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AEROSPACE EQUIPMENT MAINTENANCE MANAGEMENT

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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.*

(21SW) The OPR for this supplement is 21 MOF/MXOA (TSgt Floyd D. Martinez). This supplement implements and extends the guidance of Air Force Instruction (AFI) 21-101, Aerospace Equipment Maintenance Management, 1 Oct 02. It establishes a Base Foreign Object Damage (FOD) Prevention Committee, FOD Officers, and FOD Prevention Noncommissioned Officers (NCO). This publication does not conflict with, or is at least as restrictive as, Air Force-level guidance. It prescribes operating procedures, identifies specific responsibilities for FOD inspection, incident reporting, and routing. It is applicable to all activities that use the military parking ramp at Peterson Air Force Base for any purpose. This publication is consistent with Air Force Occupational Safety and Health (AFOSH) standards or Department of Labor Occupational Safety and Health Act (OSHA) standards. This publication applies to US Air Force active duty/reserve units and contractors assigned/attached to Peterson AFB. Maintain and dispose of

records created as a result of prescribed processes in accordance with AFMAN 37-139, *Records Disposition Schedule* (will become AFMAN 33-322 Volume 4).

SUMMARY OF REVISIONS

Headquarters Air Force and major command representatives have made major revisions in to the structure of this instruction. The entire document reflects a "back to basics" compliance-oriented maintenance philosophy and supports the Combat Wing Organization. Key managers must review General Responsibilities **Chapter 2** and the chapter for the organization they belong to. This publication is substantially revised and must be completely reviewed.

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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.

1.2. 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 preventive maintenance, effective repair cycle management is critical to sustaining maintenance capabil-

ity. 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.

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*, TO 00-5-2, *Technical Order Distribution System*, and AFI 33-360, *Publications Management Program*.

1.6.1.3. Establish procedures for shipping TOs and supplements to support mobility requirements.

1.6.1.4. Ensure availability of required TOs and supplements in work centers.

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."

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

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.

1.7. 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 Armed Forces of the U.S. Contractor support can augment existing capabilities, provide expanded sources of supplies and services, bridge gaps in the deployed force structure, leverage assets, and reduces dependence on U.S.-based maintenance.

1.8.2. The war fighter's link to the contractor is through the contracting officer or the contracting officer's representative.

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 the requirements are included in the statement of work.

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.

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.

1.9.1. 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.

1.9.1.2. 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.

1.9.3. 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.

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

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.

1.12. 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.

1.12.2. 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 will be selected with the capability to effectively support the maintenance communication requirements, including mobility and host base interoperability IAW AFI 33-202, *Computer Security*. The radio will be frequency-programmable. Unit commanders develop communication plans according to mission requirements. Non-licensed wireless devices may be approved for use by the designated approving authority (DAA) to support maintenance and transportation needs. Non-licensed devices are afforded no protection from interference. If interference is caused to an authorized service, the non-licensed device must cease operation.

1.14. Maintenance Information Systems (MIS). MIS refers to the automated maintenance information systems including Core Automated Maintenance System (CAMS), Reliability and Maintainability Information System (REMIS), and G081 (CAMS for Mobility). MIS provides maintenance supervisors at all levels with products to evaluate the organizational effectiveness and to aid in the decision making process.

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 eventually fielding a single, integrated MIS. To facilitate this drive to a single system, MAJCOM LGMs 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 LGM. After consideration, MAJCOM LGMs must forward any requests they support for implementation to AF/ILMM Information Systems Branch for final consideration/approval.

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.

1.17. 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.

1.18. 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 training provides the unit internal flexibility by training individuals to perform tasks that are not in 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 will never be a long-term fix or management solution for an AFSC shortfall. 3-levels will 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 12 months on-the-job training (OJT).

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:

1.19.3.1. 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 supervisor(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 Supervision is the unit focal point for SEI management. Unit commander/Maintenance Supervision will:

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, will be reported IAW the format contained at the HQ USAF/ILMM aircraft maintenance website URL: **http://www.il.hq.af.mil/ilm/ilmm/acmaint/index.html** In addition, provide specific reasons/logic for each individual without a SEI awarded and greater than 36 months TOS.

1.19.5. 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, 2A1X4, 2A3X1X, 2A3X2, 2A3X3X, 2A4X1/X2, 2A5X1X/X2/X3X, 2A6X3/X4/X5/X6, 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, HQ AFSOC or HQ AIA: 2A1X1, 2A1X7.

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 the point 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 will 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 will 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. Air evacuation, rescue, weather mission aircraft, related AGE, munitions, and munitions support equipment. 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. Transient air vehicles not otherwise listed. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews. Time change requirements for nuclear weapons. Repair cycle assets to satisfy a MICAP condition. Spares not available in supply. Critical end items and spares not available in supply. 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. Avionics shop electronic AGE and automated test stations.

4	Routine or extensive repair of primary mission aircraft, related Support Equipment (SE). Administrative aircraft undergoing scheduled or unscheduled maintenance. Routine maintenance of AGE not otherwise listed above. WRM items due maintenance or inspection. Inspection, maintenance, and TCTO compliance of Readiness Spares Packages (RSP) or Mission Support Kits. Scheduled calibration and unscheduled repairs on PME not listed above. 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. Repair cycle asset shortages required to fill a readiness spares packages (RSP) authoriza tions. Fabrication and repair of aeronautical items not carrying a higher priority. 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. 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 **will not be** loaded or flown together on an aircraft for any purpose. Live and inert (to include training or practice) bombs **will 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 will be coordinated through the Wing Weapons Manager, and will 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. AFMC deviations/waivers must be submitted to AFMC/DRR-LGW.

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.

1.23. 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, *Separation 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.

1.26. 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.

1.27.2. 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.

1.27.3. 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.

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. Maintenance Group commanders (or equivalents) are responsible for aerospace equipment maintenance required to ensure balance between sortie production and fleet management.

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.

2.3.1.3. 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.

2.3.1.6. 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, *Museum System*, and AFMAN 23-110-series, *USAF Supply Manual*.

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

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 the MAJCOM functional manager.

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

2.3.1.29. 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. 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 G081/CAMS daily IAW TO 00-20-2, *Maintenance Data Documentation.*

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. Approve user identified test measurement and diagnostic equipment (TMDE) "priority" listing.

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/OG Environmental Coordinator for all installation weapon system Environmental, Safety, and Occupational Health requirements, compliance, and worker protection issues. This MXG/OG Environmental Coordinator 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."

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-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.

2.3.1.72. 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.

2.3.1.78. 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. Oil analysis program (OAP)

2.3.1.81.5. Management of hangar queen aircraft

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).

2.3.2. Maintenance Group (MXG) Superintendent. 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 is directly responsible to the MXG/CC and will:

2.3.2.1. Serve as a technical advisor to the MXG commander.

2.3.2.2. Advise the MXG commander on personnel morale and welfare.

2.3.2.3. Provide liaison between the staff and production supervisors.

2.3.2.4. 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:

2.4.1. 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, work space, 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.

2.4.13. 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.

2.4.19. 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.

2.5. Maintenance Supervisor (MS)/Superintendent (SUPT) Responsibilities. The MS/SUPT shall also be referred to as maintenance supervision. As applicable, maintenance supervision advises the squadron commander on technical matters and leads a mission focused maintenance effort. Manages resources necessary to accomplish the mission. They provide necessary administration to manage assigned respon-

sibilities. They control maintenance through production supervisors, flight chiefs, section, and shop chiefs. MS responsibilities differ only in degree and are common and applicable to all maintenance functions. The superintendent is responsible to the squadron maintenance officer or maintenance supervisor. Maintenance Supervision:

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, accurate and 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 MS/SUPT will sign the SCR, signifying personnel listed on the roster are certified and qualified to accomplish tasks, which require certification and inspector authorizations.

2.5.6. Ensures accurate daily documentation of maintenance actions.

2.5.7. Ensures complete and accurate documentation in MIS.

2.5.8. Manages the squadron cannibalization program.

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*.

2.5.11. 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).

2.5.16. 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.

2.5.18. 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.

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

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.*

2.5.24. 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.

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

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.

2.5.31. 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.

2.5.35. 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.

2.5.37. 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.

2.5.39. 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*.

2.5.41. 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 squadron maintenance officer/superintendent 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.

2.5.48. 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

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

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**.

2.6. Aircraft Maintenance Unit (AMU) OIC/NCOIC or Flight Commanders/Flight Chief. The AMU OIC/NCOIC and Flight Commander/Flight Chief is responsible to the MS 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 OIC/NCOIC and Flight Commanders/Flight Chiefs will:

2.6.1. 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). Ensure work center TO files are maintained according to TO 00-5-2, *USAF Technical Order Distribution System*.

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 supervision 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 00-20-5, *Aerospace Vehicle Inspection and Documentation*.

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 supervision for approval.

2.6.9. Review/update flight In Process Inspection (IPI) requirements listing annually and route through maintenance supervision 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 supervision.

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 Supervision 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 check-lists. 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:

2.7.1. 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). Ensure work centers TO files are maintained according to TO 00-5-2, *USAF Technical Order Distribution System*. 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. Determine maintenance tasks requiring IPI. Forward IPI listing through the flight chief to 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. Annual 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).

2.7.18. 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.

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

2.7.25. Manages the Bad Actor Program according to TOs 00-20-1 and 00-35D-54, *Deficiency Reporting*.

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

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:

2.8.1. 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 exceptional release (ER) IAW TO 00-20-5.

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.

2.9.1. 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.

2.9.7. 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.

2.9.11. 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).

2.9.16. 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).

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.

3.1.1. 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.

3.1.2. 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. MS/SUPT Responsibilities. The MS/SUPT is responsible to the SQ/CC for maintenance production. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the MS/SUPT:

3.3.1. Assures standardized procedures and organizations among AMUs.

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**.

3.3.3. 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.

3.3.4. 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.

3.3.6. Monitors the squadron DCC and FCC programs.

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

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. Chairs a daily squadron maintenance meeting.

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**.

3.4. 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.

3.5. Aircraft Maintenance Unit OIC or NCOIC Responsibilities. AMU OIC/NCOIC is responsible to the MS 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:

3.5.1. 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*.

3.6. 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**.

3.7. 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.

3.8.1. 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.

3.8.2. When fault reporting manuals are not published for the weapon system, units develop aircrew debriefing guides. Debriefing guides should contain detailed procedures identifying responsibilities for dropped object reporting, aborts or IFEs, 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.

3.8.5. 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.

3.8.7. 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.

3.8.10. 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.**) 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

CODE	DEVIATION REASON
xxx	MAJCOM/Local Option

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

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.

3.9.1. 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. DCCs are first-level supervisors in the flight line management structure. DCCs manage and supervise all maintenance on their aircraft. DCCs are selected on the basis of initiative, management and leadership ability, and technical knowledge, regardless of AFSC. "Crew Chief" is a job description and not an Air Force specialty. DCCs and Assistant Dedicated Crew Chiefs (ADCC) are qualified according to the applicable MDS job qualification standards (JQS). Each assigned aircraft will have an assigned DCC (optional for contractor and civil service maintenance functions as determined by the MAJCOM). Before being assigned as a DCC, the technician must have a minimum of 6 months experience on the MDS and is a staff sergeant or higher. These requirements may be waived by the MXG/CC. The MXG/CC will brief the wing commander monthly on DCC experience levels/grades and any need to waive requirements. If possible, the DCC should be the reporting official for assistant crew chiefs assigned to their aircraft. DCC keeps the section chief and flight line expeditor informed of aircraft status. ARC organizations reference MAJCOM policy for determination and assignment of crew chiefs. DCC/ADCC also:

3.9.2.1. Will be selected and appointed in a ceremony hosted by the squadron commander and presented certificates, etc.

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.

3.9.2.8. 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.

3.9.2.10. 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*.

3.9.2.18. Perform as OJT trainers/certifiers as required.

3.9.3. Flying Crew Chiefs (FCC). Refer to **Chapter 18** for FCC responsibilities.

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.

3.10.1. 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.

3.10.2.1. 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.

3.10.6.1. 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 00-20-5.

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.

3.10.7.1. 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.

3.11. 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.

3.11.1. 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 MS 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 at least 85% of the authorized load crews 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.

3.11.1.4.1. 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 certifiable loading and unloading tasks on fighter/attack aircraft.

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.

3.11.1.9. Ensures a checklist for each PM and SM is on hand for each assigned load crew.

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 the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL (**https://wmnet.eglin.af.mil/mmhe/**). All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-103, Air Force Nuclear Safety Certification Program.

3.11.1.12.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

3.11.1.12.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment (LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. (EXCEPTION: LME

that is designed to or will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, etc.) will be coordinated through the MAJCOM for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE Pamphlet by sending approved drawings to the MAJCOM Functional Manager for evaluation/coordination, prior to the MAJCOM forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103, Air Force Nuclear Safety Certification Program.

3.11.1.12.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit which is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph **3.11.1.12.2.** Stands and storage racks purchased through supply must also comply with the above safety standards.

3.11.1.12.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained for all major MMHE/MHE items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

3.11.1.12.5. Ensures individual tool kits are set up for each load crew (as specified on the UCML/TTML; numbers include lead crews). Determines the number of loading tool kits required for load crews that support only test, evaluation or training operations.

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 (may 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.

3.11.1.22. 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).

3.11.1.24. 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 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.

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.

3.11.2. Weapons Loading Element. Personnel assigned to loading (not required in rescue units):

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 in control of 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 power on the aircraft by other than the load crew during loading operations is prohibited. Note: Access to the cockpit by qualified technicians (other than load crew) to assists with hydraulic power/rotation of rotary launchers during B2 loading is authorized.

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):

3.11.4.1. 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.

3.11.5. 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.

3.11.5.1. 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.

3.11.5.6. 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.

3.11.5.11. 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.

3.12. 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 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. Perform both -6 and commodity tech order inspection requirements on associated guns and equipment.

3.12.2.2. Perform applicable gun system functional checks.

3.12.2.3. Perform chaff/flare loading as required.

3.12.2.4. Maintain aircraft weapons/munitions accounts as required. Weapons sections do not maintain aircrew/mobility small arms weapons (i.e. M9, M16, etc).

3.13. Unmanned Combat Aerial Vehicle (UCAV)/Predator.

3.13.1. All 2W1X1 manpower positions earned to support UCAV/Predator will be formed under a single work center designated as a Weapons Support Element (WSE). The WSE will support and perform training and certification/qualification for all UCAV / 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 (CTKs/special tools, test equipment, TOs, bench stock), Dash 21 equipment, alternate mission equipment, vehicles, mobility equipment and dedicated supply support to support the production effort. In the MAF, combine aircraft support functions into one ASF. The ASF in the AMXS will support all AMUs. Due to geographical separation, the CTK function may be decentralized to the AMUs. Supply support procedures in this section do not apply to aircraft supported by Contractor Operated and Maintained Base Supply (COMBS). The NCOIC will 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 AFMAN 23-110-series 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 and TO 00-5-2).

3.15.2. Maintains bench and operating stocks. See **Chapter 8** for detailed procedures.

3.15.3. Maintains AME, MSPE, and -21 equipment (AFI 21-103).

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 Notes Maintenance Data Collection Codes and Cal Measurement Summaries Calibration Procedures, Calibration Interval and 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. Ensure control and storage of assigned alternate mission equipment (AME), dash 21 equipment, and maintenance, safety, and protective equipment (MSPE) according to AFI 21-103. Local procedures are developed for control and storage of non-specified configuration items using the guidelines of AFI 21-103.

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.

3.17. 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).

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.

4.2. 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 Supervisor/Superintendent Responsibilities. The MXS Maintenance Supervisor is responsible to the Squadron Commander for maintenance production. The Maintenance Supervisor, assisted by the Maintenance Superintendent, manages the resources to accomplish the workload. In addition to general responsibilities in **Chapter 2**, the Maintenance Supervisor/Superintendent:

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. Coordinate with the AMXS Maintenance Supervision to develop and 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. The wing weapons manager will perform this function for AFSC 2W1X1.

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 00-20-5 and MAJCOM supplements.

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.

4.3.12. 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.

4.3.15. Monitors OAP IAW AFI 21-124.

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 maintenance supervisor/superintendent.

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.

4.5.1.2. 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.

4.5.2. Upon dispatch, technicians are responsible to the expediter, section chief, 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.

4.6. Accessory Flight

4.6.1. Flight Commander/Chief Responsibilities. In addition to the common responsibilities in **Chapter 2**, the Accessories flight commander/chief:

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.

4.6.2. 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.

4.6.2.4. 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).

4.6.2.5. 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. Ensures the section "safes" aircraft according to 00-80-series and weapon system TOs.

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.

4.6.4. 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*.

4.6.4.1.6. 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. Provides equipment, tools, and bench stocks for WRM tank build-up (TBU) training.

4.6.4.1.8.2.5. Meets quarterly with the MXG WRMO/WRM NCO and MTF to identify personnel for WRM TBU teams, establishes TBU training classes for initial and refresher training, and reviews WRM TBU mission capability (MISCAP) statement as it applies to the wing's tasking.

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.

4.6.5.2. 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.

4.7. Aerospace Ground Equipment (AGE) Flight

4.7.1. General. The AGE Flight provides powered and non-powered AGE as defined in TO 00-20-5 to support the wing mission. The flight:

4.7.1.1. Maintains AGE in direct support of sortie production and back shop maintenance activities and is listed in the respective MDS 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.

4.7.1.3. 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, place the equipment on the flight support 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 AGE equipment and usage records as required for environmental compliance IAW AFI 32-7041 and applicable federal, state, DoD, AF, MAJCOM, installation, and local requirements and guidance

4.7.2. Flight Commander/Chief Responsibilities. In addition to the general responsibilities in **Chapter 2**, the AGE Flight Chief:

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 TO 00-25-240 and TO 35-1-25. The fight chief will ensure replacement assets are place on order with the appropriate backorder priority.

4.7.2.7. Reviews all Dull Sword reports for MMHE listed in TO 00-110N-16, *USAF Nuclear Certified Equipment and Software*, 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. Provides annual equipment listings to the MAJCOM AGE manager by the last duty day of February. Listing includes all AS driven AGE maintained by the flight (powered and non-powered) and should include all due-out information.

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 supervision 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:

4.7.3.1. 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.

4.7.4. 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):

4.7.4.1. 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.

4.7.4.6. 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.

4.7.4.7. 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:

4.7.5.1. 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.

4.7.5.6. 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.

4.7.5.9. Maintain MA-1A enclosures installed on deicer trucks

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:

4.7.6.1. Performs servicing inspections on powered and non-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.

4.7.6.5. Picks up and delivers AGE, except operator dispatched equipment (e.g., bomb lifts and powered munitions trailers).

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.

4.7.6.7. 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.

4.7.7. 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:

4.7.7.1. 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. Manages the Flight Air Force Repair and Enhancement Program (AFREP) and hazardous waste program.

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:

4.7.8.1. 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.

4.7.11. 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.

4.8.1. The armament flight normally performs off-equipment maintenance for assigned fighter aircraft armament systems, guns, pylons, racks, launchers and adapters. Assists performing weapons system on-equipment periodic phase inspections in B-52 units. An AFSC 2R1X1 scheduler, 2S0X1 supply specialist, and 3A0X1 information management specialist may be assigned. The flight nor-

mally consists of three sections; maintenance, alternate mission equipment (AME), and support. WWM, with concurrence of the GP/CC, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks. MAJCOMs will determine applicable portions of the weapons and armament responsibilities for contract and civil service organizations.

NOTE: Armament flights are not normally formed in F-117/Predator/UCAV units or those supporting helicopters. The Aircraft Maintenance Unit 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 MS 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 dummy test rounds.

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).

4.8.4. 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 phase inspections, and in bomber units, assists with the on-equipment portion of aircraft phase 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 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 the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL (**https://wmnet.eglin.af.mil/mmhe/**). All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-103, *Air Force Nuclear Safety Certification Progra*m.

4.8.6.6.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

4.8.6.6.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment (LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. (**EXCEPTION:** LME that is designed to or will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, etc.) will be coordinated through the MAJCOM for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE Pamphlet by sending approved drawings to the MAJCOM Functional Manager for evaluation/coordination, prior to the MAJCOM forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103, Air Force Nuclear Safety Certification Program.

4.8.6.6.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit which is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph **4.8.6.6.2.** Stands and storage racks purchased through supply must also comply with the above safety standards.

4.8.6.6.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained for all major MMHE/MHE items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

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 chap-

ter, the flight conforms to guidelines established in **Chapter 3** when performing on-equipment maintenance.

4.9.2. Flight Commander or Flight Chief Responsibilities. In addition to the common responsibilities listed in **Chapter 2**, the Avionics Flight Chief:

4.9.2.1. Coordinates with maintenance leaders to develop procedures for accomplishing programming of EW systems.

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.

4.9.2.6. Implements the "Bad Actor" program IAW TO 00-20-1. A Bad Actor is a component or assembly repeatedly identified as the source of failures within a specific time frame.

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.

4.9.2.10. 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:

4.9.3.1. 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:

4.9.4.1. 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:

4.9.5.1. 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).

4.9.7. 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.

