-Supply Interface, Software User Manual*

AFCSM 25-524, *REMIS, Software User Manual*

***Abbreviations and Acronyms***

**2LM**—Two Level Maintenance

**A/R**—Aerospace Repair

**ABDR**—Aircraft Battle Damage Repair

**AC**—Aircraft Commander

**ACC**—Air Combat Command

**ACE**—Allied Command Europe

**ACN**—Authorization Change Notice

**ACM**—Aircraft Configuration Management

**ACMI**—Air Combat Maneuvering Instrumentation

**ACPINS**—Automated Computer Program Identification Number System

**ACR**—Authorization Change Requests

**ACS**—Aircraft Cross-Servicing / Agile Combat Support

**ADCC**—Assistant Dedicated Crew Chief

**ADF**—Automatic Direction Finder

**ADN**—Aircraft Directive Numbers

**ADPE**—Automated Data Processing Equipment

**ADR**—Aircraft Document Review / Ammunition Disposition Report

**ADS**—Automated Data System

**ADVON**—Advanced Echelon

**AEF**—Aerospace Expeditionary Force

**AEFC**—AEF Center

**AETC**—Air Education and Training Command

**AETF**—Air and Space Expeditionary Task Force

**AFCSM**—Air Force Computer Security Manual

**AFDD**—Air Force Doctrine Document

**AFETS**—Air Force Engineering and Technical Service

**AFFOR**—Air Force Forces

**AFI**—Air Force Instruction

**AFIND**—Air Force Index

**AFJMAN**—Air Force Joint Manual

**AFKS**—Air Force Knowledge Services (formerly EDW)

**AFMAN**—Air Force Manual

**AFMC**—Air Force Materiel Command

**AFMETCAL**—Air Force Metrology and Calibration Program

**AFNCC**—Air Force Network Control Center

**AFORMS**—Automated Forms

**AFOSH**—Air Force Occupational Safety and Health

**AFP**—Air Force Portal

**AFPAM**—Air Force Pamphlet

**AFPC**—Air Force Personnel Center

**AFPD**—Air Force Policy Directive

**AFRC**—Air Force Reserve Command

**AFREP**—Air Force Repair and Enhancement Program

**AFSATCOM**—Air Force Satellite Communications

**AFSC**—Air Force Specialty Code

**AFCSM**—Air Force Computer Systems Manual

**AFSOC**—Air Force Special Operations Command

**AFSPC—**Air Force Space Command

**AFIT—**Air Force Institute of Technology

**AFP—**Air Force Portal

**AFRL—**Air Force Research Laboratory

**AFTO—**Air Force Technical Order

**AFU—**Automated Functional Unit

**AGE—**Aerospace Ground Equipment

**AGETS—**Automated Ground Engine Test Set

**AGM—**Air Surface Attack Guided Missile

**AHE—**Automated History Event

**AHRS—**Attitude Heading Reference System

**AIG—**Address Indicating Group

**AIMS—**Air Intercept Missile System

**AIP—**Aircraft Information Program

**ALA—**Ammunition Loading Assemblies

**ALC—**Air Logistics Center

**ALS—**Ammunition Loading System

**AMA—**Acceleration Monitor Assemblies

**AMC—**Air Mobility Command

**AME—**Alternate Mission Equipment

**AMU—**Aircraft Maintenance Unit

**AMOG—**Air Mobility Operations Group

**AMQP—**Aircraft Maintenance Qualification Program

**AMSG—**Air Mobility Support Group

**AMSS—**Air Mobility Support Squadron

**AMXS—**Aircraft Maintenance Squadron

**ANG—**Air National Guard

**AOR—**Area of Responsibility

**APG—**Airplane General

**APP—**Auxiliary Power Plant

**APU—**Auxiliary Power Unit

**AQL—**Acceptable Quality Level

**AR—**Attrition Reserve

**ARC—**Air Reserve Component

**ART—**Air Reserve Technician

**AS—**Allowance Standard

**ASAP—**As Soon As Possible

**ASF—**Aircraft Support Flight (MAF)

**ASIP—**Aircraft Structural Integrity Program

**ASIMIS—**Aircraft Structural Integrity Management Information System

**ASM—**Aircraft Structural Maintenance / Automated Scheduling Message

**AST—**Armament Systems Trainer

**ATC—**Air Traffic Control

**ATD—**Aircrew Training Devices

**ATERS—**Automatic Test Reporting System

**ATF—**After-the-Fact

**ATM—**Air Turbine Motor

**ATO—**Air Tasking Order

**ATOMS—**Automated Technical Order Management System

**ATSO—**Ability To Survive and Operate

**AUR—**Accomplishment Utilization Report / All-Up-Round

**AURC—**All-Up-Round Container

**AVDO—**Aerospace Vehicle Distribution Office

**AVTR—**Airborne Videotape Recorder

**AWBS—**Automated Weight and Balance System

**AWI—**Awaiting Installation

**AWM—**Awaiting Maintenance

**AWP—**Awaiting Parts

**BAI—**Backup Aerospace Vehicle (Aircraft) Inventory

**BCS—**Bench Check Serviceable

**BFE—**Basic Fighting Element

**BITE—**Built-In Test Equipment

**BNCC—**Base Network Control Center

**BPO—**Basic Post-flight

**BRA—**Bomb Rack Assembly

**BRAAT—**Base Recovery After Attack

**BRU—**Bomb Rack Unit

**BSL—**Basic Systems Listing

**BSP—**Base Support Plan

**C4—**Command, Control, Communications, and Computers

**CA—**Cannibalization Authority / Combat Support Coded

**CAA—**Career Assistance Advisor

**CA/CRL**—Custodian Authorization/Custody Receipt Listing

**CAD—**Computer Aided Design

**CAD/PAD**—Cartridge/Propellant Activated Device

**CAF—**Combat Air Forces

**CAFSC—**Control Air Force Specialty Code

**CALCM—**Conventional Air Launched Cruise Missile

**CAMS—**Core Automated Maintenance System

**CANN—**Cannibalization

**CAPCODE—**Capability/Reliability Code

**CAS—**Combat Ammunition System

**CASS—**Consolidated Aircraft Support System

**CAST—**Combat Armament Support Team / Command Aircraft Systems Training

**CATM—**Captive Air Training Munition

**CBM—**Carriage Conventional Bomb Module

**CBM+**—Condition-Based Maintenance Plus

**CBRNE—**Chemical, Biological, Radiological, Nuclear and high-yield Environment

**CBT—**Computer-Based Training

**CBU—**Cluster Bomb Unit

**CC—**Commander / Combat Coded

**CCB—**Configuration Control Board

**CCD—**Course Control Document

**CCI—**Controlled Cryptographic Item

**CCMS—**Compass Call Mission Simulator

**C-CW**—Counter-Chemical Warfare

**CCY—**Calculated Cycles

**CD—**Command Disable / Deputy Commander (e.g., MXG/CD)

**CDB—**Central Database

**CDC—**Career Development Course

**CDDAR—**Crashed, Damaged, or Disabled Aircraft Repair

**CDS—**Command Disablement System

**CE—**Civil