U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

National Policy

ORDER
6000.15E

09/28/2007

SUBJ: GENERAL MAINTENANCE HANDBOOK FOR NATIONAL AIRSPACE SYSTEM (NAS) FACILITIES

This order establishes the Air Traffic Organization (ATO) maintenance program for the Technical Operations Services. General administrative and management policy, standards, procedures, and guidelines are provided for the management, operation, and maintenance of the National Airspace System (NAS).

This order complements related directives which provide detailed guidance in the specialized areas of administrative management and technical applications. Maintenance personnel should co-locate this handbook with the other maintenance directives.

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Distribution: A-W(AF/OP/NI/FZ/SR/OS/VN/TB/AT/TA/TP/TT/TX/FS/AS/ND/RN)-2; A-X(AF/AT/FS/AS)-3; A-Y(DE/AY)-2; A-Z(CB/CX)-2; A-FAF/FAT-0 (STD)

Initiated By: AJW-163

RECORD OF CHANGES

DIRECTIVE NO. **6000.15E**

CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL	CHANGE TO BASIC	SUPPLEMENTS			OPTIONAL

FAA FORM 1320-5 (6-80) USE PREVIOUS EDITION

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CHAPTER 1. GENERAL

1. PURPOSE.

This order provides overall maintenance philosophy, general maintenance policy, procedures, and requirements essential for managing and maintaining the National Airspace System (NAS).

2. DISTRIBUTION.

This order is distributed in headquarters to group level within Technical Operations, En Route and Oceanic, Terminal Services, and System Operations; to branch level in the Technical Operations, En Route and Oceanic, Terminal Services, and System Operations Service Areas; to branch level in the regional Flight Standards and Airports divisions; to division level at the FAA Logistics Center and FAA Academy at the Mike Monroney Aeronautical Center; and to all Air Traffic Organization field offices with a standard distribution.

3. CANCELLATION.

This order replaces Order 6000.15D, General Maintenance Handbook for NAS Facilities, dated July 23, 2004, and cancels Orders 6000.48B, General Maintenance Logging Handbook, dated October 15, 2004; 6030.45B, Facility Reference Data File (FRDF), dated August 4, 2004; and 6700.14, Ground Certification of Non-FAA Federally Owned (Non Military) Navigational Aid(s), dated November 27, 1968.

4. EFFECTIVE DATE.

This order is effective September 28, 2007 with implementation to extend to January 1, 2008.

5. EXPLANATION OF CHANGES.

This revision incorporates changes resulting from field, service area, and headquarters comments, organizational realignment, plain language initiatives, and the Technical Operations Concept of Operations document. These changes include:

a. Implementing policy for event based certification of systems and subsystems in Paragraph 503. Event based certification removes the clock-based requirement for certification, and requires certification whenever maintenance or administrative activities affecting system or subsystem operations occur.

b. Providing guidance and definitions for Reliability Centered Maintenance (RCM) in Paragraphs 321, 322, and 323.

c. Clarifying the certification policy to only apply to FAA owned or maintained systems, subsystems, and services in Paragraph 504.

d. Updating risk management to include safety risk management and other aspects of the Safety Management System (SMS) in Paragraph 421.

e. Updating the guidance on the establishment, termination, and disposition of Technical Performance Records (TPR), and the requirement for a supervisor review in Paragraph 223.

f. Updating the policy on the use of system printouts as a TPR in Paragraph 223.

g. Adding requirement for each handbook OPR to publish TPR forms on the intranet in Paragraph 223.

h. Adding requirement for Air Traffic Safety Oversight Service (AOV) platform credentialing in Paragraph 502.

i. Changing the policy on documenting service certification in Paragraph 506.

j. Integrating the logging policy from Order 6000.48, General Maintenance Logging Handbook into Chapter 2, Section 3.

k. Updating time of certification policy in Paragraph 251.

l. Updating the Universal Resource Locator (URL) for Appendix 3, Systems Subsystems, and Services Requiring Certification.

m. Updating criteria to determine which facilities require a maintenance log in Paragraph 234.

n. Integrating the Facility Reference Data (FRD) policy from Order 6030.45, Facility Reference Data File, and updating the criteria for determining FRD management requirements in Paragraph 221.

o. Updating guidance for group accounts in Paragraph 632.

p. Adding responsibilities for the strategic shutdown committee in paragraph 425.

q. Updating guidance on providing advanced notification for scheduled outages in Paragraph 424.

r. Updating requirement for supervisory review of Technical Performance Record (TPR) and facility maintenance log biennially for each NAS system in Paragraph 210.

s. Adding requirement for supervisory review of FRD biennially for each NAS system in Paragraph 210.

t. Allowing non-Federal employees access to our electronic logging system in Paragraph 240.

u. Requiring use of automated PM Scheduler in Paragraph 249.

v. Eliminating Line/Frequency (LLF) log type in Chapter 2.

w. Adding requirement for each handbook OPR to identify safety related checks in Paragraph 321.

x. Adding requirement for maintenance personnel to accomplish all safety related checks on-time in Paragraph 229.

6. GUIDING PRINCIPLE.

The Air Traffic Organization (ATO) guiding principle is to ensure that all facilities are capable of satisfying the NAS mission regardless of the organization that maintains the facility. The ATO must meet the needs of the Federal Aviation Administration's (FAA) operational mission by:

a. Complying with FAA standards and procedures.

b. Ensuring safe operation of the NAS.

c. Measuring and improving performance.

d. Monitoring and minimizing cost.

7. SCOPE.

This order establishes common maintenance and certification requirements for all systems, subsystems, and services in the NAS, and maintenance standards for all FAA maintained facilities. This order takes precedence over the 6000 series maintenance handbooks.

a. General Maintenance Philosophy. The ATO Maintenance Program is dedicated to ensuring safety and providing the best possible service for the lowest possible cost. The FAA is continually improving NAS systems and services, and ensuring the requirements of the customers are being anticipated and met. All maintenance activities incorporate stringent

practices to ensure services are safe, available, and reliable. Maintenance personnel must give environmental and national defense issues full consideration in the planning and execution of NAS maintenance activities.

b. Certification. Certification is a quality control method used by the ATO to ensure NAS facilities are providing their advertised service. The ATO employee's independent discretionary judgment about the provision of advertised services, the need to separate profit motivations from operational decisions, and the desire to minimize liability, make the regulatory function of certification and oversight of the NAS an inherently governmental function. Verification is a similar quality control process used by non-Federal personnel (as defined in FAR 171, Order 6700.20, Non-Federal Navigational Aids and Air Traffic Control Facilities, and AC 150/5220-16, Automated Weather Observing System (AWOS) for Non Federal Applications). The ATO provides oversight of the verification process for non-Federal systems.

c. Maintenance Activities. The ATO implements a combination of maintenance methods to achieve a Reliability Centered Maintenance (RCM) program. The goal is to maintain each facility, with the required level of safety, reliability and availability using the most efficient approach to maintenance. RCM involves identifying maintenance activities that, when taken, will reduce the probability of failure or extend the service life of the equipment. RCM provides the optimum combination of Periodic, Condition-Based, and Run-to-Fault approaches.

d. Risk Management. Risk management is a general term frequently used to describe a process for identifying hazards, analyzing risks and monitoring them. It includes operational risk and safety risk. The process is used to quantify and mitigate the probability or severity of an undesired event which may have a significant impact to the safety of the NAS. Such undesired events may include any of the following:

(1) Adverse impact to the safety of flight.

(2) Adverse impact to personnel safety.

(3) Programmatic impacts which cause schedule impacts or cost overruns to a program or initiative.

(4) Budgetary impacts which decrease revenue or increase costs.

(5) Impacts to airline schedules or on-time arrivals and departures.

(6) Impacts to facility/service metrics such as availability or reliability. These consider:

(a) The criticality of the service provided.

(b) The criticality of the system's function within the NAS.

(c) Whether a scheduled interruption is required and properly coordinated.

(d) Whether this service or system is redundant or contains a single point of failure.

(e) Whether the interruption occurs during peak traffic periods.

(f) Weather conditions.

e. Restoration. When unscheduled interruptions occur and corrective maintenance is necessary, system or service restoration requires the efficient use of appropriate resources, to minimize the interruption/outage and to meet customer requirements.

8. TERMINOLOGY AND DEFINITIONS.

Appendix 1, Definitions, lists the definitions used by the system specialist. These definitions apply to terms used in maintenance handbooks and may not agree with those used in other directives.

9. MAINTENANCE RESPONSIBILITY.

Title 49 of the United States Code assigns the FAA the legal responsibility for ensuring the proper operation of equipment used in air navigation and air traffic control systems, with all its implications before boards of inquiry and the courts. These implications are beyond the internal interest of FAA management and employees, and involve public scrutiny, expectations, and Tort law. This responsibility belongs to the ATO Technical Operations Services. The ATO is responsible for management, maintenance, and operation of the NAS infrastructure. The ATO Technical Operations Services determines the concepts, philosophies, and implementation methods for fulfilling these responsibilities.

10. GENERAL MAINTENANCE GUIDELINES.

Maintenance of systems, subsystems, and equipment in the NAS must follow these general principles:

a. Maximize availability and reliability of air traffic control, communication, navigation, and surveillance services to the extent practical, consistent with the expected level of safety and established FAA policies, procedures, and practices. Managers and maintenance personnel must minimize the quantity and duration of interruptions. ATO employees must coordinate scheduled interruptions with all applicable users of these systems.

b. The ATO must conduct a maintenance program to ensure maximum efficiency in system, subsystem, and equipment performance, designed to minimize service interruptions.

c. NAS users such as air traffic controllers, commercial aviation, general aviation and the military, depend on maintenance personnel to determine NAS status. NAS status information allows users to determine impacts to their operations.

(1) Air traffic controllers use NAS status to modify aviation procedures to ensure they are safe.

(2) Traffic management personnel use NAS status to enhance the efficiency and safety margins of the NAS.

(3) When ATO personnel do not provide adequate advanced notification of scheduled maintenance activities, any interruption impacts the NAS user as if it were unscheduled.

d. Maintenance personnel must react promptly to unscheduled interruptions as well as to potential problems, consistent with established FAA policies, practices, and procedures.

e. Information sharing and notification ensure all parts of the ATO have information necessary for efficient operations. Information sharing allows the ATO to obtain operational data for better decisions. Notification allows maintenance personnel to respond to problems with the resources required to resolve issues in a timely manner.

f. Maintenance personnel must adhere to uniform national standards, tolerances/limits, schedules, and procedures for maintenance activities. Management approves NAS Change Proposals (NCP) judiciously. Site adaptation must not conflict, negate, circumvent, or lessen the effectiveness of the national standards without an approved NCP.

g. The Service Area Director will assign an adequate number of competent technical system specialists the necessary workload. This skilled staff requires training in the specialized needs of maintenance personnel as necessary.

h. FAA policies, practices, and procedures determine the type and quantity of test equipment, tools, field spares, etc., required by the system specialist to perform their technical duties.

i. Headquarters provides comprehensive, accurate, current, and timely maintenance technical documentation to define and specify the duties, responsibilities, and authority granted to the system specialist for the maintenance program.

j. Maintenance personnel can use the active feedback system throughout the maintenance organization. Feedback provides field input to the Technical Operations Service and other cognizant headquarters offices. The feedback system includes, but is not limited to:

(1) Employee suggestions.

(2) Unsatisfactory Condition Reports (UCR).

(3) Formal and informal on-site inspections.

(4) Proposed modifications.

(5) Directive improvement reports.

(6) NAS Change Proposals (NCP).

(7) Formal and informal letters.

k. Managers must encourage maintenance personnel to submit, through appropriate administrative channels, information on existing or potential problems, deficiencies, errors, or suggested improvements that may affect the FAA's ability to conduct its mission in a safe and efficient manner.

l. All system specialists must follow accepted safe work practices at all times. These include, but are not limited to:

(1) Exercise personal safety precautions including proper use of Personal Protective Equipment (PPE).

(2) Follow proper electrical safety procedures (lock-out and tag-out).

(3) Follow fire prevention guidelines.

(4) Comply with safe work practices and standards.

m. Maintenance personnel should strive to achieve quality work, consistent with the high standards promoted by the FAA and to take pride in their maintenance activities.

n. The maintenance program must consider and protect the quality of the nation's environment and natural resources. Avoid environmental pollution and inconvenience to the general public to the maximum extent possible.

o. The ATO maintenance organization must foster a cooperative working relationship with other segments of the FAA, particularly Air Traffic Services, Flight Standards, other local and federal government agencies/entities, the military, airport authorities and the general public.

11. COMPUTER WORKSTATIONS.

Maintenance Data Terminals (MDT), computer terminals, or Input/Output Terminals (IOT) are types of computer workstations, desktops or portable laptops that support the NAS.

a. Maintenance Data Terminal. An MDT is a personal computer loaded with the event manager application, logging application or the remote monitoring and control application software. Maintenance personnel may use an MDT to document administrative or maintenance activities.

b. Computer Terminal. A computer terminal is a personal computer used mainly for administrative functions such as maintenance record report generation, inventory database management, word

processing, spreadsheets, logistics, and interfacing with other administrative systems.

c. Input/Output Terminal (IOT). An IOT is used as a dedicated terminal for local monitor and control of a NAS facility. An IOT is considered part of a NAS facility, usually communicates through the serial port interface, and is never connected to a computer network.

12. MAINTENANCE DATA TERMINAL.

The Maintenance Data Terminal (MDT) is a tool used by the system specialist for the maintenance of the NAS. All specialists must have ready access to an MDT. Managers should assign system specialists a unique MDT laptop computer if they perform duties at remote locations without a dedicated MDT. Specialists that perform their duties in a work center environment, such as an Air Route Traffic Control Center (ARTCC) or Automated Flight Service Station (AFSS), must use a common MDT desktop computer unless one is personally assigned.

a. MDT Functions. Typical functions include, but are not limited to:

(1) Generating or receiving NAS event notifications.

(2) Scheduling facility equipment and/or service outages.

(3) Downloading documents including drawings and schematics.

(4) Accessing the FAA's Internet and Intranet servers.

(5) Accessing electronic mail.

(6) Remote maintenance monitoring and control.

(7) Performing periodic or corrective maintenance.

(8) Record keeping, logging, or reporting.

(9) Supporting or providing training.

(10) Word processing and other office related work, etc.

b. MDT Configuration Management (CM). Technical Operations manages the MDT CM system which monitors and collects hardware and software characteristics of each MDT. The MDT CM system validates the proper version and status of installed operational software, Commercial off the Shelf (COTS) software, and security related software. A list of configuration managed and approved software is available on the MDT CM website at: https://mdtcm.mps.faa.gov/

13. PERSONAL USE OF GOVERNMENT COMPUTING RESOURCES.

Use of government owned computers for personal use must not interfere with government business or cause any increased expenses to the government. Any use of the internet with a government owned computer must follow the guidelines contained in Order 1370.79, FAA Internet Policy.

14. PERSONAL COMPUTING RESOURCES USED FOR GOVERNMENT PURPOSES.

Use of personally owned computers and/or software is allowed when conducting government business under certain conditions. All software usage must comply with copyright restrictions and security requirements. FAA may permit employees (and contractors) to use privately owned computers to work on Government business, subject to prior written approval by the organizational manager. Both users and

their managers must sign a user agreement prior to approval.

15. REFERENCED DOCUMENTS.

The nature of this directive requires reference to numerous publications. To avoid frequent revision, for the purpose of changing references to the latest issue, personnel should consider all references as the most recent edition.

16. CONFIGURATION MANAGEMENT.

Many NAS items such as software, hardware, and documents have been placed under configuration control. These items are listed in the National Airspace System Configuration Management Document, NAS MD-001. Proper authorization is required for modification of these items.

17. RECOMMENDATION FOR CHANGES.

Users should submit recommendations for improvement to this order. Pre-addressed comment sheets are provided at the back of this order. Employees can mail them through inter-office distribution or mail them to the US Postal mailing address supplied on the form.

18. EMPLOYEE SUGGESTIONS.

Suggestions for technical improvements to items not under configuration management are submitted in accordance with Order JO 3450.1, Air Traffic Organization's (ATO) Awards Program and the new Air Traffic Organization's Employee Suggestion Program.

19-199. RESERVED.

CHAPTER 2. ADMINISTRATIVE MANAGEMENT

SECTION 1. TECHNICAL DOCUMENTATION

200. INTRODUCTION.

An effective maintenance program must contain comprehensive, accurate, and usable technical documentation. This section contains a description of various documents, defines their hierarchy, and provides guidance on their use.

201. FAA DIRECTIVES.

FAA directives consist of national, service area, and local orders, notices, and supplements issued in accordance with Order 1320.1, FAA Directives System. The following examples are included in this category:

a. Policy orders.

b. Maintenance handbooks.

c. Notices.

d. Other orders, notices, supplements, and maintenance alerts issued by headquarters, service areas, or field offices.

202. SYSTEM SUPPORT DIRECTIVES.

The Office of Primary responsibility (OPR) for each system must use a System Support Directive (SSD) to update or modify system hardware, a maintenance procedure, or a Technical Issuance. There are three types of SSDs:

a. A System Support Modification (SSM) delivers system hardware, software, or plant modifications with associated technical instruction book page changes.

b. A System Technical Release (STR) delivers technical system information that does not change hardware, software, or documentation.

c. A System Documentation Release (SDR) delivers new or revised documents or change pages not associated with modifications.

203. DIRECTIVES CHECKLIST.

ATO system specialists should consult local directives, checklists, and other publications to determine those applicable and current to their maintenance requirements. System Support Center (SSC) managers must ensure the required directives, including the latest versions of any maintenance handbooks for equipment or infrastructure, are available at each work center. The directive library must include at least the following directives:

a. 1370.79, FAA Internet Policy.

b. 1370.82, Information Systems Security Program.

c. 3900.19, FAA Occupational Safety and Health Program.

d. 4250.9, Field Material Management and Control.

e. 6000.5, Facility, Service, and Equipment Profile.

f. 6000.15, General Maintenance Handbook for NAS Facilities.

g. 6000.30, NAS Maintenance Policy.

h. 6000.50, Airway Facilities National Airspace System Operations Procedures.

i. JO 6030.31, NAS Infrastructure Failure Response.

j. 6032.1, National Airspace System Modification Program.

k. 6040.15, National Airspace Performance Reporting System.

l. 8020.16, Air Traffic Organization Aircraft Accident and Incident Notification, Investigation, and Reporting, or service area equivalent.

m. 8200.1, United States Standard Flight Inspection Manual.

204. MAINTENANCE HANDBOOKS.

Maintenance handbooks provide system theory and overview of the various system components functional operation. Maintenance handbooks are written in accordance with Order 1320.58, Equipment and Facility Directives– Modification and Maintenance Technical Handbooks. Maintenance handbooks should contain the following:

a. General information and requirements.

b. Technical characteristics.

c. Standards and tolerances, also known as the “blue pages”.

d. Reliability Centered Maintenance (RCM) tasks.

(1) Periodic Maintenance

(a) Safety Related Checks.
(b) Preventive Maintenance.
(c) Performance Checks.
(d) Routine Maintenance.

(2) Condition-Based.

(a) Time based checks.
(b) Cycle based checks.
(c) Situation based maintenance.
(d) Predictive Analysis and Intervention.

(3) Run-to-Fault.

e. Maintenance Procedures and other maintenance activities.

f. Flight inspection.

g. Certification Requirements.

205. TECHNICAL ISSUANCES.

Technical Issuances are publications acquired from non-agency sources or developed within FAA that directly concern installation, maintenance, or modification of equipment, equipment systems, facilities, or aircraft.

a. The Technical Issuances numbering system, independent of the Directives System, provides a means for numbering and recognizing industry and other governmental agency prepared publications as official publications for use within FAA.

b. Manufacturer instruction books for plants and equipment are included in the technical issuance category. The OPR publishing technical issuances must develop standard operating procedures within their respective organizations and identify appropriate reference material as necessary.

c. The basic objective is to permit the merging of internally developed and externally acquired technical manuals and publications into a consolidated, single-source set of documents.

d. Due to necessary deviations from the standard directive format and issuance procedures, certain publications are designated as technical issuances. These may include:

(1) Technical instruction books.

(2) Contractor Publications, not in FAA formats.

(3) Military documents.

(4) Other governmental agencies documents.

e. Changes to TI are issued through the SSD program.

206. LOCALLY DEVELOPED DIRECTIVES.

The Service Area or District may issue directives to supplement published guidance, as necessary, to meet local conditions, implement local policy, or fill a need prompted by the absence of appropriate published guidance. This must not conflict, negate, or lessen the effectiveness of any documentation issued at a higher organizational level without NCP approval. The OPR for the supplement directive must forward copies of locally developed publications to the next higher organizational element at the time of issuance. The OPR must cancel supplemental directives when no longer required.

207. CONTRACTOR-DEVELOPED PUBLICATIONS.

Contractor-developed publications are documents prepared and/or furnished by an equipment manufacturer as part of its contractual obligations to FAA. The newer publications contain an identifying publication number in anticipation of the implementation of a technical issuance directive. These publications are distinct from the general FAA directives system, and include instruction books, instruction booklets, and manufacturer's brochures. These do not substitute for the maintenance handbook.

208. TECHNICAL INSTRUCTION BOOKS.

Technical instruction books are written for specific systems. The technical instruction book provides the following benefits in the ATO maintenance program:

a. Quick and precise access to system, subsystem, and equipment details.

b. Improved comprehension of NAS technology.

c. Methods of troubleshooting, corrective, and periodic maintenance.

d. Elimination of redundant training material.

e. Guidance assisting field technical personnel to successfully maintain FAA systems, subsystems, and equipment to FAA standards with minimal training.

209. MISCELLANEOUS DOCUMENTS.

The following are examples of miscellaneous documents:

a. Systems research and development reports.

b. Facility inspection reports.

c. Flight inspection reports.

d. Preprinted forms.

e. Letters and memorandums of agreement (LOA and MOA, respectively).

f. Standard Operating Procedures (SOP).

210. DOCUMENTATION ACCURACY.

Headquarters must provide accurate documentation adequately meeting the requirements of field personnel.

a. The supervisor must review technical documentation for accuracy and completeness biennially, or when requested as part of an aircraft/incident investigation.

b. Supervisory reviews must include at least the following:

(1) Facility Maintenance Logs.

(2) Technical Performance Records (TPR).

(3) Facility Reference Data (FRD).

c. The supervisor must document completion of the review in the facility maintenance log.

d. The District Manager must track completion of the supervisory reviews in a nationally approved tracking database.

e. Users of maintenance documents are required to report any errors or conflicts and requested to make suggestions for improvement. Forward proposed corrections through the appropriate administrative channels to the applicable service area office for evaluation and subsequent transmittal to the document OPR for action.

211. DOCUMENT HIERARCHY.

ATO personnel must adhere to all documented maintenance requirements in the Maintenance Technical Handbooks.

a. If a system specific maintenance handbook is not available then ATO personnel must adhere to all the documented maintenance requirements in the Technical Instruction book.

b. If neither a maintenance handbook nor a Technical Instruction Book are available then ATO personnel must adhere to all maintenance requirements in the system specific Manufacturer's Instruction Book or other system specific non FAA publication.

c. If the published requirements conflict, the following guidelines must apply to all systems, subsystems, and equipment:

(1) FAA directives must take precedence over non-FAA prepared publications; e.g., military manuals.

(2) Order 6000.15 must take precedence over all other 6000 series maintenance directives.

(3) Maintenance handbooks must take precedence over technical instruction books.

(4) Headquarters publications (both FAA-issued and FAA-adopted) must take precedence over service area and local publications.

(5) Standard Operating Procedures (SOP) provide detailed interpretation of directives but do not supersede them.

212. DEVIATIONS FROM PUBLISHED REQUIREMENTS.

Maintenance personnel must report conflicts between comparable publications. When maintenance personnel can not meet the requirements in FAA directives, the following guidelines apply:

a. Deviations From Published Procedures. The maintenance procedures published in technical documentation are prepared for general use, and maintenance personnel should use these procedures for routine system, subsystem, and equipment maintenance. Local conditions, such as siting peculiarities or lack of test equipment, may occasionally require substitute procedures. Such procedures are acceptable provided they achieve the goal of the published procedure.

b. Deviations From Published Schedules. Maintenance personnel may shorten published maintenance intervals, but may not lengthen them without an NCP with an approved configuration control decision (CCD).

c. Deviations From Standards. The standards, tolerances, or adjustment procedures contained in applicable maintenance handbooks represent operational requirements for all facilities.

(1) Service Areas must obtain an NCP for the requirements that cannot be met by readjustment or revision of procedures. During the interim period, operating parameters and procedures established at facility commissioning are the standards for that facility. Parameter tolerances are to commensurate with those established for similar parameters published in the maintenance handbook.

(2) Some facilities are commissioned with standards/tolerances and/or procedures that differ from those specified in maintenance handbooks. This occurs when standards are nonexistent at the time of commissioning. These facilities must adopt the prescribed standards, tolerances, and/or procedures promptly once they are available.

213. DOCUMENTATION OF DEVIATIONS FROM PUBLISHED REQUIREMENTS

In accordance with Order 1800.66, Configuration Management Policy, maintenance personnel must submit an NCP to the service area office as soon as practical when one or more of the requirements in a maintenance handbook or technical instruction book cannot be met. Fully describe the circumstance and include a detailed justification for the request.

a. You must obtain concurrence with the NCP from the service area OPR. The service area OPR may disapprove and end the process, but does not have approval authority for the NCP.

b. Only FAA Headquarters can approve deviations to requirements, standards, and criteria specified in FAA directives.

c. Maintenance personnel must file a copy of the NCP and approved CCD at the site with the FRD.

214. DOCUMENTATION OF TIME AND DATE ENTRIES.

Since NAS facilities are dispersed over a wide range of time zones, all documented time and date entries must use Universal Coordinated Time (UTC) and date also know as Zulu, for standardization.

215. DOCUMENTATION DISTRIBUTION AND ACCESSIBILITY.

a. Document Location. Service Area Directors must provide maintenance handbooks, specifying the policies, practices, duties, and responsibilities that govern the activities of maintenance personnel, for those who require them. Maintenance personnel must have access to maintenance handbooks in either hard copy or electronic format. The first-level technical supervisor must designate the location of directives. A directives checklist is available online through the TechNet website at: http://technet.faa.gov

(1) Maintenance handbooks related to maintenance of the facility are either filed at the site, available online from the site, or routinely carried by all personnel with maintenance responsibility for the site.

(2) Maintenance handbooks related to support; i.e., roads, structures, electrical systems, etc, of a facility are filed in a central location, but are not necessarily filed at the site.

b. Contractor-Developed Publications. Equipment documentation is distributed as follows:

(1) The Document Management Office (DMO) must distribute two copies of the final contractor-developed instruction books, when available, to each equipment location. Additional or replenishment copies are available through the DMO.

(2) One or two copies are distributed per addressee on the distribution list, developed to the Service Areas, FAA Technical Center, Aeronautical Center (FAA Academy), FAA Logistics Center, and National Airway System Engineering.

c. Distribution of Maintenance Handbooks, Changes, and Modifications. Copy requirements for field distribution are established according to the Facility, Service, and Equipment Profile (FSEP) by cost center code and matched with addresses in the Government Services Administration (GSA) Address File. Mailings are direct to the field office according to Order 1720.30, Distribution of Airway Facilities Technical Directives.

d. Other FAA Technical Directives. Maintenance technical documentation, other than those types included in the above subparagraphs, are distributed directly on an "as needed" basis in accordance with Order 1720.18, FAA Distribution System.

216. UPDATING TECHNICAL DOCUMENTATION.

The documentation OPR's must update both the Maintenance handbook and Technical Instruction Books, as appropriate, for equipment changes requiring changes to the documentation in accordance with Order 1320.58.

a. Updating the Maintenance Technical Handbook. The maintenance handbook OPR must update the Maintenance Technical Handbook when standards, tolerances, certification requirements, periodic maintenance schedules, or maintenance procedures change.

b. Updating the TI. The TI OPR should update the Technical Instruction Book based on equipment or configuration changes. Updates to the TI are unnecessary for information contained in a Maintenance Technical handbook.

c. Documenting Technical Updates. Equipment modifications or updates to Maintenance Technical Handbooks and TI's, are implemented via an SSD as prescribed in Order 6032.1, National Airspace System Modification Program.

(1) The specialist must document the completion of an SSM and store with the Facility Reference Data (FRD).

(2) The specialists must document an SDR by logging it on the Record of Changes page and filing it with the directive.

d. Updating Technical Directives with a Notice. The handbook OPR may use a Notice to update technical directives for a temporary period.

217. FILING OF DOCUMENTATION.

Maintenance personnel must file maintenance documentation in accordance with Order 1320.1 in such locations as necessary to ensure accessibility and availability by all maintenance personnel. Assigned personnel must file received documentation promptly.

218. GOVERNING DIRECTIVES.

For further details on documentation requirements, refer to Appendix 5, List of Related Publications, in this order.

219. RESERVED.

SECTION 2. REPORTING AND RECORD FORMS

220. INTRODUCTION.

This section describes various FAA forms that system specialists use in the performance of day-to-day technical duties. References to FAA directives that authorize and explain the use of the forms are provided where appropriate.

