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SECRETARY OF THE AIR FORCE**

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Maintenance



DEPOT MAINTENANCE MANAGEMENT

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This Air Force Instruction (AFI) provides directive guidance for depot maintenance management. For policies and procedures used in planning and administering depot level contract maintenance programs, refer to AFI 63-101, *Acquisition and Sustainment Life Cycle Management*. This instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*, and provides additional guidance on requirements contained in AFPD 63-1/20-1, *Acquisition and Sustainment Life Cycle Management*, and AFPD 13-5, *Air Force Nuclear Enterprise*. This AFI applies to all major commands (MAJCOMs), the Air National Guard (ANG), Air Force Reserve Command (AFRC) and their subordinates. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication*. This publication may be supplemented, but supplements must be provided to the OPR of this publication for review prior to publication. Records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFMAN 33-363, *Management of Records*, and disposed of IAW the AF Records Disposition Schedule (RDS) located at <https://www.mv.af.mil/afirms/afirms/afrim/rims.cfm>.

SUMMARY OF CHANGES

This publication has been substantially revised and must be reviewed in its entirety. It defines depot maintenance, details depot maintenance responsibilities, and provides guidance for depot purchased equipment maintenance and maintenance requirements work packages. It also includes depot maintenance execution guidance that was previously found in AFI 21-101, *Aircraft and Equipment Maintenance Management*. This publication supersedes the portion of AFI 21-101 addressing depot maintenance requirements.

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Chapter 1

DEPOT MAINTENANCE MANAGEMENT

1.1. Depot Maintenance. This instruction provides guidance for the management of AF depot maintenance. The AF maintains three organic depots, all within Air Force Materiel Command. This AFI requires AFMC to develop, implement, and sustain AF depot maintenance.

1.2. Aircraft and Equipment Readiness. Aircraft and equipment readiness is the maintenance mission. The maintenance function ensures assigned aircraft and equipment are safe, serviceable, and properly configured to meet mission needs. Maintenance actions include, but are not limited to, inspecting, repairing, overhauling, modifying, preserving, refurbishing, troubleshooting, testing, and analyzing condition and performance. Supervisors must emphasize safety, quality, and timeliness in the performance of maintenance. The concept of quality maintenance must be fostered by each supervisor and technician to ensure the integrity and skill of maintainers are not degraded. To the greatest extent possible, maintenance is accomplished on a preplanned scheduled basis. Planning provides the most effective and efficient use of people, facilities, and equipment, reduces unscheduled maintenance, and allows for progressive actions toward maintaining and returning aircraft and equipment to safe operating condition. Conducting a bench check of components and proper control of repair cycle assets throughout the maintenance cycle are also critical elements of the equipment maintenance program. AF units must implement and manage the tasks specified in the scheduled program for their assigned aircraft and associated support equipment (SE). Preventive maintenance concepts are described in Technical Order (TO) 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, and TO 00-25-108, *Communications-Electronics Depot Support*.

1.3. Maintenance Discipline. It is the responsibility of all maintenance personnel to comply with all written guidance to ensure required repairs, inspections, and documentation are completed in a safe, timely, and effective manner. Supervisors are responsible for enforcing and establishing a climate that promotes maintenance discipline.

1.4. Technical Orders (TOs). AF TOs are published under the authority of the Secretary of the Air Force (SECAF). Compliance with TOs is mandatory, except as explained in TO 00-5-1, *AF Technical Order System*.

1.5. Modification Management. A modification proposal is a recommendation to alter the form, fit, function, or interface of an item, subsystem, or system. Refer to AFI 63-131, *Modification Program Management*, for modification management procedures.

1.6. Maintenance Information Systems (MIS). MIS refers to automated maintenance information systems that support and enable maintenance business processes. MIS will be used to document maintenance actions and determine fleet health. The information entered into the MIS will be accomplished IAW TO 00-20-2, *Maintenance Data Documentation*. MIS systems are clearly defined in TOs 00-20-1, 00-20-2, and 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*. Non-maintenance systems are considered management information systems which follow guidelines under separate AFIs.

1.7. Nuclear Weapons Related Materiel (NWRM). The accomplishment of depot maintenance on NWRM items, whether at organic or contract (commercial) sites, shall comply with AFI 20-110, *Nuclear Weapons-Related Materiel Management*.

1.8. Duty Shifts and Rest Periods. Depot maintenance personnel shall have their duty hours aligned to provide the best mission support. Civil service employee work hours are governed by the collective bargaining agreement and its local supplement and federal and state laws. Contracted civilian employee work hours are governed by the contract, federal, and state laws. Consider union requirements and climatic conditions when determining work schedules; local work/rest schedules for extreme temperatures are recommended by the Medical Group commander.

1.9. Civilian Visitors. Units shall not permit civilian visitors to operate any AF equipment or specialized vehicles. Civilian employees, contractor employees, and other civilian personnel who must operate AF equipment as part of their assigned duties are not considered civilian visitors.

1.10. Statutory Framework. Title 10 of the United States Code contains a number of sections addressing depot maintenance. The paragraphs below identify selected applicable code sections. NOTE: When necessary, authoritative interpretations or explanations of Title 10 provisions should be requested from the appropriate functional legal office.

1.10.1. Depot maintenance and repair is defined in Title 10, United States Code (USC) § 2460, *Definition of depot-level maintenance and repair*. It is defined as any action performed on materiel or software in the conduct of inspection, repair, overhaul, or the modification or rebuild of end-items, assemblies, subassemblies, and parts that requires extensive industrial facilities, specialized tools and equipment, or uniquely experienced and trained personnel that are not available in lower echelon-level maintenance activities, and is a function and, as such, is independent of any location or funding source and may be performed in the public or private sectors (including the performance of interim contract support or contract logistic support arrangements). Depot-level maintenance and repair also includes the fabrication of parts, testing, and reclamation, as necessary; the repair, adaptive modifications or upgrades, changes events made to operational software, integration and testing; and in the case of either hardware or software modifications or upgrades, the labor associated with the application of the modification.

1.10.2. Title 10, USC § 2464, *Core depot-level maintenance and repair capabilities*, defines the requirements for organic depot maintenance capabilities. Core depot maintenance are those which are necessary to maintain and repair the weapon systems and other military equipment (including mission-essential weapon systems or materiel), not later than four years after achieving initial operational capability, but excluding systems and equipment under special access programs, nuclear aircraft carriers, and commercial items. These capabilities are identified by the Secretary of Defense, in consultation with the Chairman of the Joint Chiefs of Staff, as necessary to enable the armed forces to fulfill the strategic and contingency plans prepared by the Chairman of the Joint Chiefs of Staff. Core depot maintenance capabilities are discussed in detail in Department of Defense (DoD) Instruction 4151.20, *Depot Maintenance Core Capabilities Determination Process*.

1.10.3. Title 10, USC § 2466, *Limitations on the performance of depot-level maintenance of materiel*, (the 50/50 rule) requires not more than 50 percent of the funds made available in a

fiscal year (FY) to a military department or a Defense Agency for depot-level maintenance and repair workload may be used to contract for the performance by non-Federal Government personnel of such workload for the military department or the Defense Agency. Any such funds that are not used for such a contract shall be used for the performance of depot-level maintenance and repair workload by employees of the DoD.

1.10.4. Title 10, USC §2469, *Contracts to perform workloads previously performed by depot-level activities of the Department of Defense: requirement of competition*, (the \$3 Million Rule) requires that depot-level maintenance and repair workloads that have a value of not less than \$3,000,000 (including the cost of labor and materials), that is being performed by a depot-level activity of the DoD, may not be changed to performance by a contractor or by another depot-level activity of the DoD, unless the change is made using merit-based selection procedures (for competitions among all depot-level activities of the DoD) or competitive procedures (for competitions among private and public sector entities.) Office of Management and Budget Circular A-76 does not apply to performance changes under this section.

1.10.5. Title 10, USC §2472, *Prohibition on management of depot employees by end strength*, requires that civilian DoD employees (including AF personnel) who perform, or are involved in the performance of depot-level maintenance and repair workloads, may not be managed on the basis of any constraint or limitation in terms of man-years, end strength, full-time equivalent positions, or maximum number of employees. These employees shall be managed solely on the basis of the available workload and the funds made available for such depot-level maintenance and repair.

1.10.6. Centers of industrial and technical excellence (CITEs) are addressed in Title 10, USC § 2474, *Centers of Industrial and Technical Excellence: designation; public-private partnerships*. Within the AF, the SECAF has designated three depot maintenance activities as CITEs: Oklahoma City Air Logistics Center (ALC), Ogden ALC, and Warner Robins ALC. CITEs shall engineer industrial processes and adopt best-business practices in connection with their core competency requirements in order to serve as leaders in their core competencies throughout the DoD and in the national technology and industrial base. CITEs are also permitted to enter into public-private partnerships (PPPs) with private industry or other entities outside the DoD. PPPs are discussed in detail in DoDI 4151.21, *Public-Private Partnerships for Depot-Level Maintenance*.

1.10.7. Title 10, USC § 2476, *Minimum capital investments for certain depots*, (the 6% Rule) discusses the minimum capital investment requirements for certain depots. It requires that each FY, the Secretary of a military department shall invest in the capital budgets of the covered depots of that military department a total amount equal to, but not less than, six percent of the average total combined workload funded at all the depots of that military department for the preceding three FYs. The capital budget of a depot is defined as including “investment funds spent on depot infrastructure, equipment, and process improvement in direct support of depot operations.”

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Assistant Secretary of the Air Force for Financial Management and Comptroller (SAF/FM) shall:

- 2.1.1. Establish AF budget policies and procedures, to include budget formulation, justification, and execution of Depot Purchased Equipment Maintenance (DPEM).
- 2.1.2. Establish and maintain financial management structures to determine funding priorities, to approve financial plans, and to ensure that funding resources are allocated and executed legally, effectively, and efficiently.
- 2.1.3. Issue operation and maintenance (O&M) direct funding/budget authority when Congress enacts the DoD appropriations.
- 2.1.4. Ensure obligations recorded by 30 September are valid and efficiently used to meet the AF's operational requirements.

2.2. Assistant Secretary of the Air Force for Installations, Environment and Logistics (SAF/IE) shall:

- 2.2.1. Provide policy for depot maintenance and for depot reporting requirements.
- 2.2.2. Collaborate with SAF/FM in developing appropriate budget exhibits and documentation to support the Planning, Programming, Budgeting and Execution (PPBE) process.
- 2.2.3. Coordinate financial planning, requirements, and budget estimates (including changes in the DPEM funding positions) with associated mission panels.
- 2.2.4. Validate/defend justification of maintenance requirements and budget estimates.
- 2.2.5. Report depot figures for DoD reporting requirements.
- 2.2.6. Develop an AF Depot Maintenance Strategy IAW **Chapter 3** of this Instruction.

2.3. Deputy Chief of Staff for Logistics, Installations, and Mission Support (AF/A4/7) shall:

- 2.3.1. Assist SAF/IE in providing guidance on the requirements generation process for financial planning and budget estimates.
- 2.3.2. Assist SAF/IE in coordinating financial planning, requirements, and budget estimates.
- 2.3.3. Assist SAF/IE in validating/defending justification of maintenance requirements and budget estimates.
- 2.3.4. Develop guidance for the management of depot maintenance.
- 2.3.5. Support SAF/IE in development of the AF Depot Maintenance Strategy IAW **Chapter 3** of this Instruction.

