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Maintenance

MAINTENANCE MANAGEMENT OF COMMUNICATIONS-ELECTRONICS

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This instruction implements AFPD 21-1, Managing Aerospace Equipment Maintenance. It establishes the Maintenance Management System and provides the directive guidance for Air Force activities that perform maintenance on Communications-Electronics (C-E) systems, equipment, or circuits. It applies to all organizations and personnel that maintain C-E systems, equipment, and circuits regardless of AFSC (to include AFRC, ANG, and DoD civilian C-E organizations). In this document, the term "maintenance" is defined as any action which requires the removal of an equipment cover or panel to conduct an alignment, adjustment, modification, removal and replacement of a line replaceable unit (LRU), reset action, etc. to restore a system to operational status; to perform preventive maintenance inspection (PMI) routines; or to install or remove C-E systems, equipment, or circuits. **Chapter 8** requires collecting and maintaining information protected by the Privacy Act of 1974 authorized by 10 U.S.C. 8013. System of records notice F021 AFSPC A, Cable Affairs Personnel/Agency Records, applies.

(PACAF) This publication will apply to the Air National Guard or US Air Force Reserve units and members when activated to support PACAF or PACOM missions in the PACAF area of responsibility (AOR).

SUMMARY OF REVISIONS

This is a major AFI revision and requires complete review. This AFI specifically identifies the minimum requirements that non-traditional maintenance technicians must adhere to when performing maintenance. It clearly defines time requirements for Air National Guard C-E maintenance responsibilities. All references to Quality Air Force (QAF) have been removed and all general terminology updated. All obsolete references have been updated to reflect current Air Force directives. Responsibilities have been added to the Chief of Maintenance/Chief of Mission Systems Flight (**Chapter 3**). **Chapter 4** renamed "Maintenance Control" and rewritten to define duties and responsibilities more clearly. **Chapter 5** clarifies and defines the duties and responsibilities of Maintenance Support and the Maintenance Support Representa-

tive (MSR). **Chapter 7** was rewritten and renamed "Deployable Communications" making this instruction applicable to all Air Force C-E units with deployable unit type codes (UTCs). Added **Chapter 9** "Management of Commercial Off-The-Shelf (COTS) C-E Equipment." Updated attachments to reflect changes to this AFI and completely revised **Attachment 11** "Air Traffic Control and Landing Systems (ATCALS) Certification."

(PACAF) This change incorporates interim change (IC) 2004-1 **(Attachment 15 (Added))**. It also re-identifies Attachment 1 as **Attachment 14 (Added)** from previous publishing. This is a major revision and requires complete review. This supplement updates the information and office symbols that were in the former AFI21-116/PACAFSUP 1. A bar (|) indicates revision form the previous edition.

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Chapter 1

ASSIGNED RESPONSIBILITIES

1.1. HQ USAF/ILMM. Develops policy on C-E equipment maintenance and coordinates that policy with other military services, MAJCOMs, and other government agencies as applicable.

1.2. Air Force Communications Agency (AFCA).

1.2.1. AFCA is designated as the US Air Force executive agent to develop policy and guidance in specific maintenance management and related areas. AFCA:

1.2.1.1. Develops C-E Maintenance Management Policy and Guidance for HQ USAF/ILMM.

1.2.1.2. Reviews request for waivers to this instruction and recommends appropriate actions.

1.2.1.3. Advocates for C-E manpower standards development and specialty utilization.

1.2.1.4. Assesses C-E equipment and systems as directed or requested.

1.2.1.5. Manages the Air Force C-E Maintenance Quality Control Checksheet (AFMQCC) program according to **Attachment 2**.

1.2.1.6. Manages the Air Force Communications Electronics Maintenance Instructions (AFCEMI) program according to **Attachment 3**.

1.2.1.7. Represents the C-E maintenance community as a member of the Air Force Centralized Technical Order Management (CTOM) Group; Air Force Metrology and Calibration (AFMETCAL) Group; Air Force Test, Measurement, and Diagnostic Equipment (AFTMDE) Group; Integrated Maintenance Data System (IMDS) Integrated Process Teams (IPTs); Air Force Modification Policy Work Group (AFMPWG); Core Automated Maintenance System/Reliability and Maintainability Information System (CAMS/REMIS) Functional Review Board; and CAMS/REMIS Configuration Control Board. Also serves as Air Staff delegated chair for the C-E Maintenance Documentation Work Group and participates in the writing and updating of Methods and Procedures Technical Orders (TOs).

1.2.1.8. Manages the Low-Density Adjusted Stock Level program for Communications-Electronics according to AFMAN 23-110.

1.3. MAJCOM Headquarters.

1.3.1. MAJCOMs implement the following guidance for their activities that maintain C-E equipment. (NOTE: For this instruction, the term MAJCOM includes Field Operating Agencies (FOAs), such as, the Air Intelligence Agency, and Direct Reporting Units (DRUs), such as the USAF Academy.)

1.3.1. (PACAF) The Directorate of Communications and Information (HQ PACAF/SC) is responsible for implementing Air Force policy, establishing policy where necessary, and providing guidance to PACAF activities that maintain C-E equipment. The Resource and Force Management Division (HQ PACAF/SCQ) will act as the primary point of contact for C-E maintenance management policy and guidance.

1.3.1.1. Organizational Structure.

Regardless of size and type of organizational structure or maintenance activity, the functions and duties outlined in this instruction are the minimum mandatory requirements necessary to ensure effective, quality maintenance is performed.

1.3.1.2. Waiver Requests.

Send requests for waivers to this document to AFCA/GCSM.

1.3.1.3. Management Considerations:

1.3.1.3.1. Concentrate management efforts on the unique needs within the command.

1.3.1.3.2. Develop the minimum procedures necessary to accomplish the mission and do not generate unnecessary workloads. Managers at all levels refine and improve these processes to minimize administration, documentation, and reporting workload.

1.3.1.3.3. Establish command maintenance management programs and provide necessary guidance and assistance.

1.3.1.3.3. (PACAF) HQ PACAF/SCQ is the focal point for maintenance management programs, policy, guidance and assistance. Contact HQ PACAF/SCQ by telephone, DSN (315) 449-4690, fax (315) 449-4629, or e-mail (**mailto:pacaf.scq@hickam.af.mil**).

1.3.1.3.4. Serve as command focal point to implement Air Force guidance and directives concerning systems modifications, Programmed and Mobile Depot Maintenance, technical order improvement (AFTO Form 22, Technical Order System Publication Improvement Report and Reply), SMR change requests (AFTO Form 135, Source, Maintenance, and Recoverability Code Change Request), deficiency reports, product improvement reports, Air Force Maintenance Quality Control Checksheets (AFMQCC), Air Force C-E Maintenance Instructions (AFCEMI), corrosion control, C-E maintenance management directives, and 00-series technical orders (TO).

1.3.1.3.5. Manage the C-E portion of the Engineering and Technical Services (ETS) program in conjunction with the MAJCOM OPR.

1.3.1.3.6. Provide guidance and support for C-E maintenance systems analysis, the reliability, availability, and maintainability program, and the automated maintenance information system. Provide system performance data to evaluate equipment and systems. Perform trend analysis and special studies on fielded equipment and systems to identify adverse equipment performance. Provide feedback to units on equipment status reports and job data documentation.

1.3.1.3.7. When designated, perform duties as lead command or system affiliate for C-E systems as specified in AFI 10-901, Lead Operating Command--Communications and Information Systems Management.

1.3.1.3.8. If lead command, validate adjusted stock level changes submitted by units and other MAJCOMs and forward to AFCA/GCSL. If not the lead command, forward unit submissions to the lead command for validation.

1.3.1.3.9. Manage the command Consolidated Repair Activity (CRA) program, and:

1.3.1.3.9.1. Provide MAJCOM CRA management policies and procedures.

1.3.1.3.9.2. Review requests to establish CRAs, manpower and organizational change requests, relocation requests, and validations to continue operation of CRAs.

1.3.1.3.9.3. Develop economic analyses for establishing new CRAs or justification to continue an existing CRA. Determine funding responsibilities for CRA operations. Negotiate cross command CRA support and funding agreements.

1.3.1.3.9.4. Provide guidance to conduct studies to establish and operate CRAs. Publish Maintenance Action Directives to establish and operate CRAs. Request HQ USAF and HQ AFMC approval, if needed.

1.3.1.3.9.5. Develop CRA material processing and supply support procedures, guidance, and assistance. Provide, as required, updated listing of assemblies, subassemblies, modules, and printed circuit cards supported by each CRA.

1.3.1.3.9.6. Submit request for reimbursement of HQ AFMC Source of Repair (SOR) workload, as required.

1.3.1.3.9.7. Ensure CRA support is considered during development of maintenance concepts for new equipment acquisition programs. Support responsibilities, including funding, are defined in the Integrated Logistics Support Plan (ILSP) when CRA support is required for new equipment or systems.

1.3.1.4. C-E Equipment Management.

1.3.1.4.1. Specify command management responsibilities for maintenance of C-E equipment, systems and facilities. Specify how to:

1.3.1.4.1.1. Manage fixed, transportable, and mobile C-E equipment.

1.3.1.4.1.2. Review C-E maintenance practices.

1.3.1.4.2. Review equipment status, mission status, evaluation, and analysis reports to identify and analyze systems or equipment deficiency trends. Provide feedback to subordinate units on equipment status reports and Job Data Documentation (JDD).

1.3.1.4.3. Assist subordinate units to correct deficiencies they cannot resolve.

1.3.1.4.4. Review AFTO Forms 22, product improvement and deficiency reports, modification proposals, AFCEMIs, AFMQCCs, repair change requests, and waiver requests submitted by subordinate units. Initiate appropriate documents when product improvement trends are identified.

1.3.1.4.5. Develop and implement life cycle logistics support for command unique system acquisitions and modifications (**Attachment 12** and **Attachment 13**.)

1.3.1.5. Air Force Specialty Code (AFSC) Skills Management.

1.3.1.5.1. Command functional managers for C-E maintenance skills actively resolve problems with unit manpower authorizations, personnel assignment shortfalls, and training issues. AFQTP XXXXX-213T, Career Field Managers Handbook and AFQTP 2EXXX-213TA, Functional Manager's Handbook are available for task training. Command C-E AFSC functional managers:

1.3.1.5.2. Manage Special Maintenance Teams (SMT). Review SMT special duty assignment applications to ensure applicants have appropriate qualifications. Coordinate reviews with the command SMT OPR and recommend approval or disapproval.

1.3.1.5.3. Perform specified duties related to determining manpower requirements, reviewing manpower change requests, and monitoring personnel assignment use and training.

1.3.1.5.4. Monitor training needs. Review evaluation, status, and analysis reports for indicators of possible training deficiency trends. Validate annual training requirements and special training requests for specific AFSCs and maintenance functions. Recommend development of training packages.

1.4. Headquarters Staff Assistance Visits (SAV) and Staff Visits. As needed, perform staff visits to investigate suspected problem areas or to provide a more detailed look at management and work center areas. The goal is to help resolve specific problems, provide training, exchange information, and obtain an understanding of special requirements resulting from the unit's mission or location.

1.4. (PACAF) The C-E maintenance Functional Area Manager (FAM) will periodically visit PACAF units with C-E maintenance activities to gain a better understanding of missions, manpower requirements, personnel utilization, training needs, and to educate the 2E community on career field issues. Units may request a SAV for maintenance management issues. SAVs will not be conducted within 90 days of an ORI.

Chapter 2

C-E MAINTENANCE MANAGEMENT

2.1. Introduction. The following paragraphs provide a summary of the objectives, organizational and functional relationships, and responsibilities that form the foundation for the C-E maintenance management system.

2.2. Key Terms. See **Attachment 1**.

2.3. Maintenance Objective.

2.3.1. To ensure C-E systems are available to support the Air Force mission:

2.3.1.1. Maintenance activities ensure C-E systems are serviceable, safely operable, and properly configured to meet the mission. This is accomplished through inspections, repairs, overhauls, modifications, analyses, and other maintenance related tasks.

2.3.1.2. The Chief of Maintenance/Chief of Mission Systems Flight (COM/CMSF) ensures the most effective use of assigned personnel. Personnel may perform all maintenance tasks they have been qualified on, including those which are not part of their primary AFSC. However performance of these tasks may not interfere with any technician's upgrade or equipment familiarization training.

2.4. Maintenance Capability.

2.4.1. Maintenance capability is a unit's ability to maintain its assigned systems and equipment in proper condition and configuration. Managers must recognize the extent of their maintenance capability when planning to meet mission requirements. Overextending maintenance capabilities for long periods of time can result in reduced maintenance quality, and ultimately cause failure to meet mission requirements. Managers must explore the economic feasibility and possible cost savings of local repair actions. Managers:

2.4.1.1. Plan and schedule maintenance to ensure personnel are productively employed throughout the work shift.

2.4.1.2. Distribute skill levels throughout the maintenance activity to provide the best mission support, supervision, and training.

2.4.1.3. Request and justify enough resources to support a continuous workload. Request temporary help to perform emergency workloads. Where resources are not available or cannot be made available request reductions in mission requirements.

2.4.1.4. Encourage personnel to identify system or equipment parts and components that may be economically repaired at unit level, and where repair is not authorized, seek that authorization.

2.4.1.5. Advise commanders to code Personnel Reliability Program (PRP) affected positions on the Unit Manpower Document (UMD) and update applicable Personnel Processing Codes (PPC). Certification procedures and security investigation requirements must be followed as specified in AFI 36-2104, Nuclear Weapons Personnel Reliability Program.

2.4.1.6. Maintenance by Non-Traditional Technicians (i.e., individuals in other than a 2EXXX AFSC). Ensure all C-E systems/equipment maintenance personnel, regardless of AFSC, comply with the following minimum requirements.

2.4.1.6.1. For those systems/equipment identified as MICAP or MDC reportable in the CAMS/REMIS SRD table:

2.4.1.6.1.1. Ensure appropriate equipment status, maintenance, and supply data is entered into the appropriate data collection systems. CAMS will be used for maintenance data collection.

2.4.1.6.1.2. Ensure that systems/equipment items are maintained in technical manual configuration. Use appropriate CAMS historical programs to document compliance with this requirement.

2.4.1.6.2. Ensure that preventive maintenance schedules are developed and implemented (i.e., schedules are entered into CAMS to track and report completion, deviation, or re-scheduling actions) for MDC reportable systems/equipment items, whose technical data mandates a preventive maintenance program.

2.4.1.6.3. Use applicable paragraphs from chapter 6 “Maintenance Production Work Centers” as a baseline to establish a production work center and to ensure timely and efficient accomplishment of quality maintenance.

2.4.1.6.4. Compliance with MSEP is required for individuals task certified/qualified to maintain C-E systems/equipment. (i.e. personnel evaluations). Compliance with MSEP is required for work centers, or functions responsible for MICAP, MDC reportable, or mission critical systems/equipment (i.e. managerial, personnel, and technical evaluations).

2.5. Maintenance Effectiveness and Efficiency. Maintenance effectiveness describes the use of maintenance capabilities and shows how well managers use their resources. Maintenance efficiency describes the management of manpower, money, and material and measures a manager's ability to deliver serviceable systems in good repair and correct configuration within specified time frames. Although timeliness in meeting unit mission requirements is a prime consideration, maintenance effectiveness includes the entire maintenance effort such as the timely completion of Time Compliance Technical Orders (TCTO), scheduled evaluations, and corrosion control measures.

2.6. Systems Readiness. Systems readiness requirements are directly related to the missions supported. Unrealistically high readiness requirements may cause deferment of essential maintenance or training. However, failure to recognize and support valid requirements may cause maintenance backlogs or mission failure. Commanders must ensure every action is taken to make systems available for required maintenance actions and ensure maintenance is completed allowing mission requirements to be met.

2.7. Consolidating Functions. Consolidate functions within the maintenance activity to the maximum extent possible consistent with mission, size, location, and resources. Centrally locate the COM/CMSF's staff functions if possible.

2.8. Exceeding Minimum Requirements. COM/CMSF/CISF may exceed the minimum requirements outlined in this publication, but should avoid creating unnecessary workloads.

2.9. Communications and Transportation. Transmit maintenance information and requests for assistance to staff functions and work centers so priorities can be assigned and follow-up action accomplished. Telephone, intercom, data or radio communications will be on hand at each site, facility, or building where systems and equipment are operated or maintained. Suitable vehicles are required to transport personnel and material.

2.10. Maintenance Staffing and Utilization.

2.10.1. Choose the best-qualified personnel to fill staff and supervisory positions. Refrain from placing retrainees in staff positions until their skill level is commensurate with their grade.

2.10.2. Consider the availability of qualified technicians and redundant systems to attain a 100 percent availability to support mission requirements. Adjust staff and work center duty hours to meet mission requirements. Set up work schedules to meet mission requirements while not exceeding maximum duty periods; occasional peak workloads may require extended work shifts. When actual work hours consistently exceed applicable manpower standards, the commander or COM/CMSF reassesses the requirements which made the overtime necessary. Managers may waive these provisions during emergencies or advanced defense readiness conditions, including exercises, if necessary for mission accomplishment. The following guidance applies:

2.10.2.1. Duty time begins when personnel report for duty and ends when all maintenance actions are completed, deferred, or turned over to another individual or crew. When personnel are dispatched to remote duty locations, travel time is duty time.

2.10.2.2. The following criteria governs maintenance personnel duty time limitations:

2.10.2.2.1. Scheduled duty time may not exceed 12 continuous hours. For personnel dispatched to remote duty locations, this time may be extended to 16 hours including travel time. Personnel who remain overnight at the remote duty location will be allowed a minimum of 8 hours rest. Consider external factors such as weather and road conditions when extending duty time.

2.10.2.2.2. The duty period for combined maintenance and non-maintenance (such as charge of quarters) duty should not exceed 12 hours. Personnel who perform maintenance duty and are then assigned to non-maintenance duties may exceed the 12 continuous hour duty period, provided sleeping is permitted while performing the non-maintenance duty.

2.10.2.2.3. These limitations may be exceeded for on-call duty situations.

2.10.3. Standby is the time technicians are scheduled to respond to outages beyond normal duty time and are required to remain in the work area. Personnel on standby coordinate meal and comfort breaks with maintenance control or the appropriate operations function.

2.10.4. On-call is the time technicians are scheduled to respond to outages but are not required to remain in the work area. Normally, this occurs on weekends and after normal duty hours.

2.11. Maintenance Training Guidance. Training is the essential element ensuring systems are ready, operable, and sustainable. Only trained technicians have the knowledge, skills, and confidence to sustain operation of these systems during stressed situations. Properly structured and effectively presented, training is the key to providing a technically qualified and proficient maintenance work force capable of ensuring readiness and sustained, reliable mission accomplishment.

2.12. Applicability to Dual Qualified Personnel. Personnel who function in the dual capacity of instructor-maintainer or maintainer-operator will comply with these management procedures and COM/CMSF directives when performing maintenance.

2.13. Overview of MSEP.

2.13.1. MSEP is the systematic, continuous self-evaluation program for C-E maintenance. MSEP consists of managerial, technical, special, and personnel evaluations. An effective MSEP is essential to successful C-E maintenance and requires all appropriate resources including the most competent technicians and production work centers' full participation. Its primary objective is to give the COM/CMSF an accurate assessment of the maintenance activity's capabilities. The COM/CMSF must fully support the program to ensure these objectives are met. In addition to this publication's minimum requirements, the COM/CMSF determines the depth of the program; that is, the number, kind, and frequency of personnel and hardware technical evaluations.

2.13.2. Essential elements and responsibilities of the MSEP are as follows:

2.13.2.1. Task Identification and Coverage: Work center supervisors identify tasks to be performed in the work center and ensure sufficient numbers of individuals are qualified on each task to provide complete and continuous task coverage (i.e. enough qualified technicians are available for duty (on-duty, on-call, or standby) to cover all required work center tasks at any given time). Supervisors must plan for probable absences such as, leave, Temporary Duty (TDY), or illness when determining the number of personnel to qualify on a given task.

2.13.2.2. Training: Supervisors continually evaluate the capabilities of assigned personnel, and then plan, schedule, and complete required training.

2.13.2.3. Evaluation: Maintenance Support (MS) evaluates personnel to assess the adequacy of training programs and technician proficiency. It also performs periodic evaluations to determine the overall capabilities of the maintenance activity, assess the adequacy of technical data, evaluate maintenance actions, and ensure satisfactory equipment operation. Evaluations include management practices, facilities, and systems.

2.13.2.4. Analysis: MS analyzes the results of evaluations to identify trends and the basic causes for deficiencies.

2.14. Management Actions on Evaluation and Audit Reports. MS evaluations, operational test and evaluation, audit, and other reports are valuable management tools used to eliminate specific defects and their causes. Supervisors ensure responsible individuals are involved in correcting problems. Commanders and maintenance managers stay involved throughout the correction phase to ensure resolution of the discrepancies' underlying causes.

2.15. Modification Management.

2.15.1. This section defines Air Force policies and procedures for accomplishment of modifications to in-service systems and to correct deficiencies, improve reliability, maintainability, and/or maintenance capability.

2.15.2. There are three classes of modifications that can be made to Air Force systems. They are:

2.15.2.1. 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.

2.15.2.2. 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 (form, fit, and function), and for aircraft/stores compatibility testing. T-2 modifications will normally be accomplished only on programs having approved Program Management Directives (PMDs). They are usually done to:

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

2.15.2.2.2. Test or test support equipment to support the testing of an approved acquisition program.

2.15.2.2.3. Test in an operational environment to evaluate operational suitability, including reliability, availability, and maintainability of a form, fit, and function potential replacement item.

2.15.2.3. Permanent (P): These modifications make permanent changes to correct safety or material deficiencies, improve reliability, availability, and maintainability, or to add or remove capability.

2.15.2.3.1. Permanent - Safety (P(S)): Safety modifications are permanent modifications which correct material or other deficiencies (per TO 00-35D-54) which could endanger the safety of personnel or cause loss or extensive damage to systems or equipment.

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

2.15.4. The single manager (SM) of the system being modified is responsible for the engineering integrity of that system. Therefore, all proposed temporary and permanent modifications must be reviewed by the SM's Configuration Control Board (CCB) and be approved by the SM prior to being implemented.

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

2.15.5.1. When more than one SM (including commodity SMs) is involved, PMDs identify the responsibilities for development and installation. Normally, the SM of the actual Type Mission Series (TMS) being modified is designated as the integration lead.

2.15.5.2. The involved SMs, the using command(s), the lead command, Air Education and Training Command (AETC), and the supporting depot(s) develop an agreed-to implementation approach and schedule. This plan establishes all the need dates and actions.

2.15.5.3. Except for safety related modifications, systems or equipment will not be modified if they are to be retired from the Air Force inventory within five years after completion of the modification.

2.15.6. Using Command Initiated Temporary Modifications.

2.15.6.1. Using commands will initiate T-1 and T-2 modifications using an AF Form 1067, *Modification Proposal*. The proposed modification must be approved by the using command CCB chairman, coordinated with the lead command, 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 permanently 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.

2.15.6.2. Temporary modifications on C-E systems or equipment may be installed for more than one year on the number of systems necessary to meet specific site, environmental, or mission requirements. The instructions in AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures apply if permanent installation is required. If HQ USAF fails to fund the permanent modification, the item must be returned to its original configuration.

2.15.7. SM Initiated Temporary Modifications (T-2 Modifications only).

When the SM has engineering responsibility for the item being modified, the SM establishes internal procedures for documenting and managing the modification. SMs fund all T-2 modifications they initiate.

2.15.8. Initiation of Permanent Modifications.

2.15.8.1. The appropriate procedures for initiating a permanent modification depends on the estimated cost of the effort (AFI 10-601). Units are encouraged to submit improvements to AF-managed equipment to the Product Improvement Working Group. Time Compliance Technical Orders (TCTOs) are 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. All modifications must be approved by the SM CCB prior to implementation. Configuration information is 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 and is a subsystem of the Reliability and Maintainability Information System (REMIS). It provides cradle-to-grave tracking of serially controlled configuration items.

2.15.8.2. Loaned Assets: Modifications to Air Force assets on loan to a non-Air Force agency (e.g., the Defense Intelligence Agency) will be initiated and approved for funding and installation per the current Memorandum of Agreement (MOA) between the Air Force and the using agency. When such assets are common to Air Force users, HQ USAF/ILM will ask the primary using command, the lead command, and AFMC to evaluate the proposed modifications for fleet-wide application in accordance with the agreement stated in the MOA.

2.15.8.3. Non-Air Force Executive Agency: In situations where another Military Department or Federal Agency is the Executive Agent for sustaining the C-E system or equipment, the SM coordinates the proposed modification with the SM-equivalent of that activity. Modifications to Air Force equipment, engineered by a non-Air Force activity but funded by the Air Force, are approved by the Air Force SM CCB and implemented through a TCTO. Modifications to Air Force equipment, engineered and funded by the non-Air Force Executive Agent, are approved for

installation by the Executive Agent and do not require a TCTO if a comparable document is provided.

2.15.9. Safety Modifications: Safety modifications take priority over all other modifications for funding and implementation. For each safety modification, the SM conducts 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. To qualify as a safety modification, the deficiency being corrected must have caused, or could cause, loss of, or serious injury to, personnel or loss of, or extensive damage to, systems/equipment.

2.16. Cannibalization Guidance. Maintenance managers will resort to equipment cannibalization only in unusual situations. Since cannibalization may be indicative of support problems, managers will identify the causes and take appropriate action.

2.17. Core Automated Maintenance System (CAMS).

2.17.1. CAMS is the production oriented, base-level automated maintenance management system designed to give managers visibility and control of resources at unit level. Maintenance personnel have access to a central main frame computer to document equipment outages, schedule maintenance actions, document maintenance actions, document maintenance training, requisition supplies, etc. CAMS also assists in determining operational readiness and is used to manage personnel and training requirements. Waivers to the requirement to use CAMS can only be approved by HQ USAF/ILMM (submit request through AFCA). CAMS operation is the responsibility of the host database manager; however, other functions usually manage individual CAMS subsystems. Submit software and hardware changes according to the format in AFI 33-103, Requirements Development and Processing. (Note: CAMS will be used until the Integrated Maintenance Data System (IMDS) is fielded)

2.17.2. The maintenance documentation system provides managers with timely, complete, and accurate maintenance production data to facilitate effective planning, control, and analysis. Refer to the 00-20 series technical orders (TO) for maintenance documentation procedures.

2.17.3. The CAMS Job Data Documentation Subsystem provides information about jobs performed by maintenance activities. In addition to information on actions taken, CAMS provides data about man-hours expended on each job; why each repair was required (how malfunction); what each repair encompassed (action taken); what item was repaired (Work Unit Code to lowest level possible); when the malfunction was discovered; and who did the work. Use CAMS to report maintenance performed by organizations other than the local unit. Work center supervisors determine how this data is entered into CAMS.

2.17.4. Use of the CAMS Training Management Subsystem to document training is mandatory when approved by the Air Force Career Field Manager (Optional for ANG Units as long as training documentation is accomplished IAW AFMAN 36-2247). Units without access to CAMS or other automated training management systems, use documentation procedures described in Career Field Education and Training Plans (CFETP).

2.17.5. The COM/CMSF helps ensure accurate MAJCOM and Air Force visibility of equipment assets in CAMS to ensure equipment and mission status, maintenance documentation, and training data are correct and reflect actual maintenance production activity.

2.18. Contract Maintenance and Contract Engineering and Technical Services (CETS):

2.18.1. Contractual assistance may be used to satisfy a wide variety of requirements ranging from minor one-time repairs to operation and maintenance of complete systems. Procedures contained in this publication are directed primarily toward a military maintenance management program. When maintenance management responsibilities are required of a contractor, they must be specifically identified in the performance work statement:

2.18.2. Consider contract maintenance on a planned and selective basis; however, wartime capability may not be compromised by excessive use of this resource. Check with appropriate MAJCOM managers to ensure local contract efforts do not erode command wartime capabilities.

2.18.3. CETS is available on a selective basis to provide technical knowledge and assistance on specialized systems or equipment. Plan and program personnel training to satisfy technical requirements at the earliest possible time to decrease the need for CETS assistance.

2.19. Contract Maintenance Surveillance. Accomplish contract maintenance surveillance program duties according to procurement guidelines and command directives. When requested by the procurement office, the COM/CMSF provides Quality Assurance Evaluators (QAE) (AFI 63-124, Performance Based Service Contracts). QAE responsibilities are listed in AFI 63-124. Surveillance programs may vary depending on the scope of the contract and directions of the procurement office. Contract maintenance is not subject to MSEP evaluations unless specified in the contract.

2.20. Integrated Maintenance Data System (IMDS). The IMDS concept was developed in an effort to use technology to standardize the Air Force's maintenance management information systems and reduce costs. IMDS will complement, enhance, and/or exploit current and emerging automated maintenance information systems technology, where feasible and cost justified, to prototype, test, refine, and incrementally field an affordable, integrated capability to operational maintenance users. IMDS is deployable and able to operate/interface with a variety of communications equipment's/capabilities. While deployed in a standalone mode, it features an independent processing capability when host/fixed site connectivity to the IMDS logical repository is not available. The system can be used for any base-level maintenance activity from home station to deployed location. IMDS supports weapon system availability improvements by providing pertinent logistics information to decision makers. It supports automated maintenance data documentation (MDD), production management, commercial-off-the-shelf (COTS) data, and integrated weapon system management at the base level.

2.21. War Plans Support. Managers have a continuing responsibility to set up and maintain the capability to support USAF combat missions. Detailed maintenance planning is needed to provide this capability. The COM/CMSF will be familiar with AFMAN 10-401, Operation Plan and Concept Plan Development, when preparing maintenance plans to support combat missions.

2.22. Programmed Mobility Procedures. "Programmed" refers to Unit Type Code (UTC) and Designed Operational Capability (DOC) statement tasking. Managers ensure maintenance activities are capable of meeting their programmed mobility requirements. Under the mobility concept, managers at all levels will be familiar with mobility requirements and the role each subordinate activity plays. Planning, preparation, and an understanding of roles and responsibilities are essential elements of mobility preparedness. Work with the Unit Deployment Manager, or similar activity, to keep apprised of mobility requirements.

2.23. Deployable Elements of Fixed Units. Unit missions may require establishment of a deployable communications element or designation of maintenance personnel and systems to perform a deployed mission. Manage these systems and maintenance personnel according to Air Force and command directives.

2.24. Agreements. There are several types of agreements detailed in AFI 25-201, *Support Agreement Procedures*. DD Form 1144, Support Agreement, documents the support services a supplier provides a receiver and the reimbursement the receiver will pay to the supplier for the identified levels of support. Host-Tenant Support Agreements (HTSAs), Memorandums of Understanding (MOUs), and Memorandums of Agreement (MOAs) are used in lieu of the DD Form 1144 when it is necessary to document financial and support arrangements with US non-governmental activities, with non-military agencies or individuals, or before publishing a Base Support Plan. Functional areas also use MOAs or MOUs to document mutually agreed upon statements of fact, intentions, procedures, and policies for future actions.

2.25. Maintenance Operating Instructions (MOI). MOIs pertain to all personnel required to perform maintenance routines and are published by the COM/CMSF. Guidance that applies to multiple branches within the unit are published as a unit, base, or other standard publication. Maintenance activities under the functional control of the COM/CMSF may initiate or request MOIs, but they are approved and signed by the COM/CMSF. MOIs are not published to change or supplement TOs and must take existing MOAs and MOUs into consideration. The publications and forms management requirements outlined in AFI 33-360, volume 1, Publications Management Program, and AFI 37-160, volume 8, the Air Force Publication and Forms Management program--Developing and Processing Forms apply.

2.26. Technical Orders (TO). Operate and maintain Air Force systems, equipment, subsystems, and support equipment according to the procedures in applicable TOs. Basic policy regarding TO use is expanded in TOs 00-5-1, AF Technical Order System; 00-5-2, Technical Order Distribution System; ATOMS Users Guide (until the Joint Computer-Aided Acquisition and Logistic Support (JCALS) system is fielded); 00-5-15, Air Force Time Compliance Technical Order System; and 00-5-17, Users Manual-USAF Computer Program Identification Numbering (CPIN) System.

2.27. Conflicts Between Publications. Conflicts between administrative and technical publications are resolved in favor of the technical publication. Conflicts between the same types of publications, for example two Air Force Policy Directives (AFPD), are resolved in favor of the publication with the latest date.

2.28. Supply Requisitioning. Managers ensure the supply priority requisitioning system is not abused. Justification of priority requisitions will adhere to the standards published in AFMAN 23-110V2CD, USAF Supply Manual.

2.29. Maintenance of Computers.

2.29.1. Computers comprise a large and expanding segment of communications systems in the Air Force. The basic concepts are:

2.29.1.1. Organizations responsible for organic maintenance of automated data processing equipment (ADPE) will manage ADPE in the same manner as other communications systems. Work center management and support is accomplished according to this publication.

2.29.2. Contract maintenance of ADPE is managed according to AFI 33-112, Computer Systems Management, and command directives.

2.29.2.1. Acquire and manage small computers according to AFI 33-112 and command directives.

2.29.2.2. Units will comply with the MAJCOM small computer maintenance concept, ensuring EMSEC certification requirements are included in contract maintenance support of EMSEC certified small computers. Backup systems for mission essential small computers may provide the most cost effective, expedient means of support.

2.30. Locally Procured Test Measurement and Diagnostic Equipment (TMDE). Determine the supporting Precision Measurement Equipment Laboratory's (PMEL) ability to maintain and calibrate TMDE before making a local purchase.

2.31. Management of Functionally Supported Maintenance Activity (FSMA). FSMAs are not self-sufficient, they are managed by a maintenance supervisor and perform only those staff responsibilities which, because of their nature, should be done locally. Remaining staff functions and responsibilities are done within the parent maintenance activity. When maintenance staff personnel are assigned to a FSMA, they will augment rather than duplicate the COM/CMSF staff.

2.31. (PACAF) Examples of functionally supported maintenance activities (FSMA) include off-base DII stations, TACAN sites on United States Army airfields, munitions support squadrons (MUNSS) communications elements, and communications elements and flights at geographically separated units (GSU). The parent or host wing communications squadron provides C-E maintenance management and technical support for these activities and develops written agreements establishing the support relationship between the FSMA and parent or host wing communications squadron. These agreements may be either functional area memoranda of agreement (MOA) or memoranda of understanding (MOU) limited to C-E support provisions only or wing-level MOAs or MOUs in which C-E support provisions are a subsection of a larger, multi-unit, cross-functional document. These agreements should address both managerial and technical assistance, and as a minimum, detail:

2.31.1. (Added-PACAF) . Delineation of C-E maintenance management responsibilities between the parent or host communications squadron and the FSMA maintenance supervisor. Include all applicable areas of responsibility identified in AFI 21-116, Sections 3A through D.

2.31.2. (Added-PACAF) . Types of technical support (i.e. cable, antenna, telephone, small computer, land mobile radio, etc.) to be provided.

2.31.3. (Added-PACAF) . Equipment restoral priorities and response times.

2.31.4. (Added-PACAF) . The 24-hour points of contact.

2.31.5. (Added-PACAF) . Site access and controlled area access procedures.

2.31.6. (Added-PACAF) . Provision of spare parts, test equipment, special purpose tools, and support equipment.

2.31.7. (Added-PACAF) . Recurring managerial evaluation support to ensure compliance with maintenance standardization and evaluation program (MSEP) requirements.

2.32. Self-Help Projects. All communications-computer systems requirements, regardless of size or complexity, will have a requirements document approved by the appropriate authority. Frequently, programmed projects are not sufficiently complex to warrant a dedicated Engineering and Installation (EI) team effort. In these cases, it may be expedient for the maintenance activity to install, remove, or relocate the equipment on a self-help basis. The base communications-computer systems officer can request self-help implementation of any communications-computer project. The COM/CMSF, in conjunction with the program manager, makes the final determination on the ability of the maintenance complex to complete a self-help project.

NOTE: **Attachment 4** explains requirements processing and EI project related documentation. Use AFMQCC 200-3, C-E Project Review, to ensure all work, logistics support, and documentation requirements are met.

2.33. Deviations and Waivers.

2.33.1. This instruction establishes the C-E maintenance management system. Maintenance activities will be organized as specified in AFI 38-101, *Air Force Organization* and aligned according to approved MAJCOM organizational structures.

2.33.2. Submit recommended improvements or requests to waive provisions of this publication through command channels.

2.33.3. COM/CMSFs faced with emergency or unusual situations may take whatever temporary action is required to accomplish the mission. Balanced these actions against security compromises and the safety of personnel, equipment, or facilities consistent with prevailing policy of installation commander and base disaster preparedness procedures.

2.34. (Added-PACAF) . Maintenance of Auxiliary Power Systems. Manage auxiliary power and uninterruptible power supply systems (UPS) supporting C-E equipment in the same manner as other communications systems. When maintenance requirements are not within the capability of the communications unit or other wing organizations, establish a service contract to ensure both scheduled and unscheduled maintenance requirements are met.

