DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
NAVAL AIR SYSTEMS COMMAND HEADQUARTERS
47123 BUSE ROAD, UNIT # 8
PATUXENT RIVER, MD 20670-1547

IN REPLY REFER TO

NAVAIRINST 4790.20A
AIR-3.2
3 May 99

NAVAIR INSTRUCTION 4790.20A

From: Commander, Naval Air Systems Command

Subj: RELIABILITY-CENTERED MAINTENANCE PROGRAM

Ref: (a) MIL-STD-2173 (AS), Reliability-Centered Maintenance Requirements for Aircraft, Weapon Systems, and Support Equipment
(b) NAVAIR 00-25-403, Management Manual, Guidelines for the Naval Aviation Reliability-Centered Maintenance Process
(c) NAVAIRINST 13120.1C
(d) NAVAIRINST 13130.1B
(e) NAVAIRINST 5420.35A
(f) OPNAVINST 3110.11T

Encl: (1) AIR-3.0/4.0 memo dated 17 Jan 97
(2) PEO(T) memo dated 12 Feb 97

1. Purpose. To define the Naval Air Systems Command (NAVAIR) Reliability-Centered Maintenance (RCM) Program and establish RCM Program policy, procedures, and responsibilities within the Naval Aviation Systems Team (TEAM).

2. Cancellation. This instruction supersedes NAVAIRINST 4790.20 of 22 November 1988. Since this is a major revision, changes are not indicated.

3. Scope. The NAVAIR RCM Program is applicable to all new procurement and in-service aircraft, systems, and Support Equipment (SE), including their modification, during all life cycle phases and levels of maintenance. Emphasis is placed on aggressively pursuing all opportunities to apply RCM principles to ensure safety, readiness, and affordability of naval aviation systems through justified Preventive Maintenance (PM) tasks.

4. Background. The NAVAIR RCM Program has evolved from the commercial airline industry's Maintenance Steering Group (MSG) maintenance plan analysis logic to a rigorous analytical process which emphasizes traceability, justification and cost effectiveness of PM requirements through auditable documentation practices. The RCM process is applied during the acquisition life cycle in three basic stages:

a. Influence design guidelines during Phase 0 (Concept Exploration Phase) and Phase I (Product Definition and Risk Reduction Phase).

b. Develop initial PM requirements prior to Milestone II that are available for test and evaluation events. Update PM requirements prior to Milestone III and subsequent major upgrades or modifications for availability on first production unit.

c. Sustain PM requirements through continuous review and update during Phase III (Production, Fielding/Deployment, and Operational Support Phase).

5. Definition. RCM is an analytical process used to determine the PM requirements of a physical asset in its operating environment.

6. Policy. The RCM process should be used to develop, justify and sustain all PM requirements. The RCM methodology contained in references (a) and (b) should be used to determine, adjust, and document all PM requirements for aircraft, systems, and SE at all levels of maintenance. Any deviation from this policy requires the approval of the Design Interface, Maintenance Planning Department (AIR-3.2).

a. New Acquisitions and Modifications

(1) New acquisition and modification programs should use the RCM process in conjunction with the Integrated Reliability-Centered Maintenance System (IRCMS) software to develop PM requirements. The IRCMS software is maintained and provided by AIR-3.2.

(2) Reference (b) should be used as guidance to develop, manage, and sustain PM requirements for all aircraft, systems, and SE.

b. In-Service Aircraft, Systems, and SE

(1) RCM analysis should be used to add, delete, or adjust PM requirements.

(2) Aircraft, systems, and SE that were analyzed under a pre-IRCMS analysis process may be reanalyzed using the original method with the approval of AIR-3.2. The updated procedures may be tailored to the specific requirements of the program using reference (b).

(3) An RCM Program Plan should be developed and implemented to identify resources and actions required to sustain the RCM analysis throughout the life cycle of the equipment. The RCM Program Plan should be developed by the Fleet Support Team (FST) and reviewed by AIR-3.2 prior to initial execution or follow-on reviews. Reference (b) provides RCM Program Plan development guidance.

7. Responsibilities

a. NAVAIR

(1) The Logistics Management Department (AIR-3.1) will:

(a) manage RCM analyses for new acquisitions, modifications, and redesign of assigned aircraft, systems, and SE;

(b) review, approve and implement RCM Program Plans for assigned aircraft, systems, and SE;

(c) ensure any contracted RCM and Age Exploration (AE) efforts are consistent with the guidance provided by reference (b); and

(d) ensure RCM programs for both new acquisitions and in-service aircraft, systems, and SE are adequately addressed in budget submittals.