221. FACILITY REFERENCE DATA.

Facility Reference Data (FRD) serves as a historical collection of technical documentation which provides a comprehensive, quantitative, and permanent record. Facility Reference Data illustrates how systems, subsystems, or equipment performed during initial acceptance, after modifications or modernization. The data will be used for day-to-day periodic and corrective maintenance, technical inspections, management evaluations, aircraft accident/incident investigations and other various purposes.

a. The FAA office responsible for implementation projects that establish, upgrade or modernize NAS facilities is responsible for providing facility reference data. If FRD was not provided during implementation, maintenance personnel must create it.

b. Maintenance personnel must retain performance and reference data for each FSEP entity that meets all of the following criteria:

(1) Published in the FSEP.

(2) Requires established commissioned values or reference values, flight inspection reports, NCP/CCDs, or modification records.

(3) Is a tangible element of the NAS producing or reproducing communication, navigation, surveillance, automation, meteorological information about the aeronautical environment, or power distribution.

c. Maintenance personnel must keep the following Facility Reference Data information readily available and clearly identified at the facility or the nearest practical location:

(1) Current site specific reference data or commissioning data associated with standards and tolerances that are unique for each individual facility. This includes Key Performance Parameter (KPP) readings with the standard value listed as “commissioned value” or “as established by flight inspection.” Site specific reference data may be documented on any of the following:

(a) FAA Form 198/ Facility Equipment Performance and Adjustment Data.

(b) FAA Form 6000-10, Technical Reference Data Record (TRDR).

(c) Any other standard document or printout used for that equipment type or required by the associated maintenance handbook.

(d) A single line entry on a Technical Performance Record (TPR) form. This TPR form becomes part of the TRDR and is not subject to the data destruction standards of a TPR. Maintenance personnel must identify the line entry as initial or commissioned values and void the blank lines by placing a diagonal line through them.

(2) NAS Change Proposals (NCP), Configuration Change Documents (CCD), or any other documents authorizing non-standard configuration or operation.

(3) Modification records and System Support Directive records.

(4) Flight inspection reports and any associated worksheets, as required by maintenance handbooks.

(5) FAA Form 6050- 1, Facility Transmitting Authorization.

d. Maintenance personnel should keep additional performance and reference data as they consider appropriate to the facility. However, outdated/superseded data must be destroyed in accordance with Order 1350.15, Records Organization, Transfer, and Destruction Standards. Some additional data includes:

(1) Baseline (as installed) Key Performance Parameter (KPP) readings (FAA Form 198, 6030-17, or 6000-10) that are not reference/commissioning values but useful for trend analysis and troubleshooting. If baseline readings are not available, a single line entry on a TPR form showing the earliest readings available for KPP's identified in the maintenance handbook.

(2) Manufacturers test documentation or installation data.

e. Maintenance personnel may keep additional reference data as they consider appropriate to the facility. However, outdated or superseded data must be destroyed in accordance with Order 1350.15, Records Organization, Transfer, and Destruction Standards.

f. The site specialists must store facility reference data at the facility. The District Manager (or designee) must determine an alternate location if impractical to store the data at the facility. This may be due to space limitations or climate concerns.

g. The SSC Manager or designee must review the FRD biennially for accuracy and completeness and document the review in the maintenance log.

222. FLIGHT INSPECTION REFERENCE DATA.

Flight inspection reference data; e.g., Instrument Landing System (ILS) Flight Inspection Data Worksheets, Very High Frequency Omnidirectional Range (VOR) ground check screen prints, document the correlation between simultaneous airborne and ground measurements of corresponding parameters.

a. Maintenance personnel must store these documents with the FRD in accordance with maintenance handbooks.

b. Maintenance personnel must update the TRDR when flight inspection reference data changes.

c. Maintenance personnel must mark replaced flight inspection reference data as "superseded" and retain for 2 years before destruction in accordance with Order 1350.15.

223. TECHNICAL PERFORMANCE RECORD (TPR).

a. Purpose of Form. The 6000 series forms provide a technical performance record of a system or equipment over a specified period of time for trend analysis purposes. This information is collected and recorded on a periodic or an as-needed basis as specified in the appropriate maintenance handbooks.

b. TPR Requirement Criteria. A TPR form is required to document the reoccurring measurement of Key Performance Parameters (KPP) and/or certification parameters listed in a maintenance handbook.

(1) The handbook OPR's may include additional parameters if they consider them valuable for trend analysis.

(2) The handbook OPR may exclude parameters that are non-numerical checks.

c. Establishment of Form.

(1) The handbook OPR must establish a TPR form, based on Form 6000-8, and submit an electronic version to the TPR Oversight Committee through the TechNet TPR website at http://tpr.faa.gov/ for national approval.

(2) The TPR Oversight Committee must review each submitted TPR to ensure completeness and standardization in a timely manner.

(3) The TPR Oversight Committee will publish each approved TPR on TechNet.

(4) The handbook OPR must provide an example of the nationally approved TPR in the maintenance handbook.

(5) Maintenance personnel must use the nationally approved TPR if one is available. You may include additional parameters on the TPR if there is value in trending them.

(6) Maintenance personnel must maintain a nationally approved TPR at each facility with an individual geographic location.

(7) Maintenance personnel must maintain a TPR for each individual set of equipment within a facility; e.g. channel A and channel B, or equipment number 1 and number 2, main and standby. If the relevant maintenance handbook provides standards and tolerances for equality between redundant elements, such as Glide Slope transmitter matching, treat those redundant elements as a single element or set of equipment.

(8) If a nationally approved TPR exists, but is unavailable at the facility, you may use FAA Form 6000-8, Technical Performance Record - Continuation or Temporary Record/Report form or facsimile. Headings and tolerances must match those of the nationally approved TPR.

(9) If a nationally approved TPR does not exist, maintenance personnel may:

(a) Use FAA Form 6000-8, Technical Performance Record - Continuation or Temporary Record/Report form or facsimile.

(b) Submit a locally developed TPR to the TPR Oversight Committee at http://tpr.faa.gov/ for review and possible inclusion on the approved TPR website.

d. Completing TPR Remotely.

Some systems allow remote measurement of TPR data. Technical Operations personnel must reconcile this TPR data with the TPR kept at the facility.

(1) Personnel measuring TPR data generated from a remote location must ensure the TPR data is sent to the facility.

(2) Maintenance personnel must take TPR data generated from a remote location to the facility on the next regularly scheduled visit.

(3) Maintenance personnel must transcribe or attach TPR data generated from a remote location to the TPR maintained at the facility.

d. Use of Form. Do not remove TPR forms from their normal location except to make photocopies or if required for a post aircraft accident package. Make all line entries using blue or black indelible ink or use a typewriter; computer entered values subject to editing are not authorized. When the FAA Form 6000-8 is used, column headings must designate the parameter or appropriate manufacturer's designation of the recorded item. These forms are developed to fit the needs of one or more specific types of systems or equipment.

e. Applicability of Guidance. The information contained in the succeeding subparagraphs will generally apply to all technical performance record forms issued. Maintenance handbooks provide specialized guidance on the preparation of forms. If other guidance on the preparation of FAA Form 6000-8 conflicts with this order, this order will take precedence.

f. Corrections. Erasures are not allowed; void errors with a single line strikeout and the correct information neatly inserted or added on a new line. The person making the correction(s) must place their initials adjacent to the lined out portion.

g. Line Entry Frequency. Normally, make line entries as frequently as the normal maintenance interval (daily recorded once per day, weekly once per week, etc.) Exceptions to this interval are acceptable when additional documentation is required in cases such as:

(1) Post-accident/incident evaluations.

(2) Restoration activities.

(3) Technical Evaluations.

h. Heading Entries. The facility block contains the facility identifier followed by the facility type contraction; e.g., RNO ASR. The facility type contraction and the facility location must agree with the current FSEP database.

i. Column Headings. The column headings on the form are the system performance indicators checked or measured most frequently. Do not cross out, paste over, or modify specified column headings unless directed by the maintenance handbook. Enter not applicable (N/A) if the parameter column is not applicable to the equipment involved. Additional space for other parameters is available on the form itself or on continuation sheets; i.e., FAA Form 6000-8. Maintenance personnel may utilize this additional space for local purposes as required.

j. Date and Time Entries. Enter day, month, and year on each line entry, using day/month/year format. Use UTC as the standard for all time entries.

k. Nominal Block Entries. Nominal entries must note the desired parameter value as prescribed in maintenance handbooks, equipment instruction books, or other appropriate reference data. The other appropriate reference data is based upon commissioning, flight or ground inspection, or locally developed data. The following instructions apply to nominal values:

(1) Numerical Entries.

(a) The standard value, as identified in the maintenance handbook or equipment instruction book, is placed in the first blank row under the parameter's column heading. The parameter's operating tolerance/limit values are placed in the column heading's block, or in the row(s) immediately below the standard value information.

(b) Facility Reference Data nominal values for commissioning or flight/ground inspection are used when the column heading information is not identified in the maintenance handbook or equipment instruction book. Waivered or approved NCP values are also authorized.

(c) When nominal values change, terminate the current form and initiate a new form with the correct values. Note the reason for the changed value in the remark column of both forms. Document the reason for the change in the appropriate maintenance log.

(2) Non-numerical Entries. When non-numerical entries are appropriate under a column heading; e.g., focus, brightness, intelligibility, or other subjective observations, use a checkmark (√) as the nominal entry. The checkmark will be preprinted on the form or entered manually as each sheet is started.

l. Line Entries. Line entries are observed values of the operating data being recorded. Do not leave blank lines to separate successive entries.

(1) Numerical Entries. Document numerical entries as follows:

(a) As-found parameter value in the appropriate column.

(b) If the as-found value is beyond the operating tolerance or limit, circle the value to note an out-of-tolerance condition.

(c) If the as-found value is adjusted, record the new value on the next line.

(d) Adjustments made to any parameter may affect other parameters. If this occurs, re-measure the affected parameters and document the new values on the next line.

(2) Non-numerical Entries.

(a) When a non-numerical parameter is satisfactory, enter a checkmark (√) in the appropriate column.

(b) When a non-numerical parameter is unsatisfactory, enter a circled "(X)" in the appropriate column. Note the parameter correction on the next line.

(3) Referenced Entries. System generated printouts do not replace the requirement for a TPR. Printouts may be referenced from a TPR line entry in lieu of entering measured values. The referenced printouts must either accompany the TPR, or be stored in the same facility as the TPR. The TPR must specify where they are located.

m. Remarks Entries.

(1) When maintenance personnel find a parameter out of tolerance, provide a brief explanation in the remark column. If corrective action is delayed, document the delay in the remark column.

(2) A notation in the remark column of the technical performance record form is not a substitute for a required entry in the maintenance log. If appropriate, the entry on the form may reference the more complete entry in the maintenance log.

n. Immediate Review and Initial. The system specialist must initial each line of data, including line entries, nominal values and tolerance/limits, as it is entered. It is incumbent on the system specialist to review the TPR entries for technical accuracy and identify adverse trends prior to initialing.

o. TPR Administrative Review. The SSC Manager must conduct an administrative TPR review biennially for format, and completeness. Document this review in the maintenance log.

p. Termination. To terminate a TPR form, void the blank lines by placing a diagonal line through them and start a new TPR form. Only terminate TPR forms for one of the following conditions:

(1) When a nominal value or standard/tolerance value is changed.

(2) When a system or equipment is changed or replaced.

(3) When all lines of the current form are full.

(4) When the current form has become damaged, or otherwise has deteriorated to the point that replacement is necessary.

(5) When required as part of a post aircraft accident/incident package.

(6) When directed by the maintenance handbook.

q. Disposition. The authority to destroy TPRs is granted by Order 1350.15, Records Organization, Transfer, and Destruction Standards.

(1) The retention period is a minimum of 2 years after the last line entry date.

(2) A longer retention period is required when:

(a) Required as part of a post aircraft accident/incident package.

(b) Directed by 6000-series maintenance handbooks.

(c) Periodic maintenance intervals are greater than 2 years.

(d) Necessary to fulfill warranty contract requirements.

224. REMOTE MAINTENANCE AND MONITORING.

With the advent of remote maintenance monitoring (RMM), an automated system will present certain facility performance and status data. Such data provides an indication of facility performance and may form the basis for facility certification.

a. Automated Presentation of Alarms. Facility alarm data presented automatically does not become a matter of permanent record unless facility performance deterioration or a status alarm requiring remedial action is indicated. In those cases, the first maintenance personnel to become aware of the deteriorated condition or alarm must initiate follow-up action. Document the incident and activities associated with it in the maintenance log for the facility.

b. Data Retention. Some facilities continually generate printouts or files of monitored data, such as ARTS II and III, second-generation VORTAC, etc. Keep one copy of the printouts where they are generated for 30 days. Maintenance log entries or TPRs may reference these printouts as needed. Printouts referenced in a maintenance log or a TPR must assume the retention criteria of the parent document. The first-level supervisor or designee must ensure copies of referenced printouts are available and properly stored if they are needed longer than one calendar month.

c. Remote Access. When maintenance actions are performed remotely on a facility, the person initiating the action is responsible for ensuring a corresponding entry is made in the appropriate maintenance log. This applies specifically in those cases where a facility is accessed by remote terminal; i.e., MDT.

225. FAA FORM 4650-10, WARRANTY FAILURE REPORT.

Use FAA Form 4650-10 to report failed equipment or parts under warranty. Completion and submission of this form enables the FAA to obtain a replacement unit and a failure analysis report on high failure rate items. The form is used to minimize parts replacement costs. Maintenance personnel must report failures of all warranted items through the Logistics Center.

226. EQUIPMENT MODIFICATION RECORD.

Maintenance personnel must keep modification records current and accurate to track the modification status of a system, equipment, or instruction book. Order 6032.1, National Airspace System

Modification Program, provides guidance on the preparation and use of these records.

a. Documenting Modification Records. Modification records document the addition or removal of authorized modifications to systems, equipment, and related instruction books in the NAS. Maintenance personnel must store modification records with the Facility Reference Data (FRD). Use any of the following as a modification record:

(1) FAA Form 6032-1, Equipment Modification Record.

(2) A printout of the logging screen documenting the completion of the modification and the serial number.

b. Transferring Modification Records.

Modification records must accompany the equipment through its full life cycle. When transferring equipment from one location to another, remove modification records from the FRD, place in an envelope along with an inventory list of records, and secure to the items being shipped.

227. MAINTENANCE LOGS.

The FAA uses a variety of logging methods to document maintenance activities for each facility. The official record of events includes both control center logs and facility maintenance logs.

228. REVIEW AND ACKNOWLEDGEMENT OF AIR TRAFFIC LOG.

Air Traffic Control (ATC) personnel maintain a daily record of operations such as the Daily Record of Facility Operation, FAA Form 7230-4, which is governed by Order 7210.3, Facility Operation and Administration. Maintenance personnel must review all NAS equipment related entries made by any air traffic control operations personnel. SSC Managers must confirm that maintenance personnel address flagged entries and document any required maintenance actions in the facility maintenance log.

229. PERIODIC MAINTENANCE COMPLETION MONITORING.

Periodic maintenance completion monitoring provides an indication of organizational effectiveness and compliance with maintenance orders.

a. The District Manager must track the percentage of on-time accomplishment of Periodic Maintenance (PM) tasks scheduled at weekly or longer intervals. The District Manager or designee must review the tracking at least quarterly.

b. This percentage of PM tasks accomplished on-time is calculated by dividing the number of tasks completed on-time by the sum of tasks (completed on-time, missed, and late), and multiplying this ratio by 100.

c. The District Manager must ensure all safety related checks are accomplished on-time.

230. INFORMATION DISSEMINATION.

The National Operations Control Center (NOCC) provides coordination and management of facility activities providing NAS services. The NOCC is the focal point for information dissemination.

a. Maintenance Alerts. When events, maintenance activities, or logistic support have the potential to systemically affect NAS operations, the NOCC must, in partnership with maintenance support organizations, generate a Maintenance Alert. ATO personnel may submit requests for Maintenance Alerts on the TechNet website. The intent of the Maintenance Alert is to quickly notify maintenance personnel of procedural changes, safety awareness, logistic support problems or maintenance activities that may or will impact system users.

b. Daily Brief. A brief report is generated daily by the NOCC and published on TechNet to summarize incidents and outages that may affect other organizations or external users of the NAS.

SECTION 3. MAINTENANCE LOGS

231. INTRODUCTION.

This section provides the procedures that apply to any logging system. Logging provides the official record of NAS events, equipment performance, and maintenance activities. It is important to prepare logs carefully. For instructions on a specific logging system, reference the appropriate logging procedures.

232. GENERAL LOGGING PHILOSOPHY.

The need for proper and thorough documentation of equipment performance and activities at NAS facilities cannot be overemphasized. Simply stated, the job is not finished until the documentation is complete. The maintenance organization philosophy is to document all events relevant to the performance and/or operation of all NAS facilities. Maintenance personnel must perform logging in a timely, accurate, and uniform manner using standard definitions, criteria, terminology, and procedures. This provides information for determining and evaluating the operations and maintenance history of NAS facilities and services.

233. CONTROL CENTER LOGS.

Control center logs are used by the control center to track and document activities related to event management. These logs provide a means to plan, manage and respond to events that impact the NAS.

a. Control center personnel must log all coordination and help desk calls in the control center log.

b. Control center personnel must also log interruptions and corrective maintenance in the corresponding facility maintenance log.

234. FACILITY MAINTENANCE LOGS.

The facility maintenance log provides an official historical accounting of status, maintenance activities, and a certification record for the facilities and equipment in the NAS.

a. Appendix 4, Facility Maintenance Log Requirements lists all FSEP entities and indicates whether or not they require a Facility Maintenance Log. If required, maintenance personnel must maintain a single electronic facility maintenance log in accordance with nationally standardized methods.

b. All services listed in the FSEP require a Facility Maintenance Log. HQ personnel must use the following criteria to determine if a Facility Maintenance Log is required for other FSEP entities:

(1) Published in the FSEP.

(2) Is a tangible element of the NAS producing or distributing communication, navigation, surveillance, automation, aeronautical information, power, or providing environmental support.

(3) Requires scheduled or corrective maintenance by FAA or others such as FAA contractors, non-Federal technicians, or the military.

b. Non-Federal facilities do not require electronic logs; however non-Federal maintenance personnel must use a nationally approved method.

c. Maintenance personnel should use paper logs for Mobile facilities deployed beyond the boundaries of the custodial organization.

d. The District Manager or their designee may establish other logging requirements as needed.

235. LOGGING PROCEDURES.

Several methods are available for logging maintenance and administrative activities. Standard Operating Procedures (SOP) contain procedures specific for any given logging method. Use the Paper Logging SOP for paper logging procedures. Use the Maintenance Management System (MMS) Logging SOP for MMS logging procedures. Use the Simplified Automated Logging (SAL) Logging SOP for SAL logging procedures. Use the Event Ticketing SOP for event manager logging procedures.

NOTE: These SOPs are available online at: http://technet.faa.gov/6000.15/

236. CLASSIFIED LOGS.

Order 1370.82, Information Systems Security Program, prohibits the storage of classified or Sensitive Security Information (SSI) data in any electronic format. Procedures for logging at classified facilities are contained in the Paper Logging SOP.

237. LOAN OF MAINTENANCE LOGS.

Do not provide access to, or copies of, the maintenance log to anyone outside the FAA without prior approval from the Service Area Director or FAA headquarters. The approving manager must certify that hard copies designated for non-FAA use represent the actual maintenance log entries for the periods addressed by signing them prior to release.

238. TYPES OF EVENTS.

Events are classified as either scheduled, unscheduled, or administrative.

a. Scheduled Event. Scheduled events are planned events that are coordinated and approved in advance, if required. maintenance personnel may re-schedule a scheduled event if necessary.

b. Unscheduled Event. Unscheduled events are unplanned events that are beyond the capability of reasonable prevention and cause facility or service degradations. Maintenance personnel can not re-schedule unscheduled events.

c. Administrative Event. Administrative events are informational or general in nature with no adverse effect on facility or service operations, e.g. commissioning, vandalism, aircraft accident/ incidents, log reviews etc.

239. DOCUMENTATION SECURITY.

a. System Access. Security in the electronic system is maintained through layered access authorization requiring password entry to system functions. System administrators must grant authorized users general logging access to the system as a whole and specific certification access according to requirements and qualifications.

b. Authorization. The user's initials/user ID and password are required as authenticating identification with each log entry.

(1) Assign each employee within the same cost center code a unique set of initials. Only assign one user ID for each employee on each MPS as required.

(2) Entries for multiple-party activities must have the originator's (person making the entry) initials/user ID. Identify additional parties in the remarks.

c. System Administration. System administrators will grant access to other subsystems such as security, data base maintenance, and high-level report functions in accordance with the needs and responsibilities of the individual users.

240. LOG ENTRY AUTHORITY.

The SSC Manager must approve the authorization to make log entries on the basis of need, cognizance, and demonstrated competence.

a. Log entry authorization must identify each employee by his/her initials.

b. In the event two people at a facility have identical initials, the SSC Manager must assign distinctive initials (for logging purposes) to avoid confusion.

c. The Control Center Manager must issue log entry authority to control center personnel so they can make entries on NAS systems, subsystems, equipment or services they monitor or control.

d. Log entry authorization is restricted to FAA maintenance personnel, contract maintenance personnel, or non-Federal maintenance personnel.

(1) The contractor or Non-Federal sponsor will provide a list of personnel requesting log entry authority. The SSC Manager will then grant log entry authorization in writing.

(2) Assignment letters must list, by name, those authorized to make log entries. They may list more than one authorized person. (A notation such as "representative from XYZ Corporation" is not acceptable).

e. Service Area, second level engineering, or headquarters FAA personnel, on official business, may make log entries concerning that visit when requested by the SSC Manager.

241. LOG ENTRY CHARACTERISTICS.

The log is a factual and chronological documentation of events. Log entries must comply with the following requirements:

a. All NAS facilities in the Facilities Service and Equipment Profile (FSEP) must use a standardized data format in accordance with national standards. Headquarters must provide a standardized model database for each facility.

b. Persons making log entries must use accurate, complete, clear, and concise information and make their entries in a timely manner. You should avoid elaborate details and opinions. You should also use approved contractions, proper sentence case, and make

references to substantive records and directives when describing maintenance activities. The following references provide approved word and phrase contractions:

(1) Order 6000.5, Facility, Service, and Equipment Profile.

(2) Order 7340.1, Contractions.

(3) NAS MD-00l, National Airspace System Configuration Management Document.

c. Headquarters must provide a nationally standardized database to store electronic logs. This database must include all facilities requiring maintenance logs.

d. All entries must use Universal Coordinated Time (UTC) format for date and time.

e. Content must correlate with related data on other forms, records, and reports.

f. Log entries must include reference to the appropriate instruction books, maintenance handbooks, directives, maintenance charts, or other documents when appropriate.

g. Void erroneous entries and include an explanation in the remarks.

h. Enter certification statements as specified in the maintenance handbooks. Only make certification entries by a single party.

i. Multiple certification entries on similar equipment may use an inclusive statement. For example, maintenance personnel may certify "all" (or a partial list) of the communication frequencies at a facility with a single entry, in lieu of listing the separate frequencies.

j. Coordination entries must state the organizational element and initials of the person contacted; i.e., AFSS (CB1), POCC (DRS), ARTCC (RAK), ATCT/MM2.

k. Each log entry, change, or void must contain the unique user identifier of the person making the entry.

l. Persons making log entries must include all relevant statements regarding facility operations or status made by Flight Inspection, or other organizational representatives, (FAA or non-FAA). These entries include:

(1) The identity including the last name and organization of the statement source.

(2) Project information if any, and any known effects of the project on facility operation or status.

m. Maintenance personnel must log each statement regarding facility operations or status made by Air Traffic, Flight Inspection, or other FAA organizational representatives. Identify the source of the statement by their initials and organization. Identify statements from non-FAA sources by last name and organization. With facility work projects, include the name of the person in charge of the project. Include any known effects of the project on facility operation or status in the entry.

242. IDENTIFICATION NUMBERS.

The electronic logging system must assign a unique identification number for each event log entry created.

243. DATES AND TIME.

All entries must use Universal Coordinated Time (UTC) format for date and time. The electronic logging system will automatically date- and time-stamp each entry when made. Log entries are considered part of the official maintenance log at that time. For example, data entered on a Maintenance Data Terminal (MDT) in a disconnected mode is considered official but cannot be extracted for reports or analysis until successful upload occurs. Once uploaded, the data on the mainframe is considered the official record, and the MDT data is considered a copy and may be deleted from the MDT.

244. CORRECTIONS.

Logs are official records and cannot be deleted. Void erroneous entries and include an explanation in the remarks.

245. LOG REVIEW.

Maintenance logs are subjected to three levels of review: immediate, supervisory, and administrative.

a. Immediate Log Review. Personnel making log entries must review each entry for compliance with logging requirements before initialing or saving.

b. Supervisory Log Review. The SSC Manager must review the maintenance log for each NAS facility biennially and document the review in the maintenance log.

(1) The purpose of this review is to:

(a) Recognize facility performance trends and recurring malfunctions.

(b) Identify procedural or policy discrepancies.

(c) Ensure technical completeness.

(2) The supervisor must notify the person who made the log entry of any noted discrepancies in the interest of corrective instruction. That person must correct any mistakes or unclear entries by making an additional entry referenced to the erroneous entry by date and time. Deletions are not allowed.

c. Administrative Log Review. The District Manager or designee should conduct administrative log reviews. Reviews at this level are intended to detect systemic problems throughout the District and monitor completion of supervisory reviews. During these reviews, no deletions, corrections, or additions to previous entries are required.

246. DISPOSITION OF LOGS.

The authority to destroy logs is granted by Order 1350.15, Records Organization, Transfer, and Destruction Standards.

a. The maintenance logging systems will retain log entries in the online system for a minimum of 2 and a maximum of 3 years after the last log entry date; destruction after 2 years is preferred.

b. Except for classified logs or aircraft accident logs, destroy all logs at the office or facility of concern.

c. Transfer classified logs to the Service Area office for destruction in accordance with Order 1600.2, Safeguarding Controls and Procedures for Classified National Security Information and Sensitive Unclassified Information.

d. Providing that there are no unresolved claims against the Government with regard to a facility involved with an aircraft accident/incident, destroy all logs after 3 years.

247. DOCUMENTATION POLICY.

A maintenance activity is defined as an action performed in response to an event, whether scheduled, unscheduled, or administrative. The system specialist must document maintenance and administrative activities performed in response to an event.

248. ACTIVITIES REQUIRING LOG ENTRIES.

Facility maintenance logs must provide a complete historical account of activities related to facility status, certification, operation, or performance. They must include but are not limited to:

a. Physical arrivals and departures at facilities without permanent maintenance staff. At least one entry must include the purpose of the visit.

b. All system, subsystem, and service interruptions and related activities.

c. Start and completion of periodic or corrective maintenance actions performed.

d. Identification of failed or replaced equipment components.

e. Start and completion of flight inspections if on-site personnel are involved.

f. Technical evaluations, inspections of any kind, and aircraft accident/incident investigations.

g. Equipment changes, replacement, installation, or adjustment of parameters.

h. Modification, commissioning, or decommissioning activities.

i. Pilferage, vandalism, or related events.

j. Adverse weather effects, known commercial power failures, access road problems, or any other conditions that have specifically impacted a facility.

k. Certification or decertification of systems, subsystems, or services.

l. Visits of a technical nature by service area, headquarters, or non-FAA personnel.

m. Coordination entries concerning facility transfer, intentional channel changes, interruption, refusal of interruption request, or restoration.

n. Supervisory log reviews.

o. Start and completion of Radio Frequency Interference (RFI) investigation if system specialists are involved.

p. Assignment of site maintenance responsibilities.

q. Relevant statements from personnel cognizant about facility operations.

249. PERIODIC MAINTENANCE.

Maintenance personnel must document the accomplishment of Periodic Maintenance (PM) activities.

a. Include start time, end time, and the PM tasks accomplished referenced by order and paragraph number in the documentation.

b. Periodic maintenance is derived from the maintenance technical handbooks, technical instruction books, or other sources and is typically scheduled in advance.

(1) Maintenance personnel must use a nationally approved automated PM Scheduler to schedule periodic maintenance. The system specialist must close these log entries when the PM task is complete.

(2) Maintenance personnel may make PM log entries manually when performing periodic maintenance outside the scheduled accomplishment window.

c. The PM records are used to produce PM accomplishment reports for performance analysis.

d. Periodic maintenance activities that require the removal of a facility/service from operation require additional documentation of the interruption as required in this order.

e. Other activities performed during a periodic maintenance event may also require additional documentation. These may include site visit, corrective maintenance, and certification.

250. CONDITION BASED MAINTENANCE.

Maintenance personnel must document the accomplishment of Conditioned Based Maintenance (CBM) activities using the PM log entry.

a. Include start time, close time, and the CBM tasks accomplished referenced by order and paragraph number in the documentation.

b. CBM is derived from the maintenance technical handbooks, technical instruction books, or other sources.

c. The logging records are used to produce CBM accomplishment reports for performance analysis.

d. CBM activities that require the removal of a facility/service from operation require additional documentation of the interruption as required in this order.

e. Other activities performed during CBM may also require additional documentation. These may include site visit, corrective maintenance, and certification.

251. CERTIFICATION.

Maintenance personnel must document certification of services, systems, or subsystems as required. Certification is performed on specific occasions, as defined in paragraph 503. Service certification is also performed periodically.

a. Maintenance personnel must use the time when the certification judgment was made as the time of certification. The certification must be documented by the end of the shift, or as soon as possible.

b. The time of the certification judgment must precede the time of the "return to service" entry when certification is performed as part of a facility restoration.

c. Maintenance personnel must use the service, system, or subsystem certification statement in accordance with the appropriate maintenance technical handbook.