Engineer / Communications Electronics

**CEMS—**Comprehensive Engine Management System

**CETADS—**Comprehensive Engine Trending and Diagnostics

**CETS—**Contractor Engineering and Technical Services

**CERP—**Centralized Engine Rotable Pool

**CFL—**Competent Familiarity Loading

**CFETP—**Career Field Education and Training Plan

**CFRS—**Computerized Fault Reporting System

**CFT—**Conformal Fuel Tank / Contract Field Team

**CGP—**Central Ground Processors

**CHPMSK—**Centralized High Priority Mission Support Kit

**CIP—**Control Indicator Programmer

**CIRF—**Centralized Intermediate Repair Facility

**CITS—**Central Integrated Test System

**CL—**Checklist

**CLS—**Contract Logistics Support

**CLSS—**Combat Logistics Support Squadron

**CM—**Configuration Management

**CMS—**Component Maintenance Squadron

**CND—**Can Not Duplicate

**CO—**Contracting Officer

**COB—**Collocated Operating Base

**COMAFFOR—**Commander, Air Force Forces

**COMBS—**Contractor Operated and Maintained Base Supply

**COMPUSEC—**Computer Security

**COMSEC—**Communications Security

**CONUS—**Continental United States

**CONOPS—**Concept of Operations

**CONS—**Console Monitoring

**COSO—**Combat Oriented Supply Organization

**COT—**Current Operating Time

**COTS—**Commercial Off-The-Shelf

**CPIN—**Computer Program Identification Numbering

**CPR—**Cardio-Pulmonary Resuscitation

**CPT—**Cockpit Trainer

**CR—**Component Repair

**CRB—**Configuration Review Board

**CRP—**Centralized Rotable Pool

**CSC—**Central Security Control

**CSM—**Cross-Servicing Manager

**CSO—**Concurrent Servicing Operation

**CSRD—**Computer System Requirement Document

**CSRL—**Code Selected Reconciliation Listing / Conventional Stores Rotary Launcher

**CSS—**Concurrent Servicing Supervisor

**CSSM—**Combat Supply Support for Maintenance

**CTK—**Composite Tool Kit

**CTR—**Consolidated Training Request

**CTVS—**Cockpit Television Sensor

**CUT—**Cross Utilization Training

**CV—**Vice Commander

**CVR—**Cockpit Voice Recorder

**CW—**Chemical Warfare / Continuous Wave

**DAFSC—**Duty Air Force Specialty Code

**DASS—**Decentralized Asset Supply Support

**DBA—**Database Administrator

**DBE—**Database Editor

**DBL—**Database Look

**DBM—**Database Manager

**DCC—**Dedicated Crew Chief / Deployment Control Center

**DCMA—**Defense Contract Management Agency

**DD—**Delayed Discrepancy

**DDN—**Defense Data Network

**DDR—**Daily Demand Rate

**DDS—**Deferred Discrepancy Summary

**DDTS—**Data Display Training Set

**DECC—**Defense Enterprise Computer Center

**DEFCON—**Defense Readiness Condition

**DET—**Detachment

**DFAS—**Defense Finance & Accounting Service

**DFT—**Depot Field Team

**DIFM—**Due-in From Maintenance

**DIREP—**Difficulty Report

**DIT—**Data Integrity Team

**DLC—**Distance Learning Center

**DLIR—**Downward-Looking Infrared Radar

**DLM—**Depot Level Maintenance

**DLO—**Dual Loading Operation

**DMS—**Defense Message System

**DOC—**Designed Operational Capability

**DoD—**Department of Defense

**DOI—**Date of Installation

**DOM—**Date of Manufacture

**DOP—**Dropped Object Prevention

**DOR—**Due-Out Release

**DR—**Deficiency Report

**DREAMS—**Deficiency Report Entry and Mail Submitter (System)

**DRIS—**Deficiency Reporting Information System

**DRMO—**Defense Reutilization and Marketing Office

**DS—**Defensive Systems

**DSE—**Dedicated Support Element

**DSN—**Defense Switching Network

**DSV—**Detected Safety Violations

**DTRA—**Defense Threat Reduction Agency

**DUO—**Due-Out

**DVP—**Document Validation Priority

**DVR—**Document Validation Report

**E-Tools**—Electronic Tools

**E&E**—Electro-Environmental

**EA—**Electronic Attack

**EAID—**Equipment Authorization Inventory Data

**ECAMP—**Environmental Compliance Assessment & Management Program

**ECM—**Electronic Countermeasures

**ECP—**Engineering Change Proposal

**ECS—**Environmental Control System

**ECU—**Environmental Control Unit

**EDD—**Earliest Delivery Date

**EDM—**Emergency Destruction of Munitions

**EDSC—**Engineering Data Service Center

**EHR—**Event History Recorder

**EID—**Event Identification Description / Equipment Identification Designator

**EIMSURS—**Equipment Inventory, Multiple Status and Utilization Reporting Subsystem

**EIP—**Equipment Inoperative for Parts

**ELT—**Emergency Locator Transmitter

**EM—**Engine Management Section

**EMB—**Engine Management Branch

**EMOC—**Enhanced Maintenance Operations Center

**EMR—**Electromagnetic Radiation

**EMS—**Equipment Maintenance Squadron

**ENMCB—**Engine Not Mission Capable-Both

**ENMCM—**Engine Not Mission Capable-Maintenance

**ENMCS—**Engine Not Mission Capable-Supply

**EOD—**Explosive Ordnance Disposal

**EOQ—**Economic Order Quantity

**EOR—**End of Runway

**EOT—**Engine Operating Time

**EPA—**Environmental Protection Agency

**EPE—**Evaluator Proficiency Evaluation

**ER—**Exceptional Release

**ERRC—**Expendability, Recoverability, Reparability Code

**ESOH—**Environmental Safety and Occupational Health

**ESS—**Electrical Standards Set

**ESTS—**Electronic System Test Set

**ETTAS—**Engine Test Trim Automated System

**ETA—**Expected Time of Arrival

**ETIC—**Expected Time in Commission

**ETS—**Engineering and Technical Service

**ET&D**—Engine Trending and Diagnostics

**EVS—**Electro-optical Viewing System

**EW—**Electronic Warfare

**EWO—**Emergency War Order

**EWS—**Electronic Warfare System

**EX—**Exercises/Contingencies

**EXPRESS—**Execution and Prioritization of Repair Support System

**FAA—**Federal Aviation Administration

**FAC—**Functional Area Chief / Functional Account Code

**FAD—**Force Activity Designator

**FADM—**Functional Area Documentation Manager

**FAM—**Functional Area Manager

**FAR—**Federal Acquisition Regulation

**FCC—**Flying Crew Chief

**FCF—**Functional Check Flight

**FCIF—**Flight Crew Information File

**FCT—**Flight Circuit Test

