ORIGINAL

02/03/2003 UNCLASSIFIED

SSP CORRESPONDENCE CONTROL RECORD

DCN: 020303009000 DOCUMENT DATE: 1/27/2003
SSIC: 4790 ROUTER: SP16112
FROM: SECNAV(RESEARCH,DEVELOPMENT & ACQUISITION)
ORIG SERIAL NO:
NO. COPIES: 1 NO. ENCLOSURES: 0

SUBJECT: CONDITION BASED MAINTENANCE PLUS POLICY

Pls read ahead this policy. It is well thought-out and is not absolute or cook-book. Requires you to be smart.

TO	SIGNATURE	DATE
SP20	DE	2/6/03
200		2/5
2015		
2 - Responsible for coordination and external reporting		

COMMENT: 2/5
SP 205 - After SP 20 Review, Send this and comments to All SP 20 Branch Heads. Include: SP15, SP201, SP2010, SP2015, SP206

SSP FORM 5211/1 (REV 3/88)

SP-20

THE ASSISTANT SECRETARY OF THE NAVY
(Research, Development and Acquisition)
WASHINGTON, D.C. 20350-1000

JAN 27 2003

MEMORANDUM FOR DISTRIBUTION

Subj: Condition Based Maintenance Plus Policy

Attached is new policy guidance regarding the implementation of Condition Based Maintenance Plus (CBM+) within the Department of Defense. CBM+ shall be implemented in weapons systems maintenance and logistics support programs where cost effective.

Program Managers shall pursue the examination, evaluation, development and implementation of CBM+ enabling technologies and process improvements, where applicable.

The ASN(RD&A) point of contact for CBM+ is Jim Papageorge, ODASN(Logistics), at (703) 697-3781.

John J. Young, Jr.

Attachment

Distribution:

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Policy for Department of Defense Conditioned-Based Maintenance Plus

Policy:

Department of Defense (DoD) policy requires that the tenets of Conditioned-Based Maintenance Plus (CBM^+) shall be implemented in weapon systems maintenance and logistics support programs where cost effective. These tenets include: designing systems that require minimum maintenance; need-driven maintenance; appropriate use of embedded diagnostics and prognostics; improved maintenance analytical and production technologies; automated maintenance information generation; trend based reliability and process improvements; integrated information systems providing logistics system response based on equipment maintenance condition; and smaller maintenance and logistics support footprints. CBM^+ shall be implemented to improve maintenance agility and responsiveness, increase operational availability, and reduce life cycle total ownership costs.

The Military Services, in conjunction with the Defense Logistics Agency (DLA), shall pursue the examination, evaluation, development, and implementation of CBM^+ enabling technologies and process improvements. Exploration and development shall be coordinated, to the extent appropriate and practical, among the Military Services and DLA; information regarding programs, approaches, implementation, and results shall be shared in a routine manner through the Maintenance Technology Senior Steering Group (MTSSG). Both public and private sources of CBM^+ technologies, tools, and procedures that conform to the total CBM^+ strategy and vision shall be considered.

CBM^+ technologies and concepts will be incorporated in organic (DoD in-house) maintenance capabilities and operations as well as in commercially supported DoD systems/programs. Major Defense Acquisition Programs will consider CBM^+ opportunities as system performance requirements during the design and development phase and throughout the life cycle. If adopted, CBM^+ requirements will be included in the acquisition requirements package. The incorporation of CBM^+ into legacy weapon systems shall be evaluated based upon the relative value of the systems to DoD mission requirements, the current technology and performance of the system, the operational and logistics risks of not retrofitting the system with CBM^+ capabilities, and cost effectiveness. The Military Services shall be responsible for programmatics (e.g., funding and schedule) related to implementation of CBM^+, except as otherwise agreed to with activities within the Office of the Secretary of Defense.

