U.S. Department of
Homeland Security

United States
Coast Guard

AERONAUTICAL ENGINEERING MAINTENANCE MANAGEMENT MANUAL

COMDTINST M13020.1G
April 2011

This Page Intentionally Left Blank

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

2100 2nd ST, SW STOP 7901
Washington, DC 20593-7901
Staff Symbol: CG-41
Phone: (202) 475-5570
Fax: (202) 475-5958

COMDTINST M13020.1G
APRIL 11 2011

COMMANDANT INSTRUCTION M13020.1G

Subj: AERONAUTICAL ENGINEERING MAINTENANCE MANAGEMENT MANUAL

1. PURPOSE. This Manual establishes policies, procedures, and standards for the Aeronautical Engineering Community.

2. ACTION. All Coast Guard unit commanders, commanding officers, officers-in-charge, deputy/assistant commandants, and chiefs of headquarters staff elements shall ensure compliance with the provisions of this Manual. Internet release is authorized.

3. DIRECTIVES AFFECTED. The Aeronautical Engineering Maintenance Management Manual, COMDTINST M13020.F, and USCG Aviation Fuel Handling Procedures Manual, COMDTINST M13001.1, are canceled.

4. MAJOR CHANGES. Major changes to the Manual include, but are not limited to: updates to reflect Coast Guard Modernization; updates to reflect current USCG Aviation Logistics Center, Elizabeth City NC organization; addition of the Technical Airworthiness Assurance Program; and the addition of the Aviation Fuel Handling Program.

5. REQUESTS FOR CHANGES. Units and individuals may recommend changes to this Manual utilizing Form CG-22, Aeronautical Publication Change Recommendation, as outlined in Coast Guard Process Guide, PG 85-00-20. This Manual will be reviewed on a regular basis.

6. DISCLAIMER. This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is intended to provide operational guidance for Coast Guard personnel and is not intended to nor does it impose legally binding requirements on any party outside the Coast Guard.

7. ENVIRONMENTAL ASPECT AND IMPACT. Per the National Environmental Policy Act Implementing Procedures and Policy for considering Environmental Impacts, COMDTINST M16475.1D, Figure 2-1, #33, the Coast Guard has determined that the development and issuance of the Aeronautical and Engineering Maintenance Manual, COMDTINST M13020.1G, is Categorically Excluded from further NEPA documentation, and a written Categorical Exclusion Determination is not required.

DISTRIBUTION – SDL No. 158

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	1	1		1	1	1																1				
B		1	1	1	1						1	1			1						1					
C	1	1	1					1								1									1	
D		1	1										1												1	
E	1																									
F																										
G																										
H		1																								

NON-STANDARD DISTRIBUTION: Commandant CG-41 (1), CG-531 (1), CG-1131 (1)

8. FORMS/REPORTS. The forms called for in this Manual are on the Standard Workstation via USCG Electronic Forms on the Intranet at http://cgweb2.comdt.uscg.mil/cgforms/welcome.htm or on CGPortal at https://cgportal.uscg.mil/delivery/Satellite/uscg/References and on the Internet at http://www.uscg.mil/forms/.

T. P. OSTEBO /s/
Assistant Commandant for Engineering & Logistics

RECORD OF CHANGES			
CHANGE NUMBER	DATE OF CHANGE	DATE ENTERED	BY WHOM ENTERED

This Page Intentionally Left Blank

TABLE OF CONTENTS

CHAPTER 1 MAINTENANCE MANAGEMENT POLICY

A. General . . . 1-1
B. Maintenance System Objective . . . 1-1
C. Equipment Readiness . . . 1-1
D. Maintenance System Organization . . . 1-1
E. Maintenance Standardization . . . 1-2
F. Management Actions on Inspection Reports . . . 1-2
G. Maintenance Capability . . . 1-2
H. Maintenance Effectiveness . . . 1-3
I. Aircraft Availability . . . 1-3
J. Maintenance Documentation . . . 1-4
K. Financial Management . . . 1-4
L. Cannibalization . . . 1-4
M. Product Quality Deficiency Report (PQDR) . . . 1-5
N. Modification and Changes to Aircraft . . . 1-5
O. Aircraft Weight and Balance . . . 1-6
P. Functional Checks of Aeronautical Equipment . . . 1-7
Q. Aircraft Ownership . . . 1-13
R. Commandant's Aeronautical Engineering Logistics Compliance Inspection (LCI) . . . 1-13
S. Reliability Centered Maintenance (RCM) Program . . . 1-13
T. Flight Safety Critical Aircraft Parts (FSCAP) Program . . . 1-13
U. Technical Airworthiness Assurance Program . . . 1-14
V. Aviation Fuel Handling Program . . . 1-14

CHAPTER 2 ORGANIZATION

A. General . . . 2-1
B. Office of Aeronautical Engineering, Commandant (CG-41) . . . 2-1
C. Program Manager, Commandant (CG-41d) . . . 2-2
D. Aeronautical Engineering Systems Management Division, Commandant (CG-411) . . . 2-3
E. Aeronautical Engineering Resource Management Division, Commandant (CG-412) . . . 2-4
F. Aviation Logistics Center (ALC), Elizabeth City, NC. . . . 2-6
G. Typical Aviation Unit . . . 2-9
H. Prime Unit . . . 2-9

CHAPTER 3 CLASSIFICATION OF AVIATION MAINTENANCE ACTIVITIES

A. General . . . 3-1

B. Classifications 3-1
C. Types of Classifications 3-2
D. Unit Requirements 3-2

CHAPTER 4 DIRECTIVES AND PUBLICATIONS
A. Overview 4-1
B. Commandant Instructions 4-1
C. Technical Orders 4-1
D. Precedence of Directives 4-1
E. Reference Publications 4-2
F. Coast Guard Technical Order System 4-2
G. Technical Manual Application System (TMAPS) 4-3
H. Process Guides 4-3
I. TCTOs 4-7
J. Monitoring TCTOs 4-8

CHAPTER 5 AIRCRAFT INSPECTIONS
A. General 5-1
B. Definition of Inspections 5-1
C. Requirements 5-3

CHAPTER 6 PERSONNEL AND TRAINING
A. General 6-1
B. Personnel Allowances 6-1
C. Flight Orders 6-1
D. Performance Qualifications 6-1
E. Training 6-2

CHAPTER 7 SUPPORT EQUIPMENT (SE)
A. General 7-1

CHAPTER 8 AVIONICS
A. Scope 8-1
B. General Avionics Publications 8-1
C. General Avionics Maintenance 8-1
D. Logistics 8-5
E. Aircraft C4ISR Systems 8-8

CHAPTER 9 AVIATION LIFE SUPPORT EQUIPMENT
A. Scope 9-1
B. General 9-1
C. Equipment Types 9-1

D. Organization 9-2

CHAPTER 10 AIRCRAFT SALVAGE
A. General 10-1
B. Salvage Plans 10-1
C. Assignment of Salvage Officers 10-1
D. Responsibilities for Aircraft Recovery/Salvage 10-1
E. Coast Guard Vessel Recovery Capabilities 10-2
F. Salvage References 10-3

INDEX

ENCLOSURE INDEX
Enclosure (1) MAINTENANCE LEVEL FUNCTIONS
Enclosure (2) SAMPLE MAINTENANCE RELEASE AUTHORITY LETTER
Enclosure (3) RECOMMENDATIONS FOR AVIONICS TECHNICAL LIBRARIES
Enclosure (4) SOFTWARE CHANGE PROCEDURE
Enclosure (5) REFERENCES

This Page Intentionally Left Blank

CHAPTER 1. MAINTENANCE MANAGEMENT POLICY.

A. GENERAL. This Manual provides a summary of the objectives, policies, organizational structures, and responsibilities which form the foundation for the United States Coast Guard (USCG) aeronautical maintenance management system. This system is a composite of the United States Air Force (USAF) and Navy (USN) systems, commercial, and USCG developed procedures. The procedures required for uniform and effective management of aeronautical maintenance resources are contained in this Manual and referenced process guides.

B. MAINTENANCE SYSTEM OBJECTIVE. The system objective is to ensure, in the most cost-effective manner, that assigned materiel is serviceable (safe and operable) and properly configured to meet mission requirements. This is accomplished by performing maintenance, including but not limited to, inspection, repair, overhaul, modification, preservation, testing, and condition or performance analysis. Emphasis is placed on planning and scheduling these tasks by supervisors to allow timely accomplishment through the efficient use of personnel, facilities, and equipment. Proper planning reduces unscheduled maintenance events and allows for an orderly progression of maintenance actions toward returning materiel to a safe and operable condition.

C. EQUIPMENT READINESS. The key to a unit's mission success is its sustained ability to provide safe, reliable, and properly configured equipment at the time and place it is required. The degree of equipment readiness at an operating unit should be put in context with the assigned mission. Failure to recognize the extent of equipment readiness required may result in excessive acceptance of equipment deficiencies and a maintenance backlog. On the other hand, unrealistically high readiness requirements may cause essential maintenance to be deferred with the same result. Either extreme serves to reduce a unit's mission capability. Commanding Officers should ensure equipment is made available for maintenance when the resources are available. It is the Commanding Officer's responsibility to ensure that maintenance is completed in an orderly and timely manner to meet the assigned mission requirements.

D. MAINTENANCE SYSTEM ORGANIZATION. Three basic elements comprise the aeronautical maintenance system: a management element, a technical element, and a production element. Additional information concerning the duties and responsibilities of these elements is addressed in succeeding chapters of this Manual and associated process guides.

1. Management Element. The Office of Aeronautical Engineering, Commandant (CG-41) at USCG Headquarters, has primary responsibility for the management element and serves as a focal point for technical and engineering support for systems and equipment in the operational inventory.
2. Technical Element. The Aviation Logistics Center (ALC) and field units designated "Prime Units" perform the major share of the technical element of maintenance engineering under the direction of Commandant (CG-41).
3. Production Element. Operating activities are concerned primarily with maintenance production and provide the basic data inputs for maintenance engineering decisions. Maintenance production is the physical performance of equipment maintenance and related functions such as servicing, repairing,

testing, overhaul, modification, calibration, conversion, and inspection. These tasks are performed at two levels: organizational and depot.

a. Organizational-Level Maintenance. USCG organizational-level maintenance includes both the Department of Defense (DoD) levels described as organizational and intermediate. Individual units have the responsibility to perform unit level maintenance on their assigned equipment. This normally consists of inspecting, servicing, lubricating, adjusting, and replacing components, minor assemblies, and subassemblies. It also consists of calibrating, repairing, or replacing damaged or unserviceable parts, components, and assemblies; modifying materiel, emergency manufacturing of unavailable parts; and developing/providing internal technical assistance.

b. Depot-Level Maintenance. Designated maintenance activities perform depot-level maintenance to augment stocks of serviceable materiel and support unit level maintenance activities. These depots have more extensive shop facilities and equipment and personnel of higher technical skill than are normally available at the lower levels of maintenance. Depot-level maintenance is normally accomplished by ALC and other overhaul activities designated by Commandant (CG-41).

E. MAINTENANCE STANDARDIZATION. Standardized maintenance improves overall maintenance quality, capability, and reliability. The required level of standardization will be achieved through application of the maintenance management procedures prescribed by this Manual and associated process guides.

F. MANAGEMENT ACTIONS ON INSPECTION REPORTS. Inspection reports, whether from unit quality control or other inspections, are valuable management tools that must be given special attention. Positive action is required to identify and eliminate the causes of the specific defects noted. Supervisors should ensure that responsible individuals are made aware of deficiencies and become involved in correcting the problems. Review of corrective actions is incumbent on the Commanding Officer and Engineering Officer to ensure underlying causes for discrepancies are identified and rectified to preclude their recurrence.

G. MAINTENANCE CAPABILITY. Maintenance capability is the ability of a unit to maintain assigned equipment in serviceable condition and proper configuration. Development of this capability begins with systems requirements definition for acquisition. Systems requirements analysis is performed to determine the system capabilities, adequacy of the requirements definition, and whether the systems meet these requirements. While defining requirements and determining capabilities, the system requirements analysis also develops the overall system maintenance philosophy. The overall maintenance philosophy determines both the depot and organizational-level maintenance capabilities. This determination is based on the requirement for organizational-level maintenance to support the mission and the cost effectiveness of in-house depot-level capability. The unit capability is then translated into resources of unit facilities, billets, and the unit spares allowance list, which drives procurement and positioning of spare parts. Engineering Officers must gauge their maintenance capability when planning to meet mission requirements. If maintenance capability is exceeded for extended periods, maintenance quality

will suffer, and ultimately, mission requirements will not be met and safety will be compromised. See Enclosure (1).

1. Maintenance Work Hours. Because the number of maintenance work hours available is limited, the Engineering Officer must take considerable care with this resource. Every effort should be made in maintenance plans and schedules to ensure personnel are productively employed throughout their workshift.
2. Sparing Levels. Sparing levels of critical components and piece-parts are based on a predicted mean time between failure. Service-wide budgetary restrictions also impact levels of sparing through reduced funds for parts buys and contracted rework. To prevent shortages elsewhere in the fleet, Engineering Officers should ensure only the authorized level of sparing is maintained; making use of supply practices such as parts pooling as much as possible to maintain readiness levels without stocking excessive inventory.
3. Maintenance Capability and Mission Accomplishment. The relationship between maintenance capability and successful accomplishment of the mission must be clearly understood. When resource deficiencies exist, the Engineering Officer should request and justify additional resources to support a continuous workload or request temporary assistance to perform emergency workloads. Assistance may be requested to perform maintenance beyond the unit's capability. The Personnel Resources And Reprogramming Manual, COMDTINST M5312.13 (series), provides guidance, policy, and procedures on the subject of Personnel Resources. Where resources (parts or personnel) are not available or cannot be made available, reductions in mission requirements may be necessary.

H. MAINTENANCE EFFECTIVENESS. The Aeronautical Engineering system provides integrated logistical support for all aspects of Coast Guard Aviation. When fully effective, the Aeronautical Engineering system produces aircraft that satisfy operational requirements in a reliable, maintainable, and supportable fashion.

A system of measurements of effectiveness (MOEs) indicates the performance of Coast Guard Aeronautical Engineering as related to strategic plans and goals. This MOE system consists of multi-dimensional indices and individual data points. These are taken collectively and considered over time to adequately reflect overall system performance. These measures are available through the Asset Logistics Management Information System (ALMIS) Decision Support System (DSS). Engineering Officers at Air Stations must also monitor and measure the effectiveness of their maintenance efforts.

I. AIRCRAFT AVAILABILITY. Availability of aircraft to perform operational missions is dependent on a wide range of variables. An Availability Index (AI) indicates the percentage of time that aircraft assigned to Air Stations are available to perform Coast Guard missions. It is defined as follows:

AI=[100-NMCT] *where*

NMCT=Not Mission Capable Total = NMCM + NMCS + NMCD (units).

NMCM is Not Mission Capable due to Organizational-level Maintenance.

NMCS is Not Mission Capable due to Supply.

NMCD (units) reflects the portion of Not Mission Capable Time due to Depot-Level Maintenance which is performed at a unit.

A more detailed definition of NMC categories can be found in CGTO PG-85-00-110, Chapter 3.

1. NMCT Target. The USCG target for aircraft availability is 71% (which equates to an NMCT of 29%). This is the goal for mature aircraft systems but is only one of many indicators of maintenance effectiveness.

2. NMCS Target. A target of 5% is a planning goal for NMCS rates (this equates to a parts availability rate of 95%). This target also serves as a justification for resources required to meet an NMCT rate of 29%. However, the Coast Guard must strive to meet these targets at minimum total system costs. The greatest efficiencies can be realized through minimizing inventory investment at ALC and in unit allowances consistent with this goal.

J. MAINTENANCE DOCUMENTATION. Documentation is an essential part of maintenance management. The objective of maintenance documentation is to provide the Engineering Officer with timely, complete, and accurate maintenance production data for planning, control, and analysis, and to provide an accurate record of completed work. It also provides performance data to managers at all levels and is essential in the development of a maintenance management information system. Additionally, this information will aid in identifying problem parts or items and in the development of yearly budgets.

K. FINANCIAL MANAGEMENT. Management of funds plays a key role in maintenance. The Engineering Officer is responsible for financial planning, preparation of budget requirements, and controlling expenditures within budget allocations. Exact procedures will vary among operating units; however, the primary goal of financial management at the unit level is to receive the maximum benefit from the funds available.

1. Responsibilities. The Financial Resource Management Manual (FRMM), COMDTINST M7100.3 (series), provides detailed information concerning the responsibilities of the various levels of the USCG organization regarding administration of appropriated funds. All personnel involved in the planning for, or expenditure of, appropriated funds should have a working knowledge of the system described therein.

2. Allocation of Funds. Operating aviation units receive funds under AFC-30. Each district and operating activity has developed procedures for the allocation of these funds within their areas of responsibility. Commanding Officers have final authority regarding the sub-allocation of funds to various departments. The Engineering Officer should ensure that planning for and expenditure of assigned funds is consistent with the overall objective of the unit maintenance plan.

L. CANNIBALIZATION. Cannibalization is the removal of a specific assembly, subassembly, or component from one equipment end item for installation on another to meet mission requirements. Cannibalization is a costly practice in terms of time, labor-hours, documentation, and damaged equipment. Cannibalization shall be

closely controlled and monitored. All cannibalization actions shall be authorized by the Engineering Officer or his/her designated representative.

NOTE

All cannibalizations will be recorded in the Electronic Asset Logbook (EAL) as a maintenance record entry. Cannibalization Removal (CR) entries are recorded against the donating aircraft and Cannibalization Installation (CI) entries are recorded against the receiving aircraft IAW CGTO PG-85-00-110.

M. PRODUCT QUALITY DEFICIENCY REPORT (PQDR). PQDRs are a necessary supplemental process used to document and facilitate maintenance procedures for all aircraft parts; components, and systems that do not meet "mean time between failure" or form, fit, and function for the design and engineering of that part, component or system. The PQDR Process is an automated system used to identify, document and control those parts, components, and systems that fail to meet the OEM specifications and allow for an independent review of the specific incident regarding the part in question. See the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110 for further guidance on PQDRs.

N. MODIFICATION AND CHANGES TO AIRCRAFT.

1. General. The Commandant encourages improvement of USCG aircraft while preserving standardization and providing guidance to accomplish aircraft modification or change projects. These instructions are intended to supplement any general instructions governing aircraft testing. The term aircraft, as used in this sense, includes related systems and support equipment. Refer to Chapter 8 for more specific guidance on avionics components.
2. Changes or Modifications. All changes or modifications to aircraft must be reviewed by the appropriate technical authority at ALC and approved via the ACCB process. Any changes or modifications that could adversely affect structural loads, aerodynamic characteristics, weight and balance, or performance will be thoroughly documented, and mitigation of these affects will be detailed in the ACCB submission. Temporary modification authorization will include the effective dates for installation and removal.
3. Procedures.
   a. Operational Requirements. Recommendations for changes or modifications to fulfill operational requirements or improve mission performance shall be addressed to the Platform Manager, Commandant (CG-711), copy to the system manager, Commandant (CG-41).
   b. Correction of Materiel Defects. Recommendations for changes or modifications to correct materiel defects or unsatisfactory conditions (including avionics) will normally be submitted by the Product Quality Deficiency Report (PQDR). Urgent safety of flight materiel defects should be submitted in message format.
   c. Aircraft Configuration Control Board (ACCB). The ACCB will review and recommend changes to standard aircraft configuration. The ACCB recommendations will be subject to joint final action by Chief of Aviation

Forces and Chief, Office of Aeronautical Engineering. See the ACCB Process Guide, CGTO PG-85-00-70, for specific information.

d. Prototype Installation. Prototype installations are authorized by the Commandant (CG-41) . The prototype unit is responsible for advising the appropriate Standardization Unit when the design has reached the stage where procedures may be developed for flight handbooks. With the proper prior operational consultation in Phases I and II of the ACCB proceedings, this will not become a redesign process for the change.

e. Trial Installations. A trial installation is normally performed by the Prime Unit. The trial installation verifies all aspects of the modification, including installation procedures, parts, and changes to operating and maintenance procedures.

f. Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) Testing. Electromagnetic Interference/Electromagnetic Compatibility and Safety of Flight (SOFT) testing shall be conducted prior to the installation or operation of electronic devices (including PDAs, laptops, cell phones, etc.) on board a Coast Guard aircraft. Contact ALC Engineering Support Branch to coordinate testing of any proposed electronic equipment. Installation of prototypes requires completion of EMI/EMC testing and feasibility approval from the ACCB.

g. TEMPEST Testing. TEMPEST testing by a certified TEMPEST team is required for each prototype or initial fielding of a new Communications Security (COMSEC) system. TEMPEST testing for prototypes of modified COMSEC systems or equipment shall also be required except when specifically exempted by the ALC Field Technical Authority (FTA) or other qualified DoD authority. See the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110, Chapter 1 for TEMPEST Testing Program requirements.

O. AIRCRAFT WEIGHT AND BALANCE.

1. General.. Weight and Balance, AFTO 1-1B-50, outlines the specific weight and balance requirements for USAF aircraft. These requirements, as modified below, will be used as a guideline to define weight and balance criteria for USCG aircraft.