4.9.7.1. 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-06 manuals. Historical records should be automated (TO 00-20-5). The section chief ensures:

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**.

4.9.10. 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.

4.9.12.2. 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.

4.9.14.2. Maintains pod histories, pod statistics (Reliability, Availability, Maintainability, for Pods and Integrated Systems (RAMPOD)), and scheduling records, AN/AAS-35 Pave Penny Target 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.

4.9.15.2. 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 technical orders 00-20-2, Maintenance Data Documentation and 00-20-5, Aerospace Vehicle/Equipment Inspection and 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.

4.9.17.1. 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 will be handled IAW 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 00-20-5, **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).

4.10. Fabrication Flight.

4.10.1. The Fabrication Flight is responsible for structural maintenance, metals technology, survival equipment and NDI.

4.10.2. Flight Commander/Flight Chief Responsibilities. In addition to the common responsibilities outlined in **Chapter 2**, the Fabrication Flight Chief:

4.10.2.1. 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.

4.10.5.3. 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.

4.10.5.10. 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.

4.10.6. 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.

4.11.1. 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:

4.11.2.1. Ensures compliance with CDDAR program responsibilities.

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**:

4.11.3.1. 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 rig-

ging. 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.

4.11.4. 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**:

4.11.4.1. 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:

4.11.5.1. Assigned non-powered AGE (NPA) such as dock stands are maintained.

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.

4.11.5.4. 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 00-20-5. Approved, locally developed discrepancy sheets may be used to identify and track discrepancies during the inspection, however, all open discrepancies will 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 00-20-5 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 00-20-5 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 00-20-5 and command 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*.

4.12.1. 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 and 23-111. Organizations with Special Weapons Information Management (SWIM) or manual accounts for Nuclear Ordnance Commodity Management (NOCM) items may appoint separate accountable officers for conventional and nuclear accounts, provided separate SRANS (FK and FV) are established.

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*.

4.13. 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.

4.13.2. Flight Commander/Chief Responsibilities. In addition to common responsibilities in **Chapter 2**, the Flight Chief:

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 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 engine run qualification/certification program is established IAW AFI 11-218 *Aircraft Operations and Movement on the Ground,* and **Chapter 18** of this instruction.

4.13.2.14. 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.**

4.13.2.20. 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.

4.13.3. 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.

4.13.3.1.2. 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 squadron maintenance supervision, 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.

4.13.5. 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.

4.13.5.7.2. 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.

4.13.6.1. 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. Ensures squadron personnel maintain engine test operation records as required for environmental compliance IAW AFI 32-7041 and applicable federal, state, DoD, AF, MAJCOM, installation, and local requirements and 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.

4.13.9. 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.

4.14.1. General. The TMDE flight maintains, calibrates, and certifies TMDE, traceable to the National Institute of Standards and Technology. 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

(JETCC), electrical standards set (ESS), 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 TO 33K-1-100 and the supported calibration and maintenance summaries (CMS). Flight management ensures the unique support capability of each PMEL (e.g., TFCU, RASCAL) is maintained for day-to-day operations, deployment, and when required, for evaluation purposes.

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. A core of journeymen-craftsmen must be CFETP-qualified 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:

4.14.2.1. Ensures technicians operate and maintain base reference and working measurement standards assigned to the laboratory.

4.14.2.2. Ensures calibration and repair support of 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. Establishes and maintains a priority maintenance support plan for mission essential support equipment. As a minimum, the plan must ensure PMEL personnel are readily available to support essential maintenance requirements.

4.14.2.4. Establishes a customer relations program to provide technical assistance and advice and to obtain customer feedback on TMDE matters. The program shall 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 will 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. Establishes a program to control and issue "K" stamps. The flight chief may delegate this authority to the Quality Manager.

4.14.2.6. Uses this instruction, TOs 00-20-14, *AF Metrology and Calibration Program,* 33K-1-100, CMSs, AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program,* and AFMAN 32-1094 to maintain PMEL certification.

4.14.2.7. Establishes the flight Quality Program in accordance with TO 00-20-14.

4.14.2.8. Prepares PMEL report RCS: HAF-ILM (SA) 7808 in accordance with TO 00-20-14. Provide a copy to the command functional manager.

4.14.2.9. Ensures the PMEL Automated Management System (PAMS) or alternate management information system is administered, maintained, and operated in accordance with 33-series Air Force directives 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*.

4.14.2.10. Ensures PMEL management responsibilities outlined in TO 00-20-14, Section 3, are fulfilled.

4.14.2.11. Ensures ESS, JETCC, PATEC, and TFCU are maintained as complete sets and available for immediate peacetime or wartime deployment.

4.14.2.12. Approves priority calibration or repair requests and may delegate this authority.

4.14.2.13. Establishes and manages a TO account to meet in-place and deployment requirements.

4.14.2.14. Maintains separate equipment accounts for the purpose of identifying mobilization equipment.

4.14.2.15. Develops and administers a training program which includes identifying advanced training requirements.

4.14.2.16. Ensures a system is established to review deferred and open TMDE maintenance.

4.14.2.17. Establishes a preventive maintenance program to track inspection requirements for PMEL-owned equipment IAW TO 00-20-5. The program shall 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, and NDI of eye hooks and chains, JETSC trailer maintenance, 28 VDC rectifier checks, etc.

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**.

4.14.3.1. The TMDE Flight Chief:

4.14.3.1.1. Appoints 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. Publishes a monthly QP activity summary and routes it through squadron supervision at least to the squadron commander. The report format should comply with TO 00-20-14 and meet local requirements.

4.14.3.2. PMEL Quality assurance evaluators:

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 nonconformity, root cause, and corrective action in PAMS/MIS.

4.14.3.2.3. Supplier performance. Establish a tracking system to monitor the status of documents submitted to improve supplier performance; resubmit original documents or initiate follow-ups when necessary. QP section shall minimally track submissions of documents, retain and file documents in compliance with AFMAN 37-139 (e.g. Review and track technical order improvement reports and DRs for compliance IAW TOs 00-5-1 and 00-35D-54).

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.

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, and maintenance supply liaison. Additionally, an AFSC 2S0X1-inventory management journeyman 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.

4.14.5. Customer Service Function**.** Establishes procedures for turn-in and pick-up of TMDE. Emergency equipment is accepted at any time. During non-duty hours contact the MOC. In addition, the customer service function:

4.14.5.1. Processes incoming TMDE using PAMS/MIS equipment schedules, PAMS/MIS directives, and TOs. Inspects each item of incoming TMDE to determine exterior condition IAW TO 33-1-27 and, for unscheduled TMDE malfunctions, 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.

4.14.5.2. Produces monthly TMDE schedules and quarterly master ID lists at least 5 work days before the first duty day of the month and distributes to OWCs for correction and verification. Schedules need not be produced for OWCs with no TMDE due or overdue calibration and in PMEL. Establishes a tracking and a suspense system for return of corrected listings.

4.14.5.3. Notifies customers who fail to deliver TMDE to the PMEL as scheduled. Advises them to remove overdue TMDE from service unless a calibration extension was previously authorized (TO 00-20-14).

4.14.5.4. Notifies 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. Maintains 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 the statement that the TMDE must be removed from service according to Air Force instructions unless a date due calibration extension has been requested and approved (TO 00-20-14). Notifies the OWC commander by letter when the OWC routinely fails to deliver or schedule delivery within a reasonable period following monitor notification.

4.14.5.5. Trains OWC TMDE monitors. Maintains a data base or log of coordinator training (dates, names, organizations, etc.).

4.14.6. Production Scheduling Function:

4.14.6.1. Equipment may be rejected until owning units have complied 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 Gages Used on Liquid Oxygen Systems* (e.g. AFTO Form 140, Radioactive Detection, Identification, and Computation (RADIAC) Equipment Maintenance Record, must accompany RADIAC TMDE, torque wrenches must be delivered set at the lowest setting, etc.).

4.14.6.2. Establish a workload leveling program through daily coordination with customers to maintain a level incoming workload. Advises TMDE flight chief through section chief of significant increases in workload or deviations from monthly schedule.

4.14.6.3. Balances incoming workload by coordinating with OWCs. Advises the flight or section chief of significant increases in workload or deviations from the schedule.

4.14.6.4. Establishes a “Hold Area” for TMDE requiring technical data or accessories, awaiting instructions from item managers, etc. Maintains a separate “Hold Area” data base or file for this TMDE and reviews it at least weekly. Notifies OWCs of the change to a deferred status. May return items awaiting technical data or accessories from the OWC after a reasonable period.

4.14.6.5. Establishes an “awaiting shipment” area for TMDE sent to another support activity or to an OWC and maintains a data base or file with associated documents.

4.14.6.6. Uses PAMS/MIS to control TMDE processed for maintenance. Ensures the current status of all TMDE processed into the PMEL for repair and calibration is reflected in the PAMS/MIS data base.

4.14.6.7. Corrects the PAMS/MIS master ID data base not later than three workdays after receipt of customer corrections.

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. Maintenance Supply Liaison (MSL). MSL manages maintenance-supply actions and provides assistance to other flight personnel to resolve supply problems. The MSL shall:

4.14.7.1. Establish an "AWP/EIP" storage area; and maintain accountability and control for TMDE and expendable parts. Track status of TMDE in PAMS maintenance statuses “AWP/EIP” and “in-service AWP”.

4.14.7.2. 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.

4.14.7.3. Maintain bench, operating, and shop stocks. Dispose of property containing precious metals in compliance with AFMAN 23-110, *USAF Supply Manual*.

4.14.7.4. Maintain MICAP records and initiates follow-up actions on MICAP requisitions.

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 Discrepancy**, and 368, **Product Quality Deficiency Report**; 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*; 00-5-2, *TO Distribution System*; 00-5-2-2, *Automated TO Management System (ATOMS)*; 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**	

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.

5.2. Squadron Commander Responsibilities. The MOS/CC performs command functions outlined by public law and instructions common to all Air Force squadron commanders. The MOS/CC will be a maintenance officer and is responsible to the MXG/CC for overall squadron management. They are the key maintenance executives responsible for marshalling wing maintenance resources in support of peacetime, contingency and wartime orders. They monitor the total maintenance production effort and take actions, as necessary, to ensure that all available resources are effectively used to meet mission requirements. They ensure shared or limited resources are allocated among competing production units, aircraft maintenance units or maintenance squadrons and ensure maintenance actions are completed on time. In additional to the common responsibilities outlined in **Chapter 2** of this publication, the MOS/CC will:

5.2.1. Chair the daily maintenance meeting and ensure that all maintenance requirements are effectively scheduled and flying schedule problems are resolved.

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

5.2.3. Coordinate between maintenance and operations.

5.2.4. Ensure critical equipment, facilities, and materiel resources are allocated and establishes overall priorities.

5.2.5. Resolve all conflicts concerning who has responsibility for performing a specific maintenance task.

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.

5.4. 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 will 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 supervision. 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) resident, Training Detachment (TD), 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 Train-

ing (CBT), Video Tele-Training (VTT), Regional Training Centers (RTC), Maintenance Qualification Centers (MQC), or any combination thereof. The MTF assists squadron commanders 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*, Developing, Managing, and Conducting Training*, AFI 36-2232, *Maintenance Training*, and MAJCOM supplements. Civil service and contract organizations will perform training as outlined in their training plans as accepted by the government, their respective performance work statement and MAJCOM instructions.

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.

5.4.2. Responsibilities of the MTF 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.

5.4.2.3. 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*.

5.4.2.7. 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.)

5.4.2.12. 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 squadron maintenance supervision for selecting training aircraft. The MTF will 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 will 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.

5.4.2.14. Ensure Special Certification Roster (SCR) information is loaded in MIS IAW **Chapter 18**.

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.

5.4.2.18. Upgrade Training Waivers. See comprehensive guidance for training waivers in AFMAN 36-2108, *Airman Classification* and AFI 36-2101, *Classifying Military Personnel*.

5.4.3. Coordinates training course control documents (CCD) dealing with explosive safety annually through the wing weapons safety office.

5.5. Maintenance Operations Flight. 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, Plans, Scheduling and Documentation, Maintenance Data Systems Analysis, and the Maintenance Operations Center. The MOF commander will manage the day-to-day activities of these functions and perform as the Maintenance Operations Officer (MOO). As the MOO, the MOF commander is responsible for managing the health of the aircraft fleet. In coordination with AMXS and MXS (or EMS and CMS) maintenance supervision, the MOF commander is responsible through the MOS/CC to the MXG/CC for developing and publishing the wing flying/maintenance schedule, determining long-range fleet health maintenance priorities, coordinating and prioritizing the use of shared maintenance resources, providing trend analysis information to the MXG/CC and squadron commanders, and providing supply liaison and engine management support for flight line and back shop maintenance requirements. An AFSC 2RXXX senior NCO will fill the MOF superintendent position.

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:

5.5.1.1. 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.

5.5.1.2. Attend the daily production meeting and coordinate with MOF PS&D, 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**.

5.5.1.3. 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 tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc. are loaded/tracked in the MIS and CEMS databases. Inspections tracked by flight hours will 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.

5.5.1.8. Manage time changes on all engines and components, and ensures forecast parts requests are submitted to supply 60 days before the required month 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 quarterly reviews of 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. A removal narrative is required for all removal actions. Use the correct Automated History Event indicator when processing MIS transactions to ensure the posting of removal times to automated AFTO Forms 95. Include the reason for removal and other pertinent data.

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.

5.5.1.9.4. 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 removal forecast to smooth peaks and valleys in the engine maintenance workload. This 6-month forecast will be accomplished monthly using CEMS product E373 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.

5.5.1.13. Publish scheduled engine changes in the weekly and monthly maintenance plan.

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 will 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 and variances 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, mod-

ule, 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. Establish local procedures to detect and resolve missing sequence numbers and to handle engines, afterburners and augmenters for QEC kits.

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.

5.5.1.20.6. Request initialization decks (I-Deck) from CEMS Central Data Base (CDB) and ensure data in the MIS mirrors the CDB.

5.5.1.20.7. 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 series and TO 00-20-5 series.

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*, ensure they are placed in the air freight area within 24 hours of the completed engine change. Notify MAJCOM 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.

5.6. Maintenance Supply Liaison (MSL) Section. MSL monitors the overall maintenance and supply interface, resolves supply support problems, and coordinates supply related training needs. Refer to **Chapter 8** of this instruction for other duties. The MSL function consists of at least two supply personnel who will physically reside in the MOF. MSLs will be authorized on the Logistics Readiness Squadron (LRS) unit manpower document and report to the LRS commander thru the Management and Systems (M&S) Flight.

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.

5.8.1. 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.

5.8.2. 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.

5.8.3. 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.

5.8.5. 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). MIS consists of CAMS, G081 and REMIS. For management of CAMS 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 will not be managed by MDSA, with the exception of desktop systems required by the MDSA section. However, when these systems are connected to a MIS via LAN (i.e. using TELNET or INFOCONNECT), they become defacto "smart terminals" for the MIS they interface with; are subject to any parameters, conventions, and publications affecting the MIS; and will be certified and accredited in accordance with AFI 33-202, *Computer Security* and AFI 33-115, Vol 1, *Network Management*.

5.8.20.1. Core Automated Maintenance System. CAMS is an integrated production and management information system. The system interfaces with SBSS at base level. The MDSA section has overall responsibility for system data base management. Work centers throughout the organization manage those applications and functions applicable to their environment. The integrated application in CAMS requires close coordination between on-equipment and off-equipment work centers and the staff.

5.8.20.2. The Standard Systems Group (SSG) at Maxwell AFB Gunter Annex, Alabama, is the Air Force agency responsible for hardware configuration and software changes in CAMS. Air Force Materiel Command's Modernization System Group (MSG) is responsible for REMIS. CAMS software modifications are submitted on AF Form 3215, **Communications-Computer Systems Requirements Document**, IAW AFCSM 21-566, Vol 2. The MDSA section and MAJCOMs review proposals prior to presentation to the Configuration Control Board (CCB). For issues involving the base LAN or communications lines, the host DBM must coordinate with the Communications Squadron.

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.

5.8.20.4. 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 a CAMS compatible modem and microcomputer to interface with the home-station mainframe computer via commercial telephone lines or DDN.

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:

5.8.20.5.1. 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.

5.8.20.5.6. 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.

5.8.20.5.7. 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.

5.8.20.5.21. 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.

5.8.20.5.22. 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.

5.8.20.5.26. Coordinates and controls recovery procedures for CAMS.

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. Develops methods preventing unauthorized use of CAMS/REMIS equipment and data within the purview of AFI 33-332, *AF Privacy Act Information*; and AFI 33-202*, Computer Security*. Ensures proper control of CAMS/REMIS 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 subsystem 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:

5.8.20.12.1. 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.

5.8.20.12.2. 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.

5.8.20.14. 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, main-

tenance practice or management action. This does not apply to AMC units. Deficiency analysis responsibilities include:

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.

5.9. 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.

5.10.1. The Program and Resources Flight manages the manning, facilities, support agreements, and deployment functions for the group. The flight will:

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 personnel who are managed by the wing weapons manager.

5.10.3. Serve as focal point within maintenance group for management of facilities and development of the maintenance group communication plan.

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. Develop a plan to report suspected aircraft tampering or intentional aircraft damage, in coordination with the operations group, security police, and command post.

5.10.8. Manage the Air Force Repair and Enhancement Program (AFREP) IAW AFI 21-123.

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*.

5.11. 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.

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, and maintains visibility of fleet health indicators. Command and control are different 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. The aircraft maintenance squadron set priorities for the production effort to meet mission requirements. In coordination with maintenance units, the MOC establishes priorities for competing limited resources, based on daily flying schedule and maintenance priorities, such as fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (e.g., egress). The exchange of information between squadrons and the MOC must be in sufficient detail to allow the MOC to comply with reporting requirements and to identify potential problems. During periods of contingency tasking (simulated or actual), the MOC assumes increased responsibility for the coordinating effort. Command and control, as exercised by the battle staff through the MOC, primarily concerns the maintenance squadron(s) actions, which facilitate and expedite production in the AMUs. Additional guidance is outlined in AFI 10-207 and MAJCOM supplements if applicable. Specific responsibilities are:

6.1.1. Maintains visual aids (electronic or manual) that 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**.

6.1.7. 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 only those actions required to be taken by a functional area. For example, expediters maintain checksheets defining their responsibilities during situations such as severe weather, mass generation, etc. The affected functional area develops individual checksheets IAW local defined requirements. 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.

6.1.13. Monitors the hangar queen program, if applicable.

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.

6.2. 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. If a video projection system is used to display MIS data to complement MIS terminals, establish an authorization IAW AS 007. 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.)

6.4.2. 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.

6.5.3. 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.

6.6.3. 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 will be accomplished IAW TOs 00-20-1, 00-20-2, and 00-20-5.

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.

7.1.6. 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.

7.2.1. 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.

7.3.3. 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. Clear Repeat/Recur discrepancies. These types of discrepancies require additional supervisory involvement to ensure thorough troubleshooting. Only 7-skill level or higher and/or civilian equivalent 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.

7.5.1.2. IAW TO 00-20-5, when any corrective action involves more than one work center, personnel having the primary responsibility for repair will not initial over the symbol until all participating work center personnel have completed and documented their work. Each work center will make a separate form entry referencing the original discrepancy. The additional form entries will 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.

7.7. 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*, will determine minimum IPI requirements and incorporate these requirements into applicable technical orders. Maintenance supervision compiles a list of squadron tasks requiring IPIs. The list will 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 quality assurance for consolidation, maintenance group commander approval, and publication as the group IPI listing. IPIs will be reviewed annually for applicability. 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.

8.2. 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.

8.2.1. 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 situations. 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 Order Improvement 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), 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.

8.3.3.9. 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.

8.5. 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 00-20-5, 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.

8.5.4.4. 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).

8.5.4.6. 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. Monitor shop stock to prevent it from becoming excessive or outdated. 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, prepare the AF Form 1996 and route it through MS/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 for submitting these requests. Prior to submission to Logistics Readiness Squadron, 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 verses single aircraft impacts. Work centers maintain a master file of adjusted stock levels and follow-up on requests. Supply personnel and the appropriate work center 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 serviceables 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. Critical Items. The critical item management system identifies and prioritizes supply management for selected items. Provide critical items with premium management to control their issue and repair, to expedite them to the user, and reduce cannibalizations. Each section chief is the work center critical item monitor. Identify critical items on DD Form 1348-1A, **DOD Single Line Item Release/ Receipt Document**, and the D23. For additional information on critical items, see AFMAN 23-110, *USAF Supply Manual*. Maintenance critical item monitors:

8.9.4.1. Determine items to add to or delete from the base critical item list.

8.9.4.2. Identify critical items exceeding processing time objectives and determine reasons for not meeting objectives.

8.9.4.3. Bench check, repair or NRTS critical assets before non-critical assets. Repair critical assets within their priority group.

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 identify items requiring functional check, calibration, or operational flight programming prior to use. Prepare a list of items, including the repair section's organization and section code, and send the list through the Flight/CC or Flight/Section Chief and MS/SUPT to Logistics Readiness Squadron's chief inspector. The list is updated/validated annually. Supply sends items identified on the list to repair sections when functional check, calibration or programming is due or when serviceability is doubtful. If a part comes in that requires a functional check, ensure it is not restricted in the weapon system -6 TO. Do not use an aircraft as a test bed for parts.