2.4. Deputy Chief of Staff for Operations, Plans and Requirements (AF/A3/5) shall:

- 2.4.1. Provide the force structure contingency scenarios in an unclassified electronic media to SAF/IE, AF/A4/7 and AFMC/CC.

2.5. Commander, AF Materiel Command (AFMC/CC) shall:

2.5.1. Ensure development, implementation, and sustainment of the capability necessary to satisfy depot maintenance requirements for AF managed equipment.

2.5.1.1. Develop a logistics requirements determination process for determining and prioritizing requirements. Ensure the process is integrated, standardized, and repeatable, and that it allows trade-offs for optimization at the AF enterprise level.

2.5.2. Develop and implement depot maintenance strategies, plans, and procedures, and collect and report data to satisfy statutory requirements, including:

2.5.2.1. Core logistics capability IAW Title 10, USC § 2464, *Core logistics capabilities*.

2.5.2.2. 50/50 stipulations and data reporting IAW Title 10, USC § 2466, *Limitations on the performance of depot-level maintenance of materiel*.

2.5.2.3. CITEs and PPPs IAW Title 10, USC § 2474, *Centers of Industrial and Technical Excellence: designation; public-private partnership*.

2.5.3. Develop and implement a process for assessing organic depot maintenance workload requirements and for making depot maintenance source of repair (DSOR) recommendations for non-Core workloads and source of repair decisions IAW AFI 63-101.

2.5.3.1. Assess availability of existing DoD depot capabilities that will satisfy additional AF requirements versus establishing new organic ALC capability or contract support.

2.5.3.2. Ensure development of dual DoD depot sources of repair within an area of responsibility and/or the need for multiple repair sources are justified and documented.

2.5.3.3. Ensure establishment or major expansion of overseas Government depot maintenance facilities is justified and documented. Ensure a continental United States (CONUS) repair source for each item is supported. (NOTE: The backup DSOR for all overseas workload programs is the CONUS DSOR.)

2.5.4. Develop financial planning and prepare budgets for depot maintenance requirements.

2.5.4.1. Provide funding for depot maintenance requirements through the PPBE including the program objectives memorandum (POM) and the annual planning and programming guidance (APPG) processes.

2.5.4.2. Develop and implement a productivity and work specification procedure to ensure performance to budget.

2.5.5. Provide processes to determine and substantiate depot maintenance workload.

2.5.6. Modernize depot facilities, processes, and equipment through the use of new technologies, production enhancements, and development of consolidated support facilities.

2.5.6.1. Review existing depot capabilities for capital equipment investments to modernize, replace, or update.

2.5.6.2. In collaboration with Program Managers (PMs)/Product Support Managers (PSMs)/Product Group Managers (PGMs), ensure capital investment actions are accomplished to provide for depot maintenance activities.

- 2.5.7. Implement procedures to assess processes for improvement and to ensure technical orders contain all data required to execute depot maintenance and demilitarization requirements.
- 2.5.8. Have a surge contingency plan that provides:
- 2.5.8.1. Guidance and procedures for a responsive capability to accelerate, surge, or compress depot maintenance or modifications.
 - 2.5.8.2. Procedures for approval or disapproval from the requesting PM of AFMC's projection of cost/impacts.
- 2.5.9. Ensure robust corrosion prevention and control execution for fielded assets.
- 2.5.9.1. Collect and report corrosion related cost data as required by the AF Corrosion Control and Prevention Executive.
 - 2.5.9.2. Develop funding forecasts to mitigate newly discovered corrosion problem areas.
 - 2.5.9.3. Support PM/PSM/PGM and cognizant engineering authority in developing substitution strategies for hazardous and expanded standards chemicals (to include Cd, Cr 6+, strontium chromate, lead, etc.).
- 2.5.10. Employ serialized item management (SIM) techniques. SIM is enabled through Item Unique Identification (IUID), automatic identification technology (AIT), automated information systems (AIS), and radio frequency identification (RFID).
- 2.5.11. Implement a process to control and document cannibalizations (CANN). Establish written guidance on individual responsibilities and specific procedures for cannibalization actions IAW **Chapter 13** of this Instruction.
- 2.5.12. Establish and sustain calibration capability to support maintenance requirements for depot maintenance activities.
- 2.5.13. Ensure depot activities document and report: flying hours; equipment inventory, status, and utilization; and equipment reliability and maintainability deficiencies and/or improvements. (Refs: AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*; AFI 21-118, *Improving Air and Space Equipment Reliability and Maintainability*; and TO 00-20-2.)
- 2.5.14. Ensure a Maintenance Standardization and Evaluation Program (MSEP) is established IAW **Chapter 8** of this Instruction.
- 2.5.15. Allocate resources to meet all mission requirements. Ensure the maintenance organizations are not overly tasked with augmentation duties outside maintenance functional areas.
- 2.5.16. Accomplish depot maintenance activation and business planning. Support development of depot maintenance requirements and planning for new system acquisitions.
- 2.5.17. Implement AF depot maintenance transition plans and manufacturing process procedures.

- 2.5.18. Maintain accurate data on Core, 50/50, and PPP for data call reporting from Headquarters Air Force (HAF).
- 2.5.19. Identify contract partnership workload that is CITE-related and validate the DSOR decision for contract versus organic CITE support.
- 2.5.20. Implement a process through which depot maintenance activities can request and receive engineering disposition for nonconforming technical problems that are outside published authority and new/revised procedures to facilitate equipment troubleshooting and repair procedures under work stoppage or anticipated work stoppage conditions.
- 2.5.21. Implement procedures and training for successful execution of DPEM.
- 2.5.21.1. Schedule and distribute annual memorandums announcing the DPEM process meeting.
 - 2.5.21.2. Publish an annual timeline and calendar of DPEM events that will ensure timely identification, validation, consolidation, and review of requirements in order to satisfy the timetable of HAF PPBE events.
 - 2.5.21.3. Establish processes and lead development and management of maintenance requirements work packages (MRWP) in collaboration with PMs and using commands.
 - 2.5.21.4. Provide guidance on the requirements generation process for DPEM across all the categories of commodities. Articulate the relationship between DPEM requirement and levels of funding and the impact of the unfunded requirement on work deferred and operational readiness.
 - 2.5.21.5. Ensure timely execution and tracking of obligations of DPEM funding.
- 2.5.22. Establish an Aircraft and Equipment Decontamination Program IAW **Chapter 13** of this Instruction.
- 2.5.23. Establish Foreign Object Damage (FOD) and Dropped Object Prevention (DOP) Programs IAW **Chapter 13** of this Instruction.
- 2.5.24. Establish a radiation protection program IAW Air Force Occupational Safety and Health Standard (AFOSHSTD) 48-9, *Radio Frequency Radiation (RFR) Safety Program*, when applicable.
- 2.5.25. Ensure a focal point is identified for environmental, safety, and occupational health requirements, compliance, and worker protection issues. Refer to AFPD 90-8, *Environment, Safety, and Occupational Health*, AFI 32-7080, *Pollution Prevention Program*, and AFI 32-7086, *Hazardous Materials Management*, for additional guidance.
- 2.5.26. Ensure strict adherence to technical data and management procedures.
- 2.5.27. Develop a Depot Maintenance Training Program that ensures maintenance is only performed by personnel who are trained, qualified, and certified, unless under the direct supervision of a trainer or certifier, IAW **Chapter 13** of this Instruction.
- 2.5.28. Ensure standardization of maintenance discipline, procedures, organizational structures, compliance, and management philosophy, IAW **Chapters 6 and 7** of this Instruction.

- 2.5.28.1. Develop a standard depot maintenance program detailing the roles, responsibilities and methodology for how aircraft, engines and commodities are planned, scheduled, inducted, handled, overhauled, repaired, tested, certified, and delivered by to the customer.
- 2.5.28.2. Develop standardized procedures and responsibilities for depot maintenance production, materiel management, and associated support activities.
- 2.5.29. Ensure the TO libraries are managed IAW TO 00-5-1.
- 2.5.30. Ensure a compliance-structured self-inspection program is established IAW **Chapter 13** of this Instruction.
- 2.5.31. Ensure a nuclear surety program is implemented (if applicable) IAW AFI 91-101, *Air Force Nuclear Weapons Surety Program*, and nuclear munitions are maintained, handled, and accounted for IAW AFI 21-204, *Nuclear Weapons Maintenance Procedures*.
- 2.5.31.1. For units possessing Nuclear Certified Equipment (NCE), ensure personnel are trained in the proper use of nuclear flagwords and mishap and deficiency reporting instructions IAW AFMAN 91-221, *Weapons Safety Investigations and Reports*, and AFI 91-204, *Safety Investigations and Reports*.
- 2.5.32. Deploy Maintenance Recovery Teams (MRTs) and equipment to recover aircraft IAW **Chapter 13** of this Instruction.
- 2.5.33. Ensure an orientation program is developed and conducted for all personnel newly assigned to all unit maintenance activities.
- 2.5.34. Establish procedures and controls for local manufacture.
- 2.5.35. Ensure the oil analysis program (OAP) complies with AFI 21-124, *Oil Analysis Program*.
- 2.5.36. Appoint a Stock Record Account Number (SRAN) engine manager (if a host unit), or a unit engine manager (UEM) (if a tenant unit), to accomplish duties outlined in TO 00-25-254-1, *Comprehensive Engine Management System Engine Configuration, Status, and TCTO Reporting Procedures*. For additional guidance, reference AFI 20-115, *Propulsion Management for Aerial Vehicles*.
- 2.5.37. Ensure depot maintenance requirements are considered by airfield management.
- 2.5.38. Establish a weight and balance (W&B) program IAW **Chapter 13** of this Instruction.
- 2.5.39. Establish a Functional Check Flight (FCF) Program IAW **Chapter 13** of this Instruction.
- 2.5.40. Develop an impoundment program and ensure compliance with the procedures IAW **Chapter 9** of this Instruction.
- 2.5.41. Develop procedures to control tools, equipment, and electronic devices from all wing agencies dispatching to aircraft parking/runway/taxi areas and aircraft maintenance areas IAW **Chapter 1**, **Chapter 10**, and **Chapter 13** of this Instruction.
- 2.5.42. Establish a waste management program IAW AFI 32-7042, *Waste Management*.

2.5.43. Establish a Precision Measurement Equipment Laboratory (PMEL) Program, and ensure it complies with AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Management*, and TO 00-20-14, *Air Force Metrology and Calibration Program*.

2.5.44. Establish emergency action procedures to respond to disaster control and severe weather IAW AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*, AFMAN 10-2504, *Air Force Incident Management Guidance for Major Accidents and Natural Disasters*, and AFI 10-229, *Responding to Severe Weather Events*.

2.5.45. Establish and enforce a flight Precious Metals Recovery Program, as applicable, IAW AFMAN 23-110, *USAF Supply Manual*, and TO 00-25-113, *Conservation and Segregation of Critical Alloy and Precious Metal Bearing Parts and Scrap*.

2.5.46. Ensure personnel are provided the appropriate Personal Protective Equipment (PPE) IAW AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*.

2.5.47. Ensure configuration control is maintained IAW TO 00-20-2.

2.5.48. Develop procedures to review, approve/disapprove aircraft surge request (acceleration or compression) and prioritize or make required allocation decisions when multiple requests compete for the same depot resources.