Chapter 3

CHIEF OF MAINTENANCE/CHIEF OF MISSION SYSTEMS FLIGHT (COM/CMSF) FUNCTION

Section 3A—COM/CMSF Responsibilities (Note: Refer to Chapter 7, Deployable Communications, for information concerning subject systems.)

3.1. COM/CMSF's Objective and Goal. COM/CMSF will use the following procedures to achieve the highest level of maintenance effectiveness. This cannot be done from behind a desk. The COM/CMSF must make personal contact and frequent visits throughout the maintenance activity. Effective maintenance management results from the efficient use of personnel, money, and materials to meet mission requirements within specified time frames.

3.2. COM/CMSF's Responsibilities.

3.2.1. The COM/CMSF plans, organizes, staffs, directs, and controls the maintenance effort and is responsible to the commander for accomplishing the maintenance mission. The number and complexity of maintenance responsibilities dictate that some are handled by staff functions. In those cases, the staff functions act through, or in the name of, the COM/CMSF.

3.2.2. As a minimum, COM/CMSF will:

3.2.2.1. Determine the content and publish a maintenance plan quarterly. The maintenance plan is a schedule of known or predicted maintenance actions and will include, as a minimum, Time Compliance Technical Orders (TCTOs), preventive maintenance inspections (PMIs), modification schedules, and maintenance support evaluations (Note: items may be included within the plan or referenced and distributed separately). Additional items for consideration are predicted mission downtime, training classes, meetings, self-sufficiency and deficiency analysis, and scheduled deployment workload. It may also be used as a tool to effectively coordinate downtime for scheduled maintenance actions.

3.2.2.2. Ensure effective and timely use of the technical expertise and services available from CRAs and SMTs. Submit requests for assistance from these activities according to command directives.

3.2.2.3. Publish local work cards and maintenance operating instructions (MOIs) to delineate responsibilities within the maintenance activity. The COM/CMSF/CISF approves MS-validated local work cards and MOIs for publication and use by signing the title page.

3.2.2.4. Establish close working relationships with base support activities. Periodic visits by the COM/CMSF to supporting activities such as the Precision Measurement Equipment Laboratory (PMEL), chief of supply, contracting, and base civil engineer are recommended. Focus these visits on how the communications maintenance activity and other base supporting activities can jointly work toward improved support of the base mission.

3.2.2.5. Implement management concepts and procedures for FSMAs. Delineate COM/CMSF, maintenance staff, and FSMA management support duties.

3.2.2.6. Ensure effective safety and radiation protection practices are established and used. (Air Force 48- and 91- series directives and TO 31Z-10-4, *Appendix A*.)

3.2.2.7. Ensure civil service employees are managed according to Office of Personnel Management and Air Force directives.

3.2.2.8. Ensure an orientation program is established for newly assigned personnel.

3.2.2.9. Ensure Engineering Technical Service (ETS) personnel are properly used.

3.2.2.10. Ensure corrective action is taken to resolve management, system, and equipment deficiencies.

3.2.2.11. Ensure maintenance requirements for mission support are included in plans, programs, and support agreements.

3.2.2.12. Develop procedures to execute maintenance tasks listed in war plans, disaster preparedness plans, and programming documents. Develop procedures to execute local deployment requirements to include pre- and post-deployment requirements. Ensure personnel are trained to accomplish these tasks.

3.2.2.13. Identify, to appropriate agencies, factors which limit (or can limit) the capability of the maintenance activity to meet its mission requirements.

3.2.2.14. Ensure EI project packages are reviewed for feasibility of installation and continued validity of the requirements. This includes providing tools, test equipment, and support to EI teams as required by the project support agreements (PSA) or when needed to preclude work stoppages.

3.2.2.15. Ensure Maintenance Support participates in the acceptance and operational testing of new installations and systems.

3.2.2.16. Ensure TCTO modification kits are supplied to EI team chiefs for compliance during installation of new systems.

3.2.2.17. Evaluate installations, complete customer questionnaires, and return them to the EI unit. Provide meaningful comments and specific examples when dissatisfied with the service provided.

3.2.2.18. Ensure effective training programs are established in maintenance support. Since the tasks performed in this function do not lead to the award of an AFSC skill level, all personnel, including supervisors, must receive training on the duties of this staff function. Identify training requirements and document their completion.

3.2.2.19. Temporarily realign duties to ensure efficient use of assigned manpower. Responsibility for task accomplishment remains within the specific function as defined in MAJCOM standardized organizational structures.

3.2.2.20. Appoint a TMDE coordinator to perform responsibilities (**Attachment 5**). The COM/CMSF may delegate Unit TMDE coordinator responsibilities to the production work centers. If delegated, ensure the unit responsibilities (**Attachment 5**) are still performed.

3.2.2.21. Ensure all CAMS/IMDS requirements are accomplished by maintenance support and the maintenance production work centers when the unit does not have a maintenance control.

3.2.2.22. Ensure procedures are established for the repair/service of warranted items.

3.2.2.23. Establish procedures to ensure tool accountability. Ensure tools are inspected periodically for serviceability according to TO 32-1-101, Maintenance and Care of Hand Tools. Ensure mobility toolboxes are marked according to AFI 10-403, Deployment Planning.

3.2.2.24. Establish a depot level maintenance submission program for assigned equipment. (T.O. 00-25-108, Communications-Electronics (C-E) Depot Support).

3.2.2.25. (Added-PACAF) . Establish a lockout and tagout program. Develop procedures to ensure equipment is locked out or tagged out before personnel perform any service or maintenance when the unexpected energizing, startup, or discharge of stored energy could cause injury. Instruct all personnel of the significance of lockout and tagout procedures. Find complete guidance for instituting an effective program in AFOSH STD 91-45, *Hazardous Energy Control and Mishap Prevention Signs and Tags,* Occupational Safety and Health Administration (OSHA) Standard 1910, *Code of Federal Requirements for Labor,* Subpart J, Section 147, *Control of Hazardous Energy (Lockout/Tagout).*

Section 3B—Maintenance Superintendents Responsibilities

3.3. Maintenance Superintendents.

3.3.1. Maintenance superintendents provide an experienced managerial and technical perspective to the maintenance activity, advising and assisting the COM/CMSF. The superintendent performs as an advisor, teacher, and confidant to maintenance personnel. A maintenance activity with an enlisted COM/CMSF is not authorized a maintenance superintendent.

3.3.2. Maintenance Superintendents:

3.3.2.1. Advise and assist the COM/CMSF, staff, and work center supervisors in managing and administering maintenance programs. Maintenance superintendents must promote a free exchange of ideas and encourage supervisors to seek help when needed. To ensure effectiveness, maintenance superintendents do not normally supervise maintenance production personnel or work centers.

3.3.2.2. Perform as the COM/CMSF when directed.

3.3.2.3. Are thoroughly familiar with and make frequent visits to all maintenance functions.

3.3.2.4. Control personnel assignment within the maintenance activity and advise the COM/CMSF on manning levels.

3.3.2.5. Provide advice concerning morale and welfare to maintenance personnel.

3.3.2.6. Promote a close working relationship between staff functions and work center supervisors.

Section 3C—Maintenance Supervisors Responsibilities

3.4. Maintenance Supervisors and Branch Chiefs.

3.4.1. Maintenance supervisors, also called branch chiefs, perform intermediate level supervision. Use them where the size or number of work centers precludes direct supervision by the COM/CMSF. The maintenance supervisor is aligned directly under the COM/CMSF and performs as an extension

of the COM/CMSF by supervising several work centers. To ensure an effective supervisory span of control, some units may need a number of maintenance supervisors.

3.4.2. Maintenance supervisors are directly responsible to the COM/CMSF and will:

3.4.2.1. Frequently visit each work center and systems operating location.

3.4.2.2. Know the capabilities and limitations of their work centers.

3.4.2.3. Ensure work center supervisors have a thorough knowledge of their duties and comply with applicable directives and TOs.

3.4.2.4. Ensure compliance with maintenance schedules.

3.4.2.5. Ensure quality and safety is emphasized.

3.4.2.6. Support the training program and ensure observed or reported training deficiencies are corrected.

3.4.2.7. Ensure work centers assist each other when additional skills or resources are required.

3.4.2.8. Ensure each work center gets its fair share of manpower in terms of numbers and skills.

3.4.2.9. Ensure maintenance data and analysis products are used to solve problems and improve the maintenance effort.

3.4.2.10. Maintain a close liaison with the maintenance staff.

3.4.2.11. Inform the COM/CMSF of problems that are beyond the capability to solve at the branch level.

Section 3D—Information Management Responsibilities

3.5. The Information Management Function.

3.5.1. The Maintenance Information Management section performs administrative tasks solely for the maintenance activity.

3.5.2. Maintenance Information Management will:

3.5.2.1. Maintain the maintenance activity's central administrative distribution system.

3.5.2.2. Accomplish and/or monitor the preparation of all official correspondence and reports generated by the maintenance activity.

3.5.2.3. Serve as the maintenance activity's records manager.

3.5.2.4. Maintain the maintenance activity's functional publications library.

3.5.2.5. Serve as the maintenance activity's focal point for requisition and distribution of publications and forms.

3.5.2.6. Administer a suspense/tracking system for correspondence and reports.

3.5.2.7. Publish and distribute MOIs, directives, schedules, reports, summaries, and other documents as directed.

3.5.2.8. Perform administrative duties as directed by the COM/CMSF.

3.5.2.9. Serve as the maintenance activity's work group manager/administrator IAW AFI 33-115 vol 1 and 2.

Chapter 4

MAINTENANCE CONTROL (MC)

4.1. Introduction. Maintenance Control (MC) functions in direct support of the unit's operational mission and is the management function which monitors, coordinates, and controls the use of manpower and materiel in support of maintenance production. It is the focal point for the assembly, collation and assessment of significant logistics information and requirements. The terms "systems" and "equipment" are used interchangeably and must be understood as being dependent on the local mission. Management of this function requires a person with a broad technical and supervisory background. MC personnel must be aware of how maintenance problems affect the unit mission and what efforts are necessary to resolve the problems. (NOTE: Reference AFJQS 2EXXX-201E, Core Automated Maintenance System (CAMS) to accomplish task qualification training). Refer to **Chapter 7** for information on deployable communications systems.

4.2. Maintenance Control Supervisor.

4.2.1. The MC supervisor coordinates with the COM/CMSF and/or Chief of Information Systems Flight (CISF) to:

4.2.1.1. Monitor and direct the maintenance production effort.

4.2.1.1.1. Schedule, monitor, control, and coordinate support for maintenance production; perform database management duties, as necessary; and plan and schedule the use of maintenance resources.

4.2.1.1.2. Assemble, collate, and assess significant maintenance information and requirements to enhance the maintenance production effort.

4.2.1.2. Ensure accomplishment of maintenance control responsibilities.

4.2.1.3. Coordinate COM/CMSF approval for all cannibalization actions.

4.2.1.4. Provide timely and thorough training to maintenance control personnel.

4.2.1.5. Establish an approximate tour length for personnel assigned to the MC function, considering the unit mission and the need for personnel to remain technically proficient in their duty AFSC.

4.2.1.5. (PACAF) Personnel in short tour locations should remain in work center to ensure continuity.

4.3. Facility Requirements.

4.3.1. Locate, equipment, and arrange MC facilities to make the gathering, posting, and recording of status information as easy and efficient as possible. Reliable communications must be available to support these requirements.

4.3.2. When planning new MC facilities or modifying existing ones, use the following criteria, as appropriate:

4.3.2.1. Compute usable floor space according to the general design criteria, and as prescribed by the base bioenvironmental engineer.

4.3.2.2. Install appropriate lighting to aid in viewing displays and computer monitors.

4.3.2.3. Use appropriate ceilings, walls, and floor coverings to reduce noise levels.

4.3.2.4. Enclose the MC room (no external windows) and install environmental controls.

4.3.2.5. Control personnel access to reduce traffic into the room.

4.3.2.6. Isolate MC electrical circuits, where justified. Provide a standby power source for the circuits. The COM/CMSF may authorize the use of battery operated emergency lights and radios in lieu of standby power where appropriate.

4.4. Maintenance Control Personnel.

4.4.1. The COM/CMSF must staff MC with qualified personnel. Do not assign three-levels except on a case-by-case basis.

4.4.2. Maintenance controllers must be:

4.4.2.1. Calm and poised with the ability to clearly communicate with others.

4.4.2.2. Qualified on at least one of the communications systems maintained. NOTE: The COM/CMSF may waive this requirement for 12-month short tour assignments.

4.4.2.3. Able to evaluate maintenance requirements and direct timely corrective actions.

4.5. Maintenance Control Training Programs.

4.5.1. MC training programs provide assigned personnel with a thorough understanding of MC duties, responsibilities, and procedures.

4.5.2. Training programs should provide:

4.5.2.1. An orientation briefing to understand the units' mission, systems installed, and maintained to accomplish that mission.

4.5.2.2. Visits to maintenance production work centers, staff offices, and supported operations functions, such as the air traffic control tower, base communications center, Regional Processing Center (RPC), and weather station.

4.5.2.3. An understanding of the functions and capabilities of support organizations, such as PMEL and base supply.

4.5.2.4. A working knowledge of radio procedures and communications discipline.

4.5.2.5. The knowledge of contractor maintained systems and the procedures to call out the appropriate vendor.

4.6. Maintenance Control Procedures.

4.6.1. Control all maintenance actions that cause an equipment status report (ESR) to be produced. More stringent requirements may be directed as required.

4.6.2. When directed, act as a consolidated contact point to receive trouble reports and complaints from supported customers. Consolidating some or all contact points is a local determination. In all

cases, it is essential for customers and users to know how and whom to contact when they experience communications computer systems problems.

4.6.2.1. Consolidated contact points appear as a single telephone number to affected customers. Enough telephone lines are needed to minimize customer delays in reaching the trouble reporting number.

4.6.2.2. If functioning as a consolidated contact point, MC must be able to transfer trouble calls and establish conference calls.

4.6.3. Establish an after duty hours contact point to perform MC duties. Provide detailed written procedures for the after duty hours function.

4.6.4. Maintain status visibility. Automated status visibility programs are encouraged.

4.6.5. Document and report system or equipment status according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, and command directives. Keep a current inventory of all mission essential end items and reportable missions maintained by the unit.

4.6.5.1. (Added-PACAF) . Report all Not Mission Capable or "red" equipment outages to the PACAF NOSC within 1 hour of discovery for critical ATCALS and Air Defense (AD) equipment listed in PACAF Special Instructions to Communicators (SINC). Report all incidences via landline to DSN 449-4227 IAW PACAF SINC section regarding CRITICAL AIR TRAFFIC CONTROL AND LANDING SYSTEMS (ATCALS) AND AIR DEFENSE (AD) EQUIPMENT OUTAGE REPORTING.

4.6.5.2. (Added-PACAF) . PACAF equipment reliability standards are listed in **Attachment 14 (Added)**. Reliability rate is the percentage of time the system is operational divided by the amount of time it was scheduled to be operational. Reliability rates do not include scheduled maintenance actions such as PMI's.

4.6.6. Monitor the status of assigned maintenance vehicles, unless otherwise directed by the commander or COM.

4.6.7. Maintain the status of on-call technicians and, when needed, direct technician dispatch.

4.6.8. Direct and control authorized cannibalization actions. (TO 00-20-2, *Maintenance Data Collection System*).

4.6.9. Assign all Job Control Numbers (JCN) (TO 00-20-2). Blocks of JCNs may be assigned to work centers. Units using CAMS may use manual or automatic JCN assignments. If CAMS manual JCNs are used, contact the host database manager and obtain a block of JCNs for unit use.

4.6.10. Verify supply requirements when materiel control personnel are not available. The MC supervisor may require on-call Materiel Control support for after normal duty hours.

4.6.11. Verify Urgency of Need Designator (UND) with Materiel Control.

4.6.12. Notify affected activities of changes in priorities, plans, and schedules.

4.6.13. Assist work centers in developing request for depot maintenance assistance IAW TO 00-25-108, Communications-Electronics (C-E) Depot Support.

4.6.14. Review deviations from scheduled maintenance. Use this information to improve planning effectiveness.

4.6.15. Coordinate anticipated mission downtime with the appropriate mission customer or activity and the affected maintenance work center. Coordination may be delegated to the appropriate work center.

4.6.16. Use CAMS to initiate and control maintenance actions that change equipment status. (Use locally generated means if CAMS is temporarily unavailable)

4.6.17. Perform functional system manager duties for IMDS. As a minimum:

4.6.17.1. Manage the use of the IMDS.

4.6.17.2. Be competent at the highest technical level.

4.6.17.3. Accommodate user requests and set priorities when appropriate.

4.6.17.4. Track system configurations.

4.6.17.5. Manage user profiles and local management security procedures.

4.6.17.6. Establish procedures for system enhancement and direct system configuration updates.

4.6.18. Prepare and maintain a master PMI schedule. Send the applicable PMI schedule, annotated with JCNs, to the work centers, or use CAMS auto scheduling.

4.6.18. (PACAF) Prepare and maintain a master preventive maintenance inspection (PMI) schedule for systems and commercial off-the-shelf (COTS) equipment whose technical, commercial, or user's manual suggests or mandates preventive maintenance routines.

4.6.19. Notify the performing work centers for scheduled TCTOs, time change items, and other anticipated maintenance actions which require TO 00-20-series documentation.

4.6.20. Maintain a list of system and equipment identification numbers, local standard reporting designator, and local serial numbers, when necessary. Comply with CAMS requirements for the management and control of the inventory portion of the CAMS Equipment Status and Inventory Subsystem.

4.6.21. Maintain the status of all active and deferred discrepancies. Reconcile deferred discrepancies, which are awaiting parts, with Materiel Control. Enter required comments, such as requests for command assistance, into CAMS. Reconciliation information includes a review of the current status, acceptability of the Estimated Delivery Date (EDD), and verification of the Urgency Justification Code (UJC).

4.6.22. Note that CAMS serves as a record copy for both ESR and non-ESR systems. Units without CAMS retain a copy of the locally generated documentation.

4.6.23. Accomplish TCTO processing (**Attachment 6**).

4.6.24. Maintain the manual centralized equipment historical file, if used.

4.6.25. Serve as the focal point for all CAMS database problems if a Maintenance Analyst (AFSC 2R0X1) is not assigned.

4.6.26. Call out the appropriate vendor when problems exist in contractor maintained systems.

4.6.27. Notify the CISF if the customer is not satisfied with the corrective action or responsiveness.

4.7. After Duty Hours Maintenance Control.

4.7.1. Establish a contact point to perform MC duties after normal duty hours. Make this activity or individual available to the customers through the trouble reporting point telephone number, if established.

4.7.2. The MC supervisor will:

4.7.2.1. Ensure the unit commander approves the use of sections, other than those under the COM/CMSF and/or CISF's control, to perform these duties. Submits requests for manpower to operate maintenance control during other than normal duty hours to MAJCOMs for approval. Requests must be fully justified and include workload data, such as number of calls and reports handled, etc.

4.7.2.2. Establish procedures for after duty hours maintenance control operation.

4.7.2.3. Ensures on duty maintenance controllers accomplish the following tasks when transferring maintenance control responsibilities:

4.7.2.3.1. Updates the status of all open jobs.

4.7.2.3.2. Briefs the after duty hours maintenance control activity on the status of all open jobs, scheduled actions, and situations that could affect the maintenance mission.

4.7.2.3.3. Reviews all open jobs for accuracy when responsibility is returned to MC.

4.7.2.4. Ensures that individuals performing after duty hours MC duties:

4.7.2.4.1. Are trained on MC duties.

4.7.2.4.2. Act on and control or monitor maintenance actions.

4.7.2.4.3. Keep a log of MC actions. The log content will contain the minimum data necessary to accomplish system or equipment status reporting.

4.7.2.4.4. Maintain the status of on-call technician availability, and, if applicable, direct the dispatch of technicians.

4.7.2.4.5. Have a current copy of all local procedures required to perform MC duties.

4.8. Consolidated Maintenance Support Staff.

4.8.1. The size and mission of some units allow the COM/CMSF or CISF to coordinate and direct the maintenance effort with a consolidated support staff (i.e. combined Maintenance Control and Maintenance Support functions). If a separate MC function is not authorized, the COM/CMSF, or CISF establishes a capability to receive trouble reports and complaints from supported customers on a 24-hour basis. This 24-hour contact point does not need to be a maintenance function. The COM/CMSF or CISF coordinates with the commander and other unit directorates to establish this contact point.

4.8.2. Contact points maintain an automated or manual trouble log identifying the user, affected system, mission impact, problem description, and time of call.

4.8.3. Contact points advise the COM/CMSF or CISF if a customer is dissatisfied with the corrective action or responsiveness.

4.8.4. During normal duty hours, trouble report contact points are consolidated where feasible. Consider whether consolidation will improve customer satisfaction. Manpower workload impacts must

also be considered since additional manpower will not be authorized for consolidated contact points. If established, the consolidated contact point:

4.8.4.1. Transfers the trouble call to the appropriate work center or unit OPR for problem resolution.

4.8.4.2. Coordinates with unit OPRs when problems impact a mission or mission equipment to ascertain when the problem was resolved.

4.8.4.3. Indicates closure of the job in the trouble log.

4.9. Control of Maintenance.

4.9.1. MC controls and documents the status of all active jobs that change equipment status. Active jobs are defined as those jobs where work is in progress or those jobs scheduled to be done that day. Jobs will be considered active even though routine delays may cause breaks in the normal work schedule.

4.9.2. Follow the input formats in AFCSM 21-556 Vol II through 21-579 Vol II for CAMS and the reporting criteria of AFI 21-103, Equipment Inventory, Status, and Utilization Reporting, and/or command directives for processing ESR information.

4.9.3. Note that the JCN serves as a unique identifier for each job. Once a JCN is assigned to a job, the same JCN is carried until the job is completed, regardless of whether control of the JCN changes between MC and the work center.

4.9.3.1. The construction, assignment, and use of JCNs are shown in TO 00-20-2.

4.9.3.2. Blocks of JCNs may be allocated to work centers for work that does not require control by MC. When a work center controlled maintenance action changes the system or equipment status, the JCN and control of the maintenance effort reverts to MC.

4.9.4. MC inputs the maintenance event and status of jobs that change equipment status into CAMS. When real-time CAMS direct input is not possible, use the CAMS printout or a locally developed system to record required data until it can be entered into CAMS.

4.9.4.1. When CAMS direct input is not possible and a PMI requires ESR reporting (AFI 21-103, Equipment Inventory, Status, and Utilization Reporting), show completion on the preventive maintenance schedule.

4.9.4.1.1. When the PMI schedule is used for this purpose, show the start and stop times.

4.9.4.1.2. Document deviations to the schedule in enough detail to explain why the action could not be performed.

4.9.5. Note that control normally begins when a customer, user, or operator identifies a problem and MC assigns a JCN. In some cases, such as for critical command and control systems, MC may not learn of the problem until after operating or using personnel have notified the maintenance work center and restoral work has begun. Where the unit commander authorizes critical systems operators to notify the maintenance work center first and MC second, MC initiates control, reporting, and status-keeping procedures as soon as the malfunction is verified.

4.10. Scheduled Maintenance.

4.10.1. Scheduled maintenance is a known maintenance requirement that is planned or programmed.

4.10.2. MC controls all scheduled actions that cause a change in system or equipment status. For these actions, MC coordinates:

4.10.2.1. Status changes with all concerned agencies. With COM/CMSF and CISF concurrence, this coordination may be done by the tasked work center. Include coordination procedures in local directives. Coordination includes the start time and estimated time of return to operation (ETRO). Estimated time in commission (ETIC), as used in CAMS, is the same as ETRO.

4.10.2.2. Coordinate deferred PMI's with the maintenance work center and using activities to ensure inspections are completed as soon as possible after the cause for deferment is resolved.

4.10.2.3. New ETROs when the established ETRO cannot be met.

4.11. Unscheduled Maintenance.

4.11.1. Unscheduled maintenance is an unpredicted maintenance event that requires prompt attention and must be added to, integrated with, or substituted for, previously scheduled workloads.

4.11.2. MC provides customers with directions on how to report deficiencies with communications-computer systems. When practical, MC establishes consolidated contact points, and:

4.11.2.1. Control jobs if the status of a mission or mission system is affected. MC does not normally track outages on administrative telephones, land mobile radios, etc.

4.11.2.2. Report all problems to the appropriate maintenance work center or unit OPR. Maintain a list of unit OPRs for contractor maintained or contractor operated communications systems (paragraph **5.26.**). For customer reported problems, MC will:

4.11.2.2.1. Maintain an automated or manual trouble log for customer reported jobs that do not require an entry into CAMS. As a minimum, log entries include:

4.11.2.2.1.1. Time the trouble call is received.

4.11.2.2.1.2. The customer's name, office, and telephone number.

4.11.2.2.1.3. The type of system and equipment being reported.

4.11.2.2.1.4. The individual's name and work center to which the report is passed.

4.11.2.2.2. Process reported administrative telephone problems (paragraph **4.12.**).

4.11.2.2.3. Coordinate response/action on problems which affect equipment status with the customer and the appropriate work center or unit OPR capable of resolving the problem by:

4.11.2.2.3.1. Obtaining information required for CAMS or local documentation entries.

4.11.2.2.3.2. Obtaining a preliminary ETRO. If corrective action cannot begin immediately due to higher priority maintenance or established restoration criteria, ensure the customer understands and is agreeable to the delay. If necessary, the COM/CMSF or CISF will resolve any disagreement.

4.11.2.2.3.3. Providing the customer and work center with the JCN.

4.11.2.2.3.4. Requesting applicable OPRs notify MC when such problems are resolved, even if resolved by functions outside of the maintenance activity.

4.11.2.2.3.5. Following up with the work center or unit OPR if the job is not completed by the established ETRO. Advise the customer of the delay.

4.11.2.2.4. Document job closure.

4.11.2.3. Ensure, after a job is assigned to a work center, the work center coordinates directly with other work centers to correct the problem. MC must update CAMS or the trouble log if primary responsibility to correct the problem is shifted from one work center to another.

4.12. Administrative Telephone Service Outages.

4.12.1. When the COM/CMSF has telephone maintenance responsibility, customers with telephone outages normally contact the telephone test board directly. As an alternative, they may be connected to the telephone test board attendant through MC.

4.12.2. When a test board is installed and attended, test board attendants use AF Form 2447, Telephone Trouble Log, or an equivalent automated capability to control maintenance actions.

4.12.3. When the test board is unattended, MC completes AF Form 2447 or automated equivalent and passes it to the test board attendant the next duty day. If priority restoration is needed, MC directs the maintenance action.

4.12.4. When a test board is not installed, MC receives telephone service complaints, logs the trouble, and directs the maintenance action.

4.12.5. If telephone service is provided by contract and MC acts as a consolidated contact point for administrative telephone outages, MC:

4.12.5.1. Transfers the call to the contractor trouble desk or provides pertinent information to the contractor. (NOTE: If the contractor is not required to notify either the customer or MC when service is restored, Maintenance Control may be directed to follow-up with the customer until service is restored.)

4.12.5.2. Notifies the contract QAE when excessive restoral delays occur or if the customer is not satisfied with corrective action.

4.13. Job Priorities.

4.13.1. Job priorities ensure resources are allocated according to job importance and mission requirements and are related to established system, equipment, and circuit restoral criteria.

4.13.2. Use the circuit restoral priorities assigned by the Telecommunications Service Priority to establish restoral criteria for Defense Information System Agency (DISA) circuits and associated equipment. The priority for each DISA circuit appears on its corresponding Telecommunications Service Order (TSO). This ensures circuits and supporting systems and equipment are restored according to national communications objectives.

4.13.3. Note that this does not mean each system, piece of equipment, and circuit is listed in absolute priority order, but the criteria provides MC a means to determine their relative priority. MC uses the restoral criteria to assign priorities when an urgent need exists or when competition for resources occurs. Job priorities govern the sequence of work to be done and the distribution of tasks in and between work centers. Work centers assign job priorities to jobs under their control. When priorities are unclear, mission impacts are used to determine the priority.

4.14. Technician Availability. MC must be aware of the status of the work force and maintain work center on-call schedules.

4.15. Cannibalization.

4.15.1. TO 00-20-2 outlines the cannibalization process and documentation requirements. Document cannibalization actions using appropriate CAMS screens.

4.15.2. Before resorting to a cannibalization action, place a demand on the supply system to verify the part is not available.

4.15.3. When cannibalization is the only option available, identify the end item to be cannibalized, and request approval to cannibalize from the COM/CMSF or designated representative.

4.15.4. Note that approved cannibalization actions are directed and controlled by MC and documented by the work center. Materiel Control uses AF Forms 2414, Verification Worksheet, to document cannibalization actions related to MICAP (Mission Capable) incidents.

4.15.5. For approved cannibalization actions, MC initiates a new JCN, against the item to be cannibalized, and directs the cannibalization action.

4.15.6. When the removal action is done, have MC annotate a comment/follow-up against the appropriate job and input a CAMS comment transaction. MC will show the job for the cannibalized end item as deferred, pending receipt of the replacement part.

4.15.7. When notified that the cannibalized part has been installed, have MC close the initial job.

4.15.8. When the part is received to repair the cannibalized end item, MC schedules its installation.

4.15.9. When notified that the replacement part is installed, MC closes the cannibalization job.

4.16. Equipment Status Reporting (ESR).

4.16.1. Maintenance Control:

4.16.1.1. Enters and updates data as events occur.

4.16.1.2. Reviews each report for accuracy to ensure a usable product for analysis and management, and to avoid the high cost of correcting errors.

4.16.1.3. Reviews feedback products for content and accuracy, and submits corrections when necessary.

4.17. Maintenance Vehicles.

4.17.1. Maintenance Control:

4.17.1.1. Monitors the dispatch and operational status of vehicles assigned to the organization. Operational status will reflect vehicle type, serial number, where assigned, if radio equipped, condition (in or out of service), and remarks. Vehicle users report status changes to MC. Geographically Separated Units (GSU) may report vehicle status to MC.

4.17.1.2. Advises the MC supervisor when vehicles do not adequately support maintenance production.

4.17.1.3. Maintains an off-base dispatch status display or log showing the driver's or team chief's name, time out, and destination. GSUs may maintain their own dispatch status. The COM/CMSF will coordinate with the base vehicle operations office to determine off-base work locations that do not require dispatch monitoring.

4.17.1.4. Establishes procedures to control the use of vehicles shared by more than one work center or designated for priority requirements. If the unit vehicle control activity publishes appropriate guidance, then MC procedures are not required.

4.18. Maintenance Planning and Planning Effectiveness.

4.18.1. Effective planning is needed to match known or predicted maintenance jobs with maintenance resources.

4.18.2. Plans are based on known maintenance capabilities to make the best use of maintenance resources. Planning is coordinated with work center supervisors and other affected mission customers or agencies. Unexpected situations which overburden the work center or which cause a delay or postponement of maintenance jobs are referred to the COM/CMSF or CISF through the MC supervisor.

4.18.3. PMIs or other maintenance actions affecting equipment status that are not completed as scheduled are deviations and are documented and rescheduled by MC.

4.18.4. Responsible work centers reschedule PMIs or other maintenance actions, controlled by the work center, that are not completed as scheduled.

4.18.5. The MC supervisor advises the COM/CMSF, and/or CISF of significant deviation trends for resolution.

4.19. Database Management.

4.19.1. If an analyst is not assigned, Maintenance Control:

4.19.1.1. Is the unit contact point for CAMS matters.

4.19.1.2. Complies with host database policies for background processing.

4.19.1.3. Coordinates with the host database manager to ensure Delete History is processed monthly.

4.19.1.4. Coordinates with the host database manager to correct processing problems or suspected software problems including correction of REMIS errors to ensure its database accurately reflects the local CAMS database.

4.19.1.4. (PACAF) MC will ensure reconciliation of ESR errors with the host database manager (AFI 21-103, Chapter 6).

4.19.1.5. Coordinates with the host database manager when off-line/pseudo processing is required.

4.19.1.5. (PACAF) Coordinate with the host database manager to determine responsibilities for updating AFSC specific Training Task Tables (TTT). Maintain a list of personnel and unit responsible for maintaining applicable 2EXXX TTT data.

4.19.1.6. Notifies work centers of scheduled CAMS system downtime and outages.

4.19.1.7. Uses manual backup procedures (AFCSM 21-500 series).

4.19.1.8. Assigns local work center codes and mnemonics (TO 00-20-2).

4.19.1.9. Assists work center supervisors to ensure data accuracy, timeliness, and to correct errors.

4.19.1.10. Performs the duties outlined in AFI 21-103, Equipment Inventory, Status, and Utilization Reporting, (**Chapter 6**).

4.20. Pre-Planned and Time Change Procedures. Maintenance Support notifies MC when a pre-planned or time change action is required. MC establishes a method to ensure advance notice is provided to Materiel Control so items are on hand prior to scheduled replacement dates.

Chapter 5

MAINTENANCE SUPPORT (MS)

Section 5A—Overview of Maintenance Support (Note: Refer to Chapter 7, Deployable Communications, for information concerning subject systems.)

5.1. Introduction. Maintenance Support (MS) embodies a leadership philosophy that creates, throughout the maintenance activity, a working environment that inspires trust, teamwork, and a quest for continuous, measurable improvement. An inherent part of this philosophy is the requirement to assist work center and staff function supervisors and the COM/CMSF or CISF to identify and resolve maintenance and management problems. MS can significantly improve the quality of maintenance as well as the overall management posture within the maintenance activity by assisting staff and production supervisors to determine the root causes of problems and helping to devise corrective actions. (NOTE: Reference AFJQS 2EXXX-201G, Maintenance Support; and In-resident Training Course E3AZR2E066 003, C-E Maintenance Support Procedures to accomplish task qualification training.)

5.2. About Maintenance Support.

5.2.1. MS is the maintenance activity's primary technical advisor.

5.2.2. For units that are not authorized a Maintenance Control, MS provides direct assistance to the production elements by:

5.2.2.1. Serving as the maintenance activity focal point for Equipment Status Reporting (ESR). Provides instructions, when necessary, to ensure data accuracy and timeliness, and assist in correcting errors. Establish work center cutoff times for data submission and enter ESR data when not accomplished by the work centers.

5.2.2.2. Performing Maintenance Control and Database Management duties. (See Maintenance Control Function, paragraph **4.19.**)

5.3. Maintenance Support Supervisor.

5.3.1. The MS supervisor is responsible to the COM/CMSF/CISF to ensure effective maintenance and management practices are used throughout the maintenance activity.

5.3.2. The MS supervisor:

5.3.2.1. Ensures MS responsibilities are accomplished.

5.3.2.2. Ensures MS personnel are trained.

5.3.2.3. Establishes an appropriate tour length for personnel assigned to the MS function. Consider the unit mission and the need for personnel to remain technically proficient in their duty AFSC. Actual tour length may vary for each individual.

5.3.2.3. (PACAF) Personnel in short tour locations should remain in work center to ensure continuity.

5.4. Personnel Selection.

5.4.1. The COM/CMSF fills MS positions with highly qualified and motivated personnel.

5.4.2. Individuals selected to fill these positions are to be qualified and well suited for evaluation, analysis, and support duties. Do not assign personnel with a primary AFSC at the three-skill level to MS.

5.4.3. MS responsibilities go beyond performing evaluations. MS personnel must be able to provide assistance with technical and management guidance so staff functions and work centers can detect and correct problems in their early stages.

5.4.4. Personnel assigned to MS or appointed as work center MS Representatives (MSRs) are trained by experienced MS personnel on management procedures, evaluation methods, and how to find probable causes for identified problems.

5.5. Maintenance Support Responsibilities.

5.5.1. MS ensures proven maintenance techniques, safety procedures, supply discipline, security procedures, and good housekeeping standards are used. MS should be involved in direct maintenance only to the extent needed to monitor maintenance and management quality.

5.5.2. As a minimum, Maintenance Support:

5.5.2.1. Provides help, advice, and authoritative references to work center supervisors and the COM/CMSF/CISF staff.

5.5.2.2. Establishes and maintains a technical publications program.

5.5.2.3. Manages the MSEP (paragraph **5.17.**).

5.5.2.4. Establishes a deficiency analysis program and performs technical reviews (paragraph **5.20.**).

5.5.2.5. Processes material and technical order deficiencies.

5.5.2.6. Serves as the focal point for the self-sufficiency program (paragraph **5.22.**).

5.5.2.7. Reviews work center facility records management.

5.5.2.8. Performs technical reviews of modification proposals and processes valid proposals according to applicable directives.

5.5.2.9. Serves as the focal point for the Corrosion Prevention and Control Program (AFI 21-105, Aerospace Equipment Structural Maintenance).