Note: If the logging tools are unavailable due to software or hardware failure, alternate methods for documenting certification are contained in the appropriate logging SOP.

d. Certification documentation that does not follow the published standard may raise questions about the certification validity. The criteria for determining certification validity are that the intent must be understandable and the documentation must be reproducible.

(1) Improper certifications should be considered valid even though they may require District attention to correct the errors. Examples of these include:

(a) The certification has the wrong text but the intent can still be determined. For whatever reason, the text is different than that specified in the associated order.

(**b**) The certification was made with the wrong activity code.

(c) Certifications that have the correct wording but contain extra superfluous text that should have been put in another log entry or omitted altogether.

(d) The entry close date/time typed by the specialist is more than 10 hours different from the automated date/time stamp of the certification.

(2) Certifications are considered invalid under the following criteria and require immediate attention for correction.

(a) The certification has no text. Certification logs with no text are meaningless.

(b) Certification entries made with the wrong facility/service type.

(c) The certification does not designate the specific system or subsystem if required, i.e. a communications certification where the frequency and main/standby of the transmitter or receiver is not identified in the text. When there is redundant equipment, the frequency and main/standby information must be included in the certification statement.

252. CORRECTIVE MAINTENANCE.

Maintenance personnel must document the accomplishment of corrective maintenance activities performed on specific facilities, systems, subsystems or equipment modules.

a. The log must include a description of any corrective maintenance activities such as;

(1) Performing restoration.

(2) Fault identification.

(3) Diagnostics.

(4) Alignment.

(5) Troubleshooting.

(6) Repair and module replacement.

b. Corrective maintenance may be performed on-site or via remote maintenance monitoring (RMM) access.

c. Corrective maintenance activities that require the removal of a facility/service from operation may require additional documentation for the interruption as required in this order.

(1) If the interruption is unscheduled, the supporting corrective maintenance documentation must link to the interruption report.

(2) Corrective maintenance activities with no facility/service interruption do not require an interruption report.

d. Other activities performed during a corrective maintenance event may also require additional documentation. These may include site visit and certification.

253. INTERRUPTIONS.

Maintenance personnel must document all facility or service interruptions.

a. Interrupt documentation must contain the duration of the interruption and a brief description of the interruption.

b. The current version of Order 6040.15, National Airspace Performance Reporting System, (NAPRS) and service area policy determine the interrupt reporting requirements.

c. All NAPRS reportable facility or service interruptions must include additional documentation of maintenance or administrative activities to support the interrupt report.

d. Control center personnel must create interrupt report documentation. Supporting documentation should be made by those responsible for the supporting activities, such as coordination, periodic maintenance, corrective maintenance, modification, or administrative activities.

254. MODIFICATIONS.

Maintenance personnel must track and document the accomplishment of modification activities to ensure the accuracy of system configurations.

a. The documentation must include the system, subsystem, and module modification information including the issuing organization, modification number and status, etc.

b. Document each individual modification as specified within the modification issuance. Additional guidance is contained in the latest version of Order 6032.1, National Airspace System Modification Program.

c. Modification activities that require the removal of a facility/service from operation require additional documentation of the interruption as required in this order.

d. Other activities performed during an equipment modification may also require documentation. These may include site visit, periodic maintenance, corrective maintenance, and certification.

255. FLIGHT INSPECTION.

Maintenance personnel must document flight inspections if on-site personnel are involved or notified of a discrepancy.

a. Document flight inspections as an maintenance activity.

b. Documentation must include any discrepancies noted.

c. Flight inspection activities that require the removal of a facility/service from operation require additional documentation of the interruption as required in this order.

d. Other activities performed during a flight inspection event may also require documentation. These may include site visit, periodic maintenance, corrective maintenance, and certification.

256. SITE ARRIVAL AND DEPARTURE.

Maintenance personnel must document site arrivals and departures by personnel at un-staffed facilities.

a. Document site arrival and departure information to record arrival and departure times when visiting facilities without a permanent staff or on callback to a duty station during un-staffed hours.

b. Documentation must include the reason for the site visit if not contained in another entry, and any associated one-way travel time.

c. At locations with multiple facilities, document arrival and departure information in the facility maintenance log for the facility requiring the maintenance, unless dictated otherwise by Service Area or District Office policy.

257. AIRCRAFT ACCIDENTS/INCIDENTS.

a. Maintenance personnel must document activities related to aircraft accidents/incidents. Following notification of an aircraft accident/incident, the appropriate control center, the Technical Operations Aircraft Accident Representative (AFAAR), maintenance personnel, and District Office personnel will have responsibilities concerning the event. Only the control center and maintenance personnel have logging responsibilities.

b. The AFAAR makes decisions about facility involvement and contacts one or more control centers as necessary to implement investigative decisions.

c. Control centers are the focal points for all coordination and communication for aircraft accident/incident events within their boundaries of responsibility. Each control center must establish a single administrative log entry to document pertinent coordination and communications.

d. Maintenance personnel must log all their activities required by the AFAAR.

e. Maintenance activities in response to an aircraft accident/incident may include site visit, corrective maintenance if authorized by the AFAAR, flight inspections, and certification. The specific logging procedures contained in the appropriate logging SOP must be used.

NOTE: These SOPs are available online at: http://technet.faa.gov/6000.15/

f. Further guidance may be found in the current version of Order 8020.16, Air Traffic Organization Aircraft Accident and Incident Notification, Investigation, and Reporting.

258. COORDINATION.

a. Coordination entries involving maintenance organization personnel concerning operational channel changes, equipment transfer actions, refusal of interruption requests, shutdown, or restoration must state the organizational element and initials of the person(s) contacted; i.e., ATCT (KMS), ARTCC (RJS), AT (BB), and approvals granted.

b. Coordination events that require the removal of a facility/service from operation require additional documentation of the interruption as required in this order.

259. TECHNICAL INSPECTIONS, EVALUATIONS, AND AUDITS.

Maintenance personnel must document National Airspace System Technical Evaluation Program (NASTEP) inspections and other evaluations or audits as maintenance activities.

a. Documentation must include the time, duration, and participants of the evaluation, and classify the activity as a routine or special.

b. Facility related performance exceptions must be documented, along with any other pertinent details.

c. Other activities performed during technical inspection/evaluation events may also require additional documentation. These may include site visit, interruptions, periodic maintenance, corrective maintenance, and certification.

260. PERFORMANCE EXAMINATIONS.

Maintenance personnel must document performance exams they take as administrative activities.

a. Documentation must include the time, duration, participants, and exam number.

b. Other activities performed during a performance exam event may also require additional documentation. These may include site visit, interruptions, periodic maintenance, corrective maintenance, and certification.

261. EQUIPMENT CHANGES OR REPLACEMENTS.

Maintenance personnel must document facility equipment relocation, removal, initial installation, or special projects as administrative activities.

a. Documentation must include the date, time, and duration of the activity, along with any appropriate details.

b. Other activities performed during the change or replacement of equipment may also require additional documentation. These may include site visit, interruptions, periodic maintenance, corrective maintenance, and certification.

262. COMMISSIONING/ DECOMMISSIONING ACTIVITIES.

The commissioning, decommissioning, or temporary change in facility or service status is documented as an administrative activity.

a. Documentation must include the date and time when the facility or service is actually commissioned or the change in commissioned status becomes effective.

b. Other activities performed during this type of event may also require additional documentation. These may include site visit, periodic maintenance, corrective maintenance, and certification.

263. SUPERVISORY REVIEW.

The supervisor must document the supervisory review of the facility maintenance log, TPR and FRD as an administrative activity. Documentation should reflect the time each review is completed, along with the level of review, the period of review, and any significant discrepancies noted.

264. PILFERAGE, VANDALISM, OR RELATED EVENTS.

a. Maintenance personnel must document pilferage, vandalism, or actions of this nature as administrative activities. Include all details of the event with all findings and related coordination.

b. Other activities performed during this type of event may also require additional documentation. These may include site visit, periodic maintenance, corrective maintenance, and certification.

265. MISCELLANEOUS FACILITY ACTIVITIES.

Maintenance personnel must document any maintenance or administrative activity that may affect a facility, and not specifically identified in this order as an administrative activity.

a. Examples include:

(1) Delivery, removal, or shipment of supplies, parts, instruments and equipment.

(2) Adverse weather conditions that affect facility status.

(3) Commercial power failures that do not result in facility outage.

(4) Visits by service area, headquarters, or non-FAA personnel.

(5) Site access restrictions, or access road conditions deemed to have an effect on facility status.

(6) Livestock or game on the site.

(7) Any other conditions deemed to have a possible effect on the facility or air traffic control operations.

266. REMOTE MONITORING.

Remotely monitored events and alarm acknowledgements must be documented if they indicate facility performance deterioration require action.

267. CODE CATEGORY (CODE CAT).

Codes are used to define the type of activity being logged. The two types of Code Categories are Cause Codes and Activity Codes. Maintenance personnel must code all log entries.

a. Cause Codes. Cause Codes are used for logging interrupts and outages.

(1) Cause Codes were designed to identify causes of interruptions.

(2) Only use Cause Codes with interruption events.

(3) Cause codes are listed in Appendix 7, Logging Codes, Table 3. Scheduled Interruption Cause Codes and Supplemental Codes and Table 4. Unscheduled Interruption Cause Codes and Supplemental Codes, and are further defined in Order 6040.15, National Airspace Performance Reporting System.

b. Activity Codes. Activity Codes are used for logging maintenance and administrative activities.

(1) Activity Codes were designed to identify maintenance and administrative activities that maintenance personnel perform.

(2) Use the appropriate Activity Code for every maintenance or administrative log entry.

268. USING ACTIVITY CODES.

Activity codes are listed in Appendix 7, Logging Codes, Table 1. Administrative Activity Codes and Supplemental Codes, and Table 2. Maintenance Activity Codes and Supplemental Codes, and are defined as follows:

a. 00 - Administrative.

b. 01 - Log review. This code is limited to the periodic supervisory log review.

c. 02 - Entries resulting from routine Air Traffic (AT) log review ("E" entries) as identified in the current version of Order 7210.3, Facility Operations and Administration.

d. 03 – Aircraft Accident/Incident. Administrative entries, which relate to any aircraft accident or incident, must use a code 03.

e. 04 - Commissioning. Used to document the commissioning of a facility.

f. 05 - Decommissioning. Used to document the decommissioning of a facility.

g. 06 – Install/Special Project. Used to document equipment installations and other special projects.

h. 07 – Radio Frequency Interference. Used to document activities related to radio frequency interference events.

i. 08 - Vandalism.

j. 09 – Performance Examination.

k. 10 – Arrive/Depart an unmanned site.

l. 50 – Periodic Maintenance.

m. 51 - Certification.

n. 52 - Decertification. Use code 52 when any certification is removed from a service, system, or equipment.

o. 53 – Flight Inspection.

p. 54 – Technical Evaluation.

q. 55 - PM not accomplished prior to the next scheduled window. Also use code 55 on partial PM completion entries.

r. 56 – Modification.

s. 57 – Remote Monitoring.

t. 58 – Corrective Maintenance.

u. 59 - Other.

269. SUPPLEMENTAL CODES.

The Supplemental code is used in conjunction with the Code Category to further describe the reason for the log entry.

270. MAINTENANCE ACTION CODES.

All log entries require a Maintenance Action Code (MAC) to describe the maintenance action being performed. Available MACs are listed in Appendix 7, Logging Codes Table 5. Maintenance Action Codes.

271-299. RESERVED.

CHAPTER 3. MAINTENANCE REQUIREMENTS

SECTION 1. TECHNICAL COGNIZANCE REQUIREMENTS

300. INTRODUCTION.

This section summarizes the technical aspects of the ATO maintenance program for operational facilities in the NAS. Each ATO maintenance employee is charged with the responsibility of providing support for the operational activities of the NAS.

301. MAINTENANCE FAMILIARIZATION.

All personnel engaged in NAS maintenance activities must familiarize themselves with ATO policy, general philosophy, and procedures, particularly those having a direct bearing on the areas of specialty, facilities, or systems involved, including but not limited to the following:

a. System Knowledge. Specialists must understand the function each facility performs in the NAS. Personnel should familiarize themselves with the local airspace operations to understand how a given facility will impact air traffic control operations within that airspace.

b. Equipment Characteristics.

(1) Technical standards and procedures as published in appropriate maintenance handbooks and equipment instruction books.

(2) Technical performance record data.

(3) Commissioning data.

(4) Applicable equipment warranties.

(5) Integrated Logistics Support Plan (ILSP).

(6) Ground check data.

(7) Flight inspection data.

(8) Use and care of test equipment.

c. Safety. Published precautions and procedures applicable to maintenance activities. See chapter 6 of this order.

d. NAS Change Proposal (NCP). Configuration control of approved changes to equipment, subsystem, system, or facility.

e. Documentation. Technical documentation applicable to the system, subsystem, equipment, or facility maintenance activities. In addition, maintenance personnel should annually review Order 6000.15, preferably in an interactive group setting.

f. Coordination. Knowledge of the procedures for coordination with FAA and non-FAA personnel.

302. STANDARDS TOLERANCES AND LIMITS.

Technical performance of NAS systems is characterized by performance parameters, some of which are considered critical indicators of proper system operation and are designated as Key Performance Parameters (KPP); e.g., output voltage is key for a power supply. The OPR for each maintenance handbook must identify each KPP in the standards and tolerances chapter by placing an arrow to the left of the applicable item.

a. Adjust-and-Maintain Value. Each performance parameter has a maintenance standard that is the optimum value from a system engineering viewpoint. Tolerances/ limits around that value are defined.

b. Monitor Alarm Value. Some parameters are so important that they are monitored by a shutdown function and have standard values with tolerances/limits around that value defined.

c. Pre-Alarm Value. Some parameters may have alarms set to provide an indication that they are approaching an out-of-tolerance condition. These are commonly referenced as soft alarms or maintenance alerts, and have standard values with tolerances/limits defined.

d. Tolerances and Limits. If defined, each standard value has been assigned an "initial" and an "operating" tolerance/limit expressed in terms of permissible deviation from the standard, or in absolute maximum or minimum performance levels, as appropriate, for use during maintenance and certification activities. The "standard" is defined as the optimum value for a defined parameter. The "initial" tolerance is sometimes referenced to the standard, but may also be referenced to the flight inspection reference.

e. Source of Standards and Tolerances. Equipment standards are normally found in the maintenance handbooks but may be listed in the individual technical instruction books. The standards and tolerances are based on system performance requirements, manufacturer specifications, and use of standard test equipment. If discrepancies exist between the standards and tolerances listed in maintenance handbooks and individual technical instruction books, the maintenance handbook must take precedence.

f. Adjustment of Performance Parameters. Maintenance personnel may adjust parameters to optimize operations; however they must adjust parameters to correct an out-of-tolerance condition.

(1) To avoid the unnecessary expenditure of manpower, repairs or adjustments should not be made solely because a particular reading is not exactly the same as the standard value. Adjustments are required only if one or more of the performance parameters, listed in the appropriate maintenance handbook or manufacturer's instruction book, meet(s) any one of the following conditions:

(a) If a performance parameter exceeds its operating tolerance/limit.

(b) If, in the opinion of the person making the measurement, a facility, system, or equipment failure may occur prior to the next scheduled maintenance activity if the adjustment is not made.

(c) If NAS operations are being degraded.

(2) When corrective action is performed, the action must result in the affected parameter(s) being adjusted to within the specified operating tolerance/limit as a minimum, and to within the specified initial tolerance/limit to the extent practical. In addition, whenever adjustments are made to alleviate an out-of-tolerance/limit condition, the system specialist must verify that the corrective adjustments have not affected the within-tolerance/limit operation of other parameters. Refer to Paragraph 503 to determine if certification is required.

g. Philosophy of Standards. Where system, subsystem, or equipment parameters are monitored, the monitors alarm standards and tolerances/limits for the parameters often differ from the adjust-and-maintain or maintenance standards and tolerances/limits for the same parameters.

(1) The maintenance tolerances/limits are considered quality-control type requirements, and exceeding these tolerances/limits will usually not endanger the user. The monitor alarm tolerances/limits are the values beyond which conditions may be unsafe. Therefore, maintenance standards and tolerances/limits are generally more stringent than monitor alarm standards and tolerances/limits for the same parameter. This relationship provides an early warning for action on system performance degradation situations.

(2) For example, the operating tolerance/limit for a transmitter power output may be "less than 40 percent reduction" from the specified standard value, whereas the monitor alarm point may be a 50 percent reduction from the specified standard value. Thus, if the transmitter power output is found to have deteriorated 45 percent from the standard value, corrective maintenance action would be required, but the monitor would not have alarmed, and no shutdown would have occurred.

303. PRIME DIRECTIVE.

Maximum availability of safe services is of prime importance to the users of the NAS. Accordingly, maintenance personnel must keep equipment downtime to a minimum as they efficiently manage the NAS. Coordination with lead-time for the appropriate control center before shutdown of equipment and prompt reporting of interruptions are equally important. This minimizes the impact of a facility or service loss in the air traffic environment.

304. LIAISON RESPONSIBILITIES.

ATO personnel must recognize the interaction between their duties and responsibilities and those of others, both within and outside FAA. The primary office of responsibility (OPR) must establish a liaison to ensure the mission of the FAA can be accomplished in a timely, efficient, and effective manner with those indicated below:

a. Air Traffic Controller Personnel. Maintenance personnel must coordinate all maintenance activities that may adversely affect the service provided by a commissioned facility with air traffic control operations personnel in advance through the control center or by local procedures. Air traffic personnel will issue a Notice to Airmen (NOTAM) when required in accordance with Order 7930.2, Notices to Airmen (NOTAMS). Some conditions requiring close coordination with air traffic control operations personnel are described below.

(1) Any activity where an interruption would occur; e.g., a change of transmitters. Maintenance personnel must not start their activities until the appropriate air traffic control facility concerned has been notified and approved the release.

(2) Immediately upon equipment failure or upon notification that a facility is out-of-service because of equipment failure.

(3) When transferring the facility to standby power.

(4) Whenever service can be restored after an interruption of a system, subsystem, or equipment.

(5) When construction or modernization may cause interruptions.

(6) When the certification has been removed, or expired.

b. Other ATO Personnel. The appropriate control center must coordinate all maintenance activities that may adversely affect other NAS facilities.

c. Flight Inspection Personnel. Flight Inspection personnel may require on-site maintenance personnel to work with during flight inspections.

d. Other Government Agencies and External Customers. Maintenance personnel must coordinate activities with other Government agencies and external customers, in accordance with FAA directives or formal agreements.

e. Local Authorities. Maintenance personnel must cooperate with local government authorities (including airport, fire and police officials) in areas applicable to the FAA mission and in the performance of their assigned duties.

f. Telephone Companies. Maintenance personnel must coordinate their activities with appropriate telephone company personnel to expedite tests and repairs of telephone lines and equipment.

305. OPERATIONAL STATUS, NOTICES TO AIRMEN (NOTAM).

Notices to Airmen (NOTAM) are issued and disseminated by ATO personnel to advise NAS users of the status and availability of NAS facilities.

a. The National NOTAM Office is responsible for initiation, dissemination, and cancellation of NOTAMs.

b. Maintenance personnel must immediately report any interruption or change in the performance characteristics that would, in the judgment of the system specialist, adversely affect service to the user to control center personnel for possible NOTAM or other appropriate action.

c. Control center personnel must request the initiation or cancellation of a NOTAM with the Automated Flight Service Station for a NOTAM.

d. Control center personnel must document the issuance and cancellation of requested NOTAMs by logging the NOTAM number in the maintenance log.

e. The National Flight Procedures Office (NFPO) is responsible for issuance and cancellation of procedural NOTAMs on navigational aids used for multiple purposes.

f. A periodic review of Aeronautical Information Publications (AIP) is necessary to confirm properly published facility descriptions and accurate status indications are provided to users of the NAS.

(1) The District Manager or designee should review the appropriate Airport Facility Directory (AFD) to ensure current system status is accurate each charting cycle.

(2) The control center managers or designee must review all current applicable NOTAMs daily.

(3) Maintenance personnel must immediately notify the manager of the appropriate air traffic control operations facility of any AIP discrepancy so that appropriate action may be taken.

306. AVIATOR AWARENESS.

Aviators have several methods available to determine the operational status of navigational aids (navaids), including NOTAMs, broadcast messages, and communications with air traffic control operations personnel. Certain maintenance procedures on navaids, however, produce indications that can confuse or mislead aviators. Additional precautions can reduce the risk of aviators making use of these signals.

a. Removal of Identification. On those systems providing identification signals, remove the identification signal during any maintenance activities that affect the radiated signal. This signifies to the user that equipment adjustments are being accomplished and the system may be unreliable.

b. Minimize Hazardously Misleading Information (HMI). Certain maintenance practices may require intentional radiation of HMI. Minimize such occurrences in both number and duration when practical. Methods to accomplish this include using more than one specialist to eliminate access time to far-field measurement areas, and using additional or specialized test equipment and procedures as a substitute for radiating HMI.

307. ORDER OF RESTORATION ACTIVITIES.

Accomplish restoration activities in the following order:

a. Corrective maintenance, if necessary, of the facility providing the service.

b. Certification or verification, as required, of the facility or service.

c. Notification of the appropriate points of contact that the facility or service is restored.

308. SIGNIFICANT EVENT REPORTING.

a. A significant event is any event causing an impact to air traffic operation or that may cause a facility/service interruption at airports, centers, and other FAA facilities.

b. Control center personnel must submit a Significant Event Report (SER) in accordance with Order 6030.41, Notification Plan for Unscheduled Facility and Service Interruptions and Other Significant Events.

309. REPAIR PHILOSOPHY.

The ATO philosophy is to repair equipment using the most cost effective method. Do not automatically discard expendable items without attempting reasonable repairs, even though the initial cost of the items is minimal. The designation of an item as Exchange & Repair (E&R) does not preclude on-site repair if a local repair effort is determined to be feasible.

310. REPAIR DECISIONS.

The District Manager must ensure that field repairable equipment is not sent to a servicing depot for repair.

a. Factors that may make field repair impractical include:

(1) The unavailability of special tools and equipment.

(2) The extent of training the system specialist has received, and the time required to effect repairs.

(3) The availability of depot or other outside repair facilities.

b. When depot repair is required, requisition a replacement item and return the defective item to the appropriate servicing depot within 30 days of receipt of the serviceable item. The accompanying paperwork should include a description of the defect.

311. REPAIR METHODS.

a. The following methods are available for items that can be repaired:

(1) Repair by warranty. Maintenance personnel must not attempt to repair items under warranty unless required to return a critically needed facility to service. In this case, field repair of failed printed-circuit boards in equipment under warranty may be made where the technical capability exists to isolate the fault and effect repairs. Field repair may void the warranty. Report failed or defective component parts on printed-circuit boards. Where repairs exceed the technical capability of field personnel, report the printed-circuit board as failed, and requisition a replacement from the servicing depot. e.g. FAALC or contractor depot.

(2) Repair on-site by system specialist using parts from station stock, local purchase, or requisitioned from the FAA Logistics Center.

(3) First, repair using local vendors with current repair contracts. Second, use local vendors without a current contract where economically feasible.

(4) Repair at the depot using Repair & Return (R&R), or Exchange & Repair (E&R) methods. Include an Airway Facilities Modification Record (FAA Form 6032-1) or an approved electronic equivalent with all items returned to the FAA Logistics Center for E&R or R&R. Maintenance personnel must include a detailed description of defects, problems, and repairs attempted to provide depot personnel necessary information to restore the item.

b. Replace items that cannot be repaired by any of the above methods.

312. LOGISTICS REQUIREMENTS.

Before a new system, subsystem, or equipment is introduced into the NAS, the ATO must assist the requirements, acquisition, and logistics organizations in developing an Integrated Logistics Support Plan (ILSP) that includes the following:

a. Maintenance planning.

b. Maintenance staffing.

c. Maintenance support facilities.

d. Site spares.

e. Packaging, handling, storage, and transportation.

f. Supply support.

g. Support equipment and test equipment calibration.

h. Technical data.

i. Training.

j. Computer resource support.

313. SUPPLY SUPPORT.

The FAA Logistics Center provides a liaison to the organization responsible for providing logistical support to meet the operational requirements of supported systems used in the NAS. Some systems use non-FAA logistical support.

a. The objective is to ensure that adequate system spares are available at the depot and in the field for systems, subsystems, and equipment to support the stated operational requirements.

b. Initial spares and other provisions are determined individually for each system as part of an Integrated Logistics Support Plan (ILSP) process. Subsequent supply requirements, as they develop, are furnished upon demand by submission of a requisition to the depot in accordance with Order 4250.9, Field Material Management and Control. Field logistic operations such as Exchange and Repair (E&R), Repair and Return (R&R), priority condition, packing, marking and shipping, inventory control, and replenishment are covered in Order 4250.9.

c. Maintenance personnel must keep an accurate inventory of site spares using the Logistics Inventory and Supply (LIS) application, Field Spares Inventory (FSI) module.

314. COMMISSIONING.

Commissioning is the formal incorporation of a facility, system, subsystem, or equipment that provides new functions, capabilities, or services into the NAS.

a. The District Manager must commission each FSEP entity that meets all of the following criteria:

(1) Published in the FSEP.

(2) Is a tangible element of the NAS producing communication, navigation, surveillance, automation, weather, or information about the aeronautical environment.

b. The District Manager may only commission a facility, system, subsystem, or equipment after verifying completion of the following:

(1) Achievement of the required operational service decision.

(2) The joint acceptance board members have determined the conditions of acceptability in accordance with established standards and specifications and signed the JAI report for their respective offices.

(3) Certification, if required, and commissioning statements have been entered in the appropriate maintenance log by responsible maintenance personnel.

(4) Flight inspection, when required, has evaluated the operation of the facility and issued any required restrictive NOTAM.

(5) Standard Instrument Approach Procedures (SIAP) have been developed by Aviation System Standards office (AVN) if required.

(6) The commissioning NOTAM has been issued, if required.

(7) Initiate action to add the facility to NAS-MD-001, National Airspace System Master Configuration Index Subsystem Baseline Configuration and Documentation Listing.

(8) The FRD has been established and includes all applicable NCPs/CCDs, technical reference data documentation, and reference materials.

(9) A change to the FSEP has been initiated, where required, to place the facility in a commissioned status. The facility may be commissioned if the action has been initiated even if the FSEP action has not been completed.

(10) Verification of lease and utility contracts.

(11) Bar coding of equipment in the Automated Inventory Tracking System (AITS).

315. DECOMMISSIONING.

Decommissioning is the permanent removal of a facility, system, subsystem, or equipment from the NAS without replacing its functions, capabilities, or services. The actions outlined below are required for decommissioning of commissioned facilities. The District Manager, or designee must:

a. Coordinate with air traffic control operations personnel to begin their decommissioning activities.

b. Ensure the National Flight Data Center (NFDC) has been notified of the proposed decommissioning at least 90 days prior to the actual decommissioning.

c. Verify with the Service Center System Support Group Airspace Management Procedures and Special Events Team that action has been initiated to cancel or amend the SIAP, predicated on the facility to be decommissioned.

d. Initiate action, as required, for termination of leased telecommunication services and frequency assignment.

e. Initiate action to remove the facility from NAS-MD-001, National Airspace System Master Configuration Index Subsystem Baseline Configuration and Documentation Listing.

f. Initiate FSEP changes, as required.

g. Initiate actions, as required, to terminate property leases and utility contracts.

h. Follow the disposal plan to redistribute, or excess, as appropriate, all real and personal property, facility maintenance and operating supplies, and materiel in accordance with Orders 4660.1, Changes in Capitalized Value of Real Property, and 4800.2, Utilization and Disposal of Excess and Surplus Personal Property.

i. Provide for restoration of facility site, including environmental restoration in accordance with all federal, state, and local regulations.

j. Degauss all magnetic storage media to remove sensitive information in accordance with the FAA Reutilization and Disposition Process and Procedure Guide, published on the ATO Asset Management and NAS Supply Support Team website.

k. Take action to transfer, store, or dispose of facility records and technical reference materials in accordance with Order 1350.14, Records Management.

l. Terminate any open procurement requests.

m. Ensure that the decommissioning NOTAM has been issued, if required.

316. AUTOMATED LOGGING SYSTEMS.

a. Automated record keeping capabilities have evolved over many years. The Maintenance Management System (MMS) is the primary automation tool used by maintenance personnel. Simplified Automated Logging (SAL) software provides a graphical user interface for MMS containing a simplified subset of MMS functionality. The Event Manager (EM) software allows control center personnel to manage events.

b. The system specialist should remain aware that in addition to completion of logging responsibilities for a particular event, there might be reporting requirements for the same event. ATO Logging policies and procedures are contained in this order and ATO reporting policies and procedures are contained in Order 6040.15, National Airspace Performance Reporting System.

317-319. RESERVED.

SECTION 2. FACILITY MAINTENANCE REQUIREMENTS

320. INTRODUCTION.

This section covers the ATO maintenance program, which is intended to ensure accuracy, integrity, continuity, and availability to promote system safety. Maintenance personnel must perform all maintenance with minimum interference to facility operation.