2.5.49. Develop a Quality Assurance Program IAW **Chapter 8** of this Instruction.

2.5.50. Develop an Aircrew Egress Systems Maintenance Program IAW **Chapter 12** of this Instruction.

2.5.51. Develop a Housekeeping Program IAW **Chapter 13** of this Instruction.

2.5.52. Develop procedures for depot maintenance support to grounded aircraft, engines, or major end items IAW **Chapter 13** of this Instruction.

2.5.53. Develop a program for management of land mobile radios and personal electronic and communication devices IAW **Chapter 13** of this Instruction.

2.5.54. Develop and publish AF Depot Maintenance Master Plan (DMMP) IAW **Chapter 6** of this Instruction.

2.5.55. Establish an Aircraft Structural Integrity Program (ASIP) IAW **Chapter 13** of this Instruction.

2.6. Lead/Using Commands shall:

2.6.1. Provide facilities and support (e.g., standard tools/equipment and MISs) for organizations performing depot maintenance or providing technical assistance at operating locations.

2.6.2. Provide flight crews to take aircraft to and return aircraft from depot facilities (for any flights unable to be accomplished by AFMC depot aircrews).

2.6.3. Assist AFMC in developing optimum aircraft surge compression specifications.

2.6.4. Support AFMC in accomplishing depot maintenance business, activation, and transition planning.

2.6.5. Support AFMC in assuring the success of the DPEM program.

2.6.5.1. Provide timely identification and submission of depot-level maintenance requirements to the appropriate level of indenture through the DPEM database.

2.6.5.2. Participate in the requirements validation processes. Provide representation and support to the MRWP development activities.

2.6.6. Provide AFMC with using MAJCOM data that is needed for reporting upon request.

Chapter 3

DEPOT MAINTENANCE MANAGEMENT PROCESSES

3.1. Business Planning Process (BPP). AFMC shall use the BPP to:

3.1.1. Determine the appropriate depot maintenance workload groupings and technology areas while attempting to achieve a balance of military necessity, economy, and effectiveness.

3.1.2. Size the AF's depot maintenance capability to accomplish workload requirements. Refer to DoD 4151.18-H, *Depot Maintenance Capacity and Utilization Measurement Handbook*, for additional detail.

3.1.3. Develop strategies for:

3.1.3.1. Establishing depot maintenance interservice support agreements (DMISAs).

3.1.3.2. Accomplishing Core and non-Core workloads. (NOTE: Foreign disclosure release shall comply with AFPD 16-2, *Disclosure of Military Information to Foreign Governments and International Organizations*.)

3.1.3.3. Achieving Core logistics capability (10 USC § 2464), 50/50 stipulation (10 USC § 2466), and PPP objectives (10 USC § 2474). See AFI 63-101.

3.1.4. Align and justify each capital investment to the accomplishment of AF strategic objectives.

3.2. Depot Maintenance Activation. AFMC is responsible for depot maintenance activation planning, which shall include, at a minimum, development of and/or coordination for:

3.2.1. Depot maintenance program as a source of repair to support system operation. For additional detail on depot maintenance activation planning, see AFI 63-101.

3.2.2. Government owned depot requirements estimates, to include cost estimates and schedules.

3.2.3. A process to ensure calibration and repair of support equipment IAW AFI 21-113 and TO 00-20-14.

3.2.4. A process to ensure parts obsolescence is addressed for the maintenance, upgrade, and replacement of depot equipment required for weapon system support.

3.3. Depot Maintenance Workload Transition. Except as may be waived IAW Title 10, USC § 2469, *Contracts to perform workloads previously performed by depot-level activities of the Department of Defense: requirement of competition*, depot maintenance workload that has a value of \$3,000,000 (including cost of labor and materials) or more and is being performed by a DoD depot shall not be changed to performance by a contractor or by another DoD depot unless the change is made using competition among all DoD depot activities or among private and public sector entities. Merit-based selection procedures shall be used for competitions among DoD depot activities. AFMC shall ensure depot maintenance workload transition planning includes the development and coordination of a depot maintenance transition plan. This plan shall address:

- 3.3.1. A process for coordinating the depot maintenance transition plan with the lead weapon system command.
- 3.3.2. Execution of the transition between the gaining and losing depot maintenance activities.
- 3.3.3. Training of depot maintenance personnel.
- 3.3.4. Facility modifications and military construction requirements.
- 3.3.5. Controls to prevent loss of tools, molds, and other tooling or fabrications during workload transition.
- 3.3.6. Handling, transporting, dispensing, and storing of hazardous materials associated with the transferring workload.
- 3.3.7. Support equipment and supply support.
- 3.3.8. Configuration management and calibration requirements.
- 3.3.9. Documentation (e.g., TOs, engineering requests, drawings, configuration data, and product support plans) associated with the transferring workload.
- 3.3.10. Related test program sets (TPSs) and software, including source code and documentation.

3.4. Capital Investment. The capital investment for new organic depot maintenance capability is a cooperative effort by the weapon systems' lead/using MAJCOMs, HQ AFMC, ALCs and PMs. To centrally account for new system depot activation costs and new or additional capability for existing systems, the AF uses a single capital investment funding appropriation line in conjunction with an acquisition program.

3.5. Depot Manufacturing. Depot manufacturing includes all forms of ALC manufacturing. It may be the transformation of raw materials into finished products or a component for a higher assembly and accomplished by hand or by machinery either on a large or small scale.

3.5.1. Manufacturing Capability and Processes. AFMC shall establish capability and processes for manufacture of items required for immediate needs and for stock when a commercial source is not available or is unacceptable.

3.5.1.1. Document efforts to obtain qualified commercial sources and/or when commercial sources cannot meet cost, performance, or responsiveness. **Note:** This requirement only applies when conducting depot manufacture for a customer within in the AF. Documentation shall include:

3.5.1.1.1. The product support impacts on applicable systems.

3.5.1.1.2. Lack of commercial support items to ascertain changes of status.

3.5.1.1.3. The reverse engineering or redesign of the requirement to produce an adequate data package for re-competition and the minimum quantity required before delivery of assets resulting from competition when the current technical data is not adequate to conduct a competitive procurement.

3.5.1.1.4. Impending material shortages that may endanger life cycle support and capability of a weapon system or equipment due to diminishing manufacturing sources and material shortages (DMSMS).

3.5.1.2. Determine and coordinate depot manufacture to ensure ALCs requisition material quantities sufficient to fill outstanding backorders plus the annual buy quantity for worldwide requirements.

3.5.1.2.1. Document that the quantities of items manufactured are not greater than the total expected peacetime consumption.

3.5.1.3. To the maximum extent, accomplish depot manufacturing with existing equipment, facilities, skills, and capacity.

3.5.1.3.1. New or expanded manufacturing capability shall be justified through a feasibility study to document alternatives before establishing any new manufacturing capability. These studies shall be included with the Capital Purchases Program (CPP), which is funded by the Air Force Working Capital Fund (AFWCF). (NOTE: This applies to repair and modification capabilities as well as manufacturing capabilities.)

3.5.1.3.2. Capital investment purchases shall be documented and justified with an approved workload IAW AFI 38-203, *Commercial Activities Program*.

3.5.1.4. Ensure that a product that does not conform to product requirements/specifications is identified and controlled to prevent its unintended use or delivery.

3.6. Depot Maintenance Strategic Planning. Depot maintenance strategic planning is the process used by the AF to articulate depot maintenance goals and objectives so that funding, requirements, equipment, manpower, infrastructure, recapitalization and business processes align to achieve these goals and objectives. AF depot maintenance strategic planning is an organizationally tiered process that ensures each echelon of AF management is working to achieve the depot maintenance goals and objectives and is synchronized with the Office of the Secretary of Defense (OSD) Depot Maintenance Strategy.

3.6.1. SAF/IE shall:

3.6.1.1. Develop and publish the AF Depot Maintenance Strategy every 5 years.

3.6.1.2. Ensure the AF Depot Maintenance Strategy supports compliance with statutory requirements, aligns with the OSD Depot Maintenance Strategy, AF Strategic Road Map, and the Quadrennial Defense Review (QDR).

3.6.1.3. Communicate AF depot maintenance strategic goals and objectives to the Integrated Life Cycle Management Executive Forum (ILCM-EF), OSD, and Congress.

3.6.1.4. Ensure metrics are identified and established in the AF Depot Maintenance Strategy and periodically assess performance to ensure the AF is achieving the desired strategic goals and objectives.

3.6.2. AF/A4/7 shall:

3.6.2.1. Support SAF/IE in development of the AF Depot Maintenance Strategy.

3.6.2.2. Provide notice to SAF/IE on business process initiatives that affect the AF Depot Maintenance Strategy.

3.6.3. AFMC/CC shall:

3.6.3.1. Develop and publish AF Depot Maintenance Master Plan (DMMP).

3.6.3.1.1. Ensure DMMP aligns with AF Depot Maintenance Strategy.

3.6.3.1.2. Publish a DMMP at least every 5 years.

3.6.3.1.3. Ensure DMMP identifies the initiatives and business processes to achieve the AF Depot Maintenance Strategy goals and objectives.

3.6.3.1.4. Identifies metrics for the initiatives and business processes identified in the DMMP.

3.6.3.2. Support SAF/IE's development of the AF Depot Maintenance Strategy.

3.6.3.3. Facilitate development of ALC implementation plans that support the DMMP.

3.6.3.4. Report metrics as identified in the AF Depot Maintenance Strategy to SAF/IE.

Chapter 4

DEPOT PURCHASED EQUIPMENT MAINTENANCE

4.1. Equipment Maintenance. This section establishes procedures for PPBE of depot level equipment maintenance requirements for AF weapon systems, sub-systems, and components that are funded through the O&M and research, development, test and engineering (RDT&E) appropriations with Air Force Element of Expense (AFEE) designators 540 through 546, 548, and 560. It does not apply to the O&M funded depot-level maintenance requirements that are managed through the AF WCF Consolidated Sustainment Activity Group – Supply Division ((CSAG-Supply), formerly Materiel Support Division (MSD)), contract logistics support (CLS) programs, and depot-level repairs funded as miscellaneous contract services.

4.2. Purpose. The DPEM Program provides a mechanism for AFMC to collectively identify, plan, program, negotiate, and budget for depot-level maintenance services provided by organic AF depots, depots of other Services, and contract repair sources. Repair requirements identified through the DPEM process represent substantial sustainment funding needs that are expressed in the POM and change proposal process used to develop the Future Years Defense Plan (FYDP). The requirements are also used in development of submissions for the President's Budget (PB), Budget Execution Review (BER), Financial Plans, and Program Budget Review (PBR).

4.3. AFMC. AFMC shall serve as the DPEM Executive MAJCOM and be the DPEM process owner. The DPEM process flows into the Centralized Asset Management (CAM) programming and execution process. Therefore, AFMC/CC shall:

4.3.1. Ensure appropriate AFMC organizations support the needs of using MAJCOMs by identifying repair requirements, building the MRWPs, and serving as a buyer of repair services to meet the needs. Provide for reviewing of maintenance requirements, negotiating work specifications, and performing a final validation of the requirement.

4.3.2. Ensure support to PMs/PSMs/PGMs in the requirements identification and validation process for depot maintenance activation.

4.3.2.1. Ensure timely preparation and delivery of essential AFWCF Consolidated Sustainment Activity Group-Maintenance Division ((CSAG-Maintenance), formerly Depot Maintenance Activity Group (DMAG)) rate and factor information used in the DPEM budgeting process.