(2) AIR-3.2 will:

(a) provide overall management for RCM Program policy and procedures;

(b) establish technical and administrative policies and procedures to implement the RCM Program process;

(c) provide technical assistance for RCM analyses of new and in-service aircraft, systems, and SE;

(d) review RCM Program Plans as requested by FSTs to ensure compliance with RCM Program policies and guidelines;

(e) designate and participate in RCM Program and AE reviews and evaluations;

(f) develop, distribute, maintain, and update the IRCMS software;

(g) assist AIR-3.1 in the review and performance evaluations of activities responsible for performing RCM analyses;

(h) assist in the review and performance of RCM analysis efforts performed by FSTs/Integrated Program Teams (IPTs) or other activities and contractors;

(i) train TEAM members and other personnel, as required, on the application of references (a) and (b) and the use of the IRCMS software; and

(j) chair the NAVAIR RCM Working Group.

(3) Assistant Commander for Research and Engineering (AIR-4.0) will:

(a) ensure PM requirements for life-limited items are developed in conjunction with structural and component life limits defined in references (c) and (d); and

(b) ensure adequate Failure Modes and Effects Analysis (FMEA) and reliability, maintainability, and structural fatigue data are provided to meet RCM analysis requirements during the acquisition and modification process.

(4) Program Managers Air (PMAs) will:

(a) plan and budget for funding necessary to implement and sustain RCM Program requirements;

(b) budget for and acquire RCM analysis data for assigned new equipment, updates, redesign, and modifications to existing equipment, per reference (e);

(c) manage the application of the RCM process as it applies to commercially supported weapon systems;

(d) ensure all preventive maintenance plans are supported and maintained using the guidance provided by reference (b); and

(e) maintain recommendations and associated RCM data for assigned aircraft, systems, and SE as required by references (a), (b) and (e).

b. FSTs/IPTs and other TEAM Activities will:

(1) develop and execute RCM Program Plans for aircraft, systems, and SE;

(2) ensure that RCM analyses on aircraft, systems, and SE are performed following the guidelines established in references (a) and (b);

(3) ensure technical directives, documentation, and specifications containing PM requirements are supported by documented RCM analysis decisions;

(4) establish Operational Service Period (OSP) recommendations using pertinent RCM data for assigned aircraft, systems, and SE as required by references (a), (b), and (f);

(5) ensure any contracted RCM analysis efforts follow the guidelines established by reference (b);

(6) ensure coordination of new or revised logistics support requirements generated from modified PM tasks within the FST/IPT;

(7) submit RCM Program workload and funding requirements to In-Service Support Financial Management Department (AIR-3.8) within the Annual Product Support Execution Plan per reference (e);

(8) coordinate structural life limit changes resulting from procedures that sustain RCM analyses with the Air Vehicle Department (AIR-4.3); and

(9) ensure the Integrated Logistics Support (ILS) manager is informed of new or revised logistics requirements generated from modified maintenance tasks.

W. B. MASSENBURG
Assistant Commander for Logistics

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Ser AIR-3.0/069
17 Jan 97

From: Assistant Commander for Logistics and Fleet Support
Assistant Commander for Research and Engineering

Subj: RELIABILITY CENTERED MAINTENANCE

Ref: (a) DODINST 4151.18
(b) OPNAVINST 4790.2F
(c) NAVAIRINST 4790.20

Encl: (1) COMNAVAIRSYSCOM memo dtd 24 Dec 96

1. The establishment and sustainment of Reliability Centered Maintenance (RCM), a preventive maintenance program, is essential to ensure the safety, readiness and affordability of naval aviation systems. It has been long standing policy, as reflected in references (a) through (c), that the preventive maintenance program be based on reliability centered maintenance analysis. Conduct of this analysis is inherent in any task which establishes or adjusts the scheduled maintenance tasks and/or intervals. RCM analysis must not be considered a separate, independent effort, but rather an integrated activity based on sound engineering and logistics principles for making affordable scheduled maintenance decisions. RCM permeates all in-service support activities and cannot be isolated to a single Health of Naval Aviation (HONA) category.

2. With enclosure (1), Vice Admiral Lockard clearly emphasizes the need to rededicate ourselves to the principles of RCM and to aggressively pursue all opportunities for its application. Please ensure the widest possible dissemination of this memorandum to members of your competency.