**FDR—**Flight Data Recorder

**FDSE—**Flight Line Dedicated Support Element

**FECP—**Field Engineering Change Proposal

**FIT—**Facility for Interoperability Testing

**FK—**Air Force Stock Record Account Number Prefix (munitions)

**FLIR—**Forward-Looking Infrared Radar

**FMC—**Fully Mission Capable

**FO—**Foreign Object

**FOD—**Foreign Object Damage

**FOL—**Forward Operating Location

**FOM—**Facilitate Other Maintenance

**FOQA—**Flight Operational Quality Assurance

**FOUO—**For Official Use Only

**FPCON—**Force Protection Condition

**FS—**Fighter Squadron

**FSAS—**Fuel Savings Advisory System

**FSC—**Flight Service Center

**FSE—**Field Service Evaluation

**FSL—**Full Systems Listing / Forward Support Location

**FTD—**Field Training Detachment

**FUD—**File Update Mode

**FY—**Fiscal Year

**G081—**CAMS for Mobility

**GBL—**Government Bill of Lading

**GBU—**Guided Bomb Unit

**GCCS—**Global Command and Control System

**GCSAS—**Generic Configuration Status Accounting Subsystem

**GDSS—**Global Decision Support System

**GEOLOC—**Geographical Location

**GITA—**Ground Instructional Trainer Aircraft

**GN—**Gaseous Nitrogen

**GOTS—**Government Off-The-Shelf

**GOX—**Gaseous Oxygen

**GP—**Group

**GP/CC**—Group Commander

**GPC—**Government Purchase Card

**GPS—**Global Positioning System

**GPWS—**Ground Proximity Warning System

**GS—**General Schedule

**GSA—**General Services Administration

**GSAS—**Generation Sequence Action Schedule

**GTC—**Gas Turbine Compressor

**HAF—**Headquarters, US Air Force

**HAS—**Hardened Aircraft Shelters

**HAZCOM—**Hazard Communication

**HAZMAT—**Hazardous Material

**HD-LD**—High Demand-Low Density

**HEI—**High Explosive Incendiary

**HF—**High Frequency

**HHQ—**Higher Headquarters

**HMXS—**Helicopter Maintenance Squadron

**HNS—**Host Nation Support

**HPO—**Hourly Post-flight

**HQ—**Headquarters

**HSC—**Home Station Check

**HYT—**High Year of Tenure

**I&SG**—Interchangeable and Substitute Group

**IAW—**In Accordance With

**IBL—**Inspection Baseline

**IC—**Interim Change (for Regulations, Publications, etc.)

**ICW—**In Compliance With

**ID—**Identification

**IDAS—**Intrusion Detection Alarm System

**IDEA—**Innovation Development through Employee Awareness

**I-Deck**—Initialization Deck

**IEU—**Individual Equipment

**IFE—**In-Flight Emergency

**IFF—**Identification Friend or Foe

**IG—**Inspector General

**ILM—**Intermediate Level Maintenance

**IM—**Item Manager

**IMA—**Individual Mobilization Augmentation

**IMDS—**Integrated Maintenance Data System

**IMF—**Integrated Maintenance Facility

**INS—**Inertial Navigation System

**INW—**In Work

**IP—**Instructor Pilot

**IPA—**In-Process Assessment

**INW—**In-Work

**IPB—**Illustrated Parts Breakdown

**IPI—**In-Process Inspection

**IPL—**Immediately Prior to Launch

**IQU—**Integrated Query Utility

**IRADS—**Infrared Acquisitions/Designation System

**IRC—**Inspection Record Card

**IREP—**Intermediate Repair Enhancement Program

**IRRI—**Immediate Response Readiness Inspection

**IRSP—**In-place Readiness Spares Packages

**ISD—**Instructional System Development

**ISO—**Isochronal Inspection

**ISSL—**Initial Spares Support List

**ITAL—**Initial Task Assignment List

**ITDS—**Integrated Technical Data System

**ITO—**Initial Tasking Order

**I&E**—Inspection and Evaluation

**JA/ATT**—Joint Airborne/Air Transportability Training

**JCALS—**Joint Computer-Aided Acquisition and Logistics Support

**JCN—**Job Control Number

**JDD—**Job Data Documentation

**JDMP—**Joint Depot Maintenance Program

**JEIM—**Jet Engine Intermediate Maintenance

**JETCC—**Jet Engine Test Cell/Stand Calibrator

**JFACC—**Joint Forces Air Component Commander

**JML—**Job Standard Master Listing

**JOPES—**Joint Operations Planning and Execution System

**JQS—**Job Qualification Standard

**JSOW—**Joint Stand Off Weapon

**JST—**Job Standard

**JTIDS—**Joint Tactical Information Distribution System

**JUMPS—**Joint Uniform Military Pay System

**KEEP—**Keep Enlisted Experience Program

**KTL—**Key Task List

**LAN—**Local Area Network

**LANTIRN—**Low Altitude Navigation and Targeting Infrared for Night

**LCF—**Low-Cycle Fatigue

**LCL—**Local Checklist

**LCOM—**Logistics Composite Model

**LD-HD**—Low Density-High Demand

**LGR—**Logistics Readiness Division

**LIMFAC—**Limiting Factor

**LJG—**Local Job Guides

**LLC—**Limited Life Component

**LM—**Limited-use Munition

**LME—**Locally Manufactured Equipment

**LMR—**Land Mobile Radio

**LO—**Low Observable

**LOGMOD—**Logistics Module

**LOGNET—**Logistics Network

**LOP—**Local Overprint

**LORAN—**Long Range Aid to Navigation

**LOX—**Liquid Oxygen

**LPS—**Local Page Supplement

**LPT—**Loaded Pylon Test

**LRS—**Logistics Readiness Squadron

**LRU—**Line Replaceable Unit

**LSC—**Load Standardization Crew

**LSET—**Logistics Standardization and Evaluation Team

**LSEP—**Logistics Standardization and Evaluation Program

**LSM—**Logistics Supply Manager

**LSP—**Logistics Support Plan

**LV—**Leave

**LWC—**Local Work cards

**M&I**—Maintenance and Inspection

**MADAR—**Malfunction Detection, Analysis, and Recording System

**MAF—**Mobility Air Forces

**MAJCOM—**Major Command

**MASO—**Munitions Accountable System Officer

**MASS—**Mission Capable (MICAP) Asset Sourcing System

**MC—**Mission Capable

**MCC—**Mission Capability Code

**MDC—**Maintenance Data Collection

**MDF—**Mission Data File

**MDR—**Materiel Deficiency Report

**MDS—**Mission Design Series

**MDSA—**Maintenance Data Systems Analysis

**MEGP—**Mission Essential Ground Personnel

**MEL—**Minimum Essential Level

**MEO—**Most Efficient Organization

**MER—**Multiple Ejection Rack

**MESL—**Mission Essential Subsystems List

**MFG—**Munitions Family Group

**MHE—**Materiel Handling Equipment

**MI—**Management Inspection

**MICAP—**Mission Capable

**MISCAP—**Mission Capability

**MIL—**Master