5.5.2.10. Performs hands-on maintenance, when directed, if required production work center knowledge or skills are lacking or when questionable maintenance practices exist.

5.5.2.11. Trains maintenance support representatives (MSR) and spot checks MSR performance.

5.5.2.11. (PACAF) MS trains MSRs using AFJQS 2EXXX-201G, Maintenance Support, and will add all evaluation and report related tasks from the AFJQS to the MSR's training record. MSRs may conduct evaluations after they've passed performance evaluations and are certified on AFJQS 2EXXX-201G evaluation and report related tasks.

5.5.2.12. Validate local work cards and MOIs, and assist in their development as needed.

5.5.2.13. (Added-PACAF) . Act as the single point-of-contact to the MAJCOM for Program/ Mobile Depot Maintenance.

5.6. Work Center Maintenance Support Representatives (MSR).

5.6.1. The COM/CMSF/CISF may appoint a work center MSR(s) to accomplish duties as directed.

5.6.2. MSRs must demonstrate a thorough knowledge of their assigned MS duties.

5.6.3. MSRs may assist MS during managerial evaluations. However, to maintain the objectivity of the managerial evaluation, MS will perform the majority of technical evaluations. Refer to paragraph **5.17.** MSEP Evaluations for details about MSR utilization.

Section 5B—Materiel Control

5.7. About Materiel Control. Materiel Control coordinates with support agencies and assists maintenance personnel by expediting all supply transactions. The materiel controller is the primary liaison between the maintenance activity and base supply. Reference sources are AFPD 21-1, AFMAN 23-110V2CD, USAF Supply Manual, and TO 00-20-3, Maintenance Processing of Reparable Property and Repair Cycle Asset Control System.

5.8. Materiel Control Responsibilities.

5.8.1. The COM/CMSF provides written procedures to ensure Materiel Control has the responsibility and authority to function successfully. The commander and COM/CMSF ensure materiel controllers are not tasked for other than maintenance related tasks, unless directed otherwise by MAJCOMs.

5.8.2. Materiel Control will:

5.8.2.1. Resolve all supply problems, confirm maintenance supply data and status, forecast supply requirements for maintenance, and participate in maintenance meetings.

5.8.2.2. Advise maintenance managers of the overall supply situation, as it affects maintenance, and recommend ways to improve supply support.

5.8.2.3. Provide or obtain training and assist work centers on all supply matters. This can be any combination of written procedures, recurring training, or daily routine assistance.

5.8.2.4. Maintain liaison with each maintenance property custodian and base supply to ensure adequate supplies and equipment to support the maintenance needs are on hand.

5.8.2.5. Coordinate with Base Supply to set up organizational codes, shop codes, and delivery destinations to receipt for issues and due-out releases, and to process turn-ins.

5.8.2.6. Coordinate with the chief of supply, the COM/CMSF/CISF, and work center supervisors for bench stock, special levels and supply points. Act as central point of contact on all matters in these areas.

5.8.2.7. Keep close liaison with the Combat Operations Support Flight to ensure Mission Capable (MICAP) reportable items are reported by base supply.

5.8.2.8. Establish follow-up procedures to be used when unsatisfactory supply support is identified. When requested by a maintenance work center, take aggressive follow-up action on all requisitions.

5.8.2.9. Reconcile with Maintenance Control and applicable work center on due-outs for UND "A" requisitions daily. Reconcile due-outs for UND "B" requests weekly, using D18, Priority Monitor Report or CAMS Supply Subsystem Inquiry.

5.8.2.10. Set up procedures to route, store, and control repair cycle assets and act as the Awaiting Parts (AWP) and Equipment Inoperative for Parts (EIP) monitor for the maintenance complex.

5.8.2.11. Act as the critical item (Single Point Failure) monitor for the maintenance complex.

5.8.2.11.1. Consolidate inputs from work centers to change adjusted stock levels and forward to MAJCOM for validation. Submission of AF Form 1996 is no longer required for XD items.

5.8.2.12. Coordinate with the Combat Operations Support Flight to ensure all required TCTO kits and time change items are promptly requisitioned and delivered to maintenance.

5.8.2.13. Coordinate with the Combat Operations Support Flight to ensure TCTO actions are accomplished on supply controlled spares.

5.8.2.14. Advise maintenance personnel of issue procedures for the Interchangeable and Substitute Group (I&SG) items.

5.8.2.15. Coordinate with each work center to ensure that functional checks of in-warehouse RSP assets are identified and give the data to base supply inspection section.

5.8.2.16. Coordinate the use of RSP assets to satisfy priority parts requisitions.

5.8.2.17. Serve as the zero overpricing monitor and maintain a file of price challenges forwarded to base supply.

5.8.2.18. Serve as the maintenance complex precious metals monitor.

5.8.2.19. Serve as maintenance Turn-Around (TRN) monitor.

(NOTE: Do not assign Materiel Control personnel with custodial responsibility for tools, equipment, or supplies located in other work centers or staff offices.)

Section 5C—Departmental and Technical Publications

5.9. Publication Requirement. Technical publications are essential for MS to function properly and to provide the maintenance activity with accurate information. Technical publications include TOs, commercial manuals, and specialized publications. Set up and maintain these publications according to AFPD 21-3 and 00-5 series technical orders.

5.10. TO Distribution and Control.

5.10.1. MS establishes a Technical Order Distribution Office (TODO) and ensures the adequacy and accuracy of TO files in the maintenance activity (TO 00-5-2). MS establishes requirements for Computer Program Configuration Items (TO 00-5-17). Give special attention to all electronically transmitted TCTOs and TOs due to the urgent nature of this type of change.

5.10.2. MS ensures current method and procedures TOs, TCTOs, inspection work cards, work unit code manuals, and other TOs are available to the entire maintenance activity. The primary consideration is availability of TOs, with minimum duplication. MS is not required to keep duplicate copies of technical publications maintained by another agency. If a TO is not maintained in MS, verification may have to be performed by MS in the work center. TOs should not be removed from the primary work locations simply to accommodate the staff.

5.10.3. The COM/CMSF may authorize FSMAs to set up a TODO.

5.11. TCTO Processing. MS initiates TCTO processing actions (**Attachment 6** and TO 00-5-15). MS reviews each incoming TCTO and advises Maintenance Control of its applicability. Copies of each TCTO are distributed to Maintenance Control, Materiel Control, and affected work centers as shown in **Figure A6.1.** and **Figure A6.2.**

5.12. Pre-Planned and Time Change Procedures. MS reviews all applicable -6 scheduled inspection and maintenance requirements manuals and -6WC work cards to determine if pre-planned and time change items are required. When requirements exist, MS gives Maintenance Control the data needed to initiate suspense procedures.

5.13. Local Preventive Maintenance Inspections (PMIs).

5.13.1. PMI requirements are normally shown in -6WC work card sets or -6 maintenance TOs. Some systems, especially minor electronic components, are bought "off-the-shelf" and do not have PMIs published in the TO system. In this event, follow manufacture's recommended maintenance schedules.

5.13.2. When PMIs are not published in the TO system, the COM/CMSF determines if PMIs are needed. If needed, the COM/CMSF decides whether to use available commercial manuals or to publish local work cards (TOs 00-5-1 and 00-20-1, Preventive Maintenance Program, General Policy Requirements and Procedures). Consider specifications for mean-time-between-failure, operational requirements, and other checks.

5.13.3. Local work cards can not modify existing PMI routines.

5.13.4. MS validates local work cards and assists in their development as needed.

5.13.4. (PACAF) Maintenance support reviews local work cards for technical accuracy and forwards validated work card sets to the Chief of Maintenance (COM) or Chief of Mission System Flight (CMSF) for signature.

5.13.5. Use MAJCOM established local work card format. A prime consideration should be ease of use by work center technicians. TO 00-5-1 procedures for local work cards apply.

5.13.5. (PACAF) Local work card sets should be in the same format as Air Force-published technical order equipment work cards. They may be published on AFTO Form 26D, *Inspection Work Document*, or equivalent electronic forms.

5.13.6. (Added-PACAF) . Forward a copy of approved local work cards to HQ PACAF CSS/SCM for review and consideration for PACAF wide application.

Section 5D—Maintenance Standardization and Evaluation Program (MSEP)

5.14. MSEP Key Indicators.

5.14.1. MSEP provides the COM/CMSF/CISF with key indicators to judge the maintenance activity's ability to meet mission requirements.

5.14.2. MS performs evaluations to determine the quality of maintenance management, production, and procedures; technician competence; and training program effectiveness.

5.14.3. MS publishes specific guidance describing procedures for evaluations, suspense control, report preparation and routing, and initial report reply and follow-up procedures. MS maintains a file of all MSEP evaluation reports.

5.14.4. MS uses evaluation results to determine the physical and management condition of the maintenance activity. Management practices, systems, and facilities must be evaluated periodically to identify and correct problems.

5.14.5. Deficiencies found during systems evaluations may show a need for personnel evaluations. This can provide insight into a technician's training progression as well as the scope of work center training programs. Consider the training goals established for the technician as well as training already completed.

5.14.6. MS performs evaluations during normal scheduled downtime if systems must be removed from operation. Technical evaluations are most effective if performed shortly after scheduled maintenance. This requires close coordination between MS, Maintenance Control, and work center supervisors.

5.15. MSEP Exemptions. MAJCOMs may exempt unique functions from MSEP. For example, CRA work centers, power production, systems control, etc. Exemptions should detail the specific requirement exempted (i.e., managerial, technical, or personnel). The COM/CMSF may provide functional assistance to exempted functions as required.

5.15. (PACAF) No functions are exempt from MSEP other than those specifically identified in AFI 21-116, paragraph **5.17.3.5.1.**

Section 5E—MSEP Guidance, Checksheets, and Reports

5.16. Evaluation Guidance.

5.16.1. If published, evaluation guides are used during managerial evaluations for subjects such as safety, supply, vehicles, and administration.

5.16.2. MS uses Air Force Published Maintenance Quality Control Checksheets (AFMQCC) as evaluation guides for technical and managerial evaluations (**Attachment 2**).

5.16.3. MAJCOMs publish MQCCs for MAJCOM-unique systems and to add additional checks to existing AFMQCCs (**Attachment 2**).

5.16.4. Locally Published Checksheets.

5.16.4.1. Use the AF Form 3900, Quality Control Checksheet, when developing local technical and managerial evaluation guidelines.

5.16.4.2. Checksheets serve only as a guide. Additional subjects not covered in the AFMQCC may be assessed during the evaluation.

5.16.4.3. Send locally devised checksheets to the COM/CMSF for final review and approval before use. Submit local MQCCs, with broad application, to your MAJCOM for potential Air Force publication.

5.16.4.3. (PACAF) Develop local MQCCs following **Attachment 2** guidance for all equipment requiring technical evaluations not otherwise covered by an AF or PACAF MQCC.

5.17. MSEP Evaluations.

5.17.1. Personnel evaluations will be conducted by MS personnel. (Exception: The COM/CMSF may direct MSRs to assist MS in the performance of personnel evaluations where MS personnel do not possess the required skills or qualifications. MS must directly supervise MSRs on personnel evaluations. Also, MSRs may perform personnel evaluations for FSMAs, as directed by the parent unit). The unit commander may appoint evaluators for ANG units. Evaluation schedules are jointly developed by MS, work center supervisors, and Maintenance Control to ensure minimum disruption. MS produces a list of all evaluations for inclusion in the maintenance plan.

5.17.2. Technical Evaluations.

5.17.2.1. Technical evaluations give an overall view of the quality of maintenance. They also provide useful data for identifying training deficiencies and potential problem areas.

5.17.2.2. Technical evaluations will be performed with enough depth to ensure systems and equipment are maintained and managed according to applicable technical data. The following areas will be evaluated as a minimum:

5.17.2.2.1. System performance as indicated by the critical technical parameters. Also, navigational aids and Air Traffic Control (ATC) radar systems performance will be compared to flight check records.

5.17.2.2.1. (PACAF) Perform a complete check of the facility records during technical evaluations on air traffic control and landing systems (ATCALS) subject to flight inspection. Ensure the records are available at the equipment site; the records contain all required documentation and reference data; and the certification forms are properly completed.

5.17.2.2.2. Equipment cleanliness and compliance with standard maintenance practices and equipment safety requirements.

5.17.2.2.3. Corrosion prevention and control.

5.17.2.2.4. Equipment historical files, TO configuration, and completeness using AF Form 47X series (if published) or automated copies IAW TO 00-35D-2, *Electronic Set Inventory Checklist for C-E Equipment*.

5.17.2.2.5. Applicable mobility markings.

5.17.2.2.6. Compliance with pre-planned and time change requirements.

5.17.2.2.7. Management action taken on deferred maintenance actions.

5.17.2.2.8. Verification of the master PMI schedule to ensure all PMIs are scheduled.

5.17.2.2.9. Availability and condition of the technical data, tools, and required TMDE.

5.17.2.3. Use of appropriate AFMQCCs is mandatory for all technical evaluations. For equipment where AFMQCCs have not yet been published, local checksheets may be used.

5.17.2.4. Do not disassemble equipment solely for evaluation purposes. If disassembly is required, make every effort to perform the evaluation in conjunction with a frequent interval PMI or other maintenance action.

5.17.2.5. Perform technical evaluations on a sample of all equipment and systems at least every 18 months using the sampling plan in **Attachment 7**. (NOTE: COM/CMSFs may increase the frequency of technical evaluations based on mission requirements, suspected training problems, uptime rates, etc.) The term "all equipment and systems" includes ICBM communications equipment and systems. ANG Communications Flights will complete technical inspections at least every 18 months on equipment that will deploy with their wings/units upon mobilization. ANG/C4 will determine the inspection intervals for equipment that supports in-garrison training at ANG bases/unit.

5.17.2.5. (PACAF) Critical parameters must be checked during technical evaluations on certified ATCALS equipment and results documented in the evaluation report.

5.17.2.6. Technical evaluations are most effective if performed shortly after scheduled maintenance is performed. Perform these evaluations in conjunction with a short interval PMI or other maintenance action to minimize operational mission disruption.

5.17.2.7. Technical evaluations are not required on equipment items with no PMIs if equipment abuse and serviceability can be readily assessed.

5.17.3. Personnel Evaluations.

5.17.3.1. The personnel evaluation program assesses the effectiveness of a work center's training program, technician competence, and technical and procedural data adequacy. These areas are assessed to ensure equipment or systems are maintained in an effective and efficient manner to meet mission requirements.

5.17.3.2. Performance.

5.17.3.2.1. Technician performance is the measurement standard for training programs.

5.17.3.2.2. Technicians must perform in a professional manner, but evaluation results may reflect deficiencies that can be rectified through additional training or training program improvements.

5.17.3.3. Assessment.

5.17.3.3.1. Evaluations assess a technician's:

5.17.3.3.1.1. Knowledge - how much does the technician know about the job. (This is determined by asking questions about the task during task performance. Additionally, technicians may complete written tests contained in Air Force Qualification Training Packages (AFQTP) and/or use interactive training devices or other sources.)

5.17.3.3.1.2. Job proficiency - how well does the technician perform the job. (The criteria for evaluating and analyzing this element is identified in the work center's training plan and the system or equipment technical data used to perform the job. Evaluators observe

how well tasks are performed to determine if sufficient skill is demonstrated to presume competency.)

5.17.3.4. Reporting Deficiencies.

5.17.3.4.1. TO errors or deficiencies discovered during evaluations are reported according to TO 00-5-1. Deficiencies in AFCEMIs are reported according to **Attachment 3** of this AFI.

5.17.3.4.2. The work center and MS correct deficiencies in local work cards.

5.17.3.5. Certified Personnel.

5.17.3.5.1. All personnel who are task certified and perform maintenance tasks are subject to personnel evaluations regardless of AFSC. This includes personnel certified through cross-utilization training. (Exception: Contractor personnel, personnel assigned to Special Maintenance Teams (SMTs) and Air Force Engineering and Technical Service (AFETS) personnel.)

5.17.3.5.2. Civilian personnel assigned specific systems maintenance tasks are subject to evaluation. When results show more training is required, supervisors take action to increase the individual's proficiency. Evaluation results cannot be used to disqualify civilian personnel who are hired for specific jobs under civil service procedures. Disqualification of civilian personnel is according to applicable directives.

5.17.3.5.3. In overseas units, the COM/CMSF may exempt local national technicians from personnel evaluation (coordinate with local civilian personnel offices).

5.17.3.6. Maintenance Staff Personnel may be evaluated under MSEP.

5.17.3.7. Types of Personnel Evaluations.

5.17.3.7.1. The Personnel Evaluation Program consists of four types of evaluations; primary, follow-on, ICBM communications, and special.

5.17.3.7.2. Primary Personnel Evaluations.

5.17.3.7.2.1. Primary personnel evaluations provide early verification of the adequacy of an individual's training program and assist work centers in determining future training milestones to ensure technician competency.

5.17.3.7.2.2. MS performs these evaluations on newly assigned personnel within 6 months of assignment to the work center (within 12 months for traditional “part-time” ANG members only). The COM/CMSF may extend this time limit to compensate for training delays.

5.17.3.7.2.2. (PACAF) In short tour locations, MS will perform these evaluations on newly assigned personnel within 60 days of assignment to the work center. Exclude dates away from the work center e.g., First Term Airman Center, Mobility school.

5.17.3.7.3. Follow-On Personnel Evaluations.

5.17.3.7.3.1. Follow-on personnel evaluations are conducted to verify the adequacy of the individual's continuation training program and to ensure technician proficiency is being maintained.

5.17.3.7.3.2. Evaluate all personnel at least once every 24 months (every 48 months for traditional “part-time” ANG members only).

5.17.3.7.3.3. Evaluate all AFSC 2E0X1 and 2E1X2 personnel who are task certified to maintain air traffic control and landing systems (ATCALS) at least once every 12 months. For individuals who fall into this category the tasks selected must be ATCALS related. Also, this evaluation is in addition to the follow on evaluations required by their primary AFSC. Evaluate non-ATCALS tasks at least every 24 months for these personnel. The MSEP formal evaluation program is the Air Force's method to ensure technicians meet the Federal Aviation Administration's proficiency requirements. This allows Air Force technicians to certify that ground based radar systems and navigational aids meet technical parameters.

5.17.3.7.3.3. (PACAF) ATCALS tasks selected for the personnel evaluation must be of sufficient technical complexity to present a realistic measure of a technician’s proficiency. Tasks involving simple meter readings alone will not satisfy this requirement. If the technician is a designated equipment certifier, at least one of the specific systems they are designated to certify will be used during the follow-on evaluation.

5.17.3.7.4. Special Personnel Evaluations.

5.17.3.7.4.1. Special personnel evaluations are either mandatory (directed by a higher authority, such as this instruction, or MAJCOM HQs) or optional (initiated by unit level work center supervisors).

5.17.3.7.4.2. The following are mandatory special personnel evaluations:

5.17.3.7.4.2.1. When new types of systems are assigned to the work center, or when major modifications, which significantly affect maintenance procedures, are accomplished. A sampling of technicians maintaining this system must be completed within 90 calendar days of systems acceptance or modification completion.

5.17.3.7.4.2.2. When technicians are recertified following an MSEP evaluation decertification, an evaluation must be completed within 30 calendar days of recertification.

5.17.3.7.4.2.3. Immediately after an ATCALS or navigational aids facility flight inspection is terminated or receives an unsatisfactory rating due to technician error or lack of training.

5.17.3.7.4.2.4. When technicians are reassigned back to a work center from a staff position and 6 months or more have elapsed since leaving the work center, an evaluation must be completed within 90 calendar days of reassignment.

5.17.3.7.4.3. When technical evaluations or deficiency analysis trends indicate a lack of proficiency may be causing system problems or deterioration, an optional special personnel evaluation may be required to identify the cause. Evaluate a sufficient number of personnel to determine the overall effectiveness of the work center's maintenance capability.

5.17.3.7.5. ICBM Communications Evaluations.

5.17.3.7.5.1. ICBM communications evaluations are conducted to ensure technician proficiency on command and control systems supporting nuclear missile weapon systems.

5.17.3.7.5.2. Evaluate each technician every 6 months. Avoid evaluating technicians on the same task in a 2-year period, if possible.

5.17.3.7.5.3. Evaluate technician proficiency using tasks selected from missile applicable Air Force Job Qualification Standards (AFJQS) or Career Field Education and Training Plans (CFETP). (Exception: Work centers supporting both missile and base communications missions may perform one base communications (non-missile) task evaluation per technician in a two year period. .)

5.17.3.7.5.4. Evaluate a team from each work center that performs Launch Facility (LF) penetration at least annually. This evaluation must include LF emergency operations. (NOTE: Units maintaining more than one weapon system shall evaluate penetration of all weapon system LFs each year.)

5.17.3.8. Conducting Evaluations.

5.17.3.8.1. Evaluators are the key to the evaluation program and are not to be the same individual who certified task proficiency of the person being evaluated. Ideally, the evaluator is certified on the tasks being evaluated and possesses the same AFSC at a higher skill level than the individual being evaluated. (Exception: ICBM communications task evaluators must be qualified on the tasks evaluated during personnel evaluations and qualified on the system/equipment to perform technical evaluations.) When this is not practical, the evaluator must be capable of observing and verifying task accomplishment with a TO, manual, or other reference. The evaluator must be capable of verifying proper procedures, tools, TMDE, and materials are used, and the task performance conforms to established standards.

5.17.3.8.2. Before conducting evaluations, evaluators must analyze and select tasks to be evaluated based on deficiency indicators, training management visits, Not Repairable This Station (NRTS) validations, system performance data, previous evaluations done in the work center, and other management indicators. If analysis does not indicate any areas requiring emphasis, evaluators should select tasks not previously evaluated in the work center. Individuals may be evaluated on any task(s) they are certified on, including troubleshooting techniques, alignments, and repair procedures.

5.17.3.8.2.1. (Added-PACAF) . Task selection will be based, first, upon unit performance indicators, i.e., deficiency analysis, uptime rates, NRTS, etc. If any trends exist, target those areas for evaluation.

5.17.3.8.2.2. (Added-PACAF) . If no trends exist, select tasks based on ensuring broad task coverage for the work center and individual.

5.17.3.8.2.3. (Added-PACAF) . Determine if work center personnel have been evaluated on tasks supporting all equipment end-item types. If any end-item type has been omitted, select tasks on that equipment.

5.17.3.8.2.3.1. (Added-PACAF) . Do not duplicate tasks selected on the technician's previous evaluation unless a trend has been identified and requires investigation.

5.17.3.8.2.3.2. (Added-PACAF) . You should not select tasks previously evaluated on other technicians assigned to the same work center. Choose another task unless you are investigating a possible trend.

5.17.3.8.2.4. (Added-PACAF) . Selected tasks will provide a thorough measure of evaluatee's technical skills and be commensurate with rank (not all simple tasks).

5.17.3.8.3. Coordinate evaluations with the work center supervisor.

5.17.3.8.4. Select alternate tasks to avoid the need to reschedule an evaluation when operational requirements do not permit completion of planned evaluations. .

5.17.3.8.5. Brief the technician on the tasks to be evaluated, the rating criteria, and the performance standards prior to beginning the evaluation. Evaluators should focus on the evaluation process, not the specific steps evaluatees must accomplish to pass. Emphasize the goal is to determine the effectiveness of the work center's training program, not to pass the evaluation.

5.17.3.8.6. Evaluate three separate and distinct phases - preparation, task performance, and post performance. (See **Attachment 8**)

5.17.3.8.7. Stop the evaluation if technicians use methods or procedures that could jeopardize safety (including flight safety) or cause equipment damage. Task evaluations may be continued after the hazard has been corrected.

5.17.3.8.8. During the evaluation, ask relevant questions on the methods and procedures used by the technician.

5.17.3.8.9. Evaluations are complete when the evaluator determines that the technician's performance has been sufficiently evaluated to determine work center training program adequacy and technician proficiency.

5.17.3.8.10. Brief the evaluatee and the work center supervisor at the conclusion of the evaluation.

5.17.3.9. Evaluation Results.

5.17.3.9.1. A technician's performance is assessed as either satisfactory or unsatisfactory (see **Attachment 8**). Explanations and recommendations are required for each task rated as unsatisfactory.

5.17.3.9.2. Unsatisfactory task performance requires an investigation to determine the cause of failure. In addition, unsatisfactory task performance requires decertification of the particular task; it does not mean the individual is incapable of performing other tasks. Work center supervisors must understand decertification and recertification documentation procedures. If the technician is an ATCALS equipment certifier, the commander must suspend the individual's certifier designation for the equipment the individual was decertified on. The commander may reinstate an individual's certifier designation following task recertification and successful completion of a personal reevaluation.

5.17.3.9.3. The work center supervisor, certifying official, and trainer must be briefed on noted problem areas as soon as practical following unsatisfactory task performance. Unsatisfactory task performance requires decertification on the particular task; it does not mean the individual is incapable of performing other tasks. Work center supervisors must understand decertification and recertification documentation procedures.

5.17.3.9.3. (PACAF) Brief the COM/CMSF and unit commander when personnel authorized to certify ATCALS facilities are decertified due to unsatisfactory evaluation performance on ATCALS equipment.

5.17.3.9.4. MSEP personnel evaluation results will not be recorded on, or made a part of, documents such as performance reports, unfavorable information files, etc.

5.17.4. Managerial Evaluations.

5.17.4.1. MS managerial evaluations provide the commander, COM/CMSF/CISF, and supervisors with factual, objective assessments of a section's ability to meet its mission requirements. To do this, it is necessary to collectively evaluate management effectiveness, equipment and systems condition, and the performance and technical proficiency of assigned personnel.

5.17.4.2. Perform managerial evaluations:

5.17.4.2.1. On each staff function and work center at least every 18 months (every 36 months for ANG units). As an option, managerial evaluations may be performed on specific functional areas (that is training, safety, etc.) across the maintenance activity instead of evaluating all programs within a specific function. Ensure applicable areas listed in paragraph **5.17.4.3.** are evaluated every 18 months (every 36 months for ANG units).

5.17.4.2.2. When the results of an IG inspection or higher headquarters staff visit indicate less than satisfactory performance by a work center or staff function. Perform the evaluation within 4 months of the inspection or visit.

5.17.4.3. How to perform managerial evaluations.

5.17.4.3.1. Before beginning managerial evaluations, review:

5.17.4.3.1.1. Reports of previous managerial, technical, and personnel evaluations.

5.17.4.3.1.2. Other evaluation reports such as administrative files inspections, IG inspections, operational evaluations, and ATCALS analysis and flight checks.

5.17.4.3.1.3. Staff Assistance visit reports, maintenance analysis trend data, JDD and CAMS products, NRTS actions, and any other relevant management indicators.

5.17.4.3.2. Make impartial, factual, pertinent, and complete observations to identify deficiencies. Identify commendable practices and programs, especially those that may be useful to other work centers.

5.17.4.3.3. Demonstrate proper procedures and provide assistance to help work center and staff personnel meet mission requirements.

5.17.4.3.4. Ensure affected supervisors fully understand findings before formal evaluation reports are written.

5.17.4.3.5. Contact the work center's customers to determine if the work center is supporting their mission requirements.

5.17.4.3.6. Evaluate subject areas in enough depth to ensure the results indicate the actual condition of the activity. Not all areas require 100 percent evaluation for the evaluator to make this determination. Use the sampling plan provided (**Attachment 7**).

5.17.4.3.7. Determine how well work centers and support functions meet production and management requirements and if established procedures are followed. The minimum evaluation items include:

5.17.4.3.7.1. Compliance with the intent of this instruction, associated and local directives, safety and security rules and procedures.

5.17.4.3.7.2. Equipment and system condition and performance. (Conduct technical evaluations. Consider equipment recently repaired in order to assess the quality of repair actions such as alignments, component or printed circuit board replacement, and soldering. Check integrity and optimum operation of system monitors for ATCALS facilities.)

5.17.4.3.7.2.1. (Added-PACAF) . Review all ATCALS facility records for currency and accuracy. Compare current facility performance against existing facility reference data. Review records for compliance with AFI 13-203, *Air Traffic Control*, and AFMAN 11-225, *Flight Inspection Manual*, documentation guidance.

5.17.4.3.7.3. Compliance with the PMI schedule.

5.17.4.3.7.4. Compliance with the Hazardous Material (HAZMAT) and Hazardous Communications (HAZCOM) programs.

5.17.4.3.7.5. Compliance with local, state, federal, and host nation environmental policy and guidance.

5.17.4.3.7.6. Backup power run up procedures.

5.17.4.3.7.7. Cannibalization procedures and documentation.

5.17.4.3.7.8. Corrosion prevention and control program.

5.17.4.3.7.9. Compliance with Electrostatic Discharge practices, where applicable. (TO 00-25-234)

5.17.4.3.7.10. Perform personnel evaluations during the evaluation. Check adequacy of training plans and training materials. Check training documentation, progression, and task coverage. (NOTE: It is important at short tour locations that sufficient personnel evaluations are performed to ensure the adequacy of training programs).

5.17.4.3.7.11. Compliance with job documentation.

5.17.4.3.7.12. TMDE management (TO 00-20-14) to include: availability of required TMDE, limited and special calibration requirements, condition and calibration status, storage and handling, etc.

5.17.4.3.7.13. Availability, management, and condition of tools.

5.17.4.3.7.14. Supply management to include: supply discipline, bench stock, supply point, and adjusted stock level management, reparable processing, MSK and RSP management.

5.17.4.3.7.15. Use and condition of government vehicles.

5.17.4.3.7.16. Technical data to include maintenance of TO files, and availability and use of required technical and commercial data.

5.17.4.3.7.17. Standard and specialized publications to include: the adequacy and availability of required publications, publications familiarization and use of files, and the clarity and accuracy of the local directives for which the work center or function is OPR or OCR.

5.17.4.3.7.18. Work center facility/equipment records management (paragraph **6.10.**).

5.17.4.3.7.18. (PACAF) Review ATCALS facility records for currency, accuracy, and compliance with this instruction's Attachment 11, AFI 13-203, and AFMAN 11-225, *United States Standard Flight Inspection Manual*

5.17.4.3.7.19. Adequacy and accuracy of system or equipment historical files.

5.17.4.3.7.20. General housekeeping practices to include the condition of facilities and non-mission equipment.

5.17.4.3.7.21. Actions to ensure adequacy of logistics support requirements for new systems. (paragraph **6.12.**)

5.17.4.3.7.22. Adequacy of staff support to the work center or function being inspected.

5.17.4.3.7.23. Compliance with NRTS procedures.

5.17.4.3.7.24. Compliance with the Radio Frequency Radiation Safety Program.

5.17.5. Special Evaluations.

5.17.5.1. Special evaluations are either mandatory (directed by a higher authority such as a MAJCOM HQs) or optional (initiated by unit level management) and cover managerial or technical subjects.

5.17.5.2. Mandatory Special Evaluations are required to:

5.17.5.2.1. Identify problem areas and suggest corrective actions to restore systems or equipment to technical specifications after unsatisfactory ATCALS system performance. Evaluate technical and managerial areas to prevent a recurrence of unsatisfactory ATCALS system performance.

5.17.5.2.2. Determine the TO completeness, serviceability, and modification status of system end items and major assemblies when items are transferred to or from the maintenance activity or upon returning from a deployed location.

5.17.5.2.3. Determine if equipment or systems installed, overhauled, modified, modernized, or relocated meet technical and installation requirements. When several like items are being modified, perform a special evaluation on the first few completed items to minimize corrections to all items. Ensure facility records and technical data are current and adequate.

5.17.5.2.4. Determine if on-site Mobile Depot Maintenance (MDM) is adequate. Provide results to the COM/CMSF or designated representative prior to the certification of work on AFTO Form 217, Certificate of Mobile Depot Maintenance Accomplished. (TO 00-25-108)

5.17.5.3. Optional Special Evaluations are performed to:

5.17.5.3.1. Investigate known or suspected management problems and provide recommendations for corrective actions.

5.17.5.3.2. Survey equipment or systems to verify failure trends or marginal performance.

5.17.5.3.3. Ensure TMDE initial issues meet TO configuration and physical serviceability requirements.

5.17.5.3.4. Evaluate the quality of operator maintenance on power generating equipment, and assess the ability of authorized work center personnel to quickly place the power generators into safe and sustained operation.

5.17.5.3.5. Determine if adequate corrective action was taken to correct major deficiencies identified during technical evaluations.

5.17.5.4. Examples of When to Perform Special Evaluation.

5.17.5.4.1. When further job progress makes evaluations impractical or impossible.

5.17.5.4.2. When EI quality assurance inspectors are on site, perform in-process and final acceptance inspections in conjunction with EI Quality Assurance (QA) inspections.

5.17.6. Evaluation Reports.

5.17.6.1. Preparation:

5.17.6.1.1. Provide complete, accurate, and impartial reports with sound recommendations designed to help correct discrepancies and eliminate underlying causes.

5.17.6.1.2. Include specific references so that work center or office personnel understand and know where to find procedures to correct deficiencies.

5.17.6.1.2.1. Reference deficiencies that result from procedural omissions or repeated errors. Failure to perform checks to ensure publications are current or determine out of tolerance system or equipment measurements exist are examples of procedural deficiencies.

5.17.6.1.2.2. References are not required when a deficiency or isolated minor error is easily understood and corrective action is obvious. General housekeeping practices, equipment cleanliness, and standard supervisory responsibilities and safety practices are examples of areas that may not require references. Evaluators must take care not to assume all such practices and responsibilities are commonly recognized and understood.

5.17.6.1.2.3. Deficiencies caused by inefficient or ineffective management practices may require the use of rationale since a specific reference may not be published. The COM/CMSF resolves differences of opinion over the validity of the type of discrepancy before reports are finalized.

5.17.6.1.2.4. Identify all MQCCs used during all evaluations. Indicate interval and date of most recent PMI on technical evaluations.

5.17.6.1.3. Include recommendations for corrective actions with each deficiency, except where the corrective action is obvious. The goal is to provide ideas and guidance to assist the work center in correcting the deficiency.

5.17.6.1.3. (PACAF) Work center responses to discrepancies must include management actions they will take to prevent reoccurrence.

5.17.6.1.4. Document favorable comments, as well as deficiencies on MSEP evaluation reports.

5.17.6.1.5. Note that proper report routing and follow-up are important. Evaluations are of no value unless the discrepancies are recognized and corrected by appropriate managers.

5.17.6.1.5.1. (Added-PACAF) . For all evaluations related to ATCALS equipment and technicians, route evaluation reports resulting in unsatisfactory findings through the unit commander.

5.17.6.1.6. The COM/CMSF is the closing authority for MSEP evaluations. The COM/CMSF may indicate closure by concurrence or non-concurrence with MS's recommendations. The COM/CMSF may delegate closing authority for evaluation reports which identify only minor or no deficiencies or technical evaluation errors.

5.17.6.1.7. Note that evaluation reports need not include minor administrative or management deficiencies if, in the evaluator's judgment, the deficiency is an isolated incident and does not indicate an overall management deficiency. If not included in the formal report, provide information about minor errors in a memo to the work center. Memorandums do not require an answer.

5.17.6.2. Personnel Evaluation Reports.

5.17.6.2.1. Document personnel evaluations on AF Forms 2419, Routing and Review of Quality Control Report, or equivalent automated product. Comments and recommendations are made on the evaluation report to eliminate the need for separate correspondence. The reports also provide a source for analyzing the effectiveness of the overall maintenance training program.

5.17.6.2.2. Identify task errors, provide recommendations, and explain rescheduling actions.

5.17.6.2.3. Explain management, system, or equipment discrepancies not directly reflecting on the technician's performance in a separate report.

5.17.6.2.4. COM/CMSF must review evaluation reports that document unsatisfactory task results.

5.17.6.2.5. (Added-PACAF) . If an evaluation is delayed, document the reason for the delay in the evaluatee's AF Form 623A, On-the-Job Training Record - Continuation Sheet, and later in the evaluation report.

5.17.6.3. Technical Evaluation Reports.

5.17.6.3.1. Use of AF Form 2420, Quality Control Inspection Summary, to document technical evaluation discrepancies is a COM/CMSF option. Technical evaluation discrepancies may be prepared in a narrative style on bond paper and attached to the AF Form 2419 or automated cover letter.

5.17.6.3.1. (PACAF) Identify all technical references and MQCCs used during the evaluation.

5.17.6.3.2. Categorize discrepancies as major or minor.

5.17.6.3.2.1. A major discrepancy is any deficiency that degrades mission, system, or equipment capability; creates an unsafe condition; or may cause a security violation.

5.17.6.3.2.2. A minor discrepancy is any deficiency that does not degrade mission, system, or equipment capability; does not create an unsafe condition; and is not a potential security violation.

5.17.6.3.2.3. When technical evaluations show no discrepancies, document this fact on AF Form 2419 or on an equivalent automated product, and file as a completed report.

