

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE POLICY DIRECTIVE 21-1

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Maintenance

MAINTENANCE OF MILITARY MATERIEL

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This Air Force Policy Directive (AFPD) provides direction for Air and Space maintenance relative to Department of Defense Directive (DoDD) 4151.18, *Maintenance of Military Materiel*; and designates Headquarter Air Force (HAF) functional responsibilities for maintenance as pertains to Air Force (AF) Air, Space, Cyberspace, Communications (Comm), Information Technology (IT) systems and associated equipment/materiel; excluding commercial general purpose equipment, commercial business systems and real property installed equipment. This AFPD applies to all military and civilian AF personnel; i.e., major commands (MAJCOMs), direct reporting units, field operating agencies, and Air Reserve Components (Air Force Reserve and Air National Guard); and other individuals or organizations as required by binding agreement or obligation with the Department of the Air Force. This publication may not be supplemented. Any change or waiver must be approved by the Secretary of the Air Force (SECAF). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*; route Form from the field through the appropriate Functional Chain of Command. Ensure all 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 in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afrims/afrims/afrims/rims.cfm>.

AFPDs that this Publication has correlation with include: 10-2, *Readiness*; 10-4, *Operations Planning: Air and Space Expeditionary Force (AEF)*; AFPD 10-6, *Capability Requirements Development*; 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*; 1017, *Cyberspace Operations*; 10-21, *Air Mobility Lead Command Roles and Responsibilities*; 13-5, *Air Force Nuclear Enterprise*; 16-4, *Accounting for Units, Installations, and Aerospace Vehicles*; 20-1/63-1, *Integrated Life Cycle Management*; 21-2, *Munitions*; 33-1, *Cyberspace*

Support (will be superseded by 17-1, when published); 36-26, *Total Force Development*; 38-1, *Organization and Unit Designation*; 90-8, *Environment, Safety & Occupational Health Management and Risk Management*.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Included are changes to requirements and designated responsibilities of HAF and MAJCOM functional authorities for maintenance of military materiel associated with air, space, cyberspace, IT and comm systems.

1. Policy.

1.1. Organizational, intermediate and depot maintenance capabilities for operational readiness shall be maintained to ensure effective and timely response to peacetime operations, mobilizations, national defense contingencies and other emergencies. As a minimum each capability will be able to:

1.1.1. Organizational: launch and recover sorties, maintain and repair materiel coded for organizational level repair.

1.1.2. Intermediate: repair materiel coded for organizational and intermediate level repair in back shops and/or centralized repair facilities.

1.1.3. Depot: repair materiel coded for organizational, intermediate and depot; overhaul; rebuild; modify and manufacture.

1.2. Maintenance shall be performed at the lowest level; consistent with available Technical Manuals (TMs), personnel, capacity, infrastructure, equipment and tools.

1.2.1. Mission Generation Maintenance will consist of wing level capabilities required to safely launch, recover, configure, inspect, maintain and repair systems and equipment.

1.2.2. A Repair Network will support Mission Generation Maintenance by providing maintenance capabilities required to fulfill operational needs outside the capability and/or capacity of Mission Generation Maintenance activities.

1.3. Maintenance activities at all levels shall be resourced to optimize weapon system readiness to meet mission requirements.

1.4. Maintenance organizations, tools, equipment, processes and skills shall be standardized to the maximum extent possible.

1.5. Government maintenance organizations shall follow Government verified procedures to accomplish repairs.

1.6. Economies and efficiencies shall be optimized by:

1.6.1. Managing fleet/materiel health to provide long-term capability of equipment.

1.6.2. Utilizing arrangements such as performance based agreements and public-private partnerships.

1.6.3. Allocating existing Government capabilities and inventories that provide best value for meeting mission needs.

1.6.4. Reviewing maintenance workloads and capacity utilization to identify economies of operations and/or improve responsiveness.

1.7. Assign skilled personnel to fully support operational and expeditionary air forces.

2. Roles and Responsibilities. This section lists roles and responsibilities to the extent consistent with delegation in accordance with Headquarters Air Force (HAF) Mission Directives (MD) 1-10, *Assistant Secretary of the Air Force (Acquisition)*; 1-12, *Assistant Secretary of the Air Force (Financial Management and Comptroller)*; 1-26, *Chief, Information Dominance and Chief Information Officer*; and 1-38, *Deputy Chief, Logistics, Engineering and Force Protection*.