2. Requirements. Reporting custodians shall ensure that USCG aircraft are weighed and the balance computed in accordance with the following criteria:

   a. At initial delivery

   b. During programmed depot maintenance

   c. When major modifications or repairs are made that will affect the weight and balance of the aircraft

CAUTION

THE REMOVAL OR ADDITION OF COMPONENTS WITHIN THE AIRCRAFT MAY SIGNIFICANTLY ALTER THE BASIC AIRCRAFT CENTER OF GRAVITY. THE UNIT WEIGHT AND BALANCE OFFICER WILL BE NOTIFIED OF ALL AIRCRAFT CONFIGURATION CHANGES AND A REVISED WEIGHT AND BALANCE FORM F, DD FORM 365-4 (USCG ADOBE FORMS), WILL BE COMPLETED PRIOR TO FLIGHT.

d. When the calculated weight and balance data is suspected of being in error

e. When unsatisfactory flight characteristics are reported which cannot definitely be determined as improper loading or error in weight and balance data

f. Whenever specified by Asset Computerized Maintenance System (ACMS)

g. More detailed guidance is provided in the Aircraft Weight and Balance Process Guide, CGTO PG-85-00-180

P. FUNCTIONAL CHECKS OF AERONAUTICAL EQUIPMENT.

1. General. A functional check is a check to determine if a system or component is correctly performing its intended function. The depth of maintenance performed on an aircraft prior to flight and its relevance towards flight safety determine the extent to which components are functionally checked prior to release for operations. Functional checks are divided into ground checks, flight verification checks, and test flights, and are defined as follows:

   a. Ground Checks. Visual inspection and functional checks performed on the ground utilizing auxiliary power units, ground power (electrical or hydraulic) units, ground test equipment, the aircraft engines, or rotor engagement to provide system power.

   b. Flight Verification Checks. Airborne functional checks, conducted during a scheduled operational or training mission, for components or systems whose failure would neither adversely affect flight safety nor seriously affect mission accomplishment.

   c. Test Flights. Airborne functional checks to establish if an airframe or equipment, when subjected to design environment, is operating properly. Generally, areas checked on test flights are equipment or systems whose failure would adversely affect flight safety.

2. Requirements. Specific functional check requirements are delineated herein and are minimum standards. The prerogative for more stringent minimums is reserved for Commanding Officers as local conditions or events dictate. The following requirements shall be adhered to:

   a. Ground Checks.

(1) General. The performance of all aeronautical equipment is normally ground checked after maintenance has been completed. Ground checks shall be performed in accordance with applicable maintenance procedure cards (MPC), Technical Orders (TO) or maintenance instructions, and as dictated by good judgment. Certain specific maintenance actions, such as the replacement of landing gear actuators, are clearly detailed in maintenance instructions. The required ground checks for system cycling and landing gear drop checking are included in those instructions. Other maintenance actions not specifically addressed by the applicable publications require application of sound engineering practice and enlightened supervision to ensure adequate ground checks.

Example: Maintenance on landing gear hydraulic lines or fittings where replacing a line or tightening loose fittings may only require a system pressure check; whereas, replacement of a selector valve would require aircraft jacking and a complete landing gear drop check.

Adequate ground checks are essential to safe execution of flight verification checks and test flights.

Flight Controls Disassembly or replacement of any portion of a flight control system:

Example: Elevators, rudders, ailerons, blade unfolding, trim tabs, rotor head and blades, tail rotor gearbox and blades, control cables, fairleads, pulleys, rods, servo system, etc., all require a ground check to ensure synchronization of pilot's and copilot's controls and the proper movement of the control surfaces. This ground check shall be performed by all of the following:

(a) The mechanic performing maintenance

(b) A quality assurance inspector

(c) The pilot designated to conduct the required test flight or flight verification check

b. Maintenance Release. A maintenance release signifies that a responsible individual has determined the correct maintenance or inspection has been completed for the discrepancy or other requirement. A signed release also signifies that adequate ground checks and maintenance documentation have been correctly performed. Any aircraft having undergone maintenance requiring a functional check or test flight must be maintenance released. Additionally, any aircraft suffering damage on the ground or in-flight must be maintenance released before further flight is attempted.

NOTE

The Engineering Officer is authorized to maintenance release aircraft at their unit. Additional officers and Chief petty officers qualified to sign a maintenance release shall be designated in writing. Enclosure (2) is a sample Aircraft Maintenance Release Authority letter. Variations may be utilized as appropriate.

c. Flight Verification Checks. Any component or system not specifically requiring a test flight may receive a flight verification check at the discretion of the Engineering Officer. Certain exceptions are allowed; see Paragraph 1.P.2.d.(3) of this Manual.

d. Test Flights.

(1) Test Flight - Complete. Complete test flights shall be conducted in accordance with test flight procedures detailed in applicable maintenance procedure cards (MPC) or technical manuals. A complete test flight is required:

(a) After extended aircraft storage

(b) After completion of major structural rework, including Programmed Depot Maintenance (PDM)

(c) As indicated by maintenance procedure cards or technical manuals

(d) Prior to delivery of aircraft to a PDM facility (see the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110, Chapter 5)

(e) At the discretion of the Engineering Officer

(2) Test Flight - Partial. Upon completion of critical maintenance, a partial test flight is required to functionally check those components or systems which may have been affected by the maintenance action. Partial test flights are required:

(a) As indicated by MPCs, maintenance instructions, or applicable T.O.s

(b) Flight control disassembly or replacement of any portion of a flight control system (for example: elevators, rudders, ailerons, trim tabs, rotor head and blades, tail rotor gearbox and blades, control cables, bearings, fairleads, pulleys, rods, servo system, etc.)

(3) Test Flight - Exceptions.

(a) HH-65/MH-65 main rotor blade fold/unfold requires only a ground check with rotor engagement.

(b) If HC-130 aircraft maintenance requiring a test flight is limited to no more than one power plant package, a flight verification may be conducted in lieu of a test flight at the discretion of the Commanding Officer. Restrictions in the Coast Guard Air Operations Manual, COMDTINST M3710.1 (series), apply.

(c) HC-130 aircraft requiring airborne functional checks conducted prior to delivery of an aircraft to PDM or to fulfill annual ACMS requirements may be conducted as a flight verification at the discretion of the Commanding Officer, providing no safety of flight maintenance has been performed.

(d) HU-25 aircraft ATF3 engine replacement (one or both), module replacement, and fuel or electrical systems maintenance do not require a test flight, provided appropriate ground checks have been completed and an acceleration time check is satisfactorily completed prior to, or in conjunction with, the first takeoff following maintenance.

NOTE

A test flight for flight control maintenance may be waived at the discretion of the Commanding Officer or their designated representative when all of the following conditions are met:

1. The flight control maintenance involves only the removal and reinstallation of common connecting hardware (nut, bolt, cotter key, etc.) without a resulting change in adjustment and/or alignment, and no other flight control maintenance has been performed.

2. The applicable maintenance procedure card does not require a test flight.

3. Ground checks are conducted IAW Paragraph 1.P.1.a.

4. Documentation initiated and completed IAW the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110.

5. In the EAL and the EAL paper copy logbook, a documented grounding discrepancy and corrective action, ground check, QA inspection, and maintenance release are required. Additionally, when using the EAL paper copy logbook, a Flight Safety Maintenance Document entry is required.

e. Preflight Briefing. Pilots in command of flight verification checks and test flights shall be briefed on procedures and systems to be

checked by someone with Maintenance Release Authority or Quality Assurance (QA) Inspector prior to aircraft departure. Additionally, a Quality Assurance Inspector should be assigned as a part of the flight crew when practical. In EAL, the pilot in command (PIC) signature in the maintenance record Quality Assurance Briefing block, certifies completion of this briefing. In the EAL paper copy logbook, the PICs signature in the Quality Assurance Briefing block on the Flight Safety Maintenance Document, certifies completion of this briefing.

f. Records.

(1) Maintenance Flight Safety Warning. A Maintenance Flight Safety Warning Tag shall be attached to the pilot's yoke or cyclic stick whenever safety of flight maintenance requiring a ground check or airborne functional check has been performed. This tag shall be locally manufactured for reuse and state "CAUTION PILOTS AND AIRCREW. SAFETY OF FLIGHT MAINTENANCE HAS BEEN PERFORMED ON THIS AIRCRAFT. CHECK THE AIRCRAFT MAINTENANCE RECORD PRIOR TO FLIGHT."

(2) Electronic Aircraft Logbook. In EAL, each maintenance action requiring a functional check, will provide sign-off blocks applicable to the requirement.

EAL Paper Logbook Flight Safety Maintenance Document: When using the EAL paper logbook, the Flight Safety Maintenance Document is retained with the Aircraft Maintenance Record. It is used for all maintenance that requires a functional check. It identifies the type of check required and appropriate sign-off blocks for maintenance accomplishment, required ground check, quality assurance inspection, maintenance release, pilot in command (PIC) acceptance, and final completion of functional check.

An aircraft requiring a test flight as the final maintenance action shall remain in an NMCM status for the test flight items. Once all test flight items have been satisfactorily completed, signed off, and the aircraft preflighted, the aircraft can then be returned to a Fully Mission Capable (FMC) or Partially Mission Capable (PMC) status, as appropriate.

(3) Airworthiness Release Document. The (Interim or Full) Airworthiness Release Document is a two-part technical document form. The form serves a dual purpose as the (Interim or Full) Airworthiness Release form as well as the form to capture the (Interim or Full) Airworthiness Qualification Statement. It provides operating limitations and restrictions necessary for safe flight of a new or modified air vehicle and documents the authority by the ACCB to operate the air vehicle. This release document is required prior to the first flight of a new or modified air vehicle. This Airworthiness Release Document is not to be confused with the EAL paper logbook Flight Safety Maintenance Document, whereby the maintenance release signature by the

appropriate maintenance release authority is still necessary to return an aircraft to an operational status under normal maintenance actions discussed in the publication. The function of an Airworthiness Release Document is to complement the Flight Safety Maintenance Document for the initial release of a prototype new or modified aircraft and clearly indicates that only the members holding the Technical Airworthiness Assurance Authority can release the prototype aircraft for its initial flight. Additionally this Airworthiness Release Document form is used to request an initial Type Certification and authorization for the Full Airworthiness Qualification Statement for a particular model of aircraft. Query blocks are provided on the two-part form to allow the Technical Airworthiness Assurance Coordinator (TAAC) to select choices available and requested of the ACCB. Any individual(s) other than the appropriate Technical Airworthiness Assurance Authorities will never sign an Airworthiness Release Document unless this safety of flight determination authority has been delegated to appropriate DoD test centers, test organizations, and laboratories as discussed in Chapter 1 of the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190.

(a) An interim statement of airworthiness qualification is authorization as indicated on the Interim Airworthiness Release form establishing a preliminary or provisional qualification status and an airworthiness release that is issued when a model aircraft and/or its subsystems must be used before completing the full qualification process. This Interim Airworthiness Qualification provides that temporary “certification” and interim release for (non-standard) aircraft configurations or flight limits not already promulgated by existing Flight Manual(s) or by existing Commandant approved aeronautical instructions.

(b) A statement of full airworthiness qualification is the final authorization documented on the Full Airworthiness Release form establishing full qualification status for a particular model of aircraft. It is the milestone document to permit the issuance of the initial air vehicle Type Certificate (prototype) for a particular model of aircraft. Full qualification status will normally be achieved in conjunction with the final signoff of the implementation directive (TCTO/MPC) to execute ACCB Phase 2. Full qualification will always require the Final Action Authority from Commandant (CG-41) and Commandant (CG-711), to sign the Airworthiness Release Document in addition to any new or revised air vehicle Type Certificate.

(4) Type Certificate, ALC ESD-21-series. The approved Air Vehicle Type Certificate is the benchmark document issued as a result of the Full Airworthiness Release Document and ultimately the Full Airworthiness Qualification Statement for a particular model

of aircraft. This same Type Certificate and Full Airworthiness Qualification statement for a particular model of aircraft will be used as the benchmark for the remaining air vehicles manufactured to the same type design standards. Refer to the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190, for details on this certification process.

Q. AIRCRAFT OWNERSHIP. During pickup or delivery of an aircraft scheduled for PDM, or modifications, the PIC's home unit (ALC or the operational unit) assumes custody and ownership during the transfer flight to or from ALC. Once the aircraft has landed at ALC, ALC assumes custody and ownership. ALC's ownership extends to all maintenance flights where the intent is to depart and return to ALC regardless of the PIC's home unit. In approval messages for Drop-in-Maintenance (DIM) flights to ALC, Commandant (CG-711) will direct transfer of custody to ALC, beginning at the point the aircraft departs the home unit for the flight to ALC. This transfer will occur regardless of which unit provides the PIC for the flight. This will apply only to those situations in which the aircraft is not authorized to perform operational missions due to the nature of the discrepancy, and is only authorized to fly to ALC. For more information, refer to Aircraft Transfer Process Guide, CGTO PG-85-00-160.

R. COMMANDANT'S AERONAUTICAL ENGINEERING LOGISTICS COMPLIANCE INSPECTION (LCI). Visits to aviation units by personnel assigned to Commandant (CG-41) and Commanding Officer, ALC, will be conducted on a scheduled basis. The LCI team will focus on unit's adherence to aviation supply process procedures. Every aspect from ordering to disposition of parts will be scrutinized by ALC supply personnel. The primary purpose of these visits is to ensure a direct flow of communication between the unit and the aeronautical engineering support structure. COMMUNICATION is the key word. Both the aeronautical engineering support personnel and the unit aviation engineering staff must receive and transmit meaningful information. During the course of the visit, the representatives from Commandant (CG-41) and ALC will closely scrutinize the quality of their joint product, i.e., the condition of the asset, logs and records, corrosion program, and configuration of assigned aircraft. Additionally, maintenance support systems will also be reviewed to ensure that required standards are adhered to and, perhaps more importantly, to take unit ideas and management successes for fleetwide improvement. Refer to Logistics Compliance Inspection (LCI) Process Guide, CGTO PG-85-00-300 for further information.

S. RELIABILITY CENTERED MAINTENANCE (RCM) PROGRAM. Reliability Centered Maintenance (RCM) is a logical discipline for the management and analysis of maintenance programs. The goal of the program is to realize the inherent reliability capabilities of the equipment being maintained. The Engineering Services Division (ESD) at ALC manages the RCM program. Refer to the RCM Process Guide, CGTO PG-85-00-30, for further information.

T. FLIGHT SAFETY CRITICAL AIRCRAFT PARTS (FSCAP) PROGRAM. This program establishes Coast Guard policy and procedures that shall be used for Flight Safety Critical Aircraft Parts (FSCAP). The FSCAP program provides for identification and control of FSCAP throughout the materiel life cycle. Proper identification and control of FSCAP is critical to ensure that both the Coast Guard

and the public at large are protected from the use of unapproved parts. Unapproved parts are those for which there is insufficient documentation to determine the parts status; parts that have been deliberately misrepresented (counterfeit); and those parts that have reached a design life limit (or been damaged beyond repair) and altered, then deliberately misrepresented as acceptable. The FSCAP program is managed by Commandant (CG-41) in coordination with Commandant (CG-44), Commandant (CG-83), and ALC. Refer to the U.S. Coast Guard Personal Property Management Manual, COMDTINST M4500.5 (series), for additional information regarding FSCAP disposal policy and procedures. Refer to the Supply Policy and Procedure Manual (SPPM), COMDTINST M4400.19 (series), for additional information regarding FSCAP general logistics policy and procedures. Questions or comments on specific aircraft parts should be directed to the appropriate ALC Aircraft Product Line Engineering Cell. For further information on FSCAP procedures, refer to the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110, Chapter 1.

U. TECHNICAL AIRWORTHINESS ASSURANCE PROGRAM. This program establishes Coast Guard policy and procedures that address the technical aspects of airworthiness for all air vehicles manned or unmanned. Airworthiness is the property for a particular air system configuration to safely attain, sustain, and terminate flight in accordance with approved usage and limits. To execute this Technical Airworthiness Assurance Program, existing processes and infrastructure are maximized and recommended to the greatest extent possible, such as leveraging the Aircraft Configuration Control Board (ACCB) processes as well as the functions of ALC to support the Aeronautical Enterprise. Existing daily unit maintenance activities defined in this document are not to be confused with the intent of this Technical Airworthiness Assurance Program, which is to formally capture the multitude of non-routine maintenance activities (i.e., acquiring new air vehicles and/or modifying legacy air vehicles) and to properly evaluate if any of these activities have an impact on the air vehicle's original or newly defined airworthiness. These activities are not normally executed at an air station without intervention or promulgation of a time compliance technical order (TCTO) to effect configuration changes following an approved ACCB process. It is these non-routine activities that must be carefully managed and monitored to ensure no compromise has occurred to the original Type Certification for that particular airframe model. The Chief, Office of Aeronautical Engineering (CG-41), and the Commanding Officer of the Aviation Logistics Center (ALC) have the central responsibility for maintaining the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190. This process guide provides the procedures and guidance for issuing Type Certificates for new acquisition aircraft and for all models of aircraft currently in use as well as issuing revised Type Certificates for newly modified legacy aircraft. These documents and certifications, however, are just a portion of all the related tasks that make up a holistic airworthiness program. Within the Technical Airworthiness Assurance Process Guide, organizational responsibilities, authority, goals, objectives, certification, and qualification criteria are outlined.

V. AVIATION FUEL HANDLING PROGRAM.

1. USCG Aviation Fuel Handling is a composite of the United States Air Force (USAF), United States Navy (USN), commercial procedures, industry standards and USCG developed procedures. The technical procedures are required for uniform and effective management of operational fuel handling and dispensing resources. Current policies and procedures have been revised and updated to reflect changes in USCG operations. The most up-to-date guidance can be found in the Aviation Fuel Handling Process Guide, CGTO PG-85-00-170. The standards and procedures listed in the process guide have been developed with Coast Guard assets in mind. Standardized fuel handling procedures improve overall maintenance quality, capability, and reliability, as well as establish a foundation to conduct the mission safely**.**

2. The objective for Aviation Fuel Handling Procedures is the promotion of safe and efficient aircraft fueling operations. CGTO PG-85-00-170 establishes minimum quality and surveillance standards, testing requirements, safety precautions, and handling procedures for the acceptance, storage, dispensing, and testing of aircraft fuels. In addition, the process guide provides information on the nature of electrical hazards and describes how to minimize electrical problems associated with servicing operations.

3. Commanding Officers at USCG Air Stations shall use CGTO PG-85-00-170 for all aviation fuel handling issues. Coast Guard Commanding Officers are responsible for their unit’s programs and shall ensure that they are in compliance with all federal, state, and local environmental laws and regulations.

This Page Intentionally Left Blank

CHAPTER 2. ORGANIZATION.

A. GENERAL. The Coast Guard Organization Manual, COMDTINST M5400.7 (series), provides detailed information regarding organizational characteristics and principles of various elements of the USCG. Engineering Officers should develop a working knowledge of these principles and ensure they are followed at the unit level. Organizational information provided in this chapter enables personnel to understand the interrelationships of the various elements of the organization pertaining to management of aeronautical maintenance.

B. OFFICE OF AERONAUTICAL ENGINEERING, COMMANDANT (CG-41). Under the direction and general supervision of the Assistant Commandant for Engineering and Logistics (CG-4), the Chief, Office of Aeronautical Engineering (CG-41), shall:

1. Participate with the Office of Contract Operations, Commandant (CG-912), in the negotiation of contracts for the installation, repair, maintenance, and alteration of aircraft, engines, and related equipment; make final determinations concerning acceptance terms and conditions included in such contracts insofar as dates of delivery, plans, specifications, and characteristics of the items desired.
2. Transmit requests for procurement to Commandant (CG-912), accompanied, when appropriate, by detailed plans, specifications, etc.
3. Monitor contract performance insofar as inspections, tests, and technical judgments are necessary or desirable to assure compliance; assist in expediting contracts as required.
4. Ensure acquisition technical data packages meet Continuous Acquisition and Life-cycle Support (CALS) standards.
5. Furnish progress, scheduling, and material requirement information concerning the installation, repair, maintenance, and alteration of aircraft, engines, and related equipment.
6. Review Boards of Survey for aeronautical materiel.
7. Initiate requests for research and development (R&D) special studies, analyses, and projects which involve new aeronautical concepts, systems, and hardware for the Coast Guard inventory; work closely with R&D staff in such development efforts.
8. Prepare technical proposals in response to tentative operational requirements.
9. Manage all Coast Guard aviation maintenance programs including, but not limited to: avionics, support equipment, rescue and survival equipment, computerized aircraft maintenance, and aviation maintenance information systems.
10. Assist operational commanders in maintaining aviation unit facilities and support spares to adequately repair, maintain, outfit, and alter aircraft, engines, and related equipment.
11. Schedule Logistics Compliance Inspection (LCI) visits to aviation units by members of Commandant (CG-41) and ALC to assess quality and adequacy of Coast Guard aviation support.

12. Coordinate Commandant (CG-41) tasks assigned to the ALC; function as the central contact and approving authority for work desired by other elements and for all matters which affect ALC's ability to perform its primary mission.
13. Serve as Program Office for ALC.
14. Coordinate Commandant (CG-41) tasks assigned to the Aircraft Program Offices (APOs); function as the central contact and approving authority for work desired by other elements and for all matters which affect the APOs ability to perform their primary mission.
15. Provide input to Planning Proposal Review Boards (PPRBs) involving aeronautical engineering matters.
16. Identify outside resources (8a contractors, etc.) to provide management studies, personnel studies, logistic studies, and automated data processing (ADP) studies in support of Commandant (CG-41) programs.
17. Review aviation mishap board reports; serve as voting member on the Commandant's Aviation Safety Board.
18. Act as advocate for logistics issues within the area of aeronautical engineering.
19. Serve as a principal signatory member of the Aircraft Configuration Control Board (ACCB) with duties discussed in the ACCB Process Guide, CGTO PG-85-00-70 as well as serving as one of the final Technical Airworthiness Assurance Authorities (CG-711 being the other final authority) for declaring an air vehicle as achieving Full Airworthiness status and gaining its specific Type Certificate. These duties are further defined in the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190.

C. <u>PROGRAM MANAGER, COMMANDANT (CG-41D)</u>. Under the direction and supervision of the Chief, Office of Aeronautical Engineering, the Program Manager shall:

1. Fulfill the duties of Office Chief in his/her absence.
2. Assist the Chief, Office of Aeronautical Engineering, in the administration and oversight of the Aeronautical Engineering program.
3. Monitor and coordinate personnel actions concerning the training and assignment of officers to aeronautical engineering duty; participate as a voting member of selection boards for Aeronautical Engineering Officer and aeronautical engineering post graduate training programs; coordinate activities of Duty Under Instruction Students (DUINS) at post graduate school for Commandant (CG-41)sponsored programs.
4. Supervise the civilian Administrative Assistant.
5. Act as Senior Member of the Aeronautical Engineering Office Training Selection Panel and voting member of the Advanced Education Consolidated Engineering, Science, and Technology Selection Panel.
6. Manage the day-to-day office function within Commandant (CG-41), including the review of all correspondence for the Office Chief's signature, AFC-30 and AFC-41 budget management, leave and liberty management, and development of Office policy and procedures.