5.17.6.4. Managerial Evaluation Reports.

5.17.6.4.1. Use of AF Form 2420 to document managerial evaluations is a COM/CMSF option. Managerial evaluation results may be prepared in a narrative style on bond paper and attached to the AF Form 2419 or equivalent automated product.

5.17.6.4.2. Reports address:

5.17.6.4.2.1. Minimum coverage areas and list deficiencies found in the areas of management, system equipment, and task performance. Show correlation between deficiencies, if applicable.

5.17.6.4.2.2. Production and mission requirements not being met and the causes behind these shortfalls.

5.17.6.5. Special Evaluation Reports:

5.17.6.5.1. Document special technical evaluations the same way as technical evaluations.

5.17.6.5.2. Do not document special technical evaluations that reveal no discrepancies on an AF Form 2419 if an acceptance or commissioning document, such as an AFTO Form 217, Certification of Mobile Depot Maintenance Accomplished, or AF Form 1261, Command, Control, Communications and Computer (C4) Systems Acceptance Certificate, are signed. AF Forms 782, Equipment Order, may serve as evaluation reports when no discrepancies are noted.

5.17.6.5.3. Document special evaluations of management problems or those covering the management and technical aspects of a subject the same way as managerial evaluations.

Section 5F—Reliability and Maintainability (RM)

5.18. RM Support and Concept. Field unit RM support comes primarily from the feedback mechanisms of proposed equipment modifications, material deficiency reports, and technical order improvement recommendations. Unit-level organizations contribute to the RM concept by maximizing self-sufficiency and analyzing work center management and the performance of technicians and systems.

5.19. Deficiency Identification. The most obvious means to identify problems is through MSEP evaluations. However, customer feedback, staff visits, JDD and CAMS products, NRTS actions, AFTO Forms 22, and deficiency reports also provide useful data. No problem identification source should be overlooked.

5.20. Deficiency Analysis.

5.20.1. Deficiency analysis provides managers, at all levels, with an analysis of the maintenance techniques used to ensure operational reliability of C-E equipment and systems, the health and effectiveness of training programs, and the effectiveness of work center or staff function management practices. Deficiency analysis is the process of determining the real, underlying cause of deficiencies noted during all forms of evaluations, the maintenance process itself, or other sources.

5.20.2. Analysis of noted deficiencies is accomplished in the following manner:

5.20.2.1. MS will provide the Commander, COM/CMSF, CISF, etc., a quarterly summary and analysis of deficiencies and error trends. This may include trend analysis of all personnel, technical, managerial, and special inspections; training analysis, NRTS action analysis, and other analysis on deficiencies of TOs, TRNS, tool/TMDE programs, etc. The analysis should be based on deficiency and error data collected during the summary period and compared to trends from previous summary reports. It should identify trends, possible causes, corrective actions taken, and the impact realized by eliminating the deficiency or trend. It should also include recommended management actions to permanently correct the identified deficiency or error trends.

5.20.2.1. (PACAF) Unit deficiency analysis will include, at the minimum, a trend analysis of all MSEP evaluation results. The analysis will consist of deficiency and error data collected during a quarter and compared to data collected over the previous four quarters. It will identify trends, possible causes, and include recommended management actions to permanently correct any identified deficiencies.

5.20.2.2. During evaluation report preparation MS personnel review noted errors and deficiencies, grouping like deficiencies into single categories, when appropriate. One or two minor errors that were corrected immediately may not seem significant by themselves; however, several instances of the same type of error could constitute a significant deficiency capable of impairing the unit or wing mission. MS personnel must be alert for patterns of recurring errors, in a single work center or throughout the maintenance complex. Patterns could indicate serious problems.

5.20.2.3. MS identifies to the appropriate staff function patterns of errors and deficiencies found during all forms of evaluation. These deficiencies may indicate that additional guidance and training are needed in a specific area or function. For example, patterns of errors and deficiencies in:

5.20.2.3.1. Training programs are brought to the attention of the maintenance training function.

5.20.2.3.2. Supply related issues are brought to the attention of the Materiel Control function.

5.20.2.4. Prior to completing and documenting evaluation results, MS personnel must, in conjunction with the affected work center supervisor, attempt to identify the underlying problem and provide a recommended corrective action. Deficiencies are often only symptoms of an underlying problem. Management actions which result in ineffective supervision, inadequate training programs, insufficient manning, lack of proper tools, test equipment, parts or supplies, or a combination of these, and other, factors may be at the root of the identified problem.

5.20.2.5. Reviewing work center responses to evaluations determines if the corrective action taken was capable of correcting the underlying problem. MS personnel must realize that there may be multiple methods capable of correcting the noted deficiency. The goal is to permanently correct the deficiency and not to pursue a particular method of corrective action.

5.20.2.6. MS personnel must be intimately involved in investigating the deficiency or error trend and in the formulation of management actions targeted at resolving these deficiencies or error trends.

5.21. Reporting Material and TO Deficiencies.

(NOTE: Locally identified problems in material and technical publications are normally solved outside the maintenance activity.)

5.21.1. Review, process, and monitor deficiency reports IAW TO 00-35D-54, USAF Material Deficiency Reporting and Investigation System, and command directives, and Reports of Discrepancy (ROD). Use AF Form 2423, Material Deficiency Report Log, or equivalent automated log to record and monitor deficiency reports and RODs. This log meets the requirement of TO 00-35D-54 for maintaining a ledger. Reports include all necessary background information for proper evaluation. Use information available from JDD products to the fullest extent in this effort. Resolve unsatisfactory conditions traceable to local practices and procedures or to a lack of technical ability.

5.21.2. Review, approve, process, and monitor AFTO Forms 22, Technical Order Improvement Report and Reply according to TO 00-5-1. Signing the AFTO Form 22 indicates approval, and verifies the report accurately reflects the deficiency, the need for change, and the desired correction. Use the AF Form 2449, Technical Order Improvement Report Log, or equivalent automated log for control of AFTO Forms 22.

5.21.3. Initiate and follow up on all correspondence related to the development of new publications, conflicts between publications, or clarification of technical data not subject to AFTO Form 22 reporting. Send this correspondence through command channels.

Section 5G—Unit Self-Sufficiency Program

5.22. Goal and Objectives of the Unit Self-Sufficiency Program.

5.22.1. The goal of the Unit Self-Sufficiency Program is to maximize readiness during peacetime and sustainability during wartime in support of the wing, base, and MAJCOM mission. Program objectives are to improve mission capability by repairing equipment at the lowest practical level of maintenance, reduce system downtime caused by delays in obtaining repair parts or replacement assets, and minimize transportation and handling costs. To meet these objectives, maintenance technicians, support staff, and managers work together to identify and obtain repair authorization for every system component or part not currently authorized repair but for which a feasible and economical unit repair capability exists. They then must strive to restore to serviceable condition every item for which a base repair capability exists. Carefully consider the intent of the Unit Self-Sufficiency Program when challenging established maintenance concepts.

5.22.2. MS manages the Unit Self-Sufficiency Program IAW TO 00-20-3, *Maintenance Processing of Reparable Property and The Repair Cycle Asset Control Systems*; TO 00-25-195, *Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment;* this instruction; and command and base directives.

5.22.3. The program includes the NRTS review process and repair change request submissions.

5.22.4. MS applies prudent management during the NRTS review process and review of repair change requests. The goal is to improve self-sufficiency through maximum use of available resources, not to develop a new, and perhaps costly, repair capability. Do not delay returning repair cycle assets to depot as NRTS while taking extraordinary measures to obtain parts or support items needed for repair. Once a determination has been made that a repair capability is not readily available on base, process the repair cycle assets (other than XF coded items) for higher level repair. This permits the assets to be made serviceable and available for issue.

5.23. NRTS Validation and Review Process.

5.23.1. The NRTS validation and review process is designed to evaluate the NRTS program across the entire maintenance complex. NRTS validation ensures assets are repaired on base when it is economically feasible and within existing capabilities. Its main purpose is to identify negative trends and employ managerial actions (such as, acquiring test equipment, correcting technical data, obtaining additional training, etc.) to eliminate or reduce future NRTS actions.

5.23.2. MS will:

5.23.2.1. Validate all NRTS actions. Record validation of the NRTS action on MDC documents and condition tags and forward the asset to Materiel Control for further processing.

5.23.2.2. Assist the production work centers in the NRTS process, if necessary.

5.23.2.3. Maintain an automated or manual NRTS Action Register documenting the following entries as a minimum. Obtain this data from production work centers to enable proper trend and deficiency analysis:

5.23.2.3.1. End Item Data: Noun, ID Number, and SRD Code.

5.23.2.3.2. NRTS Item Data: NSN, Part Number, Nomenclature, Work Unit Code (WUC), ERRC Code, SMR Code, TO Number-figure-index, Explanation of Discrepancy

5.23.2.3.3. NRTS Code Data: NRTS Code used and rationale, Action Taken to preclude future similar NRTS Actions.

5.23.2.4. Determine if effective work center managerial action was taken to preclude future similar incidents.

5.23.2.5. Advise COM/CMSF and all production work centers of identified trends, as well as potential benefits recognized during the analysis process.

5.24. Repair Change Requests.

5.24.1. Many items that could be repaired at the local level are currently being disposed of at base level (including XB items) or being returned to the depot for repair. Other reparable items have improper SMR codes, resulting in their disposal rather than repair. Self-sufficiency programs focus attention on the problem and include procedures for processing proposed SMR code changes. Submit proposed SMR changes according to TO 00-25-195 and command supplements.

5.24.2. Submit Source, Maintenance, and Recoverability Code Change Request, AFTO Forms 135 to MS to correct obvious SMR code errors or inconsistencies in TOs. Process AFTO Forms 135 requesting changes in the authorized level of repair or condemnation without delay. Maintain a log for control of all AFTO Forms 135.

5.24.3. Note that the Self-Sufficiency Program is not intended to establish a base-level repair capability for items which can be more economically repaired at a depot. To ensure this does not happen, initiators, supervisors, and MS should consider the following when developing and evaluating AFTO Forms 135:

5.24.3.1. Will local repair action get the job done faster, easier, more economically, or better than the present method?

5.24.3.2. Can local repair be accomplished using existing shop space, support equipment (including prudent use of on-line equipment for troubleshooting), and current work center manpower authorizations? If not, will the required additional skills, man hours, and support assets be available on a regular basis to do the job without impacting unit mission capability? Does the item fail often enough and would any local repair savings outweigh the cost of additional support equipment, facilities, and manpower?

5.24.3.3. Can work center technicians learn the job through OJT or using knowledge already received in technical schools? If not, can AFETS personnel or other training sources provide the instruction?

5.24.3.4. Even though it makes sense for one unit to accomplish the work locally, is it practical to expect all units to do it themselves, or would it be better to obtain special repair authority from the system/item manager based on a locally unique capability? If the system or equipment is deployable, can the support equipment and tools needed to do the work be transported, used, and supported in the field without impairing either the deployed or in-garrison mission? Will adequate shop facilities be available to do the work, especially in a conflict area?

5.24.3.5. Finally, does repairing the item locally enhance mission readiness during peacetime, improve support to the base mission, or sustain the mission longer during wartime?

Section 5H—Logistics Support Program

5.25. Logistics Support Program.

5.25.1. The communications unit Planning & Implementation (P&I) function manages the base infrastructure, supportability of new systems, contract management, short- and long-term C-E planning, C-E contingency and war support, and is the repository for planning and contingency support information. The COM/CMSF/CISF must know of mission changes, new programs, new support agreements, and any impacts on existing maintenance concepts and resources. MS makes full use of P&I to avoid duplicating P&I functions within the maintenance activity.

5.25.2. MS works with P&I to:

5.25.2.1. Ensure all logistics support areas are considered before accepting new support responsibilities. Early planning is essential. As a minimum, ensure the following areas of support are secured prior to acceptance:

5.25.2.1.1. Test and support equipment are on-hand, and calibration requirements satisfied.

5.25.2.1.2. Special and common tools are available.

5.25.2.1.3. Peculiar performance monitoring or fault isolation equipment is available.

5.25.2.1.4. Special or unusual facility requirements are in place.

5.25.2.1.5. Technical data, supply support, and training requirements are identified and satisfied.

5.25.2.2. Ensure P&I is provided with the necessary functional or technical expertise and assistance to:

5.25.2.2.1. Review contract performance work statements (PWS) or statements of work (SOW) development.

5.25.2.2.2. Evaluate key logistics support elements for new or modified systems and equipment (i.e. radio frequency approval, request for service [communications circuits], etc.).

5.25.2.2.3. Develop technical solutions.

5.25.2.2.4. Review and evaluate programming documents and Engineering and Installation (EI) proposals. (Use **Attachment 4** and AFMQCC 200-3 as a guide.)

5.25.2.2.5. Ensure successful completion of self-help projects. (Use **Attachment 4** and AFMQCC 200-3 as a guide.)

5.25.2.3. Review projects, plans, and agreements to ensure C-E maintenance taskings are met.

5.25.3. The P&I function supports the maintenance activity by:

5.25.3.1. Addressing the key logistics support areas of manpower (coordinate with the base manpower office (MO); supply support (Initial Spares Support List (ISSL), pre-operational support spares, non-standard support, follow-on support, etc.); support equipment (Test, Measurement, and Diagnostic Equipment (TMDE), common and special support equipment special tools, etc.); technical data; appropriate training and training support; allied support and facilities; packaging, handling, storage, and transportation; design interface and compatibility; and budgeting and budget related issues are addressed before accepting support responsibility for new or upgraded equipment or systems.

5.25.3.2. Monitoring project and program status and submitting appropriate Department of Defense, Air Force, or MAJCOM reports.

5.25.3.3. Keeping the COM/CMSF apprised of logistics support milestones; changes to or new maintenance support requirements resulting from agreements, plans, etc.; and functional and technical support requirements.

5.25.3.4. Managing maintenance contracts and providing the maintenance activity with appropriate contract information.

5.26. Contract Maintenance Services.

5.26.1. Only contracting officers are authorized to enter into or change a contract, PWS, or SOW. Air Force maintenance personnel do not give any directions or instructions to contractors or take any other action that could form the basis for a contractual claim. Direct problems with contract performance, contract changes, or interpretation to the responsible contracting officer, administrative contracting officer, or QAE for resolution. Do not use MS personnel as QAEs.

5.26.2. Unit Involvement:

5.26.2.1. Typical maintenance contract involvement is limited to contractor maintenance of government owned systems. The contract specifies COM/CMSFs responsibilities as they apply to contract surveillance and support provided to the contractor.

5.26.2.2. Limited involvement may be necessary with a service contract where the contractor operates and maintains the systems. Typically, COM/CMSFs do not have total responsibility for surveillance of this type of contract.

5.26.2.3. Typically, units are not involved where the contract provides purely a service, such as when the service is provided with leased equipment and the government is not involved in determining the equipment to be used.

5.26.3. Contractor Maintenance Data Collection: Put systems and component failure (TO 00-20-2), material consumption (TO 00-20-3), and TCTO reporting requirements (TO 00-5-15) in PWSs. Cite appropriate data items and include collecting TCTO and reparable processing data in contracts. Contract instructions call out the time and place for data to be turned in, and specify if the contractor provides complete source documents and forms or automated products.

5.26.4. Applying This Instruction to Contracts: To preclude contractual conflicts and high cost changes to existing contracts, use this instruction only as a guide to follow rather than a formal directive which must be complied with in all contracts. Follow the intent and principles of this instruction in contractor maintenance only when it is practical and economically feasible. Consider this instruction's management system when new and changing situations permit its use without increased cost or when existing contract maintenance management systems are inadequate. When practical, write contract maintenance PWSs or SOWs to require adherence to this instruction's maintenance principles.

Section 5I—Maintenance Training Program

5.27. Maintenance Training Program. Training provides the maintenance activity with the skills needed to accomplish its mission. The purpose of the Maintenance Training Program is to monitor all maintenance training requirements and assist work centers to develop and implement effective training programs. MS must be aware of the maintenance activities training needs and all available training resources to satisfy these needs. MS must also know the maintenance activity's training status and provide this information to the COM/CMSF/CISF. To ensure MS has enough time to accomplish assigned responsibilities, do not duplicate unit training manager duties.

NOTE: Reference AFJQS 2EXXX-201J, Maintenance Training Program, to accomplish task qualification training.

5.28. Maintenance Training Program Procedures.

5.28.1. Evaluate the Maintenance Training Program on a continuing basis.

5.28.1.1. Review personnel evaluations and other reports, such as managerial and technical evaluations, flight checks, system performance reports, IG inspection reports, and ATCALS evaluations to determine if training deficiencies or problems are indicated.

5.28.1.2. Visit each activity, work center, and staff office regularly. Ensure mandatory Air Force Job Qualification Standards (AFJQS)/Air Force Qualification Training Packages (AFQTP) are used, managed, and administered according to applicable directives. Ensure all applicable AFQTP knowledge evaluation pamphlets and surveys are completed and submitted IAW AFQTP instructions.

5.28.1.3. Review deficiencies that indicate possible training problems with the responsible supervisor and provide assistance as needed.

5.28.1.4. Review CAMS training products or the equivalent manual documentation for possible deficiencies in task coverage or training progress.

5.28.2. Assist supervisors and trainers to meet specific training needs. Assist supervisors to develop and use effective, on-going training programs.

5.28.3. Manage the maintenance activity's formal training requirements and quotas. Coordinate with the unit training manager to obtain training materials, course information, and guidance on training problems.

5.28.3.1. Consolidate all maintenance training requirements. Submit requirements through appropriate unit channels. Control quotas received and take action to preclude recurrence of unused quotas.

5.28.3.1. (PACAF) HQ PACAF/SCQ is the MAJCOM OPR for C-E maintenance training. Each unit will establish an OPR for maintenance training who will act as the unit liaison with PACAF/SCQ for all training matters. The unit maintenance training OPR will submit training requests to HQ PACAF/SCQ to include the following: Name, Rank, SSAN, Course Number, and Class ID. Send requests via e-mail to **mailto:pacaf.scq@hickam.af.mil**, DSN (315) 449-4694. The unit training OPR will ensure all requirements listed in AFCAT 36-2223 are satisfied prior to requesting training slots. The unit training OPR must make every effort to maximize en route training.

5.28.3.2. Identify course shortages or personnel to fill course quotas and recommend appropriate actions to the COM/CMSF/CISF.

5.28.3.2. (PACAF) HQ PACAF/SCQ will conduct annual maintenance training screening. Screening will determine the maintenance training needs of each PACAF unit 2 years in the future. The unit maintenance training OPR will forecast training as directed by the MAJCOM. Limit unit requirements to the number of quotas required to meet mission needs based on training priority codes listed in AFCAT 36-2223.

5.28.4. Act as the screening point for C-E training policy and the prioritization of training product development.

5.28.5. Keep the COM/CMSF/CISF apprised of the maintenance activity training posture.

5.28.6. Ensure assigned Engineering Technical Services (ETS) personnel are used effectively to train work center personnel.

5.28.7. Manage and control the CAMS personnel and training subsystems.

5.28.7.1. Ensure all maintenance personnel records are entered into the personnel subsystem.

5.28.7.2. Ensure newly assigned individual training records are initiated in the training subsystem and that work centers enter specific task assignments.

5.28.7.3. Check the Training Task Table (TTT) listing for accuracy by comparing and reviewing training products identified in Air Force Index 8. Provide instructions and direction to update affected task tables, if required.

5.28.7.4. Ensure completion of required maintenance training courses, schools, and classes are documented as ancillary training.

5.28.7.5. Request and distribute training schedules and background products as necessary.

5.28.7.6. Before individuals depart PCS, ensure they possess a current copy of their CFETP, are removed from the personnel and training subsystems, and are given the appropriate training prod-

ucts (includes ancillary training) to carry to their next duty station. Gaining units desiring training data in any other form coordinate with the losing unit prior to the individual's departure.

5.28.8. Administer the Maintenance Management Training Program. This program ensures all maintenance personnel are aware, to the extent required by their position, of the many aspects of the maintenance management system described in Air Force and command directives.

5.28.9. Promote work center participation in evaluating Air Education and Training Command (AETC) training programs. Review Graduate Assessment Surveys (GAS) for possible training support problems. Discuss deficiencies or support problems with the responsible supervisors and provide assistance if needed.

Chapter 6

MAINTENANCE PRODUCTION WORK CENTERS

6.1. Introduction. The following paragraphs describe C-E maintenance production work centers, their organization, their relationship to other maintenance functions, and prescribe a work center supervisor's overall responsibilities. Refer to **Chapter 7** for information on deployable communications systems.

6.2. Description and Functional Relationships. Maintenance production work centers are the production elements under the COM/CMSF and are responsible for accomplishing all maintenance. Maintenance production work centers are supported by and must maintain a close working relationship with the maintenance staff.

6.3. Work Center Supervisor Responsibilities. Work center supervisors ensure the timely and efficient accomplishment of quality maintenance. Success depends on the ability to manage and use available resources. A close working relationship must be kept with the maintenance staff. Work center supervisors are working supervisors who must be aware of all direct maintenance actions and participate as needed. The range and scope of work center supervisors' responsibilities are extremely broad.

NOTE: Reference AFQTP 2EXXX-201L, C-E Work Center Managers Handbook, to aid in the accomplishment of task qualification training.

6.4. Work Center Safety.

6.4.1. Work center supervisors enforce safety practices according to Air Force directives, command publications, and 48-series and 91-series AFOSH standards.

6.4.2. Implement work center Radio Frequency Radiation Protection program IAW AFOSHSTD 48-9, Radio Frequency Radiation (RFR) Safety Program.

6.4.3. Implement work center Hazardous Material (HAZMAT) and Hazardous Communications (HAZCOM) programs IAW AFOSHSTD 91-50, Communications Cable, Antenna, and Communications-Electronic (C-E) Systems.

6.4.4. Implement work center Confined Space program as required IAW AFOSHSTD 91-25, Confined Spaces.

6.5. Work Center Training Management.

6.5.1. Qualified technicians are vital to properly maintain and restore mission systems. Effective work center training programs produce qualified technicians. Effective training programs are measured by the results produced, such as system or equipment operational rates, evaluation reports, work center task coverage, trainee upgrade rates, and the ability to implement policy changes and new technical procedures.

6.5.2. To establish and maintain effective work center training programs, work center supervisors:

6.5.2.1. Perform supervisory responsibilities listed in AFI 36-2201, Developing, Managing, and Conducting Training, AFI 36-2233, Air Force On-the-Job Training Products for Communications-Electronics Enlisted Specialty Training and AFI 36-2247, Planning, Conducting, Administering, and Evaluating Training.

6.5.2.2. Identify work center duty positions and each position's total task training requirements. Use an individual training plan form, or equivalent computer generated form, to list each duty position's total task training requirements. Identify on-call duty tasks (minimum qualifications necessary to be scheduled for independent on-call duties). Use applicable training products found in Air Force Index 8. There are several options concerning ways to organize work center duty positions:

6.5.2.2.1. Identify duty positions by system, equipment, subsystem, or major assembly. Determine which groupings constitute a duty position and assign personnel accordingly.

6.5.2.2.2. Identify duty positions by tasks. Select tasks from several systems, equipment, subsystems, or major assemblies, and tailor each duty position to the work center's needs.

6.5.2.2.3. Identify supervisory tasks. This combines technical tasks with tasks needed to supervise and manage a crew, team, or work center.

6.5.2.2.4. Use a combination of the above or other ways of organizing duty positions that are most effective for the work center.

6.5.2.3. Develop a work center assigned task listing based on applicable Career-Field Education and Training Plans (CFETP) and other applicable AFJQSs and AFQTPs. The task listing should include management actions and additional duties.

6.5.2.4. Perform initial evaluations of newly assigned individuals. Technicians certified by another work center on tasks applicable to their new duty position must demonstrate proficiency on a sampling of those tasks.

6.5.2.4. (PACAF) In short tour locations, supervisors should perform initial evaluations on newly assigned personnel within 30 days of assignment to the work center to ensure task proficiency.

6.5.2.5. Develop and update a training schedule for each trainee. Determine the most convenient and effective method to document, disseminate, and monitor individual work center training schedules. Mission requirements and unforeseen situations affect schedule compliance; make every effort to meet scheduled training goals.

6.5.2.6. Ensure civilian personnel are trained according to applicable directives and the training principles discussed in AFI 36-2201.

6.5.2.6.1. Before initial evaluation, review AF Form 1378, Civilian Personnel Position Description, for the position the individual was hired to fill.

6.5.2.6.2. Brief civilian employees on task qualification requirements and provide necessary training.

6.5.2.6.3. Record civilian personnel task qualification training and certification on authorized forms and file them with the civilian personnel records kept by the immediate supervisor. Use AF Form 797, Job Qualification Standard Continuation Sheet, AF Form 1098, Special Task Certification and Recurring Training, AF Form 1320, Training Chart, or CAMS products as appropriate. Document special qualification training in the same way (if coordinated and approved by the local union).

6.5.2.6.4. Request and document formal training according to applicable directives.

6.5.2.7. Observe training sessions frequently to ensure the training is on schedule, meets the trainee's needs, and achieves work center training objectives.

6.5.2.8. Ensure the validity of task qualification and certification actions.

6.5.2.8.1. Technicians will not perform maintenance tasks they are not certified on unless directly supervised by a task certified technician. Inadequately trained technicians are more likely to commit errors that result in injury or loss of mission equipment. Supervisors must ensure trainees are qualified before certification.

6.5.2.8.2. Trainees must fully understand and believe they can perform the task safely and correctly before agreeing to task certification.

6.5.2.8.3. When individuals cannot perform a certified task during an MSEP personnel evaluation, the supervisor must immediately decertify the individual on that task and review related tasks to determine if additional decertification and training is required. Work center supervisors determine when the individual requires recertification. (Exception: Individuals decertified during an ICBM personnel evaluation must be re-evaluated on the failed task. This must be accomplished before being allowed to perform the task unsupervised.)

6.5.2.8.4. Decertifications initiated by a work center supervisor, and not as a result of an MSEP personnel evaluation, do not require an MSEP special evaluation after recertification.

6.5.2.8.5. Work center supervisors are certified only on those tasks they are required to perform for complete and continuous task coverage.

6.5.2.8.6. (Added-PACAF) . Technicians performing equipment maintenance or task training on C-E equipment as part of their normal duties must be task certified. All technicians, including SNCOs, performing these tasks must maintain an AF Form 623, Individual Training Record, to verify they are task certified.

6.5.2.9. Work closely with Maintenance Support's Maintenance Training Management function to:

6.5.2.9.1. Identify formal training requirements.

6.5.2.9.2. Assess the impact of significant training difficulties on the work center's maintenance capability.

6.5.2.9.3. Identify work center training capabilities which may be of use to other work centers.

6.6. Work Center Maintenance.

6.6.1. Work center supervisors ensure work center maintenance is accomplished, controlled, and reported in a timely manner.

6.6.2. Perform maintenance according to applicable system or equipment technical data and Defense Information Systems Agency (DISA) circulars.

6.6.3. Submit AFTO Forms 22 when TO errors or inadequacies are found IAW TO 00-5-1.

6.6.4. Draft local work cards or AFCEMIs when system or equipment PMIs are needed but not published according to TO 00-5-1 and command publications. Submit draft documents to MS for review, validation, coordination, and further processing as appropriate for publication.

6.6.5. Maintain a file of TO "replaced pages" when it is necessary to maintain unmodified systems and equipment. Modifications frequently cause the need for changes (replacement of pages) to technical publications and inspection requirements. Keep replaced pages until the modification is completed on all systems and equipment. Destroy the replaced pages when all modification actions are completed.

6.6.6. Challenge existing repair restrictions and SMR codes when repair is within the capability of the shop or base, or when expendables can be economically repaired or reconditioned.

6.6.6.1. Use the procedures in paragraph **5.24.** and TO 00-25-195 to prepare, process, and evaluate proposed repair change submissions.

6.6.6.2. Use TO 00-20-3, repair estimating cost criteria, when preparing AFTO Forms 135 on expendable items.

6.6.7. Perform only authorized cannibalization actions.

6.6.8. Perform only system, equipment, or circuit modifications or configuration changes authorized by TCTO, command modification directive, DISA direction, AFCEMI or programming documents, such as for EI projects.

6.6.9. Ensure effective and timely equipment corrosion prevention and control actions are taken (TOs 1-1-689, Organizational, Unit, and Intermediate Maintenance, Avionics Cleaning, Corrosion Prevention/Control, 31Z-10-37, General Engineering Technical Manual Corrosion Prevention and Protection and command regulations).

6.6.10. Ensure accurate and timely maintenance documentation submissions.

6.6.11. Provide maintenance control with technician availability status and on-call schedules.

6.6.12. Advise maintenance control, the maintenance supervisor, or the COM/CMSF/CISF, of taskings beyond the work center's capacity or that cannot be completed within a reasonable time.

6.6.13. Provide work center quality assurance. Work closely with maintenance support to improve the work center's management and maintenance programs.

6.6.13.1. Provide qualified maintenance personnel to perform technical tasks and safety duties during evaluations. When appropriate, the task evaluator may act as safety observer.

6.6.13.2. Nominate qualified and experienced personnel to act as work center Maintenance Support Representatives (MSRs) if required by the COM/CMSF.

6.6.13.3. Coordinate with Maintenance Support to reschedule MSEP evaluations that cannot be performed or completed.

6.6.13.4. Review all evaluation reports. Ensure timely action is taken to correct discrepancies, identify underlying causes, and take management action to prevent recurrence.

6.7. Work Center Control of Maintenance.

6.7.1. Supervisors ensure that personnel, tools, equipment, and supplies are available to meet maintenance requirements.

6.7.2. Supervisors:

6.7.2.1. Dispatch personnel, with the technical data and support items needed to troubleshoot, repair, and restore systems in an expeditious manner.

6.7.2.2. Ensure that work center personnel comply with maintenance schedules and promptly respond to unscheduled maintenance requirements.

6.7.2.2.1. In some cases, such as for critical command and control systems, the need for immediate response may require that the normal trouble reporting sequence be bypassed. Where the unit commander authorizes critical systems operators to notify the maintenance work center first and maintenance control second, technicians will provide Maintenance Control with an initial status report as soon as the nature of the malfunction is verified.

6.7.2.2.2. Coordinate directly with other work centers, when necessary, to resolve outages after a JCN has been assigned by Maintenance Control.

6.7.2.2.3. Notify Maintenance Control if the responsibility to correct the problem needs to be transferred to another work center.

6.7.2.3. Review the Equipment Inventory Listing and the Master Equipment ID Listing to ensure all work center resources are accurately reflected. Notify Maintenance Control when corrections or additions are necessary.

6.7.2.4. Help Maintenance Control to establish the PMI schedule. Ensure all PMIs for assigned mission and support equipment are included in the schedule. Notify Maintenance Control when corrections or additions are necessary.

6.7.2.5. Ensure the equipment status reporting responsibilities referenced in para **4.16.** are completed when Maintenance Control or Maintenance Support cannot perform those functions.

6.7.2.6. Control and monitor maintenance not controlled by Maintenance Control. This includes reviewing deferred jobs and reconciling supply status with Materiel Control.

6.7.2.7. Notify Maintenance Control if work center controlled jobs change system or equipment status. Maintenance Control assumes management of these jobs.

6.7.2.8. Perform in-process evaluations at stages of assembly of systems, subsystems, or components when further assembly would prevent evaluation for TO compliance. Supervisors specify in-process evaluation requirements.

6.8. Work Center Supply Management.

6.8.1. Supervisors ensure cost effective maintenance support of the mission through the proper use and management of supply assets and support equipment.

6.8.2. Supervisors:

6.8.2.1. Establish turn-in or pickup points for XB3 items when authorized by the COM/CMSF.

6.8.2.2. Use CAMS to directly requisition parts whenever possible. Use the direct call-in method between the work center and demand processing when CAMS is not available. Use AF Forms 2005, Issue/Turn-In Request and/or 2413, Supply Control Log, or any other control register to document requests for direct demands on supply. Verify UND "A" and "B" requests prior to call-in.

6.8.2.3. Ensure reparable assets are properly managed.

6.8.2.3.1. Notify the Due In From Maintenance (DIFM) monitor of status changes for assets kept in the work center.

6.8.2.3.2. Process repaired assets and validate NRTS actions.

6.8.2.3.3. Process reparable property under warranty or guarantee according to TO 00-20-3, TO 00-35D-54, and AFMAN 23-110V2CD, Part 13, USAF Supply Manual.

6.8.2.3.4. Submit maintenance turnarounds (TRN) IAW T.O. 00-20-3.

6.8.2.4. Submit deficiency reports or reports of discrepancy when deficient material is received IAW TO 00-35D-54.

6.8.2.5. Monitor and control bench stock.

6.8.2.5.1. Approve additions, deletions, and changes in bench stock levels.

6.8.2.5.2. Ensure bench stock monitors are thoroughly familiar with bench stock management procedures. Monitors must attend the base supply training class on bench stock management.

6.8.2.5.3. Perform semiannual bench stock reviews and certify the items and quantities shown are correct. (NOTE: Commanders have the option to discontinue semi-annual joint bench stock reviews with the concurrence of the chief of supply.)

6.8.2.6. Review new Allowance Standard (AS) documents to identify additions, deletions, and changes to work center support equipment authorizations.

6.8.2.7. Ensure TCTO kits are correct and complete when received from base supply.

6.8.2.8. Notify equipment custodians when TCTO actions result in equipment stock number changes and initiate AFTO Form 22 as applicable.

6.8.2.9. Identify pre-planned items, time change items, and TCTOs. Complete required actions when scheduled.

6.8.2.10. When authorized by the COM/CMSF/CISF, establish and manage work order residue.

6.8.2.10.1. Appoint a work order residue monitor.

6.8.2.10.2. Maintain a list of items on work order residue and update monthly.

6.8.2.10.3. Establish procedures to track consumption and add to bench stock if warranted.

6.8.2.11. At bases with government-maintained telephone switches, ensure that the maximum number of administrative telephone instruments and associated equipment (key telephone units, power supplies, terminals, etc.) allowed for operating spares and unprogrammed growth does not exceed 8 percent of the total for each type of instrument and associated equipment in use and programmed for specific use. This stipulation does not apply to items that could normally be a bench stock or special level item.

6.8.2.12. Ensure the equipment custodian completes appropriate documentation when EI installation or removal projects are complete.

6.8.2.13. Ensure forward supply point assets are managed IAW AFMAN 23-110, Volume 2, Part 2.

6.9. Work Center Publications Management. Supervisors ensure required directives and technical publications are on hand and properly maintained IAW AFIs 37-161, Distribution Management, and 37-160 volume 7, The Air Force Publications and Forms Management Programs - Publication Libraries and Sets; TOs 00-5-1 and 00-5-2.

6.10. Work Center Facility/Equipment Records.

6.10.1. Supervisors ensure facility, systems, and equipment records are current and available.

6.10.2. Supervisors:

6.10.2.1. Ensure applicable facility records are current. Coordinate with P&I to establish an annual review process. Outside plant drawings need be reviewed only at a rate of at least 10 percent per calendar quarter according to TO 31W3-10-22. Annotate changes to all copies of affected drawings during the annual review or whenever required. The unit P&I processes and maintains facility records according to AFI 21-404, C4 System Installation Records.

6.10.2.2. Ensure a copy of facility record drawings needed for system troubleshooting is available in the work center.

6.10.2.3. Maintain system or equipment historical files, unless a centralized file is directed by the COM/CMSF.

6.10.2.4. Use and maintain the CAMS TCTO history. Units using manual AFTO Forms 95, Significant Historical Data, print a copy of the TCTO history from the CAMS TCTO subsystem and attach it to the AFTO Form 95, for equipment to be turned in or transferred. Units using CAMS Automated History Entry (AHE) print a copy of the AHE record that accompanies equipment being turned in or transferred. (NOTE: For units processing TCTOs under CAMS, TCTO history cannot be obtained on an item if an AHE record was not established.)

6.10.2.5. Ensure applicable AFTO Form 47X-series Electronic Set Inventory Checklists, or automated copies, accompany equipment items being turned-in to supply or transferred to another agency (TO 00-35D-2).

6.11. Work Center TMDE Management. Ensure work center TMDE management responsibilities are accomplished and that required TMDE, shop mock-ups, and test fixtures are available and properly maintained. (See **Attachment 5**)

6.12. Work Center Logistics Support.

6.12.1. Supervisors ensure work center logistics support management responsibilities and work center project coordinator duties are accomplished. Supervisors ensure maintenance support requirements for new systems, programs, or plans taskings are established. Supervisors must work closely with the COM/CMSF/CISF and the unit P&I function to achieve this goal. Work centers must also assist in the preparation of the maintenance budget estimate. P&I is the focal point for these matters, while work centers provide the in-depth knowledge and technical expertise required for effective logistics planning.

6.12.2. Work center supervisors must understand all aspects of work center logistics support programs, and:

6.12.2.1. Appoint a work center project coordinator for each EI, contractor, or self-help project to ensure project coordinator duties are accomplished.