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 semi-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*).

8.16. Deficiency Report (DR) Exhibit. Material deficiency report exhibit issue, turn- in, and storage procedures are contained in TO 00-35D-54 and AFMAN 23-110, *USAF Supply Manual*.

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.

8.17.1.2. 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 properly tag and secure repair cycle assets in their reusable container. The repair shop complies with environmental control requirements, as specified in TOs. 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. Also:

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, TO 00-20-5, 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 91-201, *Air Force Mishap Prevention Program* 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 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 perform 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 operations, 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 inadvertent 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 spe-

cific 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 government 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.).

Chapter 10

QUALITY ASSURANCE

10.1. General. All personnel share responsibility for quality maintenance and are expected to operate, inspect, maintain and repair aircraft and support equipment in strict compliance with applicable technical data, safety directives, and policy guidance. QA evaluates maintenance personnel and the processes they employ to determine how well these obligations and expectations are met. Cumulative results of these evaluations serve as a barometer for gauging overall health of the maintenance effort. QA evaluates maintenance quality. QA also perpetuates an environment where quality maintenance and personnel safety, equipment reliability, safety of flight, job proficiency, training, and compliance with applicable directives remain at the core of all maintenance inspections and evaluations. QA makes recommendations for improving effectiveness of the maintenance effort and serves as the single unit focal point for oversight of technical activities and product improvement initiatives. Aircraft and equipment condition and personnel proficiency are validated through the QAP. The terminology in this chapter may not reflect the terminology currently used in all MAJCOMs. MAJCOMs will continue to use their current software and meet the intent of this chapter until Air Force software is fielded. Civil service and contracted organizations will use the accepted quality program outlined in their respective contract.

10.2. Quality Assurance 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 the Quality Assurance Program (QAP).

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 Inspection (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 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 WS evaluators. QA inspectors may augment in these evaluations at the request of Weapons Standardization.

10.2.9. QA uses their technical expertise to assist the MXG in arriving 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.

10.3. QA Training.

10.3.1. Develop a local training plan to train all QA personnel to ensure uniformity in application of inspection and evaluation (I&E) techniques and philosophy. This local training package will cover such things as setting standards for (I&E) techniques to facilitate objective inspection, 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 satisfy the training requirement. Document QA Inspector training in individuals' training records using the AF Form 797, **Job Qualification Standard Continuation Sheet** and/or utilize G081/CAMS to track inspector training.

10.3.2. Conduct an evaluator proficiency evaluation (EPE) on each inspector while performing one evaluation and one inspection. Each QA inspector will be trained and have passed EPEs prior to performing unsupervised evaluations and inspections. All EPEs will be tracked in MIS.

10.3.2.1. QA inspectors, whether permanent or augmentees, require initial qualification EPEs. QA augmentees not performing monthly evaluations require an annual EPE on a personnel evaluation or technical inspection.

10.3.3. Document all training on AF Forms 797 and/or utilize G081/CAMS. Personnel will be familiar with all tasks they evaluate or inspect. If not mandated otherwise, the chief inspector will determine which tasks inspectors must be JQS qualified and certified on before an evaluation or inspection is performed.

10.3.4. 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.

10.3.5. 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 will maintain the applicable aircraft proficiency requirements.

10.4. QA Augmentation. If a functional area does not warrant a full-time position in QA or specialized expertise is warranted, select qualified technicians, recommended by maintenance supervision to be augmentees. QA will maintain a listing of current augmentees. QA in coordination with maintenance supervision, establishes the duties performed by QA augmentees.

10.5. Rotation of Personnel. The MXG/CC will determine requirements. As a minimum, personnel must have 6 months time in the unit before being selected as QA inspector and will be assigned to QA for 24 months (time requirements not applicable for short tour locations) (not applicable to ARC).

10.6. Quality Assurance Superintendent Responsibilities. In addition to common responsibilities outlined in **Chapter 2** the Quality Assurance Superintendent:

10.6.1. Makes recommendations to the MXG/CC to enhance the quality of maintenance.

10.6.2. Develops the QAP, using a Quality Assurance Tracking (QAT) program. Make every effort to fully use a LAN to provide all local supervisors access to QAP data.

10.6.3. 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.

10.6.4. Reviews local OIs and forms annually for accuracy, intent, and necessity. Refer to AFI 37-160, Volume 8, *The Air Force Publications and Forms Management Program--Developing and Processing Forms*, for policies on forms management.

10.6.5. Designate individuals to fill the following key positions:

10.6.5.1. Chief Inspector.

10.6.5.2. W&B program manager.

10.6.5.3. FCF managers.

10.6.5.4. PIM.

10.6.5.5. TODO manager.

10.6.6. Performs management inspections.

10.6.6.1. Takes action to evaluate group maintenance staff functions (e.g. scheduling, training management) as well as technical activities. Ensures these areas are periodically evaluated.

10.6.7. Ensures the group portion of the FOD prevention program is conducted IAW **Chapter 18** of this instruction.

10.6.8. Oversees and implements the group impoundment program IAW **Chapter 11** of this instruction.

10.6.9. As assigned, manages and oversees the prevention of dropped objects and assists in investigating incidents IAW **Chapter 18** of this instruction.

10.6.10. Ensures 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.

10.6.11. Coordinates on requests for locally designed tools or equipment. QA maintains 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. Reference paragraph **13.6.** NOTE: Weapons loading and weapons maintenance locally designed equipment will be coordinated through the wing weapons manager.

10.6.12. Monitors the aircraft structural integrity program IAW **Chapter 18** of this instruction.

10.6.13. Reviews (annually) and publishes group IPI listings.

10.6.14. Evaluates maintenance TO files that are kept on aircraft (G files).

10.6.15. Monitors flight control maintenance. .

10.6.16. Reviews wing depot-level assistance requests developed IAW TO 00-25-107.

10.6.17. In conjunction with maintenance supervision, develops key task and routine inspection listings, provides copy of approved lists to all affected organizations.

10.6.18. Ensures standardized Acceptable Quality Levels (AQL)/standards are developed for all tasks including key tasks and routine inspection lists.

10.6.19. Ensures agenda and presentations are compiled for the QA review.

10.6.20. If applicable, evaluate and document contractor's performance in accordance with the Quality Assurance Surveillance Plan, IAW AFI 63-124.

10.7. Chief Inspector Responsibilities. The chief inspector is responsible to the QA superintendent for ensuring that the 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:

10.7.1. Provides on-the-spot assistance through assigned inspectors in correcting problems.

10.7.2. Spot-checks TOs, in-use inspection work cards, checklists, job guides, and code manuals during evaluations and inspections for currency and serviceability.

10.7.3. Assists the analysis section with investigations and studies.

10.7.4. Reviews wing weekly summary inputs for accuracy and content, as applicable.

10.7.5. Initiates action when additional attention is required to resolve adverse maintenance trends or training problems.

10.7.6. Reviews and compiles inputs annually for consolidated group IPI listings. The IPI listings are approved by MXG/CC.

10.7.7. Standardize the group's master AFTO-series 781 forms according to TO 00-20-5.

10.7.8. Reviews wing depot-level assistance requests developed IAW TO 00 25-107.

10.7.9. Ensures assigned 2W1X1 flight line inspectors complete load crew academic training (annually) and that both flight line and in-shop 2W1X1 inspectors complete all required explosive safety and nuclear surety training.

10.7.10. Reviews Category II major discrepancies quarterly for trends. If frequency or severity of identified discrepancies warrants inclusion of that item into the specific TO governing an action or inspection, the QA chief inspector submits an AFTO Form 22 or develops a local work card, local page supplement, or checklist (TO 00-5-1).

10.7.11. Establishes procedures for inspectors to document completion of inspections.

10.7.12. Determines the duties and responsibilities of dedicated inspectors.

10.7.13. Performs inspections on ground training aircraft IAW **Chapter 18** of this instruction.

10.8. QA Inspector Responsibilities.

10.8.1. Evaluate flight line and back shop 2W1 weapons maintenance tasks and inspections (weapons qualified inspectors only).

10.8.2. Load inspection and evaluation reports into the QA data base.

10.8.3. Perform QA review of dull swords, DRs and Service Reports (SR).

10.8.4. Evaluate forms documentation and MIS inputs.

10.8.5. Perform WRM tank build-up evaluations or inspections (in units with a tank build-up tasking).

10.9. The Quality Assurance Program (QAP). The QAP is designed to be a feedback system for maintenance leaders, supervisors, and workers. It provides methods to detect negative trends and problem areas, enhance crosstell and facilitate benchmarking, while allowing latitude to adapt it for local needs.

NOTE: QA must not focus solely on achieving quotas in each inspection category or report type. QA must coordinate with MDSA to identify trends and recommend projected inspection categories to MXG/CC quarterly for upcoming quarters. Likewise, do not determine inspection volume, depth, and scope of deficiency research solely by numbers of assigned personnel or equipment. Enhancement of mission performance is the prime factor in applying available manpower and resources.

10.9.1. Elements of the QAP. An effective QAP focuses evaluation and inspection efforts on areas and functions in the groups that require attention and improvement. The QAP includes methods for rating personnel and assessing equipment condition. Develop the QAP and administer at a level to allow for MXG/CC flexibility in improving performance. The following minimum standards apply:

10.9.1.1. Major areas examined are personnel proficiency, maintenance process effectiveness, and equipment condition.

10.9.1.2. A rating system that provides a method of applying objective ratings to inspections and evaluations performed by QA.

10.9.1.3. The QAP emphasizes compliance-oriented maintenance. The purpose of the QAP is to measure how well units meet or exceed standards. QA will 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 will be addressed:

10.9.1.3.1. Compliance with and currency of technical orders and directives. Personnel at all levels are responsible and accountable for enforcing this mandatory standard. Ensure all applicable technical data and directives are complete and current.

10.9.1.3.2. Aircraft and equipment forms documentation. Forms used to document any maintenance related action for aircraft or equipment are documented according to 00-20 series technical orders, specific equipment technical order requirements and applicable command standards and supplements.

10.9.1.3.3. Aircraft and Equipment Inspection. Inspect aircraft and equipment (including munitions) according to technical orders and directives to provide the best possible safety and reliability.

10.9.1.3.4. Compliance and Management of Safety, Environmental, and Housekeeping Programs. Personnel at all levels are responsible for minimizing risk to equipment and personnel.

10.9.1.3.5. Training. Verify training is correctly documented to ensure individuals are qualified to perform evaluated tasks.

10.9.1.3.6. Unit Directed Programs.

10.9.1.3.7. A key task list (KTL). The KTL will cover tasks that are complex and those affecting safety of flight. All maintenance actions/functions listed on the KTL will 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 will review and update the list at least annually to ensure it encompasses those maintenance actions/functions that directly affect quality of maintenance. MAJCOMs will identify KTLs as necessary.

10.9.1.3.8. Routine Inspection List (RIL). MAJCOMs will define additional RIL actions and tasks as necessary. QA will consolidate maintenance supervisors' inputs and suggested changes and obtain approval of the group commander. Tasks will not be removed from the routine list without approval from group commander. List will contain the following if applicable to the group:

10.9.1.3.8.1. Pre-flight, thru-flight, basic post-flight, HSC inspections.

10.9.1.3.8.2. Aircraft and equipment forms/MIS documentation.

10.9.1.3.8.3. Aircraft ground handling and servicing tasks.

10.9.1.3.8.4. Technical data use and currency.

10.9.1.3.8.5. CTK management.

10.9.1.3.8.6. User maintained TMDE.

10.9.1.3.8.7. AGE maintenance and flight line use.

10.9.1.3.8.8. Housekeeping.

10.9.1.3.8.9. Vehicles (including AF Forms 244 and 1800.

10.9.1.3.8.10. Aircraft and equipment washes and cleaning procedures.

10.9.1.3.8.11. Environmental compliance.

10.9.1.3.9. QA will coordinate with Munitions Plans and Scheduling to ensure all required inspections are performed IAW AFI 21-201. Additionally, QA, in coordination with the munitions flight commander or flight chief will develop quarterly standards for the following areas

10.9.1.3.9.1. Munitions accountability

10.9.1.3.9.2. Munitions storage practices and safety

10.9.1.3.9.3. Munitions inspections

10.9.1.3.9.4. Munitions material handling and test equipment

10.9.1.3.9.5. Munitions stockpile

10.9.1.3.9.6. Tactical munitions record system

10.9.1.3.9.7. Munitions infrastructure

10.9.1.3.9.8. Munitions training

10.9.1.4. Include high-missed carded items from PEs and quality verification inspections (QVIs) in the QAP 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 program, detect trends, and basically improve the quality of maintenance. Analysis should review to identify relations to repeat, recur, and CND trends.

10.9.2. Evaluation and Inspection Plan. QA develops an evaluation and inspection plan showing areas, types, and numbers of inspections and evaluations that will be conducted. When developing the plan, QA will:

10.9.2.1. Address the wing weapons manager and maintenance managers' areas of concern in determining inspection/evaluation priorities.

10.9.2.2. Tailor the plan for each squadron, flight, or maintenance section.

10.9.2.3. Review, formalize, and distribute the inspection or evaluation plan.

10.9.2.4. Reviews and updates the plan.

10.9.2.5. Use appropriate statistical tools and methods to assist in determining standards.

10.9.3. Evaluations and Inspections. The following types of evaluations, inspections and observations support the QAP: Personnel evaluations (PE), quality verification inspection (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 data bases until such time as a standard AF QA data base is developed.

10.9.3.1. 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 data base.

10.9.3.1.1. When performing a PE, the QA inspector briefs the individual or team on the evaluation and how it will be rated. 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 use of 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:

10.9.3.1.2. Individual Evaluation. 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 while working as part of a team. Evaluations will accurately assess the proficiency of each individual under evaluation.

10.9.3.1.3. 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, 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.

10.9.4. Rating Personnel Evaluations. QA rates each evaluation based on AQLs/standards. Reference paragraph **10.10.** for definition of AQL 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 will 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:

10.9.4.1. Pass: Number of discrepancies does not exceed AQL/standards.

10.9.4.2. Fail: An evaluation that results in any of the following:

10.9.4.2.1. Number of discrepancies exceeds the established AQL/standards.

10.9.4.2.2. A technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

10.9.4.2.3. 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.

10.9.4.2.4. A technician demonstrates a lack of technical proficiency or system knowledge, or training is not documented.

10.9.4.2.5. A technician commits a safety violation.

10.9.4.2.6. A technician fails to document maintenance actions in appropriate equipment records.

10.9.4.2.7. For nuclear weapons maintenance, an unsatisfactory rating will be given when any of the deficiency/applicable unsatisfactory conditions in TO 11N-25-1 *Nuclear Weapon Technical Inspections*, or AFI 21-204, *Nuclear Weapons Procedures*, exist.

10.9.5. 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 the inspection or repair action. QVIs will not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. Limit QVIs to the use of the same inspection card deck or technical data required for the job. Normally, this inspection does not require disassembling parts, removal of 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**).

10.9.6. Discrepancy Categories.

10.9.6.1. Category I (CAT I). Detected discrepancies discovered during the 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, notes, caution or warning for a specific condition or action. Use sub-classifications of major or minor to indicate relative severity of the discrepancy.

10.9.6.2. Category II (CAT II). Readily detectable discrepancies discovered during the 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, notes, caution or warning for that specific evaluated task. Use sub-Classification of major or minor to indicate relative severity of the discrepancy.

10.9.6.3. Definitions of major and minor.

10.9.6.3.1. 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.

10.9.6.3.2. 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.

10.9.6.4. Reporting. Report the condition of the equipment to the owning and using work centers. QA will 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.

10.9.6.5. Rating QVIs. Rate QVIs pass or fail by comparing the number of discrepancies with the established AQLs/standards.

10.9.6.5.1. Pass: Number of discrepancies does not exceed established AQL/standard.

10.9.6.5.1.1. Category II minors will be documented for trends but will not be counted against the AQL.

10.9.6.5.2. Fail: An inspection that results in any of the following:

10.9.6.5.2.1. A technician failed to detect a Category I major discrepancy after completing an inspection, work card, or task requirement.

10.9.6.5.2.2. Number of Category I minor discrepancies exceeds the established AQL/standard.

10.9.6.5.2.3. A technician failed to detect a Category II major discrepancy after completing an inspection, work card, or task requirement.

10.9.6.5.2.4. Technician is not signed off in training records as task proficient.

10.9.6.5.3. Document the QVI on AF Form 2419, or in the QA data base. Each QVI is chargeable to the technician or supervisor who signed off/clears 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 will be scored for each inspection.

10.9.7. Special Inspections (SI). SIs are inspections not covered by QVIs, PEs, or management inspections (MIs). SIs may include, but are not limited to, aircraft and equipment forms inspections, CTK, TO files, vehicle inspections, housekeeping, safety practices, FOD program, etc. SIs may be condition, procedural, or compliance oriented. AF Form 2419 or the QA data base 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/standard.

10.9.7.1. 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-B 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 data base.

10.9.8. 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 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 technical orders. Report MI results to the requester, and allow him or her latitude in exploring 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.

10.9.9. Safety, Technical Violations, and 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, which may be considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate. QA documents any of the following conditions:

10.9.9.1. Detected Safety Violation (DSV). An unsafe act by an individual. The inspector will 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.

10.9.9.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use. The technician will 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.

10.9.9.3. Unsatisfactory Condition Report (UCR). An unsafe 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.

10.9.9.4. 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. 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:

10.9.9.4.1. Reviewing the depot/contractor maintenance contract requirements (when available locally). This does not apply to MAJCOM sponsored programs such as PDMs.

10.9.9.4.2. Reporting discrepancies found during acceptance inspections (applicable to equipment received from depot and monitor corrective actions (TO 00-35D-54, *USAF Material Deficiency Reporting and Investigating System*). DRs are sent to the appropriate ALC, and appropriate MAJCOM functional manager.

10.10. Establishing Acceptable Quality Levels (AQL/standards). An AQL denotes the maximum allowable number of minor findings a KTL task, RIL task, process, or product and may be charged for the task to be deemed 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 will develop procedures for determining minimum AQL levels delineating an "attainable" quality level. These levels will comprise the AQL standards for the weapon system RILs.

10.10.1. Failure to meet an AQL/standard results in the task being rated as "Fail".

10.10.2. 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 will not be adjusted.

10.11. QA Data base. Every unit will capture and catalog the minimum data elements depicted in the following paragraphs into their data base for trending, crosstell, and benchmarking purposes. Capture assessment and trend data using a data base that makes information easily exportable for crosstell and benchmarking purposes. Every effort should be made to fully utilize Local Area Networks and provide all supervisors with real access to the data base. Minimum data fields contained in the data base will be:

10.11.1. Work center: Input the shop code whose process was inspected.

10.11.2. Inspector: Enter the employee number of the inspector

10.11.3. Employee: Enter the employee number or equivalent of the person inspected.

10.11.4. Date: Enter the date the inspection was completed.

10.11.5. Time: Enter the time of day when the inspection took place (24-hour clock).

10.11.6. Shift: Enter the shift that the actual work was performed on.

10.11.7. Type Inspection Performed: This code reflects the inspection performed. (e.g. PE, SI, QVI, etc.)

10.11.8. Type Work Unit Code (WUC) or Type Event Code (TEC): This code reflects the event being evaluated (e.g. CTK, phase, etc)

10.11.9. AQL/standards: The number of discrepancies allowed for a particular item or process (task).

10.11.10. Inspection Rating: Pass or Fail.

10.11.11. Equipment: Enter the type of equipment assessed.

10.11.12. Equipment ID: Enter the equipment ID. Example of this field would be A/C serial number 91-0387, SG01, etc.

10.11.13. Discrepancy Category: Identify discrepancies as: Major, Minor (Category I, Category II).

10.11.14. Remarks: The narrative of inspector findings.

10.12. Trend Analysis. Production personnel as well as maintenance supervision have unlimited read-only access to the QA data base. Review previous reports to determine if inspected areas have improved or declined. Cross talk established at routine intervals between MDSA, maintenance supervision, and QA personnel is essential. Highlight trends and root causes in the summary.

10.13. QAP Summary. QA will publish summaries at least quarterly. Compile the summary from inspection data, load crew evaluation statistics (provided by weapons standardization (WS)), and summaries. The QAP summary should include visual information, graphs, narratives, quality trends identified through inspections and evaluations, discussion of common problem areas, descriptions of successful programs or initiatives. Includes WS evaluations.

10.14. QAP Meetings. Conduct meetings quarterly to review the QAP data. Meeting will be chaired by the MXG commander. Attendees will include squadron maintenance supervision, wing weapons managers, inspectors, and senior analyst. This meeting is a forum to refine QAP direction, address maintenance issues and resolve problems. It provides cross-feed to all maintenance activities through review of QA inspections, evaluations, and trends.

10.15. QA Programs. This section describes the specific program responsibilities for QA:

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 call, maintenance orientation briefings and routine visits to the maintenance area. 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 of improving 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. OTI Program.