Inventory List

**MILSPEC—**Military Specification

**MIS—**Maintenance Information Systems

**MMCL—**MAJCOM Mandatory Course List

**MMHE—**Munitions Materiel Handling Equipment

**MMR—**Maintenance Manpower Requests

**MOA—**Memorandum of Agreement

**MOB—**Main Operating Base

**MOC—**Maintenance Operations Center

**MOF—**Maintenance Operations Flight

**MOL—**Main Operating Location

**MOO—**Maintenance Operations Officer (formerly Maintenance Supervisor)

**MOU—**Munitions Operation Unit

**MOS—**Maintenance Operations Squadron

**MPC—**Maintenance Priority Code / Mission Planning Cell

**MPF—**Military Personnel Flight

**MPL—**Maintenance Personnel Listing

**MPR—**Maintenance Personnel Roster (listing)

**MPRL—**Minimum Proficiency Requirement Loading

**MQC—**Maintenance Qualification Centers

**MQT—**Maintenance Qualification Training

**MRS—**Mission Route Support

**MRT—**Maintenance Recovery Team / Mission Ready Technician

**MSA—**Munitions Storage Area

**MSB—**Main Support Base

**MSD—**Material Support Division

**MSE—**Munition Support Equipment

**MSEP—**Maintenance Standardization & Evaluation Program

**MSET—**Maintenance Standardization & Evaluation Team

**MSIM—**Mission Simulator

**MSK—**Mission Support Kit

**MSL—**Maintenance Supply Liaison

**MSPE—**Maintenance Safety and Protection Equipment

**MTBF—**Mean Time Between Failures

**MTBM—**Mean Time Between Maintenance

**MTD—**Maintenance Training Device

**MTF—**Maintenance Training Flight

**MTP—**Maintenance Training Plan

**MTR—**Military Travel Request

**MTT—**Mobile Training Team

**MTW—**Major Theater War

**MUNS—**Munitions Squadron

**MX—**Maintenance

**MXG—**Maintenance Group

**MXS—**Maintenance Squadron

**NAF—**Numbered Air Force

**NAS—**National Aerospace Standard

**NATO—**North Atlantic Treaty Organization

**NAVAIDS—**Navigational Aids

**NBC—**Nuclear, Biological, Chemical

**NDI—**Non-Destructive Inspection

**NEW—**Net Explosive Weight

**NHA—**Next Higher Assembly

**NIE—**Normally Installed Equipment

**NLT—**Not Later Than

**NMC—**Not Mission Capable

**NMCB—**Not Mission Capable - Both (maintenance & supply)

**NMCM—**Not Mission Capable - Maintenance

**NMCS—**Not Mission Capable - Supply

**NOCM—**Nuclear Ordnance Controlled Management

**NOTAM—**Notice To Airmen

**NPA—**Non-Powered AGE

**NRTS—**Not Repairable This Station

**NSN—**National Stock Number

**NSS—**Noise Suppression System

**O&M**—Operations and Maintenance

**OACSR—**Operational Aircraft Cross-Servicing Requirement

**OAP—**Oil Analysis Program

**OAS—**Offensive Avionics System

**OBTS—**On-Board Test System

**OCF—**Operational Check Flight

**OCONUS—**Outside Continental U.S.

**OCR—**Office of Collateral Responsibility

**OFP—**Operations Flight Program

**OG—**Operations Group

**OGP—**OBTS Ground Processor

**OI—**Operating Instruction

**OIC—**Officer in Charge

**OJT—**On-the-Job Training

**OL—**Operating Location

**OLO—**Operations Liaison Officer

**OPLAN—**Operational Plan

**OPORD—**Operations Order

**OPR—**Office of Primary Responsibility

**OPSTEMPO—**Operations Tempo

**ORI—**Operational Readiness Inspection

**ORM—**Operational Risk Management

**OSHA—**Occupational Safety and Health Administration

**OS—**Operational Squadron

**OSS—**Operations Support Squadron

**OSS&E**—Operational Safety Suitability and Effectiveness

**OT&E**—Operational Test and Evaluation

**OTI—**One Time Inspection

**OTS—**Over-The-Shoulder

**OTU—**Operating Time Update

**OWC—**Owning Work Center

**P-S**—Permanent-Safety

**PAA—**Primary Aerospace Vehicle (Aircraft) Authorized

**PACAF—**Pacific Air Forces

**PAI—**Primary Aerospace Vehicle (Aircraft) Inventory

**PAL—**Permissive Action Link

**PAMS—**PMEL Automated Management System

**PAS—**Protective Aircraft Shelter / Personnel Assignment (Code)

**PATEC—**Portable Automatic Test Equipment Calibrator

**PBR—**Percent of Base Repair

**PC—**Personal Computer

**PCA—**Permanent Change of Assignment

**PCS—**Permanent Change of Station

**PD—**Program Document

**PDM—**Programmed Depot Maintenance

**PDO—**Publications Distribution Office

**PE—**Personnel Evaluation

**PEC—**Program Element Code

**PERSCO—**Personnel Support for Contingency Operations

**PHR—**Panel Holding Rack

**PI—**Product Improvement

**PIF—**Personal Information File

**PIM—**Product Improvement Manager

**PIP—**Product Improvement Program

**PIWG—**Product Improvement Working Group

**PGM—**Precision Guided Munitions

**PM—**Primary Munition / Preventive Maintenance

**PMC—**Partially Mission Capable

**PMCB—**Partially Mission Capable - Both (maintenance & supply)

**PMCM—**Partially Mission Capable - Maintenance

**PMCS—**Partially Mission Capable - Supply

**PMEL—**Precision Measurement Equipment Laboratory

**PMI—**Preventive Maintenance Inspection

**PMO—**Program Management Office

**PNAF—**Prime Nuclear Airlift Force

**PO—**Program Office

**POC—**Point of Contact

**POI—**Plans of Instruction

**POL—**Petroleum, Oil, and Lubricants

**POM—**Program Objective Memorandum

**POMX—**Point Of Maintenance

**POS—**Peacetime Operating Stock

**PPC—**Possession Purpose Code

**PPE—**Personal Protective Equipment

**PPR—**Product Planning Requirements / Prior Permission Required

**PPS—**Product Performance Subsystem

**PRAM—**Productivity, Reliability, Availability and Maintainability

**PRD—**Pilot Reported Discrepancy

**PRP—**Personnel Reliability Program

**PS&D**—Plans, Scheduling, and Documentation

**PSP—**Primary Supply Point

**PTDO—**Prepare to Deploy Order

**PTM—**Production Team Maintenance

**PTR—**Pressure Test Record

**PWC—**Performing Work Center

**PWS—**Performance Work Statement

**QA—**Quality Assurance

**QAA—**Quality Assurance Assessment

**QAD—**Quality Assurance Data-base

**QAP—**Quality Assurance Program

**QAR—**Quality Assurance Representative

**QASP—**Quality Assurance Surveillance Plan