321. RELIABILITY CENTERED MAINTENANCE (RCM).

The ATO plans to apply a Reliability Centered Maintenance (RCM) approach to its core function of maintaining the NAS. Handbook OPR's will implement this approach over time as they update maintenance handbooks to reflect the new RCM principles.

a. RCM uses a mix of methods to achieve the most effective approach to maintenance. The goal is to provide the stated function of the facility efficiently, with the required level of safety, reliability, and availability. RCM involves identifying actions that, when taken, will reduce the probability of failure or extend equipment lifetime. It seeks the optimal mix of Periodic, Condition-Based, and Run-to-Fault approaches.

b. RCM is an ongoing process that gathers data from operating systems' performance and uses this data to improve design and future maintenance requirements. These maintenance strategies are integrated to take advantage of their respective strengths in order to optimize system operability and efficiency.

c. Some maintenance tasks have a direct relation to safety of flight. The handbook OPR must design procedures for these tasks that include second party confirmation of completion in near real time as part of the task. The handbook OPR must designate these tasks in the maintenance handbook as safety related by placing a pound sign (#) to the left of the paragraph.

322. METHODS OF MAINTENANCE.

RCM uses a mix of three types of maintenance methods.

a. Periodic Maintenance (PM) consists of actions performed periodically prior to failure to achieve the desired level of availability and reliability for a system. PM is performed to reduce the likelihood of failure. PM consists of safety related checks, preventive maintenance inspections, performance checks, and routine maintenance.

(1) Preventive Maintenance consists of activities that are accomplished on a scheduled or as-required basis in accordance with technical directives and instruction manuals.

(2) Performance Checks confirm the operating status of the equipment at a given time.

(3) Routine Maintenance consists of tasks not identified in maintenance handbooks.

b. Condition Based Maintenance (CBM). CBM consists of pro-active maintenance tasks to predict or prevent equipment failures. CBM includes Time-Based actions, Cycle-Based actions, and Predictive Analysis and Intervention (PAI).

(1) Time-Based actions are those performed when defined time periods have elapsed (e.g., when the engine generator has accumulated 3000 hours of operation).

(2) Cycle-Based actions are those performed after a defined number of operations; e.g., replacement of digital audio tapes after 35 recording cycles.

(3) Situation based maintenance is performed in response to unusual events which may require maintenance action. These may include flight inspection, technical evaluation, aircraft accident/incident investigations, ice or snow accumulation removal, etc.

(4) Predictive Analysis and Intervention uses primarily non-intrusive condition-monitoring techniques, visual inspection, and analysis of performance data to determine when maintenance may be required. This allows for the planning and scheduling of maintenance or repairs in advance of catastrophic or functional failure.

c. Run-to-Fault (RTF) maintenance is an approach that accepts the risk of a facility problem or failure. It is normally applied when other types of maintenance actions will not reduce the probability of failure or extend equipment lifetime.

(1) RTF may be applied to systems that have no adjustments or performance parameters and are normally replaced upon failure.

(2) RTF requires a conscious decision based on the facility's application, available redundancy, and other appropriate factors to justify accepting the risk of failure.

323. RCM RESPONSIBILITY.

RCM requires that maintenance decisions are based on maintenance requirements supported by data analysis, sound technical and economic justification, and considering the consequences of facility failure.

a. The ATO national second-level engineering organization is the OPR for procedures related to the implementation of the RCM program.

b. The OPR for each maintenance handbook will select the appropriate mix of maintenance methods for each NAS facility.

c. Each maintenance handbook will be analyzed and updated to implement RCM for that system.

324. CORRECTIVE MAINTENANCE.

Corrective Maintenance (CM) consists of actions taken in response to a failure or out-of-tolerance condition. Corrective maintenance includes resets, repairs, adjustments, fault detection, troubleshooting, fault isolation, or replacement of any failed components.

325. SCHEDULES.

a. Scheduling. Maintenance personnel must schedule periodic maintenance activities in accordance with equipment maintenance handbooks or manufacturer technical instruction books if no handbook exists. Establish a basic recurring periodic maintenance schedule to include all required tasks.

b. Periodic. Scheduled PM due dates for recurring PM tasks are based on the number of days between task accomplishment. This time is called the interval. Specific definitions for each interval are found in Appendix 1. A window within each interval defines the period in which PM accomplishment is considered on-time. This is shown in Figure 3-2, Annual PM Interval Example. The window is centered on the task due date. Windows for daily intervals equal the entire interval. Intervals and associated windows are shown in
Figure 3-1.

c. PM Interval. Periodic Maintenance tasks, including the accomplishment interval associated with each task stipulated in precise terms; i.e., weekly, quarterly, etc. or in general terms; e.g., as required, every 3 to 4 months. Each Maintenance handbook OPR must coordinate changes to PM tasks or certifications with the OPR for the National Periodic Maintenance/Certification Scheduling (PMS) database prior to handbook distribution.

d. Consistency. Perform periodic maintenance tasks as close as possible to the actual scheduled date.

Figure 3-1. PM Accomplishment Windows.

Recurring PM Interval	Window Within the Interval		
	Due	Time on Each Side of Due Date	Total Window Length
Daily or DA	1	± 0 Days =	1 Day
Semi-Weekly	1	± 1 Days =	3 Days
Weekly	1	± 3 Days =	7 Days
Bi-Weekly	1	± 3 Days =	7 Days
Monthly	1	± 7 Days =	15 Days
56 Day	1	± 7 Days =	15 Days
Bi-Monthly	1	± 7 Days =	15 Days
Quarterly	1	± 15 Days =	31 Days
Tri-Annual	1	± 15 Days =	31 Days
Semi-Annual	1	± 30 Days =	61 Days
Annual	1	± 60 Days =	121 Days
2 Year	1	± 90 Days =	181 Days
> 2 Years	1	± 120 Days =	241 Days

e. Late or Missed PMs. If a periodic maintenance task cannot be performed within the specified accomplishment window, maintenance personnel must perform the task at the earliest possible date, and it is considered late or missed.

(1) Late PMs are those performed after the scheduled window, but prior to the next regularly scheduled window. Do not adjust the basic periodic maintenance schedule when tasks are performed outside of their scheduled window.

(2) Missed PMs are those not accomplished prior to the next scheduled window.

f. PM Requirements. PM requirements and intervals are derived from the following documents in the order listed:

(1) FAA Maintenance Handbooks. Periodic maintenance tasks identified in Maintenance Handbooks are the basic requirements.

(2) FAA Technical Instruction Books. Include periodic maintenance tasks identified in Technical Instruction Books if a national or local maintenance handbook does not exist or fails to identify periodic maintenance requirements.

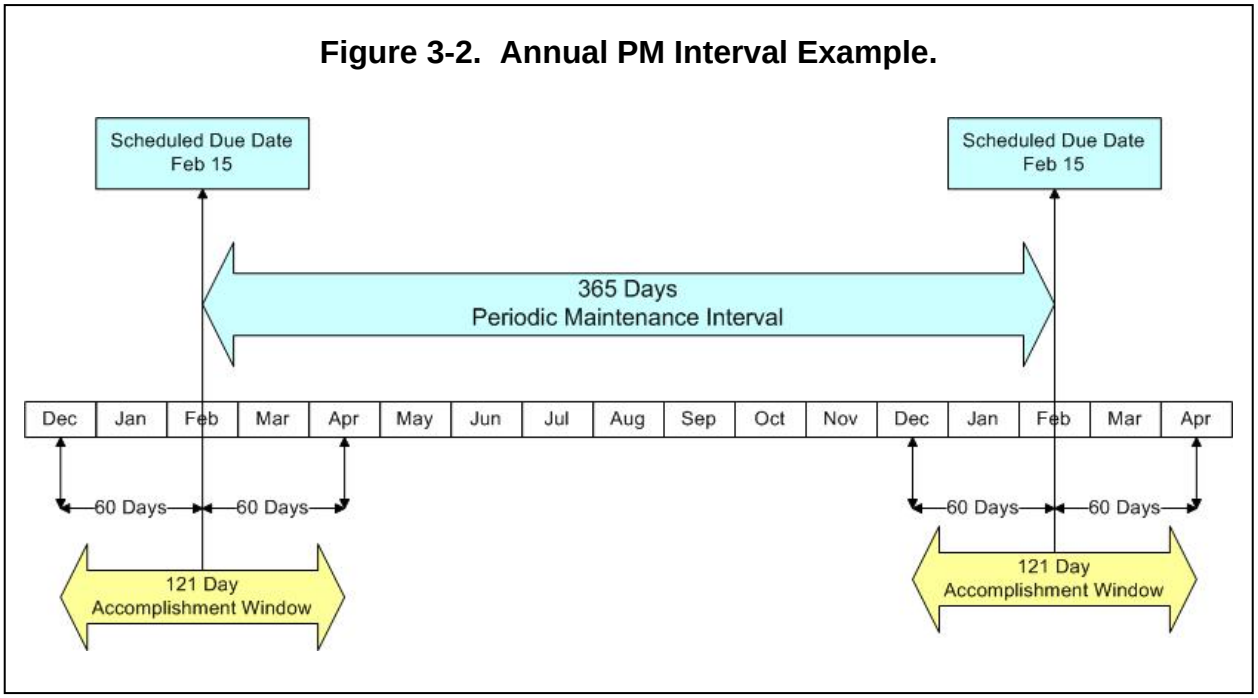
(3) Manufacturer Instruction Books. Include periodic maintenance tasks identified in Manufacturer Instruction Books if guidance from the previous documents does not exist.

g. Adaptability. Periodic maintenance may be accomplished at more frequent intervals than published due to operational or environmental conditions. The Service Area maintenance orders and supplements may identify additional PM required or shorten the intervals defined in national orders.

326. MODIFICATIONS TO FACILITIES, SYSTEMS, SUBSYSTEMS, AND EQUIPMENT.

Submit requests for approval of modifications to items under Configuration Management

Figure 3-2. Annual PM Interval Example.



(CM) in accordance with Order 1800.66. Submit requests for approval of modifications to items not under configuration management in accordance with Order 6032.1, National Airspace System Modification Program.

a. The maintenance handbook OPR must only authorize modifications to ground facilities, systems, subsystems, equipment, including software, associated monitor and test equipment, structures, and buildings to correct deficiencies, satisfy changing requirements, improve performance, increase reliability, minimize or eliminate safety hazards, reduce manpower requirements, facilitate maintenance, control costs, or enable commissioning.

b. Changes to established baselines of installed systems require NCP submission and approval by the appropriate Configuration Control Board (CCB) before the change may be installed. Emergency modifications may be verbally authorized by the Service Area Director or designee; however maintenance personnel must document approval by submitting an NCP within two days of the verbal approval.

c. Maintenance personnel must accomplish authorized modifications within the required timeframe allowed by Order 6032.1.

d. Maintenance personnel must remove temporary (emergency, test or training) modifications as soon as practical.

e. Unauthorized modifications are expressly prohibited. If unauthorized modifications are found, maintenance personnel must promptly report their existence to the supervisor for removal or proper authorization.

f. Guidance on FAA modification policy and procedures is contained in Orders 1320.58, 1800.66, and 6032.1.

327. NONSTANDARD MAINTENANCE REQUIREMENTS.

When conditions preclude maintenance according to established maintenance requirements, the cognizant District must initiate a notification to the 2nd level engineering support activity and the cognizant Configuration Control Board (CCB). The notification must include all pertinent information such as the reason(s) for

nonstandard maintenance, problems encountered or anticipated, etc. If any hardware, software, or documentation under configuration management is required to be modified, maintenance personnel must process a NAS Change Proposal (NCP) according to procedures in Order 1800.66, with accompanying FAA Form 1800-2.

328. MONITORING NAVAIDS.

Technical operations personnel must assume responsibility for the status monitoring function when they disable the aural and/or visual alarms of a NAVAID.

329. MAINTENANCE OF LEASED TELECOMMUNICATION SERVICES.

Telecommunication service providers are responsible for the maintenance and restoration of leased telecommunication services from demarcation point to demarcation point in accordance with service specifications defined in the applicable telecommunications service description and contract(s).

330. MOBILE FACILITIES PROGRAM.

The FAA requires adequate mobile units to meet the following requirements:

a. Emergency or special event requirements.

b. Replacing facilities destroyed by natural or manmade disasters.

c. Supporting scheduled maintenance and modernization programs.

d. Establishing temporary service at locations qualifying for facilities where lack of a facility would adversely affect flight safety.

331. MANAGEMENT OF MOBILE FACILITIES.

The Aeronautical Center is the OPR for the management of the mobile facility program.

a. Program Management. Order 6480.2, Maintenance of Mobile Air Traffic Control Towers, provide more detailed information relative to the overall program management of mobile facilities.

b. Maintenance of Mobile Facilities. Maintenance of mobile facilities is the responsibility of the organizational element having custody. Maintenance personnel must be cognizant of their duties and responsibilities in the deployment, installation, maintenance, and operation of mobile air traffic control, navigational aids, communications, and power systems. Detailed guidance is contained in Order 6700.16, Maintenance of Mobile VHF Omnirange (VOR) Facilities, and individual maintenance handbooks.

332. MAINTENANCE OF AIR TRAFFIC TRAINING EQUIPMENT.

a. Maintenance personnel will cooperate to the extent practical in maintaining approved training aids, both electronic and mechanical, used by air traffic control operations personnel at field locations such as:

(1) Air Traffic Control Tower (ATCT).

(2) Air Route Traffic Control Center (ARTCC).

(3) Flight Service Station (FSS).

(4) Automated Flight Service Station (AFSS).

(5) Terminal Radar Approach Control (TRACON).

(6) Combined Center Radar Approach Control (CERAP).

(7) Air Traffic Control System Command Center (ATCSCC).

b. The Washington headquarters and/or service area offices will issue directives and procedures covering specific items of equipment.

333. MAINTENANCE OF NAS DEFENSE FACILITIES AND SERVICES.

The maintenance of FAA NAS Defense Facilities used by external customers such as Department of Defense (DoD), Department of Homeland Security (DHS), federal law enforcement, other external federal agencies and certain civilian government entities both US and foreign is governed by order 6000.198, Maintenance of NAS Defense Facilities and Services.

a. The FAA NAS Defense Programs Office (NDP) provides oversight of implementation, operations, maintenance, inspections, security, and policies for all NAS Defense facilities and services and will initiate and coordinate required directives to FAA field organizations to implement FAA NDP commitments.

b. Requests for implementation of new facilities or services and requests for changes to existing facilities or services should be directed to the FAA ATO NAS Defense Programs Office.

334-339. RESERVED.

SECTION 3. OTHER MAINTENANCE REQUIREMENTS

340. INTRODUCTION.

This section covers additional maintenance activities that may not be identified in other maintenance handbooks. Maintenance personnel must perform all maintenance with minimum interference to facility operation.

341. OVERSIGHT REQUIREMENTS.

The FAA provides oversight of maintenance to ensure that all facilities used in the NAS regardless of ownership or maintenance responsibility are maintained to provide the same level of service.

a. Areas of FAA oversight on non-FAA maintained systems include:

(1) Oversight for contractor maintained systems, in accordance with Order 6000.41, Contractor-Assisted Maintenance for the National Airspace System.

(2) Oversight of Non-Fed facilities, in accordance with Order 6700.20, Non-Federal Navigational Aids and Air Traffic Control.

(3) Oversight of facilities with military responsibility for maintenance, in accordance with Order 6000.6, Interagency Ground Inspection Guidance.

b. Oversight covers topics such as maintenance practices, configuration management, periodic technical evaluation, personnel evaluation, and test equipment calibration standards traceability.

c. FAA personnel knowledgeable about specific NAS operations, must supervise work accomplished at NAS facilities.

342. HEADQUARTERS REQUIREMENTS.

The appropriate acquisition Program Office or Service Units in Washington headquarters must provide for:

a. Training.

b. Procurement of NAS systems.

c. Site and depot spares.

d. Computer resource support.

e. Reutilization and Disposition Plan.

f. Repair and replacement of parts.

g. Calibration and repair of test equipment.

h. All necessary documentation including directives, as required for all programs.

343. SERVICE AREA REQUIREMENTS.

The Service Area must ensure field repair capabilities are established and the policies and procedures of this order are implemented.

a. Test equipment at the facility is provided in accordance with standards established by Order 6200.4, Test Equipment Management Handbook.

b. The Service Area must provide adequate working equipment at the facility, in accordance with established policy.

c. The Service Area must ensure that site stock of replacement parts and components are available at the facility in accordance with Order 4620.3, Initial Support for New or Modified Equipment Installation.

d. Personnel training is scheduled in accordance with established training programs, and as directed by Order 3400.3, Airways Facilities Maintenance Personnel Certification Program.

344. TEST EQUIPMENT.

SSC Managers must verify test equipment is in proper operating condition and documented on facility property records. General guidelines regarding calibration and repair of test equipment are contained in Order 6200.4.

345. MAINTENANCE OF RADIO FREQUENCY (RF) CABLES AND CONNECTORS.

Maintenance personnel must inspect and repair RF cables, connectors and terminations at least annually at all facilities in the NAS unless specified otherwise in applicable documents. Maintenance personnel must establish a schedule based on local conditions. Maintenance personnel must moisture proof RF cables and connectors after all maintenance or when there may be a possible or potential moisture problem. Reference Chapter 4, Paragraph 445, for moisture-proofing procedures.

346. MAINTENANCE OF NONCOMMISSIONED FACILITIES, SYSTEMS, SUBSYSTEMS, AND EQUIPMENT.

During tests, modernization, relocations, and operational readiness demonstrations, when a noncommissioned status exists on the facility, system or subsystem concerned:

a. Maintenance personnel must maintain equipment to the standards of commissioned equipment to the extent practical to prevent degradation of quality and capability.

b. The facility, system, subsystem, or equipment may be removed from service at any time without a NOTAM; however, prior coordination with air traffic control operations personnel may be appropriate.

c. Noncommissioned facilities must not broadcast identification signals except for the specific identification "TEST."

d. Maintenance personnel should perform custodial maintenance to the extent practical and as the workload permits.

347. AIRCRAFT ACCIDENT ACTION.

a. The data on technical performance record forms and maintenance logs are of prime concern and legal importance during aircraft accident investigations.
Order 8020.16, Air Traffic Organization Aircraft Accident and Incident Notification, Investigation, and Reporting, contains detailed instructions on the responsibilities of maintenance personnel in the event of an aircraft accident/incident. Paragraph 258 contains detailed instructions on maintenance log entries for aircraft accidents.

b. The originals of TPR forms become part of the post aircraft accident/incident package. Complete and authenticate the TPR in accordance with Order 8020.16, then terminate the TPR and place a photocopy with the FRD.

c. Maintenance personnel must maintain Order 8020.16 Chapter 9 Section 3 and its supplements, or any displacing local directive, in a plainly marked document, prepared in advance, and readily available to facility personnel when needed.

348. PRESERVATION OF NATIONAL ENVIRONMENT AND RESOURCES.

ATO personnel, in accordance with applicable laws and regulations, must ensure that all maintenance operations promote the prevention, control and abatement of air and water pollution. Maintenance personnel must use techniques for the disposal or discharge of waste and radioactivity that are consistent with the national effort. Order 1050.10, Prevention, Control, and Abatement of Environmental Pollution at FAA Facilities, outlines the basic FAA policies, plans, and responsibilities that will enable the FAA to fulfill its obligations in this area.

349. EQUIPMENT WARRANTIES.

a. Background. Some new equipment introduced into the NAS is covered by a warranty (or guarantee) clause. The terms of the warranty can usually be found in the forepart of the equipment instruction book.

(1) Warranties on such equipment normally run for two years from the date of factory acceptance or one year from the date of first use by FAA, whichever occurs first. Items of test equipment are normally covered by a commercial warranty. The terms and duration of commercial warranties vary between individual manufacturers.

(2) Some items furnished through the FAA Logistics Center, such as vacuum tubes, may also be warranted, and the warranty information is often printed on the item itself. In other cases of warranted items furnished by the depot, warranty information is printed on the shipping container.

b. Action Required. ATO personnel must identify items and equipment under their purview that are in warranty. Failure to report failures, which occur during the warranty period, may affect FAA's entitlement for repair or replacement by the contractor or manufacturer and may also mask design deficiencies.

SECTION 4. TECHNICAL EVALUATIONS AND INSPECTIONS

350. INTRODUCTION.

This section explains the types of evaluations and inspections, that provide a quality assurance function on NAS facilities.

351. TYPES OF EVALUATIONS AND INSPECTIONS.

ATO personnel conduct inspections to assure the quality of system performance in the NAS. Several types are:

a. Routine.

b. NAS Technical Evaluation Program (NASTEP).

c. Acceptance inspections.

d. Flight inspections.

e. Safety inspections.

f. Non-Federal Facility Inspections.

352. ROUTINE INSPECTIONS.

System specialists, and others engaged in routine maintenance activities, are required to inspect system, subsystem, and equipment performance according to appropriate maintenance handbooks.

353. NAS TECHNICAL EVALUATION PROGRAM (NASTEP).

a. The NASTEP contained in Order 6040.6, NAS Technical Evaluation Program, is the main component in the overall evaluation and quality assurance of ATO maintenance activities.

b. NASTEP provides the following:

(1) Periodic independent technical review of services provided by systems, subsystems, and equipment.

(2) Review of how well the services match customer needs.

(3) On-site in-depth technical inspections by NASTEP evaluators including review of:

(a) Maintenance logs.

(b) Technical performance records.

(c) Facility Reference Data (FRD).

(d) Required maintenance handbooks.

(e) Aircraft accident reporting procedures.

(f) Certification accomplishment.

(g) Certification and Key Performance Parameters.

(h) FAA Form 6050-1, Facility Transmitting Authorization.

354. ACCEPTANCE INSPECTIONS.

Projects to establish, relocate, and improve NAS facilities require a Joint Acceptance Inspection (JAI) and may require a Contractor Acceptance Inspection (CAI). These inspections are conducted to ensure facility projects are completed in accordance with project specifications and facility performance is within established standards

and tolerances. Representatives of the maintenance organization, Logistics, Flight Standards, and other air traffic control operations organizations, as appropriate, participate in these inspections. Refer to Order 6010.7, Joint Acceptance Inspection, for guidance on conducting a JAI or CAI.

355. FLIGHT INSPECTIONS.

Many NAS facilities have performance characteristics that can only be measured or validated by airborne measurements. The FAA maintains a fleet of flight inspection aircraft, specially equipped with high quality avionics equipment and position-determining systems, to make these measurements. Most flight inspection activities occur on a periodic basis throughout the lifetime of a facility; commissioning and special inspections are also conducted. Details on the scheduling and conduct of flight inspections are published in Order 8200.1, United States Standard Flight Inspection Manual, and in Chapter 4 of this order.

356. SAFETY INSPECTIONS.

a. Safety inspections of FAA facilities are required in accordance with the latest version of Order 3900.19, Occupational Safety and Health Program.

b. Safety inspections are conducted in accordance with Occupational Safety and Health Administration (OSHA) regulations and CFR 1960.25, Qualifications of Safety and Health Inspectors and Agency Inspections, to provide a safe and healthful working environment.

357-399. RESERVED.

CHAPTER 4. MAINTENANCE PROCEDURES

SECTION 1. PROCEDURES FOR UNSCHEDULED FACILITY INTERRUPTIONS

400. INTRODUCTION.

This section provides guidance and requirements for handling unscheduled facility interruptions and their reporting and restoration activities. Maintenance personnel having firsthand knowledge of an unscheduled interruption must promptly report the incident to the appropriate control center.

401. FACILITY RESTORATION.

Upon discovery or notification of a facility interruption or degradation, ATO personnel must determine the cause of the interruption and perform the necessary corrective maintenance to restore the facility to normal operation.

a. ATO personnel must begin proper coordination to initiate a NOTAM for any outage impacting operations.

b. The impact of the service and the needs of the users determine the urgency of facility restoration, in accordance with Order JO 6030.31, NAS Infrastructure Failure Response. If the corrective action involves characteristics that can only be verified by flight inspection, as published in the maintenance handbook, do not return the facility to service until flight inspection can validate proper operation.

402. UNABLE TO MEET CERTIFICATION REQUIREMENTS.

When ATO maintenance personnel with certification authority determine that a system or subsystem cannot meet certification requirements, they must take immediate actions as follows:

a. If the system or subsystem in question is a navigational facility, neither air traffic control operations personnel nor the flying public can discern whether the service is safely usable. Therefore, maintenance personnel must immediately remove the system or subsystem from operation in the NAS.

(1) Notify the local or relevant air traffic control operations personnel as soon as possible, to ensure that aircraft do not continue to use the facility. In some cases it may be necessary to physically turn off the navigation signals. Notify the appropriate control center.

(2) Initiate corrective action as required.

(3) Certify the facility before returning it to service.

b. For other than navigational facilities, immediately advise air traffic control operations personnel of the decertification. Air traffic control operations personnel will decide whether or not to continue using the uncertified system, subsystem, or service.

(1) Request an outage through the appropriate control center, and provide an estimate of the time required to return to service.

(2) If the outage request is approved, initiate corrective action as required. Document the outage as unscheduled. Certify the facility before returning it to service.

(3) If the request is denied, make an additional entry in the appropriate maintenance log describing the situation, including names of personnel contacted. Decertify the facility. When an outage can be obtained, initiate corrective action as required, and certify the facility before returning it to service.

403. OUTAGES DUE TO FLIGHT INSPECTIONS.

During navigation facility flight inspections, if adjustments necessitating an outage are required, system specialists must coordinate with the appropriate control center, which will coordinate NOTAM initiation through AT as required.

404. ILS CONTINUITY OF SERVICE.

ILS localizer and glide slope facilities have unique international continuity of service requirements for low visibility operations. These requirements and related procedures are published in Order JO 6750.57, Instrument Landing System Continuity of Service Requirements and Procedures, and International Civil Aviation Organization (ICAO), Standards and Recommended Procedures publication, Annex 10 Volume 1.

405. INTERRUPTION REPORTING.

Maintenance personnel must notify the appropriate control center upon termination of an unscheduled facility interruption. The control center must report the interruption in accordance with Order 6040.15, National Airspace Performance Reporting System (NAPRS).

406. RESPONSE TIMES.

Response times for unscheduled facility interruptions are established in accordance with Order JO 6030.31. Technical Operations may accelerate or delay response times with the approval of the appropriate air traffic control authority. These changes are based upon employee safety, operational needs, or multiple facility interruptions that exceed response capacity. Response time decisions involving joint-use radar must take military requirements into consideration.

407. MOMENTARY INTERRUPTIONS.

Any interruption of the service provided by a system, subsystem, or equipment can cause users to lose confidence in the system. Non-reportable interruptions may be coordinated locally.

a. Maintenance personnel must not switch operating equipment without proper coordination.

b. Before changing equipment or performing any other action on a facility, which may cause momentary interruption or interference with the service, maintenance personnel must notify the appropriate air traffic control operations personnel.

c. Maintenance personnel must not switch or change equipment until air traffic control operations personnel concur with such action unless loss of service is imminent.

d. The system specialist must follow interruption coordination procedures to gain approval.

408-419. RESERVED.

SECTION 2. PROCEDURES FOR SCHEDULED FACILITY AND SERVICE INTERRUPTIONS

420. INTRODUCTION.

This section provides guidance and requirements for scheduling, coordinating and the reporting of facility interruptions and their restoration activities. The appropriate air traffic control operations facility manager (en route or terminal), or designee, is responsible for providing final approval of scheduled facility interruptions.

421. RISK MANAGEMENT.

Maintenance personnel must use risk management techniques to determine the impact to the NAS when scheduling ATO maintenance activities.

a. Operational Risk Management. Operational risk management is the process used to quantify and mitigate the probability or severity of an undesired event which may have a significant impact to NAS availability, reliability capacity, budget or schedules.

(1) The SSC Manager must coordinate with Air Traffic Managers to identify peak traffic periods for each facility within their area of responsibility. Maintenance personnel should avoid identified peak traffic periods when scheduling maintenance activities.

(2) The SSC Manager should go over planned maintenance activities in advance with the appropriate air traffic control operations facility manager.

(3) Maintenance personnel must be aware of any single point of failure within their system.

(4) Maintenance personnel should accomplish maintenance and training on the off-line equipment to minimize interference to facility/service operations.

(5) The SSC Manager should identify critical maintenance activities and consider using additional specialists when performing these activities.

b. Safety Risk Management. Safety is the highest priority when making risk management decisions. Technical Operations personnel must make every effort to minimize equipment related delays, however it must also be recognized that such delays are a necessary safety precaution. When undesired events occur, it may be necessary to tolerate impacts to schedules, costs, traffic flow and metrics, etc.

422. SHUTDOWN POLICY.

NAS users have a need to know the status of the NAS in advance. Technical Operations has the responsibility to ensure planned shutdowns are well known throughout the aviation community. We must balance the need of the NAS users to have systems available with the need for maintenance personnel to schedule shutdowns to prevent unanticipated loss of service. The three components of a shut down are scheduling, coordination, and approval:

a. Scheduling. Maintenance personnel must provide notification in advance to control centers when planning and scheduling facility shutdowns. This allows sufficient time to coordinate maintenance activities across the NAS and minimize their impact to NAS users.

b. Coordination. Coordination is necessary to provide the control center with enough lead-time to collaborate with NAS users such as air traffic controllers, airlines, and general aviation.

c. Approval. Initial approval/ acknowledgement occurs at the time of coordination. Final approval typically occurs just before the shutdown begins and provides a last minute check before the system is removed from operational use.

423. SCHEDULING POLICY.

The NAS depends on ATO personnel to distribute NAS status information so aircraft and pilots are prepared to fly longer or fly without specific NAS systems.

a. General Practices. Scheduling of maintenance activities is necessary to provide enough lead-time to coordinate with and notify NAS users. Maintenance personnel should schedule facility and service interruptions during non-peak traffic periods.

b. Scheduling Installation Activities. Technical Operations engineering offices must coordinate with the SSC to schedule installation activities.