10.15.1.3. Deficiency Reporting.

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). Deficiency reporting (DR) is the process of reporting prescribed by TO 00-35D-54*, USAF Deficiency Reporting and Investigating System*, AFCSM 21-578, *Product Quality Deficiency Reporting System (DR)*, and TO 00-5-1. The PIM/DR responsibilities include:

10.15.2.1.1. Monitors deficiency reporting process to ensure items are properly loaded in MIS data base 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. Ensures compliance with acceptance inspection reporting requirements on aircraft returning from depot or contractor maintenance (TO 00-35D-54).

10.15.2.1.3. Ensures procedures are followed for submitting DRs. The DR will be adequately defined, meet the criteria of the governing instruction or TO, and will be investigated, when necessary.

10.15.2.1.4. Ensures background information and definitive information on suspected deficiencies is submitted.

10.15.2.1.5. Verifies each report against pertinent publications and assigns the appropriate precedence and Category.

10.15.2.1.6. Screens reported TO 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. Performs or coordinates on 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. Performs 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, **Technical Order Improvement Report and Reply**: AFTO Form 22 is used to submit corrections and improvements in TOs. The PIM will as a minimum perform the following:

10.15.2.2.1. Investigates each TO improvement report to ensure the deficiency is valid. The PIM will insure proper evaluation was performed, forms are properly filled out and processed IAW TO 00-5-1 and MAJCOM supplements. Weapons Standardization reviews and approves all AFTO Form 22s for weapons loading TOs. WS will fill in Block 9 and indicate "Approval / Disapproval" in Block 1.

10.15.2.2.2. Assigns control numbers and forwards 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. Maintains an AFTO Form 22 suspense file. Keep the approved AFTO Forms 22 until incorporated in TOs. However, approved AFTO Forms 22 do not constitute authority to deviate from established TOs.

10.15.2.2.4. Conducts 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 Change Request**: The Source, Maintenance, and Recoverability (SMR) process is a means for maintenance technicians to recommend routine and priority changes to SMR codes. The PIM responsibilities are:

10.15.2.3.1. Processing and managing AFTO Forms 135, (IAW TO 00-25-195*, AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment*). Track the status of AFTO Forms 135.

10.15.2.3.2. Conducts 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. Coordinates repair evaluation meetings when approved AFTO Forms 135 affect several agencies.

10.15.2.3.4. Serves as focal point for base level repair and manufacturing capability (base self-sufficiency). Interfaces 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). 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 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 Logistics Readiness Squadron provide the majority of this information. The PIM:

10.15.2.4.1. Consolidates functional area reports for each system e.g., AGE, weapons, PMEL, avionics, engines, commodities and airframe. Prioritize proposed items for a particular system according to weighted factors in AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability*. 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 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 TOs 00-5-1, 00-5-2, and 00-5-2-2, *Automated Technical Order Management System,* and 00-5-2-102, *Joint Computer-Aided Acquisition Logistics Support (JCALS) system*, and AFPD 21-3, *Technical Orders*. Establish the PMEL TODO under the control of the TMDE Flight. TO 00-5-2 provides criteria for establishing levels of TO distribution activities. The Special Weapons TO distribution office (SW-TODO) is under the control or review of a munitions flight. At non-nuclear bases the special weapons TO account may be maintained by QA/TODO. Sub-functions of the TODO are described below.

10.16.1. The QA Technical Order Distribution Office (TODO) manager will:

10.16.1.1. Coordinate with the appropriate QA subject matter expert 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 will 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 will 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 TCTO, all working copies will be destroyed.

10.16.1.4. To ensure effective distribution, TODOs are responsible for placement on appropriate Address Information Group (AIG)/Defense Message Service (DMS) distribution to receive interim TCTOs. TODO will establish AIG/DMS requirements with the AIG/DMS owner as well as the local base distribution center per requirements in TO 00-5-2 and AFMAN 33-326, *Preparing Official Communications*.

10.16.2. QA Central TO File. At a minimum, the QA file contains 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 00-5-2.

10.16.3. Automated Technical Order Management System (ATOMS). In addition to its designed purpose as established in TO 00-5-2 *ATOMS* (automated) serves as a locator for maintenance TOs. Updates are based on information from requisitions from squadron TODAs.

10.16.4. TODOs on line with Joint Computer Aided Logistic Support (JCALS) will use JCALS as the primary TO management system. All TODOs, not on line with JCALS, will use ATOMS to establish and maintain records for all TOs required and distributed by organization shops and offices serviced by the TODO (00-5-2).

10.16.5. Local Work cards, Job Guides, Page Supplements and Checklists. Limit use of local work cards (LWC), job guides (LJG), page supplements (LPS) or checklists (LCL) to accomplish maintenance on Air Force equipment. Locally prepared technical instructions will not be used to circumvent Air Force Materiel Command's inherent responsibility for technical data (See TO 00-5-1). The TODO will review and manage all locally developed products IAW TO 00-5-1/2 and MAJCOM supplements

for safety and adequacy of procedures. Ensure LWCs, LJGs, LPS, and LCLs are reviewed for currency when source reference data changes. Develop local guidance for complying with these policies.

10.16.6. Address Indicating Group (AIG), 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 supplements TCTOs. TODO will establish distribution requirements per requirements in TO 00-5-2 and AFMAN 33-326, *Preparing Official Communications*.

10.16.7. TO Change Notification. TODO prepares a list of all changes and revisions to indexes, TOs, inspection work cards, and checklists. This list includes TO number and date of receipt. Publish and distribute weekly. This list will be included in the wing's weekly maintenance plan and flying schedule. Supervisors 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 inspects other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. As a minimum, the TODO will use the TODO and TO Account Checklist provided in TO 00-5-2. 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 ("J" for MAJCOM, "N" for NAF, "L" for for local) and a six character sequence number. For local OTIs, the six remaining characters identify the originating wing, year issued, and a sequence number (for example, L181001, L for local OTI, 181 for 181FW, 0 for the year 2000 and 01 for the first in the sequence. For MAJCOM and NAF OTIs, the six remaining characters identify the year, month of issue, and a sequence number (for example, J / N 812010 the tenth MAJCOM/NAF OTI issued during December 1998). 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 (MAJCOM may require periodic status).

10.17.1.1.16. OPR (OTIs drafter, include name and telephone number).

10.17.2. OTI Distribution. OTIs are sent to all applicable organizations. The MXG/CC will determine cross-tell value for OTIs to lead commands for the equipment or MDS.

10.18. Monitoring the Configuration Management (CM) and Modification Process. QA's responsibilities include 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, monitors expended man-hours consumption and the quality of unit compliance actions. Munitions and special weapons TCTOs are reviewed by the respective sections.

10.18.2. QA ensures command directed modifications are documented in the same manner as TCTOs. QA maintains 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 00-20-5, and applicable -6 and -1 technical orders. The OG/CC is responsible for appointing an OIC for management and administration of the program. The MXG/CC and OG/CC establish and implement local FCF procedures.

10.19.2. The FCF Officer in Charge and QA Supervisor of FCFs:

10.19.2.1. Develops appropriate FCF checklists and procedures and coordinates them between QA and the Operations Group Standardization/Evaluation Division.

10.19.2.2. Establishes an FCF training and certification program.

10.19.2.3. Reviews FCF results on a continuing basis and recommends modified FCF criteria and procedures.

10.19.2.4. Works 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 will:

10.19.3.1. Ensure the FCF crew 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 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 (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/crew 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 is used for each FCF. QA debriefs all FCFs with the appropriate debrief function. During debriefing, the FCF checklist and aircraft forms are reviewed to determine if all requirements have been accomplished. Each discrepancy discovered during the FCF is documented on AFTO Form 781A. After completion of the review, the checklist is 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 -6 and 00 series TOs.

10.19.3.5.2.1. All maintenance actions on transient aircraft requiring FCF will be reviewed by QA prior to FCF. Aircraft types, other than those assigned, will require the owning unit to 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 -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 at MXG/ CC and OG/CC discretion. Tailor the FCF profile for the discrepancy causing the FCF applying the following guidance:

10.19.4. 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.

10.19.5. Do not fly FCFs in conjunction with other missions or training requirements, unless waived by provisions in TO 1-1-300.

10.19.6. 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.

10.19.7. 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 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.

10.19.8. 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.

10.19.9. Units will refer to MAJCOM instructions for FCF procedures away from home station.

10.20. Operational Check Flight (OCF). Units will establish and publish local procedures. OCFs will be kept to a minimum and are not used to replace –6 FCF requirements. OCFs will be flown by experienced aircrews (not required to be an FCF qualified aircrew) and will be accomplished following the same maintenance criteria as FCFs. 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 warning, cautions, etc.

10.22.1. To minimize brake and tire wear, configure aircraft with the minimum fuel practical to accomplish high-speed taxi checks. 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 -1 operational fuel minimums onboard.

10.22.2. Aircrews performing high-speed taxi checks will 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 Weight and Balance program, ensuring accurate inventories of aircraft weight. As the W&B authority, the QA Superintendent appoints a QA individual to be the unit weight and balance program manager.

10.23.1. Weight and Balance Manager Responsibilities. The weight and balance program manager ensures compliance with appropriate technical order procedures for weighing aircraft. The W&B program manager carries out his/her responsibilities with assistance of W&B technicians. The QA weight and balance technician verifies scale readings and does or oversees the actual computations. The QA weight and balance 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. weight and balance inventories IAW applicable directives and upon return to home station from any ALC or contractor facility where extensive maintenance was per-formed. 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 weight and balance 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 weight and balance documents.

10.23.1.4. Procedures are written by QA for routing completed TCTO and modification information for weight and balance changes.

10.23.1.5. QA W&B qualified technician inspects weight and balance 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 Supervisions work together in developing a W&B Preparation Checklist if the aircraft dash 5 technical order 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 will 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 will 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 will 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 then submits when necessary.

10.24.3. QA will 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 will utilize a data base for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance cross-tell reports. Consult the data base 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 Representative (QAR). If a Contractor Logistic Support (CLS) aircraft or Contract Field Team (CFT) is assigned, a QAR will be appointed. A QAR is the on-site government inspector and is the liaison between contractor and government personnel at each applicable base. Through administrative actions they coordinate, process, and review documents required to enable successful implementation of the contract. They evaluate the contractors' ability to fulfill the requirements of the contract statement of work. They document contract deviations and provide 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.

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.

11.2. 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. Individual authorized to release aircraft or equipment from impoundment. The MXG/CC, or Director has the authority to release aircraft. Delegation of this authority will be limited (Level will be no lower than Maintenance Supervision). If the MXG/CC or Director delegate impoundment release authority, individuals will be designated in writing and tracked on the SCR.

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, Trouble-shooting, 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:

11.3.12. A tool or other item has not been found after an extensive search has been conducted.

11.3.13. An aircraft landing gear fails to extend or retract.

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.

11.5.8. 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 will be followed. The MXG/CC or designated representative may temporarily delegate impoundment and release authority to the deployed maintenance supervisor or superintendent.

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.

12.2. 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 Air Force 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/benefits.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 programSquadron maintenance supervisions 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 will 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.

13.2.1.7. Assignment of equipment identification designators (EID) for equipment and CTKs and assignment of CTK numbers for tools.

13.2.1.8. Procedures for issue and control of personal equipment (e.g. ear protectors, reflective belts, headsets, etc.).

13.2.1.9. Procedures to ensure positive control of 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. Procedures for control of aircrew tools and life support section tool kits dispatched to the flight line.

13.2.1.13.3. Procedures for occasions when a single person must sign in and sign out a tool kit.

13.2.1.13.4. 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 and equipment 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 equipment 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.

13.3.4.1. 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. 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.

13.3.4.14. 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.

13.4. Marking and Tool Identification.

13.4.1. To identify items tracked in Tool Accountability System (TAS), units will use a standard nine-digit worldwide (WW) identification (ID) code as the EID. Units will etch, stamp, or mark assigned tools, equipment, and CTKs. The first two letters of the WW ID will be the first two letters of their wing’s personnel assignment system (PAS) code. The third and fourth characters are designated as the unit or the first two digits of their office symbol. To ensure tool rooms have unique identifiers, wings (or equivalent) will ensure the first 4 letters of the EID numbers/bar code specifications

are not duplicated by units with the same PAS code. The unit establishes the remaining five characters and sets them aside for tool and equipment identification.

13.4.1.1. Mark mobility toolboxes according to AFI 10-403, *Deployment Planning*.

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. Tools and equipment with additional designators such as serial numbers, PMEL tracking numbers, etc. will be identified with both 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.).

13.5. Tool Accountability, Control, and Inventory.

13.5.1. 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). All military units with computer capability will use the Air Force approved TAS. However, contract, civil service and deployed military units without computer capability may use a chit system, AF Form 1297 or, a MAJCOM or locally approved form will be used for accountability and control of CTKs, equipment, and tools.

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. Track PMEL requirements

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 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, equipment, and CTKs. The purpose of this inventory is to perform an extensive inspection of all tools and 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.

13.6. 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*.

13.7.1. 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 process 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.

13.8.1.2. 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 Supervision will 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 Supervision.

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 Supervision 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.

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.

14.2. 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.

14.2.1.2. 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.

14.2.1.3. 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.

14.2.1.4. 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.

14.2.1.9. 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.

14.2.1.15. 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.

14.2.2. 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 00-20-5, 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 software 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.

14.8. 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.

15.2. Maintenance Operations Flight (MOF) PS&D Section.

15.2.1. 2R1XX AFSC Functional Management. The senior AFSC 2R1XX member, regardless of duty position, will serve as the wing 2R1XX functional manager and advisor to all maintenance scheduling activities. The 2R1XX functional manager will 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.

15.2.1.2. 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.

15.2.1.4. 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 supervisors, develop and periodically review training programs for all 2R1X1 personnel. The training plan will 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 LTF/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 an Assignment Directive Notice (ADN) is received from the MAJCOM AVDO prior to any aircraft transfer or loan.

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 4th 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.

15.2.2.5. 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.

15.2.3. 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.

15.2.3.2. Automated and manual AFTO Form 95 documentation requirements.

15.2.3.3. Standardized aircraft jacket files. Include missing forms policy requirements and quarterly jacket file review checklists. MOF PS&D will develop and maintain a standardized master aircraft jacket file for use throughout the wing. Wing assigned aircraft jacket files will 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.

15.2.3.5. 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 will outline the requirements for ordering hazardous materials (Example: Batteries). Units will not delegate MIS 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 will process all MIS suspense validations for uninstalled engines and engine components.

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 -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 will maintain master inspection and time change requirements. MOF PS&D will:

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**.

15.2.4.3. 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 will be checked against MIS totals weekly. Provide AMU PS&D a list of any discrepancies found. Uncorrected discrepancies will be briefed weekly during a daily production meeting.

15.2.4.4. Monitor the inspection and time change subsystems in the MIS. Perform a comprehensive review of all inspection, SI and TCI JSTs for each assigned aircraft quarterly. Look for overdue, 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 uses MIS data as the source for verification.

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 will attend this 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.

15.3. 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. 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 all scheduled maintenance the following week by 1600 Friday if JCNs are not listed in the weekly flying and maintenance schedule. This list will be used to track maintenance scheduling effectiveness. AMU PS&D will 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, Time Change Items (TCIs), and Special Inspections (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 conduct supervisory reviews of configuration change, TCTO, SI, and TCI events using CAMS on-line capabilities. Unless otherwise specified in local procedures, AMU schedulers will process CAMS/IMDS screen 128 for all removal, installation, TCI, SI and TCTO compliance updates for any items, except engines, installed on the aircraft.

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:

15.3.5.1. 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 quarterly, semi-annually for AFRC, using the MOF PS&D-developed quarterly review checklist. The last completed

checklist will be kept on file in each aircraft jacket file. If engine records are decentralized to the MOF EM section, EM is responsible for quarterly reviews of engine records.

15.3.5.4. Maintain inactive (pulled) AFTO 781 series forms IAW AFMAN 37-139. AFTO Form 781s will be reviewed to ensure no forms are missing, page number blocks are correct, and the "from" date matches the "to" date from previous forms (781A), 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.).

15.4.3. Forward the completed GSAS form to affected activities at the beginning of the generation sequence.

15.4.4. Ensure automated GSAS plans are kept current, reviewed semi-annually, and sufficient quantities are available in the event of a communications-out scenario.

15.4.5. Attend post exercise/contingency "hot wash" meetings to evaluate flow plans for changes or improvements.

15.5. Operational Planning Cycle. MAJCOMs will 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 operation schedulers must consider maintenance capabilities. Maintenance and operations schedulers will develop a proposed annual flying plan balancing both operational requirements and maintenance capabilities. The annual plan, detailed by month, will evaluate the capability of maintenance to support the annual flying hour program. The plan will be coordinated and consolidated by OSS Current Operations Flight Scheduling and forwarded to the current operations flight commander, AMXS/CC, MOO, and MOF PS&D. The printed wing plan will include an assessment of the wing's ability to execute the flying hour program. The plan will be presented to the OG/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.

15.6.1. 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. Utilization (UTE) rates (N/A to AMC 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 will 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.

15.7. Annual Maintenance Planning Cycle. MAJCOMs will develop procedures to ensure the objectives of the annual maintenance planning cycle is 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 quarterly flying-hour programs, programmed depot maintenance (PDM) schedules, TCTO programs, scheduled inspections and exercises. Automated products are used to assist in planning.

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 Scheduling.

15.8.1. MAJCOMs will develop procedures to ensure the objectives of the Quarterly Scheduling cycle are met. Quarterly scheduling 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 scheduled.

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 forward 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.

15.9. Monthly Scheduling. MAJCOMs will develop procedures to ensure the objectives of the Monthly Scheduling 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 will 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 will 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 schedule contract, MOF PS&D includes it as a portion of the monthly flying and maintenance plan. Monthly schedules may be published electronically provided local security requirements are met.

15.9.5. The monthly flying schedule 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 quarterly 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 awaiting parts, contract or depot maintenance, washes, corrosion control, training aircraft, and all other known maintenance requirements.

15.9.5.5. TMDE and 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 in-shop inspections.

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 will develop procedures to ensure the objectives of the Weekly Scheduling process are met. To optimize aircraft and munitions support, MXS, AMXS and OS CCs will ensure the number of aircraft and/or munitions configurations are minimized and standardized. The OS operations officer and AMU supervision review and coordinate the proposed weekly flying and maintenance schedule with OS, AMXS, and MXS prior to presenting it to the OG and MXG CCs. The group approved schedule will be submitted to MOF PS&D for compilation and a complete paper copy will 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.

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.

15.10.3. 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.

15.10.3.4. 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.

15.10.3.10. 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 supervision, and required group staff agencies (i.e. MOC, PS&D, Analysis, etc.) IAW MAJCOM 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. 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 will perform listed owning agency 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 will periodically review MIS products to ensure proper documentation and management by owning and managing TCTO agencies. When errors are detected, MOF PS&D will advise affected scheduling functions and provide assistance when necessary to correct the discrepancies. MOF PS&D will coordinate with MDSA to ensure MIS TCTO synchronization programs are 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.

15.12.1.4. Depot-level TCTOs, excluding commodities, are loaded and tracked in the MIS for auditing compliance and applicability. Units will ensure dual reporting of completed depot TCTOs is prevented. All field-level companion TCTOs for commodities will 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, Supply Materiel Storage and Distribution Flight and Inspection Section 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.

15.12.2.2.10. 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 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 month in which the item is required. Overseas bases will 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 will not be reissued. Maintenance plans will 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 weekly schedule 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.

15.14.3. MOF and AMU PS&D will provide Generic Configuration Status and Accounting Subsystem (GCSAS) assistance to maintenance personnel.

15.14.4. MOF PS&D will develop procedures for verifying configuration items during aircraft phases. AMU PS&D will request CAMS/IMDS DBM process screen 942, Actual Configuration Set-up, using the ID number of the aircraft entering Phase. A copy of this product will 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 will be turned-in to the AMU PS&D during the post dock meeting and forwarded to MOF PS&D. MOF PS&D will request the DBM process screen 943 for the same tail number to verify corrections. Discrepancies will be briefed at the daily production meeting and forwarded to the AMU for corrective action. Completed/verified copies of the output product will be maintained in MOF PS&D until the next scheduled phase for that aircraft.

NOTE: CAMS units only. MOF PS&D will coordinate with MDSA to ensure aircraft synchronization programs are accomplished every other month.

15.15. Transfer Inspections.

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 will meet all TO 00-20-1, 00-20-5, 2-1-18, applicable aircraft –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 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.

15.15.3.7. 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:

16.1.1. 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 SQ/CC and Maintenance Supervisor of any issues or problems affecting load crew status, DLO program, 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):

16.1.6.1. 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.

16.1.7.1. 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 bare minimum of munitions required strictly 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 will be forecasted for and maintained on separate supply accounts.