7. Serve as Senior Member of the joint Commandant (CG-41) and ALC Budget Control/Planned Obligation Project (POP) Board.

D. AERONAUTICAL ENGINEERING SYSTEMS MANAGEMENT DIVISION, COMMANDANT (CG-411). Under the direction and supervision of the Chief, Office of Aeronautical Engineering, the Chief, Aeronautical Engineering Systems Management Division, shall:

1. Manage the aircraft, life support equipment, and avionics maintenance programs for assigned aircraft. Management of these programs includes, but is not limited to:
   a. Programmed Depot Maintenance (PDM) programs.
   b. Aircraft configuration control including the ACCB process.
   c. Initiating and reviewing technical directives.
   d. Developing policies to improve maintenance effectiveness and aircraft reliability.
   e. Monitoring aircraft computerized maintenance programs.
   f. Serve as Commandant (CG-41)'s initial reviewer and signature authority for the Airworthiness Release (interim only) Document as discussed in the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190. Additionally, provide recommendations to Commandant (CG-41) for seeking Final Airworthiness Release approval and Type Certification using the Airworthiness Release documentation, as well as recommending approval to Commandant (CG-41) for Major Acquisition Project Managers seeking Technical Airworthiness Assurance Coordinator (TAAC) designation.
   g. Development and validation of system specifications, sustainment maintenance standards, and requirements.
   h. Coordinate with Research and Development Center on initiatives relating to life support equipment, avionics, or sensors.
2. Monitor the logistical support of assigned aircraft and installed avionics systems
   a. Provide technical guidance in the procurement, maintenance, and sustainment of replacement items, spare parts, and special equipment.
   b. Coordinate the policy and planning functions related to the installation, maintenance, and support of all airborne electrical and electronic systems, their attendant ground support, and special test equipment.
3. Select and direct aviation maintenance officers, technical specialists, and ALC personnel to participate as members of aviation Mishap Analysis Boards (MABs).
4. Develop cost estimates, price determinations, and specifications for procurement, modification, programmed depot maintenance (PDM), and support of assigned aircraft and aircraft being considered for inclusion in the Coast Guard inventory.

5. Provide or coordinate assistance to Coast Guard and DoD elements on matters relating to the development of technical studies, engineering analyses, maintenance, alterations, repair, and other special projects related to assigned aircraft.
6. Monitor the activities of the Prime Units and ALC regarding Headquarters assigned projects..
7. Provide Coast Guard representation on various technical committees.
8. Monitor technical progress in the field of aeronautical engineering.
    a. Remain abreast of new developments for possible application to Coast Guard aviation programs.
    b. Plan for the development and procurement of equipment to meet future aeronautical systems requirements.
9. Serve as technical subject matter specialist for assigned aircraft and provide inputs to Commandant (CG-711), Commandant (CG-4), Commandant (CG-931), and Commandant (CG-41) as required.
10. Oversee the Coast Guard aviation TEMPEST program; ensure the program remains consistent with National, DHS, and Commandant (CG-4) policy; monitor aviation compliance.
11. Liaise with Commandant (CG-6) and USN Space and Naval Warfare Systems Command (SPAWAR) for participation in DoD Information Assurance Certificate and Accreditation Process (DIACAP) for all Authority to Operate (ATO) issues.
12. Provide liaison with other military and non-DoD users of similar type aircraft, engines, avionics, and special equipment; administer the Navy-Type-Navy-Owned (NTNO) avionics equipment program.
13. Assist the Director of Acquisition Programs (CG-93) in major procurement programs for assigned aircraft, engines, avionics, and special equipment.
    a. Participate as subject matter specialist in the design, procurement, and installation phases of assigned acquisition projects including attendant ground support and special test equipment.
14. Provide assistance to aviation units on matters relating to aircraft salvage.
15. Develop specifications for new equipment to satisfy operational requirements.
16. Supervise the design, procurement, and installation phases of assigned acquisition projects, including attendant ground support and special test equipment.
17. Maintain oversite of the Reliability Centered Maintenance (RCM) Program.

E. AERONAUTICAL ENGINEERING RESOURCE MANAGEMENT DIVISION, COMMANDANT (CG-412). Under the direction and supervision of the Chief, Aeronautical Engineering Resource Management Division, the Chief, Aeronautical Engineering Resource Management Divison, shall:

1. Prepare preliminary budget estimates, make allotment recommendations, administer AFC-30, AFC-41, and AC&I funds allocated to the office, and pass on obligations for items to be charged against field allotments in those instances where prior Headquarters authorization is required.
2. Coordinate and supervise military and civilian personnel management responsibilities to ensure that necessary actions required by personnel management procedures are accomplished.
3. Coordinate Commandant (CG-41) responses to questions and answers from Congress, Office of Management and Budget (OMB), Office of the Secretary of Homeland Security (OHS), Commandant (CG-01) elements, and outside news media.
4. Coordinate with Office of Workforce Management (DCMS-81), concerning technical knowledge and maintenance responsibilities for the Aviation Maintenance Technician (AMT), Aviation Survival Technician (AST), and Avionics Electrical Technician (AET) ratings. Review the recommendations of the Aviation Technical Training Advisory Committee (ATTAC).
5. Provide technical input in the review of preliminary or detailed plans for construction or alteration of facilities for assigned aircraft.
6. Coordinate technical training programs at ALC, Aviation Technical Training Center (ATTC), and other Coast Guard elements including, but not limited to:
    a. Maintaining liaison with ATTC concerning courses.
    b. Acting as subject matter specialist for all aircraft related matters including training, course curriculum content, and enlisted rating qualifications for the AMT and AET rates. Coordinate with the DCMS-81, Office of Workforce Management, ATTC, and Prime Units.
7. Coordinate funding of the DoD Joint Oil Analysis Program (JOAP).
8. Review Commandant (CG-41) project implementation plans to ensure adequate resources are available to support all maintenance and logistics aspects before proceeding from the development/procurement phase to the production/operational phase.
9. Manage acquisition projects using assigned project managers
    a. Ensure that projects are managed in compliance with USCG directives, guidance from higher authority, and sound business practices.
    b. Manage all aspects of each project to meet approved cost, schedule, performance, and support goals.
    c. Act as the central focal point for information within the Coast Guard for the project assigned; answer inquiries from higher authority and provide project liaison with ALC, DoD, and other Coast Guard segments.
10. Coordinate Resource Proposal (RP) preparation with Commandant (CG-41); act as project fund manager and approval authority for execution of funds appropriated for the project as directed by Commandant (CG-41); coordinate solicitation or reprogramming action, as required to meet changes in requirements, with Commandant (CG-41).

11. Provide liaison with Commandant (CG-442), Commandant (CG-444) and Commandant (CG-6) in Information Technology areas of value to Aeronautical Engineering; provide information conduit and requirements monitoring of ALC Information Technology issues; provide guidance in the development of the Coast Guard corporate information system.
12. Provide liaison with other Coast Guard Headquarters' program entities responsible for developing systems whose requirements potentially impinge on Coast Guard Aviation Logistics Systems; identify and support requirements to ensure Coast Guard Aviation Logistics Mission Essential Activities are maintained or enhanced.

F. **AVIATION LOGISTICS CENTER (ALC), ELIZABETH CITY, NC.** ALC's mission is to provide aviation units with depot level maintenance, engineering, supply and information services to support Coast Guard Missions . To do this, ALC must (1) provide depot level maintenance, overhaul, major component repair, and modification of aircraft and aeronautical equipment; (2) provide for procurement, storage, stocking of inventory, control, accounting, issue, and shipping of supply parts and aeronautical equipment; (3) preserve, store, and maintain replacement aircraft and parts; (4) provide technical engineering support in aeronautical and avionics fields; and (5) provide salvage advisory expertise when required, and provide information technology systems to support the entire enterprise from field to depot to headquarters.

1. Aviation Logistics Division (ALD). The Logistics Division performs the following functions: principal fiscal and supply advisor for the command; budgets and accounts for all funds transferred to ALC Aviation Inventory Control Point (AICP) for USCG aviation materiel; stocks and distributes aviation materiel to users; develops and maintains aviation unit Allowance Lists; administers warranties and contractor maintenance programs for Coast Guard aeronautical materiel; administers the Asset Maintenance Management Information System (AMMIS) and Flight Safety Critical Aircraft Parts (FSCAP) Program; provides routine dispersion services, and coordinates the civilian payroll at ALC.
2. Engineering Services Division (ESD). The ESD is responsible for ALC shop space management and providing technical information and data to other ALC divisions, Headquarters, and other operating units. Various proposed components and systems are refined, prototyped, tested, and installed. The division manages the following sections:

   Aeronautical Engineering Technical Publications

   Technical Airworthiness Assurance Program

   Airworthiness Sustainment Branch (programs) (ASIP, ACMS, Corrosion Control, EAL, QA, Non-Destructive Inspection (NDI), RCM, Wiring, Vibration Laboratory)

   Engineering Support Branch (Avionics, Aviation Life Support (ALSE), Support Equipment (SE))

   Technical Publications (Publication Productions, Pubs Distribution, Graphics)

   Policy and Quality Assurance Branch

3. Workforce Management Staff (WMS) . The WMS' responsibilities include administration of the military and civilian personnel program including performance evaluations, training, wage rate changes, hiring, and Equal Employment Opportunity program management.

4. Information Systems Division (ISD). The ISD is tasked with the responsibility to provide information storage, retrieval, and other services normally associated with an information technology (IT) system. This responsibility includes financial analyses, inventory control models, production scheduling models, man-hour accounting information, and IT support for ALMIS and its subsystems (ACMS, AMMIS, DSS, EAL, and Technical Manual Application System (TMAPS)). Coordinating these programs to achieve maximum effective utilization from the available IT equipment is a primary function.

5. Business Operations Division (BOD). The BOD contains three branches: Business Development, Business Intelligence, and Business Performance. The Development Branch provides management of ALC's Earned Value Management System (EVMS), assists other ALC divisions with business case analyses, contract writing, and acts as a conduit between the Product Lines and Industry in order to ensure the government has the best information when making decisions. The Intelligence Branch manages ALC's Demand Forecasting Tool and Supply Chain Management, Deferred Maintenance, Cost Per Flight Hour, and various Operations Research data and calculations. The Performance Branch manages ALC's International Organization for Standardization (ISO) 9001 (Quality) and 14001 (Environmental) program as well as the Continuous Process Improvement (CPI) initiatives, administers ALC's Strategic Family of Plans (CO's Strategic Direction, ALC 101 Brief), and provides guidance and assistance to all divisions with metrics and measurements to ensure the most effective and efficient processes.

6. Industrial Operations Division (IOD). IOD supports PDM and operational mission execution through 16 Industrial and 4 Support shops by conducting depot level maintenance, component manufacturing, reassembly and repair efforts, building of wiring harnesses, and structural/avionics modifications. IOD manages Hazardous Material (HAZMAT) support for ALC, Base Support Unit (BSU), ATTC, Small Boat Station and Air Station Elizabeth City, and manages and operates the 6000 work order system for ALC.

7. Operations Division (OPS). OPS ensures all logs, records, and weight and balance information are correct for delivered aircraft, provide post induction and corrosion reports, and coordinate ferry, crew assignment, and movement for induction and delivery of aircraft.

8. Safety and Environmental Health Office (SEHO). SEHO coordinates the administration of all aircraft maintenance industrial systems that are common to both fixed and rotary wing aircraft. These include:

   Pollution Prevention

   Hazardous Materials Management

   Accident Prevention

   Industrial Applications

9. Product Line Division (PLD). The PLDs were created at ALC to optimize the technical, logistical, and depot level maintenance support of Coast Guard aircraft. There are four Product Line Divisions responsible for support issues pertaining to their respective aircraft type categories:

   Long Range Search (LRS): C-130H/J

   Medium Range Search (MRS): HU-25 and HC-144

   Medium Range Rescue (MRR): MH-60

   Short Range Rescue (SRR): MH-65 and HH-65

   a. Product Line Manager (PLM). The PLM's responsibilities are to oversee and coordinate the efforts of the Engineering, Supply, Procurement, and Program Depot Maintenance Cells for their respective aircraft. The PLM manages product line support costs (both Operating Expenses (OE) and Acquisition, Construction and Improvement (AC&I)) to ensure best value to the Government and that sound business practices are balanced against operational requirements. The PLM actively participates in managing the annual budget process, contracting issues, and inventory management issues relating to their specific aircraft.

      (1) Engineering Cell. The Engineering Cells are responsible for providing technical information, support and data to field units, ESD, PDM, and Headquarters for their respective aircraft PLD. They are the point of contact for "Request for Technical Assistance" messages from the field units. They coordinate with the PLM for personnel, repair plans, parts, tooling, special equipment, transportation, funding, and expertise necessary to assist the field unit in correcting the pertinent aircraft discrepancies. They are responsible for the development, prototyping, testing, and installation of TCTOs. They are the reviewing and approval source for RPs as well as extensions beyond those listed in the Maintenance Due Lists (MDLs) for their respective aircraft. The Engineering Cell Leader will serve as the Technical Airworthiness Assurance Coordinator (TAAC) with duties and designation training criteria defined in the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190.

      (2) Program Depot Maintenance (PDM) Cell. The PDM Cells have the primary responsibility of managing and performing the PDM program for their respective aircraft as well as the major repair and depot-level modification of these aircraft. They provide direct support for requests by field units and their respective aircraft Engineering Cell for technical assistance, through the provision of labor, parts, tooling, special equipment, training, and expertise. The PDM cells provide aircraft drop-in maintenance when unique depot-level resources are required (crash damage repair, special airframe systems changes, etc.).

      (3) Supply Cell. The Supply Cell performs the following functions for their respective aircraft PLD: principal fiscal and supply advisor;

budget and account for all transferred funds; Aviation Inventory Control Point (AICP) for stocked USCG materiel; stock and distribute aviation materiel to users; develop and maintain unit Allowance Lists; administer warranties and contractor maintenance programs.

G. TYPICAL AVIATION UNIT. The Coast Guard Air Operations Manual, COMDTINST M3710.1 (series), provides detailed information regarding the standard organization for air units.

H. PRIME UNIT. The purpose of providing a designated "Prime Unit" is to ensure a centralized point for technical responsiveness to field level maintenance management of a specific aircraft type or aviation life support equipment. The scope of the Prime Unit responsibilities extends beyond the aircraft to all of its related systems, subsystems, SE, special tools, equipment, and shop practices. Prime Units receive their tasking from ALC and function as the first point of contact on technical matters for all respective field activities as outlined in this section.

1. Designated Prime Units. The following units are designated Prime Units for the indicated aircraft and aviation life support equipment (ALSE):

Aircraft	Aviation Unit
ALSE	ATC Mobile
SE	ALC
HU-25	ATC Mobile
HC-130J	Elizabeth City
HC-130H	Clearwater
HC-144	ATC Mobile
MH-60	Elizabeth City
HH-65/MH-65	Atlantic City
C-37	Washington
C-143	Washington

2. Functions and Responsibilities. The Prime Unit is responsible for providing a constant review of field level maintenance management practices. Specific functions of the Prime Unit are:

   a. Maintenance Procedure Cards (MPCs) and Maintenance Text Cards (MTCs). The Prime Unit develops, reviews, and updates MPCs and MTCs as necessary to ensure that all field level maintenance is accomplished with optimum efficiency. ALC will provide technical review and final approval on all proposed MPC and MTC changes. The initiating unit will maintain a file of proposed changes and recommendations will now be captured electronically within TMAPS.

   b. Manuals. Aircraft Prime Units continuously review their aircraft specific manuals listed in the Master Publications Index (MPI) of the Technical Manual Application System (TMAPS) and submit the Change

Recommendations through TMAPS, to implement any proposed changes relating to field maintenance. The ALSE Prime Unit is responsible for the Aviation Life Support Systems Manual, COMDTINST M13520.1(series). Prime Units are often requested to participate in pre-publication reviews of new or revised manuals.

c. Prototype and Verification of Changes and Technical Orders. When directed by ALC, Prime Units make trial installation of changes prepared by ALC or other activities to verify kit contents and installation instructions prior to distribution. Prime Units are often requested to prototype a change and prepare the TCTO which is then forwarded to ALC for review and final approval.

d. Aircraft Records. Prime Unit will review the standardization of aircraft records and inventories and submit proposed changes to ALC.

e. Product Quality Deficiency Report (PQDR). Prime Units (for the affected aircraft/ALSE/SE) shall be included as information addressees on all Urgent Interim PQDRs. Prime Units will closely scrutinize all Urgent Interim PQDRs and make comments or recommendations to ALC. When requested, Prime Units will support ALC with the evaluation of routine PQDR.

f. Conferences and Meetings. Prime Units may be invited to send representatives to attend selected technical meetings which involve ALSE, SE, or prime aircraft, its engine or avionics.

g. Technical Training Courses. Prime Units will assist in the development and review of technical courses of instruction at ATTC and commercially developed schools. They will occasionally be directed to attend selected courses and provide written feedback on their relevance to Coast Guard maintenance requirements.

h. Aircraft Configuration Control Board (ACCB). Prime Units may be tasked with reviewing a proposed aircraft configuration change and/or providing a recommendation for location and installation of new equipment.

i. General Shop Practices. The Prime Unit will review all tools required to maintain the prime aircraft/ALSE, including tools that are not listed as special tools but facilitate maintenance. They will examine the requirements for and suitability of all available maintenance stands, protective covers and devices, and commercially developed standard practices.

CHAPTER 3. CLASSIFICATION OF AVIATION MAINTENANCE ACTIVITIES.

A. GENERAL. In accordance with the Maintenance Management Policy, COMDTINST 4790.3 (series), the USCG has undergone a transformation to a bi-level maintenance model consisting of Organizational and Depot capabilities. Each aviation field unit has a prescribed minimum level of organizational maintenance capability. Enclosure (1) provides a listing of the specific functions required to attain these levels or classification. The classifications permit a cost versus benefit comparison in determining allocation of personnel, materiel, and funds. This standard provides units, districts, and Logistics Centers with an effective tool for evaluating the following items:

1. Requests for changes in allowance list
2. Requests for new/replacement equipment
3. Requirements for additional aircraft maintenance funds

NOTE

The prescribed levels or classifications are minimum objectives for staff support as well as unit attainment. The levels prescribed are “minimum required” and as such are not intended to restrict initiative or expansion of capability when economical and practical. The abilities of personnel assigned, local operating conditions, efficiency of operations, and cost are unique to each unit; therefore, individual capabilities should be considered in that context.

B. CLASSIFICATIONS. Each aviation unit has two classifications:

1. The first classification describes the required level of maintenance utilizing local military and commercial facilities to the fullest extent practical. The distance/time elements of the word “local” are left to the Commanding Officer of each unit and dependent on the following:
   a. Urgency of need
   b. Frequency of need
   c. Transportation availability
   d. Inherent delays in obtaining the services or use of the facility versus time available

NOTE

Major changes in the availability of these facilities and services to the unit may necessitate changes in the on-board equipment or funds needed to maintain the required level of capability.

2. The second classification is the minimum in-house or on-board capability required. This capability shall be maintained regardless of availability of local facilities and represents the minimum readiness posture of the unit from the aircraft maintenance standpoint. Note that these classifications are interdependent with type of aircraft and support equipment assigned. Consequently, major changes in aircraft or support equipment assigned may also necessitate changes in on-board equipment or funds to maintain the required capability.

C. TYPES OF CLASSIFICATIONS. The classifications assigned to the USCG aviation unit levels of maintenance are defined as follows:

1. Class D (Shop Maintenance). Class D-level maintenance is also a part of the DoD "Intermediate Maintenance." The work performed consists of the routine day-to-day upkeep required by shop facilities. This includes minor repair, check, test, and adjustment of aeronautical items that have been removed and which are normally to be reinstalled after completion of such work. Shop maintenance includes preservation, inspection, examination, specified bench test, correction of discrepancies, adjustment, minor repair and/or replacement, and emergency manufacture of parts, all of which require only portable hand or machine tools, semi-portable or bench mounted equipment.

2. Class C (Component Repairs). Class C-level maintenance is also categorized under the DoD "Intermediate Maintenance" and is devoted to the repair (not overhaul), test, and return to serviceable status of unserviceable aeronautical components and equipment. Items repaired by C-level maintenance are removed from locally operating aircraft or equipment and, due to the nature of the discrepancies involved, are usually replaced by serviceable items drawn from stock. Component repair maintenance involves preservation, inspection, examination, specified bench test, correction of discrepancies, calibration, repair and/or replacement, and emergency manufacture of parts requiring light installed equipment. Class C-level maintenance also includes all the requirements of lower, Class D-level maintenance.

D. UNIT REQUIREMENTS.

1. Table 3-1 shows the minimum maintenance capability required of each aviation unit. All USCG aviation units are expected to perform their own periodic inspections and minor repair. Commanding Officers of aviation units shall ensure that at least the specified capability is maintained. The Commandant (CG-41), Logistics Centers, and District Commanders should provide equipment and funds sufficient to support the assigned level of maintenance, and they will balance requests for additional equipment or funds against other parameters such as economics, local conditions, and district or area operational requirements.

2. All unit avionics shops are required to maintain an in-house capability for avionics repair at the Class C-level. Aircraft type avionics system Integrated Logistics Support Plans (ILSPs) or maintenance manuals will provide specific guidance on the level of repair authorized at the unit for a given avionics system.