4.3.2.2. Ensure timely obligation and reporting of DPEM funds execution.

4.3.2.3. Provide for organic source of repair by CSAG-Maintenance operations at the ALCs and the Aerospace Maintenance and Regeneration Group (AMARG).

4.4. DPEM Process Overview: The DPEM process involves a series of activities that identifies repair requirements, pricing of the requirements based on forecasts of CSAG-Maintenance and contractor sales rates, and validating of requirements. The validated requirements provide the foundation for DPEM requirements in the PPBE process. In the PPBE resource allocation process, funding strategies are applied to the requirements to arrive at a budgeted level of funding. The DPEM process has four main activities: requirement determination, budget preparation, program execution, and process control.

4.4.1. Requirements determinations are derived from a variety of data sources and adjusted for historical performance and forecast changes. The Force and Financial Plan (F&FP) provides information on the planned force structure and is the primary driver for repair requirements.

4.4.1.1. Requirements are categorized into nine commodity groups, and most commodity groups are further broken down into additional repair group categories (RGCs) that further define the type of work required. The commodity groups and associated RGCs are depicted below.

Table 4.1. Commodity Groups/Repair Group Categories.

			AF Element of Expense (AFEE) / Investment Code (IC)		
Commodity	Type of Work	RG C	Organic	Contract	Interservice
Aircraft	Programmed	A	54101	56100/56010	54102
	Unprogrammed	B	54101	56100/56010	54102
Missiles	Programmed	C	54201	56200/56020	54202
	Unprogrammed	D	54201	56200/56020	54202
Engines	Programmed	E	54301	56300/56030	54302
	Unprogrammed	F	54301	56300/56030	54302
Other Major Equipment Items (OMEI)	Programmed	G	54401	56400/56040	54402
	Unprogrammed	H	54401	56400/56040	54402
Exchangeables	Programmed	J	54501	56500/56050	54502
	Project Directive	K	54501	56500/56050	54502
	Unprogrammed	L	54501	56500/56050	54502
Area/Base Spt	TO 00-25-107, <i>Maintenance Assistance</i>	M	54601	56600/N/A	N/A
	Host/Tenant/PMEL	N	54601	56600/N/A	N/A
Manufacturing	Stock Fund Mfg	P	54601	56600/N/A	N/A
	Central Procured Mfg	R	54601	56600/N/A	N/A
Software	All	S	54001	56000/56000	54002
Storage	All	1	54801	56800/56080	N/A

4.4.1.2. Requirements identifications are made at the lowest level practicable. The repair requirements are identified to a specific program element (PE), weapon system, commodity, RGC, service provider (organic, contract, interservice), and Air Force Element of Expense/Investment Code (AFEE/IC). The relationship among commodities, RGCs, and AFEE/ICs for the DPDM program is shown above.

4.4.1.2.1. Requirements for Area/Base Support and Manufacturing are determined based on historical data and a forecast of known changes.

4.4.1.2.2. Storage requirements are based on aircraft retirements and the maintenance and/or re-preservation needs of stored items, as well as requirements for demilitarization and disposal. For additional detail, reference AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, and TO 1-1-686, *Desert Storage, Preservation and Process Manual for Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines*.

4.4.2. During each year, AFMC shall provide the DPEM community with CSAG-Maintenance and contract depot maintenance (CDM) pricing information essential to both requirements determination and formulation of the DPEM budget. The pricing information will consist of planning factors for POM (or change proposal) development and sales rates and prices for development of financial plans and PB submission.

4.4.2.1. The Estimated POM Planning Factor Table provides rate inflation factors to be used in estimating the costs of DPEM requirements beyond the budget year. The table data will be used to escalate costs so requirements are stated in “then year” dollars. For additional information, reference AFI 65-503, *US Air Force Cost and Planning Factors*.

4.4.2.2. The sales rates and prices for the AFWCF CSAG-Maintenance are published annually. The rates are set to recover full cost of operation, implement program budget decisions (PBDs), and achieve a zero balance accumulated operating result in the budget year as prescribed in DoD rate stabilization policy (ref. DoD 7000.14-R, *Department of Defense Financial Management Regulations*, Volume 2B, Chapter 9). DPEM Factor Table data is applied to basic repair requirements to determine the budget and out-year requirement in “then year” dollars.

4.4.3. The budget preparation process begins with the adjustment of DPEM requirements to reflect anticipated cost changes and ends with the submission of the proper budget exhibits to SAF/FM. Budget preparation guidance is provided through a variety of sources including: the Office of Management and Budget (OMB), the Under Secretary of Defense (Comptroller), SAF/FM, and AF/A4/7. Requirements are organized to support the PB, POM, BER, Financial Plan, and PBR.

4.4.3.1. In order to properly scope the size of the DPEM requirements, costs (current or historic) are adjusted for anticipated fluctuations. As described earlier in this section, the DPEM factor table is used to apply price factors to adjust requirements for various budget documents. In the POM submission process, AFMC may also include additional out-year requirements. The adjusted requirements represent the anticipated cost of accomplishing 100% of the maintenance actions if 100% of the forecasted requirements are generated. AFMC shall develop the active AF DPEM requirements and submit to AF/A4/7, Directorate of Resources, to develop the active AF budget submission. Courtesy copies of ANG and AFRC DPEM requirements data are also provided to AF/A4/7, Directorate of Resources, for informational use only.

4.4.3.2. The process of “applying funding” represents the budgeting process that seeks to obtain a funding level for a specified amount of the adjusted requirement. The funding level is expressed as a percentage of the total requirement or as a specific dollar amount. The funding levels are provided as a financial plan target for the upcoming execution or financial plan year, or from the Automated Budget Interactive Data Environmental System (ABIDES).

4.4.3.3. Once the DPEM requirements are developed and provided to AF/A4/7, Directorate of Resources, the resulting Depot Maintenance Program Summary (OP30) and Operation and Maintenance Aircraft, Engine and Software Maintenance (OP80) budget exhibits are then submitted to SAF/FM. AF/RE submits OP30 and OP80 budget exhibits directly to OSD Comptroller. ANG submits OP30 and OP80 budget exhibits directly to SAF/FM.

4.4.3.4. AFMC uses the financial plan to identify funded and unfunded requirements for the next FY. It provides financial information to SAF/FM pertaining to prior, current, and Financial Plan years. The Financial Plan portrays information by PE, DoD Element of Expense (DoDEE), and sometimes by AFEE/IC. If the requirement for a particular PE exceeds that PE's funding, then an unfunded requirement is included along with a description of the impacts. The Financial Plan also includes a detailed explanation of significant program changes from one year to the next.

4.4.3.5. A POM is submitted annually by each fundsholder (e.g., CAM, AFRC, NGB, etc.) to outline program requirements for inclusion in the update to the FYDP. As part of the DPEM POM process, AFMC submits POM data, via Resource Allocation Programming Information Decision System (RAPIDS). AFMC then provides AF/A4/7, Directorate of Resources, with a database file for use in extracting POM DPEM Funding Summary data. AF/A4/7, Directorate of Resources, participates in each round of the POM cycle. They represent and defend the AF DPEM program in each mission panel that governs a portion of the program.

4.4.4. In the DPEM program execution, PMs/PGMs serve as the supplier to the MAJCOM by purchasing the services necessary to accomplish the required maintenance actions from either organic AF, interservice, or contract repair sources.

4.4.4.1. The program execution report is the primary means of documenting funding agreements between the PMs/PSMs/PGMs and supplier. The supplier shall generate a program execution report to identify quarterly obligations of funds and an FY closeout report. HQ AFMC shall generate execution reports to identify planning program authority (PA) and initial budget authority (BA).

4.4.4.2. HQ AFMC shall develop the FY planning PA and BA based on the most recently validated requirements and submit the information at the program control number (PCN) level of detail to the supplier prior to the start of the FY. PMs/PSMs/PGMs may give the suppliers flexibility to realign funding among PCNs. Suppliers use planning PA for workload planning for the upcoming year and first quarter negotiations.

4.4.4.3. If a continuing resolution authority (CRA) is in place at the start of an FY, the suppliers ensure that production management follows the guidance accompanying the CRA.

4.4.4.4. HQ AFMC shall develop the initial BA using the latest funding information. The PMs/PGMs then provide the suppliers with an Operating Budget Authority (OBA) document or AF Form(s) 185, *Project Order*. This is the actual authorization for the suppliers to obligate funds. If a PM/PSM/PGM provides funding on an OBA document, the suppliers make the BA available to production management for obligation by loading

it into the Base Level General Accounting Finance System (H069). If PMs/PSMs/PGMs provide Obligational Authority (OA) on AF Form 185, the suppliers ensure the information is consistent with the PA in the Initial BA version of the program execution report.

4.4.4.5. BA and OA can be changed at any time during the FY.

4.4.4.5.1. BA funding change requests provided on an OBA document are made by PMs/PSMs/PGMs and sent to suppliers. These may be made at any time, but tend to follow the PM/PSM/PGM evaluation of a program execution report. After receiving the funding change requests, the supplier determines if it can be satisfied. If so, it is forwarded to program management for implementation, and the H069 is updated. If not, the PM/PSM/PGM is informed of the problem, and a solution is worked out. In order to increase funds tracking accuracy, the PM/PSM/PGM should supplement the OBA document with information that reconciles it to the official accounting system.

4.4.4.5.2. OA change requests to funding provided on AF Form 185 must be accompanied by a request to the supplier to change any funding in the program execution report. When the supplier changes the program execution report, the amended AF Form 185 is reviewed for consistency.

4.4.5. Process control is to ensure the DPEM process keeps up with procedures, process changes, and timely process execution and provides process information to the chain of command and users.

Chapter 5

SAFETY

5.1. General Safety Guidance. Maintenance personnel are exposed to a large variety of hazardous situations, machinery, equipment, and chemicals. Most hazardous situations can be avoided by following procedures, asking for help when needed, and using PPE. Supervisors must be knowledgeable of and implement the Voluntary Protection Program. They must also enforce AFOSHSTDs, TOs, and AFIs applicable to their operations and ensure personnel are educated on safety requirements applicable to the job. Examples of hazardous situations and programs covered in the AFOSHSTDs include, but are not limited to: confined space, fall protection, chemical safety, interior spray painting, and respirator safety.

5.2. Air Force Occupational, Safety, and Health (AFOSH) Guidance. Use AF functional directives and technical data in conjunction with AFOSHSTDs; see [Attachment 1](#) for AFOSHSTDs applicable to aircraft maintenance activities (this list is not all inclusive). If conflicting guidance exists, the weapon system specific technical data will take precedence.

Chapter 6

DEPOT MAINTENANCE SUPPORT

6.1. Depot Maintenance Production Support. Depot Maintenance strives to apply the right resources at the right time at point-of-use to execute a needs-driven production plan and schedule. AFMC/CC shall develop standardized procedures and responsibilities for depot maintenance production support activities to include workload control, planning, and scheduling functions as well as documentation requirements. Additionally, responsibilities for functional relationships with stakeholders outside of the depot maintenance realm (e.g., PM, Air Force Global Logistics Support Center, Defense Logistics Agency, etc.) must also be defined.