6.12.2.2. Assign one or more technicians to work with EI project and maintenance assistance teams. The COM/CMSF/CISF may waive this requirement, on a case-by-case basis, however, assigned technicians receive valuable training from the team and can train other work center technicians after the team departs.

6.12.2.3. Work with P&I and the COM/CMSF to resolve issues concerning manpower authorizations and allocations for the work center.

6.12.2.3.1. Review new work center extended unit manpower documents when issued.

6.12.2.3.2. Help prepare work center manpower change requests.

6.12.2.3.3. Help prepare work center manpower standard applications or reapplication. Supervisor must be familiar with the work center's manpower standards.

6.12.2.4. Provide budget estimate inputs to the COM/CMSF and monitor work center expenditures.

6.12.2.4.1. Develop annual budget estimates and amended estimates.

6.12.2.4.2. Review the D04, Daily Document Register, and D11, Daily PFMR/OCCR Update and Reconciliation, reports to monitor work center expenditures. Supervisor must be aware of what portion of the maintenance budget was programmed for their use and how much has been expended.

6.12.2.4.3. Include support for programmed systems and equipment in budget estimates.

6.12.2.5. Review support agreements to identify special support requirements to P&I when requested. Identify training, equipment, supply, vehicle, additional manpower, or other key elements required to provide the support.

6.12.2.6. Review those portions of OPlans, PPlans, and PADs which task the work center.

6.12.2.6.1. Ensure the work center has the capability to execute the required tasks.

6.12.2.6.2. Identify to P&I any training, equipment, supply support, vehicle support, additional manpower, and other key elements required to execute the tasking.

6.12.3. Work Center Project Coordinators act as the work center focal point for all matters concerning the assigned project. Project coordinators ensure projects are accomplished with minimum difficulty and the work center can support systems or equipment programmed for installation or major modification. Project coordinators:

6.12.3.1. Work closely with the unit P&I office, EI engineers, and EI teams.

6.12.3.2. Participate in site surveys and provide technical advice to the EI team, work center supervisor, COM/CMSF, and the P&I office.

6.12.3.3. Coordinate with other work center project coordinators to identify and resolve conflicts (such as storage space, power requirements, or programmed equipment locations).

6.12.3.4. Provide continuity of logistics support preparations for the project.

6.12.3.5. Review EI project packages and amendments. Initiate engineering change requests with an AF Form 1146, Engineering Change Request/Authorization, according to AFI 33-104, Base Level Planning and Implementation for necessary changes to the project for deficiencies noted in the project package. Identify changes and deficiencies before the installation begins, to ensure timely project completion and to prevent delays and work stoppages during installation. Use **Attachment 4** and AFMQCC 200-3 as a guide to conduct these reviews.

6.12.3.6. Identify to P&I all en-route, Field Training Detachment (FTD), and other formal training required to support programmed systems and equipment.

6.12.3.7. Coordinate with the work center supervisor to obtain required technical data, TMDE, special tools, other support equipment, training, manpower, and so forth.

6.12.3.8. Coordinate with the work center TMDE monitor to ensure calibration capability is established for new TMDE authorized for programmed systems and equipment.

6.12.3.9. Request technicians be appointed to work with the EI project team, monitor progress of the project, and participate in systems or equipment acceptance tests.

6.13. Work Center NRTS Verification Process.

6.13.1. The production work center supervisor is responsible for verifying proposed NRTS actions within their respective work center prior to maintenance support validation. NRTS verification ensures assets are repaired on base when it is economically feasible and within existing capabilities. Work center supervisors must maintain close liaison with MS staff members and associated work center supervisors to minimize NRTS actions. The capability to repair or assist in the repair of communications systems may exist in other base activities or functions, and therefore must be considered as a repair source for proposed NRTS items.

6.13.2. Work center supervisors will:

6.13.2.1. Determine if a cost effective repair capability is available in other work centers, on base, or through local procurement prior to completing the NRTS action.

6.13.2.2. Inspect assets proposed for NRTS. Review accompanying MDC documents, supply documents, and condition tags or labels for accuracy before submitting to MS for validation.

6.13.2.3. Verify the SMR Code against the appropriate TO. Verify documents from the single manager, item manager, or MAJCOM staff when used to justify other NRTS actions.

6.13.2.4. Maintain an automated or manual NRTS Action History Log.

6.13.2.5. Review proposed NRTS 9, Condemned, actions to ensure the asset's condition is beyond economical repair.

6.13.2.6. Determine and implement applicable managerial action to preclude future similar NRTS actions, if appropriate.

6.13.2.7. Record verification of the NRTS action on MDC documents and condition tags and forward the asset to Maintenance Support for further processing.

Chapter 7

DEPLOYABLE COMMUNICATIONS

7.1. Communications Units with Deployable Unit Type Codes (UTC) (includes combat communication units, air communications squadrons, and fixed units with a deployable mission). The Chief of Combat Support Flight (CCSF) will act as the COM/CMSF under the management structure for combat communications units and air communications squadrons. Maintenance Control and Maintenance Support will be aligned under the Combat Support Flight and the CCSF. Although the CCSF is responsible for overall C-E maintenance management, assigned flight chiefs are responsible for ensuring their maintenance personnel comply with established guidance. The mobility mission requires establishment of special guidelines for C-E maintenance management at home stations and while deployed. Combat communications and air communications squadrons maintenance functions are structured by UTC and for the purpose of this chapter, a UTC has the same responsibilities as a production work center (see **Chapter 6**).

7.1.1. In-Garrison Procedures (wing and base level fixed communication units with deployable UTCs will follow the procedures listed in **Chapter 1** through **Chapter 6** for daily base support operations and this chapter to manage their UTCs whether in-garrison or deployed).

7.1.1.1. The CCSF.

7.1.1.1.1. The CCSF will perform all of the duties of the COM/CMSF detailed in **Chapter 2** and **Chapter 3**, **Section 3A** and **Section 3B**.

7.1.1.1.2. The CCSF must determine the support that can be provided by the parent unit, deploying unit, and host unit for the contingency operation or exercise prior to deployments. The CCSF will ensure arrangements and agreements are made to obtain this support.

7.1.1.1.3. The CCSF will ensure logistics planning requirements are accomplished prior to deployments. This function must:

7.1.1.1.3.1. Plan and coordinate maintenance tasks and support needed to fulfill mobility requirements with the Systems Flight Chiefs.

7.1.1.1.3.2. Consolidate maintenance inputs for host-tenant, inter-service and inter-agency agreements, and for letters of agreement used in support of deployed forces.

7.1.1.1.3.3. Coordinate with installation spectrum managers to ensure radio frequency (RF) emitters meet spectrum requirements (i.e. equipment is spectrum certified, has host nation support and frequency authorization).

7.1.1.1.4. Coordinate sharing of skills and resources between other flights.

7.1.1.2. Network Systems Flight, Base Level Systems Flight and Air Field Systems Flight Chiefs and Superintendents.

7.1.1.2.1. The flight chiefs and superintendents of the Network Systems Flight, Base Level Systems Flight and Air Field Systems Flight are responsible for ensuring maintenance is performed in accordance with **Chapter 6** of this publication within their respective flight. These personnel will:

7.1.1.2.2. Maintain a close liaison with the CCSF and Combat Support Flight staff.

7.1.1.2.3. Know the capabilities and limitations of their UTCs.

7.1.1.2.4. Ensure UTCs assist one another when additional skills and resources are required.

7.1.1.2.5. Obtain from the CCSF, approval in writing to waive preventive maintenance inspections below 56-day interval for equipment in a stored or in-active status.

7.1.1.2.6. Ensure the CCSF staff is apprised of all changes in vehicle status, operability, inventory, and condition.

7.1.1.2.7. Ensure all systems/equipment are inspected prior to deployment, within 72 hours following return from deployment, and prior to transfer/receipt for in-house redistribution.

7.1.1.2.8. Coordinate with the CCSF, maintenance problems which are beyond their capability to solve.

7.1.1.3. Maintenance Control.

7.1.1.3.1. Maintenance Control will perform all duties identified in **Chapter 4**. (Exemption: There is no requirement to establish an after-hours contact point.)

7.1.1.3.2. Maintenance Control will take the following actions when notified that a mission tasking order has been received:

7.1.1.3.2.1. Verify the status and availability of tasked UTCs and support equipment from the published mission or tasking directive.

7.1.1.3.2.2. Assign pre-deployment inspection JCN(s) for tasked UTC(s).

7.1.1.3.2.3. Aggressively manage maintenance actions required to ensure tasked UTCs are made ready for deployment.

7.1.1.3.2.4. Print out PMI listings for the duration of the scheduled deployment and distribute them to the deploying UTCs.

7.1.1.3.2.5. Develop procedures for recording ESR, MDC, and PMI completion data for entry into CAMS from the deployed location. These procedures may require remote access to CAMS or sending documentation via electronic means for entry by home station personnel.

7.1.1.3.2.6. Control movement of equipment to and from the deployment assembly area.

7.1.1.3.2.7. Display status of the deployment assembly area.

7.1.1.3.2.8. Perform the following actions for IMDS:

7.1.1.3.2.8.1. Support operations responsible for communications equipment, lines, modems, terminals, and stand alone system management.

7.1.1.3.2.8.2. Control network elements, monitor network performance (i.e. response times and up/down time) and accomplish reconfigurations necessary for management of IMDS.

7.1.1.4. Materiel Control.

7.1.1.4.1. Materiel Control will complete the responsibilities listed in **Chapter 5**, **Section 5B**, and will assist the deploying UTC crew chiefs in coordinating the transfer of UTC assets and

Readiness Spares Packages (RSP) to the Air Force Contingency Supply System Office (AFC-SSO). Materiel Control will also:

7.1.1.4.2. Verify RSP status when mission directives or tasking orders are received.

7.1.1.4.3. Coordinate pick-up and turn-in times with the base RSP representative and the group supply representative when required.

7.1.1.4.4. Ensure procedures for RSP asset use are developed and briefed to personnel responsible for the kits.

7.1.1.4.5. Work with the base or group RSP monitor to ensure kits are fully stocked prior to deployment for contingency operations and JCS exercises. (This is not necessary for local training exercises).

7.1.1.4.6. Coordinate with the chief of supply, the COM/CMSF, and work center supervisors for bench stock, pre-positioned spares, RSP, MSK (Mission Support Kit), special levels and supply points. Act as central point of contact on all matters in these areas.

7.1.1.5. Maintenance Support (MS).

7.1.1.5.1. MS follows the guidance detailed in **Chapter 5** and will:

7.1.1.5.1.1. Include power production and refrigeration personnel in the MSEP.

7.1.1.5.1.2. Conduct managerial evaluations on each work center instead of individual UTCs.

7.1.1.5.1.3. Ensure technical evaluations on all deployed UTCs are performed according to the interval in **Chapter 5**. A copy of the inspection report will be sent to the home station for normal routing.

7.1.1.5.1.4. Conduct special evaluations on all UTCs prior to being turned-in to supply, transferred to another organization, or after being received from another unit. One copy of the special evaluation report will be included in the documentation shipped with the equipment. The second copy will be maintained by MS until the equipment is returned to the owning unit and all discrepancies are resolved.

7.1.1.5.1.4.1. MS will conduct joint evaluations to the maximum extent possible for transfer inspections. Turn-in or transfer inspections will determine the operational status of the system or end item and its completeness. MS and the affected flight's personnel will:

7.1.1.5.1.4.1.1. Perform system or equipment operational checks specified in all applicable AFMQCCs and perform an inventory (using 47x-series check sheets or automated copies where applicable), of all equipment and support items that are being turned-in or transferred.

7.1.1.5.1.4.1.2. Document the turn-in or transfer evaluation in CAMS as a special evaluation. Print a snapshot to accompany the equipment before deleting the ID from CAMS. If CAMS is not available, this snapshot may be manually documented.

7.1.1.5.1.4.1.3. Determine if discrepancies should be corrected before the turn-in or transfer action occurs.

7.1.1.5.1.5. Observe pre-deployment and post-deployment evaluations. The CCSF determines the number and frequency of these observations. (These over-the-shoulder inspections should be timed to coincide with managerial evaluations or special inspections whenever possible).

7.1.1.6. Air Mobility and Road Mobility Evaluations. MS will conduct air mobility cargo in-check and road mobility evaluations to ensure loads for airlift are safe, configured and packed properly, and that the airlift documentation is correct.

7.1.1.7. UTC Crew Chiefs.

7.1.1.7.1. UTC crew chiefs will ensure all duties outlined for work center supervisors are performed and will manage their deployable system as outlined in **Chapter 6**. In addition, they will:

7.1.1.7.2. Conduct pre-deployment inspections prior to deployment of UTCs when taskings are received. Pre-deployment inspections ensure systems are operational, problems from the previous deployments are corrected, and the UTC inventory is complete and capable of satisfying the mission . The minimum areas of coverage for pre-deployment inspections include:

7.1.1.7.2.1. Complete minimum essential checks as specified by the CCSF/COM/CMSF to ensure the system is operating within required parameters in accordance with associated technical data.

7.1.1.7.2.2. Ensure all safety items are on-hand and safety deficiencies corrected.

7.1.1.7.2.3. Conduct corrosion prevention and control as required.

7.1.1.7.2.4. Ensure all mobility markings are up to date.

7.1.1.7.2.5. Ensure required support items (technical data, tools, TMDE, and RSP) are available and in proper condition to support a sustained deployment.

7.1.1.7.3. Document pre-deployment inspections in CAMS as special inspections.

7.1.1.7.4. Conduct additional pre-deployment inspections if systems, equipment or facilities packaged as deployment-ready are unpacked for any reason. These inspections may be limited to the equipment or area that was disturbed by the unpacking/inspection/maintenance. Inspection results will be documented and attached to the original pre-deployment inspection.

7.1.1.7.5. Conduct post-deployment inspections to determine the operational status of assigned systems and the completeness of the UTC. They are also used to return the UTC to a mission-ready status.

7.1.1.7.5.1. Perform system or equipment operational checks as specified in paragraph **7.1.1.7.2.** and equipment TOs.

7.1.1.7.5.2. Document the post-deployment inspection in CAMS as a special evaluation.

7.1.2. Deployed Procedures.

7.1.2.1. Deployed combat communications elements will function as Functionally Supported Maintenance Activities (FSMAs); however, the extent of support available from the home unit may vary dramatically due to distance from the deployed location, available communications with home station, and complex command relationships established by mission directives. Major ele-

ments may be able to sustain a nearly autonomous maintenance management structure if deployed with sufficient organic staff or to a location with adequate supporting organizations. Small UTC packages may require significantly more support from home station.

7.1.2.2. The CCSF will develop written guidance prior to the deployment that outlines how the deployed elements will accomplish the responsibilities in **Chapter 3**. CCSF will plan, schedule, monitor, control, and provide support for equipment maintenance and circuit restoral actions on all local and subordinate units. Power production and refrigeration equipment supporting the UTCs should be included in these plans.

7.1.2.3. Communications Focal Point (CFP) functions as the 24 hour single point of contact for deployed UTCs and is the customer interface for supported forces.

7.1.2.3.1. Deployed CFP Maintenance Controls accomplish the following duties in addition to those outlined in **Chapter 4**:

7.1.2.3.1.1. Assign a JCN to each UTC for initial operational or system checks during equipment setup. These JCNs may be issued upon arrival at the deployment site or prior to departure from home station to minimize disruption during initial setup at the deployed site. Deployed CAMS updates will be completed as soon as access is obtained.

7.1.2.3.1.2. Track milestones such as the maintenance-ready condition of UTCs, installation of telephone lines, and the setup or tear down of power generators, antennas, and signal cable runs.

7.1.2.3.1.3. Coordinate external maintenance support for UTCs with Host Nation Support activities such as Vehicle Maintenance, Civil-Engineering, etc.

7.1.2.4. Materiel Control will function as organizational supply and provide mobility support. In addition to the requirements listed in **Chapter 5**, Materiel Control must:

7.1.2.4.1. Set up a supply and equipment account with the support base as identified in the tasking directive. This will include the identification of contact points, means of communication, and delivery destinations. Identify deployed or transferred assets to the support base. For long term deployments, transfer assets to the support base account via Redistribution Order (RDO) loan procedures. (ANG assets will not be transferred)

7.1.2.4.2. Ensure authorized unit weapons and ammunition are stored and issued in accordance with USAF directives. The Combat Readiness (or Security) function will handle this for Air Control Squadrons (ACSs).

7.1.2.4.3. Ensure RSP storage availability, issue and turn-in procedures are followed, and establish procedures for RSP replenishment at deployed locations.

7.1.2.4.4. Maintain a “part number to National Stock Number (NSN)” cross-reference capability on all items contained in the RSP kits. FEDLOG is recommended.

7.1.2.4.5. Store, secure, and control the issue of rations on AF Form 1339, Dining Hall Signature Record and AF Form 79, Cash Collection Record. (NOTE: Remote UTCs will control their own rations with AF Form 1339.) The Combat Readiness (or Food Services) function will handle this for ACSs.

7.1.2.4.6. Close supply and equipment accounts with support base upon termination of deployment.

7.1.2.5. Deployed MS personnel will perform air mobility and road mobility inspections prior to re-deployment of the facility to home station or alternate deployment location.

7.1.2.6. UTC crew chiefs will ensure all systems subject to FAA flight inspection meet inspection requirements prior to being placed into service, unless waived by the senior military installation commander as specified in AFMAN 11-225, United States Standard Flight Inspection Manual.

7.2. Air Control Units.

7.2.1. The COM is responsible for overall maintenance management. Assigned Flight superintendents and work center supervisors are responsible for ensuring their maintenance personnel comply with established guidance. The mobility mission requires establishment of special guidelines for maintenance management at home stations and while deployed. Maintenance Control will be assigned under the COM.

7.2.2. In-Garrison Procedures:

7.2.2.1. The COM and Maintenance Superintendent will ensure logistics planning requirements are accomplished prior to deployments. This function must:

7.2.2.1.1. Plan and coordinate maintenance tasks and support needed to fulfill mobility requirements.

7.2.2.1.2. Consolidate maintenance inputs for host-tenant, inter-service and inter-agency agreements, and for letters of agreement used in support of deployed forces.

7.2.2.1.3. Know the capabilities and limitations of their equipment.

7.2.2.1.4. Ensure Flights assist one another when additional skills and resources are required.

7.2.2.1.5. Ensure all systems/equipment are inspected prior to deployment, immediately following return from deployment, and prior to transfer/receipt for in-house redistribution.

7.2.2.2. Maintenance Control. Maintenance Control will perform all duties identified in **Chapter 4**. (Exemption: There is no requirement to establish an after-hours contact point.)

7.2.2.2.1. Maintenance Control will take the following actions when notified that a mission tasking order has been received:

7.2.2.2.1.1. Verify the status and availability of tasked equipment and support equipment from the published mission or tasking directive.

7.2.2.2.1.2. Assign pre-deployment inspection JCN(s) for tasked equipment.

7.2.2.2.1.3. Aggressively manage maintenance actions required to ensure tasked equipment is made ready for deployment.

7.2.2.2.1.4. Print out PMI listings for the duration of the scheduled deployment and distribute them to the flights.

7.2.2.2.1.5. Develop procedures for recording ESR, MDC, and PMI completion data for entry into CAMS from the deployed location. These procedures may require remote

access to CAMS or sending documentation via electronic means for entry by home station personnel.

7.2.2.2.1.6. Keep a current inventory of all mission essential end items.

7.2.2.2.1.7. Backup Asset Inventory (BAI) Equipment. Certain units with combat support missions may be authorized BAI equipment items. Management of these items is done IAW applicable instructions.

7.2.2.3. Materiel Control. Materiel Control will complete the responsibilities listed in **Chapter 5**, **Section 5B**, and in coordinating the transfer Readiness Spares Packages (RSP) to the Air Force Contingency Supply System Office (AFCSSO). Materiel Control will also:

7.2.2.3.1. Verify RSP status when mission directives or tasking orders are received.

7.2.2.3.2. Coordinate pick-up and turn-in times with the base RSP representative and the group supply representative when required.

7.2.2.3.3. Ensure procedures for RSP asset use are developed and briefed to personnel responsible for the kits.

7.2.2.3.4. Work with the base or group RSP monitor to ensure kits are fully stocked prior to deployment for contingency operations and JCS exercises. (This is not necessary for local training exercises).

7.2.2.3.5. Coordinate with each work center to ensure that functional checks of in-warehouse RSP assets are identified and give the date to base supply inspection AFCSM 21-500 series.

7.2.2.3.6. Be responsible for determining RSP fill rates for SORTS reporting.

7.2.2.4. Maintenance Support (MS). MS follows the guidance detailed in **Chapter 5** and will:

7.2.2.4.1. Include power production; Aerospace Ground Equipment (AGE); and Heating, Ventilation, and Cooling (HVAC) personnel in the MSEP.

7.2.2.4.2. Conduct managerial evaluations on each work center.

7.2.2.4.3. Conduct special inspections on all equipment prior to being turned-in to supply, transferred to another organization, or after being received from another unit. One copy of the special evaluation report will be included in the documentation shipped with the equipment. The second copy will be maintained by MS until the equipment is returned to the owning unit and all discrepancies are resolved.

7.2.2.4.4. MS will conduct joint evaluations to the maximum extent possible for transfer inspections. Turn-in or transfer inspections will determine the operational status of the system or end item, its physical condition, and its completeness. MS and the affected flight's personnel will:

7.2.2.4.4.1. Perform system or equipment operational checks specified in all applicable AFMQCCs and perform an inventory of all equipment and support items that are being turned-in or transferred.

7.2.2.4.4.2. Document the turn-in or transfer evaluation in CAMS as a special evaluation. Print a snapshot to accompany the equipment before deleting the ID from CAMS. If CAMS is not available, this snapshot may be manually documented.

7.2.2.4.4.3. Notify COM/ and Maintenance Superintendent, who will determine if discrepancies should be corrected before the turn-in or transfer action occurs.

7.2.2.4.5. Fuel Handling Surveillance. Maintenance has the responsibility for refueling vehicles or power production equipment. MS must observe fuel handling methods and procedures at least quarterly. Fuels must be dispensed in accordance with the prescribed safety standards and with the refueling or defueling procedures that are shown in applicable instructions.

7.2.2.4.6. Ensure pre-deployment and post-deployment evaluations are preformed. The COM determines the number and frequency of these observations. (These inspections should be timed to coincide with managerial evaluations or special inspections whenever possible).

7.2.2.4.7. Air Mobility and Road Mobility Evaluations. MS will conduct air mobility cargo in-check and road mobility evaluations to ensure loads for airlift or road convoy are safe, configured and packed properly, and that the transportation documentation is correct.

7.2.2.5. Flight Superintendents will ensure all duties outlined for work center supervisors are performed and will manage their deployable system as outlined in **Chapter 6**. In addition, they will:

7.2.2.5.1. Ensure equipment inventory, pre-deployment inspections, and operational checks, are conducted prior to deployment of equipment when taskings are received. Pre-deployment inspections and operational checks ensure systems are operational and the equipment inventory is complete and capable of satisfying mission requirements. The minimum areas of coverage for pre-deployment inspections include:

7.2.2.5.2. Complete all 56-day (and lesser interval) PMIs.

7.2.2.5.3. Ensure all safety items are on-hand and safety deficiencies corrected.

7.2.2.5.4. Conduct corrosion prevention and control as required.

7.2.2.5.5. Ensure all mobility markings are up to date.

7.2.2.5.6. Ensure the availability and proper condition of support items (technical data, tools, TMDE, and MRSP) required for a sustained deployment.

7.2.2.5.7. Document pre-deployment inspections in CAMS as special inspections.

7.2.2.5.8. Conduct additional pre-deployment inspections if systems, equipment or facilities packaged as deployment-ready are unpacked for any reason. These inspections may be limited to the equipment or area that was disturbed by the unpacking/inspection/maintenance. Inspection results will be documented and attached to the original pre-deployment inspection.

7.2.2.5.9. Conduct post-deployment inspections to determine the operational status of assigned systems and the completeness of the equipment. They are also used to return the equipment to a mission-ready status.

7.2.2.5.10. Perform system or equipment operational checks as specified equipment TOs.

7.2.2.5.11. Document the post-deployment inspection in CAMS as a special evaluation.

7.2.2.5.12. (Added-PACAF) . All TMDE supporting Doc tasked UTCs will maintain a current calibration and adhere to the TMDE calibration schedules to ensure UTC readiness.

7.2.3. Deployed Procedures: COM will develop written guidance prior to the deployment that outlines how to plan, schedule, monitor, control, and provide support for all equipment maintenance and circuit restoral actions on all local and subordinate units.

7.2.3.1. Maintenance Control functions as the 24 hour single point of contact.

7.2.3.2. Deployed Maintenance Controls accomplish the following duties in addition to those outlined in **Chapter 4**:

7.2.3.2.1. Assign a JCN to each end item for initial operational or system checks during equipment setup. These JCNs may be issued upon arrival at the deployment site or prior to departure from home station to minimize disruption during initial setup at the deployed site. Deployed CAMS updates will be completed as soon as access is obtained.

7.2.3.2.2. Track milestones such as system regeneration status and FAA flight inspection status.

7.2.3.2.3. Coordinate external maintenance support for equipment with Host Nation Support activities such as Vehicle Maintenance, Civil Engineering, etc.

7.2.3.3. Materiel Control will function as organizational supply and provide mobility support. In addition to the requirements listed in **Chapter 5**, Materiel Control must:

7.2.3.3.1. Set up a supply and equipment account with the support base identified in the tasking directive. This will identify contact points, means of communication, and delivery destinations. Identify deployed or transferred assets to the support base..

7.2.3.3.2. Ensure MRSP storage availability, issue and turn-in procedures are followed, and establish procedures for MRSP replenishment at deployed locations.

7.2.3.3.3. Maintain a "part number to National Stock Number (NSN)" cross-reference capability on all items contained in the RSP kits. FEDLOG is recommended.

7.2.3.3.4. Close supply and equipment accounts with support base upon termination of deployment.

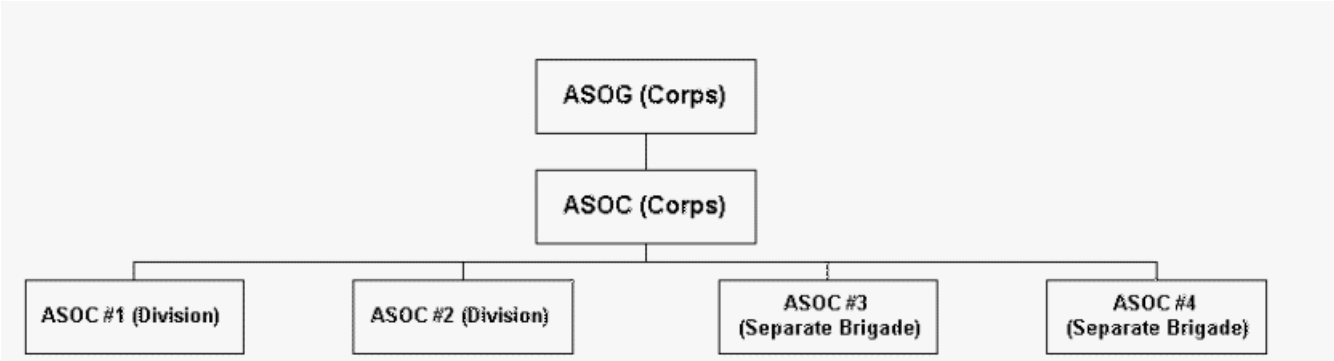
7.2.3.4. Deployed MS personnel will perform air mobility and road mobility inspections prior to re-deployment of the facility to home station or alternate deployment location.

7.3. Air Support Operations Groups.

7.3.1. Air Support Operations Groups (ASOG) provide close air support liaison to U.S. Army units at the Corps, Division, Brigade, and Battalion level. Maintenance personnel assigned to these units support the operational mission of Tactical Air Control Parties by maintaining equipment in a mission ready status. Effective management of assigned personnel and equipment will ensure that all deployable communications and ancillary equipment are maintained to Air Force standards. Each group's Air Support Operations Center (ASOC) will provide maintenance staff support to the subordinate units IAW procedures outlined in **Chapter 4** and **Chapter 5**. The senior maintenance officer or NCO in the ASOG or ASOC, whichever is appropriate, is designated as the group's Chief of Maintenance (COM). Air Support Operations Squadrons (ASOS) at the division level and below will operate under the Functionally Supported Maintenance Activity (FSMA) concept outlined in para **2.31.** and **3.2.2.5.**

7.3.2. When the ASOC is an Air National Guard unit functionally aligned with the ASOG the ASOC may not be able to provide job control and other dedicated functions. In this case, the ASOG will assume the duties outlined in para **7.3.4.** and **7.3.5.** below. However, the ASOG and ASOC will closely coordinate their maintenance support functions and the ASOC may provide support such as QC evaluations, technical inspections, training, staff assistance visits, etc.

Figure 7.1. Sample functional alignment of an ASOG maintenance complex (Individual units may vary)



7.3.3. Group logistics staff.

7.3.3.1. Act as action officers for the group commander on communications-electronics and vehicle maintenance, supply, and logistics issues.

7.3.3.2. Establish and publish logistics related instructions, directives, and policy.

7.3.3.3. Conduct staff assistance visits and other inspections of subordinate units as directed by higher headquarters, group commander, or director of logistics.

7.3.3.4. Establish group-wide metrics to measure equipment status and combat readiness of weapons systems, vehicles, communications equipment, and maintenance personnel assigned to subordinate units.

7.3.3.5. Work closely with, and coordinate all information with, the COM on all maintenance-related issues.

7.3.3.6. Performs function of P&I as referenced in para **5.25.**

7.3.4. ASOC.

7.3.4.1. COM will provide normal maintenance staff support functions, such as job control and quality assurance, and technical order support to the FSMAs IAW para **3.2.2.5.**

7.3.4.2. COM will publish local work cards and maintenance operating instructions to delineate responsibilities and procedures, as required, within the maintenance complex IAW, para **3.2.2.3.**

7.3.4.3. COM will establish additional procedures and written guidance regarding management of vehicle maintenance and AGE/Power Production that are not covered by AFI 21-116.

7.3.4.4. Job Control will consolidate equipment status reports from all units/FSMAs.

7.3.4.5. COM will review and endorse all maintenance evaluation reports produced within the ASOG and provide guidance and closeout approval.

7.3.4.6. COM will serve as the single point of dissemination of all maintenance related information to the FSMAs to ensure the technical accuracy, applicability, and completeness of information prior to distribution.

7.3.5. ASOS/FSMA.

7.3.5.1. Unit commanders will ensure production work centers under the operational control of their maintenance superintendent adhere to the policies of this AFI and the directives, policy, and other guidance specified by the COM.

7.3.5.2. Maintenance superintendents will appoint maintenance support and job control representatives to perform duties as required by FSMAs IAW this AFI and local directives.

7.3.5.3. Work center supervisors will ensure compliance with this AFI and group or local regulations, directives, and policy.

7.3.5.4. FSMAs will report equipment status to job control.

7.3.5.5. Ensure frequent contact with the COM to keep him/her updated on maintenance activities and to ensure a close working relationship.

7.3.5.6. Notify the COM of any maintenance, manning, and equipment problems that cannot be resolved at the squadron level or that may have group-wide impact.

Chapter 8

INTERCONTINENTAL BALLISTIC MISSILE (ICBM) COMMUNICATIONS CABLE AFFAIRS

8.1. Introduction. This chapter outlines Cable Affair (CA) responsibilities for C-E maintenance activities supporting ICBM Hardened Intersite Cable System (HICS) and Outside Cable Communications Plant (OCCP) functions. It provides procedures for the CMSF and Cable Affairs Officer (CAO) to administer the CA function. It reorganizes the "Crossing with Government Superior Easement Rights" subject area into the four areas. It also delegates the responsibility to maintain a 100 foot separation between HICS and new aerial transmission towers/poles to the CAO.

8.2. General. Each communications squadron supporting an ICBM mission has a CAO as the single point of contact for all actions affecting the HICS and the HICS Right-of-Way (ROW). The CA, managed by the CAO, is a staff function under the communications squadron's Mission Systems Flight. The CAO must be technically and professionally capable of acting as the HICS ROW advisor for the base.

8.3. Responsibilities.

8.3.1. HQ AFSPC/SCM:

8.3.1.1. Develop policy and procedures in support of CA functions throughout the ICBM fleet.

8.3.1.2. Validate CA funding and support requests (such as funding support, engineering package reviews, depot level maintenance support) and coordinates with appropriate agencies.

8.3.1.3. Review all recommended changes to this chapter and coordinates the changes with HQ USAF/ILMM.

8.3.2. Host Unit Base Civil Engineer (BCE):

8.3.2.1. Maintain HICS ROWs, including erosion repair.

8.3.2.2. Repair and replace ROW fences and gates.

8.3.2.3. Provide equipment and operators to support cable repair, modification, or relocation when these efforts are beyond the communication unit's capabilities.

8.3.2.4. Assists communication units during final inspection and acceptance of contract work.

8.3.2.5. Accomplish ROW vegetation control and clearance when necessary to facilitate cable repairs and ensure cable hardness.

8.3.3. Base Communications Units:

8.3.3.1. Maintain HICS cables.

8.3.3.2. Appoint the Cable Affairs Officers (CAO) to:

8.3.3.2.1. Monitor all activities affecting the HICS ROW and hardness criteria. (para **8.4.**)

8.3.3.2.2. Control all ROW maintenance. (See para **8.5.**)

8.3.3.2.3. Maintain and manage HICS Circuit Identification and Recording System (CIRS) and C4 System Installation Records (CSIRs) according to Technical Order (TO)

21M-LGM30F-2-20-1 (Sec III), Hardened Intersite Cable System, and AFI 21-404, C4 System Installation Records. (NOTE: Send updated cable route maps to OO-ALC/TIEDDS, 6038 Aspen Ave, Bldg. 1289SW, Hill AFB, Utah 84506-5805.)

8.4. Monitor HICS ROW Activity.

8.4.1. CAOs will track all activities affecting the HICS ROW (such as highway or utility crossings, construction, earth moving, etc.) to ensure HICS hardness integrity is maintained.

8.4.2. CAOs will also:

8.4.2.1. Notify the CMSF of ROW deficiencies affecting HICS hardness integrity that cannot be resolved in a timely manner.

8.4.2.2. Conduct the HICS ROW surveillance program. This program is an important tool to gather information on the condition of the HICS ROW. The primary goal of the surveillance program is to identify and document erosion problems, HICS ROW gate discrepancies, and encroachment problems.

8.4.2.2.1. ROW surveillance can be completed by either the drive-over or fly-over method. Coordinate with local helicopter unit for fly-over support.

8.4.2.2.2. Examine each flight area ROW at least every 2 years. For example, if F-flight was completed June 94, it would be due again NLT June 96.

8.4.2.2.3. Document the examination results on AF Form 2419, Routing and Review of Quality Control Reports; and AF Form 2420, Quality Assurance Inspection Summary; or equivalent. When possible, document any marker post discrepancies discovered during the examinations as well.

8.4.2.2.4. Maintain close contact with non-USAF personnel/agencies who cross or could cross, inundate, or otherwise affect the HICS ROW above or below the surface. (NOTE: System of records notice F021 AFSPC A, Cable Affairs Personnel/Agency Records applies.) As a minimum, these contacts include:

8.4.2.2.4.1. Landowners and tenants.

8.4.2.2.4.2. Highway/road departments (federal, state, and county).

8.4.2.2.4.3. Public and private utilities (power, telephone, pipeline, water, etc.).

8.4.2.2.4.4. Contractors.

8.4.2.2.4.5. Federal, state, and local farm agencies (Farm and Home Administration, Farm Bureau, county agents, soil conservation agencies, etc.).

8.4.2.2.4.6. Municipal offices.

8.4.2.2.4.7. Railroads.

8.4.2.3. Maintain (according to AFMAN 37-123, Management of Records) a mailing list of personnel/agencies indicated above. Contact all personnel/agencies on the list by mail, at least every 2 years, to relay the following:

8.4.2.3.1. Comments emphasizing the adverse effect cable cuts have on the defense effort.

8.4.2.3.2. Requirements and procedures for requesting consent-to-cross over or under the HICS ROW.

8.4.2.3.3. The necessity of keeping CA advised of any planned construction or earth-moving activities along the HICS ROW.

8.4.2.3.4. A request for update information, such as additional names of tenants, changes in ownership, erosion problems, and known construction requirements. Use AF Form 3951 (or OMB Form 0701-0141) to gather public information. See AFI 37-124, The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections, for more guidance on requesting information from the public.

8.4.2.3.5. Notify landowners or tenants in advance with details of any planned cable work on their property. In all cases where digging takes place, make every effort to contact the landowner.