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-52H	B-1B	B-2
AGM-84 HARPOON	2		
AGM-86/B ALCM**	14		
AGM-86/C CALCM	3		
AGM-129A ACM**	6		
AGM-142 HAVE NAP AND POD**	1/1		
M-117	9		9
MK-82 LD	27		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 MK84/109	3/1	3/1	3/1
GBU-32 JDAM/1K			
CBU-87 CEM	5	5	5
CBU-89 GATOR	5	5	5
CBU-97 SFW	5	5	5

BOMBERS	B-52H	B-1B	B-2
CBU-103-5 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		
EGBU-15		2			
GBU-24 MK-84/BLU-109		1/1	1/1		

FIGHTERS	**F-15 C/D**	**F-15E**	**F-16**	**A-10**	**F-117**
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.

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. In coordination with the explosive safety officer and airfield management, develops a wing OI 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 will include requirements to:

16.1.15.1. Arm and de-arm munitions-loaded aircraft in approved areas (this could include the normal aircraft parking area).

16.1.15.2. Procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. 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. Control access to aircraft until munitions are made safe. Immediately-prior-to-launch and "safing" procedures may be performed in the aircraft parking area for contingencies, unit exercises and daily-use training munitions as quantity distance clearance allows with the approval of wing safety, airfield management and the MXG/CC.

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%).

16.1.16.2. 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.

16.1.17. 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 MS, 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 the Munitions Materiel Handling Equipment (MMHE) book published by ASC AFSEO/SKZ, Eglin AFB FL (**https://wmnet.eglin.af.mil/mmhe/**). All equipment designated for use with nuclear weapons test and handling is certified per AFI 91-10*3, Air Force Nuclear Safety Certification Progra*m.

16.1.20.1. MMHE is common equipment such as tools, handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters, etc. contained in the MMHE Pamphlet and is managed by the MMHE Focal Point at AAC/WMM, 207 West D Avenue Suite 319, Eglin AFB FL 32542-6845. MMHE does not include simple tools, adapters, or electrical cables or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in technical orders.

16.1.20.2. All equipment contained in the MMHE Pamphlet has been constructed, tested by engineers, and is approved for local manufacture at the unit level. MMHE Pamphlets and drawing packages for all MMHE contained in the pamphlet are available to the unit by contacting the MMHE Focal Point at the above address. Locally Manufactured Equipment (LME) which is not approved MMHE contained in the MMHE Pamphlet, will be approved through normal Air Force and Local Manufacturing instructions and procedures. (EXCEPTION: LME that is designed to or

will be used to support munitions (i.e. hardened/protective aircraft shelter missile racks, y-stands, ect.) will be coordinated through the MAJCOM for MMHE focal point design review and approval). LME will meet all AFOSH, explosive safety, and USAF standards. Units may forward any approved LME for possible inclusion in the MMHE Pamphlet by sending approved drawings to the MAJCOM Functional Manager for evaluation/coordination, prior to the MAJCOM forwarding them to the MMHE Focal Point. All equipment designed for use with nuclear weapons test and handling equipment must meet requirements in AFI 91-103, *Air Force Nuclear Safety Certification Program.*

16.1.20.3. Maintenance and storage stands, LME and such equipment currently in use by weapons/armament within a unit which is not contained in the MMHE Pamphlet, may be used as long as it meets or exceeds all requirements in paragraph **16.1.20.2.** Stands and storage racks purchased through supply, or locally purchased, must also comply with the above safety standards.

16.1.20.4. All MMHE/MHE will be maintained and inspected for serviceability on a regular basis. AFTO 244s, or equivalent, will be maintained with all major MMHE/MHE items (racks, stands, adapters, etc). Equipment without tech data will as a minimum be inspected IAW appropriate 00-20 series technical data.

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

16.1.23. 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 equipment and tester status to MAJCOM via e-mail by the 5th of each month. Monitors the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of Time Compliance Technical Order (TCTO) modifications.

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.

16.1.28. 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. Perform a Self Inspection on WS, Weapons Sections and Armament Flight IAW this chapter in May and Dec of each year (annually for ARC). Maintain a copy of the inspection results until the next inspection.

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.

16.2. 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.

16.2.2.9. 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 proficient at performing complete munitions preparation inspections (including fuze inspection/installation and wiring) IAW MDS-33-series TO procedures and appropriate functional checks in conjunction with loading operations. Perform this training during initial training and certification. Except for bombers, incorporate this requirement into the training schedule to be performed at least quarterly.

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.

16.2.2.20. See **Chapter 12** for KEEP program information.

16.2.2.21. Ensures individual tool kits are set up for each lead crew assigned. These CTK's may be stored in WS or the respective squadron, but are required to be maintained by the Lead Crews.

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. As a minimum the LSC chief will be a 2W171 AFSC. 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.

16.3.9. 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 data base 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 flightline munitions/explosive handling and loading operations when not directly involved in WS training functions. When deployed, lead crews may perform flightline evaluations in addition to their normal load crew duties. These evaluations may be used to satisfy load crew MPRL requirements IAW this chapter.

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.

16.7.2. 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.

16.8.4. 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 familiarity training by WS.

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: RQ-1 Predator

16.9.2. Three member crews: A/OA–10, F–15, F–16, F-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 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 dual 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.

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.

16.12.2. 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).

16.12.2.3. 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.

16.12.3. AGM-65 tasked units will load train using both the LAU-88 (if applicable) and LAU-117 launchers (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:** Units may not possess LAU-88 launchers with the exception of one or two 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).

16.12.8. 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.

16.14.1. 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.

16.14.4. (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.

16.15. Load Crew Quarterly Evaluations. The LSC evaluates each load crew once a quarter on 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.

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:

16.15.1.1. 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.

16.15.1.7. 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) for each crew member and AF Form 2419 recording the most current quarterly evaluation, 2419's will be maintained in the data base for all loads.

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), emer-

gency 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, MS, 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 product: "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. This program 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:

16.18.1. 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 positioned on opposite sides of the aircraft. **NOTE:** Loading and fueling operations will 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 both academic and practical training. Recurring annual training is academic only.

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:

16.20.2.1. 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.

16.20.2.4. 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.

16.20.2.8. Loading and unloading ammunition in the GAU-2 and M240 guns.

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, 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. 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 to be loaded with two AIM-9s and a MK-82, the load crew is 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 the table, the LSC will 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 Time Standards.

FAMILY GROUP	A/OA-10	F–15	F–16	F-117	REMARKS
AIM–7		35			
AIM-9	30	30	30		
AIM–120		35	35		
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	35	35	35	35	
GBU–10/12	35	35	35	*35*	NOTE 1
GBU-15/EGBU-15		45			NOTE 1,6
GBU–24/27		35	35	*35*	NOTE 1
GBU–28		45			NOTE 1

FAMILY GROUP	A/OA-10	F–15	F–16	F-117	REMARKS
M129 MK-82/84	35	35	35	*35*	NOTE 4
MK-82/84 AIR	35	35	35		NOTE 4
GBU-31/32		35	35	*35*	
AGM-154		35	35		NOTE 1
QUALIFICATIONS					
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.

FAMILY GROUP	B-52	B-52	B-1	B-2	NOTES
	INT	EXT	INT	INT	
AGM-86 / AGM-129	60	70			NOTE 7/9/12
B-61/B-83	60			45	NOTE 7/9/13
AGM-84A		45			NOTE 8
AGM-142		60			NOTE 9
MK-82/M117/MK-62/MK-63/M-129	25	40	40	40	NOTE 10/14
MK-84/BLU-109/GBU-37/JDAM /JSOW	70	40	40	40	NOTE 10/11/14
CBU-87/89/97/103/104/105	40	40	40	40	NOTE 10/11/14
MK-56/MK -60/MK-65	70	40	40		NOTE 7/10/14
GBU-10/12/28		40			NOTE 10/14

NOTES:

1. Add 15 minutes for each additional store or LAU-117.
2. Time is for one LAU-117. The time for loading one preloaded 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. Preload
8. Add 40 minutes for post-load checks if accomplished as part of the load.
9. Add 40 minutes (B-52) or 20 minutes (B-2) for post-load checks if accomplished as part of the load
10. Add 3 minutes for each store.
11. Add 5 minutes for each store (B-1 and B-2). Add 5 minutes per store if MIL STD 1760 cable installation is required (B-52).
12. Time for single missile loading 70 minutes plus 60 minutes if post-load check is performed as part of the load.

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.

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 warfighting Combatant Commander with air and space combat power. Agile Combat Support (ACS) is key to the success of the warfighter. At the highest level, ACS is the product of six main processes that can be measured to describe the levels of preparedness and of 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.

17.1.1. *Readying the force* – organizing, training, and equipping to produce combat capability

17.1.2. *Preparing the battlespace* – assessing, planning, and posturing for employment

17.1.3. *Positioning the force* – tailoring, preparing for movement, deploying, and receiving forces

17.1.4. *Employing the force* – providing immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration

17.1.5. *Sustaining the force* – maintaining effective levels of support for operations world-wide beginning day one of employment operations

17.1.6. *Recovering the force* – redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly

17.2. Readying the Force - organizing, training, and equipping to produce combat capability.

17.2.1. Organize

17.2.1.1. MAJCOMs will develop UTCs that can be used interchangeably for major theater war (MTW) and Air and Space Expeditionary Forces (AEF).

17.2.1.2. To improve interchangeability of unit line numbers (requirements), MAJCOM functional area managers (FAMs) will maximize use of standard unit type codes (UTCs) (limit line remarks).

17.2.1.3. MAJCOMs will develop UTCs that represent capabilities, not fragment UTCs into pieces for the specific purpose of sourcing a single capability from multiple sources.

17.2.1.4. MAJCOMs will establish MTW packages using war mobilization plan volume 5 (WMP-5) rates or the most stringent scenario; MAJCOMs may tailor UTCs at execution if required to support deployment requirements.

17.2.1.5. In accordance with specific Air Staff (AF/XO and AF/IL) direction, MAJCOMs will develop modular (stackable) and scalable UTCs that, in total, represent the unit's deployable equipment and personnel.

17.2.1.6. Sourcing conferences are the primary means of matching requirements to capabilities. The AEF Center will organize and chair a sourcing conference prior to each 15-month AEF cycle. All MAJCOMs will send qualified representatives to each AEF sourcing conference.

17.2.1.7. The primary purpose of the AEF sourcing conferences will be to determine which bases will provide personnel to fill Unit Line Numbers (ULNs) in Expeditionary Combat Support (ECS) UTCs. The conference may also include informational briefings, but these will be kept to a minimum.

17.2.1.8. Air Staff Maintenance and Munitions Policy Divisions (AF/ILMM and AF/ILMW) will chair a one-day meeting in conjunction with each sourcing conference to resolve sourcing conflicts and plan for the next AEF rotation or contingency.

17.2.1.9. Every Air Force member will be assigned to a UTC.

17.2.1.10. MAJCOMs will source personnel to fill AEF vacancies in the following order:

17.2.1.10.1. Lead wing

17.2.1.10.2. Sister wing

17.2.1.10.3. Lead AEF

17.2.1.10.4. Paired AEF

17.2.1.10.5. Alternate MAJCOM

17.2.1.10.6. Air Reserve Component (ARC)

17.2.2. Train

17.2.2.1. At Utilization and Training Workshops, MAJCOM career field managers will collectively establish/update minimum wartime skills training requirements by Air Force Specialty Code (AFSC) and Mission Design Series (MDS). These training requirements will be incorporated in personnel training folders as core tasks.

17.2.2.2. Supervisors will ensure their subordinates are adequately trained and qualified before allowing them to work unassisted on aircraft or equipment. Supervisors will place emphasis on upgrade and proficiency training by providing hands-on demonstration and over-the-shoulder evaluations of their subordinates.

17.2.2.3. To the greatest extent possible without affecting safety, recurring training will be conducted every 15 months to align with AEF cycles.

17.2.2.4. Wing commanders will ensure sufficient authorizations are coded on the Unit Manpower Document with a Joint Operations Planning and Execution System (JOPES) special experience identifier. Wing commanders will then ensure that personnel filling those positions are trained and qualified to use JOPES. These personnel should be selected from both operations and maintenance functions.

17.2.3. Equip

17.2.3.1. Commanders will provide tools, facilities, and environmental protection equipment to ensure a safe working environment and mission capable workforce.

17.2.3.2. Unit commanders will establish minimum essential equipment levels to measure and report the unit's mission readiness through Status of Resources and Training System (SORTS).

17.2.4. Establish Quality of Life

17.2.4.1. Commanders will review site surveys from the deployed location to ensure living and working conditions are adequate for deploying personnel and notify appropriate base agencies or MAJCOMs as necessary to correct deficiencies.

17.2.4.2. Commanders will ensure each maintainer is notified of their deployment vulnerability period to allow them to plan personal affairs.

17.2.5. Monitor world situation

17.2.5.1. Commanders will inform aircraft maintenance personnel of potential threats as soon as possible when world conditions change. As appropriate, he/she will 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.

17.2.6. Support training operating tempo (OPTEMPO)

17.2.6.1. Section chiefs will develop a method to track and identify scheduled training events that may impact sortie production if the wing/unit standard turn pattern or flying hour window is exceeded. Section chiefs will submit requirements to the flight commander/chief prior to development of the weekly flying and maintenance schedule.

17.2.6.2. Maintenance supervision will ensure work force training requirements and overall maintenance capabilities are considered in the weekly flying and maintenance schedule. Group commanders will ensure scheduled maintenance and training events are balanced against sortie production requirements.

17.2.6.3. Supervisors will ensure subordinates are qualified and signed off in their training records to perform maintenance tasks before allowing them to perform a task without assistance by a qualified trainer or technician. Supervisors will place emphasis on upgrade and proficiency training by ensuring trainees receive hands-on demonstration training and over-the-shoulder evaluations.

17.2.7. Accomplish strategic capability assessments

17.2.7.1. Units will coordinate with deploying communications personnel to ensure reachback capability is available at the deployed location for maintenance operations.

17.2.7.2. The lead wing will 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.

17.2.7.3. 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 to ensure compatibility of hardware and software.

17.2.7.4. Units will prepare to deploy all critical equipment.

17.2.7.5. Whenever projected to be available at the deployed location, MAJCOMs will posture appropriate Unit Type Codes (UTCs) that support use of forward support locations (FSLs) to store munitions for WRM or as sites for consolidated maintenance activities (such as Centralized Intermediate Repair Facilities (CIRFs)).

17.2.8. Establish procedures that ensure core security of forces.

17.2.8.1. Commanders will ensure every person selected to deploy receives small arms marksmanship training prior to deployment.

17.2.8.2. Flight chiefs will ensure maintenance technicians are aware of their responsibilities to detain/report unidentified persons discovered in restricted or sensitive areas. Preparing the Battlespace - assessing, planning, and posturing for employment.

17.2.9. Monitor theater situations

17.2.9.1. Commanders and maintenance supervisors will closely monitor theater situations, and take preemptive measures to avoid degradation of lines of communication.

17.2.9.2. The lead maintenance person will stay abreast of security concerns and intelligence updates and brief subordinates as necessary.

17.2.10. Define employment requirements

17.2.10.1. Incoming units will coordinate with departing units (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.

17.2.10.2. Units planning to deploy to the same location will coordinate with each other prior to request for airlift to ensure each 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 are deployed to support the mission.

17.2.10.3. Commanders are responsible for ensuring that assigned personnel are identified for a specific AEF rotation and provided them briefings concerning their AEF schedules.

17.2.10.4. Commanders will ensure supervisors schedule personnel leave, training, and Professional Military Education around the personnel deployment vulnerability window.

17.2.11. Conduct ACS feasibility/capability assessments

17.2.11.1. The Lead wing Maintenance Group Commander will determine maintenance ACS requirements, 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.

17.2.11.2. Operational (mission) requirements at deployed location take precedence over home station requirements. Units will take necessary actions to preclude submitting reclama or shortfall of requirements.

17.2.11.3. AEF wings will report shortfalls/LIMFACs to the owning MAJCOM Functional Area Manager (FAM) who, after review and concurrence, will in turn forward to the AEF Center for action.

17.2.12. Analyze the battlespace (base support planning process)

17.2.12.1. Prior to deployment, the lead deploying logistician shall make contact with the host nation and/or coalition maintenance liaison to gather base support capabilities and site survey information (e.g. physical layout, facilities, equipment, local capabilities, etc.).

17.2.12.2. Upon arrival, each aircraft maintenance section shall create/update base capabilities and site survey information to reflect current situation in the SATE data base. The lead aircraft maintainer will forward this information to his/her MAJCOM maintenance policy section, who will pass 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.

17.2.12.3. Maintenance supervision will coordinate with wing plans sections to review Base Support Plans (BSP) JOPES, and SIPRNET (classified) sites.

17.2.13. Define deployment assets

17.2.13.1. Based on review of BSP and assets available at the deployed location, units will determine assets for deployment. Utilize Centralized Intermediate Repair Facilities (CIRFs) when available to leverage scarce personnel and equipment resources in the deployed Area of Responsibility (AOR).

17.2.14. Preposition assets

17.2.14.1. Contingency High Priority Mission Support Kits (CHPMSK) augment Readiness Spares Packages (RSP). Deploying supply personnel must review prepositioned CHPMSK levels to determine if they are sufficient to support the deploying unit and adjust the amount of RSP as required. The Regional Supply Squadron (RSS) providing supply support to the AOR is responsible for CHPMSK management to include replenishment.

17.2.14.2. To reduce footprint and airlift requirement, common equipment (i.e. aerospace ground equipment (AGE), materiel handling equipment (MHE), munitions trailers, etc.) should be pre-positioned at AEF sites or at centralized facilities in the their area of responsibility (AOR).

17.2.14.3. In-place lead wing will maintain an accurate list of equipment on site and report status and inventory to MAJCOMs and AEF-vulnerable units.

17.2.14.4. MAJCOMs will maintain lists of War Reserve Materiel (WRM) available in the AOR.

17.2.15. Establish and maintain deployment capability

17.2.15.1. Units will maintain accurate inventories and status of deployed or deployable equipment, keep special certification rosters current, and manage personnel training and scheduled aircraft maintenance priorities.

17.2.16. Perform intelligence assessments

17.2.16.1. 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 be located a safe distance away.

17.2.17. Prepare employment security actions

17.2.17.1. All AEF wings should review and become familiar with theater AEF concept of operations (CONOPS) for planning factors.

17.3. Positioning the Force - tailoring, preparing for movement, deploying, and receiving forces

17.3.1. Account for prepositioned assets

17.3.1.1. Lead wing shall coordinate with supporting units to ensure only required equipment is deployed and that prepositioned assets are used to the greatest extent possible.

17.3.1.2. If accurate status of prepositioned equipment is unavailable prior to deployment, the lead wing shall send a team of qualified equipment technicians in the Advanced Echelon (ADVON) of the main deployment, if possible, to evaluate/report status of prepositioned assets in Theater.

17.3.2. Account for host-nation and coalition assets and support

17.3.2.1. Deploying units shall estimate the level of maintenance required to be performed at forward operating locations (FOLs) based on the organic repair capability, regionalized repair capability, and Host Nation Support (HNS) availability. Tailor the personnel and equipment in the deploying UTCs to reduce the footprint while insuring 100% task coverage.

17.3.3. Tailor and prepare deploying assets

17.3.3.1. Aircraft maintenance units will utilize regionalized repair facilities to the greatest extent possible. To that end, MAJCOMs will source personnel and equipment for regionalized repair facilities whenever feasible to reduce footprint in deployed location and to improve repair efficiencies of units operating in the same AOR. Units shall tailor UTCs appropriately to account for utilization of regionalized maintenance capabilities.

17.3.3.1.1. All MAJCOMs will address use of regionalized maintenance in their CONOPS and/or supporting plans (as required) to support AEF operations.

17.3.3.2. Deploying units depending on regional maintenance support will contact the appropriate regional maintenance facility to coordinate support feasibility prior to deployment.

17.3.3.2.1. After validating support by a regionalized maintenance activity, deploying units will segment deploying RSP to remove items that support a remove, repair, and replace capability at the deployed location.

17.3.3.3. Prior to deployment sourcing, tasked regionalized maintenance facilities will

17.3.3.3.1. Determine maximum surge production capability (without and with augmentation) and pass that information to the lead wing.

17.3.3.3.2. Identify additional requirements needed to support regionalized maintenance for assigned and gained units and pass that information to the lead wing.

17.3.3.4. All available options to resolve RSP shortages should be taken prior to on-call status. Depot support will be coordinated through the respective MAJCOM crisis action teams and functional managers, as needed.

17.3.4. MAJCOM headquarters will:

17.3.4.1. Maintain appropriate AEF time phased force and deployment data (TPFDD) libraries.

17.3.4.2. Ensure AEF UTCs are appropriately postured.

17.3.4.3. Generate a prepare to deploy order (PTDO) when required.

17.3.5. Deploy en route support force

17.3.5.1. The lead wing will 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.

17.3.5.2. Commanders will 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.

17.3.6. Deploy employment elements

17.3.6.1. The following typical Basic Fighting Elements (BFE) for combat aircraft will be deployed. MAJCOMs will develop and utilize modular, scalable UTCs to support these BFEs; tailor UTCs as required for non-standard BFEs.

17.3.6.1.1. Fighter (A-10, F-15, and F-16) – 9 (ARC) and 12 ship basic packages

17.3.6.1.2. F-117 – 8 and 12 ship basic packages

17.3.6.1.3. Bomber (B-1, B-2, and B-52) – 3 ship basic packages

17.3.6.2. Deployed airlift and tanker elements will be centrally managed by the Tanker Airlift Control Center to ensure units receive reachback support IAW with priorities in the AOR.