6.2. Depot Maintenance Supply Support and Materiel Control. Sufficient maintenance supply support is critical to successful depot maintenance production. The repair environment applies agile combat support logistics concepts such as: (1) identified value in customer support (parts when needed; on-time delivery), (2) a streamlined process model, (3) uninterrupted continuous flow-through process, (4) synchronized delivery of material from internal and external suppliers, (5) supportability reviews, electronic commerce, and technology enablers, and (6) planning, engineering, contracting, and supply support well forward to support the depot maintenance effort. Additional detail regarding materiel management is provided in AFMAN 23-110. For additional detail on cannibalization of parts, reference [Chapter 13](#) of this Instruction. AFMC/CC shall develop additional process implementation guidance for materiel management and support (to include Bills of Materiel). For additional detail, reference AFMCI 21-130, *Depot Maintenance Materiel Control*.

Chapter 7

WORK CONTROL DOCUMENTS AND TECHNICAL DATA

7.1. Work Control Documents (WCD). Timely and complete work planning is essential to accomplishing the depot production process. Work planning is reflected in the WCDs. To develop accurate, efficient, and effective WCDs, it is critical to integrate all workload planning and technical requirements that support the maintenance production functions. AFMC/CC shall promulgate procedures for developing and processing WCDs when implementing technical data requirements.

7.1.1. The WCD is the official record for work including control, identification, certification, and routing of items. **WCDs are not technical data.** The WCD is an instruction document summarizing sequenced steps and the TO references for processing the item. WCDs are developed by authorized planner/industrial engineering technicians in accordance with approved technical data. The WCD is the record documenting that the task was performed by certified technicians IAW authorized technical data. It must be auditable to the technician's training record. All critical tasks must be listed and certified as a separate line item.

7.1.2. TO Changes and Authorized Deviations. Technical data used in depot maintenance must be complete, accurate, effective, and efficient. It is the responsibility of maintenance personnel at all levels to ensure deficiencies are reported in a timely manner and improvements are made when needed. When work cannot be performed using the TO as written, an authorized deviation must be processed and approved.

7.2. Standard Depot Maintenance Program. AFMC/CC shall develop a standard depot maintenance program detailing the roles, responsibilities and processes for how aircraft and commodities are planned, scheduled, inducted, handled, overhauled, repaired, tested, certified, and delivered back to the AF and other DoD customers.

Chapter 8

QUALITY ASSURANCE (QA)

8.1. General. Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of QA personnel, maintenance leaders, and technicians are necessary to ensure high quality maintenance production and equipment reliability. The QA staff evaluates the quality of maintenance accomplished and performs necessary functions to manage the MSEP. The MSEP provides an objective sampling of the proficiency of maintenance personnel and the compliance of MSEP focus areas, programs, and processes. QA personnel are not an extension of the work force and shall not be tasked to perform production. QA serves as the primary advisory agency in the maintenance organization, assisting maintenance supervision at all levels to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of QA that highlight and identify underlying causes of poor quality in the maintenance production effort. Aircraft, major end items, and equipment condition as well as personnel proficiency are validated through the MSEP and shall be recorded using a QA database.

8.2. Maintenance Standardization and Evaluation Program (MSEP). The MSEP is the maintenance component of the Logistics Compliance Assessment Program (LCAP) and is designed to provide unit maintenance managers with a method of evaluating compliance with AF, Lead Command, and local maintenance directives and policies. LCAP (as detailed in AFI 20-111, *Logistics Compliance Assessment Program (LCAP)*) is the AF evaluation program that establishes the Lead Command Logistics Compliance Assessment Team (LCAT).

8.2.1. AFMC is responsible for developing an MSEP and conducting local inspections to ensure their programs, processes, maintenance technician proficiency, equipment condition, and other focus areas are in compliance with AF and local directives. AFMC shall ensure the MSEP mirrors the LCAP requirements as defined in AFI 20-111.

8.2.2. AFMC shall document MSEP data in an approved QA database.

8.3. Quality Assurance Program. AFMC/CC shall develop a Quality Assurance Program. At a minimum, this program shall:

8.3.1. Ensure all QA inspector personnel are properly trained and proficient in their duties prior to performing unsupervised evaluations. If a functional area does not warrant a full-time position in QA, but specialized expertise is required, select qualified technicians to be augmentees.

8.3.2. Ensure all QA inspectors complete Egress certification before evaluating egress tasks IAW [Chapter 12](#) of this Instruction.

8.3.3. Evaluate welding operations and processes IAW TO 00-25-252, *Aeronautical Equipment Welding*.

8.3.4. Ensure all QA inspectors are trained on all associated safety requirements prior to performing inspections on fuel systems or fuel systems repair facilities IAW TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*.

8.3.5. Ensure all QA inspectors evaluating Nondestructive Inspection (NDI) technicians during Personnel Evaluations are trained and qualified on the method being evaluated.

8.3.6. Ensure Acceptable Quality Level (AQL) standards are developed for workloads being assessed.

8.3.7. Determine operations that require a quality review prior to continuing maintenance.

8.3.8. Determine routine inspections to be completed.

8.3.9. Evaluate unit maintenance management procedures, including locally developed forms, publications, Operating Instructions (OIs), checklists etc., for accuracy, intent, and necessity.

8.4. Activity Inspection Program. AFMC/CC shall develop an Activity Inspection Program that:

8.4.1. Identifies discipline, housekeeping, and technical discrepancies and attempt to identify the underlying cause for the deficiencies.

8.4.2. Encompasses all flights of the unit.

8.4.3. Produces objective reports and provides specific definitions of problem areas, appropriate directive references, and recommended corrective action.

8.5. Additional Quality Programs. AFMC/CC shall:

8.5.1. Ensure development of a cross-tell program for preventive action purposes.

8.5.2. Manage Title 14, Code of Federal Regulations (CFR) Federal Aviation Administration (FAA) Part 145, *Repair Stations*, program, if applicable.

8.5.3. Manage One-Time Inspections (OTIs) IAW TO 00-20-1.

8.5.4. Review aircraft aborts, in-flight emergencies, and other incidents as required.

8.5.5. Manage the application of commercial quality standards, as applicable (e.g., International Organization for Standardization (ISO), Aerospace Standards (AS), Nadcap (formerly NADCAP, the National Aerospace and Defense Contractors Accreditation Program), etc.).

8.5.6. Identify and resolve deficiencies IAW TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution*.

Chapter 9

IMPOUNDMENT PROCEDURES

9.1. Aircraft, Major End Item, and Equipment Impoundment. Aircraft, major end item, or equipment is impounded when intensified management is warranted due to system or component malfunction or failure of a serious or chronic nature. Refer to AFI 91-204 for aircraft and equipment involved in accidents, mishaps, or incidents.

9.2. Impoundment Terms and Responsibilities:

9.2.1. Impoundment. Impoundment is the isolation or control of access to an aircraft, major end item, or equipment and applicable historical records so an intensified investigation can be completed.

9.2.2. Impoundment Authority. The Impoundment Authority is the individual authorized to impound aircraft, major end item, or equipment. Maintenance Group Commanders (MXG/CC) (or equivalent) shall designate Impoundment Authorities. The Impoundment Authority shall select the Impoundment Official.

9.2.3. Impoundment Official. The Impoundment Official is the single point of contact for the affected aircraft, major end item, or equipment and is responsible for controlling, monitoring, and investigating the impounded aircraft, major end item, or equipment. The Impoundment Official ensures only authorized personnel have access to the impounded aircraft, major end item, or equipment. Aircraft, major end item, or equipment records shall be controlled at the discretion of the Impoundment Official.

9.2.4. Authorized Personnel. Authorized Personnel are individuals directly involved in the management, safing, troubleshooting, or repair of impounded aircraft, major end item, or equipment.

9.2.5. Impoundment Release Authority. The Impoundment Release Authority is an individual authorized to release aircraft, major end item, or equipment from impoundment. MXG/CCs (or equivalent) or their designated representatives have authority to release the impounded aircraft, major end item, or equipment.

9.2.6. Isolation Area. The Isolation Area is an area designated by the Impoundment Authority to locate impounded aircraft, major end item, or equipment. Aircraft may be isolated on the flightline or in hangars. The isolation area shall be marked off using cones, ropes, or placards indicating the impoundment condition and isolation area.

9.3. Impoundment Program. AFMC/CC shall develop an impoundment program that enables investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence.

9.3.1. At a minimum, the program shall:

9.3.1.1. Use established checklists to guide the sequence of actions.

9.3.1.2. Ensure security and appropriate access to impounded aircraft, major end item, or equipment records are maintained.

9.3.1.3. Define what maintenance can be performed in conjunction with the maintenance required to release the aircraft, major end item, or equipment from impoundment. Maintenance actions shall be limited to those required to make the aircraft, major end item, or equipment safe.

9.3.1.4. Ensure the Impoundment Official is supported by a team of qualified individuals that is dedicated to determining the cause of the impoundment. Impoundment team members shall be relieved of all other duties until released by the Impoundment Official.

9.4. Reasons for Impoundment of Aircraft, Major End Item, or Equipment. The following conditions require mandatory impound of aircraft, major end item, or equipment:

9.4.1. When the Impoundment Authority determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft, major end item, or equipment, to address any degradation of aircraft airworthiness or serious anomaly, or after the 2nd repeat/recur of a safety-of-flight maintenance discrepancy.

9.4.2. Following an aircraft ground or flight related mishap as defined in AFI 91-204 and AFMAN 91-223, *Aviation Safety Investigations And Reports*.

9.4.3. Following an uncommanded flight control movement.

9.4.4. When there is an inadvertent ordnance release or an explosive mishap.

9.4.5. When authorized procedures are not adequate or the unit is unable to identify or repair loaded nuclear weapons system malfunctions within the criteria of AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems*.

9.4.6. For engine anomalies to include but not limited to:

9.4.6.1. Unselected propeller reversal.

9.4.6.2. Flameout/stagnation (for single engine aircraft).

9.4.6.3. Unselected power reversal.

9.4.6.4. Engine case penetration, rupture, or burn-through from an internal engine component.

9.4.6.5. When an aircraft experiences a loss of thrust sufficient to prevent maintaining level flight at a safe altitude. This includes all cases of multiple engine power loss or roll back.

9.4.6.6. Internal engine damage due to a Foreign Object (FO) which can be isolated to the engine and requires removal for repair shall result in the engine being impounded. Aircraft impoundment is not required.

9.4.6.7. Engine damaged while in transport.

9.4.7. When an in-flight fire occurs.

9.4.8. When an aircraft experiences an in-flight loss of all pitot-static system instruments or all gyro stabilized attitude or direction indicators.

9.4.9. When there is evidence of intentional damage, tampering, or sabotage.

9.4.10. When there are physiological incidents attributable to aircraft systems or cargo (crew members become ill during flight).

9.4.11. Impoundment Authorities have discretion to determine whether impoundment is warranted when:

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

9.4.11.2. When the aircraft has been confirmed as being contaminated with chemical, biological, or radiological materials in the aftermath of a terrorist incident and the residual hazard cannot be satisfactorily removed.

9.4.11.3. When an aircraft or major end item sustains FO damage from an unknown cause.

9.5. Impoundment Process and Procedures.

9.5.1. When the Impoundment Authority directs impoundment, a Red X symbol shall be placed in the applicable Air Force Technical Order (AFTO) Form 781A, *Maintenance Discrepancy and Work Document* (or electronic equivalent) or AFTO Form 244 *Industrial/Support Equipment Record*, with a statement indicating the reason for impoundment and the name of the assigned Impoundment Official. Reference TO 00-20-1 for additional detail.

9.5.2. Once the investigation is complete, the Impoundment Official briefs the Impoundment Release Authority on findings and corrective actions and requests release of the aircraft, major end item, or equipment from impoundment.