Table 3-1. Maintenance Level Classification

Area, District, Unit	Utilizing Local Facilities		In-House Capability	
	Class Level	Exceptions	Class Level	Exceptions
1st District				
Cape Cod	C		D	Note 1
Atlantic Area				Note 2
Clearwater	C		D	Note 1
Elizabeth City	C		D	Note 1
5th District				
Atlantic City	D		D	Note 1
Elizabeth City	C		D	Note 1
7th District				
Borinquen	D		D	
Clearwater	C		D	Note 1
Miami	C		D	Note 1
Savannah	C		D	
8th District				
Corpus Christi	C		D	
Houston	C		D	
Mobile	C		D	Note 1
New Orleans	C		D	
9th District				
Detroit	C		D	
Traverse City	C		D	
11th District				
Humboldt Bay	C		D	
Los Angeles	C		D	
San Diego	C		D	
San Francisco	C		D	
Sacramento	C		D	Note 1
Pacific Area				Note 2
Barbers Point	C		D	Note 1

Table 3-1. Maintenance Level Classification Continued

Area, District, Unit	Utilizing Local Facilities		In-House Capability	
	Class Level	Exceptions	Class Level	Exceptions
Kodiak	C		D	Note 1
13th District				
Sector Columbia River	D		D	
North Bend	D		D	
Port Angeles	D		D	
14th District				
Barbers Point	C		D	Note 1
17th District				
Kodiak	C		D	Note 1
Sitka	D		D	
Headquarters				
Washington	C		D	

Note 1: Exceptions

Items of Exception	Minimum Level Required of Excepted Items
Cable, tube, and rod work (Controls)	C
Soldering	C
Paint	C
Hydraulic/pneumatic component maintenance	C

Note 2: Area Commands control HC-130 operations, except CGAS Sacramento.

CHAPTER 4. DIRECTIVES AND PUBLICATIONS.

A. OVERVIEW. Coast Guard Aviation technical information comes from a very diverse and multi-faceted environment. To maintain control and standardization, the Chief, Office of Aeronautical Engineering, established the Engineering Services Division Technical Publications Branch at the Aviation Logistics Center (ALC) on 17 January 1992. The Technical Publications Branch Chief has the overarching authority over all Coast Guard aviation maintenance technical information processes and products that involve development, configuration, publishing, revising, stocking, inventorying, managing, and distributing through ALC to Coast Guard, other governmental agencies, commercial, and private entities. More in-depth information on the technical publication system is contained in the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110.

B. COMMANDANT INSTRUCTIONS. These directives form the basis of the USCG directive system. Detailed information concerning the status of these directives and publications, as well as authorized allowances and the requirements is contained in the Directives, Publications and Reports Index (DPRI), COMDTNOTE 5600. Instructions for the preparation of these directives is contained in The Coast Guard Directives System, COMDTINST M5215.6 (series). Guidance concerning information/records created, received, collected, maintained, and disposed of is contained in the Information Life Cycle Management Manual, COMDTINST M5212.12 (series). It should be noted that while the majority of the directives published concerning aeronautical material will be assigned subject classification numbers in the 13000 (series), there are many other directives of interest to maintenance managers. The purpose of a Commandant Instruction is to promulgate Coast Guard policy.

C. TECHNICAL ORDERS. Technical Orders (TO) are used to disseminate technical aeronautical information required for the operation and maintenance of USCG aircraft and support equipment.

D. PRECEDENCE OF DIRECTIVES. USCG directives have precedence over all others. Use of DoD instructions shall be tempered with good judgment. The precedence of directives is as follows:

1. Asset Computerized Maintenance System (ACMS)
2. Coast Guard TOs
3. Air Force TOs
4. Navy TOs
5. Army TOs
6. Commercial Publications

NOTE

Air Force publications have precedence over Navy and commercial publications for general procedures that are non-aircraft specific.

NOTE

Coast Guard aircraft have maintenance manuals that are DoD or commercially sponsored (i.e., HC-130, Air Force; MH-60, Navy; HU-25, HH-65/MH-65, and HC-144 commercial).

E. REFERENCE PUBLICATIONS.

1. The Air Force (AF) Electronic Publishing system incorporates AF publications, forms management, and guidance that is available through their website: http://www.e-publishing.af.mil/.
2. Air Force Technical Orders (AFTO) indexes are now included in the Air Force Enhanced Technical Information Management System (ETIMS). This replaces the legacy AFTO 0-1-CD-1.
3. Aircraft Documentation List (Navy), A1-H60CA-AML-000, for Navy models SH-60B, SH-60F, HH-60H, MH-60T, MH-60S, and Coast Guard model HH-60J.
4. USAF Technical Order Numbering System, AFTO 00-5-18.
5. Naval Air Systems Command Technical Manual Program, NA 00-25-100.
6. Navy Standard Technical Manual ID Numbering System, N0000-00-IDX-000.
7. Naval Aviation Maintenance Program (NAMP), COMNAVAIRFORINST 4790(series).

F. COAST GUARD TECHNICAL ORDER SYSTEM. The Coast Guard Technical Order System (CGTO) is the medium used to provide technical information and instructions to operate, install, maintain, inspect, or modify Coast Guard aviation systems and equipment. In-depth information on the processes involved with the ordering, maintenance, and auditing of technical information and libraries is contained within the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110.

1. CGTOs and web based directives of a long term nature are printed.
2. Coast Guard electronic technical manuals are available on the Naval Air Technical Data and Engineering Service Command (NATEC) website through TMAPS https://mynatec.navair.navy.mil/. Electronic distribution of manuals dramatically reduces the time required to update and distribute changes and achieves affordable readiness through reduced production, distribution, and handling costs. Use of electronic data (manuals) from the NATEC website shall be the primary source for Coast Guard aviation maintenance functions.
3. Maximum use will be made of other service technical publications to avoid duplication of information. Occasionally, Maintenance Advisories will be issued to allow urgent dissemination of information prior to issuance of a Time Compliance Technical Order (TCTO), change to a Maintenance Procedure Card (MPC), or to clarify any published guidelines.

NOTE

When conflict of information exists, ACMS MPCs shall take precedence over CGTOs, which take precedence over other DoD publications.

4. Compliance with the Coast Guard Technical Order System is mandatory. Technical order instructions play a critical role in achieving system and equipment readiness. Commanding Officers shall ensure that activities under their jurisdiction are aware of the need for full compliance and effective use of the technical order system.
5. Coast Guard units will not make changes/corrections to TOs except as directed by official TO changes (either interim or formal). The Deficiency Reporting Document, Form CG-22, formerly the Aeronautical Publication Change Recommendation, Form CG-22, through TMAPS, will be used to correct errors or voids.

NOTE

TMAPS has the capability to identify all documents that contain a specific word, phrase or part number in this system. ALC Engineering Cells shall use this capability to identify documents that must be changed when a specific word, phrase or part number changes and submit appropriate Deficiency Reporting Document, Form CG-22, via TMAPS. If a Deficiency Reporting Document, Form CG-22, is required for an MPC, then the ALC Engineering Cell shall review all aspects of the card prior to approving a change of a single word, phrase or part number. Additionally, they shall search TMAPS and review all proposed changes submitted in TMAPS.

G. TECHNICAL MANUAL APPLICATION SYSTEM (TMAPS). The Technical Manual Application System (TMAPS) and its Process Guide will have precedence over any government or commercial agency rules and regulations detailing the procurement, ordering, distribution, and maintenance of all publications under the cognizance of ALC ESD and used within Coast Guard aviation. See the Aeronautical Engineering Maintenance Management Manual Process Guide, CGTO PG-85-00-110 for more information.

H. PROCESS GUIDES. While a Commandant Instruction promulgates policy, a Process Guide defines the methods and processes/procedures required to implement the referenced policy. Process Guides are not stand alone publications, but become an extension of a Commandant Instruction. The promulgation of a Process Guide is made by the process owner at the ALC level. While the policy depicted within a Commandant Instruction remains solid, processes can be dynamic. All current promulgated Process Guides are available electronically through TMAPS.

Table 4-1. Aircraft Maintenance Technical Publication Resources

Aircraft Type	HC-130
Airframe Procurement Source	Lockheed
Publications and Status	AFTO manuals supplemented by CGTOs

Table 4-1. Aircraft Maintenance Technical Publication Resources Continued

List of Applicable Publications (LOAP)	TMAPS Master Publication Index
Maintenance Procedure Cards	ACMS Maintenance Requirements List
Component Replacement Interval	AFTO 1C-130A-6 and ACMS Maintenance Requirements List
Input Method for Correcting	Deficiency Reporting Document, Form (CG-22), via TMAPS
Publication Updating Responsibility	ALC
Aircraft Type	C-37A
Airframe Procurement Source	Gulfstream Aerospace
Publications and Status	Gulfstream commercial manuals
List of Applicable Publications (LOAP)	Index in commercial manuals (LOAP) plus Enclosure (3) for list of additional avionics publications
Work Cards	Computerized Maintenance furnishes work control cards
Component Replacement Interval	Computerized Maintenance Requirements List
Input Method for Correcting	Letter Report to Gulfstream
Publication Management Responsibility	ALC
Aircraft Type	HU-25
Airframe Procurement Source	Falcon Jet Corporation
Publications and Status	Commercial Manuals, CGTO numbers assigned

Table 4-1. Aircraft Maintenance Technical Publication Resources Continued

List of Applicable Publications (LOAP)	TMAPS Master Publication Index
Maintenance Procedure Cards	ACMS Maintenance Requirements List
Component Replacement Interval	ACMS Maintenance Requirements List
Input Method for Correcting	Deficiency Reporting Document, Form (CG-22), via TMAPS
Publication Management Responsibility	ALC

Aircraft Type	HH-65/MH-65
Airframe Procurement Source	Eurocopter, France
Publications and Status	Commercial Manuals, CGTO numbers assigned
List of Applicable Publications (LOAP)	TMAPS Master Publication Index
Maintenance Procedure Cards	ACMS Maintenance Requirements List
Component Replacement Interval	ACMS Maintenance Requirements List
Input Method for Correcting	Deficiency Reporting Document, Form (CG-22), via TMAPS
Publication Management Responsibility	ALC

Aircraft Type	MH-60
Airframe Procurement Source	Sikorsky
Publications and Status	USN manuals and COMNAVAIRFORINST 4790.2 (series)
List of Applicable Publications (LOAP)	TMAPS Master Publication Index

Table 4-1. Aircraft Maintenance Technical Publication Resources Continued

Maintenance Procedure Cards	ACMS Maintenance Requirements List
Component Replacement Interval	ACMS Maintenance Requirements List
Input Method for Correcting	Deficiency Reporting Document, Form (CG-22), via TMAPS
Publication Management Responsibility	ALC

Aircraft Type	HC-144
Airframe Procurement Source	Airbus Military
Publications and Status	EADS CASA Commercial Manuals, CGTO numbers assigned
List of Applicable Publications (LOAP)	TMAPS Master Publication Index
Maintenance Procedure Cards	ACMS Maintenance Requirements List
Component Replacement Interval	ACMS Maintenance Requirements List
Input Method for Correcting	Deficiency Reporting Document, Form (CG-22), via TMAPS
Publication Management Responsibility	ALC

Aircraft Type	Non-Coast Guard Owned
Airframe Procurement Source	To Be Determined
List of Applicable Publications (LOAP)	DoD Aircraft Manuals or Commercial Manuals, CGTO numbers assigned, and Enclosure 3.
Maintenance Procedure Cards	FAA Compliant or DoD Approved Computerized Commercial Maintenance Plan (Required to be provided as part of lease contract or loan agreement)

Table 4-1. Aircraft Maintenance Technical Publication Resources Continued

Publications and Status	DoD Aircraft Manuals or Aircraft Commercial Manuals (Required to be provided as part of lease contract or loan agreement)
Component Replacement Interval	FAA Compliant or DoD Approved Computerized Commercial Maintenance Plan (Required to be provided as part of lease contract or loan agreement)
Input Method for Correcting	Letter to aircraft owner and aircraft manufacturer
Publication Management Responsibility	ALC

I. **TCTOS.** The following formats are used based on the T.O. urgency.

1. Time Compliance Technical Orders (TCTO) generally require a physical change to an aircraft or a special, urgent, or repeated inspection requiring compliance within specified time limits. Applicability is determined by ALC and published in the ACMS Maintenance Due List (MDL) to track compliance. TCTO formats and in-depth information are contained in the TCTO/Special Compliance Technical Order (SCTO) Process Guide, CGTO PG-85-00-40-A.
   a. Coast Guard Message Time Compliance Technical Orders (Message TCTO) are maintenance actions, in message format, used for rapid dissemination of information, generally of an urgent or safety-of-flight nature.
   b. Coast Guard Time Compliance Technical Orders (TCTO) are printed directives in MPC format requiring accomplishment of a specific task (i.e., inspection of components or physical change to an aircraft or component) requiring compliance within specified time limits.
2. Compliance with Air Force TCTOs and TCTOs that apply to HC-130 and C-37A.
   a. HC-130 and C-37A units shall comply with Air Force TCTOs or service bulletins only when directed by ALC. Double heading of Air Force message TCTOs as well as the application of a CG TCTO cover sign off sheet will serve as direction for compliance. Notification of TCTO applicability will be via the ACMS Maintenance Due Lists.
   b. Reports and/or findings, when required, shall be forwarded to ALC vice the Air Force.
3. TCTOs accomplish special inspections or modification of aircraft. They are only authorized through an approved ACCB. All ideas for TCTOs shall be forwarded to ALC with a copy to the respective Prime Unit. Refer to the TCTO Process Guide, CGTO PG-85-00-40-A, for additional information.

a. When a TCTO is amended, the superseded TCTO is published in its entirety with all changes identified by revision bars. Amendments to existing TCTOs will be identified by the basic TCTO number followed by a sequential number depending on the number of times the directive has been amended. For example, the third amendment to TCTO 972020 would be TCTO 972023.

b. A TCTO master file is maintained and is accessible through TMAPS.

J. MONITORING TCTOS. The status of TCTO accomplishment must be a primary concern of all Engineering Officers. Quality control personnel should fulfill the TCTO program monitoring functions. Significant problems or potential delays in accomplishment that are detected by maintenance supervisors and quality control personnel must be brought to the immediate attention of the Engineering Officer for timely resolution. Final accomplishment of TCTOs is recorded in ACMS through MPC sign off. If the interval and compliance date are not listed on the ACMS Status Report for a specific aircraft, the unit must research that TCTO to determine its applicability and its last completion date. Aviation materiel personnel must closely monitor the status of TCTO kits.

CHAPTER 5. AIRCRAFT INSPECTIONS.

A. GENERAL. The Asset Computerized Maintenance System (ACMS) for Coast Guard aircraft, support equipment (SE), and special equipment includes all applicable inspection requirements. Instead of accomplishing a large number of maintenance tasks during an extended periodic downtime, tasks are completed and accounted for on an individual basis. This allows operational and maintenance flexibility and increased labor-hour savings. The savings and flexibility are made possible by utilizing a computer system to track the large volume of daily maintenance activities. ACMS maintains status records, schedule maintenance tasks, and report the results of maintenance operations. From updated computer data files, a series of reports and information covering all maintenance tasks is generated. Refer to ACMS Users Process Guide, CGTO PG-85-00-10, for a detailed description of the forms, reports, and procedures associated with ACMS.

B. DEFINITION OF INSPECTIONS. Maintenance inspections, varying in scope, purpose, and frequency, are performed on assigned aircraft to ensure that aircraft are maintained in a safe serviceable condition. USCG aircraft inspection types and applications are defined under two categories: Routine and Special.

NOTE

The specific inspection cycle prescribed for each type/model aircraft in USCG inventory is listed in Table 5-1 through Table 5-5.

1. Routine Inspections. The following inspections are considered routine:

   a. Preflight Inspection. The Maintenance Preflight Inspection is accomplished prior to the first flight of the day and remains effective for 24 hours provided no subsequent maintenance has been performed. The preflight inspection consists of checking the aircraft for flight preparedness by performing visual examinations and operational tests to discover defects and maladjustments which, if not corrected, could adversely affect safety or mission accomplishment. Pre-mission and Servicing Record upon completion of a thruflight

   b. Thruflight Inspection. The Thruflight Inspection requirements are accomplished as a turnaround inspection prior to takeoff on the second and each subsequent flight of the day on selected types of aircraft. Units will have satisfied the requirements for preflight certification on the Pre-mission and Servicing Record upon completion of a thruflight.

   c. Postflight Inspection. The Postflight Inspection will be accomplished after the last flight of the flying period. This inspection consists of checking the aircraft to determine if it is suitable for continued flight by performing a visual inspection of certain components, systems, or areas to assure that no defects exist which would be detrimental to further flight. Additionally, checking for leaks, chafing, maladjustments, etc., should disclose defects requiring correction before deterioration into major maintenance items. The postflight inspection frequency ranges from once a day to once per week depending on the aircraft type. Pre-mission and Servicing Record upon completion of a thruflight.

d. Hourly/Weekly Inspections. These inspections are designed to provide servicing and verification of satisfactory functioning of critical systems/components at frequent intervals. The frequency of these types of inspections should be documented in EAL special inspections.

e. ACMS Maintenance Due List (MDL). These inspections, Operations, Calendar, Hourly, Cycles, and Landings, ensure a thorough examination of all systems and components on a scheduled basis.

2. Special Inspections. Special inspections are certain additional inspections, distinct in frequency from routine inspections, which are conditional upon operational environment, specific incidents, or other circumstances requiring inspections. The number of special inspections required for all aircraft and circumstances are too numerous to list. A few types are given in the following items to illustrate their distinction from routine:

a. Overtemperature, Overspeed, Overtorque, Metal Contamination, Hard Landing, Lightning Strike, (etc.). These types of special inspections define the specific maintenance actions taken based upon the circumstances of the event. Inspections of this nature have been documented into existing manuals and ACMS MPCs as the result of actual experiences or a high probability of encountering the event.

b. Time Compliance Technical Order (TCTO)/Message Time Compliance Technical Order (Message TCTO). TCTOs may be issued to perform inspections of an aircraft component or system. Action is normally generated by a reported safety-of-flight incident or failure trend. TCTOs will appear on the MDL for action.

c. Aircraft Damage Sustained as a Result of a Mishap. Commanding Officers shall ensure that all damage sustained is properly inspected by competent maintenance personnel and that the complete extent of the damage has been reported. Inspection should not be limited solely to the damaged area. A complete evaluation by the Engineering Officer or other qualified Maintenance Officer must be done prior to release for flight.

d. Aircraft Damage Sustained as a Result of Flight Through Volcanic Ash. Inadvertent flight through volcanic ash clouds is an infrequent but very real and significant hazard. Numerous commercial and military aircraft have sustained tremendous damage at jet airway altitudes hundreds of miles from active volcanos. Volcanic ash is typically composed of extremely fine particles of glass shard and pumice. When this ash enters the intake of a jet engine, it can rapidly erode compressors, melt and glassify in the combustion section, solidify on turbine nozzles, and result in vastly reduced engine efficiency. This will force the electronic fuel control (EFC) to greatly increase engine fuel flow, ultimately coking all fuel nozzles, and further reduce engine power output. All of the above can happen in less than a minute. The very fine nature of the shards can contaminate pitot, static, pneumatic, electrical, and avionics systems and equipment. Windscreens, lights, glass, and Plexiglas become glazed and opaque. If flight through a volcanic ash

cloud is known or suspected, contact the respective product line at ALC for further guidance. Depot and Original Equipment Manufacturer (OEM) support will most likely be required.

C. REQUIREMENTS. Proper utilization of ACMS is critical to safe and efficient maintenance management. The importance of accurate data reporting and management review must be emphasized at all levels of the maintenance organization. Unit Engineering Officers will ensure that they and their maintenance supervisors have a thorough working knowledge of ACMS requirements, procedures, and capabilities.

1. Inspection Interval. The calendar and flight hour inspection times listed in Table 5-1 through Table 5-5 and the ACMS MDLs are the maximum intervals for inspections. The inspection schedules are limits based upon average operating experience and aircraft manufacturer's recommendations. Whenever an aircraft or engine inspection that has both a calendar and an hour interval accumulates the limiting number of hours before the calendar interval has expired, the inspection becomes due and must be performed (i.e., HC-130 weekly). Commanding Officers are responsible for the adequate maintenance and corrosion control of aircraft in their custody and are to impose such other inspection requirements as necessary to meet differing environmental and operational conditions that may exist.

2. Extension of Interval. Maintenance items may be delayed at the discretion of the Commanding Officer or their designated representative as specified in the ACMS MDL and Paragraph 5.B. of this Manual. Extensions beyond those listed in the MDL or Paragraph 5.B. of this Manual must be approved by the appropriate Product Line Engineering Cell Leader. Failure to accomplish actions within this timeframe shall require grounding of the aircraft. Mandatory Special Requirements (MSR) shall not be extended. Overdue MSR items shall be removed from service until the required inspection is completed.

NOTE

No extensions are authorized for Low Cycle Fatigue (LCF) or other fatigue life limits on aircraft components.

3. Restrictions to Performing Maintenance Actions Early. The following restrictions apply to performing maintenance actions early:

   a. Thirty days/10% maximum for scheduled component changes.

4. Scheduled Maintenance. Scheduled maintenance is planned maintenance performed according to the intervals specified on the ACMS MDL. Unscheduled maintenance is defined as maintenance performed as a direct result of the failure of a specific component, system, or subsystem.

5. Suspension of Interval. The accumulation of calendar time on an aircraft may be halted for the period that the aircraft is in storage, extended repair, lengthy modification status, or other specified reasons. The Commanding Officer, ALC, will determine and authorize on an individual basis, those situations which constitute causes for interval suspension. The aircraft shall not be flown while in suspension. A notation should be made on the non-mission generated maintenance record indicating that the aircraft is grounded for suspension of

ACMS tracking. ALC ESD must be notified by message of any change in ACMS status. An airframe Significant Component History Report (SCHR) entry should also be made indicating that the aircraft has suspended or resumed ACMS tracking. Calendar time accrual will resume when the aircraft is returned to operational status. ALC will suspend/resume ACMS tracking as part of the normal Programmed Depot Maintenance (PDM) process.

6. Inspection Facilities. Aircraft missions should be planned so that ACMS inspections are performed at the home station where adequate personnel, parts, tools, and equipment are available. This will ensure a high level of quality control and reduce Not Mission Capable (NMC) time.

7. Aircraft Transfer. For all aircraft transfers, refer to the Aircraft Transfer Process Guide, CGTO PG-85-00-160, and the applicable Aircraft and Inventory Maintenance Procedure Cards (MPCs).