2.1. Assistant Secretary of the Air Force for Acquisition (SAF/AQ)

2.1.1. Develops maintenance policy and issues policy implementation direction to ensure enterprise business practices, employment of organic and commercial support, management processes, and integrated product support.

2.1.2. Ensures system designs optimize maintenance support (e.g., reliability and maintainability) and minimize the total life cycle costs.

2.1.3. Ensures system maintenance performance is validated against design parameters throughout the system life cycle utilizing standardized reportable metrics.

2.1.4. Ensures maintenance capability compliance with Title 10 as it applies to AF Depots (Ref Chapter 146, Title 10 United States Code).

2.1.5. Supports development of budget exhibits and documentation.

2.2. Chief, Information Dominance and Chief Information Officer (SAF/CIO A6):

2.2.1. Develops policy and issues policy implementation direction for maintenance of Comm, IT and Cyberspace assets.

2.2.1.1. Provides Functional Area/Career Field Management and issues guidance for training and equipping the maintenance workforce.

2.2.2. Supports development of maintenance strategy, concept and planning for Comm, IT and Cyberspace Programs that:

2.2.2.1. Provides affordable systems' operational support.

2.2.2.2. Mitigates risks to operational readiness.

2.2.2.3. Ensures availability of metrics, data systems and guidance for Comm, IT and Cyberspace maintenance organizations to measure and report data to evaluate system availability.

2.2.3. Advocates for Comm, IT and Cyberspace maintenance resources.

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

2.3.1. Manages all financial management, comptroller functions and activities to include those associated with the planning, programming, budgeting and execution (PBE) processes.

2.3.2. Ensures availability of financial management information to maintenance activities.

2.3.3. Provides financial management guidance and policy implementation direction.

2.4. Deputy Chief of Staff, Logistics, Engineering and Force Protection (AF/A4):

2.4.1. Issues policy implementation direction for maintenance of air and space systems, munitions and associated equipment/materiel.

2.4.2. Supports development of maintenance policy, strategy, concept and planning for air and space systems, munitions and associated equipment/materiel to optimize mission generation and provide affordable and agile operational support.

2.4.3. Oversees air and space systems, munitions assets, and associated equipment/materiel to:

2.4.3.1. Analyze maintenance trends.

2.4.3.2. Advocate for resources to sustain maintenance operations.

2.4.3.3. Provide Functional Area/Career Field Management and issues guidance for training and equipping the maintenance workforce.

2.4.3.4. Ensure maintenance operations are supported by robust management information.

2.4.3.5. Ensure availability of metrics, data systems and guidance for air and space maintenance organizations to measure and report data to evaluate systems' availabilities.

2.4.3.6. Mitigate maintenance risks to operational readiness.

2.5. Major Command Commanders (MAJCOMs):

2.5.1. Provide manpower, resources and training consistent with the assigned mission.

2.5.2. Interface/collaborate with Program Managers (PMs) in developing and implementing maintenance strategies and concepts that provide for the long term sustainment and enhanced capability of assigned systems and equipment.

2.5.3. Provide interface between operational units and PMs to achieve expedient resolution of technical and material deficiencies to optimize reliability and maintainability of fielded systems.

2.5.4. Analyze maintenance trends and mitigate inefficiencies/risks to operational readiness and environmental, safety and occupational health risk.

2.5.5. Provide MAJCOM specific guidance, funding and analysis to optimize systems/equipment availability.

2.5.6. Ensure units within wings are the primary activities executing organizational and intermediate maintenance of assigned air and space systems.

2.5.7. Ensure maintenance activities have the capability to meet mission generation requirements and simultaneously sustain preventative maintenance and training.