8.4.2.3.6. Ensure all non-routine maintenance of the ROW (i.e., erosion repair work, earth moving, cable lowering or relocation, etc.) is monitored and inspected.

8.5. ROW Maintenance.

8.5.1. Deficiencies. The HICS ROW is USAF Real Property. Correction of deficiencies is a BCE responsibility. However, the CAO is the single point of contact for all ROW deficiencies and ensures corrective actions are implemented. The CAO:

8.5.1.1. Inspects all ROW problems (erosion, access/gate discrepancies, etc.) and determines corrective actions in accordance with TO 21M-LGM30F-2-20-1 and/or applicable drawings.

8.5.1.2. Coordinates with cable maintenance to either perform repairs or monitor BCE/contractor efforts as required.

8.5.1.3. Requests Base Civil Engineer (BCE) assistance, as required. If BCE cannot support the ROW repair with in-house resources, the CAO processes a BCE funded Request for Purchase (AF Form 9) for contract support. (NOTE: At bases where the missile wing is a tenant, BCE funding/reimbursement for missile support actions is in accordance with local support agreement. The CAO must submit annual requirements to BCE well in advance for funding and programming. When out-of-cycle funding is necessary, the request and justification must be submitted to BCE for joint resolution.)

8.6. ROW Projects.

8.6.1. The CAO provides annual funding requirements for ROW projects, excluding ROW (HICS) gate projects, requiring contract support to the communications unit budget officer. These fund requirements are included in the yearly financial plans, Program Element Code (PEC) 11323F, under Electronic Equipment and Inter/Intra Site Cable Maintenance (EEIC) 56970 funds. Based on these estimates, HQ AFSPC/SCX allocates funds for specific projects as they occur. The expenses generated by reimbursable projects are paid from funds pre-deposited by the crossing agency in Deposit Fund Account 57F3875 (see Reimbursements in paragraph **8.7.4.2.**).

8.6.2. The CAO coordinates unprogrammed project requirements with unit and base budget offices to immediately notify HQ AFSPC/SCOM and SCX. HQ AFSPC/SCX will fund validated projects on a case-by-case basis.

8.6.3. The CAO requests depot level support in accordance with TO 00-25-107, Maintenance Assistance, when repair/project requirements are beyond base level capabilities.

8.7. HICS ROW Crossings.

8.7.1. The CAO ensures the HICS is not endangered by ROW crossing or construction activity. Crossings divide into three distinct categories:

8.7.1.1. Crossings where the government has lesser easement rights (secondary or later).

8.7.1.2. Crossings where the government has superior easement rights (first or prior).

8.7.1.3. Crossings within the confines of a public ROW where the government was issued a license or permit for the cable installation.

8.7.2. Future Crossings: When notified of a future crossing, the CAO and base Staff Judge Advocate (SJA) must initially determine who has the superior easement. In all cases, the USAF must comply with the terms of the easement. When the question of superior easement determination cannot be resolved, the CAO forwards all supporting case documents to HQ AFSPC/SCOM for resolution. At the same time, the CAO must obtain sufficient details from the crossing agency to determine what actions, if any, are necessary to protect the HICS. (NOTE: When the CAO knows of other crossing agency plans to cross the ROW but has not been properly contacted, the CAO must take the initiative to contact that party. If the crossing agency refuses to submit the required request, the CAO must immediately advise HQ AFSPC/SCOM and the base SJA of the potential legal problem.)

8.7.3. Crossings without Government Superior Easement Rights (Lesser). Required actions depend on whether Hardened Intersite Cable (HIC) lowering or relocation is required due to the crossing activity.

8.7.3.1. If no cable lowering or relocating is required, the CAO:

8.7.3.1.1. Advises the crossing agency that:

8.7.3.1.1.1. The CAO must be notified 72 hours before work begins.

8.7.3.1.1.2. Crossing work must be restricted to coordinated locations.

8.7.3.1.1.3. Intentionally severing the HICS is a criminal offense and could result in legal actions.

8.7.3.1.1.4. Repair costs for negligent severing or damage to the HICS will be billed to the crossing agency.

8.7.3.1.2. Schedules cable teams to locate and stake the cable in the crossing area and monitor the crossing work. Always attempt to place the cable team on-site to satisfy the time and date requirements of the crossing agency.

8.7.3.2. Cable lowering or relocating must be accomplished by USAF resources (in-house or contracted agent) at government expense. Under no circumstances will the crossing agency lower or relocate the cable. The CAO coordinates and oversees the effort. If the communications unit lacks resources to perform the work, the CAO seeks assistance in the following order:

8.7.3.2.1. To the maximum extent possible, BCE resources will be used for ROW work. The CAO must coordinate with BCE for specific equipment, operator, and time requirements.

8.7.3.2.2. Contract support with EEIC 56970 Funds. The CAO arranges for the lease or rental of equipment and operators as required. (NOTE: Contact cable maintenance for assistance as required.)

8.7.4. Crossings with Government Superior Easement Rights. Before the USAF permits any agency to cross the HICS, that agency must ask for consent-to-cross. The agency must agree to the reimbursement procedures, when applicable, before the crossing can begin. Consent-to-cross notification, reimbursement, issuance, and follow-on procedures are outlined below:

8.7.4.1. Notification. The CAO must advise the crossing agency, by letter, of the following:

8.7.4.1.1. They cannot cross the ROW where the USAF has the superior easement except in a manner not involving physical or electronic interference with the HIC.

8.7.4.1.2. They must provide details of their planned activity so the CAO can determine whether HIC lowering or relocation is required.

8.7.4.1.3. Any requirement to relocate the cable to preclude interference from crossing agency's crossings will be done by the USAF at the crossing agency's expense. Include reimbursement procedures in the letter.

8.7.4.2. Reimbursement. Where the USAF has superior easement rights and must lower or relocate the HICS cable due to the crossing agency's activity, the crossing agency must reimburse the USAF. In these cases, the reimbursement procedures in AFI 65-601, Volume 1, Budget Guidance and Procedures, apply. The CAO:

8.7.4.2.1. Provides reimbursement details to the crossing agency explaining they must pre-deposit sufficient funds to cover the cost, payable to the local Defense Accounting Office (DAO), deposit fund account 57F3875. Also, advises the party that they must pay any claims filed as a result of activity associated with the crossing. (NOTE: 56970 funds will not be used to defray prepaid USAF expenses incurred where the USAF has superior easement rights. Only funds deposited in account 57F3875 will be used.)

8.7.4.2.2. Provides a cost estimate to the crossing agency, with at least the following cost breakouts:

8.7.4.2.2.1. Military man-hours (by grade).

8.7.4.2.2.2. Civilian man-hours (by grade).

8.7.4.2.2.3. Material required (standard cost).

8.7.4.2.2.4. Commercial equipment required (number of hours, type).

8.7.4.2.2.5. Travel.

8.7.4.2.2.6. Engineering.

8.7.4.2.2.7. Other (with description).

8.7.4.2.3. Ensures the cost estimate letter clearly states that the crossing agency must provide additional pre-deposits if actual expenditures exceed the estimate. Pre-deposit must be made before work commences.

8.7.4.3. Issuance. When the crossing agency has requested consent-to-cross and has agreed to the reimbursement procedures, the CAO notifies the BCE real estate office by letter. The letter must

identify the specific easements involved and request the BCE real estate office issue a consent-to-cross to the crossing agency with at least the following provisions stated:

8.7.4.3.1. Crossing criteria.

8.7.4.3.2. Reimbursement details, as provided by CAO (when applicable).

8.7.4.3.3. A statement that any USAF work (lowering or relocation) must be complete before the crossing agency crosses the easement.

8.7.4.3.4. The requirement for the crossing agency to notify the CAO at least 72 hours in advance of their crossing.

8.7.4.3.5. Liability for damages.

8.7.4.3.6. If the USAF relocates the cable, the crossing agency must purchase, in the name of the USAF, any additional ROW needed. At no time will the USAF relinquish its superior easement rights to facilitate highway or utility construction. Purchase of additional ROW in the name of the USAF must include the necessary environmental analyses required by AFI 32-7061, The Environmental Impact Analysis Process (EIAP), and environmental baseline studies required by AFI 32-9003, Granting Temporary Use of Air Force Real Property.

8.7.4.4. Follow-on Actions. Record day-to-day expenditures associated with the project. Coordinate with base DAO to ensure funds are available for project completion. In no case may expenditures continue prior to availability of funds to cover the expenses.

8.7.4.4.1. Forward requests for additional pre-deposits, as necessary, to the crossing agency with an information copy to the base DAO.

8.7.4.4.2. Compute the total project cost after completion. The final cost accounting must substantiate the transfer of funds from deposit fund account 57F3875 to reimburse the following appropriations:

8.7.4.4.2.1. General Accounting and Finance in accordance with DFAS-DE Replacement 7010-1.

8.7.4.4.2.2. Civilian Pay in accordance with DFAS-DE REG 177-104, Civilian Pay Transactions at Base Level.

8.7.4.4.2.3. Material consumed - standard cost.

8.7.4.4.2.4. Commercial equipment used charged as billed.

8.7.4.4.2.5. Travel costs.

8.7.4.4.3. Forward a copy of the final computation to the base DAO for final resolution of the pre-deposit fund. Also send a copy to the crossing agency.

8.7.4.4.4. Retain a copy of the final reimbursement computation and all supporting documentation. Obtain copies of collection and disbursement documentation from the base DAO. (NOTE: Process reimbursements in a similar manner if the crossing agency is another Government agency other than USAF. In this case, reimbursable expenses are limited to civilian pay, material, travel, and contractual services.)

8.8. ROW Procurement.

8.8.1. The CAO submits requests to the BCE real estate office to acquire additional ROW.

8.8.2. These requests contain legal descriptions, maps, and information on the real estate required and the date the CAO must receive notification of the new ROW acquisition. (NOTE: Purchase of additional ROW must include the necessary environmental analyses required by AFI 32-7061 and environmental baseline studies required by AFI 32-9003.)

8.9. Claims.

8.9.1. When a damage claim is anticipated, the CAO provides the SJA details of possible damage to private property caused by USAF personnel and/or contractors performing USAF related duties on or off the HICS ROW.

8.9.2. Take color photographs of evidence and provide them to the base SJA when possible. The CAO advises/assists the SJA as required.

8.10. Project/Case Files.

8.10.1. The CAO establishes project/case files to maintain any actions, documents, and photographs pertaining to all HICS crossings, projects, or ROW problems.

8.10.2. Maintain copies of all reimbursement billing documents for future reference should auditing or legal actions occur. (AFMAN 37-123 and AFMAN 37-139)

8.11. HICS Construction and Siting Criteria.

8.11.1. HICS construction and siting requirements are found in TO 21M-LGM30F-2-20-1. General construction and siting information for projects affecting the HICS follows. In all cases, the most practical and economic solution will be sought consistent with HICS hardness criteria.

8.11.2. Construction Guidelines.

8.11.2.1. For all construction projects, the location of the HICS must be positively identified before work commences.

8.11.2.2. Decisions to reroute, relocate, or splice-in additional HICS should be made only as a last resort.

8.11.2.3. When HIC relocating or lowering is unavoidable to maintain separation criteria, 4 inches of select backfill must surround the HIC. Refer to TO 21M-LGM30F-2-20-1 for further protection requirements.

8.11.2.4. Blasting activities are permissible provided that the HIC is not at risk of sustaining physical damage. Consult TO 21M-LGM30F-2-20-1 for specific criteria.

8.11.3. Siting Criteria.

8.11.3.1. New utilities should be installed at a 90-degree crossing angle when possible.

8.11.3.2. Construction permits should not be issued for crossings within 50 feet of HICS splice locations.

8.11.3.3. Communications cables must have a minimum separation of 12 inches from the HICS. The minimum crossing angle is 30 degrees.

8.11.3.4. Pipelines must have a minimum separation of 12 inches from the HICS. Although the crossing angle is not critical, a minimum angle of 30 degrees is desirable to lessen the possibility of damaging the HICS during the crossing.

8.11.3.5. Power cables must have a minimum separation of 18 inches from the HICS. The minimum crossing angle is 30 degrees. Underground power cables with a potential difference of 2400 volts to ground must have a metallic sheath.

8.11.3.6. Highway and railroad crossing criteria are stated in applicable drawings. When more practical to leave the HICS in place, waivers of this criteria must be granted by HQ AFSPC/SCOM.

8.11.3.7. Installation of aerial transmission line towers or poles shall not be within 100 feet of the HICS, if possible. The separation, required to avoid HICS damage during tower/pole installation, may be waived at the discretion of the CAO. The electrical effect of 60 hertz power transmission lines crossing parallel or nearly parallel to the HICS is negligible.

8.11.3.8. Dam and pond construction over the HICS will be avoided whenever possible. When unavoidable, the CAO must ensure no HICS splices remain in inundated areas.

Chapter 9

MANAGEMENT OF COMMERCIAL OFF-THE-SHELF (COTS) C-E EQUIPMENT

9.1. Introduction. This chapter outlines minimum maintenance-management requirements for commercial off-the-shelf (COTS) C-E equipment. The purpose of applying maintenance-management to COTS systems/equipment is to ensure the serviceable, safe operation, proper configuration, accountability, and sustainability of systems to meet mission requirements.

9.2. MAJCOM Responsibilities.

9.2.1. Serve as command focal point to implement AF guidance and directives concerning acquisition of COTS equipment.

9.2.2. Develop minimum procedures necessary to procure equipment/systems.

9.2.3. Provide guidance and support for COTS equipment concerning system analysis, reliability, availability, and maintainability program. See Note below.

9.2.4. Perform trend analysis and conduct special studies, when determined necessary, on commercial systems to identify adverse equipment performance and provide feedback to units.

9.3. Unit Responsibilities.

9.3.1. Maintain an accurate inventory of all assigned COTS C-E equipment and annotate in writing those systems that are mission critical.

9.3.2. Handle maintenance outages, scheduled or unscheduled, for those systems designated mission critical IAW maintenance control procedures in **Chapter 4**, Maintenance Control.

9.3.3. Maintain systems IAW technical guidance.

9.3.4. Establish PMI schedule using applicable technical guidance (as a minimum cleaning and operational check PMIs will be established for each system).

9.3.5. Perform evaluations IAW MSEP requirements, **Section 5D** and **Section 5E**.

9.3.6. Ensure logistic support is available for sustained operations.

9.3.6.1. Plan for logistics support for COTS during the acquisition process utilizing AFI 10-602, Determining Logistic Support and Readiness Requirements, **Attachment 2** & **Attachment 6**. Plan and budget appropriately for the logistics support elements through all phases of the systems lifecycle.

9.3.6.2. Develop an overall maintenance and sustainment plan. See note below.

NOTE: Both MAJCOMs and units should develop a support strategy that includes the basic acquisition logistics support elements that must be considered in life-cycle and sustainment planning. Many of these "standard" support assumptions must be reexamined and additional support elements must be considered when COTS is involved. In developing a support strategy, consider requirements for:

Maintenance Planning

Maintenance and Sparing Policy

Repair Process

Sustainability
Packaging, Handling, Storage and Transportation (PHS&T) Requirements
Government-Furnished Property – Hardware/Software
Computer Resources Support
Supply Support
Support Equipment
Training and Training Devices
Facilities
Post Production Support
Program Schedule
Manpower and Personnel Requirements
Support Agreements
Warranty Requirements
Technical Manuals and Technical Data
National Stock Number and Related Cataloging Data
Allowance/Authorization
Design Interface
Ordering
Delivery
Reporting
Controlled Inventory Item Requirements
Demilitarization Requirements
Hazardous Material Requirements

MICHAEL E. ZETTLER , Lt General USAF
DCS/Installations and Logistics

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 10-9, Lead Operating Command Weapon Systems Management

AFMAN 10-401, Operation Plan and Concept Plan Development

AFI 10-403, Deployment Planning

AFI 10-404, Base Supply Planning

AFI 10-601, Mission Needs and Operational Requirements Guidance and Procedures

AFI 10-602, Determining Logistics Support and Readiness Requirements

AFI 10-901, Lead Operating Command—Communications and Information Systems Management

AFMAN 11-225, United States Standard Flight Inspection Manual

AFI 13-203, Air Traffic Control

AFPD 21-1, Managing Aerospace Equipment Maintenance

AFPD 21-3, Technical Orders

AFI 21-103, Equipment Inventory, Status, and Utilization Reporting

AFI 21-105, Aerospace Equipment Structural Maintenance

AFI 21-109, Communications Security Equipment Maintenance and Maintenance Training

AFI 21-118, Improving Aerospace Equipment Reliability and Maintainability

AFI 21-404, Developing and Maintaining Communications, and Computer Systems Installation Records

AFCSM 21-556 Vol II through 21-579 Vol II , Core Automated Maintenance System (CAMS)

AFMAN 23-110CD, USAF Supply Manual

AFI 25-201, Support Agreement Procedures

AFI 32-7061, The Environmental Impact Analysis Process

AFI 32-9003, Granting Temporary Use of Air Force Real Property

AFI 33-103, Requirements Development and Processing

AFI 33-104, Base Level Planning and Implementation

AFI 33-106, Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System

AFI 33-111, Telephone Systems Management

AFI 33-112, Computer Systems Management

AFI 33-360V1, Publication Management Program

AFI 36-2104, Nuclear Weapons Personnel Reliability Program

AFI 36-2201, Developing, Managing, and Conducting Training

AFI 36-2233, On-the-Job Training Products for Communications-Electronics Enlisted Specialty Training

AFI 36-2247, Planning, Conducting, Administrating, and Evaluation Training

AFMAN 37-123, Management of Records

AFI 37-124, The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections

AFMAN 37-139, Disposition of Air Force Records - Records Disposition Schedule

AFI 37-160 V8, The Air Force Publications and Forms Management Program – Developing and Processing Forms

AFI 37-161, Distribution Management

AFI 38-101, Air Force Organization

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

AFI 63-124, Performance-Based Service Contracts

AFI 65-601 V1, Budget Guidance and Procedures

AFOSHSTD 91-25, Confined Spaces.

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

AFIND 8, Numerical Index of Specialized Education/Training Publications

AFIND 27, Numerical Index of Air Force Computer Systems Manuals

AFIND 28, Numerical Index of Air Force Maintenance Quality Control Checksheets (AFMQCC) and Communication-Electronics Maintenance Instructions (CEMI)

AFMQCC 200-3, Project Acceptance

CSCR 700-7, Project Engineering

TO 00-5-1, AF Technical Order System

TO 00-5-2, Technical Order Distribution System

TO 00-5-15, Air Force Time Compliance Technical Order System

TO 00-5-17, Users Manual-USAF Computer Program Identification Numbering (CPIN) System

TO 00-20-1, Preventive Maintenance Program, General Policy Requirements and Procedures

TO 00-20-2, Maintenance Data Collection System

TO 00-20-3, Maintenance Processing of Reparable Property and Repair Cycle Asset Control System

TO 00-20-14, Air Force Metrology and Calibration Program

TO 00-25-107, Maintenance Assistance

TO 00-25-108, C-E Depot Support

TO 00-25-195, Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment

TO 00-25-234, General Shop Practice Requirements for the Repair, Maintenance and Test of Electrical Equipment

TO 00-35D-2, Electronic Set Inventory Checklist for C-E Equipment

TO 00-35D-54, USAF Material Deficiency Reporting and Investigation System

TO 1-1-689, Organizational, Unit, and Intermediate Maintenance -- Avionics Cleaning, Corrosion Prevention/Control

TO 21M-LGM30F-2-20-1, Hardened Intersite Cable System

TO 31W3-10-22, Signal Manual - Telecommunications Engineering, Outside Plant, Telephone

TO 31Z-10-37, General Engineering Technical Manual - Corrosion Prevention and Protection

TO 32-1-101, Maintenance and Care of Hand Tools

TO 33-1-27, Logistic Support of Precision Measurement Equipment

TO 33K-1-100, TMDE Calibration Notes - Maintenance Data

Abbreviations and Acronyms

ACC—Air Combat Command

ACS—Air Control Squadron

AETC—Air Education and Training Command

AFCA—Air Force Communications Agency

AFCEMI—Air Force Communications-Electronics Maintenance Instruction

AFCSSO—Air Force Contingency Supply System Office

AFETS—Air Force Engineering Technical Services

AFIND—Air Force Index

AFJQS—Air Force Job Qualification Standard

AFMC—Air Force Materiel Command

AFMETCAL—Air Force Metrology and Calibration

AFMQCC—Air Force Maintenance Quality Control Checksheet

AFOSH—Air Force Occupational Safety and Health

AFPD—Air Force Policy Directive

AFSC—Air Force Specialty Code

AFSPC—Air Force Space Command

AFTMDE—Air Force Test, Measurement, and Diagnostic Equipment

AFTO—Air Force Technical Order

AHE—Automated History Entry

AIA—Air Intelligence Agency

AS—Allowance Source

ASOG—Air Support Operations Group

ASOS—Air Support Operations Squadron

ASOC—Air Support Operations Center

ATC—Air Traffic Control

ATCALS—Air Traffic Control and Landing Systems

ATOMS—Automated Technical Order Management System

AWP—Awaiting Parts

BCE—Base Civil Engineer

BPID—Blueprint Phase Implementation Directive

C4—Command, Control, Communications and Computer

CA—Cable Affair

CALS—Computer-Aided Acquisition and Logistics Support

CAMS—Core Automated Maintenance System

CAO—Cable Affairs Officer

CCSF—Chief of Combat Support Flight

C-E—Communications-Electronics

CETS—Contract Engineering and Technical Services

CFETP—Career Field Education and Training Plan

CFP—Communications Focal Point

CIRS—Circuit Identification and Recording System

CISF—Chief of Information Systems Flight

CMSF—Chief of Mission Systems Flight

COM—Chief of Maintenance

COMSEC—Communications Security

CPIN—Computer Program Identification Number

CRA—Consolidated Repair Activity

CSCR—Communications Systems Center Regulation

CSIR—C4 Systems Installation Record

CSO—C4 Systems Officer

CTOM—Centralized Technical Order Management

DAO—Defense Accounting Office

DII—Defense Information Infrastructure

DIFM—Due In From Maintenance

DISA—Defense Information System Agency

DOC—Designed Operational Capability

DOD—Department of Defense

DSN—Defense Switched Network

EI—Engineering and Installation

EDD—Estimated Delivery Date

EEIC—Element of Expense Identification Code

EIAP—Environmental Impact Analysis Process

EIP—Equipment Inoperative for Parts

EIW—Engineering-Installation Wing

ERRC—Expendability, Recoverability, Repairability Code

ESR—Equipment Status Reporting

ETIC—Estimated Time in Commission

ETRO—Estimated Time Return to Operation

ETS—Engineering and Technical Services

FAD—Force Activity Designator

FSMA—Functionally Supported Maintenance Activity

FTD—Field Training Detachment

GAS—Graduate Assessment Survey

GFE—Government Furnished Equipment

GSU—Geographically Separated Unit

HICS—Hardened Intersite Cable System

HTSA—Host-Tenant Support Agreement

HVAC—Heating, Ventilation, and Cooling

I&SG —Interchangeable and Substitute Group

ICBM—Intercontinental Ballistic Missile

ICP—Initial Communications Package

ILSP—Integrated Logistics Support Plan

IPSA—Indorsed Project Support Agreement

ISSL—Initial Spares Support List

JCN—Job Control Numbers

JDD—Job Data Documentation

JQS—Job Qualification Standard

LF—Launch Facility

LOM—List of Materials

LRU—Line Replaceable Unit

MAD—Maintenance Action Directive

MAJCOM—Major Command

MDM—Mobile Depot Maintenance

MICAP—Mission Capability

MO—Manpower Office

MOA—Memorandum or Agreement

MOI—Maintenance Operating Instruction

MOU—Memorandum of Understanding

MS—Maintenance Support

MSEP—Maintenance Standardization and Evaluation Program

MSK—Mission Support Kit

MSR—Maintenance Support Representative

NAS—National Airspace System

NAVAIDS—Navigational Aids

NRTS—Not Reparable This Station

NSN—National Stock Number

O&M—Operations and Maintenance

OCCP—Outside Cable Communications Plant

OCCR—Organization Cost Center Records

OCR—Office of Collateral Responsibility

OPLAN—operations plan

OT&E—Operational Test and Evaluation

P&I —Planning and Implementation

PAD—Program Action Directive

PDM—Programmed Depot Maintenance

PEC—Program Element Code

PEP—Performance Evaluation Program

PFMR—Project Fund Manager Records

PM—Program Manager

PMD—Program Management Directive

PMEL—Precision Measuring Equipment Laboratory

PMI—Preventive Maintenance Inspection

PPC—Personnel Processing Codes

PPLAN—Programming Plan

PRP—Personnel Reliability Program

PSA—Project Support Agreements

PWS—Performance Work Statement

PWCS—Personal Wireless Communications Systems

QAE—Quality Assurance Evaluators

REMIS—Reliability and Maintainability Information System

RDO—Redistribution Order

RM—Reliability and Maintainability

ROD—Report of Discrepancy

ROW—Right-of-Way

RPC—Regional Processing Center

RSP—Readiness Spares Package

SATCOM—Satellite Communications

SAV—Staff Assistance Visits

SIPT—Standard Installation Practices Training

SIPTO—Standard Installation Practices Technical Order

SJA—Staff Judge Advocate

SMR—Source, Maintenance, and Recoverability

SMT—Special Maintenance Teams

SOR—Source of Repair

SOW—Statement of Work

SPECAT—Special Category

STEM—Systems Telecommunications Engineering Manager

STS—Specialty Training Standard

TACP—Tactical Air Control Party

TCTO—Time Compliance Technical Orders

TDY—Temporary Duty

TEP—Technical Evaluation Program

TMDE—Test, Measurement, and Diagnostic Equipment

TO—Technical Order

TODO—Technical Order Distribution Office

TSO—Telecommunications Service Order

UEI—Unit Effectiveness Inspection

UHF—Ultra High Frequency

UJC—Urgency Justification Code

UMD—Unit Manpower Document

UND—Urgency of Need Designator

USAF—United States Air Force

UTC—Unit Type Code

VHF—Very High Frequency

WIN—Workload Identification Number

WRM—War Readiness Material

WUC—Work Unit Code

Terms

Chief of Maintenance (COM)/Chief of Mission Systems Flight (CMSF)—The senior manager, other than the commander, responsible for C-E maintenance. The local title of this individual may differ according to unit mission, size, or level of responsibility.

Commercial-Off-The-Shelf (COTS)—There is no single definition of a "COTS-based system". Instead, there is a spectrum of ways that systems can incorporate COTS products. All new acquisition programs pose challenges for system integration and require specialized management once fielded. At two extremes of this spectrum are the following:

- A COTS-Solution system is one in which a single product, or suite of products, provides the essential solution in an application area. Such a system is constructed by tailoring the product to specific business needs and usually only a single vendor relationship is involved.
- A COTS-Intensive system is one in which system capabilities are achieved through the integration of several COTS software products from multiple software vendors. In such cases, either the application area is unique, or the scope of the system is sufficiently large to preclude the probability of a single commercial solution.
- These two are extremes, and most systems will fall somewhere in the middle.

Functionally Supported Maintenance Activity (FSMA)—A production oriented maintenance activity

that is normally geographically separated from its parent unit. It is functionally responsible to, and supported by, the chief of maintenance/chief of mission systems but may not come under the organizational control of the parent unit chief of maintenance/chief of mission systems.

Maintenance—Maintenance is defined as any action which requires the removal of an equipment cover or panel to conduct an alignment, adjustment, modification, removal and replacement of a line replaceable unit (LRU), reset action, etc. to restore a system to operational status; to perform preventive maintenance inspection (PMI) routine; or to install or remove C-E systems, equipment, or circuit.

Maintenance Activity—All staff functions, management support functions, and all production work centers directly or functionally responsible to a single chief of maintenance/chief of mission systems.

Maintenance Staff—All staff functions supporting the maintenance production effort. For example, Maintenance Control, Maintenance Support, etc.

Non-Traditional Technician—Non-Traditional Technician for the purpose of this instruction is defined as any personnel, other than 2EXXX AFSC, who performs maintenance on C-E equipment whether they are assigned to a communications unit or not.

Work Centers—C-E maintenance work centers are the production elements under the COM/CMSF and are responsible to accomplish all maintenance. These functional elements may be combined, added, or deleted as necessary, depending upon the size, location, mission, or span of control.

Attachment 2

AF MAINTENANCE QUALITY CONTROL CHECKSHEETS (AFMQCC)

A2.1. Introduction. AFMQCCs are guides used primarily by Maintenance Support to help determine equipment condition, maintenance quality, and maintenance management effectiveness. Work center and staff functions may use AFMQCCs when performing self-inspections. AFMQCCs are standardized and published on AF Form 3900. AFMQCCs are indexed in Air Force Index 28 and are not directive. Resolve conflicts between AFMQCCs and technical orders (TOs) or other official Air Force publications in favor of the higher level publication. Do not use AFMQCCs to operate, maintain (i.e., tuning, aligning, adjusting, etc.), or troubleshoot equipment. Do not limit equipment or management evaluations to the checks in the AFMQCCs. Add other checks to ensure a thorough evaluation. MAJCOMs may add any additional checks necessary to ensure unique mission requirements are met.

A2.2. Functional Grouping.

A2.2.1. AFMQCCs are organized by series designator number for major functional and equipment categories.

A2.2.2. Categories are as follows:

A2.2.2.1. Maintenance Management - 100 Series.

A2.2.2.2. Specialized Evaluations - 200 Series.

A2.2.2.3. METNAV Equipment - 300 Series.

A2.2.2.4. Radar Equipment - 400 Series.

A2.2.2.5. Radio Communications Equipment - 500 Series.

A2.2.2.6. Teletype/Cryptographic Equipment - 600 Series.

A2.2.2.7. Telephone/Wire Equipment - 700 Series.

A2.2.2.8. Computer/Display Equipment - 800 Series.

A2.2.2.9. Television/Imagery/Intrusion Detection Equipment - 900 Series.

A2.2.2.10. Systems Control Equipment - 1000 Series.

A2.2.2.11. Instrumentation and Telemetry Equipment - 1100 Series

A2.2.2.12. Electric Power Generation Equipment and Vehicles - 1300 Series.

A2.2.2.13. Tactical Communications Equipment - 1500 Series.

A2.3. AFCA Responsibilities.

A2.3.1. AFCA/GCSM centrally manages the AFMQCC program for standard systems (systems used by more than one MAJCOM).

A2.3.2. AFCA/GCSM:

A2.3.2.1. Maintains a record copy of all published AFMQCCs.

A2.3.2.2. Coordinates new AFMQCCs with appropriate MAJCOMs to determine Air Force-wide applicability and estimated distribution requirements. (NOTE: AFMQCCs with an estimated distribution of 15 or less, or fewer than 5 "critical performance checks," are not published as an AFMQCC, but are returned to the submitter for local use.)

A2.3.2.3. Assigns AFMQCC control numbers as appropriate, and forwards new AFMQCCs to HQ USAF/ILMM for approval.

A2.3.2.4. Publishes AFMQCCs and changes as required.

A2.4. AFMQCC OPR Responsibilities.

A2.4.1. HQ USAF/ILMM assigns OPRs for AFMQCCs which are listed in Air Force Index 28, Numerical Index of Air Force Maintenance Quality Control Checksheets and Communications-Electronics Maintenance Instructions. (NOTE: MAJCOM OPRs may appoint "unit level OPRs" for appropriate AFMQCCs, but MAJCOMs retain overall responsibility.)

A2.4.2. AFMQCC OPRs:

A2.4.2.1. Format AFMQCCs according to this attachment. Updated AFMQCCs are treated as new requirements and routed per paragraph **A2.7.**

A2.4.2.2. Biennially review appropriate AFMQCCs for continued need, accuracy and currency. Provide AFCA/GCSM changes and updates as required.

A2.4.2.3. Evaluate and validate AFMQCCs before forwarding to AFCA/GCSM for publication.

A2.5. General AFMQCCs.

A2.5.1. Minor and common pieces of equipment may not need a separate AFMQCC, but may be covered by general-type AFMQCCs.

A2.5.2. Similar items of equipment (such as fuse panels, station batteries, panels, power supplies, etc.) may be included in a general AFMQCC. They contain those checks common to all or most of the similar equipment items. If required, local units may add additional checks for an individual equipment type.

A2.5.3. Use general checksheets in conjunction with equipment specific checksheets.

A2.6. Local MQCCs.

A2.6.1. COM/CMSFs authorize the use of local MQCCs. Forward local MQCCs with more than 5 critical performance checks through MAJCOM channels for processing according to paragraph **A2.7.**

A2.6.2. Local MQCCs:

A2.6.2.1. Are conspicuously marked or labeled as local MQCCs.

A2.6.2.2. Do not retain or use local MQCCs after an Air Force or MAJCOM MQCC is published on the same item of equipment, grouping of equipment (General MQCC), or management function.

A2.6.2.3. Supplement AF or MAJCOM MQCCs if local requirements dictate.

A2.7. Proposed AFMQCCs. (The format is outlined in paragraph **A2.9.**)

A2.7.1. MAJCOMs ensure evaluation and field-testing for proposed AFMQCCs prior to forwarding them to AFCA/GCSM, 203 W. Losey St, Rm 3065, Scott AFB IL 62225-5342.

A2.7.1.1. Forward original and 2 copies of the proposed AFMQCCs to AFCA/GCSM for processing.

A2.7.1.2. Submit proposed AFMQCCs "camera-ready" (publication quality) on AF Form 3900 (one side only).

A2.7.1.3. Leave the date, control number, and signature blocks blank. These areas are completed by AFCA/GCSM or Air Staff as appropriate.

A2.7.2. Include the projected number of requirements for proposed AFMQCCs.

A2.7.2.1. AFCA/GCSM queries other MAJCOMs to determine Air Force wide applicability.

A2.7.3. Proposed AFMQCCs not meeting the criteria above or formatted IAW paragraph **A2.9.** are returned for correction, update, or local use as appropriate.

A2.8. Changes to AFMQCCs.

A2.8.1. Forward changes (except for minor punctuation and spelling errors) as AFMQCC revisions. To revise an AFMQCC, the complete AFMQCC is re-accomplished and processed in the same manner as new AFMQCCs (paragraph **A2.7.**).

A2.8.2. Send changes to the appropriate AFMQCC OPR for consolidation and formatting as outlined in paragraph **A2.7.** Comply with MAJCOM and/or local procedures for changing their MQCCs.

A2.8.2. (PACAF) HQ PACAF/SCQ is the PACAF OPR for changes to C-E MQCCs.

A2.9. Checksheet Format.

A2.9.1. No specific format is required for AFMQCCs 100/200-series. Checks should be functionally grouped and comply with paragraph **A2.9.10.**

A2.9.2. Format AFMQCCs 300 through 1300-series as shown in paragraphs **A2.9.4.** through **A2.9.11.** (See **Figure A2.1.** for example)

A2.9.3. Format AFMQCCs 1500-series as shown in paragraphs **A2.9.4.** through **A2.9.11.** and additional sections as shown in the example in **Figure A2.2.**

A2.9.4. The Title block of the AF Form 3900 contains the nomenclature and noun of the equipment, normally the end item or system. If the title or type of equipment is not the end item, add the end item in parenthesis. EXAMPLE: AS-XXX Antenna Group (AN/GRT-XX Transmitter).

A2.9.5. Each section contains enough subparagraphs to determine overall performance, operation, and maintenance practices. Each subparagraph is limited to one sentence (if possible) and should be listed as a question that can be answered "yes" if the condition is correct and "no" if incorrect.

A2.9.6. Sections A and B contain, as a minimum, the checks shown in **Figure A2.1.** (Sample AFMQCC, general equipment). Use as many general purpose checksheets as applicable to the equipment being evaluated (i.e., AFMQCC 100-1, 100-3, etc.). Do not duplicate checks currently published in existing general purpose checksheets. Add additional checks if required.

A2.9.7. Section C contains checks to identify those critical parameters which best indicate the overall operation of the equipment. Parameters used to safeguard equipment, such as over-temperature indications, are considered critical. Critical performance checks are determined by the work center and maintenance support personnel.

A2.9.8. Section D contains checks of other useful parameters performed if critical parameters fail to meet TO specifications.

A2.9.9. Do not use specific equipment parameter values (i.e., voltage and frequency measurements, etc.) in AFMQCCs.

A2.9.10. Provide specific references for each equipment parameter and evaluation item. Show the basic publication and paragraph.

A2.9.11. AFMQCCs will contain all sections of the standard format. Although a specific section may not apply, include it and note as "not applicable."

A2.10. Obtaining AFMQCCs.

A2.10.1. AFMQCCs are listed in Air Force Index (AFIND) 28.

A2.10.2. Products may be obtained from the Internet (**http://www.afca.scott.af.mil/c-e_maint/mqccs.htm**) or accessed through links provided on the 81 TRSS QMAIL CD-ROM .