17.3.6.3. The B-1, B-2, and B-52 UTC packages are currently designed to deploy for 14 days and other aviation UTC packages are currently designed to deploy for 30 days of operations (WMP-5) before the intermediate level maintenance (ILM) packages are called up. Build/tailor UTCs accordingly.

17.3.6.4. 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 of them, 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 also deployed.

17.3.6.5. Deploying units will bring minimum test, measurement and diagnostic equipment (TMDE) to support essential maintenance actions anticipated under the concept of this plan.

17.3.6.6. Deploying units will ensure personnel deploy with proper skill level training, particularly focusing on specialized tasks, e.g. welding of engine flame-holders, fan blade non-destructive inspections (NDI), etc.

17.3.6.7. Aircraft should not deploy with Phase or Isochronal Inspections due immediately upon AOR arrival.

17.3.7. Establish initial operation cadre in the AOR

17.3.7.1. Lead wing will deploy ADVON as required. ADVON aircraft maintenance technicians arrive prior to aircraft arrival.

17.3.7.2. Maintenance supervisors will ensure quality of life arrangements have been made in advance of support forces. Forces must be able to conduct operations upon arrival at the deployed location.

17.3.8. Establish initial reachback connectivity

17.3.8.1. MAJCOMs will 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; and standard information management systems to be used by deployed units.

17.3.8.2. Units will contact the theater MAJCOM C2 cell to request maintenance assistance en route to and from the deployed location to coordinate repair actions.

17.3.8.3. Supply support will be processed through the host base supply activity and sourced by the supporting Regional Supply Squadron (RSS), if necessary. Units requiring supply support from OCONUS, non-USAF base locations will contact the RSS supporting the AOR.

17.3.8.4. 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).

17.3.9. Receive forces

17.3.9.1. Whenever possible, the lead wing will send an advanced echelon (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 lead MAJCOM 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.

17.3.9.2. Commanders will ensure their personnel have adequate work facilities, equipment, work space, vehicles, living quarters, food/water, and supplies to conduct the mission as soon as they arrive at the deployed location.

17.3.10. Recover force and prepare for combat/operational capability

17.3.10.1. Maintenance supervisors will effectively plan and manage scheduled maintenance priorities and personnel shifts to meet sortie production requirements.

17.3.10.1.1. Maintenance supervisors will coordinate with operations counterparts to prioritize maintenance actions, which balance sortie production requirements with fleet health considerations.

17.3.10.1.2. Surges in sortie production may be necessary to support wartime/contingency operations; however, maintenance supervisors will communicate the impact that long-term surge operations have on personnel, fleet health, and overall sortie production capability.

17.3.11. Secure the operating location

17.3.11.1. Maintenance and operations supervisors will ensure all sensitive and classified equipment is properly secured and protected in accordance with applicable directives. In addition, deployed units shall implement procedures to reduce the possibility of theft or damage of unit equipment or supplies.

17.3.11.2. Maintenance supervision will coordinate with airfield managers and security forces to ensure aircraft with sensitive or classified components or cargo are adequately protected while parked or maintained.

17.3.12. Begin reachback operations

17.3.12.1. When parts are required for mission essential equipment, maintenance technicians will utilize deployed supply procedures. If not responsive, maintenance supervision will contact the appropriate functional manager in the Theater MAJCOM C2 cell for assistance.

17.3.12.1.1. If expedited delivery and supply priority warrant, MAJCOMs will source in-theater (lateral) units to support deployed units with parts. Otherwise, deployed units will utilize normal supply ordering procedures for Mission Capable (MICAP) and lower priority parts.

17.4. Employing the Force – providing immediate launch and/or strike capability, providing right-sized essential support, and ensuring regeneration

17.4.1. 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*)

17.4.1.1. Deployments to locations with established wing infrastructure. Units deploying to locations with established infrastructures (i.e. Prince Sultan Air Base, Kingdom of Saudi Arabia and Incirlik Air Base, Turkey) will organize in the Combat Wing Organization. Operations squadrons will deploy into existing Operations Groups. Aircraft Maintenance Units that support those squadrons will deploy into the established AMXS structure. Back shop personnel will deploy into the established MXS structure. The AMU personnel will remain tied to the supported operations squadron the same as in garrison. All deployed maintenance organization will coordinate maintenance actions through the host wing as well as attend appropriate maintenance meetings scheduled by the host wing.

17.4.1.2. Deployments to Bare Base locations. Units deploying to Bare Base locations where there is not established wing structure, all maintenance personnel work directly for the senior Det Commander, usually the operations squadron commander. The deployed wing leadership will provide the command structure / key leadership personnel at the deployed location. All accompanying / supporting units will 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.)

17.4.1.2.1. 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 senior noncommissioned officers (SNCOs).

17.4.2. Generate force to combat/operational capability.

17.4.2.1. Maintenance personnel and support equipment to recover and regenerate aircraft should be in place prior to aircraft arriving.

17.4.2.2. WRM Fuel Tank build-up will deploy if required by the supported commander, Air Force forces (COMAFFOR).

17.4.2.3. Organizational aircraft engine maintenance will 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 predetermined regional maintenance facility or to home station. Units will deploy with the minimum number of spare engines to support the deployed aircraft.

17.4.2.4. Intermediate level maintenance (ILM) of line replaceable units (LRUs) will be primarily confined to cannot duplicate (CND) screening (if test stations are deployed). Otherwise, deployed

maintenance will be performed under the "remove and replace" concept, utilizing the readiness spares package (RSP) to maximum extent possible.

17.4.3. Launch/recover/regenerate operational elements

17.4.3.1. Maintenance supervision will ensure personnel know the current and next-day's flying and maintenance schedules.

17.4.4. Accomplish force support for continuing operations

17.4.4.1. During high tempo operations with increased personnel tempo, commanders and supervisors must be aware that performance degradation can occur with increased mission demands and under wartime conditions. Commanders will monitor increases in maintenance demands to ensure personnel safety is not jeopardized and that the mission is not adversely affected.

17.4.4.2. Maintenance supervision will provide feedback to operations officers/commanders regarding aircraft and personnel status to ensure sortie generation requirements can be met.

17.4.4.3. Maintenance supervision will establish requirements for battle damage assessment teams, crash damage recovery teams, and end-of-runway teams.

17.4.5. Employ reachback operations

17.4.5.1. Maintenance and/or supply technicians will order replenishment spares and consumables IAW standard supply ordering procedures and priorities.

17.4.5.1.1. Deployed units will 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 CONUS and/or rear-based assets and organizations to perform various functions in support of AEF operations.

17.4.5.1.1.1. Units will contact the theater MAJCOM C2 cell to request maintenance assistance en route to and from the deployed location coordinate repair actions. If requested, units will provide consumption/expenditure information, supply prioritization, projected sortie rates, and fleet mission capable status.

17.4.5.1.2. If readiness spares packages are to be left for a follow-on unit, the departing unit will continue to order all replenishment parts, making every effort to completely fill it for the follow-on unit.

17.4.5.2. For replacement of in-place or prepositioned equipment, deployed units will notify the theater MAJCOM C2 cell who will in turn notify the functional area manager (FAM). The theater FAM will validate the requirement and, if possible, source the asset from within theater.

17.4.5.2.1. The organization supplying the equipment will forward information required for the parent MAJCOM to build the level 4 detail TPFDD in Global Command and Control System (GCCS)/JOPES.

17.5. Sustaining the Force - maintaining effective levels of support for operations world-wide beginning day one of employment operations

17.5.1. Transition the initial force to mature, steady-state operation

17.5.1.1. The plan to utilize follow-on maintenance UTCs for sustainment (greater than 30 days) must consider support requirements of the aircraft/munitions maintenance complex at the deployed location, not separate AEF unit requirements.

17.5.2. Optimize communication and resource flows

17.5.2.1. As practicable, lead unit will consolidate maintenance operations (personnel, facilities, and equipment) when 2 or more aircraft maintenance units are co-located at the deployed location. This action will be taken to maximize operational and communications efficiency and to minimize the logistics footprint and redundancy of operations.

17.5.2.2. To the greatest extent possible, other maintenance related operations will also be co-located at the deployed location. Centralized management of scarce resources is directed; however, optimal staging locations may be driven by security considerations.

17.5.3. Maintain operational security

17.5.3.1. Commanders and maintenance supervision will communicate maintenance security priorities not only to security forces personnel, but also to flight line and shop personnel. Ensure personnel are verbally briefed the duress word and how to use it.

17.5.3.1.1. Personnel will 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.

17.5.3.1.2. Flight line and shop technicians will follow and enforce security procedures, including exercising constant vigilance in the work place, performing end of day security checks, and varying routes and times to and from work.

17.6. Recovering the Force – redeployment and reconstitution, ensuring that the instrument of Air and Space Power is a tool that can effectively be applied repeatedly

17.6.1. The objective of recovery/deployment is to ensure a coordinated withdrawal while maintaining Theater integrity. Redeployment is the phase of a mission that involves the transfer of a unit, individual(s), and/or supplies deployed in one area to another area for the purpose of further employment. Recovery is the phase of a mission, which involves the return of aircraft and support resources to home base. Contingency plans should be developed in advance for recovery and/or redeployment.

17.6.2. Reduce number of people and amount of equipment/supply to support redeployment

17.6.2.1. Deployed units will 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. Redeployment includes forward deployment to another FOL, as well as return to home station.

17.6.2.2. A Redeployment Assistance Team (RAT) may be activated. They are the overall coordinators for accomplishing actions at the deployed site (e.g. getting the troops, equipment, and supplies back to home station or 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.

17.6.2.3. Utilize packing/load lists/manifests or Custody Authorization/Custodian Responsibility Lists (CA/CRLs) to track assets when forward deployed and the assets' redeployment status (i.e., destroyed, captured, excessive restoration costs, and reorder information).

17.6.2.3.1. At the deployed location, units must maintain these documents and account for equipment, including cargo manifests, load plans, hazardous cargo documentation, etc. Knowing where assets are located, whether they are redeployable, and where the deployment documentation is, will reduce labor-intensive efforts when the redeployment order is received.

17.6.2.4. Maintain accurate inventories to ensure you know what equipment remains or needs to be returned to other units. This knowledge will aid 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.

17.6.2.4.1. All unit equipment (CTKs, TMDE, benchstock, 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.

17.6.2.4.2. Chief of Supply at the deployed location has overall responsibility for the inventory and accountability of supply assets in their possession. He/she must reconcile all supply transactions before redeployment, and ship property, properly configured with inventory lists attached to designated reconstitution sites, WRM preposition sites, or home station.

17.6.3. Protect dynamic reduction in force structure

17.6.3.1. Commanders will phase the personnel and equipment out of the theater while ensuring complete tasks coverage for all aircraft until the last aircraft is redeployed.

17.6.4. Deploy en route support forces

17.6.4.1. As part of the redeployment plan, maintenance supervision will coordinate with operations schedulers to deploy en route support forces, as required.

17.6.5. Launch redeployment forces

17.6.5.1. Maintenance supervision will manage the redeployment of aircraft maintenance technicians along with the redeployment of the aircraft. Sufficient personnel and equipment will remain to close accounts and ship equipment/supplies as necessary.

17.6.6. Redeploy remaining Agile Combat Support resources

17.6.6.1. Commanders will 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, to build cargo pallets, and to whom to contact to coordinate shipment method.

17.6.7. Recover forces

17.6.7.1. Commanders will ensure sortie production requirements are balanced against the fleet health priorities (such as scheduled maintenance inspections and time changes). Additionally, the training requirements of both air crew and maintenance personnel must be balanced to achieve training objectives.

17.6.8. Reconstitute the force

17.6.8.1. Once the unit returns to homestation or is redeployed to another location, actions must be taken to re-attain operational readiness as soon as practicable.

17.6.8.2. Commanders will ensure that personnel training and aircraft maintenance requirements are given priority management attention to ensure the unit returns to operational capability quickly.

17.6.8.3. Depleted bench and operating stocks must be replenished All unit equipment (CTKs, TMDE, benchstock, RSP, support equipment, and technical data) must be inventoried, inspected, tested, or serviced as necessary.

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.

18.1.1. MAJCOMs may authorize/develop a flying crew chief program under the direction of HQ USAF/ILMM for maintainers who are required to regularly fly and maintain aircraft. "FCC" are selected per mission requirement as directed by MAJCOMs and qualify for Special Duty Assignment Pay (SDAP) IAW AFI 36-3017.

18.1.2. The objective of the FCC program is to:

18.1.2.1. Provide qualified maintenance support for aircraft at locations other than home station.

18.1.2.2. Reimburse maintenance personnel for the added burden of maintaining special qualifications and performing regular aerial flight.

18.1.3. The FCC program only applies to 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, 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/DPRS oversees the overall SDAP program and provides program guidance in AFI 36-3017, *Special Duty Assignment Pay (SDAP) Program*. DPRS 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 DPRS.

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 DPXP.

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 DPXP by 15 August each year. Submit the biennial FCC report to HQ USAF/DPXP 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 FCC's 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.

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 unless the commander sets an earlier date.

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 15th 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 4th quarter and current FY 1st, 2nd, and 3rd 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 which 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. Only maintenance requirements which have a definite potential for personnel injury or damage to equipment will be included in the SCR. Other tasks requiring special training or qualifications may be considered for SCR. The SCR is used to build personnel rosters for deployments, shift schedules, and assess workforce capability. The SCR will be reviewed and signed quarterly (ANG semi-annually) by the appropriate maintenance supervision and work center supervisor to verify that all entries are current, accurate and task certifications have been completed. See **Table 18.1.** for SCR requirements.

18.2.1. Maintenance Supervision 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 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. File copies of approved waivers must be maintained by maintenance supervision or equivalent. 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 will 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 00-20-5, 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.

18.2.4. 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.

18.2.4.1. Work center supervisor, superintendent, MS, 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.

18.3. 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 will be capable of performing operational aircraft, vehicle, and support equipment decontamination at all locations. Procedures will be established IAW AFOSH Std 91-100, *Aircraft Flight Line Ground Operations and Activities,* AFOSH Std 91-31, *Personal Protective Equipment,* TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material contaminated with Radioactive Debris,* TO 00-20-5, 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,* and AFMAN 32-4017*, Civil Engineer Readiness Technician's Manual for Nuclear, Biological, and Chemical Defense,* Air Force Handbook 32-4014, Vol. 4*, USAF Operations in a Chemical and Biological Warfare (CB) Environment Survive to Operate Procedures.*

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) 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, TCTOs, 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*. Aircraft in depot maintenance possesse by AFMC will 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.

18.6.1. 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 extended period of time based on possessed calendar days in their assigned purpose code IAW AFI 21-103. 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.).

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 chief of maintenance the estimated delivery dates for top down-time driver (AWP) parts. In addition, report by tail number monthly to HAF/ILP. **Cannibalizations will 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 will not be construed as a ìreport cardî.

18.6.3.3. When an aircraft becomes a category 3 Hangar Queen, aircraft maintenance and supply status will be briefed at the daily wing standup. Report status to the MAJCOM chief of maintenance, HAF/ILP and HAF ILM monthly.

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 ìEXAG Host Base Messageî within 5 duty days after completion of Ample Gain missions. Message format is in ACE Directive 80-54. *NOTE*: Transmit ACS routine messages ìUS UNCLASSIFIEDî. Information on unit ACS capabilities or ACS deficiencies will be classified as ìUS CONFIDENTIALî. 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 Supervision and the ACS certifier will 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/Aircraft maintenance squadrons (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 ìEXAG Flight Confirmationî 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 ìEXAG Mission Pilot Reportî 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 ìExercise Ample Gainî 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 ìExercise Ample Gain Embellish Yes, Pass to Air Defenseî 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 ìremain overnightî (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 owning 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 ìidenticalî 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.

18.9.2. 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 5, 7, and 9 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.

18.9.4.1. 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

18.9.5.1. 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.

18.10. 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 structural 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.

18.11.1. 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.

18.11.2. 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.

18.11.4. 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.

18.11.5. 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.

18.11.6. 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).

18.11.6.3.2. 180 day proficiency requirement (if applicable).

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.

18.12.2. 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.

18.12.4. Group commanders will select maintenance instructors, TD instructors to provide training or AFETS. MTF will 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.**

NOTE: 5-skill level JEIM personnel authorized to perform engine blade blending are not required to be "Red X" qualified. Other 5-skill level technicians will receive a waiver for "Red X" authority. Retraining and recertification is required for technicians changing MDSs or production type/block aircraft.

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.

18.12.6. 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 personnel 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 Wing FOD Manager 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/ Comprehensive Engine Management System (CEMS), IAW TO 00-20-5.

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 Manager 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, and CEMS IAW TO 00-20-5.

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.

18.13. 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 do not require this inspection.

NOTE: Alert Force Evaluations will not require an EOR inspection and will be treated as active Air Defense scrambles. Alert aircraft that launch for training missions from alert status will 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 ìFOR TRAINING ONLYî 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: ìThermal Protective Devices/Shields Inspection Required.î 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 ìCorrected Byî block of the AFTO Form 781A entry, and the aircraft commander signs the ìInspected Byî 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:

18.17.4.2.1. 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.

18.17.6.3. 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.

18.17.8. 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.

18.17.13.1.1. Phase I: ìFamiliarizationî 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: ìHands-onî 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: ìDemonstration/Certificationî 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 ìrefuel aircraft with engines operatingî 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 experience 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 ìdouble-stuffî 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. Fully open PAS doors when aircraft engines are operated in the PAS. Open PAS doors at least 50 percent when AGE is operated inside the PAS.

18.19.6.1. Do not open PAS aircraft doors until ice, snow or debris is removed from the roller guide track and door roller path. Opening aircraft entry doors with clogged door roller guides could cause severe damage to the door and door drive system.

18.19.6.2. During ìreal worldî situations when force protection measures are increased, or as directed by commanders, keep the doors of shelters protecting critical assets closed.

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.

18.19.6.4. During normal operations, open doors as specified in wing procedures, to facilitate safety, refueling, and ventilation for exhaust of hazardous vapors and fumes. During increased tensions when the shelter is protecting critical wartime assets, shelter doors will remain closed.

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 ìsafeî 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 ìRed Ballî is a traditional descriptor, recognized throughout aircraft maintenance, and defines a situation requiring a sense of urgency and priority actions. ìRed Ballî 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 will in no way authorize technicians to take shortcuts or deviate from technical orders, personnel safety requirements or fail to properly document the aircraft forms and MIS for completed repair actions. All red X discrepancies will be cleared from both the aircraft forms and the MIS prior to flight. Units will 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 be aimed at accomplishment of all maintenance documentation prior to flight). If aircraft status changes, an exceptional release will be re-accomplished, by a certified individual upon completion of maintenance and before the aircraft is released for flight IAW TO 00-20-5. *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.

18.20.4. Weapons loaded aircraft will be safed IAW applicable MDS and/or weapons specific technical data.

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*.

18.21.1.1. 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.

18.21.2.1. 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.

18.21.3. 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.

18.23. 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. (21SW) All commanders will ensure compliance with this supplement and establish guidance, as required, so every precaution is taken to prevent FOD. As applicable, organizations must ensure newly assigned personnel receive FOD Prevention Orientation/Familiarization Briefing during in processing. The Newcomers' FOD briefing will be documented by the responsible organization. Airfield Management will ensure flightline driver's training program stresses the importance of FOD prevention, control of vehicles on the flightline, and precautions to be taken prior to driving onto the airdrome hard surfaces from unpaved areas. The 302 AW Reserve unit has their own FOD Program due to mission requirements and AFRC Instruction requirement. It is at least as restrictive as Air Force-level guidance.

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 will have approved foreign object (FO) containers readily accessible to workers. All vehicles normally driven on the flight line will be equipped with secured and lidded FO containers and stenciled with the word ìFODî 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 will 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.

18.23.2.12.1. (Added-21SW) Personnel will not wear hats on the flightline. Wear of the winter watch cap is authorized and may be worn during aircraft launch, when using the following procedures:

Ear defender/communication headsets devices can be worn over the watch cap.

Watch cap must be firmly set on individual's head, ensured by pulling watch cap down over the ears, to prevent it from inadvertently coming off, and posing a FOD hazard.

EXCEPTION: When conducting official protocol duties on the flightline, the senior officer present, or his/her representative, will consider risk factors including weather and proximity to operating aircraft engines, and dictate if hats are to be worn for a particular occasion (this does not include baggage and aircraft support personnel). No individual wearing a hat, regardless of rank, will pass within 25 feet of an operating engine.

18.23.2.13. When FOD is discovered on a transient aircraft, depot input/output, or a ìQueen Beeî engine, the host FOD monitor or aircrew will notify the owning organization immediately. An informational copy of the FOD report will be provided to the owning organization's safety office to ensure compliance with AFI 91-204. Aircrews will 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. (21SW) Government employees will not use or possess personal tools in any aircraft maintenance area. Contractors will comply with their contract concerning tool control and accountability.

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.