8. Inspection/Discrepancy Records. Completed MPCs will be retained for 90 days; then they may be discarded.

9. Field Maintenance Adaptation and Feedback.

   a. Changing missions, equipment, and operating conditions requires review and adjustments of practices to support the USCG aircraft maintenance system. Units are encouraged to submit suggestions and proposed maintenance system improvements to the Commandant (CG-41) via normal channels. Variations in maintenance scheduling techniques (i.e., night check crews, etc.) are within the purview of the Commanding Officer, provided the calendar/time limits are not exceeded. Results of these variations should be reported to the Commandant (CG-41). Periodic Maintenance Management Reviews will be conducted by the Commandant (CG-41) in an effort to provide an optimum aircraft system within available resources, and to assist in developing future requirements. Feedback from the field is an indispensable element to all portions of this program to ensure its success.

   b. Suggestions for revisions/changes to the MPCs shall be submitted on a Deficiency Reporting Document (CG-22), accessible via TMAPS.

Table 5-1. Inspection Criteria for HC-130 Aircraft

1. Maintenance Planning Concept - Asset Computerized Maintenance System (ACMS)
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	Flight Manual	Valid for 24 hours. However, fuel sumps and filter drains shall be checked prior to the first flight each day.
Thruflight	Prior to second and subsequent flight each day	Flight Manual	Completion constitutes authorization for certification of preflight.
Postflight	After last flight of the day	ACMS	Completion constitutes authorization for certification of preflight.
Weekly/hourly	7 days or 45 flight hours	ACMS	To meet workload, scheduling, or operational requirements, non-deployed aircraft may be extended 1 day and/or 5 flight hours. Deployed aircraft may be extended 3 days and/or 5 flight hours.
As scheduled by Aircraft Maintenance Due Lists (MDL)	Various	ACMS	May be extended as listed in the MDL.
3. Special Inspections	On occurrence	ACMS	

See Aircraft Scheduled Inspection & Maintenance Instructions, AFTO 1C-130A-6, or as scheduled by ACMS.

Table 5-2. Inspection Criteria for C-37A and other Command and Control Aircraft

1. Maintenance Planning Concept - Gulfstream Computerized Maintenance System
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	Pilot's Handbook	
Thruflight	Prior to second and subsequent flight each day	Promulgated Locally	
Postflight	After last flight of the day	Promulgated Locally	
Computerized Maintenance System	Various	Computerized Maintenance Program Workloads	Computerized cycle system using 12 increments per cycle.

3. Special Inspections - Dictated by nature of incident, inspections prescribed by Grumman inspection manuals.

Table 5-3. Inspection Criteria for HU-25 Aircraft

1. Maintenance Planning Concept - Asset Computerized Maintenance System (ACMS)
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	ACMS	Valid for 24 hours. A completed postflight eliminates the requirement for next day's preflight unless maintenance is performed after that postflight. However, fuel sumps and filter drains shall be checked prior to the first flight each day.

Table 5-3. Inspection Criteria for HU-25 Aircraft Continued

Inspection	Interval	Inspection Procedures	Remarks
Thruflight	Prior to second and subsequent flight each day	ACMS	Completion constitutes authorization for certification of preflight.
Postflight	After last flight of the day	ACMS	Completion constitutes authorization for certification of preflight.
Weekly	7 days	ACMS	May be extended 1 day to meet workload, scheduling, or operational requirements. Deployed aircraft may be extended up to 7 days, but inspection must be completed upon return to home unit.
As scheduled by the Aircraft Maintenance Due List (MDL)	Various	ACMS	May be extended as listed in the MDL.
3. Special Inspections	On occurrence	ACMS	Refer to Maintenance Procedure Cards (MPCs).

Table 5-4. Inspection Criteria for HH-65/MH-65 Aircraft

1. Maintenance Planning Concept - Asset Computerized Maintenance System (ACMS)
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	ACMS	Valid for 24 hours. A completed postflight eliminates the requirement for next day's preflight unless maintenance is performed after that postflight. However, fuel sumps and filter drains shall be checked prior to the first flight each day.
Thruflight	Prior to second and subsequent flight each day	ACMS	Completion constitutes authorization for certification of preflight.
Postflight	After last flight of the day	ACMS	Completion constitutes authorization for certification of preflight.
Weekly	7 days	ACMS	May be extended 1 day to meet workload, scheduling, or operational requirements.
As scheduled by Aircraft Maintenance Due List (MDL)	Various	ACMS	May be extended as listed in the MDL.
3. Special Inspections	On occurrence	ACMS	

Table 5-5. Inspection Criteria for MH-60 Aircraft

1. Maintenance Planning Concept - Asset Computerized Maintenance System (ACMS)
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	ACMS	Valid for 24 hours. A completed postflight eliminates the requirement for next day's preflight unless maintenance is performed after that postflight. However, fuel sumps and filter drains shall be checked prior to the first flight each day.
Thruflight	Prior to second and subsequent flight each day	ACMS	Completion constitutes authorization for certification of preflight.
Postflight	After last flight of the day	ACMS	Completion constitutes authorization for certification of preflight.
14-day	14 days	ACMS	May be extended 1 day to meet workload, scheduling, or operational requirements.
As scheduled by Aircraft Maintenance Due List	Various	ACMS	May be extended as listed in the MDL.
3. Special Inspections	On occurrence	ACMS	

Table 5-6. Inspection Criteria for HC-144 Aircraft

1. Maintenance Planning Concept - Asset Computerized Maintenance System (ACMS)
2. Routine Inspection Cycle

Inspection	Interval	Inspection Procedures	Remarks
Preflight	Prior to first flight of the day	ACMS	Valid for 24 hours. A completed postflight eliminates the requirement for next day's preflight unless maintenance is performed after that postflight. However, fuel sumps and filter drains shall be checked prior to the first flight each day.
Thruflight	Prior to second and subsequent flight each day	ACMS	Completion constitutes authorization for certification of preflight.
Postflight	After last flight of the day	ACMS	Completion constitutes authorization for certification of preflight.
Weekly	7 days	ACMS	May be extended 1 day to meet workload, scheduling, or operational requirements. Deployed aircraft may be extended up to 7 days, but inspection must be completed upon return to home unit.
As scheduled by the Aircraft Maintenance Due List (MDL)	Various	ACMS	May be extended as listed in the MDL.
3. Special Inspections	On occurrence	ACMS	Refer to Maintenance Procedure Cards (MPCs).

CHAPTER 6. PERSONNEL AND TRAINING.

A. GENERAL. Commandant (CG-41) is the Program Manager for the Aeronautical Engineering Officers, Aviation Maintenance Officers as well as for the three enlisted ratings in Coast Guard aviation (Aviation Maintenance Technician (AMT), Aviation Survival Technician (AST), and Avionics Electrical Technician(AET)). DCMS-81 is responsible for the structure and content of these rates. In addition, DCMS-81 manages the initial training for Chief Warrant Officers (CWO). In managing training requirements for aviation, DCMS-81 works closely with Commandant (CG-41), Commander (FC-51), the CG Training Manager, and Commandant (CG-711), the operational program manager for aviation. A healthy personnel system meets job performance requirements, provides for a dynamic promotion system, and accommodates professional development goals. The primary tools of the personnel system in which Commandant (CG-41) participates directly are Staffing Standards development, Rating Review, Qualifications Review, and the Aviation Training Plan. These processes are discussed in greater detail below.

B. PERSONNEL ALLOWANCES. Allocation of personnel resources is controlled by the Staffing Standards Manual, COMDINST M5312.11 (series), and is communicated to units in the Personnel Allowance List (PAL). Requests for change to unit PALs must reference the Staffing Standards Manual and the Personnel Resources Manual, which contain policy and procedures on personnel resources. Any personnel allowance changes should be coordinated through the applicable Rating Force Master Chief and the Resource Manager in Commandant (CG-711).

C. FLIGHT ORDERS. Detailed guidance on management and reporting of flight orders for enlisted personnel is contained in the Personnel Manual, COMDTINST M1000.6 (series), and in the Management and Administration of Aviation Incentive Pays, COMDTINST 7220.39 (series).

D. PERFORMANCE QUALIFICATIONS. The performance qualifications are the foundation on which all staffing, training, and evaluations are developed. They describe the task elements to be performed at each rank level of a specialty. The aviation performance qualifications are reviewed and revised by DCMS-81, the Rating Force Master Chief and FORCECOM on a regular cycle utilizing the Enlisted Rating Advancement Training System (ERATS). The qualification review process is normally held in conjunction with the Rating Review which verifies rating and workforce structure. Field personnel are encouraged to participate in this process through the solicitation of board members.

1. Competency Manual. Competency codes identify enlisted positions by specific skill and knowledge requirements and are assigned to eligible personnel following appropriate training and professional accomplishment. The most common aviation competency codes are those assigned at the completion of residential training and Aircrew qualification. They enable the Force Manager to project training requirements, improve personnel distribution, and optimize personnel utilization. Failure to accurately record competency codes severely impacts the ability of the Force Manager and Personnel Service Center- Enlisted Personnel Management Division (PSC-epm) to manage the enlisted workforce. It should be noted that many competency codes are not assigned by the training centers at course completion because there is often a demonstration period attached to the specific skills. In these

cases, the parent unit must assign the competency code after adequate performance is demonstrated over a specified time period, and for all Aircrew qualifications. See the U.S. Coast Guard Competency Management System Manual, COMDTINST M5300.2 (series) for more information.

E. TRAINING. Aviation training takes the form of residential training, nonresidential training, and in-service delivery on-the-job training (OJT) methods. The acquisition of specialized skills is critical to the success of the aircraft maintenance effort.

1. Residential Training. Residential training available to Coast Guard aviation maintenance personnel ranges from introductory level apprentice courses to specific components or system training. These schools are labeled Class "A," "B," and "C." Specific information on approved schools is contained in the Performance, Training and Education Manual, COMDTINST M1500.10 (series)

   a. Class "A" School. Aviation Class "A" School instruction is two-tiered.

      (1) Tier One: A four-month (non-resident) Airman Program will be completed at air stations prior to attending resident Class "A" School. Completion of the Airman Syllabus is a prerequisite for all of the aviation Class "A" Schools. The Airman Program is outlined below in the In-Service Training Programs.

      (2) Tier Two: Resident Class "A" School. Formal "A" School curricula is developed from the rating's E-4 Enlisted Performance Qualifications. This instruction concentrates on the facts, concepts, and principles supporting aircraft systems and is provided by the Aviation Technical Training Center (ATTC) in Elizabeth City, North Carolina. ATTC provides instruction for the ratings: Aviation Maintenance Technician (AMT), Aviation Survival Technician (AST), and Avionics Electrical Technician (AET).

   b. Class "B" Schools. These schools provide advanced training, normally at DoD facilities, for specific career fields (e.g., AET "B" School).

   c. Class "C" Schools. This title refers to a body of schools and courses designed to address specific components, systems, or processes and are intended for the experienced technician. They are taught at a variety of CG, DoD, and contractor sites.

2. Nonresidential Training. Nonresidential courses are utilized when performance objectives can be met without disrupting the normal work requirements of the individual member. Current courses address a wide range of professional and technical development requirements and are provided by a variety of CG, DoD, and contractor sources. Some courses are self-paced and have no testing component; others are time tracked with testing required. Information on specific nonresident course offerings may be obtained from the unit Educational Services Officer.

3. In-Service Training. In-service training is a command responsibility that continues the education process begun in residential and nonresidential formal training. The importance of a systematic and measurable training program cannot be overstressed. The characteristics of a successful in-service training program require that it be needs driven; that is, it addresses actual

job performance requirements, and it must be consistently applied. Training opportunities take many forms, including formal training lectures, actual maintenance, informal counseling, and others. The Engineering Officer must ensure assigned personnel are provided instruction of sufficient quality and quantity to meet job performance requirements and professional development goals. To do this, the Engineering Officer must be familiar with aviation enlisted qualifications, training system capabilities, and required training listed in the Performance, Training and Education Manual, COMDTINST M1500.10 (series). Commandant (CG-41) will assist with the accomplishment of the in-service training effort through the publication of instructor criteria, standardized training plans, and periodic review of unit training requirements.

4. Airman Program. The Airman Program is a prerequisite to attending any Aviation Class "A" School and is covered by policy in the Performance, Training and Education Manual, COMDTINST M1500.10 (series), and the Personnel Manual, COMDTINST M1000.6 (series). The objective is to prepare service members bound for Aviation Class "A" Schools in the basic practices of aircraft maintenance.

   a. Aviation "A" School eligible personnel will be transferred Permanent Change of Station (PCS) as Airmen to an assigned air station approximately 4 months prior to an anticipated Class "A" School convening date. The Coast Guard Personnel Service Center (PSC) shall issue PCS orders to personnel on the AMT, AST, and AET Rating List in time for them to arrive at their air station 4 months prior to their "A" School convening date. Airmen will fill a Training Allowance Billet (TAB) at the unit while completing the Airman Syllabus. Assignment of Airmen by PSC will be based on the projected needs of the service for third class Petty Officers.

   b. Airmen shall be assigned to the Aeronautical Engineering Department with an experienced Petty Officer assigned as a mentor. The Engineering Administrative Division will be responsible for monitoring all Airmen and will ensure progress is documented in the member's training record not later than the first week of every month. The Educational Services Officer shall enroll the member in the Coast Guard Institute's Airman Course and provide the Airman with a package of training materials. The Airman Course Training Package provides both unit and member with administrative guidance and sets the standards for successful completion of the program.

   c. All Airmen are to be evaluated after 3 months at the unit by senior enlisted members of the Aeronautical Engineering Department. This evaluation shall include a review of the member's progress in the Airman Syllabus for potential completion prior to attending "A" School. At this point, the Command must make a determination as to the individual's potential for aviation service. If applicable, the Commanding Officer must notify PSC-epm by message of personnel disenrolled from the Airman Program. Upon completion of the Airman Program, units must notify PSC-epm for placement of the Airman on the assignment list for a convening "A" School class.

5. Maintenance Resource Management (MRM) Training. Maintenance errors contribute to approximately 20% of DoD and commercial aviation mishaps. Review of Coast Guard mishaps reflects similar rates. Many factors such as experience levels, operational tempo, and parts cannibalization can impact mishap rates. The losses are unacceptable and place our crews at risk. MRM has proven highly effective in the private sector and applies contemporary human factors knowledge to the aviation maintenance arena.

   a. Initial MRM training is taught at ATTC Elizabeth City "A" schools and at individual units by Coast Guard MRM initial qualified instructors. MRM initial qualified instructors are experienced in aviation maintenance and have received additional education in MRM principles and practices.

   b. Refresher MRM training is required biennially (every 2 years) for all rated enlisted aviation maintenance personnel, engineering officers, student engineers and maintenance officers. Unit personnel who have attended the MRM Refresher Facilitator course within the previous 2 years are qualified to facilitate refresher training at individual units. Unit MRM Refresher Facilitators are not qualified to give MRM initial instruction.

   c. For enlisted aviation maintenance personnel and maintenance officers: MRM initial training is required before performing or authorizing maintenance on Coast Guard aircraft. For engineering officers: If not previously completed during the Aeronautical Engineering Officer Qualification Syllabus, MRM initial training is required within 1 year of assignment as a unit Aeronautical Engineering Officer. For student engineers: MRM initial training is required during completion of the Aeronautical Engineering Officer Qualifications Syllabus.

   d. Aeronautical Engineering Officers are responsible for ensuring their personnel complete required MRM Initial Course or MRM Refresher Course training on schedule. Personnel failing to complete this training SHALL be prohibited from performing maintenance on Coast Guard aircraft until the training is completed.

   e. MRM Facilitator: Engineering Officers shall designate Unit MRM Refresher Facilitators in writing (the number of facilitators per unit is determined by Commandant (CG-1131)/Commandant (CG-41)). Unit Refresher MRM Facilitators shall attend the Commandant (CG-41) sponsored Unit Refresher MRM Facilitator Qualification Course prior to designation. A copy of the designation letter will be forwarded to the unit Aviation Training Petty Officer for ALMIS entry (training code 123: MRM Training- Instructor).

6. Joint Services A&P Certification Program. The Federal Aviation Administration (FAA) has approved all Coast Guard aviation ratings for this program. The Coast Guard has institutionalized a standard policy on the application process for Airframe and Powerplant (A&P) Certification. This program will ensure that qualified military members will receive their authorization to test for the FAA A&P Certification by the local FAA Flight Safety District Offices in the most efficient manner. For further information contact The Coast Guard

A&P Program Manager at the Aviation Technical Training Center (ATTC) in Elizabeth City, NC.

7. Aeronautical Engineering Officer Training . Each year, Commandant (CG-41) selects Maintenance Officer candidates using a formal selection board sponsored by Personnel Service Center- Officer Personnel Management Division (PSC-opm). Candidates are transferred into a designated Aeronautical Engineering Student Billet at an air station to complete an Aeronautical Engineering Officer qualification syllabus. After approximately a 1-year training program, graduates can expect assignment to appropriate maintenance officer positions at field units. Commandant (CG-41) maintains a formal Maintenance Officer training syllabus which provides for resident and in-service instruction on a variety of practical maintenance subjects; syllabus information may be obtained by contacting the Program Manager at Commandant (CG-41). The format for application and schedule of board convenings are contained in the Performance, Training and Education Manual, COMDTINST M1500.10 (series).

8. Chief Warrant Officer (CWO) Aviation Maintenance Officer Training. Training is accomplished by attending selected resident schools/courses and a performance based Aeronautical Engineering CWO Aviation Maintenance Officer Syllabus. Commandant (CG-41) maintains a formal Maintenance Officer training syllabus and information may be obtained by contacting the Program Manager at Commandant (CG-41). This syllabus shall be completed by all AVI/CWOs within one year of initial assignment into an Aviation Aircraft Maintenance Officer billet. This training is not intended to restrict the unit's authority to add additional requirements, but rather to serve as a guide for the minimum exposure required to train the maintenance officer. In-depth discussions among the engineering officer, maintenance officer, chiefs, and enlisted personnel concerning policies, procedures, and areas of mutual concern are heartily encouraged.

9. Advanced Education. The Office of Aeronautical Engineering has requirements for highly specialized skills in key positions throughout the organization. To support these requirements, Commandant (CG-41) sponsors several unique advanced education opportunities for qualified individuals seeking to enhance their contributions to the organization.

   a. Maintenance Technician Advanced Education. Commandant (CG-41) and DCMS-81 sponsor advanced (college level) education programs for the enlisted workforce (E-5 through E-7) in Aviation Maintenance Technology (AMT rating) and in Advanced Computer and Electronics Technology (AET rating). Graduates of these programs can expect assignments to appropriate positions at either ALC, ATTC, or a Prime Unit. Target applicants are highly competent senior E-5s and E-6s. These are 2-year programs leading to either an Associates or Bachelors Degree. Application requirements, the selection process, and obligated service are further detailed in the Performance, Training and Education Manual , COMDTINST M1500.10 (series).

   b. Engineering Officer Advanced Education. Commandant (CG-41) sponsors Masters level educational programs in Aeronautical

Engineering-MSIA, Aeronautical Engineering-Structures, and Aeronautical Engineering-Avionics Project Management. Graduates of Commandant (CG-41) sponsored programs can expect assignment to appropriate positions at ALC, Office of Aeronautical Engineering, or other Headquarters level positions. Particulars of the advanced education selection process and timing of boards are contained in the Performance, Training and Education Manual, COMDTINST M1500.10 and the appropriate advanced education application solicitation messages.

10. Unit Training Plan. Units may submit a request for annual training quotas to DCMS-81 on the Class "C" School Training Report using the Aviation Unit Training Plan (AUTP) format. DCMS-81 will coordinate the submission of a combined request to Commander (FC-51) for the Aviation Training Quota Manager. DCMS-81 will provide Commander (FC-51) training allowance information for the formulation of individual unit training allowances. Any nonrecurring requested quota in excess of the established training allowance must be fully justified in a request to DCMS-81. The unit AUTP must indicate training required to meet authorized unit training allowances.

11. Technical Airworthiness Assurance Coordinator (TAAC) Designation. Due to the inherent responsibilities of the TAAC, the Chief of ESD of ALC is responsible for the TAAC designation training program through the implementation of in-house syllabus executed by the Airworthiness Sustainment Branch and defined in the Technical Airworthiness Assurance Process Guide, CGTO PG-85-00-190. Recommended designation letters will be forwarded to Commanding Officer, ALC for approval for Product Line Engineers designated as TAACs and for Commandant (CG-41)'s approval for Major Acquisition Project Managers designated as TAACs.

12. Aviation Technical Training Advisory Committee (ATTAC). ATTAC is charged with providing customer and field level input to DCMS-81 in the oversight of the aviation workforce training issues. ATTAC is composed of experienced Aeronautical Engineering Officers and subject matter experts of the three rates drawn from the field; permanent representatives from Commandant (CG-41), Commander (FC-51), CGPC-epm, TQC, and ATTC are included. Meetings are scheduled twice a year by Commandant (CG-41). ATTAC services are conducted in accordance with DCMS-81 and the Coast Guard Aviation Technical Advisory Committee, COMDTINST 13020.2 (series).

CHAPTER 7. SUPPORT EQUIPMENT (SE).

A. GENERAL. Support Equipment management, procurement, and Aviation Inventory Control Point (AICP) for aircraft ALSE, Avionics Support Equipment, and Common Support Equipment are the responsibility of the Commanding Officer, ALC. Refer to the Support Equipment Process Guide, CGTO PG-85-00-150 for a detailed description of requirements and procedures associated with SE.