Figure A2.1. Sample AFMQCC (300 through 1300 series) Checksheet

QUALITY CONTROL CHECKLIST

TITLE:	OPR:	CONTROL NO:	PAGE OF DATE:

REQUIREMENTS	YES	NO	REMARKS
This AFMQCC is not directive. Any conflict between the contents of this AFMQCC and TOs or other directives should be resolved in favor of the TO or directive.			
This AFMQCC will be used in conjunction with AFMQCC 100-1, Records/Physical Condition and AFMQCC 200-1 C-E Grounding Systems. MS evaluations are not limited to the checks in these MQCCs. The MS evaluator may add any additional checks needed to ensure a complete evaluation is performed.			
Reviews, corrections, or changes to this AFMQCC should be processed per AFI 21-116, Attachment 2.			
REFERENCES: AFI 21-116 dated 1 Sep 97 AFMQCC 100-1 dated 1 Mar 96 AFMQCC 200-1 dated 5 Aug 97 TO (List applicable Technical references)			
A. RECORDS, TEST EQUIPMENT, TOs, ETC.:			
1. Are all records, test equipment, and TO inspection items from AFMQCC 100-1 Records, Physical, and Operational Condition satisfactory? (Ref: AFMQCC 100-1)			
2. Have all applicable PMIs been scheduled? (Ref: Appropriate TOs)			
3. (Other equipment peculiar evaluation items, such as checking ATCALS facility records, may be included in this section.)			
B. PHYSICAL CONDITION AND MODIFICATIONS:			
1. Are all physical condition and modification inspection items of AFMQCC 100-1, Records, Physical, and Operational Condition satisfactory? (Ref: AFMQCC 100-1 and other Appropriate TOs)			
2. Are all ground connections properly connected? (Ref: AFMQCC 200-1)			
3. (Other equipment peculiar evaluation items concerning the physical condition or modification of the particular equipment may be included in this section.)			
C. CRITICAL PERFORMANCE STANDARDS - MANDATORY EVALUATION ITEMS:			
D. OTHER PERFORMANCE STANDARDS - OPTIONAL EVALUATION ITEMS			

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Figure A2.2. 1500 Series AFMQCC

QUALITY CONTROL CHECKLIST

TITLE:	OPR:	CONTROL NO:	PAGE OF DATE:

REQUIREMENTS	YES	NO	REMARKS
This AFMQCC is not directive. Any conflict between the contents of this AFMQCC and TOs or other directives should be resolved in favor of the TO or directive. This AFMQCC will be used in conjunction with AFMQCC 100-1, Records/Physical Condition and AFMQCC 200-1 C-E Grounding Systems. MS evaluations are not limited to the checks in these MQCCs. The MS evaluator may add any additional checks needed to ensure a complete evaluation is performed. Reviews, corrections, or changes to this AFMQCC should be processed per AFI 21-116, Attachment 2. **REFERENCES:** AFI 21-116 dated 1 Sep 97 AFMQCC 100-1 dated 1 Mar 96 AFMQCC 200-1 dated 5 Aug 97 TO (List applicable Technical references) ---------- **A. RECORDS, TEST EQUIPMENT, TOs, ETC.:** 1. Are all records, test equipment, and TO inspection items from AFMQCC 100-1 Records, Physical, and Operational Condition satisfactory? (Ref: AFMQCC 100-1) 2. Have all applicable PMIs been scheduled? (Ref: Appropriate TOs) 3. (Other equipment peculiar evaluation items, such as checking ATCALS facility records, may be included in this section.) **B. PHYSICAL CONDITION AND MODIFICATIONS:** 1. Are all physical condition and modification inspection items of AFMQCC 100-1, Records, Physical, and Operational Condition satisfactory? (Ref: AFMQCC 100-1 and other Appropriate TOs) 2. Are all ground connections properly connected? (Ref: AFMQCC 200-1) 3. (Other equipment peculiar evaluation items concerning the physical condition or modification of the particular equipment may be included in this section.) **C. CRITICAL PERFORMANCE STANDARDS - MANDATORY EVALUATION ITEMS:** **D. OTHER PERFORMANCE STANDARDS - OPTIONAL EVALUATION ITEMS**			

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Figure A2.2. Continued

QUALITY CONTROL CHECKLIST			
TITLE:	OPR:	CONTROL NO:	PAGE OF DATE:

REQUIREMENTS	YES	NO	REMARKS
E. DEPLOYMENT EVALUATION:			
1. Pre-deployment.			
2. Deployment.			
3. Employment:			
a. Unloading Equipment.			
b. Establishing C-E facilities.			
c. Maintenance.			
4. Redeployment:			
a. Teardown and packing.			
b Loading of equipment.			
c. Movement to home station and turn-in of equipment.			
F. OPERATIONAL-READY EVALUATION:			
1. Physical condition.			
2. Performance standards.			
(*NOTE*: This section should contain checks necessary to determine if equipment is operational and installed properly. If time is a factor, and a full technical evaluation cannot be performed, the operational-ready evaluation or an abbreviated technical evaluation should be performed prior to reporting the equipment ready to maintenance control.)			

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Attachment 3

AIR FORCE COMMUNICATIONS-ELECTRONICS MAINTENANCE INSTRUCTIONS (AFCEMI)

A3.1. Introduction. This attachment establishes the procedures to develop, publish, distribute, implement, file, and dispose of a series of specialized publications (AFCEMI) for standard C-E systems/equipment. AFCEMIs conform to the guidelines of this attachment.

A3.2. General.

A3.2.1. AFCEMIs are not published for use in place of Air Force Technical Orders (AFTO).

A3.2.2. AFCEMIs provide a means to issue temporary modifications, inspection and servicing requirements, operational performance checks, and special maintenance instructions related to standard C-E systems/equipment for which formal AFTO procedures are not published. AFCEMIs contain procedures or temporary modifications which are applicable to more than one MAJCOM.

A3.2.3. AFCEMIs are published only after determining that the supporting Air Logistics Center (ALC) or depot cannot produce the required technical data or implement a permanent modification.

A3.3. AFCA Responsibilities.

A3.3.1. Processes and publishes proposed AFCEMIs and changes.

A3.3.2. Maintains record copies of AFCEMIs.

A3.4. Format. Format modification type CEMIs as full page documents. Preventive Maintenance Inspection type procedures may be formatted as AFTO -6WC workcards (to fit 6-hole binders) or as full page documents, per OPR decision.

A3.5. New, Revised, or Changed AFCEMIs. Submit two "camera-ready" (publication quality) copies of proposed AFCEMIs through command channels to AFCA/GCSM, 203 W. Losey St, RM 3065, Scott AFB IL 62225-5234. Submit recommended changes, additions, or deletions through command channels to AFCA/GCSM.

A3.6. Numbering and Indexing. AFCEMIs are numbered in three series. Use the 100-series for instructions of a general nature, 200-series for special maintenance instructions and temporary modifications, and 300-series for inspection, servicing, and lubrication requirements and operational performance checks.

A3.7. Obtaining AFCEMIs. AFCEMIs are listed in Air Force Index 28. Products may be obtained from the Internet (**http://www.afca.scott.af.mil/c-e_maint/mqccs.htm**) or accessed through the 81 TRSS QMAIL CD-ROM.

A3.8. Implementation. Implement AFCEMIs on receipt unless otherwise specified. Schedule modifications, inspections, servicing, lubricating, and operational checks in the same manner as -6WC TOs/TCTOs.

A3.9. Documentation.

A3.9.1. Document accomplishment of AFCEMIs as follows:

A3.9.1.1. Scheduled Periodic Inspection, Servicing, Lubrication, and Operational Performance AFCEMIs. Use the same procedures as those used to document -6WC TO work cards.

A3.9.1.2. Special Maintenance Instructions/Temporary Modifications. Upon completion of the AFCEMI procedures, make appropriate entry on AFTO form 95, Significant Historical Data.

A3.10. AFCEMI Discrepancies.

A3.10.1. Submit discrepancies pertaining to AFCEMIs through command channels to AFCA/GCSM for resolution. Identify discrepancies within 30 calendar days of AFCEMI implementation, citing the deficient paragraph and action required to correct the discrepancy.

A3.10.2. AFCA/GCSM implements solutions of cited discrepancy within 30 calendar days of notification.

A3.11. Rescission of AFCEMIs.

A3.11.1. AFCEMIs are rescinded when no longer pertinent.

A3.11.2. Notify AFCA, through command channels, when an AFCEMI should be rescinded.

Attachment 4

ENGINEERING AND INSTALLATION PROJECT DOCUMENTATION

A4.1. Introduction. The following explanation of project documentation encompasses each stage of the project process, from requirement submission to the final solution. Normally the base or unit planning and implementation flight provides and maintains the project documentation listed below. Air Force Maintenance Quality Control Checksheet (AFMQCC) 200-3, Project Review, is used to ensure all management areas are addressed. This is not applicable to Air Intelligence Agency (AIA) installation projects.

A4.2. Submitting the Systems Requirement. Users identify C4 system requirements (using AF Form 3215 or equivalent) that can not be met with a non-material solution (by changing tactics, operational doctrine, training, policy, or procedures). The requesting organization must provide a point of contact, description of mission deficiency or need, and requirement need date. The base C4 Systems Officer (CSO) will develop or obtain a technical solution to satisfy the requirement. Refer to AFI 33-103, Requirements Development and Processing for additional guidance.

A4.3. Technical Solutions. The C4 Systems Officer (CSO) reviews the requirement and compares it with the C4 Systems Blueprint (commonly called the blueprint) to determine how current systems and other requirements may affect the requirement's solution. The CSO obtains a technical solution, sometimes with the assistance of the Base Systems Telecommunications Engineering Manager (STEM-B). The STEM-B provides a broad-range technical solution (with costs) within 30 days. The requester can use this information to proceed with the process. The technical solution is then included in the Blueprint, and prioritized for implementation. See AFI 33-103, Requirements Development and Processing, for more information.

A4.4. C4 Systems Blueprint.

A4.4.1. The C4 systems blueprint is a planning document that provides a broad picture of what the base infrastructure should be. It covers the existing infrastructure baseline, on-going programs and projects, the target architecture, and a series of phased implementations to satisfy the target architecture (prioritized requirements). Both upward (originate at base or MAJCOM level) and downward (requested from Air Force or higher level) generated requirements are included. When the STEM-B has completed the blueprint, it is approved by the host wing, then sent to MAJCOM for approval. As an implementation plan, the C4 systems blueprint breaks into phases, attaches a broad-range cost to each phase, and is a basis for the Blueprint Phase Implementation Directive (BPID). The STEM may further break BPIDS down into smaller phases called elements. Each MAJCOM tasks its subordinate wings or activities to provide a prioritized list of projects for which 38 EIG provides engineering and installation services.

A4.4.2. MAJCOMs consolidate individual wing submissions into a command production plan. The EI production plan, containing annexes for each MAJCOM and Air Force program, lists ongoing activities, the schedule for the next fiscal year, and planned activities for 2 years.

A4.4.3. As funding is obtained or missions change, requirements are either canceled, completed self-help, via contract or forwarded to EI. When the base decides to fund a phase in the blueprint, the base CSO advises the STEM-B to produce a BPID. If EI is chosen, the STEM-B will forward the

BPID to have a Program Manager (PM) assigned. After PM selection, an implementation survey is completed. In addition, a technical solution, program schedule and funding schedule will be provided. The PM will coordinate problems with the base C4 planner, customer and STEM-B prior to developing the Project Support Agreement (PSA). Refer to AFI 33-104 for additional guidance.

A4.5. Project Support Agreement. A Project Support Agreement (PSA) is used to outline those items which must be accomplished at the base level to support the installation. A PSA will be developed by an EI engineer for all requirements that will be accomplished by EI. The document is prepared after a site or desk-top survey by the project engineer. A Workload Identification Number (WIN) is assigned to the project and will be used as a reference through project acceptance. The PSA is coordinated with C4 users and all tasked agencies (maintenance, Civil Engineering, frequency management, etc.). Specific support requirements are tasked by the PSA, and must be completed prior to EI team arrival. A PSA endorsement is accomplished after review, and all concerns or recommended changes are addressed back to EI within 45 days. The Indorsed PSA (IPSA) will then become part of the EI project package. See AFMAN 33-105 for additional details on PSA contents.

A4.6. EI Project Package. After EI receives a PSA concurrence, a List of Materiels (LOM) will be developed and the items ordered. A detailed installation package is developed and team arrival scheduled. All EI projects are engineered and installed IAW the 31-10, 31W, and 31Z series Standard Installation Practices Technical Orders known as SIPTOs. EI project packages normally consist of two sections, TAB A and TAB B (refer to AFMQCC 200-3 for TAB contents). These contain all the information necessary for a project. Older project packages may differ in structure and forms used, but should still contain all the required information. Occasionally, a project must be amended to add material or change major portions of the package.

A4.7. Accepting the Solution.

A4.7.1. Structured acceptance procedures must be accomplished upon completion of an EI, contractor, or self-help project.

A4.7.2. The installation team performs three levels of testing.

A4.7.2.1. Pre-shakedown tests are performed to determine completeness of the installation, verify equipment condition and placement, and ensure safety standards are met.

A4.7.2.2. Shakedown tests are performed to determine whether the equipment meets performance specifications in the installed environment, and to detect and eliminate marginal parts and materiel before the operational tests.

A4.7.2.3. Operational tests demonstrate that the facility is properly installed and capable of performing its operational mission. Representatives from the O&M Maintenance Support activity will participate with the installation team to perform an acceptance evaluation in accordance with this instruction. Minor (deficiencies noted even though operational requirements are met) and major (operational requirements are not met) exceptions will be documented during the evaluation. Major exceptions must be cleared before the project is accepted. Minor exceptions are listed on the acceptance document (AF Form 1261) with the forecasted date of correction and activity responsible for correcting the problem. Applicable unit deficiencies (i.e., training, CAMS, procedures, etc) will be recorded on the MSEP special evaluation (AF form 2419) and routed per local procedures.

A4.7.3. C4 plans and implementation personnel normally process project completion documentation according to AFI 33-104. These documents officially relieve the installation activity of responsibility for the facility and equipment, and form a baseline to close out the project.

Attachment 5

TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) COORDINATORS

A5.1. Introduction. TMDE is critical to proper operation and maintenance of mission systems. Out of tolerance TMDE can cause mission systems to be misaligned or erroneously declared unserviceable. Man-hours and parts may be expended unnecessarily to restore already serviceable equipment. Personnel who use TMDE must understand their responsibilities and the procedures for the use and care of TMDE. Proper use, handling, storage, transportation, and calibration are essential to ensure TMDE accurately performs its function.

NOTE: Reference AFJQS 2EXXX-201P, Work Center Test Equipment Management, to accomplish task qualification training.

A5.2. Unit TMDE Coordinator Responsibilities.

A5.2.1. The unit TMDE coordinator is the liaison between the maintenance activity and PMEL. This does not preclude direct discussions between work center and PMEL technicians, but the TMDE coordinator must be aware of any problems in obtaining timely calibration and repair.

A5.2.2. Unit TMDE coordinators:

A5.2.2.1. Accomplish the duties and responsibilities as listed in TO 00-20-14 and 33-1-27.

A5.2.2.2. Act as the focal point between the maintenance activity and PMEL for minimizing and resolving TMDE calibration and repair support problems.

A5.2.2.2.1. Arrange for orientation and training for work center TMDE monitors.

A5.2.2.2.2. Accompany the COM/CMSF during visits to PMEL.

A5.2.2.2.3. Discuss unique requirements and TMDE support problems with PMEL, and resolve problems locally if possible.

A5.2.2.2.4. Keep the COM/CMSF advised of PMEL support problems.

A5.2.2.2.5. Elevate problems with PMEL support that cannot be resolved at the local level to the appropriate MAJCOM office.

A5.2.2.3. Forward TMDE calibration schedules to appropriate work centers.

A5.2.2.4. Establish procedures to identify when unit TMDE is turned in and picked up from PMEL.

A5.2.2.5. Verify the Urgency of Need Designator (UND), Force Activity Designator (FAD), and priority used are commensurate with the mission supported by the item when PMEL advises that parts have been ordered against a TMDE item.

A5.2.2.5.1. Validate that parts for TMDE can be ordered MICAP against the supported system or equipment if a MICAP condition is verified.

A5.2.2.5.2. Follow up with PMEL on TMDE that is in AWP or EIP status for over 30 calendar days.

A5.2.2.6. Process requests for priority calibration or repair only when justified to meet urgent mission requirements.

A5.2.2.7. Assist work centers to determine if TMDE in other work centers is available to use rather than requesting extension of a calibration due date.

A5.2.2.8. Ensure all TMDE coded for RSP, WRM, or subject to deployment is reflected on the master inventory.

A5.3. Work Center Supervisor and Work Center TMDE Monitor Responsibilities.

A5.3.1. Work center supervisors ensure compliance with user and organizational maintenance responsibilities and appoint a work center TMDE monitor to ensure TMDE is properly managed. Work center TMDE monitors perform a key role to ensure serviceable TMDE is available to work center technicians when and where it is needed.

A5.3.2. Work center supervisors and work center TMDE monitors:

A5.3.2.1. Must be familiar with TMDE management directives (TO 00-20-14, AF Metrology and Calibration Program, TO 33-1-27, Logistics Support of Precision Measurement Equipment, and TO 33K-1-100, Test, Measurement, and Diagnostic Equipment Calibration Notes - Maintenance Data).

A5.3.2.2. Initiate requisitions for new or replacement TMDE and monitor the status of TMDE requisitions. Request follow-up action be taken if the Estimated Delivery Date (EDD) does not satisfy mission requirements.

A5.3.2.3. Verify data on the master ID list when requested by unit TMDE coordinators.

A5.3.2.4. Perform and document scheduled user calibration actions.

A5.3.2.5. Turn in work center TMDE for calibration according to the calibration schedule and local procedures.

A5.3.2.6. Establish limited calibration requirements whenever possible. This eliminates time spent to calibrate unused functions or ranges and expedites return of the TMDE to the work center. However, before establishing limited calibration, consider the following:

A5.3.2.6.1. Determine the functions and ranges needed for all mission systems and equipment supported by the TMDE in the work center. TMDE needs to be calibrated only for those functions and ranges used.

A5.3.2.6.2. TMDE shared by two or more work centers must be calibrated for the ranges and tolerances required by each using work center.

A5.3.2.7. Request priority calibration or repair, through the unit TMDE coordinator, only when justified to meet urgent mission requirements. Pick up the TMDE from PMEL as soon as the priority calibration is completed.

A5.3.2.8. Request an extension of the calibration due date, through the unit TMDE coordinator, if loss of the TMDE will delay or prevent critical mission accomplishment.

A5.3.2.9. Provide or arrange for training of work center personnel on proper use and care of TMDE, including how to determine calibration condition and limitations.

A5.3.2.10. Advise the unit TMDE coordinator of problems with TMDE calibration or repair support.

A5.3.2.11. Advise the work center project coordinator of problems in obtaining or calibrating TMDE needed to install or maintain mission systems scheduled for installation.

A5.3.2.12. Notify the COM/CMSF when the lack of TMDE impacts completion of the work center's mission.

A5.4. Replacement or New TMDE and Additional Requirements.

A5.4.1. Replacement TMDE may be required if PMEL is unable to repair an item of TMDE, or when an item is condemned or designated as obsolete. TO 33-1-27, Appendix II, lists obsolete or disposal TMDE items.

A5.4.2. When new or replacement TMDE is required, work center TMDE monitors:

A5.4.2.1. Determine if substitute items are acceptable.

A5.4.2.2. Notify the unit TMDE coordinator when TMDE items are turned in to or received from supply.

A5.4.2.3. Coordinate with the work center TO monitor to obtain applicable TOs for new TMDE and to dispose of TOs for TMDE which has been turned in.

Attachment 6

TIME COMPLIANCE TECHNICAL ORDER (TCTO) PROCESSING

A6.1. Introduction. Modification directives provide instructions to make system or equipment configuration changes that increase operational capability, correct deficiencies, or improve safety. Detailed guidance and codes for processing TCTOs are contained in AFCSM 21-556 Vol II and AFCSM 21-568 Vol II. Organizations without CAMS must establish an alternate method to process TCTO data.

A6.2. Processing Procedures.

NOTE: The following procedures describe the sequence of actions taken to process TCTOs in CAMS (**Figure A6.1.** and **Figure A6.2.**):

A6.2.1. After receiving four copies of each TCTO from the TODO, Maintenance Support gives Maintenance Control all four copies, and advises if the TCTOs are applicable to assigned systems or equipment.

A6.2.2. Within 5 workdays, regardless of applicability, Maintenance Control forwards two copies of the TCTO to the base supply Asset Management Flight, Inspection Element.

A6.2.3. When a TCTO concerning items assigned or in stock does not apply to serial numbers, models, or versions on hand, enter the TCTO into CAMS as "not applicable." Maintenance Support retains a copy of these TCTO's to check applicability against new equipment.

A6.2.4. When kits, parts, or tools are required, Maintenance Control enters the TCTO into CAMS and:

A6.2.4.1. Fills out section I of AF Form 2001, Notification of TCTO Kit Requirements. Send three copies of AF Form 2001 and one copy of the TCTO to Materiel Control. Base the quantity of kits required on the number of installed items to be modified plus the number of spares identified by base supply.

A6.2.4.2. Retains one copy of the TCTO in a suspense file along with the current CAMS TCTO status printout.

A6.2.4.3. Creates a workorder in CAMS for each item in stock or assigned which requires TCTO accomplishment.

A6.2.4.4. Changes the TCTO status code and schedules a TCTO workorder to the applicable work center to complete the TCTO when notified by Materiel Control that kits, parts, and tools are available and verified as correct and complete. .

A6.2.5. When kits, parts, or tools are not required, Maintenance Control enters the TCTO into CAMS and creates a workorder for each item assigned to the unit or kept in the base supply stock that requires TCTO accomplishment. Schedule the workorder to accomplish the work.

A6.2.6. When the TCTO is a depot-level modification, Maintenance Control enter the TCTO into CAMS.

A6.2.7. Maintenance Control coordinates with system users and applicable work centers to schedule the completion of TCTOs.

A6.2.8. Work center supervisors ensure proper TCTO CAMS documentation is completed.

Figure A6.1. TCTO Routing - Kits Required.

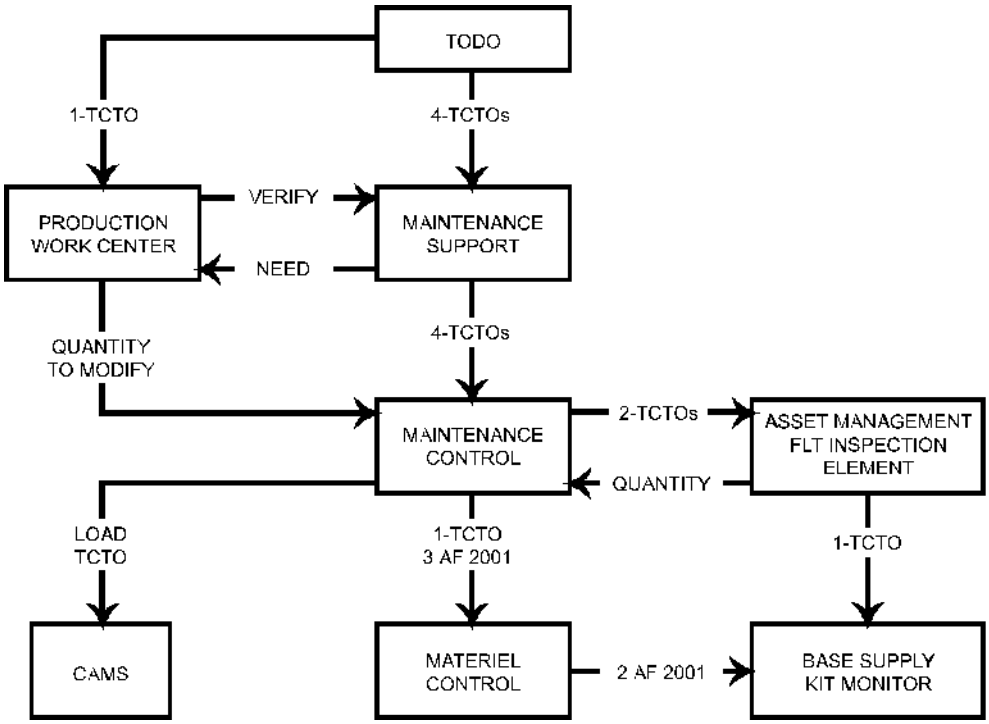
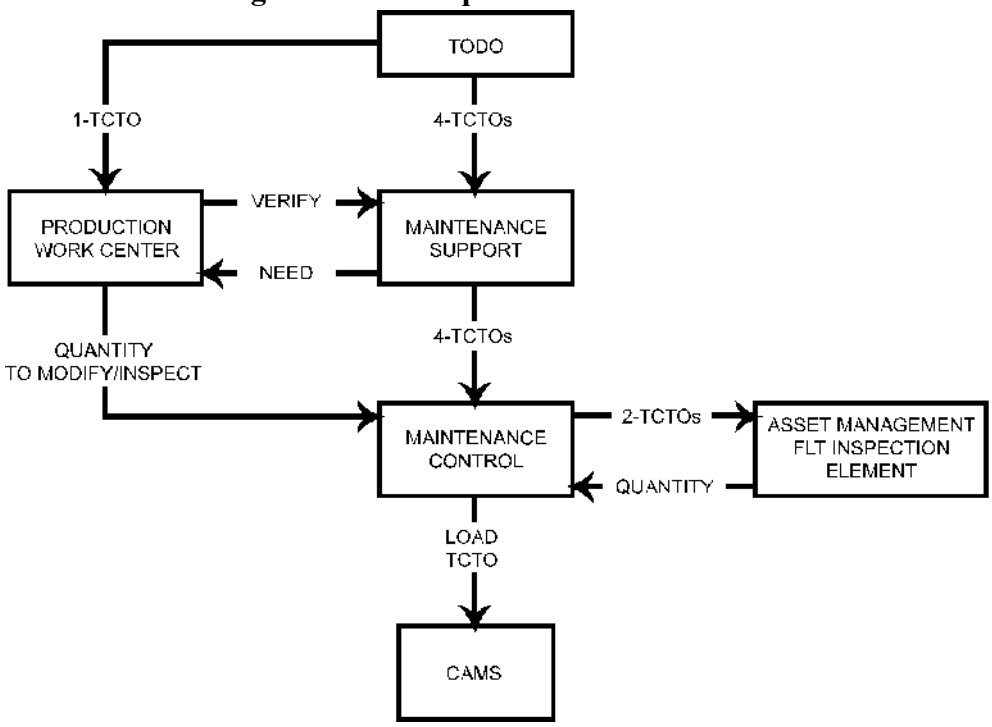


Figure A6.2. TCTO Routing - Kits Not Required.



Attachment 7

SAMPLING PLAN

A7.1. Introduction. This sampling plan uses reduced evaluation procedures.

A7.2. Using a Sampling Plan To Schedule Technical Evaluations.

A7.2.1. Population.

A7.2.1.1. The number of like equipment end items assigned to a work center will be used as the population for technical evaluations. Like equipment end items perform the same basic function, are of the same basic design, and are maintained using the same basic tests and alignments. For example, the AN/GRT-21 and AN/GRT-22 single channel VHF and UHF transmitters are considered like equipment end items.

A7.2.1.2. Some major end items, such as radar, are broken down into separate ID-numbered major assemblies or equipment groups to permit workload balancing according TO 00-20-1. In these cases, the number of separate ID-numbered major assemblies or equipment groups constitute the population to be inspected.

A7.2.2. The corresponding sample size is the minimum number of like equipment end items to be inspected.

Table A7.1. Sampling Plan To Schedule Technical Evaluations.

Sample Sizes					
Population	**Sample Size**	**Population**	**Sample Size**	**Population**	**Sample Size**
1	1	51-90	8	501-1200	50
2-15	2	91-150	13	1201-3200	80
16-25	3	151-280	20	3201-10000	125
26-50	5	281-500	32		

A7.2.3. Random Sampling.

A7.2.3.1. Use a random number table to determine the specific serial numbered or ID-numbered items to be inspected.

A7.2.3.2. Maintenance Support must ensure that the same serially numbered end items are not inspected during consecutive inspection periods when at least two other end items are available for evaluation.

A7.3. Using the Sampling Plan for Other Evaluation Requirements.

A7.3.1. The sampling plan is also useful to inspect any large population commodity, such as TO files, publication files, and bench stock bins. Rather than inspect 100% of a file, evaluation of an appropriate sample normally provides a reliable indication of the condition of the total file.

A7.3.2. If significant discrepancies are found in the sample inspected, it may be desirable to inspect a second sample to verify the consistency of errors.

A7.3.3. When documenting the results of a sample size evaluation, indicate the sample size as well as the number of discrepancies found. This provides supervisors a proper perspective of the results.

Attachment 8

PERSONNEL EVALUATIONS

A8.1. Performing Evaluations.

A8.1.1. Personnel evaluations are performed to determine a technician's technical proficiency and competence and to gauge work center training program effectiveness. Evaluators must make careful observations of actions taken to accomplish each task being evaluated by judging three separate and distinct phases; preparation, task, and post performance.

A8.1.2. Errors made in any of these phases must be considered when determining results. The decision to declare a performance error must be based on published standard maintenance practices and TO procedures.

A8.2. Preparation Errors.

A8.2.1. Preparation errors normally indicate inadequate training on standard job preparation procedures or maintenance management requirements:

A8.2.2. Task preparation mistakes cause delays; mistakes corrected before the task begins are considered preparation errors and if not corrected, may have a bearing on task performance. For example, if a technician sets up an oscilloscope that is overdue calibration, document this mistake as a preparation error. However, if the technician uses that oscilloscope during task performance, document the mistake as a Category I or II task performance error, depending on how serious the impact might be on system or equipment capability by using "out of tolerance" TMDE. Some preparation error examples are:

A8.2.2.1. TMDE overdue calibration.

A8.2.2.2. Applicable technical data not on hand.

A8.2.2.3. Tools or support equipment not obtained before task initiation.

A8.2.2.4. Support equipment missing needed parts.

A8.2.2.5. Equipment was improperly handled.

A8.2.2.6. Equipment status not checked to determine the existing condition.

A8.2.3. Examples of management type preparation errors:

A8.2.3.1. Maintenance Control not notified of changes in equipment status as a result of task performance.

A8.2.3.2. A JCN was not obtained for required documentation.

A8.2.3.3. There was no method available to document discrepancies discovered during the task performance.

A8.2.3.4. Safety briefing not conducted when required (Reference: AFOSH 91-50 and AFOSH 91-66).

A8.3. Task Performance Errors.

A8.3.1. Task performance errors normally indicate inadequate task training.

A8.3.2. Examples of task performance errors are:

A8.3.2.1. Applicable technical data or directives not used.

A8.3.2.2. Warnings, cautions, and notes not complied with.

A8.3.2.3. Not all required steps performed.

A8.3.2.4. Steps not performed in the required sequence.

A8.3.2.5. Individuals not familiar with emergency procedures.

A8.3.2.6. Individuals not familiar with job requirements, resulting in failure to comply with technical data.

A8.3.2.7. Tools or equipment improperly used or handled during task performance.

A8.3.2.8. Tools or TMDE overdue inspection or calibration.

A8.3.2.9. Tools or equipment damaged by improper use or handling.

A8.3.2.10. Controlling agencies not advised of changes in mission status which occur due to task performance.

A8.3.2.11. Lack of coordination with required agencies to ensure a safe, timely, and effective evaluation.

A8.4. Examples of Post Performance Errors:

A8.4.1. Maintenance documentation not properly completed.

A8.4.2. Parts required to clear equipment discrepancies not identified.

A8.4.3. Work area clean up actions not accomplished.

A8.4.4. Tools and support equipment not properly stored after task completion.

A8.4.5. Reparable assets not properly identified for turn in or repair.

A8.5. Task Performance Error Categories.

A8.5.1. Categories aid evaluators to determine overall task performance results. Errors are categorized by degree of seriousness:

A8.5.2. Category I errors are of critical importance and results in an unsatisfactory evaluation for that particular task. Some examples are:

A8.5.2.1. An error that causes or has the potential to cause an injury. Such an error is serious enough to stop the task evaluation.

A8.5.2.2. An error that causes or has the potential to cause damage to any item to the extent that it prevents the item from being immediately used for its intended purpose. This includes the item being worked on, all support equipment, or any other item in the work area.

A8.5.2.3. Task performance could not be completed because the individual lacked sufficient knowledge of the task or operation of required support equipment.

A8.5.2.4. An error that causes or has the potential to cause a security violation or a violation of weapon system safety rules.

A8.5.2.5. An out of tolerance condition or measurement was not recognized and resulted in the equipment not meeting technical data specifications.

A8.5.2.6. A valid/invalid measurement or check was not recognized or performed by the technician which resulted in an erroneous decision concerning equipment serviceability or caused a significant delay for unnecessary troubleshooting or repair actions.

A8.5.3. Category II errors are of major importance, but do not necessarily result in an unsatisfactory task performance. Some examples are:

A8.5.3.1. An error that causes or has potential to cause damage to any item but not to the extent that such damage has a detrimental effect on the operational life of the item.

A8.5.3.2. A violation of a standard maintenance practice such as improper use of TMDE or hand tools, improper soldering techniques, or inadequate corrosion control.

A8.5.3.3. Excessive delays attributable to insufficient job knowledge or improper planning, coordination, or supervision, although the task was successfully completed. The evaluator must determine what is excessive after taking into consideration such factors as complexity and length of the task, adverse working conditions, and other extenuating circumstances.

A8.5.4. Category III errors are of minor impact and lack the seriousness to meet the criteria for a critical or major error.

A8.6. Determining Results.

A8.6.1. Results are based on overall task performance.

A8.6.2. Evaluators must:

A8.6.2.1. Document all errors during the progress of the evaluation and brief the work center supervisor and the evaluated technician upon completion.

A8.6.2.2. Determine the category of each error, using the above criteria.

A8.6.2.3. Rate each task as satisfactory or unsatisfactory. If the sum of all the errors indicates the technician cannot satisfactorily perform the task unsupervised, an unsatisfactory rating is required.

A8.6.2.4. Brief the work center supervisor, certifying official, and the trainer as soon as possible when an unsatisfactory task performance occurs.

Table A8.1. Task Performance Evaluation.

RULE	If the individual Committed	AND	AND	Then the result is
One	No category I Errors	Two or less category II errors	The accumulation of Cat III errors did not detract from overall satisfactory job performance	SAT
Two	No category I errors	Two or less category II errors	The accumulation of Cat III errors caused Unsatisfactory performance	UNSAT
Three	No category I errors	Three or more category II errors	N/A	UNSAT
Four	One or more category I errors	N/A	N/A	UNSAT

NOTE: This table guides evaluators toward objectivity. Nevertheless, evaluator judgement will often be the determining element. Evaluators must determine the effect the category III errors have on task performance.

Attachment 9

SPECIAL MAINTENANCE TEAMS (SMT)

A9.1. Introduction. This attachment provides management procedures for SMTs. It also describes the relationships between SMTs and other programs.

A9.2. Mission. SMTs provide a specialized maintenance and training capability above those normally found in operations and maintenance (O&M) units. SMTs perform emergency restoral of failed or degraded facilities, systems, or equipment and provide follow-on training to prevent recurrence of the problem. Duties include cyclic performance evaluation of facilities and systems; use of test equipment and procedures not normally possessed in the O&M work center; improving maintenance techniques at the technician level; initiating modification proposals; assisting in the completion of modifications; assisting work centers with self-help Engineering-Installation (EI) projects; and providing qualification or proficiency training on equipment, systems, facilities, and associated test equipment that is beyond the unit's capabilities.

A9.3. Use of SMTs. SMTs are available for use by any communications unit with a validated need. Requesting MAJCOMs fund for requested SMT support. SMTs do not: perform organizational maintenance (on a routine or scheduled basis unless it is part of a training effort), provide upgrade training, or augment staff assistance teams or normal staff management functions unless directed by appropriate MAJCOM authorities.

A9.3. (PACAF) PACAF CSS/CC is the tasking authority for the SMT.

A9.3.1. (Added-PACAF) . Although the SMT is primarily dedicated to the PACAF mission, assistance to non-PACAF units will be provided as time and workload permit and only if the request and funding comes from the non-PACAF unit.

A9.4. Manning. SMT selection criteria, locations, SMT composition, and application instructions are in the ZEUS Special Category (SPECAT) Assignment Guide, which you can find in your Military Personnel Flight.

A9.4.1. (Added-PACAF) . SMT candidates send their application packages to PACAF CSS/SCM. The SCM will evaluate the packages and forward his/her selection to CSS/CC for approval. Upon approval, SCM will forward the name of the individual selected through the 2EXXX (FAM) to HQ PACAF/DP for assignment action.