424. INTERRUPTION TYPES.

It is important for the aviation community and for the ATO to know the overall planned interruptions. This is needed to assess critical points where traffic capacity will be impacted. This allows everyone to make alternate plans. Operational planning means interruption schedules are available with enough lead time for consideration of operational impacts to the NAS from a system view. There are four types of scheduled interruptions, strategic, tactical, emergency, and non-active use.

a. Strategic Interruptions. These are interruptions greater than 24 hour duration, or interruptions expected to generate Traffic Management Initiatives (TMI) beyond the controlling Service Delivery Point (SDP).

(1) Maintenance personnel must schedule these interruptions through a strategic shutdown committee 30 days prior to the start of the interruption.

(2) The strategic shutdown committee will review proposed shutdowns to identify strategies to mitigate the impact of the shutdown before coordination into the operational environment.

(3) The control center must obtain authorization from the strategic shutdown committee prior to coordinating final approval.

(4) The strategic shutdown committee chairman. or designee must authorize exceptions for strategic shutdown requests with less than 30 days advanced notification.

b. Tactical Interruptions. Tactical interruptions are less than 24 hours in duration and do not require significant Traffic Management Initiatives.

(1) Maintenance personnel must schedule tactical (or regular) interruptions 12 hours prior to the start of the interruption. This includes interruptions for training, corrective maintenance, reliability centered maintenance, flight inspection, modifications, etc.

(2) Control centers may only grant exceptions less than the 12 hour advanced notification requirement in rare cases when all of the following criteria are met:

(a) No adverse impact to national operations.

(b) No expected impact to NAS

users.

(c) Interruption affects only a single SDP.

c. Emergency Interruptions. An emergency interruption is one necessary to prevent catastrophic failure or damage to the facility. These interruptions typically have less than 12 hour notification. These shutdowns usually begin with a controller or pilot problem report.

(1) Maintenance personnel should give the air traffic control operations facility manager as much advance notice as possible so that appropriate action can be taken.

(2) When possible, plan to obtain at least 1-hour advance notice so that appropriate dissemination may be made prior to shutdown.

(3) The responsible system specialist must advise the appropriate control center, then shut down the facility, and take appropriate follow-up action.

d. Non Active Use Interruptions. Some facilities have unique opportunities for maintenance based on runway configuration or facilities not in active operational use. These interruptions do not require 12-hours of advanced notification. These facilities include:

(1) Systems supporting non-active runways.

(a) Instrument Landing System.
(b) Approach Lighting System.

(2) Systems not in active operational use.

(a) Backup Emergency Communications.
(b) Standby Power System.

425. STRATEGIC SHUTDOWN COMMITTEE.

A Strategic Shutdown Committee must review and authorize all strategic interruptions prior to final coordination. The two types of committees are: Service Area Shutdown Committee and District Shutdown Committee.

a. Service Area Shutdown Committee. Technical Operations will chair the Service Area Shutdown Committee which at a minimum must include representation from Flight Procedures, Flight Standards, and the Service Center. The Service Center System Support group will represent Terminal, En Route & Oceanic, and Systems Operations Services, as well as the Service Center.

(1) The Service Area Shutdown Committee must review and authorize strategic interruptions of facilities and services that have more than one SDP or require a flight procedural NOTAM.

(2) The Service Area Shutdown Committee must review and authorize strategic interruptions expected to cause Traffic Management Initiatives (TMI).

b. District Shutdown Committee. The Technical Operations District Manager will chair the District Shutdown Committee which must include a representative from System Operations Services. The District Shutdown Committee may review and authorize strategic interruptions of facilities and services that have only one SDP and no flight procedural NOTAM requirement, in lieu of the Service Area Shutdown Committee review.

426. INTERRUPTION COORDINATION.

Maintenance personnel and control center personnel must coordinate all requests to remove equipment from operation with the appropriate air traffic facility. Coordinate interruptions that affect multiple Service Delivery Points (SDP) or require a NOTAM through the appropriate control center. Initial coordination of interruptions that affect only a single SDP may be coordinated locally with air traffic control operations personnel, and then give notification to the appropriate control center so they can obtain final approval.

a. Requests for authority to remove equipment from service must include the desired time of shutdown, probable duration, and reason. Estimated restoration time is also desirable.

(1) System specialists coordinating with local air traffic control operations personnel must obtain approval or justification for refusal.

(2) Control center personnel must coordinate requests with air traffic control operations personnel and all other appropriate entities, obtain approval or justification for refusal, and advise the requesting organization or the system specialist of the results. Control centers maintain a list of required coordination contacts and affected SDP's on their website for each system in the NAS.

b. The control center must coordinate NOTAM information with air traffic control operations personnel as required.

c. The control center must notify the NFPO of the issuance or cancellation of any facility NOTAM that affects instrument flight procedures.

d. The system specialist must confirm the approval for the interruption with air traffic control operations personnel or control center personnel immediately prior to the shutdown to ensure the approval status has not changed.

e. System specialists must confirm the issuance of a NOTAM prior to radiating Hazardously Misleading Information (HMI). The system specialist may accomplish this using a variety of methods, including but not limited to calling the servicing AFSS, coordinating with control center or air traffic control operations personnel, or monitoring the applicable Automatic Terminal Information System (ATIS). The system specialist must document NOTAM confirmation by entering the NOTAM number or ATIS designation in the appropriate facility maintenance log.

427. INTERRUPTION OF LEASED TELECOMMUNICATION SERVICES.

Leased telecommunication services and circuits provide connectivity for NAS services between two or more facilities. The interruption of leased telecommunication services have the potential of significantly impacting the NAS at multiple facilities. The telecommunications service provider is responsible for the maintenance and restoration of leased services between the SDPs.

a. Maintenance personnel must report all telecommunication interruptions to the appropriate Control Center. Only the authorized Technical Operations Control Center(s) can open and close trouble tickets with the telecommunication service provider, release services for intrusive testing, or accept services from the service provider after restoration.

b. Control center personnel must report service interruptions to the appropriate telecommunications service provider and

coordinate the impacts of intrusive testing and troubleshooting to avoid delays in restoration.

c. To the extent possible, verify that FAA equipment and services are operating correctly before reporting a telecommunications interruption to the Control Center.

d. Control Centers should notify the telecommunication service provider of FAA maintenance activities that may result in telecommunication network alarms or path switches.

428. NOTIFICATION TO EXTERNAL USERS.

a. NOTAM Notification. Advertise scheduled outages affecting operations by NOTAM at least 5 hours in advance of the outage to notify users planning a trans-continental flight. Control center personnel should not deny a routine maintenance shutdown request because of an inability to issue a NOTAM 5 hours in advance of the shutdown.

b. Daily Maintenance Plan. The National Operations Group must publish a daily maintenance plan on the FAA Intranet, listing scheduled shutdowns impacting operations at least 12 hours in advance of each shutdown.

c. Special Coordination Procedures. Special coordination procedures with external customers have been established for NAS Defense Program facilities and services, Order 6000.198 provides guidance.

429. INTERRUPTION APPROVAL REFUSED.

It is incumbent upon air traffic control operations and maintenance personnel to maintain a spirit of cooperation regarding a scheduled interruption. Further, an aggressive periodic maintenance schedule will do much to solidify this cooperation.

a. Maintenance personnel should report repeated refusals to approve interruptions to their supervisor if maintenance activities are seriously hampered. Include all pertinent information and accurate documentation in the report.

b. Maintenance personnel must make every effort to work out differences at the local level prior to submitting any problems of this nature to the next level for resolution.

430. RESTORATION AND REPORTING ACTIVITIES.

Maintenance personnel must notify the appropriate control center upon completion of a scheduled interruption. Control center personnel must report the interruption in accordance with Order 6040.15, National Airspace Performance Reporting System (NAPRS).

431-439 RESERVED.

SECTION 4. OTHER MAINTENANCE PROCEDURES

440. INTRODUCTION.

This section provides additional maintenance procedures required by system specialists.

441. ROUTINE MAINTENANCE.

During normal duties, maintenance personnel must accomplish the following tasks:

a. Check the operational status of all equipment.

b. Inspect for overheating, leakage, loose hardware, poor electrical connections, worn mechanical parts, and accumulations of dirt, corrosion, rust, mildew, and fungus growth.

c. Report evidence of damage, sabotage, theft, or destruction as required, to the appropriate control center and your immediate supervisor.

d. Ensure that facilities and equipment present a clean, well-ordered professional appearance at all times. Keep all equipment storage and workrooms clean and supplies and working equipment stored in a neat and orderly manner.

e. Lubricate all rotating and mechanical devices in accordance with manufacturer's schedules and instructions.

f. Clean and replace all air filters in accordance with manufacturer’s schedule and local conditions, giving special attention to the facility Asbestos Control Program.

442. MINOR ADJUSTMENTS TO ON-LINE EQUIPMENT.

If maintenance or training on the on-line operating equipment is necessary, maintenance personnel may adjust operating equipment without removing the equipment from service, provided:

a. The adjustments are minor and do not cause an interruption to the service being provided.

b. The adjustments do not place any parameters beyond published operating tolerance or limits.

c. The adjustments do not cause confusing or disturbing indications to aircraft or controllers.

d. Maintenance personnel coordinate the activity with the appropriate personnel (air traffic control operations, control center, NFPO, military, etc.).

Example: A maintenance handbook may authorize a temporary reduction of power output to check the power monitor alarm, provided the power output is not reduced below operating tolerance for the power monitor, and a momentary change of alarm status is not indicated at the control point.

443. FLIGHT INSPECTION PROCEDURES.

This information is general in nature and applicable to most facility types. Detailed maintenance information related to flight inspection of specific types of systems, subsystems, or equipment is found in the flight inspection chapter of the appropriate maintenance handbook(s). In addition, because the flight inspection of a system, subsystem, or equipment is a coordinated effort with Aviation System Standards (AVN) personnel, maintenance personnel must familiarize themselves with detailed information as published in Order 8200.1, United States Standard Flight Inspection Manual.

a. Requesting a Flight Inspection. The control center must coordinate the requests for Flight Inspections with the Flight Inspection Central Operations (FICO) office. Special flight inspections may require additional coordination directly with the system specialists to provide the technical information necessary to process the request.

b. Maintenance Performed before Flight Inspection. If time permits, the system, subsystem, or equipment may be ground checked to be sure there have been no undesirable changes. When two sets of equipment are available and prior approval of an outage can be obtained, the equipment may be checked to determine the possible need for non-routine maintenance. However, do not perform any maintenance that could cause a delay or postponement of the flight inspection, unless it is absolutely necessary. On such occasions, maintenance personnel should use the control center to coordinate the delay with flight inspection scheduling personnel, and with the local aircrew if already on site. Proper coordination will allow flight inspection personnel to accommodate the delay and use their time to flight inspect other facilities. On such occasions, maintenance personnel should discuss the issue with flight inspection scheduling personnel, who may find it possible to accommodate the delay and use the time in flight inspecting other facilities.

c. Flight Inspection Activities. System specialists at the facility during flight inspection must correct any observed discrepancy immediately, when possible, as discussed in Order 8200.1.

(1) Discrepancies corrected during flight inspection will be included in the flight inspection report. When it is impossible to correct a discrepancy while the flight inspection is in progress, maintenance personnel must inform flight inspection personnel and take action to correct the discrepancy as soon as possible. Immediately following correction, maintenance personnel must request another flight inspection if appropriate. Flight inspection personnel must submit a report of the discrepancies noted during the flight inspection to the immediate maintenance supervisor.

(2) Occasionally it is necessary to make equipment adjustments that may appear to be abnormal on the basis of previous operational adjustments, or that may exceed tolerances. The need for such adjustments may be due to maladjustment elsewhere in the ground equipment, a change in terrain or multi-path environments, defective airborne equipment, radio frequency interference, or other factors.

(a) ATO personnel must observe equipment performance during the flight inspection and be aware when tolerances are being exceeded or abnormal adjustments are required to satisfy flight inspection.

(b) If measurements made with approved test equipment do not agree with the measurements reported by flight inspection personnel, the flight inspection personnel should be advised and requested to repeat their measurements. If reasonable agreement cannot be attained, the flight inspection measurements must govern, and maintenance personnel must report the discrepancy to the immediate maintenance supervisor.

(3) When it is necessary to exceed equipment tolerances to meet flight inspection requirements, maintenance personnel must notify the supervisor immediately. The supervisor must determine whether the variance is sufficiently severe to require immediate investigation or whether the investigation can be deferred. If this determination cannot be made prior to departure of the flight inspection aircraft, the system, subsystem, or equipment may remain in service, provided the following:

(a) The performance is stable to the extent that operation is reliable.

(b) Flight inspection personnel concur in the continued operation.

(c) The maximum rating or manufacturers specification; e.g., power output, temperature, etc. of equipment is not exceeded.

d. Post-Flight Inspection Actions. During or upon completion of the flight inspection, maintenance personnel must accomplish the following actions:

(1) Record meter readings or other data affected by adjustment, correction, or equipment change, if accomplished during the flight inspection.

(2) Make available to flight inspection personnel all pertinent system, subsystem, and equipment parameters needed to complete the flight inspection report, such as transmitter power, or receiver sensitivity.

(3) Discuss with flight inspection personnel any problems encountered during the flight inspection.

(4) Notify the appropriate control center of unexpected results in the status of the facility or its procedural uses.

e. Readjustment of System Monitor(s) Following Flight Inspection. Order 8200.1 provides that during periodic and certain special flight inspections, flight inspectors will not request adjustment to a facility that is operating within prescribed tolerances. However, operation within prescribed flight inspection tolerances does not imply that the facility parameters are at the center of their allowable range. Therefore, it is very important that maintenance personnel avoid re-centering the system monitor(s) or establishing revised references based on normal parameters found acceptable by flight inspection but not necessarily at their optimum values. This will prevent unwarranted "following" of facility parameters.

444. AIRCRAFT REPORTED NAVIGATIONAL AID MALFUNCTIONS.

When a report of a navigational aid facility malfunction is received from an aircraft, air traffic control operations personnel will request a check from a second aircraft.

a. Second Pilot Report Indicates No Malfunction. If the second aircraft reports normal operation, the incident is recorded by air traffic control operations personnel with no maintenance action required.

b. Second Pilot Report Confirms Malfunction. If the second aircraft report confirms the malfunction, the following steps should be taken:

(1) If Standby Equipment is Available.

(a) Air traffic control operations personnel will select standby equipment.

(b) If operation is reported normal on standby equipment, operation is continued and air traffic control operations personnel will notify maintenance personnel.

(c) Should the malfunction continue or if the standby equipment cannot be selected, treat the reports as if the standby equipment is not available.

(2) If No Standby Equipment is Available. Air traffic control operations or maintenance personnel must immediately request a NOTAM removing the potentially suspect navigational aid from operation until one of the following is completed:

(a) A flight inspection can validate proper operation.

(b) The three following maintenance actions are accomplished.

1. Inspect the ground equipment, perform a standard ground check (if applicable), and correct the fault if one exists.

2. Certify the appropriate system, subsystem or service. If necessary, request a restoration flight inspection in accordance with the maintenance handbook.

3. Notify air traffic control operations personnel using the appropriate control center of all pertinent facts concerning restoration and make the appropriate entries in the maintenance log.

c. No Second Pilot Report Available. If air traffic control operations personnel cannot obtain a report from a second aircraft within a reasonable time period, maintenance personnel should analyze the RMM indications if available.

(1) If a malfunction is confirmed, switch to standby equipment and determine if the malfunction is eliminated.

(a) If switching to standby equipment eliminates the malfunction, initiate corrective action, and document accordingly.

(b) If switching to standby equipment does not eliminate the malfunction, immediately request a NOTAM removing the navigational aid from operation.

(2) If a malfunction cannot be confirmed, initiate action to investigate the pilot report.

445. RADIO FREQUENCY INTERFERENCE.

ATO personnel must report Radio Frequency Interference (RFI) events to the appropriate control center. Maintenance personnel should investigate and attempt to resolve reported RFI events. If the RFI can not be resolved, contact the appropriate Technical Support Center (TSC). The Technical Support Center should contact the Frequency Management Office (FMO) for assistance if necessary. The FMO may escalate to the national office or other organizations such as the Federal Communications Commission (FCC) or Federal Bureau of Investigation (FBI).

446. MOISTURE-PROOFING RADIO FREQUENCY CABLE CONNECTIONS.

Facility outages have been attributed to moisture accumulation in outside, unsheltered coaxial cable connectors. Inspection of cable connectors as a preventive measure is an annual requirement. The following information is provided as guidance in moisture-proofing these connectors. The material and technique used should be based on the need for permanency and the particular situation.

a. Preliminary. Ensure that connectors are free of internal moisture and the adhering surfaces are dry and free of dirt, grease, oil, or any other substance that could affect adhesion. Prior to mating connectors they should be cleaned with alcohol to ensure that all moisture has evaporated.

b. Semi-Permanent Connections. These materials and techniques offer a reasonable compromise between cost effectiveness and the need for later accessibility to the treated connection.

(1) Tape only. The use of electrical tape only is satisfactory except where moisture and humidity is high. Two layers of tape should be applied. The wrapping should extend 2 to 3 inches on both sides of the connector, and the wrapping should start at the bottom for both layers if the connection is in a vertical run. Use the proper tape for the local prevailing climate.

(2) Tape and Non-silicone Compound. Having taped the connection as in step (1), additional moisture proofing will result with an application of an appropriate spray-on or a brushed-on sealer. Silicone rubber compounds

are not recommended for semipermanent-type connections because the silicone is difficult to remove. Failure to remove the entire silicone compound results in poor adhesion of tape when it is necessary to reseal the connection.

c. Permanent Connections. The following techniques and materials may be employed where access to the connector will probably not be required or where the connection is subjected to excessive moisture.

(1) Sealant. One of the most effective ways of preventing the entry of moisture is to encapsulate the connection with one of several products, which seal against water, yet are easily stripped if repair is ever required.

(2) Heat-shrinkable Tubing. Either thin-wall or thick-wall shrinkable tubing may be applied. The thin-wall type has a shrink ratio of about 2 to 1, while thick wall types have a shrink ratio of about 3 to 1. The thick-wall types are available with a factory-applied sealant that will soften and flow around irregularly shaped surfaces. Heat can be applied with a heat gun.

(3) Tape and Sealant. Connections may be moisture proofed by application of one layer of rubber electrical tape followed by two layers of friction tape. This wrapping should then be covered sealant applied with a brush. Reference 29 CFR 1910.1200 Hazard Communication (Workers Right to Know).

447. SHIPMENT OF EQUIPMENT.

ATO personnel must pack, mark, and ship equipment according to the following guidelines:

a. Preparation and Packing. Maintenance personnel must install all modification kits on hand before equipment is packaged and transferred to another location or depot. Pack equipment so that it will not be damaged in transit or from electrostatic discharge (ESD). Check the equipment for heavy components, such as transformers or motors, which may need additional bracing or support to avoid damage in the event the container is dropped during handling. In some cases, maintenance personnel should remove such items and pack them separately. Transformers, capacitors and other equipment may contain Polychlorinated Biphenyl's (PCBs) and require special shipping and handling procedures contained in Order 1050.14, Polychlorinated Biphenyl's in the National Airspace System.

b. Items to be Included. Include the following items as appropriate with equipment being shipped:

(1) Documentation (Instruction books, modification and other records.)

(2) Spare parts, cables, and accessory items furnished with the equipment.

(3) Any parts or assemblies removed for reasons other than an agency-wide modification; e.g., any item removed to satisfy conditions unique to one facility but that may be needed if the equipment should be installed at another facility.

c. Packing List. Each individual shipping container, or one container of each shipment, must contain a packing list showing in detail a complete description and quantities of each item in the shipment. When the packing list is enclosed in one container of the group, clearly mark the appropriate container "PACKING LIST INSIDE." It is also permissible to place the packing list in a heavy envelope marked "PACKING LIST," and securely fasten it to one of the containers.

d. Marking. Maintenance personnel must mark each shipping container to allow identification of contents without unpacking.

448-499. RESERVED.

CHAPTER 5. CERTIFICATION

500. INTRODUCTION.

This chapter establishes FAA requirements for certification of systems, subsystems, and NAS services provided to users of the NAS.

501. DEFINITION OF CERTIFICATION.

Certification is the determination and validation that a system, subsystem, or service is providing or is capable of providing the advertised service to the user. Certification includes an independent determination, which ascertains the quality and scope of advertised services, and a validation, which officially confirms and documents the determination in the maintenance log.

a. The purpose of certification is for maintenance personnel to decide when to keep, remove, or place a system, subsystem or service into operation.

b. Certification assigns accountability to maintenance personnel and commits them to achieve the goals of the organization.

c. System and subsystem certification corresponds to events, while service certification is frequent and periodic.

d. The process of performing a certification includes the insertion of the prescribed certification statement in the maintenance log.

e. A system, subsystem, or service remains certified unless its certification is retracted or expires.

502. CERTIFICATION RESPONSIBILITIES.

a. The key to the certification program is the part played by the system specialist whose qualifications have been demonstrated by:

(1) Satisfactorily completing the ATO Maintenance Personnel Certification Program.

(2) Satisfactorily obtaining Air Traffic Safety Oversight Service (AOV) platform credentials.

(3) Maintaining sufficient theoretical and practical knowledge.

(4) Using their professional capacity for independent judgment.

(5) Performing responsible actions.

b. Maintenance personnel must have specific documented certification authority to perform certification. Order 3400.3, Airways Facilities Maintenance Personnel Certification Program establishes certification authority requirements.

c. Maintenance personnel must have specific platform credentials to perform certification. Order 8000.90, AOV Credentialing and Control Tower Operator Certification Programs, establishes platform credentialing requirements.

d. Maintenance personnel without certification authority may perform maintenance and logging duties. These activities must either be confined to non-certification parameters or followed with the appropriate certification by a fully qualified system specialist.

503. SYSTEM AND SUBSYSTEM CERTIFICATION.

System and subsystem certification is event based and relies on independent judgment about the quality and scope of specific advertised services being provided to a user. Event based certification ties the certification judgment to the decision to place a system or subsystem into service.

a. ATO personnel with certification authority must perform event based system and subsystem certification. The following events define when certification is required, regardless of whether it affects a certification parameter:

(1) Prior to commissioning.

(2) Upon request following aircraft accident/incidents.

(3) Following adjustment to any certification parameter regardless of whether an interruption was required.

(4) Prior to restoration following any flight inspection requiring on-site personnel.

(5) Prior to restoration following any modification.

(6) Prior to restoration following any maintenance task that required an interruption or would have required an interruption to a facility without redundancy.

(7) Prior to restoration following any corrective maintenance activity required to restore a facility to operation.

b. System and subsystem certification is not required when a facility is restored to operation by restoration of power, initialization, or reset, and no other action was taken.

c. Some NAS systems contain user interface controls that can cause a certification parameter to be adjusted beyond its tolerance or limit. Such adjustments will not void the certification.

d. The certification statement made in the log must contain only one of the following:

(1) Prescribed certification statement from the maintenance handbook. Some handbooks require site-specific variables to be included in the certification statement; e.g. “Local transmitter (identity of frequency) (main and/or standby) certified” entered as “Local transmitter 123.4 MHz main certified”.

(2) Prescribed certification statement and identification or removal of exceptions: e.g. RTR certified except main 123.5 MHz transmitter and standby 121.3 MHz receiver.

(3) Prescribed certification statement modified to list a specific subset of multiple like equipment; e.g. certifying multiple receivers with one certification statement.

504. CERTIFICATION CRITERIA.

Appendix 3, Systems, Subsystems, and Services Requiring Certification lists all required certifications. The national organization managing certification must use the following rules to determine which systems, subsystems, and services require certification.

a. FAA owned or maintained NAS systems, subsystems, and services directly affecting the flying public must be certified when they do any of the following:

(1) Provide moment-by-moment positional information to pilots or air traffic control operations personnel during aircraft operations.

(2) Provide necessary communication or communication control among pilots and air traffic control operations personnel during the above aircraft operations.

(3) Provide decision support information that directly affects aircraft heading, altitude, routing, control, or conflict awareness.

(4) Provide essential meteorological information for takeoff and landing aircraft at airports.

(5) Provide short term, long term, continuous, and conditioned power to NAS systems requiring certification located at a Service Delivery Point (SDP). Figure 5-1 depicts the elements necessary to require certification. These terms are characterized as follows:

(a) Short term power source; e.g., batteries, or flywheel capable of carrying the load during the transfer.

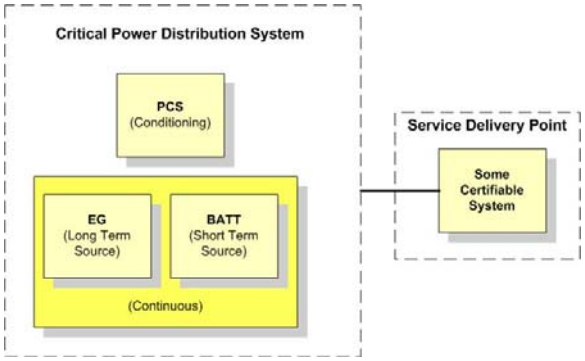
(b) Long term power source; e.g., an engine generator, or fuel cell.

(c) Continuously indicates capability for transparent transfer between power sources; e.g., an automatic transfer switch.

(d) Conditioned power; e.g., voltage regulation and filtering of the waveform.

(e) Providing power to a certifiable system located at a Service Delivery Point.

Figure 5-1 Elements Required for Power System Certification.



b. Certification is not required for weather systems of an advisory nature, supportive facilities, and intermediate facilities. This includes systems used exclusively for maintenance support activities at control centers.

(1) Examples of weather systems of an advisory nature are the Next Generation Weather Radar (NEXRAD), and the Weather and Radar Processing (WARP) system.

(2) Examples of supportive facilities are Local Area Networks (LAN) or power systems not at an SDP.

(3) Examples of intermediate facilities are:

(a) Radio communications links (RCL).

(b) Television microwave links (TML).

(c) Data multiplex (DMUX).

(d) Bandwidth manager (BWM).

(e) Fiber Optics Transmission System (FOTS).

505. CERTIFICATION OF OTHER FEDERAL FACILITIES (NON-MILITARY).

Federal agencies such as NASA, Department of Interior (Trust Territories), etc., excluding the military; have requested the FAA establish IFR procedures at locations where navigational aid(s) are maintained by either employees of the agency concerned or by some commercial contractor.

a. The FAA has established certification requirements in mutual agreement with these agencies for their navigational aid equipment within the rules of the Federal Air Regulation (FAR)-171.

b. The FAA and the other agency should use the sample Memorandum of Agreement (MOA) contained in Appendix 12, Maintenance, Certification and Operation of Navigational Aid(s) owned by Other Federal Agencies, to ensure compliance with this policy.

506. SERVICE CERTIFICATION.

Service certification is a periodic and frequent high-level independent judgment about the quality and scope of specific capabilities being provided to a user.

a. ATO personnel with certification authority must certify services listed in Appendix 3.

b. Performing service certification on a frequent basis requires credentialed maintenance personnel to look at an entire NAS service thread and make a judgment about the quality and scope being provided. Since we look at the end product delivered to the user frequently, we can allow the more intrusive system certification to be done less frequently.

c. Service certification is based upon several fundamental characteristics of NAS service provision, such as:

(1) Constituent systems and subsystems are certified.

(2) Indications on monitor and control consoles are normal.

(3) Customer activity reports contain no complaints.

(4) Observation or knowledge of customers using the NAS service.

d. Appendix 3 lists the NAS services that require certification.

e. ATO personnel with certification authority must perform service certification prior to commissioning, periodically thereafter, and prior to restoration following a full NAS service interruption.

f. Log service certifications in the FSEP entity matching that service.

g. Immediately after discovery of an expired service certification, ATO personnel with certification authority must perform a service certification.

507. GENERAL CERTIFICATION TECHNIQUES.

a. The FAA has identified systems requiring certification and the certification parameters on those systems, but the choice of methods used for certification determination is left to the professional judgment of the certifying system specialist. The system specialist may use one, several, or a combination of various methods to positively determine that a system is providing the advertised user service.

b. Generally, performance of the prescribed system maintenance tasks will provide the necessary information for certification determination. Dependent on the system, there are any number of methods available to provide a basis for a certification determination. Frequently used methods include:

(1) Observation of equipment providing the advertised services in the operating environment.

(2) Direct measurement of certification parameters. Values approved by NCP must be used in place of directive values.

(3) Monitor indications. These should include the satisfactory operation of both the control and remote indications.

(4) By recording and analysis of required information on technical performance record forms (FAA Form 6000 series).

(5) By performing a comparative analysis of flight inspection data with previous results.

(6) Visual and aural observations, such as meter readings, radar display, pilot instrument indications, or absence of extraneous noises, excessive heat, or questionable odors.

(7) User (pilot) report of satisfactory operation as with a voice communication check on Remote Center Air Ground (RCAG) equipment.

(8) By the completion of local or remotely conducted hardware or software diagnostic tests, where that capability exists.

508. REMOTE CERTIFICATION.

Systems and services may be certified via remote maintenance monitoring (RMM) when the capability to remotely verify system certification parameters is available.

a. If a Remote Monitoring System (RMS) is used as a substitute for calibrated test equipment to provide data for certification, the RMS must meet the following requirements:

(1) Calibrate or verified the RMS at least annually to ensure accuracy appropriate to the measured parameter's tolerance.

(2) Verification of RMS accuracy may be accomplished through comparison to the equivalent calibrated test equipment. When this method is used as a transfer standard, RMS accuracy requirements must be defined in the applicable equipment handbook.