**QAT—**Quality Assessment Tracking

**QC—**Quality Control

**QE—**Quarterly Evaluation

**QEC—**Quick Engine Change

**QLP—**Query Language Processor

**QP—**Quality Program

**QPA—**Quantity Per Assembly

**QRC—**Quick Reaction Capability

**QRL—**Quick Reference List

**QT—**Qualification Training

**QVA—**Quality Verification Assessment

**QVI—**Quality Verification Inspection

**QVR—**Quality Verification Result

**RAL—**Routine Assessment List

**RAM—**Radar Absorbent Material

**RAMPOD—**Reliability, Availability, Maintainability for Pods

**RAMTIP—**Reliability and Maintainability Technology Insertion Program

**RASCAL—**Rapid Assistance Support for Calibrations

**RAT—**Redeployment Assistance Team

**RCM—**Repair Cycle Monitor

**RCS—**Report Control Symbol

**RCT—**Repair Cycle Time

**RDCO—**Refueling Documents Control Officer

**RDD—**Required Delivery Date

**RDT&E**—Research, Development, Test, and Evaluation

**REMIS—**Reliability and Maintainability Information System

**RIL—**Routine Inspection List

**ROD—**Report Of Discrepancy

**ROID—**Report Of Item Discrepancy

**ROS—**Report Of Survey

**RPIE—**Real Property Installed Equipment

**RPC—**Regional Processing Center

**RPM—**Revolutions Per Minute

**RS—**Reentry System

**RSP—** Readiness Spares Package / Render Safe Procedure

**RSS—**Regional Supply Squadron

**RTACP—**Regional/Theater Ammunition Control Point

**RTC—**Regional Training Center

**RTHW—**Radar Threat Warning

**RTL—**Routine Task List

**RTS—**Radar Test Set

**RTOK—**Re-Test O.K.

**RV—**Reentry Vehicle

**RWR—**Radar Warning Receiver

**R&M**—Reliability and Maintainability

**R&R**—Repair and Reclamation

**SA—**Special Assessment

**SART—**Strategic Aircraft Reconstitution Team

**SATE—**Security Awareness Training and Education

**SATCOM—**Satellite Communication

**SAV—**Staff Assistance Visit

**SBSS—**Standard Base Supply System

**SCL—**Standard Conventional Load

**SCR—**Special Certification Roster

**SDAP—**Special Duty Assignment Pay

**SE—**Support Equipment

**SEI—**Special Experience Identifier

**SF—**Security Forces

**SGA—**Selective Generation Aircraft

**SGO—**Sortie Generation Operations

**SHAPE—**Supreme Headquarters Allied Powers, Europe

**SHD—**Significant Historical Data

**SHDR—**Significant History Data Recorder

**SI—**Special Inspection

**SIOP—**Single Integrated Operational Plan

**SIPRNET—**Secret Internet Protocol Router Network

**SIT—**System Interface Test

**SLT—**Simulated Laser Target

**SM—**Single Manager / Support Munitions

**SME—**Subject Matter Expert

**SMR—**Source of Maintenance and Recoverability

**SN—**Serial Number

**SNCO—**Senior Non-Commissioned Officer

**SO—**Single Observation

**SOF—**Supervisor Of Flying

**SORTS—**Status Of Resources and Training System

**SOT—**Status Of Training

**SOW—**Statement Of Work

**SPD—**Servicing/Pick-up/Delivery / System Program Director

**SPO—**System Program Office

**SPRAM—**Special Purpose Recoverables Authorized Maintenance

**SQ—**Squadron

**SQ/CC**—Squadron Commander

**SQT—**Special Qualification Training

**SR—**Service Report / Strategic Radar

**SRAN—**Stock Record Account Number

**SRD—**Standard Reporting Designator

**SRP—**Selective Reenlistment Program

**SRU—**Shop Replaceable Unit

**SSEA—**System Safety Engineering Analysis

**SSG—**Standard Systems Group

**SSM—**System Support Manager

**STAMP—**Standard Air Munitions Package

**STANAG—**Standardized NATO Agreement

**SUPT—**Maintenance Superintendent (Enlisted Duties)

**SW—**Special Weapons

**SWIM—**Special Weapons Information Management

**SY—**Sympathy

**TAC—**Total Accumulated Cycles

**TACAN—**Tactical Air Navigation

**TACC—**Tanker/Airlift Control Center

**TACP—**Theater Ammunition Control Point

**TAI—**Total Active Inventory (aircraft)

**TAL—**Task Assignment List

**TALCE—**Tanker/Airlift Control Element

**TAS—**Tool Accountability System

**TAV—**Total Asset Visibility

**NFTBU—**Tank Build-Up

**TBMCS—**Theater Battle Management Core System

**TCAS—**Traffic Collision Avoidance System

**TCI—**Time Change Item

**TCN—**Transportation Control Number

**TCS—**TCTO Status Report

**TCTO—**Time Compliance Technical Order

**TD—**Training Detachment / Temporary Duty

**TDI—**Time Distribution Index

**TDV—**Technical Data Violation

**TDY—**Temporary Duty

**TE—**Technical Engineer

**TEC—**Type Event Code

**T/E/C**—Trainer/Evaluator/Certifier

**TEMS—**Turbine Engine Management System

**TEP—**Technical Engineering Program

**TER—**Triple Ejection Rack

**TF—**Training Funded

**TFCU—**Transportable Field Calibration Unit

**TIN—**Turn In

**TISL—**Target Identification Set Laser

**TMATS—**Transmitter/Modulator Assembly Test Set

**TMDE—**Test Measurement and Diagnostic Equipment

**TMO—**Traffic Management Office

**TMRS—**Tactical Missile Reporting System

**TMSM—**Type Make Series Modification

**TNB—**Tail Number Bin

**TNMC—**Total Not Mission Capable

**TNMCB—**Total Not Mission Capable - Both

**TNMCM—**Total Not Mission Capable - Maintenance

**TNMCS—**Total Not Mission Capable - Supply

**TNO—**Theater Nuclear Option

**TO—**Technical Order

**TOA—**Table Of Allowances

**TODA—**Technical Order Distribution Account

**TODO—**Technical Order Distribution Office

**TOS—**Time On Station

**TOT—**Task Oriented Training

**TPFDD—**Time Phased Force Deployment Document

**TRAP—**Tanks, Racks, Adapters, and Pylons

**TRE—**Transfer of Equipment

**TRIC—**Transaction Identification Code

**TRN—**Turnaround Transaction

**TRSS—**Training Support Squadron

**TRU—**Tester Replaceable Unit

**TSSE—**Test Station Support Equipment

**TSS—**TCTO Status Summary

**TTML—**Test/Training Munitions List

**TTP—**Tactics, Techniques & Procedures

**TVI—**Technical Validation Inspection

**U&TW**—Utilization and Training Workshop

**UAV—**Unmanned Aerial Vehicle

**UCAV—**Unmanned Combat Aerial Vehicle

**UCI—**Unit