A9.5. Responsibilities:

A9.5.1. MAJCOMs and direct reporting units manage and operationally control subordinate SMT assets.

A9.5.1. (PACAF) PACAF CSS/CC will operationally control SMT resources and direct SMT actions.

A9.5.2. MAJCOM SMT OPRs determine the use of these resources. SMTs:

A9.5.2. (PACAF) The SMT Chief is the MAJCOM SMT OPR.

A9.5.2.1. Identify and correct equipment or system deficiencies using special test equipment and advanced techniques not possessed by the O&M unit.

A9.5.2.2. Establish a training program to ensure team members are knowledgeable of maintenance techniques and special test equipment and applications.

A9.5.2.3. Provide projected training requirements according to command directives.

A9.5.2.4. Participate in the technical order and material deficiency programs (TO 00-5-1 and TO 00-35D-54).

A9.5.2.5. Provide assistance on other programs as established by MAJCOM headquarters.

A9.5.2.6. Assist O&M work centers to identify and resolve training deficiencies, maintenance techniques, or equipment defects.

A9.6. Relationship to Other Programs.

A9.6.1. SMTs are a prime source of assistance when system evaluation, training deficiencies, or corrective maintenance actions are beyond local unit capabilities.

A9.6.2. The following paragraphs explain the relationship between SMTs and some communications system evaluation programs:

A9.6.2.1. Engineering and Technical Services (ETS) Program. Training deficiencies that cannot be corrected by SMTs are identified to the MAJCOM for consideration of ETS assistance. The ETS program also provides training on new or hard to maintain systems.

A9.6.2.2. Operational Test and Evaluation (OT&E) and DISA Technical Evaluation Program (TEP)(DISAC 310-70-57). These evaluations refine estimates of the system's operational effectiveness and suitability; re-evaluate the system against changing operational needs; characterize the system and refine tactics, techniques, doctrine, and training programs; evaluate system changes; and identify deficiencies and confirm their correction. SMTs possess advanced technical knowledge, skills, and equipment which can assist OT&E and TEP evaluation teams.

A9.6.2.3. Evaluation of Air Traffic Control and Landing Systems (ATCALS). This program determines the operational capabilities and limitations of a given ATCALS facility. Air Traffic Control analysis is an independent evaluation of the air traffic services and procedures within airspace assigned to a particular facility. (NOTE: SMT members do not normally participate as ATC evaluators, but may assist to resolve equipment problems during or after the evaluation.)

A9.6.2.4. Acceptance of new C-E facilities. A C-E acceptance inspection determines if equipment is properly installed and operates according to established technical and performance standards. The inspection consists of a review of the operational test results, physical review of the installation, and verification of associated documents. SMTs may augment O&M units, as directed by higher headquarters, but will not accept new C-E facilities.

A9.6.2.5. Performance Evaluation Program (PEP) of Defense Information Infrastructure (DII) (DISAC 310-70-57, Supplement 5 and DISA Area supplements). This program's main objective is improvement of the DCS by evaluating operational facilities to identify deficiencies and problem areas which affect a station's operational capability, service to users, or system reliability. It also identifies significant problem areas to higher headquarters for timely corrective action. (NOTE: SMT members do not normally participate as PEP evaluators, but may assist to resolve equipment problems during or after the evaluation.)

A9.6.2.6. Radar Evaluation Program. This program provides periodic evaluation of each radar operational capability to measure radar reflectivity, range, azimuth, and height of reflected phenomena. The technical report on each radar evaluated assesses its operational capability and identifies significant deviations from standard operating characteristics.

A9.6.2.7. Defense Switched Network (DSN) Evaluation Program (DISA Area Regulations 195-Series). Program objectives are to provide in-depth evaluation of the DSN switching center to include items such as management techniques and timely detection and correction of identified problems. (NOTE: SMT members may assist to resolve problems during or after the evaluation.)

A9.7. (Added-PACAF) . Assistance from Special Maintenance Teams. All requests for SMT assistance will be submitted to the SMT by the most appropriate means for the situation. However, the preferred method is by official message to PACAF CSS/SCM. Requests for emergency assistance may be made by telephone; however, a record copy is required within 24 hours. Requests must be initiated from the unit COM/CMSF level, as it applies, or higher.

A9.7.1. (Added-PACAF) . Direct telephone contact between the unit and the SMT is required before approval of on-site SMT assistance.

A9.7.2. (Added-PACAF) . Format for SMT assistance. Requests for assistance will include: Unit designation and location, Equipment nomenclature, Brief description of problem (operational/technical) or requested assistance (training, optimization), Name and DSN number for unit point of contact, Date assistance is required, and Impact if requested date is not met.

A9.8. (Added-PACAF) . Unit Support for the SMT. When SMT assistance is requested, the COM/COSF will ensure the following on-site support is available for the team: Unit coordinator/point of contact, required equipment/system downtime, required test equipment is available and properly calibrated, qualified 5/7 level technicians to assist the team, administrative, logistics, and other support as required, and ensure necessary followup and corrective actions are taken on discrepancies identified by the team.

ATTACHMENT 10

CONSOLIDATED REPAIR ACTIVITY (CRA)

A10.1. Introduction. This attachment contains the guidance, responsibilities and procedures to establish and manage a CRA. It authorizes the consolidated repair for direct maintenance of C-E equipment; it also authorizes indirect off-equipment maintenance for designated equipment components. It applies to all Air Force organizations using a consolidated repair concept to repair C-E equipment.

A10.2. Basic Concept of Consolidated Repair.

A10.2.1. Consolidated repair centralizes maintenance and supply resources at designated locations to support dispersed equipment. It integrates maintenance, supply, and other logistics elements providing a cohesive support program that enhances logistics responsiveness and operational effectiveness while reducing costs.

A10.2.2. CRAs consolidate tools, test equipment, spare and repair parts, and skilled personnel to provide a combination of logistic services for:

A10.2.2.1. Direct maintenance, on a dispatch basis, for unattended equipment.

A10.2.2.2. Direct, usually off-equipment, maintenance assistance for tasks beyond the capability of using organizations.

A10.2.2.3. Indirect off-equipment maintenance and direct maintenance of designated reparable equipment.

A10.2.2.4. Control and distribution of reparable assets received for shop processing.

A10.2.2.5. Accomplishing using command maintenance at a central location.

A10.2.2.5.1. Establish CRAs for one system or type of equipment and to perform command maintenance functions on the base or site of the CRA.

A10.2.2.5.2. CRAs which accomplish direct or indirect off-equipment maintenance may include a designated supply function, a dedicated satellite account, or a special support function within the supporting chief of supply complex. This function controls and processes reparable items and distributes serviceable items.

A10.2.2.6. Source of Repair (SOR). SORs are not CRAs as defined in this attachment; however, when jointly agreed to by a MAJCOM and HQ Air Force Materiel Command (AFMC), CRAs may perform SOR maintenance for AFMC. Such workload is defined in a project directive and implemented via project order.

A10.3. C-E Consolidated Repair Guidance.

A10.3.1. CRAs must provide clear economic advantages and an ability to sustain or increase maintenance and operational effectiveness. CRAs will not duplicate AFMC technology repair center (depot) capabilities unless agreed to by HQ AFMC.

A10.3.2. Specific C-E consolidated repair procedures are as follows:

A10.3.2.1. Note that the consolidated repair concept may be authorized when economic benefits are realized while effectively supporting operational readiness. Base decisions on logistics support considerations and not on maintenance factors alone. Assess tradeoffs between each type of maintenance support.

A10.3.2.2. Periodically evaluate maintenance programs and plans for all systems and equipment to determine if changes (either consolidation or non-consolidation) are appropriate. For existing systems, equipment, and components supported by a non-consolidated maintenance concept at least one of the following benefits must be demonstrated or projected against the cost of converting to and sustaining consolidation.

A10.3.2.2.1. Improved maintenance effectiveness through better utilization of personnel and equipment by developing a greater technical capability.

A10.3.2.2.2. Reduced manpower, equipment, and material.

A10.3.2.2.3. Reduced order, shipping times and transportation costs.

A10.3.2.2.4. Consider the impacts on:

A10.3.2.2.4.1. Inventory control point and depot source of repair.

A10.3.2.2.4.2. Automated management systems.

A10.3.2.2.4.3. Procedural changes, waivers, or alternatives.

A10.3.2.2.4.4. Financial and inventory accounting policies and procedures.

A10.3.2.2.4.5. Organizational structures and work center manning.

A10.3.2.2.4.6. One-time implementation costs.

A10.3.2.2.4.7. Engineering and technical services.

A10.3.2.2.4.8. Inter-service support agreements, where applicable.

A10.3.2.2.4.9. Programmed equipment life.

A10.3.2.2.4.10. Investment spares cost at all levels.

A10.3.2.2.4.11. Contractor maintenance.

A10.3.2.2.4.12. Geographical dispersal and relocation of equipment.

A10.3.2.2.4.13. Acquisition and life cycle support cost for common and peculiar equipment and tools.

A10.3.2.2.4.14. Obtaining required technical data.

A10.3.2.3. Implement the consolidated repair concept only with the concurrence of all involved MAJCOMs/agencies (e.g., maintaining, host, AFMC and Air Intelligence Agency) unless HQ USAF directs otherwise.)

A10.3.2.4. Evaluate the consolidated repair concept during the programming process for facilities, systems, and equipment and as a part of the maintenance planning cycle for new or improved systems.

A10.4. Consolidated Repair Concept Responsibilities.

A10.4.1. HQ USAF/ILMM establishes the overall guidance; reviews and approves plans, projects, programs, and management systems; and resolves proposed consolidation actions which do not have the concurrence of all involved MAJCOMs.

A10.4.2. MAJCOMs establish a focal point for CRA management:

A10.4.2.1. Continually monitor the support posture for assigned systems and equipment and periodically evaluate pertinent maintenance programs and plans to determine if changes are appropriate. Publish Maintenance Action Directive (MAD) authorizing and directing establishment of a CRA. MADs also identify equipment or systems supported by the CRA and any special funding arrangements, responsibilities, or procedures.

A10.4.2.2. Initiate action with other involved commands to establish CRAs and revise maintenance plans where appropriate.

A10.4.2.3. Coordinate changes to support posture with supported MAJCOMs.

A10.4.3. Note that supported MAJCOMs participate with maintaining commands to assess consolidation cost effectiveness and to develop CRA management procedures and other support functions, as necessary.

A10.4.4. HQ AFMC:

A10.4.4.1. Ensures maintenance plans and programs represent an integration of all support levels and logistics support plans identify specific procedures applicable to consolidated repair.

A10.4.4.2. Ensures consolidation efforts are compatible with the functions of the inventory control point or national inventory control point.

A10.4.4.3. Ensures both wholesale and retail level logistics management functions support the consolidated repair concept and its specific application.

A10.4.4.4. Participate with and supports MAJCOMs consolidation cost effectiveness assessments.

A10.4.4.5. Revises maintenance program plans and documentation to reflect consolidated repair when applied.

A10.4.4.6. Monitors system and equipment support postures and recommends consolidated repair to MAJCOMs when cost analysis indicates it is, or may be, appropriate.

A10.4.4.7. Ensures maintenance plans and programs include CRA requirements for new equipment and are outlined in the appropriate documents. (For example, Program Management Directive (PMD), Program Action Directive (PAD), and Integrated Logistics Support Plan (ILSP).

A10.4.5. Assess application of the consolidated repair concept as part of the maintenance planning cycle for systems and equipment being developed.

A10.4.6. Air Intelligence Agency (AIA) participates with involved MAJCOMs in all aspect of consolidation that affects cryptologic equipment.

A10.5. Authority To Establish CRAs.

A10.5.1. CRAs may be authorized in one of three ways:

A10.5.1.1. HQ USAF direction.

A10.5.1.2. Maintenance concepts. Maintenance concepts are normally developed during the acquisition programs concept, development, and validation phases. If maintenance support responsibility within the command can best be accomplished by a CRA, include this concept in the Integrated Logistics Support Plan (ILSP). Manpower, tools, test equipment, facilities, and other resources are programmed at this time.

A10.5.1.3. Maintenance policy reviews. Reviews of maintenance policies, procedures, and concepts for certain existing equipment may justify a consolidated repair concept. A CRA may be established if the economic analysis is favorable and HQ AFMC and affected MAJCOMs concur.

A10.6. CRA Alignment. CRAs are functionally responsible to the MAJCOM headquarters but organizationally assigned to a communications unit as outlined in appropriate MADs and unit manning documents (UMD). Operate CRAs as work centers within the unit's maintenance activity.

A10.7. Parent Unit COM/CMSF Responsibilities.

A10.7.1. Operate the CRA according to applicable MADs, this attachment, and command directives.

A10.7.2. Appoint production evaluators.

A10.7.3. Respond to O&M assistance requests.

A10.7.4. Coordinate with base supply to ensure effective CRA supply procedures.

A10.7.5. Provide MAJCOMs with updated lists of supported assets to ensure AFMAN 23-110V2CD, USAF Supply Manual, remains current. The list includes the National Stock Number (NSN), part number, and noun for each asset supported by the CRA. Submit recommended additions or deletions to the list of supported assets.

A10.7.6. Budget for the day-to-day operation and support of the CRA.

A10.8. CRA Responsibilities.

A10.8.1. Perform off-equipment maintenance which is beyond the capability of an O&M activity. Although a CRA does not normally duplicate depot capabilities, the CRA may be tasked to accomplish all maintenance for command supported equipment.

A10.8.2. CRAs may also be tasked to provide:

A10.8.2.1. On-site or telephonic assistance.

A10.8.2.2. Repair support to O&M activities under all MAJCOMs within a geographical area, or on a worldwide basis.

A10.8.2.3. Equipment modification beyond the capability of the O&M activity.

A10.8.2.4. On-equipment maintenance support when the CRA is collocated with operational equipment for which it is responsible.

A10.8.2.5. Training (in-house or on-site) on designated equipment.

A10.8.2.6. Special supply support and transportation of parts or subassemblies.

A10.8.2.7. Temporary O&M augmentation.

A10.9. Quality Assurance. Production inspectors appointed by the COM/CMSF may be assigned part time (additional duty) or full time, depending on workload. Production inspectors inspect all items repaired by a CRA. Tag serviceable items with DD Form 1574, Serviceable Tag Material, or DD Form 1574-1, Serviceable Label Material, affix an inspection stamp according to TO 00-20-3. Production inspectors perform NRTS verification of items beyond the CRAs ability to economically repair.

A10.10. Requests To Establish a CRA.

A10.10.1. Requests to establish a CRA in support of specific equipment, groups of equipment, or systems may be initiated at any organizational level. Submit requests through command channels.

A10.10.2. Requests should clearly demonstrate, through economic analysis, that the CRA provides overall savings while sustaining or enhancing operational requirements. Requests contain:

A10.10.2.1. Type of equipment (ATC radar, SATCOM, etc.), system (486L, Scope Signal III, etc.), nomenclature, noun, and NSN of item to be supported by the CRA.

A10.10.2.2. Location of equipment operation and operating organization, base, MAJCOM, and federal agency.

A10.10.2.3. Unit currently providing maintenance support.

A10.10.2.4. How maintenance is currently being performed.

A10.10.2.5. Problems associated with current support concept.

A10.10.2.6. Suggested CRA support concept.

A10.10.2.7. Proposed CRA location (parent unit, base, etc.).

A10.10.2.8. Additional maintenance facilities required to house the CRA.

A10.10.2.9. Describe any manpower actions required according to command regulations.

A10.10.2.10. Expected monetary savings. Use the format for economic analysis in AFI 65-501, Budget Guidance and Procedures.

A10.10.2.11. Additional documents supporting CRA establishment.

A10.10.2.12. Concurrence of other supported MAJCOMs.

A10.11. Manning. Staff CRAs to ensure efficient operation and effective workload flow. Identify manpower positions specifically authorized to support a particular CRA in the UMD under a functional account code peculiar to CRAs.

A10.12. Special Supply Procedures. All CRAs will comply with supply procedures outlined in AFMAN 23-110CD, USAF Supply Manual.

A10.13. Requests for CRA Assistance. Request CRA assistance according to MAJCOM requirements.

A10.14. Funding.

A10.14.1. Responsible MAJCOMs fund TDY and civilian pay.

A10.14.2. Trainee's parent units fund TDYs to train personnel at a CRA.

A10.14.3. Requesting MAJCOMs fund for CRA personnel sent TDY to provide technical assistance.

A10.14.4. Parts, material, packing, crating, and other base support costs are normally the responsibility of the MAJCOM when these support responsibilities are identified in the ILSP requiring the CRA maintenance concept.

A10.14.5. HQ AFMC reimburses material costs associated with workload performed under an approved project order (AF Form 185, Inventory Adjustment Voucher). Performing work centers include these requirements in their reimbursable operating budgets.

A10.15. CRA and SOR Workload Reporting.

A10.15.1. Report normal CRA workload according to TO 00-20-2.

A10.15.2. Do not report SOR workload, accomplished under an approved project order, in the MDC System. If required, MAJCOMs specify SOR workload reporting.

A10.15.3. Also note that if required, MAJCOMs specify reports required to support project order reimbursement billing.

A10.15.4. Remember MAJCOMs specify historical workload data retention requirements.

A10.15.5. Send newly issued project orders (AF Form 185), host-tenant support agreements, or other documented agreements where support is provided to MAJCOMs for review and further distribution or coordination.

Attachment 11

AIR TRAFFIC CONTROL AND LANDING SYSTEMS (ATCALS) CERTIFICATION

A11.1. Purpose. This attachment prescribes procedures and guidelines to ensure safe reliable ATCALS facility and equipment performance. COM/CMSFs ensure technicians comply with the provisions and intent of this instruction. COM/CMSFs coordinate actions (impacting operations) required by this instruction with the local Airfield Operations Flight (AOF) Commander or equivalent level of authority. Paragraph **A11.2.** through **A11.9.** relates specifically to ATC Radar and NAVAIDS while **A11.10.** through **A11.13.** relates specifically to ATC Radio. The remaining paragraphs in this attachment relate to all ATCALS (ATC Radar, NAVAIDS, and ATC Radios).

A11.2. Reference Flight Inspection and Reference Data Collection. Each ATCALS facility will have only one set of references. These references will be collected only when the system is optimized and are typically collected once. A Commissioning Flight Inspection, ATCALS Evaluation or Special (Reference) Flight Inspection and associated recorded reference data will constitute the facility references. ATC Radar may establish a Special Maintenance Team baseline if the ATCALS Evaluation Report is not available. The facility will be maintained and adjusted to these established references thereafter.

A11.2. (PACAF) If the facility cannot be returned to the established facility references, but facility performance meets or exceeds technical order specifications and can be verified with a ground check, the facility is considered usable. Perform complete data collection and forward existing facility reference data and newly recorded data to PACAF CSS/SCM within 5 duty days for analysis. PACAF CSS/SCM coordinates with SMT to determine if further adjustments are required, or if a special (reference) flight inspection should be accomplished to establish new facility references. If proper facility performance cannot be verified with a ground check, report the facility's condition to the senior air traffic control supervisor as unusable and request SMT assistance.

A11.3. Periodic Flight Inspection. Periodic flight inspections (with/without monitors) are performed to ensure ATCALS facilities are operating within flight inspection tolerances. Data collection is not required following a periodic flight inspection. Periodic Flight Inspection results may indicate maintenance actions are needed to return facility to established Facility References.

A11.3. (PACAF) An authorized certifier must be present during all scheduled flight inspections. If the facility is current on certification requirements and successfully passes the periodic flight inspections, the facility is considered useable. If adjustments are made during a periodic flight inspection, that prevents the facility from being returned to the previously established facility references, complete data collection is required. Provide the applicable ATCALS certification forms to PACAF CSS/SCM for analysis. PACAF CSS/SCM will determine if further adjustments are necessary, onsite SMT assistance is required, a new ATCALS evaluation is needed, or if the newly recorded data will be used as the facility reference.

A11.4. Facility Certification.

A11.4.1. ATC Radar and NAVAIDS certification is the act of validating current facility performance based on comparison with facility reference data. Results may indicate maintenance actions are needed to return the facility to established Facility References. All certifications require appropriate comments and signature on the AF Form 3600 (ATCALS Facility Certification Sheet). The Unit Commander will designate, in writing, task qualified technicians authorized to perform Facility Certi-

fications. AFETS/SMTs are authorized by the MAJCOM to perform Facility Certification where a unit may not have a qualified certifier available.

A11.4.1. (PACAF) Unit commanders designate, in writing, 5 or 7-level individuals as certifiers for each ATCALS facility. Technicians authorized to certify a facility must be 100 percent qualified on all 5-level core tasks on that facility, have successfully completed a personnel evaluation on that facility, meet the annual personnel evaluation requirement in paragraph **5.17.3.7.3.3.**, and be recommended by the work center supervisor. At deployed locations, facility certifiers must be 100 percent qualified on all locally applicable 5-level core tasks for each facility they certify. Certification authority expires when a technician exceeds 365 days beyond his or her most recent MSEP personnel evaluation. Commanders may revoke certification authority at any time.

A11.4.1.1. (Added-PACAF) . When an ATCALS facility requires any type of certification and a designated certifier is not available, immediately report that ATCALS as unusable to the senior air traffic control supervisor as directed in paragraph **A11.5.**

A11.4.2. Certification requirements.

A11.4.2.1. Annual. All ATCALS facilities will be certified every 336 days (+/- 15 days) by documenting the current facility performance readings on the appropriate Facility Reference Data form and comparing these readings to the facility reference data. If facility certification cannot be performed as required, the facility will be considered unusable (see **A11.5.**). Annual certification requires comparison of all facility reference data. Results may indicate maintenance actions are needed to return the facility to established Facility References. File annual certification data in Facility Record.

A11.4.2.2. Facility repair/adjustment. All ATCALS facilities will be certified after repairs or adjustments to any subassembly (e.g., transmitters, monitors, antenna systems and RF cables) which affects monitored parameters. Certification is accomplished by comparing affected readings to the Facility Reference Data. If the facility cannot be returned to established facility references, the Work Center supervisor, in concert with appropriate MAJCOM, will determine if Special (Reference) Flight Inspection is required for NAVAIDS or if SMT assistance is required for ATC Radar to establish new facility references.

A11.4.2.3. Special. Certification will be performed after an aircraft incident/complaint, Flight Inspection discrepancy, significant change to airfield environment (e.g. construction, snowfall), RF interference complaint, etc. Certification is accomplished by comparing appropriate readings to the Facility Reference Data. Results may indicate actions are needed to return the facility to established facility references.

A11.5. Unusable ATCALS Facilities/Equipment. Whenever equipment performance deteriorates to a point where the system is no longer capable of providing the required service, the condition will be immediately reported to the senior air traffic control supervisor. Determination to shut down the facility/equipment must be made by air traffic control. If the decision is made to continue using the system, document the condition on AF Form 3600 (ATCALS Facility Certification Sheet) and notify COM/CMSF immediately.

A11.6. Removing NAVAID Identification signals. Aircrews are trained to consider the navigation signal unreliable when identification is not received or the identification code is “T E S T” (- . ... -). The

removal of identification is not a substitute for Notice to Airmen (NOTAM) requirements. Remove identification or transmit "T E S T" identification when the NAVAID facility is out of service. The preferred method is to remove identification, and not transmit "T E S T", when performing maintenance.

A11.7. Facility Records.

A11.7.1. Maintain a facility record at each ATCALS facility subject to flight inspection. This record is a transitory portion of the equipment historical file. The site applicable forms prescribed in this attachment are mandatory and must be completely filled out. Superseded data should be retained in the work center equipment historical file for trend analysis.

A11.7.1. (PACAF) Work center supervisors or equipment certifiers will review facility records quarterly for completeness and accuracy. Establish the requirement and document completion in CAMS.

A11.7.2. The facility record contains the following information:

A11.7.2. (PACAF) Each facility record will be divided into six sections labeled as follows:

Tab 1 - Facility Certification and Technician Certification Designation Letter

Tab 2 - Facility Reference Data

Tab 3 - Preventive Maintenance Inspection Data

Tab 4 - PMI Ground Check

Tab 5 - Periodic Flight Inspection Reports

A11.7.2.1. Facility Certification. Contains the AF Form(s) 3600 (ATCALS Facility Certification Sheet) used to document all types of certifications and the data recorded during current annual Facility Certification. Annual certification will be annotated on a new AF Form 3600 (ATCALS Facility Certification Sheet), and all subsequent repair/adjustment and special certifications will be recorded and retained until the next annual certification.

A11.7.2.2. Facility Reference Data. Contains the reference flight inspection report and all data recorded following the reference flight inspection. Each page must be clearly marked, at the top, "FACILITY REFERENCE DATA".

A11.7.2.3. Preventive Maintenance Inspection (PMI) Data Collection. Contains data recorded during PMI's as required by ATCALS systems technical orders. All required blocks on the appropriate forms must be filled in. An explanation is required in the remarks section of the form if required data is not recorded. The remarks section of the form may be used to document trends/adjustments made during PMIs. (If adjustments are made during the PMI, the final reading will be recorded.)

A11.7.2.4. PMI Ground Check. Contains data recorded during PMI's to determine radiation characteristics as required by technical orders.

A11.7.2.5. Periodic Flight Inspection Reports. Contains the latest two periodic flight inspection reports and the Facility Data Sheet when performed, and will be maintained until superseded.

A11.7.2.6. Other Data. Should contain any site information not filed elsewhere, (e.g., Mobile Depot Maintenance, Special Maintenance Team, ATCALS Evaluations, Air Force Engineering and Technical Services trip reports, unique facility information, radar site parameter panel data, etc.).

A11.8. Exceptions. Deployable ATCALS are exempt from this instruction unless deployed and a flight inspection is accomplished, or aircraft utilize the system. Recording requirements are waived under actual combat conditions.

A11.9. Definition of Certifiable Parameters. Any parameter identified on the Facility Reference Data Form is a certifiable parameter.

A11.10. ATC Radio Equipment Certification.

A11.10.1. Certification is the act of validating current equipment performance based on parameters derived from applicable maintenance technical orders, FAA orders and AF CEMIs. Results may indicate maintenance actions are needed to return the equipment to established tolerances. All certifications require appropriate comments and signature on the AF Form 3600 (ATCALS Facility Certification Sheet). The Unit Commander will designate, in writing, task qualified technicians authorized to perform Equipment Certifications. AFETS/SMTs are authorized by the MAJCOM to perform Equipment Certification where a unit may not have a qualified certifier available.

A11.10.2. Certification requirements.

A11.10.2.1. Annual. All ATC radios and associated equipment will be certified every 336 days (+/- 15 days) by documenting the current equipment performance readings (on the appropriate Performance Verification Worksheet) and comparing those readings with tolerances specified in the applicable maintenance technical orders/CEMIs. If equipment certification cannot be performed, the equipment will be considered unusable. Determination to shut down the system/equipment must be made by air traffic control. Results may indicate maintenance actions are needed to return the equipment to established tolerances. Completion of annual certification will be documented on AF Form 3600 (ATCALS Facility Certification Sheet).

A11.10.2.2. ATC radio repair/adjustment. All ATC radio equipment will be certified after repairs or adjustments to any subassembly (e.g., transmitters, RF amplifiers, receivers, antenna systems, audio lines, RF cables or recorder subassemblies) which affects certified parameters (see **A11.13.**). If radio equipment cannot be returned to specified tolerances, the Work Center supervisor, in conjunction with the appropriate MAJCOM, will determine if SMT assistance is required to return the equipment to service. Document certification on AF Form 3600 (ATCALS Facility Certification Sheet) along with a brief description of adjustment/repair.

A11.11. Facility and Equipment/System Records.

A11.11.1. Maintain a facility record for each ATCALS facility where the equipment/systems are subject to certification. This record is a transitory portion of the equipment historical file. The applicable forms prescribed in this attachment are mandatory, must be filled out correctly, and will be maintained in the facility record. Superseded data may be retained in the work center equipment historical file for each end item and can be used for trend analysis.

A11.11.2. The facility record contains the following information:

A11.11.2.1. Equipment/System Certification. Contains the AF Form 3600 (ATCALS Facility Certification Sheet) used to document all types of certifications for each certified end item at that facility. Annual certification will be annotated on a new AF Form 3600 (ATCALS Facility Certi-

fication Sheet), and all subsequent repair/adjustment and special certifications will be recorded and retained until the next annual certification.

A11.11.2.1. (PACAF) For ATCALS Radio, maintain an AF Form 3600 for each end item at the facility requiring certification. Document all maintenance actions effecting certification for a period of 336 days beginning with the date of annual certification. At the end of this period complete a new AF Form 3600 to document subsequent annual certification, remove the previous AF Form 3600 from the facility record, and retain in the equipment's historical record for a period of two years.

A11.11.2.2. Performance Verification Worksheet. Contains data recorded during certification as required by ATCALS systems technical orders, AF CEMIs and FAA Orders. All required blocks must be filled out completely on the appropriate forms. An explanation is required in the remarks section of the form if all required data is not recorded.

A11.11.2.2. (PACAF) Maintain and file Performance Verification Worksheets for each item requiring certification in the same manner as the AF Form 3600.

A11.11.2.3. Other Data. Should contain any site information not filed elsewhere, (e.g., Mobile Depot Maintenance, Special Maintenance Team, ATCALS Evaluations, Air Force Engineering and Technical Services trip reports, unique facility information, antenna layout, frequency assignment, demarcation layout, etc.).

A11.11.2.4. (Added-PACAF) . Include current copy of the technician certification designation letter signed by the unit commander stating who is authorized to certify ATCALS communications equipment.

A11.12. Exceptions. Deployable ATC Radios are exempt from this instruction unless deployed and a flight inspection is accomplished, or aircraft utilize the system. Documentation requirements are waived under actual combat conditions. Radios used solely for the tactical control of military aircraft are exempt.

A11.13. Definition of Certifiable Parameters. Any parameter identified on the specific equipment Performance Verification Worksheet is a certifiable parameter.

A11.14. Forms Management Responsibility.

A11.14.1. IAW AFPD 10-9 and AFI 10-901, Lead Command is responsible for maintenance of AF Forms/AFTO Forms listed in this attachment. Proposed form changes and new form requests will be consolidated by the MAJCOM and submitted to the lead command for action.

A11.14.2. Forms Change Coordination. Lead Command must coordinate AF Form/AFTO Form changes with all MAJCOMs affected by proposed changes.

A11.14.3. Forms Review Process. Lead Command must review the ATCALS Certification Sheet whenever equipment or technical data changes. When new ATCALS equipment is added to the Air Force inventory, the Lead Command must identify certifiable parameters and draft a new ATCALS Certification Sheet and any required AFTO Form(s) 22. Process new and revised forms as stated in **A11.14.**

A11.15. ATCALS Certification Forms. The following forms are prescribed by this instruction:

FORM	TITLE
AF Form 3600	ATCALS Facility Certification Sheet
AF Form 3601	Non-Directional Beacon (NDB) Meter Readings
AF Form 3602	AN/FRN-44/45 Facility Reference Data
AF Form 3604	AN/GRN-32 Meter Readings
AF Form 3610	AN/GRN-30 Meter Readings
AF Form 3611	AN/GRN-31 Meter Readings
AF Form 3613	AN/GRN-30 Facility Reference Data
AF Form 3614	AN/GRN-31 Facility Reference Data
AFTO Form 500	DBRITE Facility Reference Data
AFTO Form 501	AN/FPN-62 Facility Reference Data
AFTO Form 502	AN/GPN-12 Facility Reference Data
AFTO Form 503	AN/GPN-20 Facility Reference Data
AFTO Form 504	AN/GPN-22 Facility Reference Data
AFTO Form 505	AN/MPN-14 Facility Reference Data
AFTO Form 506	AN/TPN-24 Facility Reference Data
AFTO Form 507	AN/TPN-25 Facility Reference Data
AFTO Form 508	AN/TPX-42 Facility Reference Data
AFTO Form 509	ATC Radio Transmitter Performance Verification Worksheet
AFTO Form 510	ATC Radio Receiver Performance Verification Worksheet
AFTO Form 511	ATC Radio Coupler Performance Verification Worksheet
AFTO Form 512	ATC Voice Recorder Performance Verification Worksheet
AFTO Form 513	ATC Console Performance Verification Worksheet

NOTE: The forms prescribed by this instruction and additional AF Forms/AFTO Forms prescribed by specific equipment technical orders will be used.

Attachment 12

SELECTING A LOGISTICS SUPPORT METHOD

A12.1. Determining the support method for new C4 systems and equipment.

A12.1.1. The criteria listed below are not all inclusive, but provide a basis in selecting the logistics support method that provides the greatest benefit from a cost and mission standpoint. Command logistics support may be considered if any of the following are not met, or are not feasible or cost effective as determined jointly by the requiring command and AFMC. Selecting central logistics support requires AFMC to complete acquisition logistics planning and programming according to DoDI 5000.2.

A12.1.2. The minimum selection criteria, in question form, are as follows:

A12.1.2.1. Is the system or equipment essential to a war time mission?

A12.1.2.2. Will the system or equipment be operated by two or more MAJCOMs, Services, or Federal Agencies?

A12.1.2.3. Will the system or equipment be procured in sufficient quantities to justify a central logistics support infrastructure?

A12.1.2.4. Is the anticipated life cycle of the system or equipment long enough to justify a central logistics support infrastructure?

A12.1.2.5. Does cost analysis indicate or predict that AFMC logistics support costs will be less than command logistics support costs?

A12.1.2.6. Will the system or equipment require follow-on engineering support from the Air Force, DoD, or Federal Government?

A12.1.2.7. Will the system or equipment require configuration management?

A12.1.2.8. Will the system or equipment require continuing software support?

A12.1.2.9. Will the system or equipment require integrated hardware or software support management?

A12.1.2.10. Will the system or equipment require depot maintenance?

A12.1.2.11. Will the system or equipment require formal technical data control such as TOs engineering change proposals, reprocurement data, engineering drawings?

A12.1.2.12. Will the system or equipment require formal AETC maintenance training?

A12.1.2.13. Does the system or equipment include a COMSEC requirement or function?

A12.2. Affirmative answers.

A12.2.1. Affirmative answers to a majority of the above questions suggests a strong consideration for centralized AFMC logistics support.

A12.2.2. If a centralized logistics support agency can not provide support in time to meet urgent mission requirements, command logistics support may be necessary as an interim measure. However,

such circumstances require formal acknowledgment by AFMC of its inability to provide the required support.

Attachment 13

ESSENTIAL CONSIDERATIONS FOR COMMAND-SUPPORT OF C4 SYSTEMS AND EQUIPMENT

A13.1. Cost effective life cycle logistics support. Cost effective life cycle logistics support requires timely and comprehensive planning.

A13.2. Minimum essential logistics support.

A13.2.1. Use the following as the minimum essential logistics support considerations and evaluate each as soon as possible after identifying a valid C4 requirement:

A13.2.1.1. Contract the most cost effective method to meet the requirement. (Consider Contractor Logistics Support alternatives and variations - Services only, Spares and services, interim contract support until organic becomes available, mixing government furnished equipment (GFE) with contractor services, etc.).

A13.2.1.2. Satisfy each integrated logistics support element. (Reference AFI 10-602)

A13.2.1.3. If using GFE, determine life cycle support requirements and coordinate planning with the supporting agency.

A13.2.1.4. Coordinate with AFMC to determine if COMSEC requirements apply.

A13.2.1.5. Configuration management and modification, and supply support (supply management, initial provisioning, life cycle system stockage, storage, disposal, transportation, etc.).

A13.2.1.6. Funding for procurement and ongoing operating and maintenance costs (life-cycle costs).

Attachment 14 (Added-PACAF)

PACAF SYSTEMS REQUIRING OUTAGE REPORTING

Equipment	PACAF Reliability Standard
ATCALS:	
AN/FRN-45	98%
AN/FRN-44	98
AN/GRN-30	98
AN/GRN-31	98
AN/FPN-62	96
AN/GPN-22	98
AN/GPN-12	97
AN/GPN-20	96
Weather:	
FMQ-18	96
AN/UMQ-13	97
WSR-88D (NEXRAD RDA/RPG)	96
AC&W Radar:	
AN/FPS-117	99.6
AN/FPS-124	99.9
AN/TPS-75	90
ARSR- 4	99.5

Attachment 15 (Added-PACAF)

IC 2004-1 TO AFI 21-116/PACAFSUP1, MAINTENANCE MANAGEMENT OF COMMUNICATIONS ELECTRONICS

22 JANUARY 2004

SUMMARY OF REVISIONS

This change provides new guidance to AFI 21-116, paragraph **5.17.3.7.2.2.** to allow the requirements of primary evaluations from 45 to 60 days. A bar (|) indicates revision form the previous edition.

5.17.3.7.2.2. In short tour locations, MS will perform these evaluations on newly assigned personnel within 60 days of assignment to the work center. Exclude dates away from the work center e.g., First Term Airman Center, Mobility school.