1. Responsibilities of the Commanding Officer, ALC, as SE Manager.

   a. Monitor the condition of SE

   b. Manage the ALSE, Avionic Support, and Common Support Mandatory Special Requirements Program

   c. Maintain and amend as necessary the unit allowance lists of SE contained in AMMIS

   d. Prepare specifications and provide technical coordination for the procurement of new equipment and systems

   e. Plan for, budget, and procure major SE

   f. Monitor General Services Administration (GSA) and DoD Surplus Property Bulletins as possible sources of SE to fill unit requirements

   g. Advise Aviation Units of any changes/TCTOs applicable to Coast Guard SE and recommend action to be taken to comply with these changes

   h. Establish liaison with DoD support equipment logistics management specialists to ensure that Military Interdepartmental Purchase Requests (MIPRs) for required equipment are prepared and submitted in a timely manner

2. Responsibilities of Aviation Units.

   a. Commanding Officers shall establish and maintain preventive maintenance programs to ensure that SE will meet projected service life requirements.

   b. Major premature failures beyond the repair capabilities of aviation units should be reported to Commanding Officer, ALC, for disposition instructions. Routine maintenance and replacement of component parts on a required basis is a unit responsibility funded by unit AFC 30 funds. Extensive overhaul shall be coordinated through ALC.

   c. Lead time for planning, budgeting, and procurement of major items of SE is 3 years. Requests should be submitted in writing giving specifics of equipment to be replaced and/or justification for any new/additional equipment desired. The Support Equipment Survey will be used for general planning purposes but will not be considered as a formal request for equipment replacement.

This Page Intentionally Left Blank

CHAPTER 8. AVIONICS.

A. SCOPE. This chapter outlines general avionics systems maintenance philosophies and provides guidelines to a unit's maintenance responsibilities. Wherever this Manual and the Electronics Manual, COMDTINST M10550.25 (series), differ, this Manual shall have precedence for avionics equipment and avionics support equipment.

B. GENERAL AVIONICS PUBLICATIONS. Enclosure (3) contains a list of publications which should be screened by each unit and used as a basis for establishing and maintaining a general avionics technical publications library.

C. GENERAL AVIONICS MAINTENANCE. An effective avionics maintenance program is essential in keeping Coast Guard aircraft fully mission capable. ACMS and other avionics maintenance programs ensure that aircraft and equipment are serviceable, safely operable, and properly configured to meet mission requirements. ACMS is a centralized data base of maintenance actions that enable tracking of avionics components through their entire life cycle. Specific ACMS objectives are to provide component maintainability and reliability statistics, component history, maintenance related information, and configuration control. Refer to ACMS User's Process Guide, CGTO PG-85-00-10, for a detailed description of the forms, reports, and procedures associated with ACMS.

1. Corrective Maintenance.

   a. The level of corrective maintenance authorized at the unit level is defined in the applicable aircraft type avionics Integrated Logistics Support Plan (ILSP). If an aircraft type avionics ILSP has not been published, the level of repair authorized at the unit level shall be in accordance with the applicable maintenance manual series. If repair is beyond the field level capability, the equipment shall be classed as unserviceable. The Product Quality Deficiency Report (PDQR) is an important record for corrective maintenance. PDQRs shall be submitted as discussed in the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110,

   b. Maintenance on Avionics Systems Under Warranty. No maintenance shall be performed on systems covered by warranty except as authorized by their ILSP.

2. Preventive Maintenance.

   a. Preventive maintenance for avionics systems shall be performed in accordance with ACMS and applicable maintenance directives.

3. Acceptance Testing, Minimum Performance Testing, and Fault Verification.

   a. Acceptance testing is required only for specific avionics equipment identified by ALC or required by ACMS. Unit maintenance policy may determine the need for acceptance testing on unspecified equipment as required.

b. Minimum performance testing is required on all avionics equipment after corrective maintenance has been performed on the Line Replacement Unit (LRU), or when specified by ACMS. Minimum performance testing shall be accomplished by the repair facility performing the corrective maintenance.

c. Fault verification testing is required on all equipment. Initial on-aircraft fault verification may satisfy this requirement. It is important to note, No Fault Found (NFF) evolutions reduce equipment availability, increase maintenance costs, and create longer pipelines. Units should make a concerted effort to reduce avionics LRU NFFs.

NOTE

All acceptance testing, minimum performance testing, and fault verification shall be entered into ACMS.

4. Changes to Avionics Equipment.

a. Policy. The general guidelines, policy, and procedures contained in Chapter 1 shall be applicable to changes concerning avionics equipment.

b. Review of Technical Directives. The Commanding Officer, ALC, has the responsibility for reviewing all Technical Directives, Service Bulletins (distributed by other Government agencies and commercial firms), and materiel changes with possible application to Coast Guard avionics equipment.

c. Service Bulletins and Letters. Service Bulletins and letters that provide test procedures and maintenance hints may be utilized when such procedures do not affect the form, fit, function, or operational characteristics of the equipment (as used by the Coast Guard). Should a Service Bulletin alter the form, fit, function, or operational performance, Commandant (CG-41) must approve its incorporation.

d. Depot Level Changes. Commandant (CG-41) and Commanding Officer, ALC (as authorized by the Commandant), shall be the sole authority for approving changes to avionics systems and avionics support equipment (ASE) at the depot level. Depot level changes may be accomplished by:

(1) CGTO

(2) ALC Engineering Specifications

(3) Other Government agency technical directives

(4) Overhaul directives or other directives approved by the Commandant (CG-41)

NOTE

The Commanding Officer, ALC, may approve depot level changes that do not affect the form, fit, or function of the equipment when necessary during the depot repair cycle. The Commanding Officer, ALC, is responsible for ensuring that all changes incorporated are fully documented to the lowest level of repair. This authority is limited to equipment repaired by other Government agencies, ALC, and commercial vendors directed by ALC. Incorporation of changes that affect the form, fit, function, or operational characteristics shall not be accomplished by ALC without approval of the Commandant (CG-41). Changes to ASE by Government calibration and repair facilities may be accomplished without prior approval if the change does not affect form, fit, or function and the change is approved by the agency operating the facility.

e. Organizational-Level Changes. Organizational-level material changes to avionics and ASE must be approved by Commandant (CG-41). Normally, this approval shall be in the form of a CGTO published by the Commandant (CG-41). Other forms include:

(1) CGMS message traffic.

(2) Authorization by letter from the Commandant (CG-41) under special circumstances.

NOTE

The Commanding Officer, CG Air Station Washington, may approve incorporation of service changes to equipment peculiar to the commercial aircraft assigned to their command. CG Air Station Washington will inform Commandant (CG-41) of any applicable changes.

5. Maintenance Beyond the Capability of the Field.

a. Printed and Integrated Circuit Boards. Printed and integrated circuit boards can easily be damaged beyond repair. Shop supervisors must ensure that the repair of integrated circuit boards is attempted only when allowed by the aircraft type avionics ILSP or maintenance manual, and only by experienced technicians qualified to effect the repair. If qualified technicians are not available, board repair at the unit level shall not be attempted.

NOTE

The terms A Condition, RFI, and serviceable are used interchangeably. The terms F Condition, NON-RFI, and unserviceable are used interchangeably. The preferred terms are serviceable and unserviceable.

b. Sealed Assemblies. When they have become faulty or have reached their life limit, they will be identified as unservicable (F condition) unless specifically stated otherwise in the associated ILSP or technical manual.

6. Unserviceable Materiel. Once an item is declared unserviceable materiel, the practice of using it as a source of spare parts is not authorized. The unservicable (F condition) system and procedures are covered in the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110, Chapter 4. Expeditious return of unserviceable items is essential for effective materiel management.

7. Reusable Shipping Containers. Reusable shipping containers are available for many avionics systems. All shipments of avionics equipment must utilize these reusable containers. Additional containers needed to meet unit allowance may be ordered from ALC. Containers in excess of requirements shall be returned to ALC for future use. Commanding Officers are to ensure all avionics equipment is correctly packed for protection during shipment.

NOTE

It is imperative that avionics equipment be properly prepared and packaged before shipment to prevent damage. Damage to equipment during shipment due to inadequate packing and preparation negates warranties, creates added depot maintenance expense, and decreases availability. ACMS tracked avionics must have a ship and receive MPC completed.

8. Special Handling Procedures for MOS (Metal-Oxide-Semiconductor) Devices. These precautions, though not all inclusive, are provided in the Aeronautical Engineering Maintenance Management Process Guide, CGTO PG-85-00-110, in an effort to alert all concerned to the special procedures necessary for MOS devices.

9. Software Change Procedure. Proposed changes to aircraft software shall be submitted to the appropriate Stan Unit using the Software Trouble Report (STR). The procedure for making a proposed change to aircraft software is provided in Enclosure (4) of this manual.

D. LOGISTICS.

1. Integrated Logistics Support Plan (ILSP). The ILSP contains all pertinent data relative to the logistics support of an avionics system, as per the Major Systems Acquisition Manual (MSAM), COMDTINST M5000.10 (series). Prior to acquisition of any avionics system, the Avionics System Manager, Aeronautical Engineering Division, Commandant (CG-41) in conjunction with the Office of Logistics (CG-44), develops an ILSP. Before the start of each subsequent acquisition phase, the ILSP is reviewed and updated as necessary to ensure that the most effective support program is implemented. The Commanding Officer, ALC, is responsible for ensuring that data contained in the ILSP is current. Form CG-22s will be submitted by units when errors are discovered.

   a. The purpose of the ILSP Program is to ensure:

      (1) All aspects of support, known as support elements, are considered prior to implementing operational use of the system.

      (2) The support and maintenance policy formulated is that which provides the lowest Life Cycle Cost (LCC) while meeting the stated readiness requirements.

      (3) The Aviation Inventory Control Point (AICP), the Program Manager, the prime contractor, and operating units are aware of and implement the policy formulated.

   b. When developing the ILSP, some prime factors considered are operational effectiveness, life cycle costs, depot work-hour loading, and unit work-hour loading. It should be noted that the ILSP is not formulated with a single element as a controlling factor: i.e., 100% operational availability, zero unit maintenance required, or minimum paperwork. For example: A system such as a radar altimeter for a helicopter which is mission essential requires that the ILSP be weighted in favor of high operational effectiveness. Conversely, the ILSP for a HC-130 PA system would be weighted for minimum costs and would allow for a higher NMC rate than a mission essential system.

   c. Individual avionics system ILSPs are being replaced with aircraft type avionics system ILSPs. The new avionics ILSP format is as follows:

      (1) Section One is the introduction which includes the purpose and applicability of the ILSP along with general avionics maintenance and support concepts and ILS responsibilities.

      (2) Section Two is an overview of the avionics systems in the type aircraft addressed by the ILSP.

      (3) Additional sections provide specific maintenance concepts and associated support resources for each avionics system/subsystem aboard the type aircraft addressed by the ILSP.

      (4) Training. Indicates the formal training schools available or programmed for the system.

      (5) Configuration Control. Indicates what configuration control criteria has been established for the system.

(6) Supply Support. Explains how the item will be supported, i.e., what spares and where they will come from, allowance lists, etc. It includes the Aircraft Material Stocking allowance. In special cases, such as a one-of-a-kind system, the actual allowance may be established here in lieu of the Aircraft Material Stocking List. Initial outfitting of avionics spare equipment will normally be furnished to each air unit upon commissioning, when receiving new aircraft types, or when changing configurations.

(7) Avionics Support Equipment (ASE) and Special Tools. Lists the ASE and special tools required to maintain the system. If a unit fabricated Test Bench Harness (TBH) or other unit fabricated item is required, a drawing number or other suitable reference will be provided. Common ASE such as Digital Voltmeters (DVMs), oscilloscopes, etc., will not be listed. See Paragraph 8.D.2. of this Manual below for further information on ASE.

(8) Maintenance Practices. Details the basic maintenance policy for the system. It also includes data not covered in the listed applicable manuals. Instructions in this section take precedence over any conflicting instructions in the listed applicable manuals.

2. Avionics Support Equipment (ASE). Avionics Support Equipment consists of general and specialized test equipment required to support avionics systems and components. Certain test bench harnesses, alignment fixtures, and special tools may also be classified as Avionics Support Equipment.

a. Allowance. Allowances for Avionics Support Equipment are contained in AMMIS. All requests or suggestions for additional ASE shall be made by submitting an AMMIS Allowance Change Request (ACR) detailing the need, benefits, and other supporting data.

b. Initial Outfitting. An initial outfitting of ASE will be furnished to each aviation unit upon commissioning, when receiving new aircraft types, and when changing the system's configuration. All requests or suggestions for new or additional ASE shall be made by official correspondence to ALC, detailing the need, benefits, and other supporting data.

c. Repair and Calibration. Routine repair and calibration of ASE shall be accomplished by using ALC, district, unit, DoD, the Government and Industry Data Exchange Program (GIDEP) metrological database, or commercial facilities. Each district is required to develop a suitable program for the repair and calibration of electronics test equipment. ASE shall be included in this program. In the interest of flight safety and commensurate with its use, the test equipment utilized to repair and calibrate avionics equipment shall be repaired and calibrated by one of the methods listed below. Broad guidance for electronic test equipment calibration is contained in chapter 27 of the Electronics Manual, COMDTINST M10550.25 (series). The calibration intervals specified in AF Metrology and Calibration Program, AFTO 00-20-14, apply to Coast Guard avionics test equipment.

(1) Coast Guard Calibration Facilities (CALFAC). Certain major electronic shops are designated by the district commander as CALFAC. A CALFAC may be utilized for the repair and calibration of avionics test equipment when that facility is traceable to the National Standard, and when calibration and repair will not exceed 3 weeks after receipt of equipment.

(2) Other Military Facilities. The Coast Guard utilizes the repair facilities of other military services by negotiating an Interservice Support Agreement (ISSA) with the service concerned. Naval Calibration Facilities and Air Force Precision Measurement Equipment Laboratories (PMEL) are the prime sources used. These facilities are adequate for avionics test equipment repair and calibration, except when the time to repair or calibrate exceeds 3 weeks after receipt of equipment.

(3) Factory Repair and Calibration. Warranty and non-warranty repairs and calibration of commercial electronic test equipment are authorized when the leadtime to repair or calibrate avionics test equipment exceeds 3 weeks, or when the customized and specialized nature of the test equipment to be calibrated/repaired dictates the use of the manufacturer or an authorized repair/calibration facility.

(4) Commercial Repair and Calibration. Avionics test equipment may be repaired and calibrated by a commercial facility when that facility is traceable to the National Standard.

d. If repair cannot be accomplished utilizing the district repair and calibration program, replacement, exchange, or repair may be requested via ALC. Requests will be made by official correspondence and will specify the reason support is requested.

e. General Use Test Equipment and Specialized Test Equipment for Non-Avionics Use. Multimeters and similar handheld meters will not be procured by ALC. Procurement of General Purpose Electronics Test Equipment used primarily for station maintenance and all specialized Electronics Test Equipment for other than avionics use is an ALC or district responsibility. All units should analyze their station maintenance requirements and request ALC or district procurement for replacement Electronics Test Equipment as necessary to meet these requirements.

f. Publications. Spare publications for commercial off-the-shelf ASE will not normally be stocked for future issue. Units requiring additional or replacement publications and unable to locate a federal supply source through appropriate publication indexes will be required to procure these publications from the equipment manufacturer.

E. AIRCRAFT C4ISR SYSTEMS. Air Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems offer transparent global connectivity and interoperability between joint, interagency and multi-national forces. The Mission System Pallet (MSP) in the HC-144A, Mission System Suite (MSS) in the HC-130J, and CASPER system in the HC-130H are examples of C4ISR systems in CG aviation. Sustainment of the C4ISR systems has added new requirements to aviation maintenance with the increased capabilities of connecting to NIPRNET (CGOne) and the SIPRNET through our C4ISR systems. The ability to connect to these networks requires an Information Assurance (IA) and Certification and Accreditation (C&A) process that leads to the Authorizing Official (AO) providing an Authority to Operate (ATO). This IA C&A process can take six to twelve months to accomplish during initial ATO submission. Once granted an ATO, there are maintenance sustainment requirements that include monthly Information Assurance Vulnerability Alert (IAVA) patches and security updates as well as DoD vulnerability scans and back up requirements. To maintain an ATO, the Information Security System Officer (ISSO) is required to perform annual C&A checks and complete a reaccreditation process every three years. U.S. Coast Guard Information Assurance (IA) for Unclassified Systems, COMDTINST 5500.13 (series) provides policy guidance, procedures, and processes for the implementation of the IA program. The C4 & IT C&A Practive Handbook provides the essential guidance for enterprise wide use, development and maintenance of the C&A process.

CHAPTER 9. AVIATION LIFE SUPPORT EQUIPMENT.

A. SCOPE. This chapter outlines general Aviation Life Support Equipment systems management and provides guidance regarding organization and responsibilities.

B. GENERAL. Aviation Life Support Equipment (ALSE) is a key element in the Coast Guard's aviation mission support structure. ALSE is funded by both AFC-30 and AFC-41 as outlined in the Financial Resource Management Manual (FRMM), COMDTINST M7100.3 (series). Therefore, the Commandant (CG-711) Aviation Life Support Requirements Manager, ALC, and Commandant (CG-41) Aviation Life Support Systems Manager, must closely coordinate their efforts to ensure that this mission critical requirement is properly funded, stocked, and issued to operational aviation units.

C. EQUIPMENT TYPES. There are two types of ALSE which align with AFC-30 and AFC-41 guidelines. Commandant (CG-711) and Commandant (CG-41) will determine the equipment type which will dictate the type of support funding. The examples given are not inclusive and are only intended to provide general guidance.

NOTE

Currently all ACMS tracked life support equipment must be shipped and received for in ACMS.

1. Personal/Deployable ALSE. Equipment that is individually issued to crewmembers or deployed from the aircraft for rescue. This does not include Rescue Swimmer physical training uniforms or deployment ensembles which, although supported with AFC-30, are managed solely by the Commandant (CG-711) Rescue Swimmer Program Manager IAW the Coast Guard Helicopter Rescue Swimmer Manual, COMDTINST M3710.4 (series).
   a. Air stations are responsible for procuring this equipment utilizing AFC-30 funds.
   b. Responsibility: Commandant (CG-711) is responsible for establishing the operational requirement and obtaining initial funding. ALC will assist with the initial acquisition and implementation if requested.
   c. Examples: Aircrew Dry Coveralls, Flight Suits, Flight Helmets, Flight Jackets, Rescue Swimmer Harnesses, Air Delivery Systems, Dewatering Pumps.
2. Aircraft ALSE. Equipment that is part of the aircraft configuration or that is listed in the Coast Guard Air Operations Manual, COMDTINST M3710.1 (series), as the minimum required rescue/survival equipment for the aircraft type.
   a. AFC-41 provides funding support for this equipment. Material is ordered from ALC and is provided to the units as free issue.
   b. Responsibility: Commandant (CG-711) is responsible for establishing the operational requirement and obtaining initial and follow-on funding. ALC is responsible for acquisition, implementation, storage, issue, technical support, modification, and superseding equipment.
   c. Examples: Rescue Litters, Rescue Baskets, Oxygen Masks, Aircrew Life Rafts, Survival Vests, Personnel Parachutes.

D. ORGANIZATION.

1. Commandant (CG-711) is the Aviation Life Support Requirements Manager. As such, Commandant (CG-711) sets the operational requirements for ALSE.

2. Commandant (CG-41), as the Aviation Life Support Equipment (ALSE) Systems Manager, maintains liaison with Commandant (CG-711) for operational requirements and funding issues, Commandant (CG-1131) for flight safety related ALSE deficiencies, and ALC for project management and technical support. Commandant (CG-41), Commandant (CG-711), Commandant (CG-1131), and ALC jointly review and prioritize ALSE issues.

3. ALC (ALSE Technical Services) is the Aviation Life Support Equipment Product Line Manager. As such, ALC acts as the project manager for new ALSE acquisitions, and manages in-service ALSE as described above by equipment type. ALSE Technical Services receives tasking from Commandant (CG-41).

4. ATC Mobile is the ALSE Prime Unit. As such, ATC Mobile is responsible for technical responsiveness to field level ALSE maintenance managers. The ALSE Prime Unit receives tasking from ALC and functions as a Prime Unit as outlined in Chapter 2 of this Manual.

CHAPTER 10. AIRCRAFT SALVAGE.

A. GENERAL. Recovery and salvage of Coast Guard aircraft is the responsibility of the Commanding Officer of the unit to which the aircraft is permanently assigned. This responsibility includes the maintenance of a salvage plan, the assignment of a salvage officer, coordination of recovery/salvage resources, and execution of the recovery/salvage effort. As the program manager, Commandant (CG-41) may augment the technical oversight of any salvage operation or engage additional resources to enhance the salvage effectiveness.

B. SALVAGE PLANS. All aviation units shall prepare and maintain a salvage plan for all assigned aircraft types. Provisions for salvage, where appropriate, shall be addressed in the unit pre-mishap plan. The purpose of this plan is to assist unit personnel in initiating and coordinating recovery and salvage if an aircraft mishap necessitates such an effort. The aircraft salvage plan should be designed to interface with and amplify the unit pre-mishap plan. This plan shall include, but is not limited to, the following:

1. Checklist format of action items required for various key individuals (CO, OPS, EO, Salvage Officer, etc.).
2. A complete list showing location of all equipment stocked in the unit's salvage kit. This list shall include, but not be limited to, all equipment specifically listed in the appropriate aircraft maintenance manual for recovery/salvage of that type aircraft.
3. Specific recovery/salvage procedures - Specific procedures for recovery/salvage of each aircraft type are contained in detail in the appropriate aircraft maintenance manual. Additional procedures and techniques can be documented as desired.
4. Each salvage plan shall be updated annually. This should be performed by the prospective salvage officer. A list of potential resources available within the unit's normal geographic area of operation shall be maintained. Specific attention should be given to assuring that the list of resources is current and that phone numbers and other contact information are correct. Salvage plans should include a section regarding aircraft recovery and salvage funding responsibilities. For example, this section should include contingencies to utilize a unit supply division member (credit card holder) to provide on-scene salvage purchase needs and Contracting Officer's Technical Representative (COTR) support.
5. Salvage plans shall be maintained in a current status in district operations centers. Plans will be reviewed during the unit's Logistics Compliance Inspection.

C. ASSIGNMENT OF SALVAGE OFFICERS. Assignment of the Salvage Officer is the responsibility of the Commanding Officer. This individual will be the Commanding Officer's direct representative and shall be responsible for coordination and implementation of the recovery/salvage effort. It is recommended that all prospective Salvage Officers maintain a working knowledge of all references listed herein.