Compliance Inspection

**UCML—**Unit Committed Munitions List

**UCR—**Unsatisfactory Condition Report

**UDM—**Unit Deployment Manager

**UETM—**Unit Education and Training Manager

**UEM—**Unit Engine Manager

**UGT—**Upgrade Training

**UHF—**Ultra High Frequency

**UJC—**Urgency Justification Code

**ULN—**Unit Line Number

**UMD—**Unit Manning Document

**UND—**Urgency of Need Designator

**UPMR—**Unit Personnel Management Roster

**USAF—**United States Air Force

**USAFE—**United States Air Forces in Europe

**UT—**Upgrade Training

**UTA—**Unit Training Assembly

**UTC—**Unit Type Code

**UTE—**Utilization (rate)

**UTM—**Unit Training Manager

**UXO—**Unexploded Ordnance

**VHF—**Very High Frequency

**VTT—**Video Tele-Training

**W&B**—Weight and Balance

**W&T**—Wheel and Tire

**W/B/T—**Weapon Bay Fuel Tanks

**WCDO—**War Consumables Distribution Objective

**WCE—**Work Center Event

**WCS—**Weapons Control System

**WG—**Wing / Wage Grade

**WG/CC**—Wing Commander

**WG/CV**—Vice Wing Commander

**WL—**Wage Leader

**WLCMP—**Weapons Load Crew Management Program

**WLT—**Weapons Load Training

**WMP—**War Mobilization Plan

**WR—**War Reserve

**WRCS—**Weapons Release Control System

**WRE—**War Ready Engine (level/rate)

**WRM—**War Reserve Materiel

**WRMO—**War Reserve Materiel Officer

**WS—**Weapons Standardization / Wage Supervisor

**WS3—**Weapons Storage and Security System

**WSCM—**Weapon System Compatible Munition

**WSE—**Weapons Standardization Evaluator

**WSEP—**Weapons System Evaluation Program

**WSLO—**Weapons System Liaison Officer

**WSLU—**Weapons System Lead Unit

**WTD—**Weapons Training Detachment

**WTQC—**Weapons Task Qualification Crew

**WTQM—**Weapons Task Qualification Training Manager

**WTS—**Weapons Training Site

**WW—**Worldwide

**WWID—**Worldwide Identification (code for TAS)

**WWM—**Wing Weapons Manager

**WX—**Weather

**WUC—**Work Unit Code

**Terms**

**Aircraft Impoundment—**Isolation of an aircraft due to an unknown malfunction or condition making it unsafe for flight.

**Aircraft Maintenance Qualification Program (AMQP)—**Conducts training in an environment that is not in competition with sortie production. Ensures personnel arrive at their work center with the necessary skills to be immediately productive.

**Aircrew Training Device (ATD)—**Weapons systems simulator or designated training aircraft.

**AF Portal Gadgets—**Computer displays that provide the functional capability to track and update asset status.

**Aircraft B-Status Possession Codes—**Sample B-status codes (specified in AFI 21-103): BJ=crash/battle damage awaiting AFMC assist/decision; BK=command programmed maintenance; BL=extended transit maintenance; BN=crash damaged (unit repairable); BO=battle damage; BQ=major maintenance awaiting AFMC decision/action; BR= major maintenance awaiting parts; BT=aerospace vehicle transfer; BU=depot level maintenance; BW=weather/bird strike damage awaiting AFMC assist/decision; BX=weather/bird strike damage repairable by unit.

**Aircraft D-Status Possession Codes—**Sample D-status codes (specified in AFI 21-103): DJ=awaiting depot level maintenance work; DK=contract work; DL=depot delivery flight; DM=undergoing depot level maintenance; DO=programmed depot maintenance; DR=post depot/contractor maintenance.

**Allowance Standard (AS)—**Authorized document that identifies the amount and type of equipment for an organization.

**Alternate Mission Equipment (AME)—**Equipment identified to a higher end-item, not listed in the table of allowance. Normally, Dash-21 equipment.

**Awaiting Maintenance (AWM)—**Designation for a deferred discrepancy on an aircraft awaiting maintenance.

**Awaiting Parts (AWP)—**Designation for a deferred discrepancy on an aircraft awaiting parts.

**Bench Stocks—**Stores of expendability, recoverability, reparability coded (ERRC) XB3 items kept on-hand in a work center to enhance maintenance productivity.

**Cannibalization—**Authorized removals of a specific assembly, subassembly, or part from one weapons system, system, support system, or equipment end-item for installation on another end-item to meet priority mission requirements with an obligation to replace the removed item.

**Certified Load Crew Member—**A load crew member trained and certified by position according to **Chapter 16**

**Class I and Class II Aircraft—**Classification categories used when calculating aircraft's weight and balance.

**Code 1, Code 2, Code 3, Code 4, Code 5—**Landing status codes used by aircrew to inform maintenance of their inbound aircraft's condition. A Code 1 aircraft has no additional discrepancies other than those it had when it last departed; a code 2 aircraft has minor discrepancies, but is capable of further mission assignments; a code 3 aircraft has major discrepancies in mission-essential equipment that may require repair or replacement prior to further mission tasking; a code 4 indicates suspected or known nuclear, biological, or chemical contamination; and a code 5 indicates battle damage. Codes 4 and 5 are entered into the MIS as code 8.

**Combat Air Forces (CAF)—**Term to collectively describe all ACC, AFRC, ANG, PACAF, and USAFE fighter/bomber units.

**Commodity Time Compliance Technical Order—**TCTO concerning a designated item, subsystem, or system that is not identified as a weapon or military system.

**Composite Tool Kit (CTK)—**A controlled area or container used to store tools or equipment and maintain order, positive control, and ease of inventory. CTKs are assembled as a kit and designed to provide quick, easy visual inventory and accountability of all tools and equipment. CTKs may be in the form of a toolbox, a shadow board, shelves, system of drawers (Stanley Vidmar, Lista, etc.), cabinets, or other similar areas or containers. The CTK contains tools and equipment necessary to accomplish maintenance tasks, troubleshooting, and repair.