18.23.2.19.1. (Added-21SW) Aircraft/weapons safety pins will not be placed on or left unsecured on aircraft parking ramps/movement areas at any time.

18.23.2.19.2. (Added-21SW) At no time will aircraft forms be left unsecured on the ramp or any external area of the aircraft.

18.23.2.19.3. (Added-21SW) Drinks may be consumed inside vehicles and the empty containers must be disposed of properly. Soda cans are prohibited outside of the vehicles on the flightline. Glass bottles are prohibited on the flightline, with the exception of sample kits.

18.23.2.19.4. (Added-21SW) Smoking on the flightline is prohibited, including inside vehicles, except in designated areas approved by the Fire Chief.

18.23.2.20. (Added-21SW) Flightline Vehicle FOD Prevention:

18.23.2.20.1. (Added-21SW) Vehicle operators (including contractors) will inspect the cab interior, cargo bed area, and tires prior to use and remove all foreign material that could inadvertently fall on the ramp creating FOD hazard.

18.23.2.20.2. (Added-21SW) All flightline vehicles will be equipped with a suitable covered FO container. Storage containers on tugs and in tractors may be used in place of self-closing containers. Containers will be secured so as not to tip over when vehicle is in motion. Containers will be emptied at the end of each shift.

18.23.2.20.3. (Added-21SW) Vehicle operators will make every attempt to enter the military aircraft parking ramp via paved surfaces using flightline gate entrances. Vehicles proceeding on the flightline from unpaved surfaces will pull the vehicle onto the flightline, then check tires. This ensures no FO (i.e. rocks or stones, etc.) is tracked onto the ramp. To ensure that vehicle tires remain free of small rocks and other debris, vehicles entering or returning to the flightline will perform a tire FO check prior to entering the flightline area. Emergency response vehicle operators responding to emergencies will ensure a foreign object check of all vehicles is conducted in the emergency area before departing. Rescue personnel must also ensure that the flightline is policed of all foreign objects that could be dropped by their vehicles in the area of the emergency.

18.23.2.20.4. (Added-21SW) Prior to start of any vehicle on the ramp, the driver will ensure that all objects which could fall off the vehicle and become FOD hazards are secured. Vehicles regularly operating on the ramp, excluding fuel-servicing vehicles will have a covered can for disposal of the debris.

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.

18.23.3.2. 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.

18.23.7.1.1. (Added-21SW) 21 MSG and MXG Commanders will ensure FOD prevention practices and procedures are implemented at all times.

18.23.7.1.2. (Added-21SW) 21 CES Commander will have the primary responsibility for maintenance and cleanliness of military aircraft parking ramp surfaces.

18.23.7.1.3. (Added-21SW) The Chief of Airfield Management Operations (OSA) is responsible for inspection of the military aircraft-parking ramp twice daily. Airfield Management will coordinate with 21 CES (Contract Management) to ensure continual inspection of areas where construction is in progress and will ensure that special requests for sweeper operations are met promptly during operating hours.

NOTES:

During inclement weather conditions, OSA will increase inspections of military aircraft parking ramp.

Colorado Springs Aviation Division is responsible for all runway and taxiway inspections. Any reports of FOD seen on the runways or taxiways by military aircraft will be reported to Base Operations, who will, in turn, notify the city.

18.23.7.1.4. (Added-21SW) Contractor maintenance personnel will comply with their contract, which will establish their foreign object damage prevention programs and procedures for the reporting of foreign object damage incidents.

18.23.7.2. To effectively manage the program, the vice wing commander will:

18.23.7.2.1. Ensure unit commanders, MS/SUPT actively support to 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.

18.23.7.3. (Added-21SW) Ramp Policing:

18.23.7.3.1. (Added-21SW) Commanders, including those of TDY units, will ensure areas designated below are policed daily by foreign object (FO) crews. Special attention will be given to cleaning of cracks and expansion seams in hard surfaced areas where engines will be operated. All personnel will take an active part in daily policing to effectively reduce the FOD potential to engines and tires.

18.23.7.3.2. (Added-21SW) Each operational unit will be responsible for their aircraft parking area, the adjacent portions of the access road, as well as their assigned hangar space. The transient parking area is the responsibility of transient alert personnel.

18.23.7.3.3. (Added-21SW) A sweeper truck is scheduled to clean one of five ramp zones each day, Monday through Friday. Additional areas identified for cleaning by Airfield Operations during daily inspections will be reported to the sweeper driver for action. Contact Airfield Operations if a sweeper is needed for unscheduled sweeps.

18.23.7.3.4. (Added-21SW) Facilities adjacent to aircraft parking ramps, taxiways, or engine run areas, as well as any shops or hangars used for aircraft/component maintenance, will be policed by the owning organization. Particular attention to closing dumpster lids during high winds must be addressed by each facility manager.

18.23.7.3.5. (Added-21SW) Personnel will be constantly alert for any form of FO during all phases of a job. Special attention must be given to small items of debris, such as safety wire, bolts, nuts, screws, etc. Loose materials of this kind will be placed in FO containers during the normal course of job performance. After the job is completed, a final check of the entire work area will be made and all FO removed.

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.

18.23.8.3. 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.

18.23.8.6. (Added-21SW) The Wing FOD Prevention NCO will perform random Foreign Object (FO) inspections. The contractor's Program Managers will ensure a similar program is carried out. All FOD incidents will be discussed at FOD Prevention Committee meetings to ensure information regarding FOD hazards receives base wide dissemination along with the appropriate corrective action.

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.

18.23.9.1. (21SW) Any aircraft maintenance activity discovering foreign object damage to any aircraft/engine will report findings to its Maintenance Officer/Supervisor. The Wing FOD Prevention NCO will be notified and, in turn, will contact the Wing Safety office and Airfield Management. The Maintenance Officer/Superintendent or Federal Aviation Administration (FAA) representative will impound the aircraft, whichever is appropriate (primary) or a representative from Wing Safety (alternate) until the damage can be evaluated. No maintenance action will be accomplished without the concurrence of the impoundment official. The Wing FOD NCO and a representative from Wing Safety will jointly investigate foreign object damage on all military and contracted aircraft. They will perform the initial investigation following AFI 91-204, *Safety Investigations and Reports.*

NOTES:

Civilian aircraft that are owned or operated by the Air Force fall under the control of the FAA and the National Transportation Safety Board (NTSB). The Air Force will work with the FAA and the NTSB during investigation to ensure safety and liability issues are covered.

The impoundment official for aircraft not assigned/attached to Peterson AFB will automatically be the Superintendent of Maintenance. The impoundment will be released to the maintenance team chief of the owning organization, upon the team's arrival.

18.23.9.1.1. (Added-21SW) The Wing Safety office and FOD NCO will investigate the FOD mishap and provide an initial report, in accordance with AFI 91-204, of all circumstances surrounding the incident. The 21 SW/CV, 21 MSG/CC, and 21 MXG/CC will be briefed within 12 hours of the incident and reporting will be done in accordance with AFI 91-204.

18.23.9.1.2. (Added-21SW) The Wing FOD Prevention NCO or Safety NCO will give a written end report, on each FOD incident, to the 21 SW/CV NLT seven working days after completion of the investigation. The report will be in accordance with the format in AFI 91-204.

18.23.9.1.3. (Added-21SW) The Wing FOD Prevention NCO will ensure the written end report is coordinated through the Wing Safety office, 21 MSG/CC, and 21 MXG/CC prior to being sent to the 21 SW/CV for review and signature.

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, and birds. Report this type of damage according to AFI 91-204, *Safety Investigations and Reports*. Do not include it in FOD rates.

18.23.9.2.1. (21SW) Bird damage to engines is not chargeable as FOD, but must be investigated and documented to preclude the 21 SW from being charged with a FOD incident. Such incidents may be reportable under the Bird Avoidance Strike Hazard (BASH) Program. Contact Wing Safety with details as soon as possible after discovering bird related engine damage.

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.

18.23.9.3.4. 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 quarterly 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.

18.23.10.2. (Added-21SW) The Peterson AFB FOD Committee will meet quarterly, unless the MAJCOM standard FOD rate is exceeded. In the event that MAJCOM standards are exceeded, the committee will meet monthly until the standards are met. The committee chairperson may direct additional meetings as necessary.

18.23.10.2.1. (Added-21SW) Representatives from each of the agencies listed below are appointed as members of the Peterson AFB FOD Committee. Personnel occupying these positions or their alternates will attend the meetings. All appointments will be coordinated through the Wing FOD Prevention NCO by letter, appointing a primary and an alternate member. Committee members are:

21 MSG/CC, Chairperson

21 MOF/MXOA, Wing FOD Prevention NCO

21 CES/CEF, Fire Department

21 LRS/LGRR

21 OSS/OSA, Airfield Management

21 SFS/SPOS

21 SW/SEG

21 SVS/SVBP, Aero Club

302 LGQ

84 ALF, QAR

200 AS, QAR

98 FTS (UV-18)

PMI/LGS (POL)

COWGCAP/GROUP3-CC, Civil Air Patrol

18.23.10.2.2. (Added-21SW) The Wing FOD Prevention NCO will develop the meeting agenda and brief the members of the FOD Prevention Committee.

18.23.10.2.3. (Added-21SW) The Wing FOD Prevention NCO will be appointed by the Wing Vice Commander in writing. The appointee should have an aircraft maintenance background when possible.

18.23.10.2.4. (Added-21SW) The 21st Mission Support Group Commander will serve as wing FOD Prevention Committee Chairperson. He/she will monitor all phases of the program implementation within the Wing to ensure the FOD incidents are thoroughly investigated and adequate corrective action is taken.

18.23.10.2.5. (Added-21SW) Each operational, maintenance, and civil engineering squadron commander/project manager will:

18.23.10.2.5.1. (Added-21SW) Appoint a Unit FOD Prevention Officer/NCO, or manager. These individuals will manage the squadron/contract program and make sure that ramps/areas of responsibility are policed daily.

NOTE: A letter of appointment will be forwarded to the Wing FOD Prevention NCO.

18.23.10.2.5.2. (Added-21SW) Make sure all squadron/contract maintenance personnel are made aware of this supplement and comply with the provisions therein.

18.23.10.2.5.3. (Added-21SW) Be a participating member of the Wing FOD Prevention Committee and attend scheduled meetings.

18.23.10.2.5.4. (Added-21SW) Make sure all publicity material concerning FOD (such as, FOD bulletin board, posters, committee minutes, and so forth) is disseminated throughout the area of responsibility.

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.

18.23.11.5.2. 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:

18.23.11.5.2.1. 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.

18.25. 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:

18.26.1.1. 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.

18.26.1.2. 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. Prerequisites for qualification to operate aircraft Auxiliary Power Unit (APU), Gas Turbine Compressor (GTC)/Air Turbine Motor (ATM), or Auxiliary Power Plant (APP) as applicable.

18.26.2.3.1. Familiar with aircraft marshalling signals.

18.26.2.3.2. Completed all applicable courses.

18.26.2.3.3. Qualified and certified as a tow brake operator.

18.26.2.3.4. Qualified in basic radio and interphone systems operation.

18.26.3. Certifiers. Aircraft engine-run certifying officials will hold the rank of master sergeant 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 technical sergeants. All certifiers will have a minimum of one 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.

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.

18.26.5.1.3. 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.

18.26.5.1.7. 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, ìdry runî 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:

18.26.5.3.1. 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.

18.26.6. 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 will be certified to the fully qualified level. Completion of engine run training phase 1 for the applicable aircraft (F-15 or F-16) and a supervisor's evaluation constitutes certification. Supervisors will evaluate and re-certify personnel annually.

NOTE: Personnel performing engine maintenance ground runs will fasten seat belts/shoulder harnesses, as applicable, IAW with technical data.

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.

18.26.7.5. 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.

18.26.11. MAJCOMs will determine if maintenance personnel are authorized to taxi aircraft and will develop detailed written guidance.

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.

18.26.13. 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 2A671A/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 two-year experience requirement may also be waived.

18.26.13.1.2. Be authorized to perform inspections for intake and exhausts.

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.

18.26.15. Training. Uninstalled engine/small gas turbine engine run training will 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 (power off) 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 (power off).

18.26.16.2.2. Proper uninstalled engine/small gas turbine engine bold face emergency procedures, including notes, cautions, and warnings (power off).

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.

18.26.17. 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:

18.26.17.1. Only 2A671A/B personnel (or civilian equivalent) will be certified. Qualified 2A651A/B SrA may be waivered to perform fire control panel duty.

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 going outside US airspace and returning to CONUS. (Missions that originate in Alaskan or Hawaiian territory and do not depart US 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.

18.28. 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.

18.28.1. 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.

18.28.4. 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. (Wing commanders in AFSOC, ARC and AETC will determine frequency). Coordinates refueling and munitions requirements with the OC/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-level with a maintenance (2AXXX or 2WXXX) Air Force Specialty Code (AFSC) with at least one year of experience on the MDS.

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.

18.28.8.6. 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.

18.28.9.2. 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.).

18.28.11. 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.

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 Intake/Exhaust Certification	Most qualified 7or 9 level, (or civilian equivalent), (Note 1)
7	Flexible borescope Certifier	
8	Blade Blending Certifier	
9	Red-X–by primary AFSC [PAFSC] and MDS	SSgt, or higher , 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 (Notes 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).
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. Certification will be accomplished according to AFI 11-218, *Aircraft Operation and Movement on the Ground* and this instruction. (Note 2) May be waived by MXG/CC in short tour locations.
15.	Blade blending (refer to **Chapter 18**)	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)

	A	B
Item	**Mandatory SCR Item Titles**	**Prerequisites**
17	Test cell/noise suppression system (NSS) operator.	SSgt or higher, minimum 7-skill level, (or civilian equivalent), with a minimum of 6 months time on weapon system.(Note 2)
18	Engine inlet/exhaust inspections. (Refer to **Chapter 18**)	Minimum 5 – skill level, (or civilian equivalent), with a minimum of 6 months weapon system experience. (Note 2)
19	Flexible borescope inspections. (Refer to **Chapter 18**)	Minimum 5 – skill level, (or civilian equivalent), with a minimum of 6 months weapon system experience. (Note 2). May be waived by MXG/CC in short tour locations.
20	Concurrent servicing operations supervisor/team member (heavy aircraft).	Minimum 5 – skill level with a minimum of 1 year weapon system experience. (Note 2).
21	Aircraft ground to ground refueling (Aircraft to Aircraft)	Minimum 5 – skill level with a minimum of 1 year weapon system experience. (Note 2).
22	Weight and Balance (W&B) Certified	SSgt or higher (or civilian equivalent), with a minimum of 1 year time on weapon system. (Note 2).
23	Impoundment (Authority, Release Authority, and Official)	Refer to **Chapter 11** for Impoundment requirements (Note 1)
24	APU Operation	(Note 2)

NOTES:

1. Approved by Group Commander
2. Approved by Maintenance Supervision
3. Maintenance Supervision may delegate approval authority to the flight 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*).**

18.29. 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 *Equipement 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*

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 Forms 15 *Air Munitions Serviceability and Location Record*

AFTO Form 22 *Technical Order Improvement Report and Reply*

AFTO Form 27 *Preliminary Technical Order (PTO) Publication Change Request (PCR) TO AFTO Verification Record/Approval*

AFTO Forms 29 *TO Delinquency Report*

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*

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DCS/Installations and Logistics

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

Table A1 AFOSH Standards

48-1, Respiratory Protection Program

48-8, Controlling Exposures to Hazardous Materials

48-9, Radio Frequency Radiation (RFR) Safety Program

48-19, Hazardous Noise Program

48-101, Aerospace Medical Operations

48-137, Respiratory Protection Program

91-2, Vehicle-mounted Elevating and Rotating Work Platforms, Manually-Propelled and Self-Propelled Mobile Work Platforms, and Scaffolds (Towers)

91-5, Welding, Cutting and Brazing

91-17, Interior Spray Painting

91-25, Confined Spaces

91-31, Personal Protective Equipment

91-38, Hydrocarbon Fuels General

91-45, Hazardous Energy Control and Mishap Prevention Signs and Tags

91-46, Materials Handling and Storage Equipment

91-50, Communications Cable, Antenna and Communications – Electronic (C-E) Systems

91-66, General Industrial Operations

91-90, Precision Measurement Equipment Laboratory (PMEL)

91-100, Aircraft Flight Line Ground Operations and Activities

91-110, Nondestructive Inspection and Oil Analysis Program

91-119, Process Safety Management (PSM) of Highly Hazardous Chemicals

91-12, Machinery

91-22, Walking Surfaces, Guarding Floor and Wall Openings and Holes, Fixed Industrial Stairs, and Portable and Fixed Ladders

91-32, Emergency Shower and Eyewash Units

91-43, Flammable and Combustible Liquids

91-44, Safety Color Coding, Labeling, and Marking For Piping Systems

91-45, Hazardous Energy Control and Mishap Prevention Signs and Tags

91-56, Fire Protection and Prevention

91-67, Liquid Nitrogen and Oxygen Safety

91-68, Chemical Safety

161-2, Industrial Ventilation

161-17, Standardized Occupational Health Program

161-20, Hearing Conservation Program

161-21, Hazard Communication

Table A2 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 Operation 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 21-118, 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 21-401, 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 36-2201, Developing, Managing, and Conducting Training

AFI 36-2115 , Assignments within the Reserve Components

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, Museum System

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

AFI 90-901, Operational Risk Management (ORM) Program

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 A3 Air Force Policy 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

Table A4 Air Force Manuals

AFMAN 10-206 , Operational Reporting

AFMAN 10-401 , Operations Plan and Concept Plan Development

AFMAN 24-306, Manual For Wheeled Vehicle Driver

AFMAN 91-201, Explosives Safety Standards

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 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

Table A5 Air Force Technical Orders

TO 00-5-1, AF Technical Order System

TO 00-5-2, Technical Order Distribution System

TO 00-5-2-2 , Automated Technical Order Management 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 00-110A-Series, Inspection Maintenance Instruction, Storage, and Disposition of Aircraft

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 00-110N-16 , USAF Nuclear Certified Equipment and Software

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 1-1-691, Aircraft Weapons Systems Cleaning and Corrosion Control

TO 1-1-300, Acceptance/Functional Check Flight and Maintenance OPR Checks

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 4T-1-3, Tires and Tubes

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 A6 Air Force Computer Service Manuals

AFCSM 21-303, PAMS

AFCSM 21-556, Software Center Operator Manual

AFCSM 21-558, Comprehensive Engine Management System

AFCSM 21-561, Maintenance Event Subsystem

AFCSM 21-563, Job Data Documentation

AFCSM 21-564, Status and Inventory

AFCSM 21-565, Operational Events Subsystem

AFCSM 21-566, Inspection and Time Change

AFCSM 21-568, Time Compliance Technical Order Subsystem

AFCSM 21-570, Training Management

AFCSM 21-573, Automated Scheduling Module

AFCSM 21-574, Automated Debriefing

AFCSM 21-575, Job Control, Automated Maintenance Operation Control Center

AFCSM 21-576, Generic Configuration Status Accounting System (GCSAS)

AFCSM 21-578, Product Quality Deficiency Reporting System

AFCSM 21-579, Maintenance and Supply interface

AFCSM 25-524, REMIS

Abbreviations and Acronyms

2LM—Two Level Maintenance

A/R—Aerospace Repair

AAD—Average Absolute Deviation

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

ACO—Administrative Contracting Officer

ACPINS—Automated Computer Program Identification Number System

ACR—Authorization Change Requests

ACS—Aircraft Cross-Servicing / Agile Combat Support

ACTS—Automated Component Tracking System

ADCC—Assistant Dedicated Crew Chief

ADF—Automatic Direction Finder

ADN—Aircraft Directive Numbers

ADP—Automated Data Processing

ADPE—Automated Data Processing Equipment

ADR—Aircraft Document Review

ADR—Ammunition Disposition Report

ADS—Automated Data System

ADVON—Advanced Echelon

AEF—Aerospace Expeditionary Force

AETC—Air Education and Training Command

AETF—Air and Space Expeditionary Task Force

AFCS—Automatic Flight Control System

AFCSM—Air Force Computer Security Manual

AFE—Alert Force Evaluation

AFEMS—Air Force Equipment Management System

AFETS—Air Force Engineering and Technical Service

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFNCC—Air Force Network Control Center