3. Feel free to address any questions to Colonel Dave Bloomer, AIR-3.2, (703) 604-3090, extension 4102.

William J. Tinston, Jr.
RADM, U.S. Navy

Dana B. McKinney
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24 Dec 96

MEMORANDUM FOR DISTRIBUTION

From: Commander, Naval Air Systems Command

Subj: A NEW DIRECTION IN NAVAL AVIATION LOGISTICS

1. Last week, I briefed the Chief of Naval Operations about our plan to transition Naval Aircraft from a traditional, standard depot maintenance process with ASPA extensions to one based on Reliability Centered Maintenance (RCM) principles to support phased depot maintenance (PDM) with predictable maintenance requirements. With the concurrence of OPNAV, we are proceeding with implementation of PDM on the H-60, S-3, E-2, and F/A-18. This process will begin on other aircraft as funding permits. This support from the Navy's senior leadership provides us with a unique opportunity to change the fundamental culture of Naval Aviation logistics to improve readiness while reducing operating and support costs.

2. The RCM process emphasizes the importance of closely monitoring performance, reliability and degradation characteristics of key aircraft systems and addressing unfavorable trends that affect safety or require costly repairs. As a result of RCM, only justified preventive maintenance is performed and aircraft achieve their inherent reliability at a lower total cost. Although we can understand and appreciate the potential savings attendant in RCM based sustained maintenance planning, full realization of these benefits will require a fundamental change in our thought processes. Before we can fully embrace RCM as a way of life, we must stop thinking of it as an individual and distinct task to be performed separately from our every day in-service engineering and logistics functions. Instead, the principles of RCM must pervade all of our maintenance activities and related thought processes and become the cornerstone of our logistics philosophy.

3. I am committed to taking advantage of this opportunity. Although this change cannot be made without some initial investment, we should not anticipate a large influx of funds. However, with your full commitment, we can make the change to an RCM based maintenance philosophy expeditiously and in a manner that does not disrupt services to our customers. The future of Naval Aviation depends on our ability to generate the savings required to invest in modernization and recapitalization. This, along with our other affordable readiness initiatives, is a positive step in that direction.

J. A. LOCKARD

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NAVAIRINST 4790.20A
IN REPLY REFER TO
3 May 99

(T)ACQNOTE 97-1

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MEMORANDUM

From: PEO(T)

Subj: AFFORDABLE READINESS

Encl: (1) AIR-00 memo of 17 Jan 97

1. Enclosure (1) calls attention to the impact of Aviation Depot Level Repairable (AVDLR) costs on the fleet flying hour program costs and urges cost reduction through a viable Reliability Centered Maintenance (RCM) program. Accordingly, request you devote your personal attention toward this matter as you implement your Affordable Readiness initiatives and plans.

2. As the total life cycle manager for your aviation system, you have been asked to consider the total cost of ownership for that system from first delivery to the customer until final retirement and disposal. You have been asked to develop Affordable Readiness plans for your system and to include RCM in those plans as a means to achieve readiness objectives at reduced levels of operating and support (O&S) costs. RCM plans should include quantified cost avoidance objectives and, for aircraft programs, would logically target AVDLR costs as a major component of total O&S and flying hour costs.

3. Affordable Readiness initiatives and progress for key systems have been made the subject of quarterly focus groups and weekly Executive Steering Committee meetings chaired by COMNAVAIRSYSCOM (AIR-00) and attended by PEOs and Competency leads. Your Affordable Readiness plan, including RCM, is now a required briefing topic at Logistics Management Reviews (LMRs). I am also requiring that you address this in all future program baseline briefs. I will be reviewing with each of you in the near future your Affordable Readiness Plan and will be especially interested in your RCM cost avoidance objectives and tracking metrics, to include due consideration of AVDLR as a major cost driver in aircraft programs. A PMA Affordable Readiness Plan briefing schedule will be promulgated by separate correspondence. Finally, I plan to schedule a presentation at a future staff meeting of the larger Affordable Readiness program by a logistics competency representative.

4. I urge you to work closely with your Fleet Service Support Teams to define and refine your RCM objectives and metrics with an eye to reducing your system's total ownership costs. I hope that your initiative and management attention in this critical area of life cycle cost will soon produce positive results in the eyes of our Fleet customer. My point of contact on Affordable Readiness and RCM for aircraft programs is Mr. Bobby L. Brown at 604-3730, ext. 5102 and, for weapons programs, Mr. Mark Gajda at 604-3730, ext. 5101. My OPS Assistant, CDR Mark Swaney, and BFM, CDR Ed Rule, also are available for assistance as required.

J.A. COOK

Distribution: (see next page)

Enclosure (2)