- 2.5.8. Ensure maintenance activities measure and report maintenance data to permit evaluation of maintenance performance and system/equipment availability.
- 2.5.9. Review maintenance workloads to identify economies of operations and/or improve responsiveness.
- 2.6. Air Force Materiel Command (AFMC) Commander (In addition to paragraph 2.5):
- 2.6.1. Provides depot maintenance guidance to the Air Force Sustainment Center relative to execution of this AFPD and associated implementing AF direction.
- 2.6.1.1. Optimizes efficiencies and effectiveness of depot maintenance activities.
- 2.6.1.2. Ensures financial planning and budgets for depot maintenance requirements.
- 2.6.2. Ensures capital investment in depot operations for infrastructure, equipment and process improvement.
- 2.6.3. Provides executive management for the Depot Source of Repair (DSOR) process.
- 2.6.4. Provides engineering, maintenance, corrosion prevention and control, and nondestructive inspection support to MAJCOMs and ANG.
- 2.7. Air Force Space Command (AFSPC) Commander (In addition to paragraph 2.5):
- 2.7.1. Ensures Space and Cyberspace maintenance activities have the capability to meet mission requirements and simultaneously sustain preventive maintenance and training.
- 2.7.2. Provides engineering and maintenance support to MAJCOMs and ANG for space systems.
- 2.7.3. Supports/utilizes the AFMC-managed DSOR process for Space.
- 2.8. Air Education and Training Command (AETC) Commander (In addition to paragraph 2.5): Provides formal training for equipment maintenance technicians to meet operational requirements.

DEBORAH LEE JAMES
Secretary of the Air Force

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

Chapter 146 of Title 10 United States Code, Contracting for Performance of Civilian Commercial or Industrial Type Functions

DoDD 4151.18, *Maintenance of Military Materiel*, 31 March 2004

HAF MD 1-10, *Assistant Secretary of the Air Force (Acquisition)*, 24 June 2014

HAF MD 1-12, *Assistant Secretary of the Air Force (Financial Management and Comptroller)*, 18 February 2010

HAF MD 1-26, *Chief Information Dominance and Chief Information Officer*, 5 February 2015

HAF MD 1-38, *Deputy Chief of Staff, Logistics, Engineering and Force Protection*, 1 April 2015

AFPD 10-2, *Readiness*, 6 November 2012

AFPD 10-4, *Operations Planning: Air and Space Expeditionary Force (AEF)*, 30 April 2009

AFPD 10-6, *Capability Requirements Development*, 6 November 2013

AFPD 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*, 8 March 2007

AFPD 10-17, *Cyberspace Operations*, 31 July 2012

AFPD 10-21, *Air Mobility Lead Command Roles and Responsibilities*, 30 April 2014

AFPD 13-5, *Air Force Nuclear Enterprise*, 6 July 2011

AFPD 16-4, *Accounting for Units, Installations, and Aerospace Vehicles*, 1 July 2014

AFPD 20-1/63-1, *Integrated Life Cycle Management*, 3 July 2012

AFPD 21-2, *Munitions*, 17 December 2012

AFPD 33-1, *Cyberspace Support*, 9 August 2012 (will be superseded by 17-1, when published)

AFPD 36-26, *Total Force Development*, 27 September 2011

AFPD 38-1, *Organization and Unit Designation*, 24 August 2011

AFPD 90-8, *Environment, Safety & Occupational Health Management and Risk Management*, 2 February 2012

AFMAN 33-363, *Management of Records*, 1 March 2008

Prescribed Forms

None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

Abbreviation and Acronyms

AF—Air Force

AEF—Air and Space Expeditionary Force

AETC—Air Education and Training Command

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

AFRIMS—Air Force Records Information Management System

AFSPC—Air Force Space Command

ANG—Air National Guard

CIO—Chief Information Officer

DoDD—Department of Defense Directive

DSOR—Depot Source of Repair

HAF—Headquarters Air Force (Secretariat and Air Staff)

IAW—In Accordance With

IT—Information Technology

MAJCOM—Major Command

MD—Mission Directive

OPR—Office of Primary Responsibility

PM—Program Manager

RDS—Records Disposition Schedule

SAF or SECAF—Secretary of the Air Force

TM—Technical Manual

TO—Technical Order

Terms

Air Assets—Applicable to this publication, refers to air breathing aerial systems, collateral subsystems and end-items; includes ground-based equipment, data links, mission or user terminals that directly supports air assets.