D. RESPONSIBILITIES FOR AIRCRAFT RECOVERY/SALVAGE.

1. Unit Commanding Officer. The Commanding Officer of the unit to which a mishap aircraft is permanently assigned has full responsibility for the recovery and salvage of their aircraft. This responsibility, among others, includes the coordination of recovery and salvage resources, and execution of the recovery and salvage effort. The Aviation Logistics Center (ALC) possesses superior contracting and technical ability, which allows swift action in emergent situations. In previous mishaps, Commanding Officers have utilized ALC, authorized by Commandant (CG-41), to remove potential barriers to recovery and salvage operations in the critical period after a mishap. The willingness of Commandant (CG-41) and ALC to assist unit Commanding Officers in these initial efforts should not be misconstrued as acceptance of the responsibility for funding these operations, but rather an acknowledgement of an efficiency offered to expedite crucial operations. A written report of all encountered salvage and recovery challenges should be submitted to Commandant (CG-41) via the chain of command within 30 days of occurrence, to include lessons learned.
2. District Commanders. If the mishap unit is unable to provide adequate resources, District Commanders will be responsible for the coordination of district resources in support of a recovery/salvage effort. District Commanders are also responsible for coordination of commercial or other service resources from within the district.
3. Area Commanders. If District Commanders are unable to provide adequate resources, Area Commanders will be responsible for coordination of area resources in support of a recovery/salvage effort.
4. Commandant (CG-41). Is responsible for providing:
    a. Approval for unusual funding requirements in connection with a recovery/salvage operation, including coordination of cross-directorate funding.
    b. Assistance in coordination of any extraordinary resources (i.e., commercial or other military service) which are beyond unit or district capability to coordinate. ALC's contracting division can provide contracting support for large efforts, such as deep sea salvage, diving, heavy lifting, etc. as requested.
    c. Technical Assistance. Commandant (CG-41) is generally the most current source of information relating to recovery/salvage. All members of the branch are available through the National Command Center, to advise or provide technical information to Salvage Officers. If so requested by the unit, Commandant (CG-41) will provide an experienced advisor for any salvage operation.

E. COAST GUARD VESSEL RECOVERY CAPABILITIES. Polar class icebreakers are the only Coast Guard vessels considered adequate for recovering an MH-60 helicopter. Other Coast Guard vessels should be used for such an operation only in extreme circumstances, with the knowledge that considerable salvage related damage is probable. Buoy tenders are marginally adequate for recovering HH-65/MH-65 helicopters. These vessels should normally be utilized only under ideal (near flat calm) conditions when no other resources are readily available.

They may be utilized in less than ideal conditions as the situation dictates, with the realization that significant salvage related airframe damage is probable. Generally, commercial or other military service resources are desirable and should be used for water recovery of Coast Guard helicopters. The following basic minimum requirements are defined in the respective aircraft maintenance manuals.

Type ACFT to be Recovered	Main Hoisting Capability	Ability to Hoist Outboard of Gunwale
H-65	30,000 lbs	25 ft
H-60	50,000 lbs	50 ft

F. SALVAGE REFERENCES. The following is a list of references that pertain to aircraft recovery/salvage and a brief description of what information is in each publication.

1. Coast Guard Air Operations Manual, COMDTINST M3710.1 (series). Assigns Commanding Officer's basic responsibilities with regard to assigned aircraft.
2. Appropriate Aircraft Maintenance Manual. Lists specific recovery/salvage techniques and recommended salvage equipment list. While this technical information relates strictly to an aircraft in the water, it is assumed that the basic information will be modified to apply to other recovery/salvage situations as well.
3. Aviation Unit Salvage Plans. Contains procedures and information pertinent to specific units/geographic locations.
4. Shipboard-Helicopter Operational Procedures Manual, COMDTINST M3710.2 (series). Provides flight-deck-equipped cutters with basic guidelines for their responsibilities during the initial phase of a recovery/salvage operation.
5. Multiservice Helicopter Sling Load: Basic Operations and Equipment, COMDTINST M13482.2 (series) . Provides guidance on joint service salvage efforts.

This Page Intentionally Left Blank

ALPHABETICAL INDEX

SUBJECT **PAGE**

A

ACCB 1-5
ACMS Maintenance Due List (MDL) 5-2
Aeronautical Resources Division, Commandant (CG-412) 2-4
Aeronautical Systems Division, Commandant (CG-411) 2-3
Aircraft Availability 1-3
Aircraft Inspections 5-1
Aircraft Maintenance Technical Publication Resources 4-3
Aircraft Ownership 1-13
Aircraft Salvage 10-1
- Coast Guard Vessel Recovery Capabilities 10-2
- References 10-3
- Salvage Officer 10-1
- Salvage Plans 10-1
- Salvage Responsibilities 10-2

Aircraft Transfer 5-4
Airman Program 6-3
Airworthiness Release Document 1-11
ALSE
- Equipment Types 9-1
- Organization 9-2

Aviation "A" School 6-3
Aviation Life Support Equipment (ALSE) 9-1
Aviation Logistics Center (ALC), Elizabeth City, NC 2-6
Aviation Technical Training Advisory Committee (ATTAC) 6-6
Avionics 8-1
- Avionics Maintenance 8-1
- Changes to Equipment 8-2
- Integrated Logistics Support Plan (ILSP) 8-5
- Maintenance Beyond the Capability of the Field 8-3
- Metal-Oxide-Semiconductor 8-4
- Publications 8-1
- Repair and Calibration 8-6
- Shipping Containers 8-4

C

Cannibilization 1-4
Classification of Aviation Maintenance Activities 3-1

ALPHABETICAL INDEX

SUBJECT **PAGE**

Coast Guard Technical Order System (CGTO) 4-2
Commandant Instructions
Personnel Manual, M1000.6 (series) 6-3
Shipboard-Helicopter Operational Procedures Manual, COMDINST M3710.2 (series) 10-3
The Coast Guard Organization Manual, COMDINST M5400.7 (series) 2-1

E

Equipment Readiness 1-1
Extension of Interval 5-3

F

Field Maintenance Adaptation and Feedback 5-4
Financial Management 1-4
Flight Orders 6-1
Flight Safety Critical Aircraft Parts (FSCAP) Program 1-13
Flight Verification Check 1-9
Flight Verification Checks 1-7

G

Ground Checks 1-7

H

Hourly/Weekly Inspections 5-2

I

In-Service Training 6-2
Inspection Criteria
C-37A/C-143A Aircraft 5-6
HC-130 Aircraft 5-5
HC-144 Aircraft 5-10
HU-25 Aircraft 5-6
MH-60 Aircraft 5-9
MH-65 Aircraft 5-8
Inspection Facilities 5-4
Inspection Interval 5-3
Inspection Reports 1-2
Inspection/Discrepancy Records 5-4

L

Logistics Compliance Inspection-LCI 1-13

M

Maintenace Capability and Mission Accomplishment 1-3

ALPHABETICAL INDEX

SUBJECT	PAGE
Maintenance Capability	1-2
Maintenance Documentation	1-4
Maintenance Effectiveness	1-3
Maintenance Flight Safety Warning Tag	1-11
Maintenance Release	1-8
Maintenance Standardization	1-2
Maintenance System Objective	1-1
Maintenance System Organization	1-1
Maintenance Work Hours	1-3
Maintence Level Classifications	3-2
Modifications and Changes to Aircraft	1-5
N	
NMCD	1-4
NMCM	1-3
NMCS	1-3
NMCS Target	1-4
NMCT	1-3
NMCT Target	1-4
Nonresident Training	6-2
O	
Office of Aeronautical Engineering, Commandant (CG-41)	2-1
P	
Performance Qualifications	6-1
Personnel Allowances	6-1
Postflight Inspection	5-1
Preflight Inspection	5-1
Prime Unit	2-9
Process Guides	4-3
Program Manager, Commandant (CG-41d)	2-2
Prototype Installations	1-6
Publications	
Commandant Instructions	4-1
Precedence of Directives	4-1
Technical Orders	4-1
R	
Reliability Centered Maintenance (RCM)	1-13

ALPHABETICAL INDEX

SUBJECT	PAGE
Restrictions to Performing Maintenance Actions Early	5-3
Routine Inspections	5-1
S	
Scheduled Maintenance	5-3
Sparing Levels	1-3
Special Inspections	5-2
Support Equipment	7-1
Support Equipment: Responsibilities of Aviation Units	7-1
Suspension of Interval	5-3
T	
TCTOs	4-7
Technical Airworthiness Assurance Coordinator (TAAC) Designation	6-6
Technical Airworthiness Assurance Program	1-14
Technical Order Distribution System (TMAPS)	4-3
TEMPEST Testing	1-6
Test Flight	1-9
Test Flight Exceptions	1-9
Test Flights	1-7
Thruflight Inspection	5-1
Training	6-2
Advanced Education	6-5
Aeronautical Engineering Officer Training	6-5
Coast Guard Airframe and Powerplant Program	6-4
Maintenance Resource Management (MRM) Training	6-4
Unit Training Plan	6-6
Type Certificate-Form #ALC ESD-21	1-12
Typical Aviation Unit	2-9
U	
Unit Maintenance Level Classifications	3-1
W	
Weight and Balance	1-6

MAINTENANCE LEVEL FUNCTIONS

A. APPLICABLE NOTES. These notes apply throughout this enclosure when a number is indicated as applying to a maintenance level:

1. When removal of components is required and disassembly of aircraft components is involved or light installed job-shop type equipment is required, the function is classified to the C level.
2. When removal of components is required, but disassembly of aircraft components is not involved, and semi-portable or bench-type equipment is required, the function is classified to the D level.
3. Participation in the Joint Oil Analysis Program or Spectrometric Oil Analysis Program (HU-25) is mandatory for certain components and optional for others. All units must maintain oil sampling equipment on board.

B. AIRCRAFT GENERAL. Maintenance functions applicable to the aircraft in general are classified as follows:

1. Upkeep Inspections.

		CLASS	
		C	D
a.	Preflight	-	X
b.	Thruflight	-	X
c.	Postflight	-	X
d.	Computerized	-	X
e.	Special	-	X
f.	Acceptance and transfer	-	X
g.	Inventory	-	X

2. Preservation.

a.	5 to 10 days	-	X
b.	11 to 30 days	-	X
c.	31 to 60 days	-	X

3. Machine Operations (Metal and Metal Machine Work Plate, Bar, Sheet, Tubing, Rod, Wire, and Cable).

		CLASS	
		C	D
a.	Shaping operations	1	-
b.	Drilling operations	1	2
c.	Milling operations	1	-

		CLASS C	CLASS D
d.	Turning operations	1	-
e.	Cutting operations	1	2
f.	Grinding operations	1	2
g.	Pressing operations	1	2
h.	Sawing operations	1	2
i.	Forming operations	1	2
j.	Bending operations	1	2
k.	Flaring operations	1	2
l.	Beading operations	1	2
m.	Punching operations	1	2
n.	Shrinking operations	1	2
o.	Stretching operations	1	2
p.	Dimpling operations	1	2
q.	Riveting operations	1	2
r.	Welding operations	1	2
s.	Spinning operations	1	-
t.	Shearing operations	1	2
u.	Swaging operations	1	2
v.	Rolling operations	1	2
w.	Filing operations	1	2

4. Cable, Tube, and Rod Work (Controls).

		CLASS C	CLASS D
a.	Inspect installed	-	X
b.	Functional test	-	X
c.	Tensioning	-	X
d.	Remove and replace cables, tubes, and rods	-	X
e.	Manufacture, swage, and test cables	1	-

5. Welding and Soldering.

		CLASS C	CLASS D
a.	Oxyacetylene welding and cutting	1	2
b.	Electric arc	1	2
c.	Electric inert arc	1	2
d.	Soldering	-	X

6. Painting.

a.	Strip and refinish subassemblies	X	-
b.	Strip and refinish parts	-	X
c.	Brush and spray touchup on aircraft	-	X
d.	Paint identification markings on aircraft	-	X
e.	Paint identification markings on components	-	X
f.	Apply acid proof paint	-	X

7. Cleaning.

a.	Wash aircraft	-	X
b.	VCU-Blast corrosion on airframe and components	X	-

8. Examination and Testing.

a.	Magnetic particle process, installed or portable equipment	-	X
b.	Fluorescent process, installed or portable equipment	-	X
c.	Dye penetrant process	-	X
d.	Radiographic (X-ray) process	X	-
e.	Eddy current process	-	X
f.	Ultrasonic process	X	-
g.	Hardness test process		
(1)	Installed equipment	X	-
(2)	Semi-portable equipment	X	-
(3)	Portable equipment	-	X

9. Miscellaneous.

		CLASS C	CLASS D
a.	Joint Oil Analysis Program (JOAP) sampling	-	3
b.	Spectrometric Oil Analysis Program (SOAP) (HU-25) sampling	-	3
c.	Maintaining spare aircraft assigned to specific stations by the Commandant	-	X

C. AIRFRAMES SYSTEMS AND COMPONENTS.

1. Airframes components include the fuselage, wings, fixed surfaces, movable surfaces, boost units, cockpits, seats, fairings, access doors, flight control attachment fittings, bearings, bell cranks, chains, cables, drums, fairleads, torque tubes, pulleys, quadrants, rigging rods, associated rollers and sprockets, control wheels, rudder pedals, surface control locks, all technical controls (see Instrument System), trim tab controls, cargo hoists, and related airframe items.

2. Maintenance functions applicable to airframes components are classified as follows:

		CLASS C	CLASS D
a.	Inspection (routine and special)	-	X
b.	Inspection (removed components)	-	X
c.	Preflight line test of airframe systems, flight and mechanical controls	-	X
d.	Servicing and lubrication	-	X
e.	Adjust linkage, controls, cables, etc.	-	X
f.	Removal of strainers, filters, fasteners, safety wire, etc.	-	X
g.	Removal and installation of components	-	X
h.	Repair of components		
	(1) By replacement of parts easily accessible Component removal not required	-	X
	(2) By replacement of parts which require component removal; bench test may or may not be required	-	X

		CLASS C	CLASS D
(3)	By replacement of parts which usually require extensive component disassembly or special tools or support equipment; subsequent to repair, functional testing and quality assurance inspections are normally required	X	-
i.	Repair of structural damage	1	2
j.	Incorporation of aircraft changes	1	2

3. Landing gear components include the main, nose and tail gear, skis, amphibious gear and flotation equipment, retracting mechanism controls, gearboxes, valves, struts, shimmy dampers, warning and position indicating transmitters, doors, door actuating struts, ground steering mechanisms, wheels, brakes, tires and tubes, and associated lines and fitting.

4. Maintenance functions applicable to landing gear components are classified as follows:

		CLASS C	CLASS D
a.	Inspection (routine and special)	-	X
b.	Inspection (components removed)	-	X
c.	Servicing and lubrication	-	X
d.	Removal and replacement of components (strut actuators, shimmy dampers, brake assemblies, etc.)	-	X
e.	Functional test by cycling	-	X
f.	Repair of components		
(1)	By replacement of easily accessible parts. Component removal not required	X	-
(2)	By replacement of high usage parts which require component removal; bench test may not be required	-	X
(3)	By replacement of high or low usage parts requiring extensive component disassembly, or support equipment; subsequent to repair, functional testing or quality assurance inspection is normally required	X	-
g.	Bench test of components	X	-

		CLASS C	CLASS D
h.	Incorporate aircraft changes	1	2
i.	Repair of damage	1	2

5. Hydraulic/pneumatic components include hydraulic pumps, air compressors, fluid reservoirs, pressure accumulators, booster pumps, relief valves, check valves, pressure warning transmitters, overflows, vents, and associated lines and fittings.

6. Maintenance functions applicable to hydraulic/pneumatic components are classified as follows:

		CLASS C	CLASS D
a.	Inspection (routine and special)	-	X
b.	Servicing	-	X
c.	Removal and replacement of filters and strainers, etc.	-	X
d.	Removal and replacement of components (pumps, air compressors, accumulators, relief valves, etc.)	-	X
e.	Functional test of system or subsystem; support equipment may or may not be required	-	X
f.	Repair of components		
	(1) By replacement of seals, gaskets, packing, standard fitting, etc.; component removal not required	-	X
	(2) By replacement of high usage standard hardware, seals, gaskets, packing, fittings, and parts which require component removal and minor disassembly; bench test may or may not be required	-	X
	(3) By replacement of high or low usage repair parts requiring extensive component disassembly or special tools, quality assurance inspection normally required	X	-
g.	Flex lines and rigid tubing		
	(1) Fabrication and testing	-	X

NOTE

Low pressure and medium pressure (1500 PSI) hose assemblies (including teflon) may be manufactured at unit level in accordance with AFTO 42E1-1-1. Preformed and high pressure hoses (3000 PSI) will be procured in accordance with existing instructions.

h.	Incorporate aircraft changes	1	2
i.	Repair of damage	1	2

7. Utility components include complete heating, ventilating, pressurization, anti-icing and deicing (except propeller and rotors), fire extinguishing system components, associated fuel filters, fuel pressure regulators, fuel pumps, fuel pressure transmitters, dampers, anemostats, thermistors, cabinstats, air distribution controls, ducts, packing, cabin air filters and filtering elements, cabin air pressure regulators, valves, quick disconnect blocks, windshield defrosters, warning system components, reservoirs, vacuum pumps, filters, controls, engine fire extinguisher cylinders, associated lines and fittings.

8. Maintenance functions applicable to utility components are classified as follows:

		CLASS	
		C	D
a.	Inspection (routine and special)	-	X
b.	Servicing and lubrication	-	X
c.	Removal, cleaning, and replacement of filters, strainers, packing, insulation, etc.	-	X
d.	Removal and replacement of components (heaters, motors, pressure regulators, transmitters, etc.)	-	X
e.	Functional test of systems or subsystems	-	X
f.	Repair of components		
	(1) By replacement of seals, gaskets, packing, standard fittings, etc.; component removal not required	-	X
	(2) By replacement of high usage standard hardware, seals, gaskets, packing, fittings, and parts which require component removal and minor disassembly; bench test may or may not be required	-	X

		CLASS C	CLASS D
(3)	By replacement of high or low usage repairs requiring extensive component disassembly or special tools or shop equipment; subsequent to repair, functional testing or quality assurance inspection normally required	X	-
g.	Incorporate aircraft changes	1	2
h.	Repair of damage	1	2

9. Safety and survival components include seat belts, shoulder harnesses, inertia reels, oxygen cylinders, liquid oxygen converters, regulators (except miniature mask mounted), lines, connections and fittings, portable fire extinguisher, rescue slings, baskets, litters, water bottles, and mounting brackets.

10. Maintenance functions applicable to safety and survival components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspection and servicing	-	X
b.	Ground test of equipment and systems	-	X
c.	Minor adjustments of equipment and systems	-	X
d.	Removal and replacement of components	-	X
e.	Functional test and adjustment of safety and survival equipment and systems using portable or mobile test equipment	-	X
f.	Routine inspections of removed aviator's equipment and systems	-	X
g.	Bench test of safety and survival components	-	X
h.	Repair of components		
(1)	By replacement of parts easily accessible; component removal not required	-	X
(2)	By replacement of high usage standard parts which require component removal and minor disassembly; bench test may or may not be required	-	X

		CLASS C	CLASS D
i.	Complete repair of components	X	-
j.	Incorporate changes and modifications	1	2

D. AVIONICS SYSTEM AND COMPONENTS. Avionics Systems Components include the following:

NOTE
LRUs under warranty do not apply.

1. Transmitting, receiving; radar (navigation and search), recognition (IFF), radio range, radio compass, radio altimeter, marker beacon, runway localizer, glide path, antennas, cables, wires, control panels, headsets, microphones and switches, infrared, data transmission, data analysis, and recorders.
2. Electrical, aircraft power distribution; generators, inverters, motors, reverse current relays, voltage regulators, overvoltage relays, warning lights and test switches, junction boxes, batteries, battery vent system units, installed auxiliary power unit (generator only). Landing, recognition, navigation and approach lights; compartment, cockpit, and cabin lights, flood and trouble lights, electric actuators and electric portions of airframes and engine accessories.
3. Engine, flight, navigation; quantity, pressure, position, vacuum instruments; automatic pilot and stabilization units, pitot and static system units, lift computers, stall warning devices and fire detecting units (except elements installed in engine compartments); instrument panels and lights and associated regulators, pumps, lines, and connections.
4. Maintenance functions applicable to avionics components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspection and servicing	-	X
b.	Functional test and adjustment of installed systems components	-	X
c.	Removal and replacement of minor components	-	X
d.	Removal and replacement of system major components	-	X
e.	Routine inspection of systems	-	X
f.	Routine inspection of removed components	-	X
g.	Bench test of system components	-	X
h.	Repair of components		

		CLASS C	CLASS D
(1)	By replacement of parts of subassemblies without removal of unit from the aircraft	-	X
(2)	By replacement of parts, subassemblies, and mechanical components (Repair of subassemblies and mechanical components by replacement of parts is included in this function)	-	X
(3)	No repair functions are assigned to the C level; however, certain maintenance or repair functions for selected and identified avionics items may be appropriately assigned to the Class C level due to facility and tooling requirements	-	-
i.	Incorporate changes and comply with bulletins	-	X

NOTE

For repair functions for avionics support equipment (bench harnesses, simulators, and test equipment), refer to Enclosure (1), Section I of this Manual.

E. ORDNANCE SYSTEMS AND COMPONENTS.

1. Ordnance components include loading equipment, pyrotechnic ejectors and launchers, and jato units.

2. Maintenance functions applicable to ordnance components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspection and servicing	-	X
b.	Ground test of ordnance systems	-	X
c.	Minor adjustments of ordnance system components	-	X
d.	Removal and replacement of strainers, filters, safety wire, fasteners, etc.	-	X
e.	Functional test and adjustment of ordnance system components	-	X

		CLASS C	CLASS D
f.	Periodic inspection of ordnance systems	-	X
g.	Preservation		
(1)	5 to 10 days	-	X
(2)	11 to 30 days	-	X
(3)	31 to 60 days	-	X
h.	Repair of ordnance accessories	-	X
	Replacement of parts which do not require removal or bench test	-	X
i.	Incorporate armament changes and comply with armament bulletins	-	X

F. PHOTOGRAPHIC SYSTEMS AND COMPONENTS.

1. Photographic components include cameras, view finders, associated controls, solenoids, indicator lights, switches, vacuum pumps, heaters, window washer, and intervalometers.