(3) Maintenance personnel must verify the RMS data accuracy through the operating range specified under standards and tolerances in the applicable equipment handbook.

b. When RMS equipment is impaired, the certifying system specialist must be confident that the impairment does not affect the certification process. If it does, the RMS capability cannot be used for remote certifications.

509. DECERTIFICATION.

Decertification is the official determination that a service, system, or subsystem is not capable of providing its advertised service(s) by ATO personnel with certification authority.

a. Perform decertification only when all of the following conditions are met:

(1) The facility is a communication, automation, or surveillance system, subsystem, or service which normally requires certification.

(2) The system, subsystem, or service according to the judgment of the certifying ATSS, does not meet published certification requirements.

(3) Certification with exception is not possible.

(4) Air Traffic personnel insist on using the system, subsystem, or service.

b. Do not perform decertification for the following purposes:

(1) To log the expiration of a certification, i.e., when the certification expires.

(2) To document a failure, outage, or interruption.

c. Document decertification in the applicable maintenance log.

d. Decertification does not necessarily require an interruption of the related system or subsystem. See paragraph 402 for decertification procedures.

510. CERTIFICATION WITH EXCEPTION.

A service, system, or subsystem may be unable to satisfy all certification parameters or provide all advertised services, but still provide some advertised services.

a. The system specialist with certification authority may use their independent discretionary judgment to determine when to certify with exception.

b. The system specialist must identify the specific certification parameter or advertised service to be excluded in the certification statement.

Examples: ARSR certified except coverage; RCAG transmitter 123.4 main certified except transmitter power output.

c. The system specialist must notify the appropriate users about the exception.

d. The issuance of a certification with exception does not necessarily require an interruption of the system, subsystem, or equipment.

e. Do not use certification with exception to document a partial failure, outage, or interruption.

f. Make a corresponding certification log entry when the full service is restored.

g. Facilities that are designed to automatically downgrade to another level of service; e.g., second generation Tactical Air Navigation (TACAN), ARTS-IIIA, Mode-S, and some visual navigational aids, do not require an exception.

511. FREQUENCY OF SERVICE CERTIFICATION.

Periodic certification of services is performed at a frequency published in the maintenance handbook. Typically, the intervals are short and independent of the generation of technology of the systems and subsystems that create the service.

a. Service certifications must be scheduled for routine accomplishment weekly or more often as required.

b. The PM scheduler tool may be used to manage the accomplishment of service certifications.

512. CERTIFICATION ACCOMPLISHMENT TRACKING.

The District Manager must track the accomplishment of certifications to ensure they are completed at their prescribed interval for NAS services, and performed prior to restoration of systems and subsystems when required. The District Manager or designee must review the tracking at least quarterly.

513. CERTIFICATION OF PROTOTYPES.

New systems, subsystems, and services, are continually added to the facility inventory in the NAS. Each of these will be included in Appendix 3, Systems, Subsystems, and Services Requiring Certification if their functionality meets the certification criteria of paragraph 504. Certification is required prior to operational use.

a. New or prototype systems occasionally require a lengthy test and evaluation involving control of live air traffic before commissioning.

(1) Certify new or prototype systems used in this manner based on interim certification requirements if these requirements have not yet been published in the applicable maintenance handbook.

b. It is the responsibility of the sponsoring requirements organization to coordinate the establishment of any certification requirements with the Technical Operations Services for new or prototype systems at least 90 days prior to planned operational use.

c. If a prototype system must be altered in a way that materially affects certification parameters, sponsor organizations must re-coordinate certification requirements with the Technical Operations Services. Otherwise it must not be certified.

d. Requests for certification analysis can be initiated by any organization sponsoring a system in the NAS. Instructions for initiating certification analysis are published on the certification website at: http://technet.faa.gov/6000.15/

514. CERTIFICATION REQUIREMENT ANALYSIS.

a. The Director of Safety and Operational Support in Technical Operations must issue certification requirements prior to operational use, and fully coordinated with the appropriate maintenance operations support organizations in the headquarters and service area offices of concern. Certification requirements are published in the applicable maintenance handbook.

b. Technical Operations Services must base certification requirements on the intended operational functionality and consist of the following components:

(1) Advertised services that are subjective capabilities provided to the user. Advertised services are the primary focus of certification judgments.

(2) Certification parameters that closely correspond to the advertised service. Certification parameters are one way of measuring an advertised service.

(3) References to the maintenance handbook standards and tolerances for each certification parameter.

(4) Interval frequency of the required certification for services.

(5) Appropriate syntax of the required certification statement.

515-599. RESERVED.

CHAPTER 6. PROTECTION OF AGENCY PROPERTY AND PERSONNEL

SECTION 1. PERSONNEL SAFETY HAZARDS

600. INTRODUCTION.

This section provides guidance on FAA directives in the 3900 series and other FAA safety alert directives discussing personnel safety at FAA facilities. Many of these directives contain precautions regarding personnel safety and identification of hazards in the workplace. All personnel must receive the appropriate EOSH training prior to working on any equipment in facilities, or in the field.

601. USE OF FIRE EXTINGUISHER.

Maintenance personnel must maintain, inspect fire extinguishers in accordance with 29 CFR 1910.157, Portable Fire Suppression Equipment, Order 6930.1, Fire Prevention and Maintenance of Fire Protection Equipment, and Order 3900.19.

602. MACHINERY AND TOOLS.

a. Do not wear gloves, ties, loose jewelry, or loose clothing around moving machinery.

b. Keep tools clean and in good working condition.

c. Bolt bench grinders, drill presses, vises, and other similar tools to the workbench and ensure safety guards are working as required by 29 CFR 1910.211-.219.

d. Always wear American National Standards Institute (ANSI) approved safety eyewear when hazard to the eyes are present.

e. Do not clean, adjust, or lubricate machinery while it is in operation.

f. Before any maintenance, ensure all hazardous energy is controlled. Maintenance personnel must follow the site specific lockout/tagout procedures and follow applicable safe work practices in accordance with Order 3900.19.

603. FALL PROTECTION ON ELEVATED WALKING OR WORKING SURFACE.

Employees must install, use, and maintain fall protection restraint devices and exercise extreme caution when working or walking on elevated surfaces four feet or more above the next lower level.

a. Fall protection systems include, but are not limited to:

(1) Guard rails.

(2) Personal fall arrest systems.

(3) Covers.

(4) Restraint systems.

b. Only authorized persons may purchase fall protection equipment.

c. Employees must give special consideration to environmental hazards such as extreme temperatures, ice, and stinging insects. Refer to Order 3900.19 for more information.

604. WORKING IN CONFINED SPACE.

Personnel planning entry into or working in confined spaces must follow the provisions of the confined space entry program at their sites in accordance with Order 3900.19, OSHA 29 CFR 1910.146, and the Confined Space Entry Implementation Guidance.

605. HEARING PROTECTION.

The Service Area must provide hearing protection. Maintenance personnel should wear hearing protection when noise hazards are present in accordance with OSHA recommendations.

606. HAZARDOUS ENERGY CONTROL (LOCKOUT/TAGOUT PROCEDURES).

a. Isolate equipment using a lockout device prior to servicing or maintaining equipment where unexpected energizing, start-up, or release of stored energy (e.g., electrical, heat, mechanical (movement or hydraulic), chemical (potential or stored), and radiation) could occur. The use of tags to secure hazardous energy should be considered a last resort when no physical means of locking out the device exists.

b. Personnel authorized and designated to perform maintenance on or near energized equipment must receive appropriate electrical safety training. Consider work on energized equipment extremely hazardous and avoid if at all possible.

c. If it is necessary to work on energized electrical equipment, maintenance personnel must submit a completed Energized Electrical Work Permit to the appropriate manager for approval prior to any work being accomplished on that equipment.

607. ELECTRICAL SHOCK HAZARDS.

Personnel must exercise extreme care while working on equipment, particularly where dangerous high voltages or high currents exist. Contact with A.C., D.C., or RF potentials can result in severe shocks, burns, or loss of life.

a. Maintenance personnel must use caution when measuring electrical energy potential and working near stored energy devices or high-voltage circuits.

b. Maintenance personnel must use approved lockout/tagout procedures or Energized Electrical Work Permits when working on equipment with hazardous energy.

c. Maintenance personnel must not wear jewelry, e.g. watches, rings, or bracelets, when working with electrical energy. Reference Order 3900.19, Occupational Safety and Health Program.

608. ELECTROSTATIC DISCHARGE (ESD).

Semiconductor devices can be damaged by electrostatic discharges (ESD). Use proper ESD procedures to discharge energy before handling semiconductors. The following guidelines describe an ESD prevention method that is consistent with the intent of proper handling and protection of ESD sensitive components.

a. Assume that all circuit packs containing electronic (solid-state) components can be damaged by ESD.

b. When handling circuit packs (storing, inserting, and removing), always use the appropriate grounding procedure: either a wrist strap connected to ground or, when standing, a heel strap with a grounded dissipative floor mat. Handle all circuit

packs by the faceplate or latch and by the top and bottom outermost edges. Never touch the components, conductors, or connector pins.

c. Observe warning labels on bags and cartons. Whenever possible, do not remove circuit packs from antistatic bags or cartons until ready to insert into operation. Open all circuit packs at a static-safe work position with wrist straps and dissipative tablemats.

d. Always store and transport circuit packs in antistatic packaging. Shielding is not required.

e. Keep all static-generating materials, such as food wrappers, plastics, and Styrofoam containers, away from all circuit packs.

f. Upon removal from storage, immediately put circuit packs into antistatic packages.

g. Whenever possible, maintain relative humidity above the 20-percent level.

h. Some anti-static bags are conductive. Take care to prevent accidental shorts between the bag and current carrying circuits. Do not staple anti-static bags.

i. Never place anything other than the electronic component inside the anti-static bag.

609. EQUIPMENT POWER CONNECTIONS.

Maintenance personnel must use caution when working on equipment power circuits designed for use with multiple input voltages. The wiring diagram, rather than the color coding of the equipment's internal wiring, should be checked when connecting or servicing equipment.

610. EQUIPMENT INTERLOCKS.

DO NOT DEPEND ON INTERLOCK SWITCHES TO REMOVE HAZARDOUS VOLTAGES. Interlocks are not a substitute for proper lockout/tagout procedures. After lockout, always verify de-energization as directed in the safety approved lockout/tagout procedure. Do not remove, short circuit, or tamper with access gate, door, or safety interlock switches, except by an authorized system specialist in accordance with lockout/tagout procedures when necessary to perform maintenance.

611. INTEGRATED CIRCUIT PRECAUTIONS.

Maintenance personnel must disconnect external grounds and A.C. lines to eliminate ground-return paths before touching semiconductor device terminals with hand tools or soldering tools. Do not test any semiconductor device without carefully observing input/output limitations and polarity.

612. HEAT SINKS.

Where heat sinks are used, it is important to recognize and avoid certain maintenance activities that could result in damage to the equipment or present a shock hazard to the maintenance person. Do not block or restrict the convection airflow over the heat sink, and recognize that the heat sink may not be at chassis ground potential.

613. HEAT DAMAGE TO PRINTED CIRCUIT BOARDS.

Use caution to prevent heat damage to printed circuit boards caused by the overheating of board mounted components.

614. GROUNDING PORTABLE EQUIPMENT.

Ground all portable test equipment and electric tools before use. The only exceptions are for test equipment measurements that must be isolated from ground, or electric hand tools that are classified as being double insulated and approved for use without a grounding type A.C. plug. Maintenance personnel must use caution when using adapters for connecting grounding type A.C. plugs to non-grounding type ac.

615. RADIATION HAZARDS.

High power transmitters used in surveillance and communications systems, subsystems, and equipment may present radiation hazards to maintenance personnel, if precautions are not followed. Hazards include both ionizing radiation and non-ionizing radiation. Maintenance personnel must post appropriate radiation warnings on or near the equipment.

a. Schedule work on equipment capable of producing radiation when the equipment can be de-energized. If this is not possible, monitoring should be conducted to ensure exposure does not exceed recommended levels as found in 29 CFR 1910.97 for non-ionizing radiation and 29 CFR 1910.1096 for ionizing radiation including dosimetry monitoring.

b. Maintenance personnel must proceed with caution when exposed to radiation in the occupational environment. Order 6050.32, Spectrum Management Regulations and Procedures Manual, provides procedures and criteria for the evaluation and control of radiation hazards, and describes safety precautions for specific hazards.

616. HAZARD COMMUNICATION / MATERIAL SAFETY DATA SHEETS.

The Hazards Communication Program in Order 6000.54, Airway Facilities Hazard Communication Program, communicates hazard information to employees about hazardous chemicals in the workplace through labels, Material Safety Data Sheets (MSDS), and training. The intention is that employees should always be aware of potential chemical hazards in the workplace. Prior to handling any hazardous chemical, maintenance personnel must review the MSDS. The MSDS contains the following information:

a. The chemical and common names of all ingredients, which have been determined to be health hazards.

b. Physical and chemical characteristics of the hazardous chemical.

c. Physical hazards of the hazardous chemical.

d. Health hazards of the hazardous chemical and primary routes of entry.

e. Permissible exposure limits of the hazardous chemical.

f. Whether the hazardous chemical is a known or suspected carcinogen.

g. Any applicable precautions for safe handling of the hazardous chemical.

h. Any applicable control measure for the hazardous chemical.

i. Emergency and first aid procedures for the hazardous chemical.

j. The date of preparation of the MSDS.

k. Name, address and telephone number of the chemical manufacturer.

617. ASBESTOS CONTROL.

Many facilities were constructed during the period of extensive asbestos use. As NAS facilities are modernized, asbestos containing materials (ACM), or presumed asbestos containing materials (PACM) may be encountered and disturbed during renovation and demolition process. Refer to Order 3900.19, FAA Occupational Safety and Health Program, and each facility's Operations and Maintenance Management Plan, for policy on the management of ACM/PACM in FAA facilities. Additional guidance can be found in Order 1050.20, Airway Facilities Asbestos Control Program.

618. SILVER SOLDER.

Cadmium Oxide fumes are a by-product of using hard solders; e.g., when brazing air-conditioner refrigerant lines.

a. When cadmium containing silver brazing alloy is heated appreciably above its melting point, acutely poisonous brown or yellow cadmium oxide fumes are released.

b. Inhalation of cadmium oxide fumes, even short exposures to high concentrations, can result in serious and sometimes fatal injury.

c. Take precautions to ensure adequate ventilation is available in accordance with Order 3900.19**.**

619. CLEANING SOLVENTS.

Use only solvents approved by local FAA safety personnel. FAA safety personnel must consider conditions of use, ventilation, and methods of storage when evaluating usage requests. Whenever any solvents or cleaners are used, the following guidelines apply:

a. Ensure adequate ventilation is available.

b. Use care when cleaning equipment with solvents, especially where the temperature of the air or parts being cleaned is in excess of 100^{o} F (38^{o} C).

c. Store solvents in safety cans or approved storage cabinets.

e. Contact environmental and safety staff for disposal and respiratory requirements.

620. BATTERY SAFETY, LEAD DUST, ACID SPILLS, BURNS, AND EXPLOSION HAZARDS.

System specialists are required to inspect, evaluate, and maintain various types of storage batteries. To prevent personnel injury and accidental discharge of acids, maintenance personnel must adhere to all safety precautions as outlined in Order 6980.25, Maintenance of Batteries for Standby Power, and manufacturers' data.

a. Battery Hazards. Some hazards to be considered when handling batteries include:

(1) Improper lifting procedures could cause muscle strains and foot injuries. When batteries are located where proper procedures cannot be followed or are too heavy, use either a mechanical lifting device, or two people to make the lift if lifting more than 44 lbs. up to 3 feet. Wear non-conducting safety toed shoes when large stationary batteries are being moved or installed.

(2) If the batteries are located on racks, each rack must use straps or stops to secure the batteries, and prevent them from sliding off the rack during maintenance or unintentional tilting.

(3) Many batteries contain a liquid solution, which means that the center of balance can change. If a person's grasp on the battery is not secure, the battery can slip from their hands. Carry the battery with an insulated battery strap or a battery cradle. The battery strap attaches to the battery terminals to form a handle for carrying. The battery cradle encases the battery with insulated netting material or is a platform with a handle for carrying.

(4) Battery fumes may be harmful to personnel because of:

(a) The hazards of breathing the fumes themselves.

(b) The lack of oxygen displaced by fumes.

(c) Explosion hazard.

(5) Splashes may occur when pouring prepared electrolyte into batteries, mixing electrolyte, checking the electrolyte levels, or charging batteries.

b. Industrial Batteries. Industrial batteries, such as those used in heavy equipment or power conditioning systems, weigh several hundred pounds. A mechanical lifting device should always be used for moving industrial batteries. Handling batteries of this size should not be attempted without proper equipment and operational knowledge. Some mechanical lifting devices are:

(1) Chain hoists.

(2) Overhead cranes.

(3) Forklifts.

c. Lead-Acid Batteries. Batteries such as lead-acid batteries contain an electrolyte, which is a mixture of sulfuric acid and water. This acid solution is corrosive to certain metals, will destroy clothing, and can cause severe burns or blindness. Batteries of this type are designed to be used in a level or near-level position. These batteries are equipped with vent caps that allow hydrogen gas to escape while preventing the electrolyte from splashing out. The caps will allow some tilting of the battery; however, prolonged tilting or inversion of the battery will allow the electrolyte to leak. When carrying a battery-containing electrolyte, use a battery strap or cradle. Dripping electrolyte on clothing will destroy most fabrics, if the solution is not neutralized immediately after the spill. Reference material safety data sheets on batteries for proper protective equipment. Using any of the following solutions can neutralize the electrolyte:

(1) Bicarbonate of Soda. Bicarbonate of soda mixed with water can be used to rinse the area of an acid spill.

(2) Soda Ash. The soda solution will neutralize the corrosive effects of the sulfuric acid.

NOTE: Skin contact with acid should be flushed and cleaned with soap and water, or bicarbonate of soda and soda ash if soap and water are not available.

(3) Caustic Soda. Caustic soda will neutralize the acid, but it can cause skin burns. Caustic soda should be used with extreme care, ensuring that the solution does not come in contact with the skin or eyes.

d. Acid Burns. Treat acid burns to the skin immediately. A physician should inspect the area as soon as possible for damages which may not be apparent. Remove clothing on which the acid solution has been spilled. Remember that chemical burns to the skin will occur if the electrolyte is allowed to remain in contact with the skin.

e. First Aid. There may be occasions when a system specialist will have to mix electrolyte. Before mixing this acid solution, the Specialist should know where the first aid equipment is located, how to administer first aid to oneself or to fellow workers, and the nearest source of running water or a sealed container of eyewash. Splashing electrolyte acid into the eyes requires immediate first aid. Should this occur, flush the eyes with running water, and see a physician as soon as possible. Do not apply neutralizing agents or salves to the eyes, or do not rub the eyes.

> **NOTE:** Damage to the eyes by acid solutions can cause blindness. Rubbing the eyes or applying salves or neutralizing agents can cause further damage. Flush the eyes with an approved eyewash system. The Service Area must equip all FAA battery work areas with eyewash systems in accordance with Order 6980.25, and 6980.25.

f. Protective Equipment. The best protection against chemical burns when working with electrolyte is protective clothing. Maintenance personnel must wear protective equipment, such as splash proof goggles, face shield, gloves, aprons, and chemical resistant footwear at all times when the hazard of electrolyte splash or spill is present.

g. Mixing Electrolyte. Pouring prepared electrolyte into batteries, mixing electrolyte, checking the electrolyte levels, or charging batteries are times when splashes may occur. Mixing electrolyte improperly may cause an accident that requires immediate first aid.

> **CAUTION:** When mixing electrolyte, always pour acid into water. Never pour water into acid.

h. Explosion Hazards (Batteries).

(1) Hydrogen is generated when some batteries are being charged or recharged. The electrochemical process also produces heat. The hydrogen and heat could create a volatile situation. Overheating can be damaging to the internal composition of the battery, while hydrogen could be explosive.

(2) During the charge and recharge periods, hydrogen is released through the vent caps. Hydrogen is 14 times lighter than air and is dispersed quite rapidly outside the battery cells. Air containing as little as 4 percent hydrogen is highly volatile if ignited.

(3) Batteries should be maintained in a well-ventilated and ignition-free area. Some sources of ignition are:

(a) Open flames from any source.

(b) Sparks from welding or electrical equipment.

(c) Lighted cigarettes.

(d) Sparks caused by connecting batteries to electrical circuits or charging systems.

(4) Sealed batteries have a potential to explode when exposed to excessive float voltages, ambient temperature extremes or equalize voltages are applied to them. Sealed batteries also have a potential to explode if battery cells become defective. Defective battery cells may be detected if low battery cell voltages are measured. A higher than normal battery temperature may be a warning that that battery cells are defective and a potentially hazardous condition may exist.

i. Working Equipment.

(1) Use a flashlight that will not cause a spark to inspect electrolyte levels of a battery. These flashlights are typically labeled "NFPA Class 1 Division 1 Group B and D intrinsically safe flashlight" or similar.

(2) Always use well-insulated tools when working on or around batteries. The combination of heat and hydrogen gas generated by recharging a battery can be explosive.

(3) Always assume that there is explosive potential at the battery vent caps and practice those procedures that ensure the safety of yourself and others.

621. CHLOROFLUOROCARBONS.

Chlorofluorocarbons (CFCs) are used as refrigerants in air conditioners, refrigeration units, chillers, and condensers. Restrictions have been put in place on the production, use, and handling of CFCs and related compounds by the Environmental Protection Agency (EPA). CFCs and the equipment that use them are slated for replacement. CFCs used as refrigerants are subject to strict recovery and recycling requirements to prevent the release of refrigerant gases to the atmosphere. CFC equipment servicing can only be performed by EPA certified technicians. Consult the supervisor or environmental staff about handling requirements.

622. POLYCHLORINATED BIPHENYLS (PCB).

PCBs, even at extremely low concentrations, present a health hazard. Order 1050.14, Polychlorinated Biphenyl's in the National Airspace System, provides the FAA policy on procedures and responsibilities for personnel safety and regulation compliance concerning PCBs.

SECTION 2. GENERAL SECURITY

623. INTRODUCTION.

This section provides guidance for protection of government property through requirements for physical security, personnel security and reporting of theft or vandalism.

624. COMPUTER SECURITY, PRIVACY, AND FREEDOM OF INFORMATION ACT.

Certain legal restrictions are placed on the collection, use, and dissemination of information. See Order 1280.1, Protecting Privacy of Information About Individuals, and Order 1370.82, Information Systems Security Program.

625. PERSONNEL SECURITY.

a. Maintenance Personnel. Security clearances are issued to personnel based on the type of sensitive information accessed in the performance of assigned duties. Security clearances are issued in accordance with Order 1600.1, Personnel Security Program.

b. System Access Rights. The system administrator must terminate access for Government or contractor/vendor personnel who no longer require access to the system and/or facility.

626. PHYSICAL SECURITY.

Physical Security is the implementation of a set of physical measures, which are designed to provide safeguards to reduce security

vulnerabilities and prevent unauthorized access to activities, property, equipment, classified information and sensitive unclassified information. The FAA reduces security vulnerabilities in its critical infrastructure through the Facility Security Risk Management (FSRM) Program in accordance with Order 1600.69, FAA Facility Security Management Program.

a. Managing Physical Security. Physical security is a key element in managing and maintaining security controls, and is interdependent with the administrative, operational and technical controls that comprise FAA security. It is important that fundamental physical security practices be adopted to provide maximum protection of all personnel and property.

b. Threats to Physical Security. Threats to physical security can include intrusion or unauthorized access to NAS systems, misrepresentation or impersonation of authorized personnel, or interception of confidential or sensitive data.

c. Physical Security Controls. FAA physical security controls address interruptions in computer services, physical damage, unauthorized disclosure of information, loss of control over system integrity, and theft.

d. Physical Access Controls. FAA employee understanding of individual security responsibilities in restricted areas is imperative to effective physical security. FAA employees must challenge any unbadged and unescorted, or unauthorized person.

e. Data Interception Policy. Data interception controls are essential to the protection of confidential and sensitive FAA data. Maintenance personnel must not install or operate unauthorized software or hardware, such as sniffers or traffic analyzers, to either intentionally or unintentionally capture system or network traffic.

f. Unauthorized Entry. Secure all equipment areas from unauthorized entry, including wire closets and electrical access points.

g. Access Control. Control access keys to all equipment areas in either the facility electronic database access list or a lock repository.

h. Security Warnings. Maintenance personnel must place security warnings and banners at all physical access points, or other areas containing sensitive systems, equipment, and workstations.

627. INCIDENTS OF THEFT OR VANDALISM.

a. Discovery of Theft or Vandalism. Employees discovering incidents of theft or vandalism must take immediate action to assess the extent of damages and must take those steps necessary to prevent further loss of government property. Any event of theft, vandalism, or criminal activity, must be immediately reported to the facility's respective Servicing Security Element (SSE).

b. Protection Against Further Loss of Government Property. Protective action may include such measures as temporary repairs to buildings, fences, or security lights. In incidents of recurring vandalism involving FAA facilities, the District Manager or designee, in cooperation with Service Area representatives, must take such action as deemed appropriate to prevent further occurrence of such incidents. This may include, but is not limited to, installing burglar alarms, 24-hour facility surveillance, or fencing. Reference Order 1600.69.

c. Reporting of Theft or Vandalism. Maintenance personnel must report all incidents involving theft of, or vandalism to, government property to the appropriate control center as soon as possible.

(1) The control center must notify management personnel, agency security representatives, and other law enforcement agencies as required (local police, state police, and the Federal Bureau of Investigation).

(2) For theft incidents, the District Manager or designee should ensure that agency security personnel are provided with any available serial number of each item stolen.

(3) Document incidents involving theft or damage to a NAS facility in the maintenance log.

(4) Advise AT personnel of any unscheduled changes to operational status.

628. REFERENCE.

For detailed information, refer to Order 1600.69, FAA Facility Security Management Program, and Order 1900.X for FAA Security Condition (SECON) level definitions and emergency readiness requirements.

629. RESERVED.

SECTION 3. INFORMATION SECURITY

630. INTRODUCTION.

This section identifies essential activities that provide comprehensive NAS system security protection. Implementation of these security measures is necessary for mitigation of security threats, and compliance with agency and Government security directives.

631. SECURITY CERTIFICATION AND AUTHORIZATION.

NAS systems must include the appropriate level of security to ensure information availability, confidentiality and integrity. This is accomplished through a combination of design, analysis, and vulnerability assessment of security features and is documented in a Security Certification and Authorization Package (SCAP) in accordance with Order 1370.82.

632. INFORMATION SYSTEM SECURITY (ISS)

This paragraph describes security management and administration procedures for users and system administrators of NAS systems. Users of NAS systems must follow the following security procedures.

a. System Access Controls.

(1) User Identification and Authentication (I&A). The identification component of an I&A system consists of a set of unique user identifiers. Authentication involves verifying the identity of a user. Passwords provide reasonable deterrence to unauthorized access if properly handled by people authorized to use them and if properly stored and processed in the password

verification system. The National Institute of Standards and Technology (NIST) has developed a standard for secure password usage and we publish system specific requirements in the SCAP Information System Security (ISS) Plan for each system. This publication provides guidance to users on the reasonable handling, storage and processing of passwords.

(2) Creation and Handling of Passwords. Maintenance personnel must use passwords to make unauthorized access to NAS systems more difficult. The user must not disclose the individual password to another user or non-user. If the user believes that the individual password has been compromised, then the password must be changed. The user is responsible for maintaining the integrity of the individual password. When applicable, users are responsible for:

(a) Following password configuration procedures.

(b) Changing passwords as required.

(c) Ensuring passwords are secure.

(3) Password Configuration. Passwords should be easy to remember, but difficult for others to guess. Do not use obvious words such as your name, names of a spouse or children, car license plates, or other, easily guessed words. Passwords must meet or exceed password conventions specified in Order 1370.92, Password and Pin Management, in accordance with the following additional criteria. Passwords must:

(a) Have a minimum length of eight characters or the maximum length the system allows, if less than eight characters.

(b) Not contain all or part of the user's account name.

(c) Contain characters from three of the four following types: English upper-case characters, English lower-case characters, numerical digits, and non-alphanumeric characters if allowed. Characters cannot be repeated more than once within a succession.

(4) Automatic Screen Blanking. Use automatic screen blanking and locking for workstations left unattended, if possible per the operating system.

(5) Display of Site-Specific Information. Systems should not display site-specific information until system users have been properly identified and authenticated.

b. Session Controls.

(1) Session Logon and Logoff. The system must prevent users gaining access to system resources by bypassing the session logon function.

(2) Concurrent Sessions. The system must restrict the user's ability to initiate concurrent sessions/simultaneous logons to the minimum necessary to perform the job, task or function.

(3) Session Lockout. The system must lockout users due to unsuccessful login attempts as determined by the SCAP process and as documented in the ISS Plan.

(4) Security Warning Banners. Computers used as NAS Support Workstations or NAS Operational Workstations must display an FAA-approved warning banner on each user's screen before they login.

c. External Connectivity for Telecommunications. Establish remote access controls to ensure that only authorized users (including vendors /contractors) have access to authorized system resources. When applicable, remote access controls must include:

(1) Remote Access Configurations. Limit the number and type of protocols, internal, and external connections that interface with the system to those that are part of the official NAS-approved system configuration.

(2) User Access Privileges. Only provide remote system access to personnel that require remote system access. Limit user remote access privileges to only those access levels necessary to perform the job, task or function (e.g., super user, system administrator, operator).