9.5.3. The Impoundment Release Authority determines the need for a one-time flight and requests appropriate authorization IAW TO 00-20-1.

9.5.4. The Impoundment Release Authority clears impoundments from forms/MIS IAW TO 00-20-1.

Chapter 10

TOOL AND EQUIPMENT MANAGEMENT

10.1. Tool and Equipment Management. The objectives of the tool and equipment management program are to prevent and eliminate FOD to aircraft, engines, missiles, training, and support equipment and to reduce costs through strict, effective control and accountability of assets. AFMC/CC shall execute an effective tool program that addresses the following:

10.1.1. Standardized procedures for security, control, and accountability of tools and equipment, to include the requirements for designation of a responsible party for every tool kit, to include:

10.1.1.1. Ensuring each tool, item of equipment, or consumable contained in Tool Kits (TK), including Consolidated Tool Kits (CTKs), Individual Tool Kits (ITKs), specialty kits, etc., has an assigned location identified either by inlay cuts in the shape of the item, shadowed layout, label, or silhouette. No more than one item is stored in a cutout, shadow, or silhouette except for tools issued in sets such as drill bits, allen wrenches, apexes, or paired items (e.g., gloves or booties).

10.1.1.2. Accounting for all TKs, tools, and dispatchable equipment at the beginning and end of each shift.

10.1.1.3. Maintaining an inventory list (e.g., Tool Kit Custodial Receipt Listing) for all tool kits.

10.1.2. Inventory requirements. As a minimum, conduct and document an annual inventory of all tools and equipment.

10.1.3. Procedures for warranted tool management.

10.1.4. Procedures for control and management of replacement, expendable and consumable hand tools, and other items contained in TKs.

10.1.5. Procedures for transfer of tools/TKs at the job site (on-site transfers).

10.1.6. Procedures for lost or missing tools.

10.1.7. Procedures for issue and control of PPE. Mark tools or equipment that a work center assigns/issues to an individual.

10.1.8. Procedures to ensure positive control of rags.

10.1.8.1. A rag is defined as a remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth used in general industrial, shop, and flightline operations. Cheesecloth is considered a rag, however, paper products/paper towels are not considered rags.

10.1.9. Procedures to limit numbers of personnel authorized to procure tools.

10.1.10. Procedures for depot teams, factory representatives, and Contract Field Teams (CFTs) when working on equipment within the unit.

10.1.11. Procedures to issue and account for tools where more than one person is using the same TK.

10.1.12. Procedures for Production Support Center (PSC)/tool issue center control, security, and accountability.

10.1.13. Procedures for approval and control of locally manufactured, developed, or modified tools and equipment.

10.1.14. Procedures to ensure accountability and control of Clecocs.

10.1.15. Procedures for long term TK storage.

10.1.16. Procedures for ensuring personal tools are not used.

10.2. Industrial Shop Machinery Accessories/Attachments. Industrial shop machinery accessories/attachments (e.g., blades, arbors, chucks, gears) need not be controlled as tools; however, these items shall be maintained in designated storage locations for accountability.

10.3. Tool Marking Procedures. Tools, common accessories, support equipment, and Custodian Authorization and Custody Receipt Listing (CA/CRL) equipment issued individually or as part of a tool kit shall be marked prior to issue with the center code (see [Table 10.1](#)) and a number identifying it to the proper tool issue center, PSC, or back shop. Small tools or items that cannot be marked as described above (such as drill bits, allen wrench sets, apexes, etc.) are to be maintained in a container marked with the TK Identification (ID) number and an identifying character(s) that ties the tool back to the TK along with the number of tools contained. The container is counted as one of the items.

Table 10.1. ALC/Aircraft Maintenance and Regeneration Group (AMARG) ID Number Marking Codes.

CODE	ALC
AM	AMARG
HL	OO-ALC, Hill AFB
OC	OC-ALC, Tinker AFB
WR	WR-ALC, Robins AFB

Chapter 11

MAINTAINING COMMERCIAL DERIVATIVE AIRCRAFT

11.1. Background Information and Objective. The AF procures commercial derivative aircraft for various missions. These aircraft are intended to conform to FAA standards and designs. The AF maintains these aircraft according to civil airworthiness standards using AF maintenance systems and procedures. They must meet FAA requirements when modifying these aircraft to maintain configuration control and ensure flight safety.

11.1.1. Modifications, repairs, and overhauls accomplished by organic or commercial depot maintenance activities to AF commercial derivative aircraft having FAA certification shall not cause the aircraft to lose its FAA certification. All depot maintenance activities and organizations associated with commercial derivative aircraft must comply with the respective TOs and/or aircraft manuals. All modifications, repairs, and overhauls to commercial derivative aircraft by organic or contractor depot maintenance activities shall be performed in an FAA certified or military equivalent facility. For additional detail, reference Title 14, CFR, Part 145.

11.1.2. Organic depot maintenance may use a Certificate of Conformance or Return to Service certification when applicable for the FAA approved maintenance processes for a specific workload.

11.2. Certification Requirements. Organic depot maintenance shall be performed on commercial derivative aircraft in an organic FAA certified Part 145 Repair Station or military equivalent facility. AF military and civilian maintenance technicians performing maintenance in an organic FAA certified Part 145 Repair Station or military equivalent facility who work under the authority of that specific repair station typically do not require individual FAA certification. Only those inspectors authorized by the repair station to issue a Certificate of Conformance or return an item to service are required to be FAA certified (Airframe, Powerplant, or Repairman certification).

11.3. Inspection Requirements. Depot maintenance accomplished either organically or commercially on Commercial Derivative Aircraft shall comply with inspection requirements.

11.4. Deviations from Inspection Requirements. When deviation from these requirements or intervals is justified, proposed changes shall be sent to the PM for evaluation.

11.5. Component Overhaul and Time Change Intervals. Use the manufacturer's component overhaul and time-change intervals for commercial derivative aircraft and its installed equipment. Do not exceed the FAA approved intervals.

11.6. Airframe Overhaul. Overhaul of commercial derivative aircraft during Programmed Depot Maintenance (PDM) shall be accomplished according to FAA requirements. The PM determines PDM cycle intervals and related work requirements IAW TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*, and the aircraft Dash-6 inspection manual. General requirements and related time intervals include all major elements of the aircraft.

11.7. Aircraft and Component Modifications. The FAA issues a supplemental type certificate (STC) for a change to a type design. For AF-designed modifications to commercial derivative aircraft and components, obtain AF approval IAW AFI 63-131. Obtain FAA certification by sending FAA Form 8110-12, *Application for Type Certificate*, with engineering data attached, to the FAA regional office. After approving the engineering prototype installation (and flight test, if required), the FAA issues the certification or STC. The PM receives the FAA certification, or STC, for an AF-designed modification. Have contractors obtain the FAA certification or STC for a contractor-designed modification.

11.8. Aircraft and Component Modifications. Maintenance on AF aircraft and components having FAA certification, when accomplished by AF depot maintenance activities, does not cause the aircraft to lose its FAA certification. All modifications to such aircraft shall comply with AFD 62-6, *USAF Airworthiness*. Such modifications are required to keep the weapon system or aircraft in compliance with FAA standards and to maintain FAA certification.

Chapter 12

AIRCREW EGRESS SYSTEMS MAINTENANCE

12.1. Egress Maintenance Program. AFMC/CC shall execute an effective Aircrew Egress Systems Maintenance Program.

12.1.1. Egress personnel are responsible for all egress systems maintenance and must be trained and certified before being authorized to maintain or inspect aircraft egress systems. Non-egress personnel are also responsible for egress maintenance as outlined in this instruction.

12.1.2. All personnel shall use the Demand Response Team when directed by technical orders, during any task requiring the removal/installation of explosive components, and during egress final inspections. Compose teams of individuals who are certified to perform egress maintenance. At least one team member must be a certified egress journeyman.

12.2. Facilities.

12.2.1. The installation or equivalent commander shall provide an enclosed shop facility, separated from other inhabited buildings or areas whenever possible, for off-equipment egress maintenance.

12.2.2. Egress facilities shall have limited access to ensure system integrity and be properly licensed for explosive component storage. Explosives shall be listed on an AF Form 2047, *Explosive Facility License*, and maintained within the Egress Section.

12.2.3. Facility must be large enough to accommodate the average number of egress components requiring maintenance and storage at any one time. (See AFH 32-1084, *Facility Requirements*.)

12.2.4. The egress section's licensed explosive facility will not exceed the licensed Net Explosive Weight (NEW) capacity for each Hazard Class/Division (HC/D) without approval from the Wing Weapons Safety Office. See AFMAN 91-201, *Explosive Safety Standards*, for additional restrictions.

12.3. Safety Requirements.

12.3.1. Personnel shall strictly adhere to all safety requirements outlined in AFMAN 91-201, AFI 91-202, *The US Air Force Mishap Prevention Program*, AFI 11-209, *Aerial Event Policy and Procedures*, and all 11A-, 11P-, 13A-series and aircraft-specific TOs.

12.3.2. Operators of an explosive laden vehicle must have completed and be current on Egress Explosive Safety Training and qualified on the particular type of vehicle being driven IAW AFI 24-301, *Vehicle Operations*.

12.4. Classification Training. Egress personnel shall meet mandatory training requirements contained in AFI 36-2201, *Air Force Training Program*, (or intra-service equivalent), AFI 91-202, this AFI, and the Career Field Education and Training Plan (CFETP) or AFMC Egress Civilian Training Plan.

12.5. Initial Certification of Egress and Non-Egress Personnel Who Augment Egress Technicians or Perform Quality Assurance Evaluations of Egress Systems.

12.5.1. Once classification training is complete, egress personnel must successfully complete an Air Education and Training Command (AETC) egress technician course for the specific aircraft to be maintained. EXCEPTION: ACES II-trained and certified egress technicians being reassigned to another base or unit maintaining ACES II-equipped aircraft are not required to complete the organizational maintenance (on-equipment) egress technician course. Whether or not these individuals attend the course is the decision of the egress workcenter supervisor. **Note:** non-egress personnel augmenting egress technicians and Quality Assurance Personnel who perform egress evaluations must meet the same training and certification/qualification requirements.

12.5.2. Personnel are certified to perform and inspect egress systems maintenance by demonstrating adequate proficiency to a designated certifying official in the egress systems workcenter. Certification pass/fail criteria shall be established by the egress workcenter supervisor. Document certification in accordance with AFI 36-2201, *Air Force Training Program*, and the requirements as detailed in **Chapter 13** of this Instruction.

12.6. Decertification.

12.6.1. Decertify any individual who fails to demonstrate adequate proficiency or who has a documented administrative action that could adversely affect job performance.

12.6.2. Decertify non-egress personnel who have not been recertified in the past 180 days. Decertify egress personnel after not having performed egress maintenance for more than 18 months. Instructing and inspecting egress maintenance is not considered performing maintenance.

12.6.3. Document decertification in accordance with AFI 36-2201 and **Chapter 13** of this Instruction.

12.7. Recertification.

12.7.1. The purpose of recertification is to ensure personnel still maintain the required knowledge and skills to safely maintain and/or inspect egress systems.

12.7.2. Recertify egress maintenance and inspection certified personnel after not having performed egress maintenance or inspections for at least 18 months.

12.7.3. Recertification procedures are identical to initial certification procedures and shall be accomplished in accordance with **paragraph 12.5.2**. Document recertification in accordance with AFI 36-2201 and **Chapter 13** of this Instruction.