2. Maintenance functions applicable to photographic components are classified as follows:

		CLASS C	CLASS D
a.	Inspection (routine and special)	-	X
b.	Inspection (removed components)	-	X
c.	Preflight line test of photographic systems and components	-	X
d.	Servicing, lubrication, adjustment, and replacement of film and consumables	-	X
e.	Functional test and adjustment of photographic systems and components	-	X
f.	Removal and installation of components	-	X
g.	Bench test of photographic components	-	X
h.	Repair of components	-	X
(1)	By replacement of parts easily accessible; component removal not required	-	X

		CLASS C	CLASS D
(2)	By replacement of high usage standard parts which require component removal; bench test may or may not be required	X	-
i.	Incorporate photographic service changes and comply with photographic bulletins	1	2

G. **POWER PLANT EQUIPMENT AND SYSTEMS.** Power plant and related system components include the following:

1. Engine, engine mounts, engine control quadrant, cables, rods, pulleys, and fair-leads; injection pumps, oil strainers, valves, baffles, anti-drag, cowl flaps, cowl flap actuating mechanisms and indicating transmitters, permanently installed auxiliary power units (engine only), engine driven pumps, lines, filters and filter body (from engine manifold only); fuel and oil pressure switches and transmitters, fire detecting elements, burner baskets, main bearing supports, tail pipes, compressors, diffusers, turbines, engine anti-icing systems, main fuel pumps, engine driven fuel boost pumps, inlet guide vane actuators, variable stator actuators, fuel distributors, fuel nozzles, fuel/oil heat exchangers, torch ignitors, air bleed governors, emergency fuel systems, and starters.
2. Tanks, coolers, cooler door actuating mechanisms and indicating transmitters, filters, regulators, transfer pumps, relief valves, heat exchangers, oil dilution solenoids and valves, temperature bulbs, tank sumps, lines, hoses, and fittings.
3. In-line engine cooling tanks, radiators, after-coolers, expansion tanks, pumps, thermometers, relief valves, heat exchangers, header tanks, lines, hose and fittings, engine cooling fans.
4. Fuel tanks (wing, fuselage, dropable), fuel quantity tank units, master fuel shut-off valves, selector valves, booster pumps, fuel pumps, strainers, vents, primers, water injection tank, pumps, time delay relays, pressure switches, regulators; associated lines and fittings (to the engine manifold only).
5. Maintenance functions applicable to power plant and related system components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, and postflight inspection	-	X
b.	Ground test of power plant system	-	X
c.	Minor adjustments of power plant system components	-	X
d.	Removal or replacement of strainers, filters, safety wire, etc., which are easily accessible	-	X

		CLASS C	CLASS D
e.	Inspections of power plant systems (power plant installed or removed)	-	X
f.	Functional test and adjustment of power plant and systems (power plant installed)	-	X
g.	Removal and replacement of power plant system components (engine, accessories, propellers, rotors, etc., power plant removed)	-	X
h.	Removal and replacement of power plant system components (engines, accessories, propellers, rotors, etc., power plant installed)	-	X
i.	Assemble quick change assemblies (engine buildup)	-	X
j.	Preservation of uninstalled power plant		
	(1) 11 to 30 days short term	-	X
	(2) For shipment	-	X
k.	Repair and bench test power plant accessories (all type power plants)		
	(1) Replacement of external parts, linkages, etc., such that the accessory does not require disassembly or bench test	-	X
	(2) Replacement of any components or parts which require disassembly and bench test of the accessory or subassembly	X	-
l.	Repair gas turbine engines		
	(1) Minor repair of installed engines	-	X
	(2) Repair of removed engines by replacement of parts (disassembly as authorized for the specific engine model)	-	X
	(3) Major repair removed engines, not including disassembly of rotating assemblies which require balancing after reassembly, or major units authorized only for “complete repair”	X	-
m.	Incorporate engine changes	1	2

6. Propellers and related system components include propellers, blades, hubs, governors, spinners, feathering control motors, brushes, deicing and anti-icing fixed components, slinger rings, nozzles, and shoes.

7. Maintenance functions applicable to propeller and related system components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspection	-	X
b.	Ground test of propeller systems	-	X
c.	Minor adjustment of propeller system components	X	-
d.	Routine and special inspection of propeller system and components	-	X
e.	Removal and replacement of propellers and system components	-	X
f.	Preservation for shipment	-	X
g.	Propeller assembly and disassembly	-	X
h.	Repair and bench test of propeller and components		
	(1) Repair by replacement of parts easily accessible; propeller or component removal not required	-	X
	(2) Functional test of propeller and components using propeller and governor test bench; no repair by replacement of internal parts authorized (electrical components will be repaired under provisions of Enclosure (1), Section D	-	X
	(3) Repair by replacement of components or parts which require component removal; extensive disassembly or special tools or support equipment may be required; subsequent to repair, functional testing and quality assurance inspections are normally required	X	-
	(4) Deicer boot replacement and propeller balancing changes	X	-
i.	Incorporate propeller changes	1	2

8. Rotary wing dynamic drive systems and components include blades, heads, hubs, anti-flapping and anticoning devices, anti-icing and deicing attached fixed component, snubbers, dampers and related reservoirs and lines, controls and linkage, drive shafting, universals and flexible couplings, transmissions, gear boxes, free wheeling units, vibration absorbing couplings, clutch assemblies, and rotor brakes.

9. Maintenance functions applicable to rotary wing dynamic drive system and components are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspections	-	X
b.	Ground testing, blade tracking, minor rigging adjustment	-	X
c.	Removal or replacement of strainers, filters, safety wire, easily accessible	-	X
d.	Routine and special inspection of dynamic system components	-	X
e.	Servo timing, system rigging, adjustment of reinstalled system components	-	X
f.	Removal and replacement of components and accessories	-	X
g.	Buildup of quick change assemblies	-	X
h.	Repair of components		
(1)	By replacement of seals, gaskets, packing, standard fittings, etc., (component removal not required)	-	X
(2)	By replacement of high usage standard hardware, seals, gaskets, packing, fittings, and parts which require component removal and minor disassembly; bench test may or may not be required	-	X
(3)	By replacement of high or low usage repair parts requiring extensive component disassembly or special tools or shop equipment; subsequent to repair, functional testing or quality assurance inspection normally required	1	2

H. AVIATOR'S EQUIPMENT AND SYSTEMS.

1. Aviator's equipment includes parachutes, harnesses, life rafts, life vests, oxygen masks, suspension straps, emergency equipment kits, flight clothing, oxygen regulators (miniature mask mounted), PRC Series transmitters, and helmets.

2. Maintenance functions applicable to aviator's equipment are classified as follows:

		CLASS C	CLASS D
a.	Preflight, Thruflight, postflight inspection	-	X
b.	Ground test of aviator's equipment and systems	-	X
c.	Minor adjustments of aviator's equipment and systems	-	X
d.	Removal and replacement of minor components	-	X
e.	Routine and special inspections of aviator's equipment and systems	-	X
f.	Functional test and adjustment of aviator's equipment and systems using portable or mobile test equipment	-	X
g.	Removal and replacement of aviator's equipment and systems major components	-	X
h.	Routine and special inspections of removed aviator's equipment systems	-	X
i.	Bench test of aviator's equipment	-	X
j.	Repair of components		
	(1) By replacement of parts easily accessible	-	X
	(2) By replacement of high usage standard parts which require equipment removal and minor disassembly; bench test may or may not be required	-	X
	(3) By replacement of high or low usage parts requiring extensive component disassembly or special tools or support equipment; subsequent to repair, functional testing or quality assurance inspection is normally required	-	X
k.	Incorporate changes	1	2

I. AIRCRAFT MAINTENANCE SUPPORT EQUIPMENT.

1. For the purpose of classifying maintenance functions for the maintenance and repair of aircraft maintenance support equipment, the following categories of equipment have been established:

   a. Avionics support equipment

   b. Gasoline, electric, and diesel powered servicing equipment

   c. Gas turbine powered servicing equipment

   d. Trailers, dollies, and carts (non-powered)

   e. Mechanical support equipment

2. Maintenance of support equipment is based upon ownership. The owner is responsible for ensuring proper maintenance.

3. Avionics support equipment includes electronic test sets, simulators, voltage, current, power, waveform measuring equipment and electromechanical devices such as rate tables, vacuum-pressure testers, temperature and fuel quantity indicator test sets, blade trackers, etc.

4. Maintenance functions applicable to avionics support equipment are classified as follows:

		CLASS	
		C	D
a.	Operational check and test	-	X
b.	Routine servicing	-	X
c.	Minor adjustment and removal and replacement of minor components and parts (knobs, safety wire, fuses, light bulbs, etc.)	-	X
d.	Removal and replacement of major components, parts, subassemblies, and modules	-	X
e.	Repair of components by replacement of parts (tubes, transistors, resistors, etc.)	-	X
f.	Bench test of components	-	X
g.	Repair of sealed or potted units, subassemblies or modules, high precision mechanical components and units requiring special chemical treatments, sealing, or finishes	-	-
h.	Calibration	-	X
i.	Incorporate authorized modifications or changes	1	2

NOTE

Calibration will be in accordance with CGTO PG-85-00-110 and Chapter 8 of this Manual.

5. Gasoline, electric, and diesel powered servicing equipment includes equipment such as air compressors, hydraulic stands, mobile air conditioners, mobile electric power plants, flood light trailers, etc. (not including turbine powered equipment).

6. Maintenance functions applicable to gasoline, electric, and diesel powered servicing equipment are classified as follows:

		CLASS	
		C	D
a.	Pre-operation, post-operation, and daily inspection	-	X
b.	Servicing and daily maintenance	-	X
c.	Removal and replacement of minor parts (light bulbs, fuses, batteries, filters, cables, tires, spark plugs, fan belts, etc.)	-	X
d.	Periodic inspection and maintenance	-	X
e.	Preventive maintenance lubrication, oil change, tuneup, adjust brakes, road test, etc.	-	X
f.	Remove, replace, repair, and test nonautomotive components (pumps, gauges, generators, etc.)	-	X
g.	Remove and replace automotive components	-	X
h.	Minor repair to body fenders, frame, housing, etc., including straightening, welding, repainting, etc.	-	X
i.	Repair and test automotive components (on or off vehicle); includes pumps, valves, gauges, tubing, carburetor, ignition, brake relining or replacement, brake cylinder rebuilding, generators, etc.	-	X
j.	Incorporate authorized modifications or changes and comply with bulletins	1	2

7. Gas turbine powered servicing equipment includes equipment such as GTC-85, (including pad or enclosure) PP-105, MA-1A, etc.

8. Maintenance functions applicable to gas turbine powered servicing equipment are classified as follows:

		CLASS	
		C	D
a.	Pre-operation, post-operation, and daily inspection	-	X

		CLASS C	CLASS D
b.	Servicing and daily maintenance as published on Maintenance Requirements Cards	-	X
c.	Adjustment, removal, and replacement of components and parts	-	X
d.	Removal and replacement of gas turbine engine	-	X
e.	Periodic inspection and maintenance	-	X
f.	Functional test and adjustment of complete unit (as a complete assembly)	-	X
g.	Preservation of gas turbine engine	-	X
h.	Repair and bench test of components and accessories	-	X
i.	Repair and repaint enclosure	-	X
j.	Repair of removed gas turbine engines (not to include disassembly of rotating assemblies which require balancing or extensive testing of components after reassembly)	-	X
k.	Incorporate authorized modifications or changes	1	2

9. Trailers, dollies, and carts (non-powered), including equipment such as engine removal and transportation trailers, cryogenic servicing trailers, crash dollies, wheel removal dollies, preservation carts, weighing scales, water-alcohol trailers, shipment stands, engine test stands, etc.

10. Maintenance functions applicable to trailers, dollies, and carts (non-powered) equipment are classified as follows:

		CLASS C	CLASS D
a.	Pre-operation, post-operation, and daily inspection	-	X
b.	Servicing and daily maintenance	-	X
c.	Minor adjustment, removal, and replacement of minor parts	-	X
d.	Periodic inspection and maintenance	-	X
e.	Removal and replacement of components	-	X
f.	Test components (on or off vehicle)	-	X

		CLASS C	CLASS D
g.	Repair components (on or off vehicle)	-	X
h.	Metal work straightening, welding, repainting, etc.	-	X
i.	Incorporate authorized modifications or changes and comply with bulletins	1	2

11. Mechanical support equipment includes equipment such as jacks, work stands, hoists, tow bars, hoisting slings, adapters, ladders, fixtures, wheel chocks, portable tools, tie-downs, analyzers, line testers (other than avionics), etc.

12. Maintenance functions applicable to mechanical support equipment are classified as follows:

		CLASS C	CLASS D
a.	Pre-operation, post-operation, and daily inspection	-	X
b.	Servicing and daily maintenance	-	X
c.	Minor adjustment, removal, and replacement of minor parts	-	X
d.	Periodic inspection and maintenance	-	X
e.	Removal and replacement of components	-	X
f.	Test components (on or off vehicle)	-	X
g.	Repair components (on or off vehicle)	-	X
h.	Metal work straightening, welding, repainting, etc.	-	X
i.	Calibration of selected equipments	-	X
j.	Overhaul components or complete equipment	-	X
k.	Incorporate authorized modifications or changes and comply with bulletins	1	2

SAMPLE MAINTENANCE RELEASE AUTHORITY LETTER

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Air Station Cape Cod, MA

Building 5215/SDC
Cape Cod, MA 02542-5024
Staff Symbol: Engineering
Phone: (508) 968-6300
Fax: (508) 968-6301
E-mail:

13020
23 Jan 2011

MEMORANDUM

From: J. B. Smith, CDR
Engineering Officer

Reply to
Attn of:

To: B. J. Schluckebier, LT XXXXXXX (Employee ID)

Subj: MAINTENANCE RELEASE AUTHORITY

Ref: (a) Aeronautical Engineering Maintenance Manual, COMDTINST 13020.1 (series)
(b) Air Operations Manual, COMDTINST M3710.1 (series)

1. In accordance with reference (a) and having demonstrated professionalism and sound judgment, you are authorized to release aircraft assigned to Air Station Cape Cod for flight after corrective maintenance has been preformed. As such, you are direct to familiarize yourself with the duties described in references (a) and (b).

2. The authority to release grounded aircraft for flight is an extremely serious responsibility. It requires thorough and complete understanding of maintenance, mechanical discrepancies, corrective action taken, and the quality of the action. Never lose sight of the seriousness of the special trust placed in you.

3. This authority is not to be delegated. If you are satisfied that the above provisions have been complied with, you may pass your authorization by any appropriate communications channel

#

Copy: Quality Assurance
Training Record
Member
File

Figure 2-A.

This Page Intentionally Left Blank

RECOMMENDATIONS FOR AVIONICS TECHNICAL LIBRARIES

A. USCG PUBLICATIONS.

Number	Title
	Avionics Newsletters
COMDTINST M10550.25 (series)	Electronics Manual
COMDTINST M13020.1 (series)	Aeronautical Engineering Maintenance Management Manual
COMDTINST M2000.3 (series)	Telecommunication Manual
COMDTINST M5100.47 (series)	Safety and Environmental Health Manual

B. COMMERCIAL PUBLICATIONS.

Title	Publisher
Reference Data for Radio Engineering	Howard W. Sams
Dictionary of Physics and Electronics	D. Van Nostrand, Co.
Aircraft Electricity and Electronics, Bert McKinley	McGraw Hill Book, Co.
Radar Technology, Eli Brookner	ARTECH House, Inc.
Logistics Engineering and Management, Benjamin S. Blanchard	Prentice-Hall
Avionics Navigation Systems	John Wiley & Sons, Inc. Kayton & Fried, Editors
IEEE Standard Dictionary of Institute of Electrical and Electronic Terms and Electronic Engineers, Inc.	IEEE
Standard Handbook for Electrical Engineers, Finks & Carroll	McGraw Hill Book, Co
Electronic Engineers Handbook, Finks	McGraw Hill Book, Co.
Introduction to Radar Systems, Merrill I. Skolnik	McGraw Hill Book, Co.
Electrical Engineers Master Catalogue United Technical	Finks Publications
Specification for Manufacturers' Air Transport Association A.T.A. Spec. No. 100	Technical Data of America

C. NAVY PUBLICATIONS.

Number	Title
NAVAIR 01-1A-505 (series)	Installation Practices for Aircraft Electric and Electronic Wiring
NAVAIR 16-1-521	Reduction of Radio Interference in Aircraft, Installation and Maintenance Practices
NAVAIR 01-1A-509-1	Cleaning and Corrosion Control

D. AIR FORCE TECHNICAL ORDERS.

Number	Title
00-20-14	AF Metrology and Calibration Program
00-25-234	General Shop Practices for the Repair, Maintenance, and Test of Electronic Equipment
00-25-251	Installation, Operation, Maintenance, Care, and Handling Instructions General - Microwave, Magnetron, and Electron Tubes
1-1-24	Maintenance Repair and Electrical Requirements for Fiberglass Airborne Radomes
12R-2-122	General Maintenance, Installation Instruction - Aircraft Fixed Wire Antennas
31-1-141-1 Thru -15	Basic Electronics Technology and Testing Practices

E. MILITARY STANDARDS.

Number	Title
MIL-W-5088L	Wiring, Aerospace Vehicle
MIL-STD-1808	Standard System/Sub-System Numbering

SOFTWARE CHANGE PROCEDURE

A. Proposed changes to aircraft software and problems and discrepancies with the aircraft software shall be submitted to the appropriate Stan Unit using the Software Trouble Report (see Figure 4-A). The Stan Unit will review, consolidate, and forward all proposed changes to the designated Software Support Activity (SSA).

B. The SSA will confer with the Stan Unit, Commandant (CG-41), and Commandant (CG-711) to determine when an Operational Advisory Group (OAG) will convene. The OAG consists of representatives from Commandant (CG-11), Commandant (CG-711), Commandant (CG-41), Stan Unit, ATTC, Prime Unit, ALC, the SSA, and each affected unit. The OAG will evaluate and prioritize the proposed changes.

C. The SSA will perform an initial analysis to determine feasibility of the proposals. A package of changes and their initial analysis will be forwarded for Headquarters Aircraft Configuration Control Board (ACCB) Phase I review.

D. The ACCB will review the package and accept or reject each item individually. The ACCB gives the SSA the approval to proceed with development.

E. The SSA will develop the software change. The SSA will coordinate with the Prime Unit to perform both a ground test and a flight test of the software.

F. Prime Unit will send an evaluation report to ALC. ALC will make their recommendation and produce a draft TCTO for ACCB (Phase II) review.

G. With final approval, Commandant (CG-41) will direct ALC to complete and publish the TCTO. Commandant (CG-41) will coordinate manual updates, software shipping and loading.

H. Changes to mission system security software including Information Assurance Vulnerability Alert (IAVA) patches and security updates to on-board SIPRNET security software do not require submission of ACCB 1 and are not implemented via TCTO. This level of software changes will be managed by the ALC PLM with an IAVA update message and MPC sign off.

SOFTWARE TROUBLE REPORT

Page of

To:		SEND INFO COPIES TO: PRIME UNIT ALC CG–41
2. Originator		3. Date Submitted
		4. ORIGINATOR PRIORITY ☐ EMERGENCY ☐ URGENT ☐ ROUTINE
5. STR Title		6. Aircraft Type, Bureau No.
7. Program ID No. & Rev Letter	8. A/C System	9. Reply Requested? ☐ Yes ☐ No
10. Description of Requested Change or Trouble:		
11. Mission Impact Assessment		
12. Authorizing Signature, Title		13. Date

e21001a

Figure 4-A. Software Trouble Report

REFERENCES

A. USCG PUBLICATIONS.

1. Personnel Manual, COMDTINST M1000.6 (series)
2. Performance, Training and Education Manual, COMDTINST M1500.10 (series)
3. Coast Guard Air Operations Manual, COMDTINST M3710.1 (series)
4. Shipboard-Helicopter Operational Procedures Manual, COMDTINST M3710.2 (series)
5. Coast Guard Helicopter Rescue Swimmer Manual, COMDTINST M3710.4 (series)
6. Coast Guard Configuration Management Policy, COMDTINST 4130.6 (series)
7. Supply Policy and Procedures Manual (SPPM), COMDTINST M4400.19 (series)
8. U.S. Coast Guard Personal Property Management Manual, COMDTINST M4500.5 (series)
9. Major Systems Acquisitions Manual (MSAM), COMDTINST M5000.10 (series)
10. Information Life Cycle Management Manual, COMDTINST M5212.12 (series)
11. The Coast Guard Directives System, COMDTINST M5215.6 (series)
12. U. S. Coast Guard Competency Management System Manual, COMDTINST M5300.2 (series)
13. Staffing Standards Manual, COMDTINST M5312.11 (series)
14. Personnel Resources and Reprogramming Manual, COMDTINST M5312.13 (series)
15. The Coast Guard Organization Manual, COMDTINST M5400.7 (series)
16. U.S. Coast Guard Information Assurance (IA) for Unclassified Systems, COMDTINST 5500.13 (series)
17. Financial Resource Management Manual (FRMM), COMDTINST M7100.3 (series)
18. Management and Administration of Aviation Incentive Pays, COMDTINST 7220.39 (series)
19. Electronics Manual, COMDTINST M10550.25 (series)
20. Multiservice Helicopter External Air Transport: Basic Operations and Equipment, COMDTINST M13482.2 (series)
21. Aviation Life Support Systems Manual, COMDTINST M13520.1 (series)

B. NAVY PUBLICATIONS.

1. NA 00-25-100 Naval Air Systems Command Technical Manual Program
2. N0000-00-IDX-000 Navy Standard Technical Manual ID Numbering System
3. COMNAVAIRFORINST 4790 Naval Aviation Maintenance Program (NAMP)

C. AIR FORCE TECHNICAL ORDERS.

1. 00-5-18 USAF Technical Order Numbering System