(3) Identification and Authentication. Remote users must logon to the system using an authorized user ID and password before being allowed access to system resources, as applicable.

(4) Remote Access Address Information. Do not publish remote access telephone numbers and/or IP addresses in the facility telephone directory and only provide them to those authorized personnel that require remote access.

(5) Display of Site-Specific Information. Systems should not display site-specific information until system users have been properly identified and authenticated.

(6) Warning Banners. The system must display warning banners prior to remote access to system resources.

d. System Integrity Monitoring and Reporting, Including Virus Protection. The system must have appropriate integrity monitoring and virus protection, including:

(1) Integrity Monitoring. The system must monitor, log, and report changes to executable file configurations.

(2) Intrusion Detection Tools. Configure intrusion detection tools, if applicable, in accordance with NAS approved security baselines.

(3) Virus Protection. Systems that require virus protection must use an FAA approved anti-virus software package. Scan all files for viruses prior to their execution on the system. Update anti-virus definition files according to an FAA approved update cycle.

e. Security Monitoring. Security monitoring provides a method to detect unauthorized activities or assist in the analysis of suspicious activities. Auditing functions are used to enable the tracing of system activities to individual users, providing individual accountability for actions on the system and detecting malicious or security-relevant activities.

(1) System Auditing. User and system activities are logged to create a record of events. Audit logs include, as a minimum, valid user ID checks, and failed/successful login attempts.

(2) Management of Audit Logs. Control audit logs by limiting their access to authorized personnel only.

(a) The system administrator must review and analyze audit logs.

(c) The system administrator must retain audit logs for at least 6 months.

(3) Reviewing Audit Logs. Audit logs are reviewed and analyzed regularly to identify unauthorized access attempts and ensure all actions on the system are proper. The reviewer should look for activities that are suspicious or abnormal such as:

(a) Failed or repeated logon attempts and file access attempts.

(b) Use of logins/accounts during nonstandard work hours.

(c) Use of logins/accounts that are normally not accessed.

(d) Any unusual writing to or deleting from files, particularly from accounts where such activity is not normal.

(e) Unauthorized modification of the password files.

(f) Unexplained gaps in the audit records.

(g) The loading of any unauthorized files; these may be indicators of the presence of hacking tools or other unauthorized use of the system.

f. Account Management. Effective administration of FAA user account information is essential to maintaining system security.

(1) Default Accounts and Passwords. Many systems, network devices, and applications contain one or more default system accounts and passwords (or no password) and are set up to make system installation easy for novice users.

(a) The system administrator must remove all default accounts from the system and change the default password prior to system or device deployment.

(b) All system or root level accounts must have a password assigned prior to system or device deployment. Keep accounts with this level of access to a minimum.

(c) The system administrator must remove all "guest" accounts from the system and establish a password to access the system or device.

(d) All new user accounts must have a password assigned to them.

(e) All individual users must have unique accounts assigned.

(f) Only the manager can authorize group accounts. You can use group accounts for monitoring and acknowledging alarms, or performing maintenance on some systems in accordance with the system specific ISS Plan.

(2) User Account Administration. The supervisor must approve the creation, modification or deletion of user's accounts. System administrators must ensure only authorized users have accounts. They must audit and periodically verify the legitimacy of current accounts and access authorizations. Disable user accounts of terminated employees prior to the employee receiving the termination notice from the FAA.

(3) Responsibility for User-IDs. All users are responsible for all activities performed on a NAS system using their personal user-IDs.

(4) Spoofing Users. Users are prohibited from masquerading as another user on any FAA system.

(5) Authorized Software. Obtain all executable software used on NAS operational systems through authorized procurement methods in accordance with Software Licensing/Copyright Agreements contained in Title 17 USC.

(6) Software Maintenance. Do not load any privately owned, commercial, shareware, or freeware software on any NAS operational system without testing by the owning organization with an approved CCD. Store approval documentation with the FRD.

g. Configuration Management. System users must not perform unauthorized modifications to a baselined NAS system, including the addition, modification, or removal of baselined hardware, software or firmware, without formal approval by the appropriate system configuration control authorities.

h. Maintenance. Implement maintenance security controls as follows:

(1) Issue security clearance for contract personnel who service and maintain NAS systems in accordance with Order 1600.1, Personnel Security Program.

(2) Limit local and remote maintenance access to only those personnel requiring system access.

(3) Emergency repair and maintenance personnel must have restricted access to only those system assets and information that is necessary to perform their job functions.

(4) Maintenance personnel must control system components that contain sensitive security information if serviced through off-site maintenance.

(5) System users must ensure that remote maintenance activities, including diagnostics, are performed in a secure environment, including:

(a) Ensuring Memorandums of Agreement (MOA) or other policies exist to prevent external maintenance organizations/ personnel from initiating a dial-in connection to the system while connected to the Internet/Intranet.

(b) Ensuring remote devices accessing the system have approved virus protection measures.

(c) Ensuring remote devices accessing the system are under formal configuration control.

(d) Ensuring remote devices accessing the system have adequate physical security protection.

(6) Log maintenance activities and retain records for future audits.

633. SECURITY INCIDENT RESPONSE CAPABILITY.

Despite the best security effort expended, an ISS incident may sometimes occur. This section describes how to detect, handle and report security incidents involving computer hosts or networks.

a. Information System Security (ISS) Incident Response and Handling. The NAS Security Information Group (SIG) is the central organization for managing NAS operational and mission support ISS incidents.

(1) The NAS SIG maintains communications with the system administrator, the appropriate manager, and the control center concerning analysis of security incidents.

(2) The Cyber Security Incident Response Center, (CSIRC) performs coordination with organizations or agencies outside the FAA. The CSIRC is responsible for reporting incidents to the FBI and other law enforcement officials.

b. Information Security Incident. An ISS incident is an event or circumstance associated with a system that presents a threat to the confidentiality, integrity, or availability, of data or the systems that results in: an attempted, or successful intrusion, the attempted or successful compromise of data, system abuse or misuse of Government systems. Maintenance personnel must report any new security vulnerability that is discovered in the same way as an incident.

c. Types of Information Security Incidents. Possible ISS incidents may include (but are not limited to) the following types of activity or violations:

(1) Attempts (either failed or successful) to gain unauthorized access to a system or its data.

(2) Viruses, Worms, Malicious Code.

(3) Unwanted disruption or denial of service.

(4) Unauthorized use of a system for the processing or storing of data.

(5) Change to system hardware, firmware, or software characteristics without the owner's knowledge, instruction or consent.

(6) System abuse or misuse of Government systems (viewing, transmitting, threatening, harassing material, use of system for personal gain.)

(7) Unauthorized use of another user's account.

(8) Elevating of system privileges (gain root access).

(9) Malicious destruction or modification of data.

(10) Illicit information gathering.

(11) Running hacking probes against other systems.

(12) Notification by an outside source that they are being attacked by a FAA IP address.

(13) Fraud and theft.

d. Security Incident Detection. System specialists should be aware of vulnerabilities and recognize abnormalities. It is not always possible, without analysis, to determine if a security incident, operator error, or maintenance problem occurred. If in doubt, users should notify their manager and contact the NAS Security Information Group (SIG) for assistance. Maintenance personnel must report any new security vulnerability that is discovered in the same way as an incident. The following symptoms may not conclusively prove a security incident, however they justify further investigation and possible incident reporting:

(1) New files with novel or strange names.

(2) Altered files when no change should have occurred.

(3) Unexpected changes in a file size or modification date.

(4) Sudden unexplained poor performance or slow communication.

(5) System logs are missing or appear altered.

(6) New user accounts are mysteriously created.

(7) Sudden high activity on accounts that previously had little or no activity.

(8) User password changed without the user's knowledge or consent.

(9) Numerous unsuccessful login attempts to a user's account by someone other than the user.

(10) User logging in at odd hours or frequent failed login attempts.

(11) Last login time does not correspond with user's recollection.

(12) Data on the system hard drive is no longer accessible.

(13) System programs disappearing or behaving strangely.

(14) Unusual processes running.

(15) Monitoring capabilities indicating questionable system activity or activities that usually do not appear during daily operation.

(16) System will not boot properly.

e. Security Incident Reporting And Handling.

Report suspicious activities to personnel designated to handle system security administrative functions. Report all incidents to the District Office. The reporting process contains stepped levels designed to resolve the suspected security occurrence at the lowest level possible. Continue the notification process above the District Office level until the occurrence can be resolved. The notification and reporting process is as follows:

(1) Notification to the System administrator, if one exists, to begin assessment of the suspected security occurrence.

(2) Notification to the SSC Manager and the appropriate control center.

(3) Notification to the District Office by the control center.

(4) Notification to the Service Area Director by the control center if necessary.

(5) Notification to the NAS Security Information Group (SIG), and the appropriate second level support organization by the control center if necessary.

(6) Notification to the ISSO by the NAS SIG if necessary.

(7) Notification to the FAA CSIRC by the NAS SIG if necessary.

634. CONTINGENCY PLANNING.

SSC Managers are responsible for local contingency and disaster recovery planning. Develop contingency plans in accordance with Order 1900.47, ATO Operational Contingency Plan (OCP). They must include:

a. Storage of operational software and site adaptations.

b. System configuration, and inventory.

c. Frequency and scope of backups if not included in a maintenance handbook.

635. MILITARY EMERGENCIES.

Military necessity may require some navigational aids to be shut down during military emergencies in accordance with Order 7610.4, Special Military Operations.

636. COMSEC PROCEDURES.

Communications Security (COMSEC) procedures require encryption of classified or sensitive data transmitted over insecure communication channels. Order 1600.8, Communications Security, contains the requirements for COMSEC and the use of cryptographic systems by the FAA.

637-639. RESERVED.

SECTION 4. SAFETY ON AIRPORTS.

640. INTRODUCTION.

This section provides guidance to ensure personnel and airmen safety.

641. AIRCRAFT JET BLAST HAZARD.

Use caution when crossing runways behind jet aircraft to avoid accidents resulting in damage to vehicles or injuries to FAA personnel by jet blast.

642. USE OF RUNWAY MOVEMENT AREAS.

The following must apply to all pedestrian or any vehicle used in the runway movement areas on airports:

a. FAA employees that require unescorted access to any part of the airport operations area (AOA) must complete Airport Ground Vehicle Operations training, course 12723.

b. All individuals are required to have authorization from airport management to be in the movement area.

c. A trained individual must escort FAA personnel, or individuals working in the interests of the FAA, who have not completed Airport Ground Vehicle Operations training or do not have appropriate authorization.

d. All vehicles used on any part of the movement area must display the proper flag or amber beacon required by Order 4670.2, Motor Vehicle Management.

(1) All vehicles or pedestrians using the movement area must be equipped with A-G radios and where an ATCT is in operation, A-G radio communication must be maintained with the tower ground traffic controller while on the movement area or adjacent to runways or taxiways.

(2) Permission from ATC for an outage or maintenance activity does not preclude the requirement to obtain real time permission from ground control to use the movement area.

(3) In order to facilitate clear and concise communication, use standard ATC phraseology for two-way radio communications.

NOTE: Use extreme caution when you hear the phrase “go ahead.” Controllers use this to mean, “state your request.” It never means, “proceed!” Additionally, aircraft always have the right-of-way.

e. In the event of a radio failure, move your vehicle off the runway or taxiway and turn your vehicle towards the tower, and flash your headlights. This will signal to the controllers that you need assistance. Be patient as the attention of the controller may be directed toward another part of the airport. A failed radio is not an excuse for proceeding without a proper clearance.

f. Authorized FAA employees must obtain permission from the control tower to enter the movement area. If there is no boundary marking present between the movement and non-movement area, FAA employees must check with the airport manager’s office to find out where the actual boundary is located.

g. All test and working equipment, tool boxes, or other cargo should be firmly lashed down, shock mounted, or placed securely in the trunk compartment.

h. All vehicle operators must be aware of the dangers of Foreign Objects and Debris (FOD), when operating on and off the AOA pavement areas.

i. FAA employees must use peripheral service roads whenever possible. The crossing and use of active runways should be kept to a minimum.

j. Maintenance personnel must accomplish measurements which must be made on an active runway during low-activity periods whenever possible, and maintain two-way radio communications with the ground traffic controller at all times. Accomplish these activities as rapidly as possible.

k. Airports that do not have tower operations on a 24-hour basis or do not have a control tower must establish documented

ground rules to supplement those for towered airports in order to ensure adequate safety of vehicles and FAA personnel accessing the AOA. These ground rules include, but are not limited to:

(1) Provisions for aircraft right-of-way over ground vehicles.

(2) Requirements for vehicle operators to bring their vehicles to a complete stop at least 100 feet from runway and 25 feet from a taxiway, look both ways, and listen for aircraft in the vicinity. The vehicle operator should proceed only when they will not impede an aircraft. Always proceed with caution after this visual check.

(3) Utilization of Common Traffic Advisory Frequency (CTAF) procedures. CTAF is a frequency designated for pilots to conduct airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, MULTICOM, FSS, or tower frequency, and is identified in appropriate aeronautical publications. Instructions for its use should include topics such as:

(a) Monitoring aircraft transmissions for situational awareness. Listen before transmitting.

(b) Announcing your intentions before entering aircraft movement areas.

(c) Using an appropriate radio call sign and identifying your location.

NOTE: Remember, aircraft at these airports may not be radio equipped or the pilot may not be making radio position reports. Therefore, always consider all runways to be active in both directions.

APPENDIX 1. DEFINITIONS

1. AIRPORT OPERATIONAL AREA (AOA). The AOA consists of all restricted ground areas of the airport, including taxiways, runways, loading ramps, and parking areas. The AOA is divided into two distinct areas: the movement area and the non-movement area.

2. ANNUAL. A scheduling term, meaning once every year, and at 12 month intervals.

3. AS REQUIRED. A scheduling term, meaning whenever the need has been detected.

4. ASSEMBLY. Two or more parts joined together to perform one or more elementary functions not normally subject to disassembly without losing the designed function.

5. BASELINE. A configuration identification document or a set of such documents formally designated and fixed at a specific time during the configuration items life cycle. Baselines, plus approved changes to those baselines, constitute the current configuration identification. FAA establishes baselines of NAS requirements, for each NAS design level, for the four major acquisition baselines, as well as for the NAS product baseline.

6. BIENNIAL. A scheduling term, meaning once every 2 years, and at 24 month intervals.

7. BI-WEEKLY. A scheduling term, meaning once every 2 weeks, and at 14 day intervals. Also known as Semi-Monthly.

8. CERTIFICATION. Certification is the determination and validation that a system, subsystem, or service is providing or is capable of providing the advertised service to the user. Certification includes an independent determination, which ascertains the quality of advertised services, and a validation, which officially confirms and documents the determination in the maintenance log.

9. CERTIFICATION PARAMETER. Certification parameters are selected critical indicators of the quality of the required advertised services being provided to the user of systems, subsystems, equipment, and services.

10. COMMISSIONED. A facility, system, subsystem, or equipment is considered to be commissioned if it has been formally accepted and placed into operational use of service in the NAS. It indicates that the ATO has assumed formal maintenance responsibility.

11. COMMISSIONING. The formal exercise of incorporating a facility, system, subsystem, or equipment into the NAS. This term has legal and budgetary significance and has been used to justify logistic and manpower operational support as a FAA obligation under public law.

12. CONDITION BASED MAINTENANCE (CBM). CBM consists of pro-active maintenance tasks to predict or prevent equipment failures. CBM includes Time-Based actions, Cycle-Based actions, and Predictive Analysis and Intervention (PAI).

13. CONFIGURATION CONTROL DECISION (CCD). A record of decision on a proposed change to a baseline configuration

APPENDIX 1. DEFINITIONS (CONTINUED)

item. If a change is approved, a CCD directs the action required implementing the decision.

14. CONFIGURATION MANAGEMENT. A discipline applying technical and administrative direction and surveillance to:

a. Identify and document the functional and physical characteristics of a configuration item.

b. Control changes to those characteristics.

c. Record and report change processing and implementation status.

15. CONTROL CENTER. The control center is the NAS management entity responsible for coordination with air traffic control operations personnel or other users of the NAS.

16. CORRECTIVE MAINTENANCE. Corrective maintenance is maintenance performed to identify or correct a problem.

17. DAILY. As used in stating a maintenance schedule, daily is intended to mean once every calendar day for those locations staffed 7 days a week. At other locations, daily is intended to mean every calendar day a specialist is on duty. The schedule may be reduced to a minimum of 3 times a week, with not more then 3 days between successive occurrences, at un-staffed locations.

18. DECISION SUPPORT SYSTEMS. Decision support systems provide routing information to improve efficiency and freedom of flight.

19. ELECTRONIC LOG. A chronological record of all maintenance activities (such as restoration, repair, modification, flight checks, certification) contained or resident on a software system running on a computer. It will consist of a combination of databases of logged entries as well as reference tables of data that may be inserted (by default or manually) into the logging entry for validation and linking of information.

20. EMERGENCY MODIFICATION. An emergency modification is a temporary modification installed to maintain continuity of air navigation, air traffic control, communications, or support service during unusual or emergency conditions.

21. EQUIPMENT. Equipment is a complete assembly, operating either independently or within a subsystem or system, that performs a specific function.

22. EVENT BASED CERTIFICATION.

Event based certification policy requires system and subsystem certification when some maintenance or administrative activities occur.

23. EXTERNAL CUSTOMER. An entity that is provided a facility or service derived from FAA maintained equipment on a reimbursable basis. This equipment may be owned by the FAA or receiving entity. This included equipment that is shared between to entities such as DoD and DHS. Reimbursement may consist of a formal transfer of funds or a mutually agreed upon exchange of services.

24. FACILITY. Used generically in this order to mean FSEP entity; reference Order 6000.5, Facility Service and Equipment Profile, for other uses of this term.

APPENDIX 1. DEFINITIONS (CONTINUED)

25. FIRMWARE. Software instructions which have been permanently stored in read-only memory (ROM.)

26. GROUND CHECK. A ground check is an evaluation, performed without an aircraft, of the radiated signal associated with a system, subsystem, or equipment.

27. HARDWARE. In computer applications and elsewhere, the term hardware refers to the physical equipment of devices used to perform simple or complex functions. This term must be qualified by an appropriate restrictive modifier to carry a specific identification or meaning.

28. HAZARDOUSLY MISLEADING INFORMATION (HMI). Erroneous information that is sent by navigational aids to an aircraft instrument, and that is presented in a manner that could result in a significant reduction in terrain, obstacle, or object clearance.

29. INITIAL TOLERANCE/LIMIT. As used in maintenance handbooks, the initial tolerance/limit is the maximum allowable deviation from the standard value of a parameter, or the range, that was acceptable or permissible at the time of initial installation, tune up, or construction; that will be allowable after any modification or modernization; and that is desirable after any readjustment following an out-of-tolerance/limit condition.

30. INTERRUPTION. A break in continuity, the loss or unavailability of a facility/service, regardless of duration or cause.

31. JOINT-USE. Whenever an installed facility, system, subsystem, or equipment provides services to both the FAA and one or more other agencies or military services, it is known as "joint-use." Either FAA or the sharing organization may own the facility, system, subsystem, or equipment. The term is used primarily in connection with NAS Defense Facilities and Services.

32. KEY PERFORMANCE PARAMETER. A Key Performance Parameter (KPP) is a selected parameter of the system, subsystem, or equipment, which is a critical indicator of whether or not it is performing its intended function. These parameters are clearly identified in maintenance handbooks with an arrow and are used as troubleshooting aids to logically segment signal flow through the equipment.

33. INTEGRATED LOGISTIC SUPPORT. A disciplined, unified, and iterative approach to the management and support of NAS operational requirements through the acquisition, storage, distribution, and inventory control of supplies, spare parts, tools, and working equipment. Logistic Support is necessary to:

a. Integrate support considerations into system and equipment design.

b. Develop support requirements that are related consistently to readiness objectives, to design, and to each other.

c. Acquire the required support.

d. Provide the required support during the in-service phase at minimal cost.

34. MAINTENANCE. Maintenance, as used in connection with NAS systems, subsystems, and equipment, is intended to mean any specified sequence of steps prescribed to accomplish an activity to justify or continue a system or service as operational. As used in maintenance handbooks issued before 1970, the term was

APPENDIX 1. DEFINITIONS (CONTINUED)

more restrictive in that it only applied to corrective maintenance activities; i.e., repair, adjustment, calibration, troubleshooting, or other functions.

35. MAY. As used in maintenance documentation, MAY denotes permission. For example: at navigational aid facilities, certain maintenance activities MAY be performed without reliance on flight inspection. See Order 1320.1, FAA Directives System. (Also see Must, Should, and Will.)

36. MODIFICATION. A modification to a ground facility, system, subsystem or equipment is an alteration in its electrical, mechanical, or physical characteristics, arrangement, configuration, or use that results in a need for:

a. Changes to record documentation.

b. Changes to existing standards and tolerances/limits.

c. The need for establishing new standards and tolerances/limits.

NOTE: See Order 6032.1, National Airspace System Modification Program.

37. MONITOR. A monitor is a device designed to detect when a designated parameter has deviated beyond its prescribed tolerance/limit, and then to activate an alarm to this effect or alter the operation or both.

38. **MONTHLY.** A scheduling term, meaning once every 30 days or at approximately 30-day intervals. A calendar month is the period between like dates in successive months.

39. MOVEMENT AREA. The movement area consists of taxiways, runways, and other areas designated by each airport that require the authorization of airport management and/or the permission of air traffic control to enter.

40. MUST. As used in maintenance documentation, "MUST" denotes compulsory or mandatory action that the person being directed is obliged to take. For example: Maintenance personnel MUST adjust parameters to operate in accordance with directive tolerances. See Order 1320.1. (Also see Should, Will, and May).

41. NATIONAL AIRSPACE SYSTEM (NAS). The NAS is a complex collection of systems, procedures, facilities, aircraft, and people. These components work together as one system to ensure safe and efficient services are provided to the flying public, airlines, and airports.

42. NAS CHANGE PROPOSAL (NCP). The means for proposing changes to NAS configuration items, FAA Form 1800-2.

43. NAS INFRASTRUCTURE. The physical components of the NAS, excluding people. This includes systems, facilities, leased services, support services, inventory, vehicles, and real estate.

44. NAS SERVICES. Core functions performed by the NAS in the execution of its mission to provide safe separation and control over aircraft; e.g., separation assurance, traffic management, aviation information, navigation, and landing.

45. NAS SYSTEM USER. The governmental, commercial, and public, organizations that use the NAS to carry out the functions of government, business, and aviation travel.

46. NAS-MD-001. This is the document that lists all of the NAS items (including

APPENDIX 1. DEFINITIONS (CONTINUED)

hardware, software, and documentation) that are under configuration management.

47. NON-FEDERAL FACILITY. A non-federal facility is a facility owned by a state or local government, U.S. possession or territory, or private interest.

48. NON-FEDERAL PERSONNEL. Non-federal personnel are personnel responsible for the maintenance of non-federal facilities.

49. NON-MOVEMENT AREA. The non-movement area includes airport areas that do not require the permission of air traffic control to enter such as parking, loading ramps, and maintenance ramps.

50. OFFICE OF PRIMARY INTEREST (OPI). The organizational element primarily affected by decisions or actions of the OPR and held accountable for proper responsiveness, coordination, and feedback prior to assumption of OPR status in the next sequence of events, is considered the office of primary interest.

51. OFFICE OF PRIMARY RESPONSIBILITY (OPR). The organizational element held accountable for taking appropriate action or for making a decision between alternatives at a specific turn of events is considered the office of primary responsibility.

52. OPERATIONAL RISK MANAGEMENT. Operational risk management is the process used to quantify and mitigate the probability or severity of an undesired event which may have a significant impact to NAS availability, reliability capacity, budget or schedules.

53. OPERATING TOLERANCE/LIMIT. As used in maintenance handbooks, the operating tolerance/limit is the maximum deviation from the standard value of a parameter, or the range within which normal functioning can continue without adjustment or corrective maintenance, and beyond which remedial action by system specialists is mandatory.

54. OTHER MAINTENANCE TASK. As used in maintenance handbooks issued in 1970 and later, an “other maintenance task” is any periodic scheduled task other than a performance check that is necessary to prevent deterioration or ensure reliable operation of the system. These tasks are not performance checks. PM activities now prescribed in maintenance handbooks are separated into performance checks and other maintenance tasks. The term is not used in maintenance handbooks issued before 1970.

55. OUTAGE. The loss of a facility/service for 1 minute or more.

56. PART. This is a one-piece element designed to perform a simple function in an assembly, module, unit, equipment, or facility; and normally used to repair an assembly or module.

57. PERFORMANCE CHECKS. As used in maintenance handbooks issued in 1970 and later, a performance check is a periodic scheduled test, measurement, or observation of normal operating controls and functions, which is necessary to determine whether a system is operating within its established tolerances and limits. PM activities prescribed in the later maintenance handbooks are separated into “performance checks” and “other maintenance tasks.” This term is also used in maintenance handbooks

APPENDIX 1. DEFINITIONS (CONTINUED)

issued before 1970, but in these handbooks it means a procedure required evaluating the performance of a system rather than just the description of the activity.

58. PERIODIC MAINTENANCE (PM). As used in maintenance handbooks issued in 1970 and later, any scheduled PM activities that include performance checks and/or maintenance tasks are periodic maintenance activities.

59. PREVENTIVE MAINTENANCE. The routine maintenance designed to preserve the equipment or to reduce the chance of failure. As used in handbooks issued prior to 1970, it covers all mandatory activities. Preventive maintenance may be used as a generic term discussing all kinds of tasks, including even nonscheduled tasks the performance of which meets the general definition.

60. PROTOTYPE. A System that is not within the configuration management requirements specified in Order 1800.66, Configuration Management Policy, has been designated a prototype by the acquisition office, or is being used operationally to prove concept of operations or refine its functionality.

61. PSEUDO FACILITY/SERVICE. A pseudo facility is an activity not classified as an operating type facility, requiring the expenditure of maintenance manpower or material resources or which has been established to capture the effectiveness of a specified aeronautical service.

62. QUARTERLY. A scheduling term, meaning four times each year, and at approximately 90-day intervals.

63. REGIONAL AIRSPACE AND PROCEDURES TEAM (RAPT). The RAPT is the service area focal point for all matters involving airspace instrument flight procedures.

64. RELIABILITY CENTERED MAINTENANCE (RCM). RCM is an industry standard engineering process used to determine the most efficient mixture of maintenance methods that will reduce the probability of failure and extend the equipment lifetime.

65. REPLACEABLE SPARE PART. This is a part interchangeable with a part being used in equipment, but furnished separately and not required for operation except as a replacement (often called a spare part).

66. RESTORATION. Restoration encompasses the maintenance activities required to return a system, subsystem, equipment, or service to normal use following an interruption, equipment failure, or out-of-tolerance/limit condition.

67. RISK MANAGEMENT. Risk management is a process to identify and manage future, uncertain events to mitigate or prevent negative impacts.

68. RUN TO FAULT (RTF). Run-to-Fault (RTF) maintenance is an approach to maintenance that analysis's and accepts the risk of a facility problem or failure, and makes no effort to prevent it. It is normally applied when other types of maintenance actions will not reduce the probability of failure or extend equipment lifetime.

69. SAFETY MANAGEMENT SYSTEM (SMS). Safety Management System (SMS) is an integrated collection of processes, procedures, and programs that ensure a formalized and proactive approach to system safety through risk management. Risk

APPENDIX 1. DEFINITIONS (CONTINUED)

assessments are required for all changes that could impact NAS safety. The SMS is closed-loop process, ensuring that all changes are documented and all problems or issues are tracked to conclusion.

70. SAFETY RELATED CHECKS. Safety related checks are maintenance tasks that have a direct relation to safety of flight.

71. SAFETY RISK MANAGEMENT (SRM). Safety Risk Management (SRM) is a fundamental component of the SMS. It is a systematic, explicit, and comprehensive approach for managing safety risk at all levels and throughout the entire scope of an operation and lifecycle of a system. It requires the disciplined assessment and management of safety risk. The SRM process ensures that safety significant changes are documented; risk is assessed and analyzed; unacceptable risk is mitigated; hazards are identified and tracked to resolution; the effectiveness of the risk mitigation strategies is assessed and monitored; and the performance of the change is monitored throughout its lifecycle.

72. SEMI-ANNUAL. A scheduling term, meaning twice each year, and at 6-month intervals.

73. SEMI-MONTHLY. A scheduling term, meaning twice each month, and at approximately 15-day intervals. Also known as Bi-Weekly.

74. SEMI-WEEKLY. A scheduling term, meaning twice each week, and at 3- or 4-day intervals. Also known as Twice-Weekly.

75. SERVICE. A service is an end product, resulting from a specific combination of system(s), subsystem(s), and/or equipment(s), delivered to a user (internal or external to the FAA) of the NAS.

76. SERVICE DELIVERY POINT. A service delivery point (SDP) is a manned air traffic control facility where air traffic control personnel provide NAS services. SDPs include all ARTCC, CERAP, ATCT, TRACON, FSS, and AFSS facilities as well as the ATCSCC.

77. SHALL. As used in maintenance documentation, "SHALL" denotes compulsory or mandatory action that the person being directed is obliged to take. SHALL has been replaced with MUST in this order to comply with Government plain language requirements and Order 1000.36, Writing Standards.

78. SHOULD. As used in maintenance documentation, "SHOULD" denotes an action that is desirable but not mandatory. For example: The equipment SHOULD be shut down if, in the opinion of the system specialist, a failure is imminent. See Order 1320.1. (Also see Must, Will, and May.)