**Condition-Based Maintenance Plus—**A set of maintenance processes and capabilities derived from real-time assessment of weapon system condition obtained from embedded sensors and/or external tests and measurements using portable equipment. The goal of CBM+ is to perform maintenance only when internal/external sensors indicate the need instead of performing maintenance on a periodic basis.

**Course Control Documents (CCD)—**Set of documents that dictate how a course is taught. These documents include a course training standard, course chart, and a plan of instruction.

**Crash Damaged or Disable Aircraft Recovery (CDDAR)—**The ability to move damaged or disabled aircraft using specialized equipment

**Crosstells—**Cross tells are used to highlight trends, benchmarks or safety conditions relating to maintenance equipment, personnel, training or processes. A crosstell is initiated to assist other maintenance or logistics personnel with similar equipment to do their jobs more safely and/or efficiently. Typically a crosstell will be initiated when a condition or trend is discovered regarding (but not limited to) a weapon system or common components that should be shared with other users or potential users. This information should be transmitted using DMS to ensure widest dissemination and ensure it is brought to the attention of unit commanders in order to prevent or mitigate mishaps, injury or damage to AF personnel, equipment or property. Typically crosstells will provide relevant background information and history and can include such information as NSNs, part numbers, specific location of problem areas, etc.

**Customer Wait Time (CWT)—**CWT for LRUs is the total elapsed time between the issuance of a customer order and satisfaction of that order, regardless of source (immediate issues or backorders), and can include issues from wholesale and/or retail stocks as well as various other arrangements. CWT for end items (engines and pods) includes time for the retrograde and serviceable transportation legs.

**Debriefing—**Program designed to ensure malfunctions identified by aircrews are properly reported and documented.

**Decertification—**The removal of certification status from a person for a specific task

**Dedicated Crew Chief—**DCCs are first-level supervisors in the flight line management structure who manage and supervise all maintenance on their aircraft, and are selected on the basis of initiative, management and leadership ability, and technical knowledge.

**Delayed or Deferred Discrepancies—**Malfunctions or discrepancies not creating NMC or PMC status that are not immediately corrected.

**Depot Level Maintenance—**Maintenance consisting of those on- and off-equipment tasks performed using the highly specialized skills, sophisticated shop equipment, or special facilities of a supporting command; commercial activity; or inter service agency at a technology repair center, centralized repair facility, or, in some cases, at an operating location. Maintenance performed at a depot may also include

organizational or intermediate level maintenance as negotiated between operating and supporting commands.

**Dispatchable CTK—**CTK issued out to perform a specific task or for use by a specific AFSC and is designed to be used outside the tool room or work center.

**Equipment Custodian—**Individual responsible for all in-use equipment at the organizational level whose duties include requisitioning, receiving, and controlling of all equipment assets.

**Equipment Identification Designator (EID)—**A number assigned to a piece of shop equipment, used to track status and accountability.

**Equipment Items—**Item authorized in the allowance standard within an organization.

**Evaluated Load—**A loading task that is assessed according to **Chapter 16**.

**Flight Chief—**NCO responsible to the maintenance officer or superintendent for management, supervision, and training of assigned personnel.

**FK or FV —**Prefix used to identify the munitions supply account. FV denotes units utilizing the Combat Ammunition System-Base (CAS-B) system and FK denotes units utilizing SBSS or manual records supply point within a munitions" operations unit for conventional munitions.

**Immediately Prior to Launch (IPL)—**Specific tasks accomplished immediately prior to launching an aircraft.

**In-Process Inspection (IPI)—**Inspection performed during the assembly or reassembly of systems, subsystems, or components with applicable technical orders.

**Individual Tools and Equipment—**Tools and equipment that are available for individual sign-out but stored in the tool room in storage bins, cabinets, shelves, etc., with every item having an assigned location (e.g., flashlights, ladders, etc.).

**Intermediate-Level Maintenance—**Maintenance consisting of those off-equipment tasks normally performed using the resources of the operating command at an operating location or at a centralized intermediate repair facility.

**Lead Crews—**A load crew certified by the load standardization crew (LSC), which is assigned to WS to assist in conducting the weapons standardization program.

**Levels—**Computed and authorized requirements for a quantity of assets.

**Loading Standardization Crew (LSC)—**A load crew designated by the wing weapons manager and the WS superintendent to administer the weapons standardization program. LSC members have certification and decertification authority

**Loading Task—**The actions required by one crew member, in a designated position, to accomplish a munitions load

**Local Commander—**The group commander with responsibility for maintenance (as applicable to loading technical data).

**Locked Out or Tag Out—**Energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which or through which a lock can be affixed. Tag out devices, shall be substantial enough to prevent inadvertent or accidental removal.

**Mobility Air Forces (MAF)—**Term to collectively describe all AFRC, ANG, AMC, PACAF, and USAFE airlift/tanker units.

**Maintenance Training—**Any proficiency, qualification, or certification tasking required by a technician to perform duties in their primary AFSC.

**Master Inventory List (MIL)—**Primary source document for inventory of CTKs. The MIL indicates the total number of items in each drawer or section of the tool kit. MIL may be automated.

**Mission Design Series (MDS)—**Alpha and numeric characters denoting primary mission and model of a military weapons system.

**Minimum Proficiency Requirement Loading (MPRL)—**Recurring loading of munitions for which a person is certified.

**Munitions Decertification—**Removal of the certification status of a person that precludes them from loading a specific type munitions or MFG.

**Normally Installed Equipment (NIE)—**Bomb racks, launchers, and pylons normally installed on an aircraft.

**No-Lone Zone—**Area where the two-man concept must be enforced because it contains nuclear weapons, nuclear weapons systems, or certified critical components.

**Non-Release—**System malfunction in which a weapon does not release from the delivery system.

**Off-Equipment Maintenance—**Maintenance tasks that are not or cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

**On-Equipment Maintenance—**Maintenance tasks that are or can be effectively performed on or at the weapon system or end-item of equipment.

**Operating Stock—**The bits and pieces needed to support a maintenance work center that does not meet the criteria of bench stock. It includes reusable items such as dust covers, hydraulic line covers, caps, items leftover from work orders, TCTOs, and items deleted from bench stock.

**Operational Readiness Inspection (ORI)—**Inspection that measures a unit's war fighting readiness.

**Organizational Level Maintenance—**Maintenance consisting of those on-equipment tasks normally performed using the resources of an operating command at an operating location.

**Permissive Action Link (PAL)—**Device included in or attached to a nuclear weapons system to preclude arming and launching until insertion of a prescribed discrete code or combination.