DoD will establish a CBM^+ environment for the maintenance and support of weapon systems by establishing appropriate policies, processes, procedures technological capabilities, information systems, and logistics concepts such as:

- System health monitoring using applicable and effective embedded sensors and analysis
- Condition-driven maintenance actions directed by decision support capabilities
- Automatic entry and retrieval of highly accurate maintenance data

- Integrated maintenance and logistics information systems
- Configuration management and asset visibility
- In-service history-based maintenance planning (trend analysis)
- Low ambiguity fault detection, isolation, and prediction
- Interactive electronic technical manuals (IETMs)
- Data-based interactive training and technical assistance capability
- Electronic portable or point-of-maintenance aids

Applicability:

This policy applies to DoD acquisition, logistics, and maintenance activities. It applies to both legacy systems and new acquisition programs. CBM$^+$ concepts apply to organic weapon system operations as well as to commercially supported systems within DoD.

Objectives:

Maintenance comprises a major portion of total weapon systems ownership costs. Unnecessary maintenance and related resources contribute to higher ownership costs and reduced operational availability. Proper application of CBM$^+$ capabilities and concepts focuses maintenance on essential requirements, reduces excess infrastructure, and improves the responsiveness of the entire logistics support system. Specific objectives of implementing CBM$^+$ include:

- Enhanced maintenance and logistics effectiveness; a more integrated maintenance and logistics system
- Integration of advanced engineering, maintenance, and information technologies
- Designing weapon systems that use measurable, consistent and accurate predictive parameters that are related to specific failure modes when cost analysis determines embedded CBM+ capabilities should be employed
- Application of CBM$^+$ technologies and techniques to legacy systems and maintenance processes where feasible, effective, and efficient
- Improved data about maintenance operations and parts/system performance
- Improved diagnostics and prognostics capabilities
- More accurate and in-depth configuration management
- Reduced unscheduled maintenance
- Increased system reliability
- More effective maintenance training
- Smaller maintenance and logistic footprint
- Improved supply/maintenance planning and responsiveness
- Increased Operational Availability
- Minimized unique support equipment and information systems for individual equipment application

CBM+ Defined:

Condition-based maintenance (CBM) can be defined as a set of maintenance processes and capabilities derived, in large part, from real-time assessment of weapon system condition obtained from embedded sensors and/or external tests and measurements using portable equipment. The goal of CBM is to perform maintenance only upon evidence of need. CBM+ expands on these basic concepts, encompassing other technologies, processes, and procedures that enable improved maintenance and logistics practices. A variety of advanced engineering, maintenance, and information system technologies as well as contemporary business processes underpin CBM+. CBM+ characteristics include, but are not limited to:

- Hardware - embedded sensors; integrated data bus
- Software - decision support and analysis capabilities, on and off equipment
- Design - open system architecture; integration of maintenance and logistics information systems; interface with operational systems
- Processes - reliability centered maintenance program development; a balance of reactive, preventive, and predictive maintenance processes
- Tools - IETMs (digitized data); Automatic Identification Technology; portable maintenance aids; embedded, data-based, interactive training
- Functionality - Fault detection; fault isolation; fault prediction

Monitoring CBM+ Implementation:

The MTSSG will monitor CBM+ initiatives and programs. The MTSSG will provide a forum for the exchange of information about CBM+ in DoD maintenance programs, ensuring that DoD's efforts in this area are coordinated and synchronized as appropriate. The MTSSG will establish and manage a CBM+ integrated process team (IPT), chartered to assist in the implementation of CBM+ throughout the Department's acquisition, logistics, and maintenance processes. The chairperson of the MTSSG, with the head of the CBM+ IPT, will be responsible for advising the Deputy Under Secretary of Defense (Logistics and Materiel Readiness) about CBM+ progress and issues.

Each Military Service and DLA shall establish a single focal point to serve as their representative to the CBM+ IPT. Plans for implementing CBM+ shall be developed and provided to the MTSSG. In addition to weapon system-peculiar implementation efforts, the plans should address information system and logistics process changes needed to support CBM+.

The Military Services will track the implementation of CBM+ technologies and practices. Status will be presented to the MTSSG on an annual basis as scheduled by the chairperson. To establish the degree and speed of progress in incorporating a CBM+ upgrade or acquiring a CBM+ capability within a weapon system or platform, the number of like-systems with CBM+ can be compared to the total inventory.