Capability—Ability to execute a specified course of action.

Communications Assets—As applicable to this publication, refers to communications and electronics items that are not physically incorporated with or essential to operational readiness of air, space, cyberspace, or munitions assets.

Cyberspace Assets—Those that makeup the global domain within the information environment consisting of the interdependent network of information technology infrastructures; including the internet, telecommunications networks, computer systems, and embedded processors and controllers.

Depot Maintenance—Maintenance performed on materiel requiring major overhaul or a complete rebuild of parts, assemblies, subassemblies, and end-items; including the manufacture of parts, modifications, testing, and reclamation. Depot maintenance also serves lower categories of maintenance by providing technical assistance and performing maintenance beyond their capacity. Depot maintenance provides stocks of serviceable equipment by using more extensive facilities for repair than are available in lower level maintenance activities.

End Item—Final combination of end products, component parts, and/or materials that is ready for its intended use; e.g., aircraft, mobile machine shop.

Fleet Health—Overall condition of air and space systems, equipment, assets, and/or forces to execute a long-term course of action (e.g., number of delayed discrepancies, number of serviceable assets versus requirements, and/or level of training).

Intermediate Maintenance—Repair coded “intermediate” that is beyond essential organizational but below depot capability requirements that may be performed on or off equipment, but generally off-equipment, by organizational, intermediate or depot maintenance activities.

Life Cycle—From system concept development through disposal; total phases through which an item passes from the time it is initially developed until it is either consumed in use or disposed.

Mission Generation—Cumulative efforts to launch and recover sorties, includes associated activities required to sustain the capability to generate sorties.

Maintenance—All action taken to retain materiel in a serviceable condition or to restore it to serviceability. It includes inspection, testing, servicing, classification as to serviceability, repair, rebuilding and reclamation.

Materiel—All items necessary to equip, operate, maintain, and support military activities without distinction as to its application for administrative or combat purposes.

Munition—Complete device charged with explosive, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations.

Organizational Maintenance—Repair coded “organizational” that is below essential intermediate or depot capability requirements that may be performed on or off equipment, but generally on-equipment, by organizational, intermediate or depot maintenance activities.

Policy—Statement of important, high-level direction that guides decisions and actions throughout the Air Force. (As used in this AFPD, the word “policy” refers to what is SECAF approved; i.e. AFPDs, AF Supplement to DoDDs, and AF Policy Memorandums.)

Preventive Maintenance—Care and servicing by personnel for the purpose of maintaining equipment in satisfactory operating condition by providing for systematic inspection, detection and correction of a failure at a beginning stage before developing into major defects or in advance of a predicable failure before occurrence.

Product Support—Package of support functions required to field and maintain the readiness and operational capability of major weapon systems, subsystems, and components, including all functions related to weapon system readiness.

Readiness—Ability of US military forces to fight and meet the demands of the national military strategy.

Operational readiness—The capability of a unit, weapon system, or equipment to perform the mission or functions for which it is organized or designed. **Unit readiness**—the ability to provide capabilities required by the combatant commanders to execute their assigned missions.

Repair—Restoration of an item to serviceable condition through correction of a specific failure or unserviceable condition.

Risk—Probability and severity of loss linked to hazards.

Risk management—The process of identifying, assessing, and controlling risks arising from operational factors and making decisions the balance risk cost with mission benefits.

Space Asset—Any individual part of a space system: equipment that is or can be placed in space and/or terrestrially-based equipment that directly supports space activity.

Space Systems—Devices and organizations forming the space network. These consist of: spacecraft; mission packages; ground stations; data links among spacecraft, mission or user terminals; launch systems; and directly related supporting infrastructure.

System—A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements; group of elements forming a unified whole.

Technical Manual—Document (electronic or non-electronic) information that relates to research, development, engineering, test, evaluation, production, operation, use and maintenance of supplies and equipment. A TM normally includes operational and maintenance instructions, parts lists or parts breakdown, and related technical information or procedures exclusive of administrative procedures. Technical Orders (TOs) that meet the criteria of this definition classify as TMs.