79. SIGNIFICANT EVENT. An event that affects NAS systems and requires notification.

80. SOFTWARE. A set of programs, procedures, rules, and documentation concerned with the operation of a data processing system; for example, compilers, library routines, and manuals.

81. SPECIAL MAINTENANCE PROCEDURES. As used in maintenance handbooks issued in 1970 and later, a special maintenance procedure is the prescribed procedure for doing incidental,

APPENDIX 1. DEFINITIONS (CONTINUED)

nonscheduled tasks. This may include repair, adjustment, calibration, alignment, and other procedures. The term was not used in maintenance handbooks issued before 1970.

82. STANDARD. As used in maintenance handbooks, a standard is the optimum value (on which the initial and operating tolerances are based) assigned to an essential parameter of a system, subsystem, or equipment. Design plans and specifications usually establish this value.

83. STANDARD ALLOWANCE. This term is applicable to two categories of logistic support items—working equipment and test equipment. These are documented by facility type in tabular format, listing each line item by type designation or description and quantities required as officially approved to implement maintenance operations for all FAA facilities in the NAS.

84. STANDARD SPARE PARTS. These are replaceable parts readily available from commercial sources (often called "parts common".)

85. SUBSYSTEM. A subsystem is a portion of a system that performs a specific function.

86. SYSTEM. A system is a combination of subsystem(s) and/or equipment(s) whose individual functions produce by engineering design a specific operating product in the NAS.

87. SYSTEM COMPONENT (SYSTEM ELEMENT). This may be a major operating element, active or passive, which would affect the overall performance or characteristics of the system if removed or maladjusted.

88. TASK. A task is a unit of work to be performed under each activity. These tasks are identified according to the maintenance handbook subparagraphs at the lowest subparagraph.

89. TEMPORARY MODIFICATION. A temporary modification is a non-permanently installed modification. The term as used informally, is usually intended to apply to either a "test modification" or an "emergency modification," but may also apply to a "training modification."

90. TEST MODIFICATION. A test modification is a temporary modification installed by the FAA Academy to facilitate training or a temporary modification installed in operational equipment in the NAS to verify the effectiveness of a proposed modification. See Order 6032.1.

91. TRAFFIC MANAGEMENT INITIATIVES. Tactical initiatives, i.e., ground stops, taken by System Operations Traffic Management Units to mitigate NAS impacting events, reducing the likelihood or quantity of air traffic delays.

92. TRI-ANNUAL. A scheduling term, meaning three times each year, and at 4-month intervals.

93. TRIAL MODIFICATION. A trial modification is usually synonymous with a "test modification." See Order 6032.1.

94. TWICE-WEEKLY. A scheduling term, meaning twice each week, and at 3- or 4-day intervals. Also known as Semi-Weekly.

95. TYPE DESIGNATION. A FAA type designation is an assigned combination of alphanumeric characters used to identify

APPENDIX 1. DEFINITIONS (CONTINUED)

specific production equipment, custom-built for FAA. The identification is also imprinted in the equipment nameplate. Examples are FA-9996, FAA-7201, RTA-2, and ASR-9. See Order 0000.1, FAA Standard Subject Classification System.

96. UNIVERSAL COORDINATED TIME (UTC). UTC is the time provided in the worldwide time signal broadcasts used in aviation. It has replaced Greenwich Mean Time as the accepted standard clock time in many countries.

97. VALIDATION. Validation is the second step in the certification process. It involves the act of making an official statement or declaration.

98. VERIFICATION. Process similar to Certification except performed by Non-Federal personnel as defined by Order 6700.20, Non-Federal Navigational Aids and Air Traffic Control.

99. WAIVER. A written authorization to change an item not under configuration management. Waivers are requested in the form of a local NCP.

100. WEEKLY. A scheduling term, meaning once each week, and at 7 day intervals.

101. WILL. As used in maintenance documentation, WILL is intended to denote action in the future tense. For Example: Obsolete equipment WILL be replaced as soon as funds can be made available. See Order 1320.1. (See also Must, Should, and May).

102. WORKING EQUIPMENT. This is a category of equipment that includes all special tools, devices, and accessories required to install, adjust, or align operating equipment in performance of maintenance operations, exclusive of test equipment. See Order 4630.2, Standard Allowance of Supplies and Working Equipment for National Airspace System Facilities.

APPENDIX 2. MAINTENANCE AND SUPPORT LEVELS

The following chart outlines maintenance and support levels as they apply to the ATO.

First Level: Maintenance Personnel directly or indirectly responsible for specific system(s).	Second Level: Engineering and Technical Support Personnel responsible for system type(s) contribute to:	Third Level: Logistical Support Responsibilities of the FAA Logistic Center (depot), or commercial equivalent for logistical support**.**
Periodic Maintenance	Periodic Maintenance	
(1) Preventive Maintenance Inspections **(2)** Performance Checks & Status Monitoring **(3)** Routine Maintenance	**(1)** Developing and publishing procedures **(2)** Developing and publishing standards and tolerances	
Corrective Maintenance	Corrective Maintenance	Corrective Maintenance
(1) Restoration **(2)** Troubleshooting **(3)** System reset & reconfiguration **(4)** Repair and replacement **(5)** Alignment and tuning **(6)** Parameter Setting	**(1)** Developing and publishing procedures **(2)** Developing and publishing standards and tolerances **(3)** Providing remote and on-site technical support to first level maintenance. Requests for technical support should be made in the following order: **(a)** District **(b)** Service Area **(c)** National	**(1)** Stocking spare LRUs **(2)** Shipping/receiving LRUs **(3)** Stocking and shipping commonly used materials for corrective maintenance

APPENDIX 2. MAINTENANCE AND SUPPORT LEVELS (CONTINUED)

Certification	Certification	
(1) Initial **(2)** Periodic for Services **(3)** Prior to Restoration **(4)** Post-accident/Incident Evaluation	**(1)** Developing procedures **(2)** Publishing procedures	
Modification	Modification	Modification
(1) Installation of Modification **(2)** Functional check-out/testing **(3)** Documentation and tracking of modification completion	**(1)** Configuration Management **(2)** Engineering Modifications **(3)** Tracking Modifications **(4)** Developing software changes **(5)** Stocking and shipping modifications	**(1)** Stocking and shipping modifications
Documentation	Documentation	
(1) Documenting maintenance (Logging) **(2)** Documenting modifications (Data Entry) **(3)** Maintaining on-site technical publications (Handbooks, TIs, FRD, redlining prints) **(4)** Spares management, processing logistical data and documentation	**(1)** Configuration management of Technical Instruction Books	

APPENDIX 3. SYSTEMS, SUBSYSTEMS, AND SERVICES REQUIRING CERTIFICATION

Appendix 3 is maintained electronically and is available on the FAA Intranet. A link for Appendix 3 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official. The National Office of Primary Responsibility (OPR) for certification must publish updates to this appendix on the Internet 4 times per year, the first day of each quarter. A short electronic bulletin will be sent out to alert the field organizations whenever a revision occurs. All additions, deletions, or corrections will be annotated with an asterisk for easy reference.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 4. FACILITY MAINTENANCE LOG REQUIREMENTS

The following table lists all FSEP entities and places a "Y" next to them if they do require a Facility Maintenance Log, and a "N" next to them if they do not.

Appendix 4 is maintained electronically and is available on the FAA Intranet. A link for Appendix 4 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official. The National Office of Primary Responsibility (OPR) for certification must publish updates to this appendix on the Internet 4 times per year, the first day of each quarter. A short electronic bulletin will be sent out to alert the field organizations whenever a revision occurs. All additions, deletions, or corrections will be annotated with an asterisk for easy reference.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 5. LIST OF RELATED PUBLICATIONS

1. GENERAL. The following publications provide guidance to ATO personnel for use in the performance of their maintenance technical duties. Except for the air traffic control operations directives, these documents have been distributed to the District Office level and should be available there for general reference and use. The air traffic control operations directives are available at the local air traffic facility.

0000.1 FAA Standard Subject Classification System.

1050.10 Prevention, Control, and Abatement of Environmental Pollution at FAA Facilities.

1050.14 Polychlorinated Biphenyl's (PCBs) in the National Airspace System.

1050.20 Airway Facilities Asbestos Control Program.

1280.1 Protecting Privacy of Information About Individuals.

1320.1 FAA Directives System.

1320.58 Equipment and Facility Directives– Modification and Maintenance Technical Handbooks.

1350.14 Records Management.

1350.15 Records Organization, Transfer, and Destruction Standards.

1370.79 FAA Internet Policy

1370.82 Information Systems Security Program.

1600.2 Safeguarding Controls and Procedures for Classified National Security Information and Sensitive Unclassified Information.

1600.69 FAA Facility Security Management Program.

1720.18 FAA Distribution System.

1720.30 Distribution of Airway Facilities Technical Directives.

1800.66 Configuration Management Policy.

3400.3 Airway Facilities Maintenance Personnel Certification Program.

JO 3450.1 Air Traffic Organization’s (ATO) Awards Program.

3900.19 Occupational Safety and Health Program.

4250.9 Field Material Management and Control Handbook.

4620.3 Initial Support for New or Modified Equipment Installation.

4630.2 Standard Allowance of Supplies and Working Equipment for National Airspace System Facilities.

APPENDIX 5. LIST OF RELATED PUBLICATIONS (CONTINUED)

4650.20 Reporting and Replacement of Items Failing Under Warranty.

4660.1 Changes in Capitalized Value of Real Property.

4670.2 Motor Vehicle Management.

4800.2 Utilization and Disposal of Excess and Surplus Personal Property.

6000.5 Facility, Service, and Equipment Profile.

6000.6 Interagency Ground Inspection Guidance.

6000.30 NAS Maintenance Policy

6000.41 Contractor-Assisted Maintenance for the National Airspace System.

6000.50 Airway Facilities National Airspace System Operations Procedures.

6000.198 Maintenance of NAS Defense Facilities and Services.

6010.7 Joint Acceptance Inspection.

JO 6030.31 NAS Infrastructure Failure Response.

6030.41 Notification Plan for Unscheduled Facility and Service Interruptions and Other Significant Events.

6032.1 National Airspace System Modification Program.

6040.6 NAS Technical Evaluation Program.

6040.15 National Airspace Performance Reporting System.

6050.32 Spectrum management Regulations and Procedures.

6200.4 Test Equipment Management Handbook.

6480.2 Maintenance Of Mobile Air Traffic Control Towers.

6700.16 Maintenance of Mobile VHF Omnirange (VOR) Facilities.

6700.20 Non-Federal Navigational Aids and Air Traffic Control.

JO 6750.57 ILS Continuity of Service.

6930.1 Fire Prevention and Maintenance of Fire Protection Equipment.

6980.25 Maintenance of Batteries for Standby Power.

7210.3 Facility Operations and Administration.

7340.1 Contractions.

7610.4 Special Military Operations.

7930.2 Notices to Airmen (NOTAMS).

APPENDIX 5. LIST OF RELATED PUBLICATIONS (CONTINUED)

8020.16 Air Traffic Organization Aircraft Accident and Incident Notification, Investigation, and Reporting.

NAS MD-001 National Airspace System Configuration Management Document.

8200.1 United States Standard Flight Inspection Manual.

29 CFR 1910.1200 Hazard Communication (Workers Right to Know).

APPENDIX 6. FAA FORMS

The following FAA Forms are referenced in this Order 6000.15E.

Table 1. Referenced Forms

Form #	Title	NSN	Unit of Issue
198	Facility Equipment Performance and Adjustment Data		
1800-2	NAS Change Proposal	0052-00-801-6005	SH
4650-10	Warranty Failure Report	0052-00-030-5003	PD
6000-8	Technical Performance Record		Online
6000-10	Technical Reference Data Record		Online
6030-1	Facility Maintenance Log	0052-00-028-5001	PD
6032-1	Airway Facilities Modification Record	0052-00-620-1001	SH
6050- 1	Facility Transmitting Authorization	0052-00-688-6001	PD
7230-4	Daily Record of Facility Operation		SH

TABLE 2. FORM 6000-10 TECHNICAL REFERENCE DATA RECORD

TECHNICAL REFERENCE DATA RECORD		(1) Location (City/State)		(2) Date Prepared				(3) Page No.
(4) Cost Center Code	(5) Location Ident.	(6) Facility Alpha Code	(7) Facility Ident. Code		S	C	F	T	M

(8) Equipment/System Type	(9) Serial No.	(10) Frequency	(11) Date Commissioned
(12) Latitude	(13) Longitude	(14) MSL	(15) Date of Commissioning Flight Inspection

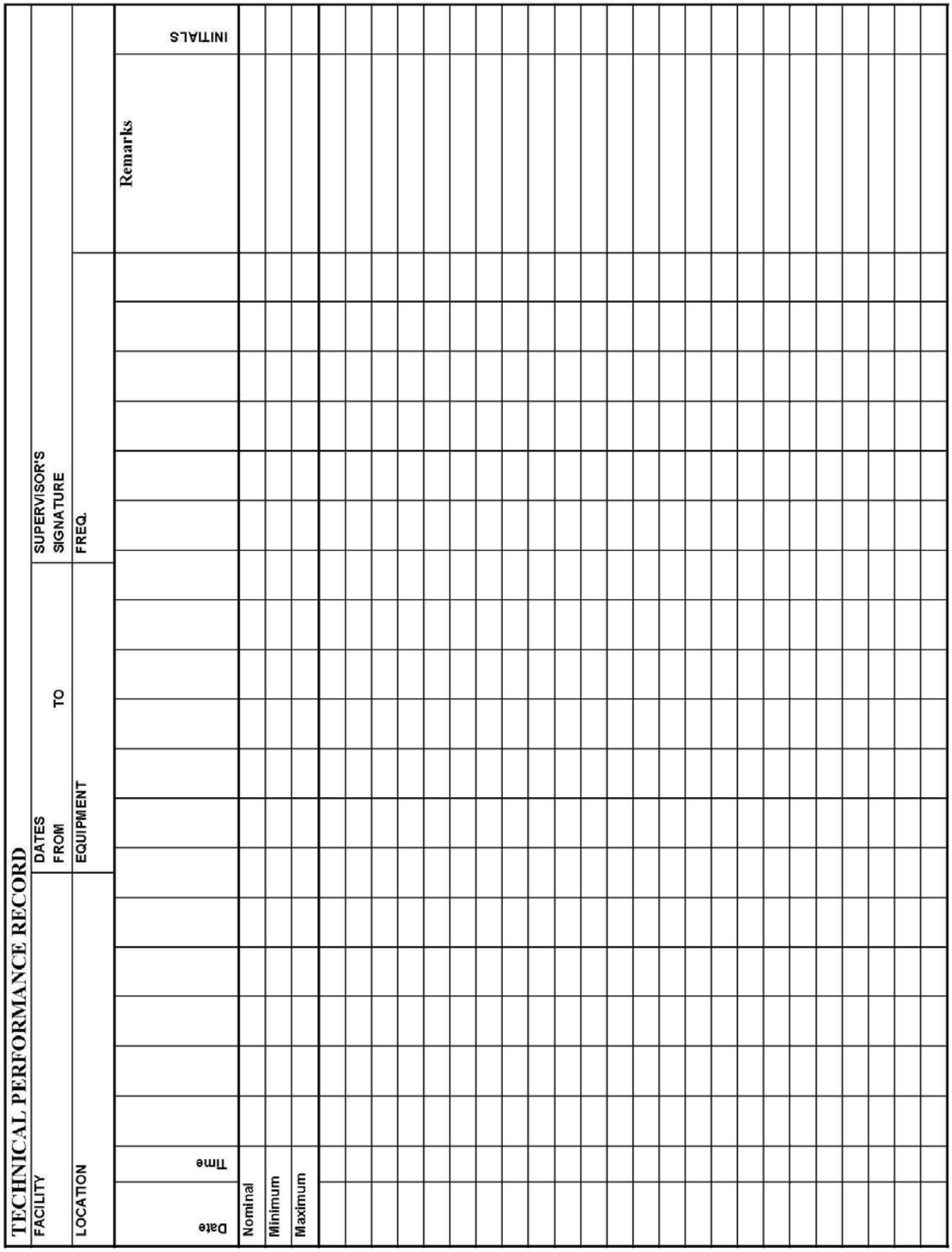
(16) Reference Handbook/Directive (Number and Title/Subject)

(17) Reference PAR/DOC Number	(18) Parameter	(19) STD Value	(20) Initial	(21) Tolerance	(22) Measured Value	(23) Revisions Type	Date	Initials

(24) Other Data Specified by Washington or District Offices:

FAA Form 6000-10 (5-07)

TABLE 3. FORM 6000-8 TECHNICAL PERFORMANCE RECORD



APPENDIX 7. LOGGING CODES

Table 1. Administrative Activity Codes and Supplemental Codes.

CODE CATEGORY	ADMINISTRATIVE ACTIVITIES	SUPPLEMENTAL CODE
00	Administrative	None
01	Log Review	None
02	“E” Entry in AT Log	None
03	Aircraft Accident/Incident	None
04	Commissioning	None
05	Decommissioning	None
06	Install/Special Project	None
07	Radio Frequency Interference	None
08	Vandalism	None
09	Performance Exam	None
10	Site Arrival/Departure	None

APPENDIX 7. LOGGING CODES (Continued)

Table 2. Maintenance Activity Codes and Supplemental Codes.

CODE CATEGORY	MAINTENANCE ACTIVITIES	SUPPLEMENTAL CODE
50	Periodic Maintenance	0-Periodic Maintenance 1-Non-FAA Circuits F-Facility Power & Support Systems
51	Certification	None
52	Decertification	None
53	Flight Inspection	None
54	Technical Evaluation	None
55	PM Not Performed	None
56	Modification	0-Modification 1-Improvement 2-Relocation 3-Long Term Improvement 4-Construction 5-Non-FAA Equipment F-Facility Power & Support Systems
57	Remote Maintenance	None
58	Corrective Maintenance	0-Troubleshooting Repair 1-Snow/Ice Removal 2-Vegetation Control 3-Perform Diagnostic 4-Remove and Replace 5-Repair Parts 6-Order Parts 7-Reset 9-Other F-Facility Power & Support Systems
59	Other	None

APPENDIX 7. LOGGING CODES (Continued)

Table 3. Scheduled Interruption Cause Codes and Supplemental Codes.

CODE CATEGORY	INTERRUPTION CAUSES	SUPPLEMENTAL CODE
60	Periodic Maintenance	0-Periodic Maintenance F-Facility Power & Support Systems
61	Non-FAA Circuits	0-Equipment 1-Circuit/Line 2-Satellite 3-Power 4-Military
62	Improvements	0-Modification 1-Improvements 2-Relocation 3-Long Term Improvement/Relocation 4-Construction F-Facility Power & Support Systems
63	Flight Inspection	0-Scheduled 1-Post Aircraft Accident 2-Special
64	Administrative	0-Special Tests 1-DoD Activities 2-Facility Inspections 3-Training 4-Performance Examinations 5-Key Site Testing F-Facility Power & Support Systems
65	Corrective Maintenance	0-Troubleshooting Repair 1-Snow/Ice Removal 2-Vegetation Control 9-Other F-Facility Power & Support Systems
66	Software	0-Testing 1-New Program/Database Load 2-Corrective Software Maintenance
67	Reserved	None
68	Related	0-Facility Interruption 1-Service Interruption
69	Other	9-Other

Table 4. Unscheduled Interruption Cause Codes and Supplemental Codes.

CODE CATEGORY	INTERRUPTION CAUSES	SUPPLEMENTAL CODE	
80	Equipment	0-Antenna System 1-Transmission Line/Connector 2-Fuse/Circuit Breaker 3-Power Supply 4-Equipment Part Failure 5-FAA Control/Monitor Line	6-Physical Storage Medium of Software 7-Unable to Determine Cause (Equipment Only) 8-Intermittent Errors 9-Auto Reset F-Facility Power & Support Sys.
81	Non-FAA Circuits	0-Equipment 1-Line/Circuit 2-Satellite 3-Power 4-Military	5-Cable Cut 6-Environmental Causes 7-Unknown 8-Personal Error 9-Other
82	Prime Power	F-Facility Power & Support Systems	
83	Standby Power	F-Facility Power & Support Systems	
84	Interference	0-Anomalous Propagation 1-ECM/ECCM/Chaff 2-Path Fade, 3-RFI/Intentional Interference 3-Solar Activity 9-Other	
85	Environmental	0-Snow 1-Ice 2-Wind/Tornado/Hurricane 3-Lightning Strike 4-Flood	5-Rain 6-Temperature Extremes/Variation 7-Birds/Animals/Insects 8-Earthquake/Volcanic Event 9-Fire
86	Software	0-Operational Program Abort 1-Operational Program Hang 2-I/O Lockout 3-Monitor/Control Software 4-Other Software Problem 5-Instruction Set	
87	Unknown	0-Unknown	
88	Related	0-Facility Interruption 1-Service Interruption	
89	Other	0-AOS Restoration Activities 1-Key Site Testing 2-Program Implementation 3-Vandalism 4-Non-FAA Owned Facility Caused	5-Personnel Error AF 6-Personnel Error AT 7-Personnel Error Other FAA 8-Personnel Error Non-FAA 9-Other F-Facility Power & Support Sys.

APPENDIX 7. LOGGING CODES

Table 5. Maintenance Action Codes (MAC).

Code	Action	Code	Action
1	Adjusted/Aligned	K	Mod on Hold – Fiscal Constraints
2	Cleaned	L	Mod on Hold – Awaiting Flight Check
3	Military Corrected	M	Mod on Hold - Waiver Required
4	Other	N	PM Not Performed (Code Cat 55 only)
5	Parts on Order (AWP)	O	Mod on Hold – Until Equip Failure
6	Patched/Switched	P	PM Performed (Code 50, not 55)
7	Propagation Condition Improved	Q	Mod on Hold – Equip Not Commissioned/F&E Project
8	Retried	R	Mod on Hold – Regional (RNOT)
9	Repaired	S	Service Complaint (Code Cat 80/87)
A	Replaced	T	Mod on Hold – Sector
B	Replaced Card	U	Equip Not Avail for PM (Code Cat 55 only)
C	Restored	V	Mod on Hold – Washington (GNOT)
D	Self Corrected/No Trouble Found	W	Mod Not Applicable
E	Startover	X	Certification (Code Cat 51; not 52)
F	Telco Unspecified Correction	Y	Mod parts Not Ordered
G	Mod Completed	Z	Mod Ready to Install
H	Mod Not Performed	$	Mod Issued
I	PM Incomplete (Code Cat 50; not 55)		
J	Mod on Hold – Manpower Shortage		

APPENDIX 8. PAPER MAINTENANCE LOGS SOP

Appendix 8 is maintained electronically and is available on the FAA Intranet. A link for Appendix 8 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 9. MAINTENANCE MANAGEMENT SYSTEM (MMS) LOGGING SOP

Appendix 9 is maintained electronically and is available on the FAA Intranet. A link for Appendix 9 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 10. SIMPLIFIED AUTOMATED LOGGING (SAL) SOP

Appendix 10 is maintained electronically and is available on the FAA Intranet. A link for Appendix 10 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 11. NATIONAL AIRSPACE SYSTEM (NAS) EVENT MANAGEMENT AND COORDINATYION (NEMAC) SOP

Appendix 11 is maintained electronically and is available on the FAA Intranet. A link for Appendix 11 is contained at: http://technet.faa.gov/6000.15/

The published appendix on the web is official.

Personnel responsible for maintaining a technical order library are authorized to print new versions from the web and insert them into this handbook at anytime.

APPENDIX 12. MAINTENANCE, CERTIFICATION AND OPERATION OF NAVIGATIONAL AID(S) OWNED BY OTHER FEDERAL AGENCIES.

This agreement between the (Federal agency concerned) and the Federal Aviation Administration (FAA) is made with respect to radio aids to air navigation operated and maintained by the (Federal agency) and used by both civil and military aircraft in the Air navigation and Air Traffic Control System*. This agreement becomes effective for each individual facility when the facility has been formally integrated into the Air navigation and Air Traffic Control System through the medium of a ground acceptance inspection by an FAA representative and upon satisfactorily meeting the requirements of a flight inspection by the FAA Flight Standards Service in accordance with the United States Standard Flight Inspection Manual and upon completion of Attachment 2 to the agreement. This agreement is being consummated under the authority of the Economy Act of June 30, 1965.

ARTICLE I

The (Federal agency) will maintain the (navigational aid(s) facilities in condition to meet the standards of performance used as criteria for the inspection by FAA representatives. The standards and format to be used are outlined in Attachment 1.

ARTICLE II

Facilities found to be acceptable as a result of both ground and flight inspections will be certified by the FAA as approved for use in the Air Navigation and Air Traffic Control System. When so certified, the FAA will confirm the authorization of the specific procedure based on the use of each facility.

ARTICLE III

If any (Federal agency) facility being employed in the Air Navigation and Air Traffic Control System is determined to be unacceptable for such use, a NOTAM will be issued and the FAA will take appropriate action with respect to the IFR or air traffic control procedure based on the use of the facility.

ARTICLE IV

If, after formal integration into the Air Navigation and Air Traffic Control System through the medium of ground and flight inspection, a facility should subsequently fail to meet applicable ground or flight criteria and prove incapable of being returned to the condition found as the time of formal integration into the system, a NOTAM will be issued and the FAA will take appropriate action with respect to the IFR or air traffic control procedure based on the use of the facility.

ARTICLE V

The FAA will continue surveillance of the facility through ground and flight inspections subsequent to those performed at the time of formal integration of the facility into the Air Navigation and Air Traffic Control System. Ground inspections will be performed after coordination with (Federal agency) by FAA technical personal. Flight inspections will be carried out by personnel and aircraft of the FAA.

APPENDIX 12. MAINTENANCE, CERTIFICATION AND OPERATION OF NAVIGATIONAL AID(S) OWNED BY OTHER FEDERAL AGENCIES.

ARTICLE VI

To facilitate the performance of ground inspections, the (Federal agency) will permit FAA technical personnel access to the facility and associated areas as necessary to carry out their duties, including permission to drive vehicles to the facilities and check ground points.

ARTICLE VII

Whenever required in the performance of ground or flight inspections by FAA personnel, the (Federal agency) representative will assist with the equipment adjustments.

ARTICLE VIII

Once the facility has been certified into the common system, all matters pertaining to the facility maintenance and performance which need to be coordinated with FAA will be handled between the (appropriate offices of the FAA and Federal agency concerned).

ARTICLE IX

Intentional shutdowns of the facility for maintenance or other purposes must be coordinated through the (applicable FAA/ATC office). This coordination must be effected in accordance with Attachment 2.

ARTICLE X

In the interest of flight safety and the most efficient use of all air navigation facilities in a given area, (federal agency) will cooperate with the FAA in scheduling maintenance shutdown periods of navigational aid facilities.

ARTICLE XI

Unanticipated outages of the facilities must be promptly communicated to (applicable FAA/ATC office). The report to the FAA must include an estimate of the probable duration of the outage.

ARTICLE XII

The status of the navigational air facility(ies) must be advertised by NOTAM to the same extent as FAA facilities. The FAA facility must act as the clearing point for information relative to the (Federal agency) facilities for the purpose of publishing NOTAM's though FAA channels. It must be the duty of the (Federal agency) to keep the FAA advised of the facility status. FAA will immediately notify the (Federal agency) as soon as the results of each FAA flight inspection have been determined. NOTAM's and other publications dealing with facility status and use will be coordinated with the (Federal agency)

APPENDIX 12. MAINTENANCE, CERTIFICATION AND OPERATION OF NAVIGATIONAL AID(S) OWNED BY OTHER FEDERAL AGENCIES.

ARTICLE XIII

The facilities must be monitored during the hours of operation by means as specified in the performance standards. The monitor station must have communications with the (FAA) facility as outlined in Attachment 3. Upon detection of any malfunction, the monitor station must so advise the FAA. If the malfunction is such as to require that a NOTAM be published, the FAA must publish it without delay. Thereafter, (Federal agency) must keep the FAA advised of further developments affecting the status of the facility until the malfunction is cleared and the facility is again advertised by NOTAM as resuming normal operations.

ARTICLE XIV

Aircraft accident notification procedures and responsibilities are outlined in Attachment 3.

ARTICLE XV

FAA personnel visiting the (Federal agency navigational aid) in connection with business involving facilities covered by the agreement must comply with local regulations.

ARTICLE XVI

The provisions of this agreement will become effective when countersigned in the spaces provided below by the authorized representatives of the respective agency(ies).

ARTICLE XVII

This agreement between the (Federal agency) and FAA covers those aspects of the use of the facilities in the Air Navigation and Air Traffic Control System not related to financial matters. The financing details, if any, covering FAA interest in the facilities will be subject to separate agreement.

ARTICLE XVIII

This agreement may be revoked at any time by either party on sixty (60) days notice in writing.

FAA REPRESENTATIVE: (Federal agency) REPRESENTATIVE:

Name: Name:

Title: Title:

*Air Navigation and Air Traffic Control Systems designates the complete system of air navigation, air traffic control and communication facilities used by the FAA to aid in he assurance of safe flight if aircraft from departure to arrival.

Memorandum

U.S. Department
of Transportation

**Federal Aviation
Administration**

Subject: **INFORMATION**: Suggested improvements to Order 6000.15E, General Maintenance Handbook for NAS Facilities

Date:

From: _____

Signature and Title

Reply to _____

Attn of: Facility Identifier
AF Address

To: FAA, Director of Safety and Operational Support
800 Independence Ave. SW.
Washington, DC. 20591

Problems with present handbook:

Recommended improvements: