



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVE SE
WASHINGTON NAVY YARD DC 20376-0001

IN REPLY REFER TO

NAVSEAINST 4790.27
Ser 04RM/084
16 Sep 09

NAVSEA INSTRUCTION 4790.27

From: Commander, Naval Sea Systems Command

Subj: RELIABILITY-CENTERED MAINTENANCE (RCM) AND CONDITION-BASED MAINTENANCE (CBM) POLICY FOR SHIPS, SHIP SYSTEMS, AND EQUIPMENT

- Ref:
- (a) OPNAVINST 4700.7K, Maintenance Policy for U.S. Navy Ships
 - (b) DODI 4151.22, Condition-Based Maintenance Plus (CBM+) for Materiel Maintenance
 - (c) OPNAVINST 4790.16A, Condition-Based Maintenance (CBM) Policy
 - (d) OPNAVINST 4790.4E, Ships' Maintenance and Material Management (3-M) System Policy
 - (e) MIL-P-24534A, Planned Maintenance System: Development of Maintenance Requirement Cards, Maintenance Index Pages, and Associated Documentation
 - (f) NAVSEAINST 4790.26 Common Maintenance Planning Working Group (CMPWG)
 - (g) NAVSEAINST 5400.1E, NAVSEA Headquarters Organization
 - (h) NAVSEAINST 4790.8B, Ships' Maintenance and Material Management (3-M) Manual

1. Purpose. To establish policy and responsibilities within Naval Sea Systems Command (NAVSEA) Provider-Enabler Enterprise including affiliated Program Executive Offices (PEOs), Warfare Centers, and other Acquisition Managers, for the Reliability-Centered Maintenance (RCM) development, approval, and continuous improvement of ship, ship system, and equipment maintenance requirements and associated Class Maintenance Plan (CMP) documentation to support Condition-Based Maintenance (CBM).

2. Scope

a. Except as noted in paragraphs 2.b through 2.d, this instruction applies to all Acquisition Category (ACAT) programs; new weapons system procurements; hull, mechanical, and electrical procurements; legacy ship systems and equipment; and all modernization programs. It applies throughout the in-service life of all ships, ship systems, and equipment. For the purpose of this instruction, the term 'ship' refers to submarines, surface ships, aircraft carriers, and craft covered by reference (a).

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b. The Director of Nuclear Propulsion (SEA 08) is responsible for all technical matters pertaining to nuclear propulsion of U.S. Navy ships and craft, including all aspects of integration of the nuclear plant into the ship system. Nothing in this instruction detracts in any way from those responsibilities. Accordingly, the Director of Nuclear Propulsion (SEA 08) will be consulted in all matters pertaining to, or affecting, nuclear propulsion plants including all nuclear and non-nuclear propulsion plant systems and components.

c. The Director, Strategic Systems Programs (DIRSSP) is responsible for providing material support (acquisition and fleet support) of ballistic missile and strategic weapon systems, including missiles, platforms, associated equipment, and installation and direction of necessary supporting facilities. Nothing in this instruction detracts in any way from those responsibilities. Accordingly, the DIRSSP will be consulted in all matters pertaining to, or affecting, strategic systems.

d. Ships, systems, and equipment procured solely for the Military Sealift Command (MSC) and/or the United States Special Operations Command (USSOCOM) through the Navy Special Warfare Command are governed by the CBM and RCM requirements of reference (b) and have their own governing maintenance instructions responsible for providing material support of their associated equipment. Nothing in this instruction detracts in any way from MSC or USSOCOM development or implementation of maintenance plans for their ships, systems, or equipment.

e. Nothing in this instruction detracts from the technical authority of other SYSCOMs or activities responsible for such safety programs as Safety of Flight or SUBSAFE. Other programs with potentially unique status and/or procedures should initiate discussions with SEA04R to determine and agree on status and/or procedures.

3. Background. Maintenance is a key element of operational readiness. Although degraded material condition may not immediately affect readiness, it may have safety, environmental, and/or economic impact. Maintenance and the lack thereof are major factors in the Total Operating Cost of a ship and its components. Maintenance programs must balance safe material condition, readiness, environmental compliance, and cost throughout the ship's life cycle. Reference (c) institutes CBM as the CNO strategy for ship, aircraft, and infrastructure maintenance designed to optimize maintenance program costs throughout the life cycle. Per reference (b), CBM is maintenance performed on evidence of need provided by RCM analysis and associated

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enabling processes and technologies. For ships, ship systems, and equipment, references (a) and (d) require use of the process contained in reference (e) for RCM maintenance determination. RCM provides both the maintenance engineering principles used to determine objective evidence of need and the methodology for determining and continuously improving applicable and effective maintenance requirements and associated maintenance procedures in order to achieve inherent system and equipment reliability. Reference (a) requires that each ship class have a tailored and approved CBM, and RCM-based maintenance program that includes Organizational, Intermediate, and Depot level maintenance requirements, as well as, a NAVSEA-approved CMP that describes Organizational, Intermediate, and Depot level planned maintenance actions and maintenance support requirements. Reference (f) institutionalized the NAVSEA and affiliated PEO Common Maintenance Planning Working Group (CMPWG). The CMPWG has developed a common maintenance planning review process that emphasizes maximum commonality across similar RCM-based maintenance requirements and also requires RCM-based validation and continuous improvement of all maintenance requirements through periodic Fleet Maintenance Effectiveness Reviews (FLEETMERs), RCM workshops, and other RCM based analyses.

4. Responsibilities

a. The Director of Maintenance Engineering (SEA 04RM) is the COMNAVSEASYS COM maintenance engineering policy and processes manager. SEA 04RM, as the process owner for RCM and CBM, oversees CMP policy; chairs the CMPWG; and is the program manager for the Ships' Maintenance and Material Management (3-M) Program. In accordance with reference (g), NAVSEA 04RM shall:

(1) Oversee the implementation of RCM methodology and CBM policy in all aspects of maintenance engineering and management.

(2) Establish guidelines for and develop or certify all RCM processes for implementing CBM methodologies related to acquisition and life-cycle support for Navy ships, systems, and equipment to ensure compliance with reference (e).

(3) Manage the established NAVSEA RCM Certification Program, training and certifying NAVSEA technical warrant holders, their designated agents, and other government and contractor personnel who develop, revise, or approve planned maintenance requirements, including material condition assessment tasks and procedures.

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(4) Provide maintenance engineering and related technical and Integrated Logistics Support (ILS) to Program Executive Officers (PEOs), Ship Program Managers (SPMs), Program Managers (PMs), the Fleet, and other procurement managers and maintenance requirement developers for shipboard systems and equipment, such as SPAWAR, NAVAIR, and BUMED.

(5) Facilitate the application of reference (e) requirements and methodology to the development and continuous improvement of RCM-based Organizational, Intermediate, and Depot level maintenance requirements, including provision of tailored and appropriate procurement RCM verbiage and standardized Data Item Descriptions (DIDs) across PEOs, SPMs, PMs, and other acquisition managers.

(6) Coordinate RCM and CBM policy implementation across NAVSEA, affiliated PEOs, SPMs, PMs, and other acquisition managers and maintenance requirement developers for shipboard systems and equipment, such as SPAWAR, NAVAIR, BUMED, and Warfare Center In-Service Engineering Activities, to maximize commonality of RCM-based maintenance requirement determination, implementation, and continuous improvement.

(7) Represent COMNAVSEASYSKOM in forums involving Department of Defense and/or Navy-wide RCM or CBM policy issues.

b. PEOs, Ship Program Managers, Program Managers, and Acquisition/Procurement Managers shall:

(1) For cognizant programs, establish maintenance plan point or points of contact as appropriate.

(2) Ensure references (a) through (e) maintenance program, CMP, and maintenance requirements are adequately addressed in all Life Cycle Management Plans (i.e., Integrated Logistics Support Plans, Acquisition Logistics Support Plans, User Logistics Support Summaries, etc), procurement specifications, and program funding. Programming/Budgeting plans should include funding for In-Service Engineering Agent (ISEA) PMS technical development and approval, Technical Feedback Report (TFBR) resolution, and maintenance planning organization/CMPWG RCM reviews and processing throughout the life cycle.

(3) Work with SEA 04RM to establish and maintain a working relationship regarding procurement specification, related procurement documentation development, development of Organizational, Intermediate, and Depot level maintenance requirements, CMP development and approval, and Maintenance

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Effectiveness Review application for continuous improvement throughout the life cycle of the ship and its systems and equipment.

(4) Request SEA 04RM review of any tailored RCM processes and DIDs to certify compliance with reference (e).

(5) Establish a representative on the CMPWG and appropriately support the CMPWG work for assigned ship classes.

c. Warfare Centers shall:

(1) Establish a maintenance plan point of contact for each product area.

(2) Support RCM development, review, approval, and improvement of maintenance requirements, including PMS and related TFBR resolution.

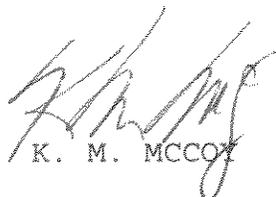
(3) Maintain In-Service Engineer NAVSEA RCM Certification in accordance with Appendix J of reference (h).

d. COMNAVSEA Deputy Commanders with ship maintenance programs shall:

(1) Designate a single maintenance plan point of contact for each Directorate to coordinate RCM/CBM efforts and to ensure the Directorate's maintenance requirements responsibilities are carried out in accordance with references (a) through (e) and (h).

(2) Ensure availability of NAVSEA certified RCM practitioners including technical warrant holders and RCM processes in support of PEO/PM/SPM development and approval of technically adequate RCM-based maintenance requirements. NAVSEA certification of RCM practitioners is covered by Appendix J of reference (h).

5. Action. NAVSEA activities, affiliated PEOs, SPMS, and PMS shall comply with the responsibilities in this instruction and document RCM-based maintenance decisions for their ships, ship systems, and equipment. NAVSEA 04 will provide additional information, training, and assistance as required to support PEOs, SPMS, and PMS in meeting these requirements.


K. M. MCCOY

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