**Personnel Protective Equipment (PPE)—**Equipment required to do a job or task in a safe manner.

**Preload—**A complete munition and suspension equipment package ready for loading

**Possession Purpose Code (PPC)—**Also known as Purpose Identifier Code, it is a two-letter code that indicates ownership (possession) of the asset. For example, "BQ" = major maintenance awaiting AFMC decision/action; "CC" = combat; "DO" = depot level maintenance possession for depot work; etc.

**Primary Aerospace Vehicle Authorized (PAA)—**Aircraft authorized for performing a unit's mission (e.g., combat, combat support, training, test & evaluation, etc.). The PAA forms the basis for allocating operating resources to include manpower, support equipment, and flying hour funds. The operating com-

mand determines the PAA required to meet their assigned missions. “Authorized” refers to the number and type of aircraft an organization is programmed to possess.

**Primary Aerospace Vehicle Inventory (PAI)—** Aircraft assigned to meet the PAA. “Inventory” refers to the number of aircraft actually assigned to a unit and identified against a corresponding authorization.

**Production Supervisor—**Senior NCO responsible for squadron maintenance production. Directs the maintenance repair effort.

**Programmed Depot Maintenance (PDM)—**Inspection requiring skills, equipment, or facilities not normally possessed by operating locations.

**Quality Assurance QA)—**Individual who monitors a contractor on a daily basis and who is involved in every aspect of a contract to ensure the contractor is in compliance with that contract.

**Quarterly Evaluation (QE)—**Recurring calendar task evaluations required by munitions and weapons personnel.

**Queen Bee—**A facility that performs engine repair for a specified region.

**Quick Reference List (QRL)—**Listing of fast moving, high use items required for primary mission aircraft. The basic purpose of the QRL is to provide maintenance personnel with a speedy way to place a demand on the supply system.

**Rag—**A remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) used in general industrial, shop, and flight line operations.

**Reclama—**A request to a duly constituted authority to re-consider its decision or its proposed action (see JP 1-02).

**Recurring Discrepancy—**A recurring discrepancy is one that occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

**Repair Cycle Asset—**Any recoverable item with an expendability, recoverability, reparability code (ERRC) category of XD or XF.

**Repeat Discrepancy—**One repeat discrepancy occurs on the next sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

**Retrograde—**Returning assets (particularly reparable assets) from the field to their source of repair.

**Shop CTK—**Tool kits (not dispatched) used by work center personnel during a shift, provided a single person is responsible for the tool kit.

**Shop Stock—**Includes items such as sheet metal, electrical wire, fabric, and metal stock, used and stored within a maintenance work center to facilitate maintenance.

**Single Integrated Operational Plan (SIOP)—**Operational plan for using special weapons.

**Spares—**Serviceable assets that are available for future use, and in the logistics pipeline. The term spare carries the assumption that there are already enough assets in the Air Force inventory to satisfy end item or quantity per aircraft requirements.

**Special Certification Roster (SCR)—**Management tool that provides supervisors a listing of personnel authorized to perform, evaluate, and inspect critical work.

**Special Purpose CTK—**Small individually issued tool kits that because of the nature of contents or type of container could preclude shadowing or silhouetting (e.g., launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits, etc).

**Subcrew—**Two or more certified and/or qualified personnel who may perform specific tasks

**Supply Point—**Forward warehouse located within or near the maintenance work center.

**Tail Number Bins (TNB)—**Locations established and controlled to store issued parts awaiting installation and parts removed to "facilitate other maintenance" (FOM). Holding bins are set up by tail number, serial number, or identification number.

**Task Assignment List (TAL)—**Functional grouping of procedural steps from applicable -33 series TOs, by crew position, to be accomplished in sequence by each crew member during an operation.

**Technical Administrative Function—**Function responsible for ordering and posting instructions, processing all orders, enlisted performance ratings, and general administrative tasks for the section.

**Technical Order Distribution Office (TODO)—**Function required to maintain records on TOs received and distributed.

**Time Compliance Technical Order (TCTO)—**Authorized method of directing and providing instructions for modifying equipment, and performing or initially establishing one-time inspections.

**Tool Storage Facility/Tool Room—**A controlled area within a work center designated for storage and issue of tools and equipment.

**Total Asset Visibility—**The capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies. It also includes the capability to act upon that information to improve overall performance of the Department of Defense's logistic practices.

**Unit Committed Munitions List (UCML)—**List of primary, support, and limited-use munitions necessary to meet unit operational/training requirements.

**Unmanned Aerial Vehicle (UAV)—**An unmanned aircraft that is either remotely piloted (e.g., Predator) or programmed (e.g., Global Hawk).

**Urgency Justification Code (UJC)—**Two-digit code used to reflect the impact and type of need. The urgency of need designator (UND) fills the first position of the UJC. Use of UND 1, A and J is restricted and is verified by designated personnel.

**Utilization Rate (UTE Rate)—**Average number of sorties or hours flown per primary assigned aircraft per period. Usually time period is based on a monthly rate.

**Weapons Certification—**The act of verifying and documenting a person's ability to load a particular type of aircraft, and munition or MFG within established standards

**Weapons Locally-Manufactured Equipment (LME)—**All equipment that measures, tests, or verifies system, subsystem, component, or item integrity. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. It does not include simple adapter cables and plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs.

**Weapons Standardization (WS)—**Organization comprised of the wing weapons manager, a Superintendent, the Load Standardization Crew, an academic instructor, and lead crews.

**Weapons Task Qualification—**A munitions related task not requiring certification

**Weight and Balance (W&B) Program—**Program used in calculating, verifying, updating, and computing weight and balance on a weapon system.

**Attachment 9**

**MRT CHIEF TASKING CHECKLIST**

**A9.1.** Team Chief:

Name Rank AFSC

**A9.2.** Other Personnel:

Name Rank AFSC

**A9.3.** Recovery Location:

**A9.4.** Aircraft Type:

**A9.5.** Tail Number:

**A9.6.** Mission Number:

**A9.7.** Next Destination:

**A9.8.** Mission Commander: Room/Phone:

**A9.9.** Senior Rep/Maintenance Operations (MOO/SUPT):

**A9.10.** Communications at Recovery Site:

**A9.11.** Specific Discrepancies:

**A9.12.** Equipment Required: Item: TCN:

**A9.13.** Part(s) Required: NSN: TCN:

Nomenclature:

Have required parts been bench checked before packing? Y / N / NA

**A9.14.** Tool Kits Required: Kit Number: TCN:

**A9.15.** Support Acft Tail No:

**A9.16.** Mission Number:

**A9.17.** Show Time:

**A9.18.** Orders Prepared? Y / N

**A9.19.** ETD:

**A9.20.** Passport/Visa required? Y / N

**A9.21.** Required Clothing/Money/Shot Records/etc.:

**A9.22.** Military Travel Request (MTR) prepared? Y / N