AFOSH—Air Force Occupational Safety and Health

AFPC—Air Force Personnel Center

AFRC—Air Force Reserve Command

AFREP—Air Force Repair and Enhancement Program

AFSC—Air Force Specialty Code

AFSOC—Air Force Special Operations Command

AFIT—Air Force Institute of Technology

AFRL—Air Force Research Laboratory

AFTO—Air Force Technical Order

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

AID—Accident, Incident, and Deficiencies

AIG—Address Indicating Group

AIMS—Air Intercept Missile System

AIP—Aircraft Information Program

ALA—Ammunition Loading Assemblies

ALC—Air Logistics Center

ALCS—Airborne Launch Control System

ALI—Awaiting Laboratory Input

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

AMS—Air Mobility Squadron

AMSG—Air Mobility Support Group

AMSS—Air Mobility Support Squadron

AMXS—Aircraft Maintenance Squadron

ANG—Air National Guard

AOR—Area of Responsibility

APA—Assessor Proficiency Assessment

APG—Airplane General

APP—Auxiliary Power Plant

APU—Auxiliary Power Unit

AQL—Acceptable Quality Level

ARC—Air Reserve Component

ART—Air Reserve Technician

AS—Allowance Standard

ASAP—As Soon As Possible

ASE—Avionics Support Equipment

ASIP—Aircraft Structural Integrity Program

ASIMIS—Aircraft Structural Integrity Management Information System

ASM—Aircraft Structural Maintenance

ASM—Automated Scheduling Message

AST—Armament Systems Trainer

AT—Air Traffic

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

AUR—All-Up-Round

AURC—All-Up-Round Container

AVD O—Aerospace Vehicle Distribution Office

AVS —Aerospace Vehicle Status Report

AVT R—Airborne Videotape Recorder

AWBS—Automated Weight and Balance System

AWI —Awaiting Installation

AWM—Awaiting Maintenance

AWP—Awaiting Parts

BAI—Backup Aircraft Inventory

BCS—Bench Check Serviceable

BFD—Battery Firing Device

BFE—Basic Fighting Element

BITE—Built-in Test Equipment

BLIS—Base Level Inquiry System

BLSS—Base Level Supply System or Base Level Self Sufficiency

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

BSSU—Bench Stock Support Unit

C2IPS—Command and Control Information Processing System

C4—Command, Control, Communications, and Computers

CA—Cannibalization Authority or 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

CAMS—Core Automated Maintenance System

CANN—Cannibalization

CAPCODE—Capability/Reliability Code

CAS-B—Combat Ammunition System-Base

CASS—Consolidated Aircraft Support System

CAST—Combat Armament Support Team and/or Command Aircraft Systems Training

CATM—Captive Air Training Munition

CBM—Carriage Conventional Bomb Module

CBT—Computer-Based Training

CBU—Cluster Bomb Unit

CC—Commander or Combat Coded

CCB—Configuration Control Board

CCD—Course Control Document

CCI—Controlled Cryptographic Item

CCMS—Compass Call Mission Simulator

CCR—Circuit Card Repair

CCY—Calculated Cycles

CD—Command Disable

CDB—Central Data Base

CDC—Career Development Course

CDDAR—Crashed, Damaged, or Disabled Aircraft Repair

CDDS—CITS Deployable Diagnostics System

CDS—Command Disablement System

CE—Civil Engineer or Communications Electronics

CEMS—Comprehensive Engine Management System

CERI—Combat Effectiveness Readiness Inspection

CETADS—Comprehensive Engine Trending and Diagnostics

CETS—Contractor Engineering and Technical Services

CFL—Competent Familiarity Loading

CFETP—Career Field Education and Training Plan

CFRS—Computerized Fault Reporting System

CFS—Contractor Field Services

CFT—Conformal Fuel Tank

CFT—Contract Field Team

CGP—Central Ground Processors

CGT—Consolidated Ground Terminal

CHPMSK—Centralized High Priority Mission Support Kit

CIC—Controlled Item Code

CIP—Control Indicator Programmer

CIRF—Centralized Intermediate Repair Facility

CITS—Central Integrated Test System

CL—Checklist

CLS—Contract Logistics Supports

CLSS—Combat Logistics Support Squadron

CM—Certified Mechanic or Configuration Management

CMIS—Close-loop Maintenance Information System

CMS—Calibration and Measurement Summary and/or Computer Maintenance Section

CMS—Component Maintenance Squadron

CMT—Certified Master Technician

CND—Cannot Duplicate

CO—Contracting Officer

COB—Co-located Operating Base

COMAFFOR—Commander, Air Force Forces

COMBS—Contractor Operated and Maintained Base Supply

COMPES—Contingency Operation Mobility Planning and Execution System

COMSEC—Communications Security

CONUS—Continental United States

CONOPS—Concept of Operations

CONS—Console Monitoring

CORE—Combat Oriented Repair Evaluation

CORI—Combat Oriented Repair Initiative

COS—Chief of Supply

COSO—Combat Oriented Supply Organization

COT—Current Operating Time

CPIN—Computer Program Identification Numbering

CPR—Cardio-Pulmonary Resuscitation

CPSE—Crew and Passenger Support Equipment

CPT—Cockpit Trainer

CR—Component Repair

CRB—Configuration Review Board

CR&R—Calibration, Repair, and Return

CSAS—Configuration Status Accounting System

CSB—Centralized Support Base

CSC—Central Security Control

CSE—Customer Service Element

CSF—Combat Systems Flight

CSM—Cross-Servicing Manager

CSO-—Concurrent Servicing Operation

CSR—Course Status Report

CSRD—Computer System Requirement Document

CSRL—Code Selected Reconciliation Listing or Conventional Stores Rotary Launcher

CSS—Concurrent Servicing Supervisor

CSSM—Combat Supply Support for Maintenance

CST—Combat Support Teams

CST—Combined System Test

CT—Certified Technician

CTK—Composite Tool Kit

CTP—Certified Technician Program

CTR—Consolidated Training Request

CUT—Cross Utilization Training

CV—Vice Commander

CVR—Cockpit Voice Recorder

CVTS—Cockpit Television Sensor

CW—Chemical Warfare or Continuous Wave

CYC—Cycles

DAD—Designated Alert Detachment

DAFSC—Duty Air Force Specialty Code

DAIS—Digital Airborne Intercommunications Switching Set

DAR—Data Automation Requirement

DASS—Decentralized Supply Support

DBA—Data Base Administrator

DBE—Data Base Editor

DBL—Data Base Look

DBM—Data Base Manager

DCC—Dedicated Crew Chief

DCC—Deployment Control Center

DCMA—Defense Contract Management Agency

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

DFDR—Digital Flight Data Recorder

DFT—Depot Field Team

DIFM—Due-in From Maintenance

DIREP—Difficulty Report

DIT—Data Integrity Team

DLC—Distance Learning Center

DLH—Delete History

DLIR—Downward-Looking Infrared Radar

DLM—Depot Level Maintenance

DLO—Dual Loading Operation

DML—Deferred Maintenance List

DOB—Dispersed Operating Base

DOC—Designed Operational Capability

DOD—Department of Defense

DOE—Department of Energy

DOI—Date of Installation

DOL—Dispersed Operating Location

DOM—Date of Manufacture

DOP—Dropped Object Prevention

DOR—Due-out Release

DP—Disposal Procedure

DPC—Data Processing Center

DPU—Demand Processing Unit

DR—Deficiency Report

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

DVR—Document Validation Report

E&E—Electro-Environmental

EA—Electronic Attachment

EAID—Equipment Authorization Inventory Data

EBU—Emergency Build-Up

ECM—Electronic Countermeasures

ECMP—Engine Conditioning Monitoring Program

ECMS—Engine Configuration Management System

ECP—Engineering Change Proposal

ECS—Environmental Control System

ECU—Environmental Control Unit

ED—Incapacitated

EDD—Earliest Delivery Date

EDM—Emergency Destruction of Munitions

EDSC—Engineering Data Service Center

EHR—Event History Recorder

EID—Event Identification Description or 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

EME—Equipment Management Element

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

EODE—Explosive Ordnance Disposal Evaluator

EOR—End of Runway

EOT—Engine Operating Time

EPA—Environmental Protection Agency

EPE—Evaluator Proficiency Evaluation

EPT—Empty Pylon Test

ER—Exceptional Release

ERRC—Expendability, Recoverability, Reparability Code

ES—Equipment Specialist

ESE—Engine Support Equipment

ESI—Equipment Status Inquiry

ESOH—Environmental Safety and Occupational Health

ESS—Electrical Standards Set

ESTS—Electronic System Test Set

ETTAS—Engine Test Trim Automated System

ETA—Expected Time in Accounting

ETIC—Expected Time in Commission

ETS—Engineering and Technical Service

ET&D—Engine Trending and Diagnostics

EVL—Event List

EVS—Electro-Optical Viewing System

EW—Electronic Warfare

EWIR—Electronic Warfare Integrated Reprogramming

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

FAD—Force Activity Designator

FADM—Functional Area Documentation Manager

FAM—Functional Area Manager

FAR—Federal Acquisition Regulation

FCAA—Flight Control Actuator Assembly

FCC—Flying Crew Chief

FCF—Functional Check Flight

FCIF—Flight Crew Information File

FCT—Flight Circuit Test

FDO—Fee Determining Official

FDR—Flight Data Recorder

FDSE—Flight Line Dedicated Support Element

FECP—Field Engineering Change Proposal

FIS—Fighter Interceptor Squadron

FIT—Facility for Interoperability Testing

FK—Air Force Stock Record Account Number Prefix (munitions)

FLIR—Forward-Looking Infrared

FMC—Full Mission Capable

FMI—Functional Management Inspection

FMIS—Force Management Information System

FO—Foreign Object

FOB—Forward Operating Base

FOD—Foreign Object Damage

FOL—Forward Operation Location

FOM—Facilitate Other Maintenance

FOQA—Flight Operational Quality Assurance

FSAS—Fuel Savings Advisory System

FSC—Flight Service Center

FSE—Field Service Evaluation

FSL—Full Systems Listing

FTD—Field Training Detachment

FUD—File Update Mode

FY—Fiscal Year

G081—CAMS for Mobility

GA—Graduate Assessment

GBL—Government Bill of Lading

GBU—Guided Bomb Unit

GC—Guidance Control

GCCS—Global Command and Control System

GCSAS—Generic Configuration Status Accounting Subsystem

GDSS—Global Decision Support System

GITA—Ground Instructional Trainer Aircraft

GN—Gaseous Nitrogen

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

HAS—Hardened Aircraft Shelters

HAZCOM—Hazard Communication

HAZMAT—Hazardous Material

HEI—High Explosive Incendiary

HF—High Frequency

HMXS—Helicopter Maintenance Squadron

HNS—Host Nation Support

HPO—Hourly Post-flight

HQ—Headquarters

HSAB—Heavy Stores Adapter Beam

HSC—Home Station Check

HYT—High Year of Tenure

I&SG—Interchangeable and Substitute Group

IAW—In Accordance With

IBL—Inspection Baseline

ICO—Invoice Control Officer

ID—Identification

IDAS—Intrusion Detection Alarm System

IDEA—Innovation Development through Employee Awareness

I-Deck—Initialization Deck

IED—Improvised Explosive Device

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

IMC—Interim Message Change

IMDS—Integrated Maintenance Data System

IMF—Integrated Maintenance Facility

IMIS—Integrated Maintenance Information System

IMMU—Independent Munitions Maintenance Unit

INS—Inertial Navigation System

INSP—Inspection

INW—In Work

IP—Instructor Pilot

IPA—In-Process Assessment

INW—In-Work

IPA—In-Process Assessment

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

ITOFCN—Interim Technical Order Field Notification

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 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

JRTC—Joint Readiness Training Center

JST—Job Standard

JUMPS—Joint Uniform Military Pay System

KTL—Key Task List

LAN—Local Area Network

LANTIRN—Low Altitude Navigation and Targeting Infrared for Night

LCF—Low-Cycle Fatigue

LCL—Local Checklists

LGR—Logistics Readiness Division

LIL—Location Inventory List

LIMFACS—Limiting Factors

LJG—Local Job Guides

LLC—Limited Life Component

LLT—Loaded Launcher Test

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

LORI—Limited Operational Readiness Inspection

LOX—Liquid Oxygen

LPS—Local Page Supplements

LPT—Loaded Pylon Test

LRU—Line Replaceable Unit

LSC—Load Standardization Crew

LSM—Logistics Supply Manager

LSP—Logistics Support Plan

LV—Leave

LWC—Local Work cards

M&I—Maintenance and Inspection

MACC—Maintenance Aircraft Coordination Center

MADAR—Malfunction Detection, Analysis, and Recording System

MAIS—Maintenance Analysis and Information System

MAJCOM—Major Command

MASO—Munitions Accountable System Officer

MASS—Mission Capable (MICAP) Asset Sourcing System

MC—Mission Capable

MCC—Mission Capability Code

MCGS—Microwave Command Guidance System

MCL—Master Change Log

MDC—Maintenance Data Collection

MDEU—Mission Data Entry Unit

MDF—Mission Data File

MDPS—Mission Data Preparation System

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

MET—Management Engineering Team

MFG—Munitions Family Group

MHE—Materiel Handling Equipment

MI—Management Inspection

MICAP—Mission Capable

MISCAP—Mission Capability

MIL—Master Inventory List

MILAP—Maintenance Information Logically Analyzed and Presented

MILSPEC—Military Specification

MIS—Maintenance Information Systems

MMHE—Munitions Materiel Handling Equipment

MMICS—Maintenance Management Information and Control System

MMR—Maintenance Manpower Requests

MOA—Memorandum of Agreement

MOB—Main Operating Base

MOC—Maintenance Operations Center

MOF—Maintenance Operations Flight

MOI—Maintenance Operating Instruction

MOL—Main Operating Location

MOU—Munitions Operation Unit

MOS—Maintenance Operations Squadron

MPC—Maintenance Priority Code or 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

MRA—Minimum Reserve Authorization

MRS—Mission Route Support

MRATA—Missile Radar Altimeter Test Assembly

MRL—Materiel Requirements List

MRP—Maintenance Repair Priorities

MRT—Maintenance Recovery Team and/or Mission Ready Technician

MS—Maintenance Supervisor (Officer Duties)

MSA—Munitions Storage Area

MSAD—Mechanical Safe-Arm Device

MSB—Main Support Base

MSC—Modernization Systems Center

MSD—Material Support Division

MSE—Munition Support Equipment

MSIM—Mission Simulator

MSK—Mission Support Kit

MSL—Maintenance Supply Liaison

MSPE—Maintenance Safety and Protection Equipment

MST—Mission Support Team

MSU—Maintenance and Storage Unit

MT—Maintenance

MTBF—Mean Time Between Failure

MTBM—Mean Time Between Maintenance

MTD—Maintenance Training Device

MTE—Multiple Tracked Equipment

MTF—Maintenance Training Flight

MTP—Maintenance Training Plan

MTR—Military Travel Request

MTT—Mobile Training Team

MTW—Major Theater War

MUNS—Munitions Squadron

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

N.E.W.—Net Explosive Weight

NHA—Next Higher Assembly

NIE—Normally Installed Equipment

NI&RT—Numerical Index and Requirement Table

NLT—Not Later Than

NMC—Not Mission Capable

NMCS—Not Mission Capable - Supply

NOCM—Nuclear Ordnance Commodity 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

OCM—On Condition Maintenance

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

OPTEMPO—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

P&A—Programs and Assessments

PAA—Primary Aircraft Authorized

PACAF—Pacific Air Forces

PACCS—Post Attack Command and Control System

PAL—Permissive Action Link

PAMS—PMEL Automated Management System

PAS—Protective Aircraft Shelter or Personnel Assignment Code

PATEC—Portable Automatic Test Equipment Calibrator

PBR—Percent of Base Repair

PC—Personal Computer

PCA—Permanent Change of Assignment

PCO—Procuring Contracting Officer

PCS—Permanent Change of Station

PD—Program Document

PDM—Programmed Depot Maintenance

PDO—Publications Distribution Office

PE—Personnel Evaluations

PEC—Program Element Code

PERSCO—Personnel Support for Contingency Operations

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 or Preventive Maintenance

PMC—Partially Mission Capable

PMCS—Partially Mission Capable - Supply

PMCO—Project Monitor for Contracting Officer

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

POS—Peacetime Operating Stock

PPE—Personal Protective Equipment

PPR—Product Planning Requirements

PPS—Product Performance System

PRAM—Productivity, Reliability, Availability and Maintainability

PRD—Pilot Reported Discrepancy

PRP—Personnel Reliability Program

PRT—Publications Requirement Table

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

PWTO—Paperwork Transaction Only

QA—Quality Assurance

QAA—Quality Assurance Assessment

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

QIT—Quality Improvement Team

QLP—Query Language Processor

QMM—Quality Maintenance Metrics

QP—Quality Program

QPA—Quantity Per Assembly

QPE—Quality Process Evaluators

QRC—Quick Reaction Capability

QRL—Quick Reference List

QT—Qualification Training

QVA—Quality Verification Assessment

QVI—Quality Verification Inspection

QVR—Quality Verification Result

RACC—Reparable Asset Control Center

RAL—Routine Assessment List

RAM—Radar Absorbent Material

RAMPOD—Reliability, Availability, Maintainability for Pods and Integrated Systems

RAMTIP—Reliability and Maintainability Technology Insertion Program

RASCAL—Rapid assistance support for calibrations

RAT—Redeployment Assistance Team

RCM—Repair Cycle Monitor

RCS—Reports Control Symbol

RCSU—Repair Cycle Support Unit

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

RIC—Repair Initiative Conference

RIL—Routine Inspection List

RIW—Reliability Improvement Warranty

RJT—Reject List

RLP—Remote Line Printer

ROD—Report of Discrepancy

ROID—Report of Item Discrepancy

RPIE—Real Property Installed Equipment

RPC—Regional Processing Center

RPM—Revolutions Per Minute

RS—Reentry System

RSP—Render Safe Procedure

RSP—Readiness Spares Package

RSS—Regional Supply Squadron

RSU—Runway Supervisory Unit

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

SAP—Squadron Assessment Program

SART—Strategic Aircraft Reconstitution Team

SAS—Stability Augmentation System

SASS—Stability Augmentation Subsystem

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

SHAPE—Supreme Headquarters Allied Powers, Europe

SHD—Significant Historical Data

SHDR—Significant History Data Recorder

SI—Special Inspections

SIOP—Single Integrated Operational Plan

SIT—System Interface Test

SLT—Simulated Laser Target

SM—Single Manager or Support Munitions

SME—Subject Matter Expert

SMR—Source of Maintenance and Recoverability

SN—Serial Number

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

SPD—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 or Strategic Radar

SRA—Specialized Repair Activity

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

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

TAL—Task Assignment List

TALCE—Tanker/Airlift Control Element

TAS—Tool Accountability System

TBU—Tank Build-Up

TCAS—Traffic Collision Avoidance System

TCI—Time Change Item

TCS—TCTO Status Report

TCTO—Time Compliance Technical Order

TD—Training Detachment or Temporary Duty

TDAM—Trend Data Advisory Message

TDI—Time Distribution

TDV—Technical Data Violations

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

TNO—Theater Nuclear Option

TO—Technical Order

TOA—Table of Allowances

TOC—Technical Order Distribution Activity

TODCA—Technical Order Distribution Control Activity

TODO—Technical Order Distribution Office

TOFCN—Technical Order Field Change Notice

TOS—Time On Station

TOT—Task Oriented Training

TPFDD—Time Phased Force Deployment Data

TPR—Trained Personnel Requirement

TRAP—Tanks, Racks, Adapters, and Pylons

TRE—Transfer of Equipment

TRCO—Technical Representative of the Contracting Officer

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

TVI—Technical Validation Inspection

U&TW—Utilization and Training Workshop

UAV—Unmanned Aerial Vehicle

UCML—Unit Committed Munitions List

UCMS—Unit Capability Measurement System

UCR—Unsatisfactory Condition Reports

UDM—Unit Deployment Manager

UETM—Unit Education and Training Managers

UEM—Unit Engine Manager

UGT—Upgrade Training

UHF—Ultra High Frequency

UJC—Urgency Justification Code

ULN—Unit Line Number

UMD—Unit Manning Document

UMMIPS—Uniform Material Movement and Issue Priority System

UND—Urgency of Need Designator

UPMR—Unit Personnel Management Roster

USAF—United States Air Force

USAFE—United States Air Force in Europe

UTA—Unit Training Assembly

UTC—Unit Type Code

UTE—Utilization Rate

UXO—Unexploded Ordnance

VGH—Velocity Gravity and Height

VHF—Very High Frequency

VOR—Voice Operated Recorder

VIRP—Variable Information Retrieval Program

VPMO—Vibration Program Management Office

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 or Wage Grade

WG/CC—Wing Commander

WG/CV—Vice Wing Commander

WL—Wage Leader

WLCMP—Weapons Load Crew Management Program

WLT—Weapons Load Training

WOG—Work Order Generator

WR—War Reserve

WRCS—Weapons Release Control System

WRM—War Reserve Materiel

WRMO—War Reserve Materiel Officer

WS—Weapons Standardization or Wage Supervisor

WS3—Weapons Storage and Security System

WSCM—Weapon System Compatible Munition

WSE—Weapon Standardization Evaluator

WSEP—Weapons System Evaluation Programs

WSLO—Weapon System Liaison Officer

WSLU—Weapon System Lead Unit

WTD—Weapons Training Detachment

WTQC—Weapons Task Qualification Crew

WTQM—Weapons Task Qualification Training Manager

WTS—Weapons Training Site

WW—Worldwide

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.

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, -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.

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.

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

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, regardless of AFSC.

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.

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.

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

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.

Repair Cycle Asset—Any recoverable item with an expendability, recoverability, reparability code (ERRC) category of XD or XF.

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.

Repeat Discrepancy—One which 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.

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.

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 ìifacilitate other maintenanceîî (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.

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 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:
NameRankAFSC

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 Supervisor:

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