12.8. Using Newly Assigned Uncertified Egress Personnel.

12.8.1. Newly assigned uncertified egress personnel may assist in performing egress systems maintenance. These personnel shall never clear (sign off) AFTO Form 781-series, Work Control Documents, or condition tags.

12.9. Egress/Cockpit Familiarization Training. All non-egress personnel who access aircraft cockpits with egress systems must complete initial and refresher familiarization training. The intent of egress familiarization training is to ensure non-egress personnel are aware of the hazards associated with an egress system and what to do if a hazard exists. As a minimum, initial and refresher (24-month) egress/cockpit familiarization training shall include location and installation procedures of egress system safety devices, cockpit entry/exit procedures, procedures

for determining whether or not an egress component is expended, emergency procedures associated with an expended egress component, and local maintenance concerns identified by the egress workcenter supervisor.

12.9.1. The egress workcenter supervisor shall review and validate all egress familiarization training documents at least every 24 months.

12.9.2. New personnel to the unit shall receive initial familiarization training prior to accessing cockpits unless last duty position involved same mission design aircraft as current duty position. Personnel not requiring initial training will attend refresher training when they become due. Individuals overdue for annual egress familiarization training shall not access aircraft cockpits until they complete familiarization training.

12.10. Egress Systems Inspections and Documentation.

12.10.1. A certified egress production inspector shall inspect any disturbed integral part of the egress system. The inspection must be an egress final inspection unless another inspection is prescribed by technical data.

12.10.2. All systems Red X provisions. Only egress personnel shall clear (sign off) egress system discrepancies listed in aircraft forms and in WCDs.

12.11. Cannibalization actions.

12.11.1. Egress system component Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) cannibalization actions are considered "High-Risk" and should not be performed unless priority aircraft are involved (i.e. higher headquarters/alert status) or lack of ready equipment will impede mission accomplishment.

12.11.2. To ensure system integrity and validation of the explosive CAD/PAD listing, cannibalization of egress explosive components and/or seats shall not be accomplished without the approval of the Maintenance Group or Deputy Group Commander (or equivalent).

12.11.3. After cannibalization actions, Red X discrepancies in the aircraft AF Form 781A or equivalent shall not be cleared until the Reliability and Availability Information System (REMIS) is reviewed to ensure the correct configuration of the aircraft CAD/PAD items that were cannibalized.

Chapter 13

ADDITIONAL PROGRAM REQUIREMENTS

13.1. Aircraft and Equipment Decontamination. AFMC/CC shall develop a decontamination program in accordance with Mission-Design Series (MDS) specific technical data and the following references: AFOSHSTD 91-100, *Aircraft Flight Line – Ground Operations and Activities*, AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard*, TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material Contaminated with Radioactive Debris (Fallout)*.

13.2. Housekeeping. Housekeeping and contamination procedures are critical to protecting the health of workers and maintaining areas as free as practicable from surface contamination. A bio-environmental approved workplace housekeeping procedure shall be employed to prevent contamination spread within a work center. Emphasis shall be placed on controlling the source of the contamination and on ensuring workplace personnel follow proper work procedures, PPE use, and hygiene practices.

13.2.1. The Work Area/Shop Supervisor shall develop and maintain a work area/shop-specific written housekeeping program.

13.2.2. The housekeeping program shall be incorporated into the work area/shop specialized safety, fire protection, and health on-the-job training lesson plan IAW AFI 91-202.

13.2.3. Workplace supervisors shall ensure the housekeeping plan is implemented, documented on a cleaning log, and adequately carried out by workers.

13.2.4. Supervisors shall document housekeeping follow-up inspections and maintain in accordance with the AF Records Disposition Schedule.

13.3. Aircraft Grounding (Materiel Defect) Program. On occasion, units may discover conditions in multiple aircraft, engines, missiles, munitions, or related installed flight equipment of sufficient risk to personal injury or equipment damage that warrant grounding their fleet until the matter can be properly investigated and resolved. AFMC/CC shall develop procedures for depot maintenance support to grounded aircraft, engines, or major end items.

13.4. Cannibalization Program. Cannibalization is the authorized removal of a specific assembly, subassembly, or part from one weapon system, support system, or equipment end item for installation on another end item to satisfy an existing supply requisition and to meet priority mission requirements with an obligation to replace the removed item. CANN actions may be necessary when a condition prevents the accomplishment of a mission and the required assets are not immediately available from supply. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. AFMC/CC shall develop procedures for authorizing CANN actions, to include criteria for executing and required documentation as prescribed in 00-20 series TOs.

13.5. Dropped Object Prevention (DOP) Program. A dropped object is any aircraft part, component, surface, or other item lost during aircrew operations, unless intentionally jettisoned from engine start to engine shutdown. AFMC/CC shall develop a DOP program which addresses, at a minimum, training, reporting, investigation, and prevention.

13.6. Foreign Object Damage (FOD) Prevention Program. FOD is any damage to an aircraft, engine, aircraft system, component, tire, munitions, or SE caused by foreign objects which may or may not degrade the required safety and/or operational characteristics of the aforementioned items.

13.6.1. AFMC/CC shall ensure effective FOD prevention program is established which addresses, at a minimum: capping, plugging, covering, controlling, reporting, accounting, investigating, and inspecting. The FOD program must also outline flightline requirements, oversight responsibilities, and standardized terminology. All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, aerospace ground equipment (AGE), engines, or components thereof shall comply with FOD prevention.

13.6.2. Additional FOD Prevention Program Requirements. FOD incidents are classified as preventable and non-preventable. Only preventable FOD over \$50K (parts and labor) shall be chargeable to the FOD rate.

13.6.2.1. FODs are considered preventable except when:

13.6.2.1.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, sand, and birds. Report this type of damage IAW AFI 91-204.

13.6.2.1.2. Caused by internal engine materiel failure, as long as damage is confined to the engine.

13.6.2.1.3. Caused by materiel failure of an aircraft component if the component failure is reported as a deficiency report (DR) using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

13.6.2.1.4. Found during depot overhaul for maximum operating time.

13.6.2.2. Preventable FOD over \$50K incurred at test cell or on trim pad shall be chargeable to the FOD rate.

13.6.2.3. FOD rates shall be computed by MDS as follows: Number of Preventable FODs (damage exceeding \$50K) ÷ Aircraft flying hours X 1,000 = FOD rate. Aircraft flying hours shall be computed using acceptance flights, functional check flights, ground runs, and the number of un-installed engine test cell starts.

13.6.2.4. Bird Strikes. Consult TO 1-1-691, *Cleaning and Corrosion Prevention and Control, Aerospace and Non-Aerospace Equipment*, for bird strike clean up procedures and AFMAN 91-223 for bird strike reporting procedures.

13.7. Communications. Effective maintenance requires efficient communication. Radios must be available to expedite personnel, equipment, material, and maintenance data throughout the maintenance complex. Unit commanders shall develop communication plans according to mission requirements.

13.7.1. Land Mobile Radio (LMR) Management. Maintenance communications that are reliable, redundant, and effective are essential for efficient maintenance operations.

13.7.1.1. AFMC/CC shall develop a program for LMR management IAW AFMAN 23-110, AFI 33-106, *Managing High Frequency Radios, Personal Wireless Communication Systems, and the Military Affiliate Radio System*, AFI 33-118, *Electromagnetic Spectrum*

Management, and AFI 33-200, *Information Assurance (IA) Management*. At a minimum, the programs shall address training, allowances, control, and etiquette.

13.7.2. **Personal Devices.** AFMC/CC shall develop guidance on the use and proper control of personal electronic and communication devices (i.e., cell phones, pagers, portable music/video players, electronic games, etc.) on the flightline and in munitions areas, hangars, and/or other industrial work areas.

13.8. Maintenance Recovery Teams (MRTs). MRTs and equipment are used to recover aircraft at remote locations. AFMC/CC shall develop procedures regarding the use of MRTs.

13.9. Self-Inspection Program. The purpose of the unit self-inspection program is to provide commanders and supervisors a management tool to assess unit compliance with existing directives. The unit self-inspection program shall be tailored to the organization's structure and mission and provide coverage of the mission, resources, training, and people programs. The self-inspection program is an on-going process implemented at all organizational levels.

13.9.1. AFMC/CC shall establish standardized program guidelines IAW AFI 90-201, *Inspector General Activities*, which, at a minimum, address procedures for reporting, tracking, and resolution, including feedback mechanisms. A reporting process shall be established to ensure non-compliance items are tracked until resolved. The self-inspection program not only enables units to gauge compliance with directives, but also provides a method to assess established processes, identify deficiencies, and implement corrective measures.

13.10. Senior Leaders' Maintenance Course (SLMC). The AF SLMC is an AF Chief of Staff initiative developed to educate wing leadership on aircraft maintenance, operations, and flightline support in both expeditionary and home station environments. Its objectives include: strengthen the relationship and teamwork between operations, maintenance, and support; deepen insight into unit operations, maintenance, and support activities; and focus attention on policy, procedures, training, discipline, and enforcement. SLMC implementation instructions are as follows:

13.10.1. The course is mandatory for Wing and Group CC/CV/CD, and it must be completed within six months of assignment.

13.10.2. AFMC/CV must approve attendance waivers.

13.11. Maintenance Training. AFMC shall develop a Depot Maintenance training program to include and identify initial, recurring, and qualification training required by personnel to perform assigned duties. All training shall be documented in an MIS as validation of completion of training. Training is essential to establish, improve, and sustain unit capabilities and is one of the most important responsibilities of commanders and supervisors. Commanders and supervisors must give priority support to training. When balancing resources, (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), maintenance training carries an equal priority with the production workload.

13.12. Maintenance Certification Program. AFMC/CC shall develop a program to document the certification of employees, both civilians and military, to perform depot maintenance and accept/stamp completion of assigned work. This program shall apply to all depot maintenance personnel certifying WCDs. In this program, tasks shall be identified with required training and

any other applicable qualification requirements that must be completed prior to task certification. Specific career field/series training shall be identified using AF approved CFETPs or equivalent command civilian training plans. Criteria must be established to decertify and recertify employees as required.

13.12.1. The definition of a task for the purpose of this program is any necessary activity in the completion of an industrial process or procedure involving a product or product-related service. The tasks must be identifiable, trainable, and auditable.

13.12.2. All tasks and required training shall be documented in an electronic database as validation of completion of certification requirements and proof of an employee's certification.

13.12.3. As a minimum, an annual review of the employee's certification records shall be conducted with the employee by the employee's supervisor.

13.12.4. WCDs may only be stamped by personnel meeting the certification requirements of the program as specified in AF CFETP or equivalent command civilian training plan. If the series of work does not have an established command training plan, the center training manager shall develop one. A certified employee shall be issued an indentifying stamp and use the stamp on the WCD upon completion of the work validating that work performed meets all applicable requirements.

13.12.5. When work is identified as "critical" then a secondary certification or "second set of eyes" is required to verify the work completed has met the requirements. To determine if a task is critical, the following criteria shall be used:

13.12.5.1. A catastrophic failure of an end item (end item failure that could result in a catastrophe).

13.12.5.2. An end item failure that may affect safety of flight.

13.12.5.3. An end item failure that may present an imminent safety or health hazard or affect a life support system.

13.13. Special Skills Qualifications (SSQs). SSQs are skills so specialized that they require extensive technical knowledge and proficiency. Most of these skills are governed by military specifications or higher level regulatory guidance, are safety related, or have a significant impact on cost. AFMC/CC shall develop qualification/disqualification/requalification requirements for all SSQs.

13.14. Special Certification Roster (SCR). The SCR is a management tool providing supervisors a clear and concise listing of personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Only maintenance requirements that have a definite potential for personnel injury or damage to equipment shall be included in the SCR. AFMC/CC shall develop procedures on approval of the following items:

13.14.1. Authority.

13.14.2. Exceptional Release.

13.14.3. W&B Certified (Reference TO 1-1B-50).

13.14.4. Impoundment Authority (Reference [Chapter 9](#) of this Instruction).

13.14.5. Calibration Limitation Approval (Reference TO 00-20-14).

13.15. Functional Check Flight (FCF) Program.

13.15.1. FCFs are performed to ensure an aircraft is airworthy and/or capable of accomplishing its mission. FCFs are not normally flown when the airworthiness of the aircraft can be determined by maintenance operational checks prescribed by a technical directive. Additional guidance may be found in AFI 11-401, *Aviation Management*, AFI 11-202V3, *General Flight Rules*, AFI 13-201, *Airspace Management*, AFI 21-103, TO 1-1-300, *Maintenance Operational Checks and Check Flights*, TO 00-20-1, and applicable Dash-6 and Dash-1 TOs.

13.15.2. AFMC/CC shall establish procedures governing the FCF Program.

13.16. Weight and Balance (W&B) Program. AFMC shall manage a W&B program IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*.

13.17. Aircraft Structural Integrity Program (ASIP). AFMC shall manage an ASIP program IAW AFI 63-1001, *Aircraft Structural Integrity Program*.

13.18. Repair Network Integration (RNI) [RESERVED].

JUDITH A. FEDDER
Lieutenant General, USAF
DCS/Logistics, Installations & Mission Support

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

- Title 10, United States Code § 2460, *Definition of depot-level maintenance and repair*
- Title 10, United States Code § 2464, *Core logistics capabilities*
- Title 10, United States Code § 2466, *Limitations on the performance of depot-level maintenance of materiel*
- Title 10, United States Code § 2469, *Contracts to perform workloads previously performed by depot-level activities of the Department of Defense: requirement of competition*
- Title 10, United States Code § 2472, *Prohibition on management of depot employees by end strength*
- Title 10, United States Code § 2474, *Centers of Industrial and Technical Excellence: designation; public-private partnership*
- Title 10, United States Code § 2476, *Minimum capital investment for certain depots*
- Title 14, Code of Federal Regulations, Part 145, *Repair Stations*
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Prescribed Forms

None.

Adopted Forms

AF Form 2047, *Explosive Facility License*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFTO Form 244, *Industrial/Support Equipment Record*

AF Form 847, *Recommendation for Change of Publication*

AF Form 185, *Project Order*

FAA Form 8110-12, *Application for Type Certificate*

Abbreviations and Acronyms

ABIDES—Automated Budget Interactive Data Environment System

AETC—Air Education and Training Command

AF—Air Force

AFEE—Air Force Element of Expense

AFEE/IC—Air Force Element of Expense/Investment Code

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFMETCAL—Air Force Metrology and Calibration

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

AFOSH—Air Force Occupational Safety and Health

AFOSHSTD—Air Force Occupational Safety and Health Standard

AFRC—Air Force Reserve Command

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AIS—Automated Information System

AIT—Automatic Identification Technology

ALC—Air Logistics Center

AMARG—Aircraft Maintenance and Regeneration Group

ANG—Air National Guard
APPG—Annual Planning and Programming Guidance
AQL—Acceptable Quality Level
AS—Aerospace Standard
BA—Budget Authority
BER—Budget Execution Review
BPP—Business-Planning Process
CA/CRL—Custodian Authorization and Custody Receipt Listing
CAD/PAD—Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD)
CAM—Centralized Asset Management
CANN—Cannibalization
CDM—Contract Depot Maintenance
CFETP—Career Field Education and Training Plan
CFT—Contract Field Team
CFR—Code of Federal Regulation
CITE—Center of Industrial and Technical Excellence
CLS—Contract Logistics Support
CONUS—Continental United States
CPP—Capital Purchases Program
CRA—Continuing Resolution Authority
CSAG—Maintenance—Consolidated Sustainment Activity Group-Maintenance Divisions
CSAG—Supply—Consolidated Sustainment Activity Group-Supply Divisions
CTK/TK—Consolidated Took Kit/Tool Kit
DMISA—Depot Maintenance Interservice Support Agreement
DMAG—Depot Maintenance Activation Group
DMMP—Depot Maintenance Master Plan
DMSMS—Diminishing Manufacturing Sources and Material Shortages
DoD—Department of Defense
DoDEE—Department of Defense Element of Expense
DoDI—Department of Defense Instruction
DOP—Dropped Object Prevention
DR—Deficiency Report

DPEM—Depot Purchased Equipment Maintenance
DSOR—Depot Source of Repair
FAA—Federal Aviation Administration
FCF—Functional Check Flight
F&FP—Force and Financial Plan
FO—Foreign Object
FOD—Foreign Object Damage
FY—Fiscal Year
FYDP—Future Years Defense Plan
HAF—Headquarters Air Force
HC/D—Hazard Class Division
IA—Information Assurance
IAW—In Accordance With
ID—Identification
ILCM—EF—Integrated Life Cycle Management Executive Forum
IUID—Item Unique Identification
ISO—International Organization for Standardization
ITK—Individual Tool Kit
LCAP—Logistics Compliance Assessment Program
LCAT—Logistics Compliance Assessment Team
LMR—Land Mobile Radio
MAJCOM—Major Command
MDS—Mission-Design Series
MIS—Maintenance Information Systems
MRWP—Maintenance Requirements Work Package
MRT—Maintenance Recovery Team
MSD—Materiel Support Division
MSEP—Maintenance Standardization and Evaluation Program
NADCAP—National Aerospace and Defense Contractors Accreditation Program
NCE—Nuclear Certified Equipment
NDI—Nondestructive Inspection
NEW—Net Explosive Weight

NWRM—Nuclear Weapons Related Materiel
O&M—Operations and Maintenance
OA—Obligational Authority
OAP—Oil Analysis Program
OBA—Operating Budget Authority
OI—Operating Instruction
OMB—Office of Management and Budget
OMEI—Other Major Equipment Item
OPR—Office of Primary Responsibility
OSD—Office of the Secretary of Defense
OTI—One-Time Inspection
PA—Program Authority
PB—President’s Budget
PBD—Program Budget Decision
PBR—Program Budget Review
PCN—Program Control Number
PDM—Programmed Depot Maintenance
PE—Program Element
PGM—Product Group Manager
PM—Program Manager
PMEL—Precision Measurement Equipment Laboratory
POM—Program Objectives Memorandum
PPBE—Planning, Programming, Budgeting and Execution
PPE—Personal Protective Equipment
PPP—Public-Private Partnership
PSC—Production Support Center
PSM—Product Support Manager
QA—Quality Assurance
QDR—Quadrennial Defense Review
RAPIDS—Resource Allocation Programming Information Decision System
RDS—Records Disposition Schedule
RDT&E—Research, Development, Test and Engineering

REMIS—Reliability and Availability Information System

RFID—Radio Frequency Identification

RFR—Radio Frequency Radiation

RGC—Repair Group Category

RNI—Repair Network Integration

SCR—Special Certification Roster

SE—Support Equipment

SECAF—Secretary of the Air Force

SIM—Serialized Item Management

SLMC—Senior Leaders Maintenance Course

SRAN—Stock Record Account Number

SSQ—Special Skills Qualification

STC—Supplemental Type Certificate

TK—Tool Kit

TO—Technical Order

TPS—Test Program Set

UEM—Unit Engine Manager

USAF—United States Air Force

USC—United States Code

W&B—Weight and Balance

WCD—Work Control Document

Terms

Capability—The ability to execute a specified course of action.

Clecos—A quick-release, industrial fastener used for holding sheet metal to facilitate welding or riveting.

Compression—Maximize depot maintenance production delivery through acceleration as well as suspension of routine peacetime work package tasks accomplishing only the absolute minimum depot maintenance essential to the safety of flight and only modifications essential to the weapon's war mission configuration.

Compression work package—The minimum depot maintenance tasks or modifications essential to the weapon's war mission configuration.

Contingency—A situation requiring military operations in response to natural disasters, terrorists, subversives, or as otherwise directed by appropriate authorities to protect U.S. interests.

Corrosion Control Facility—A facility where activities are conducted to treat, prevent or repair corrosion control for aircraft or associated components and equipment; these activities may include wash, treatment, repair, stripping, and repainting processes. Corrosion control shops also support vehicles, weapons and munitions, and avionics shops. Additionally, it provides space for the corrosion control shop which includes preparation and drying areas, abrasive blasting rooms, paint booths for mixing and/or applying paint, tool storage, lockers, and administrative areas.

Depot Maintenance— Any action performed on materiel or software in the conduct of inspection, repair, overhaul, or the modification or rebuild of end-items, assemblies, subassemblies, and parts that requires extensive industrial facilities, specialized tools and equipment, or uniquely experienced and trained personnel that are not available in lower echelon-level maintenance activities, and is a function and, as such, is independent of any location or funding source and may be performed in the public or private sectors (including the performance of interim contract support or contract logistic support arrangements. Depot-level maintenance and repair also includes the fabrication of parts, testing, and reclamation, as necessary; the repair, adaptive modifications or upgrades, changes events made to operational software, integration and testing; and in the case of either hardware or software modifications or upgrades, the labor associated with the application of the modification.

Depot maintenance capability—The aggregation of all resources (including facilities, skilled personnel, tools, test equipment, drawings, technical publications, ongoing training, maintenance personnel, engineering support, and spare parts) required for performing depot level maintenance.

Maintenance Requirements Work Package—The MRWP is a sectionalized requirements document developed to identify the depot level maintenance tasks required to maintain AF systems in mission ready status. MRWPs are prepared at least two years prior to the execution year. Requirements are based on need and not on the availability of funds.

Manufacturing—The making of something, normally from raw materials, by hand or, especially, by machinery, often on a large scale and with division of labor.

Mobilization—The act of assembling and organizing national resources to support national objectives in time of war or other emergencies.

National technology and industrial base—The persons and organizations that are engaged in research, development, production, or maintenance activities conducted within the United States and Canada.

Organic—Assigned to and forming an essential part of a military organization.

Organic depot maintenance—Maintenance performed by a military service under military control using government owned or controlled facilities, tools, test equipment, spares, repair parts, and military or government civilian personnel.

Public—private partnership—An agreement between an organic depot maintenance activity and one or more private industry or other entities to perform work or utilize facilities and equipment. Program offices, inventory control points and logistics commands may be parties to such agreements or be designated to act on behalf of organic depot maintenance activities.

Source of repair—An industrial complex (organic or commercial) with required technical capabilities to accomplish repair, overhaul, modification, or restoration of specific types of military hardware or software.

Surge—The act of expanding an existing repair depot maintenance repair capability to meet increased requirements by adjusting shifts or by adding equipment, spares, repair parts, and skilled personnel to increase the flow of repaired or manufactured materiel to the using activity or for serviceable storage.

Test program set—An interface that links a unit under test to the test equipment and a software program to initiate, maintain, and execute a test or series of automatic tests.

Workload—An amount of work, usually specified in direct labor hours or workdays, that relates to specific weapon systems, equipment, components, or programs and to specific services, facilities, and commodities.