



MINISTRY OF DEFENCE

**JSP 886  
DEFENCE LOGISTICS SUPPORT CHAIN MANUAL**

**VOLUME 7  
INTEGRATED LOGISTIC SUPPORT**

**PART 8.03B  
MAINTENANCE DESIGN**

<b>VERSION RECORD</b>		
<b>Version Number</b>	<b>Version Date</b>	<b>Details</b>
1.0	20/06/11	Initial publication
1.1	18/08/11	Minor revisions; content unchanged.

# INTERNET VERSION – MASTER IS ON THE DEFENCE INTRANET

## Contents

Contents .....	2
Figures.....	2
<b>CHAPTER 1: INTRODUCTION TO MAINTENANCE DESIGN.....</b>	<b>3</b>
INTRODUCTION.....	3
CONTEXT.....	3
POLICY.....	4
PRECEDENCE AND AUTHORITY .....	4
KEY PRINCIPLES.....	5
ASSOCIATED STANDARDS AND GUIDANCE .....	6
OWNERSHIP .....	6

## Figures

Figure 1: Maintenance Process.....	3
Figure 2: Maintenance Design Process.....	4

## **CHAPTER 1: INTRODUCTION TO MAINTENANCE DESIGN**

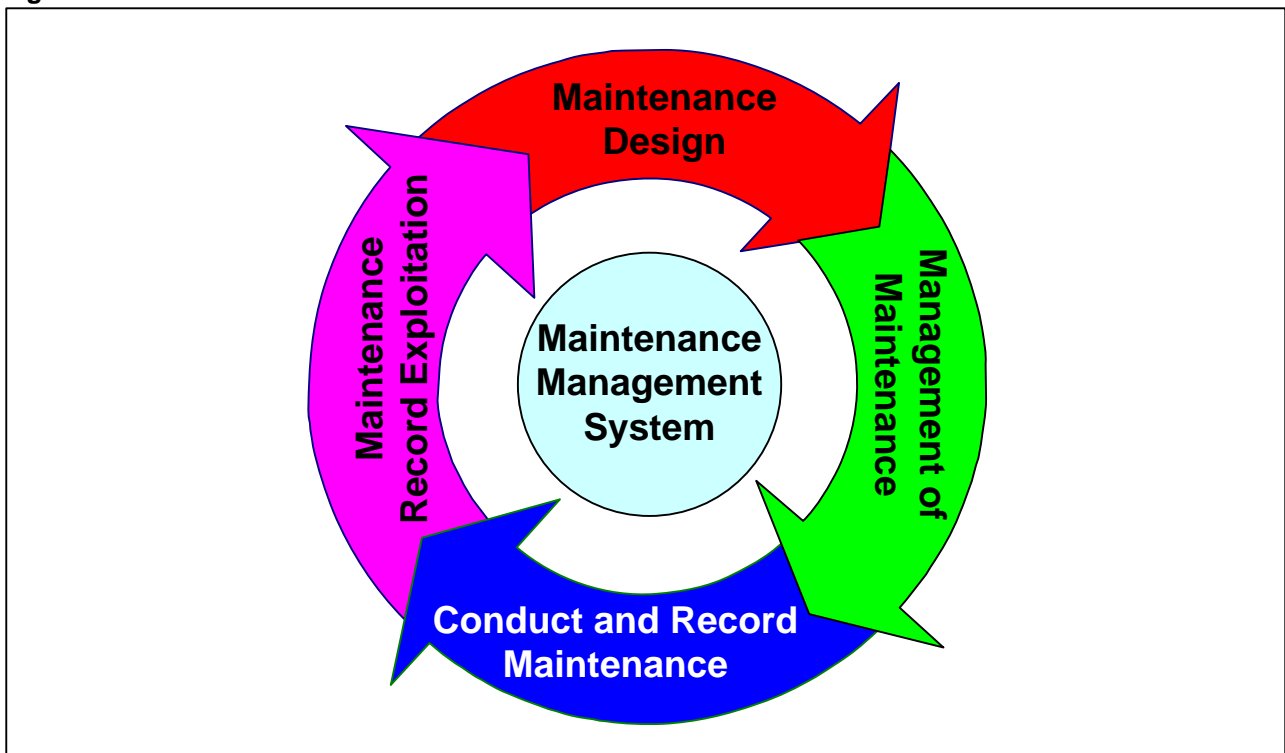
### **INTRODUCTION**

1. Maintenance is all actions taken to retain equipment in or to restore it to a specified condition, including inspection, testing, servicing, classification as to serviceability, repair, rebuilding and reclamation<sup>1</sup>. In order to ensure that appropriate maintenance is undertaken there is a need to:

- a. **Undertake Maintenance Design.** Identify what maintenance is required
- b. **Manage Maintenance.** Decide on when and where actual maintenance will be done
- c. **Conduct and Record Maintenance.** Undertake the maintenance and keep appropriate records
- d. **Exploit Maintenance Records.** Learn from experience to improve current maintenance or to improve maintenance of future products.

For most products it is advantageous to use a maintenance management system to record maintenance activities, this is shown schematically below

**Figure 1: Maintenance Process**



### **CONTEXT**

2. This part provides key points of policy and guidance on how Maintenance shall be designed.

---

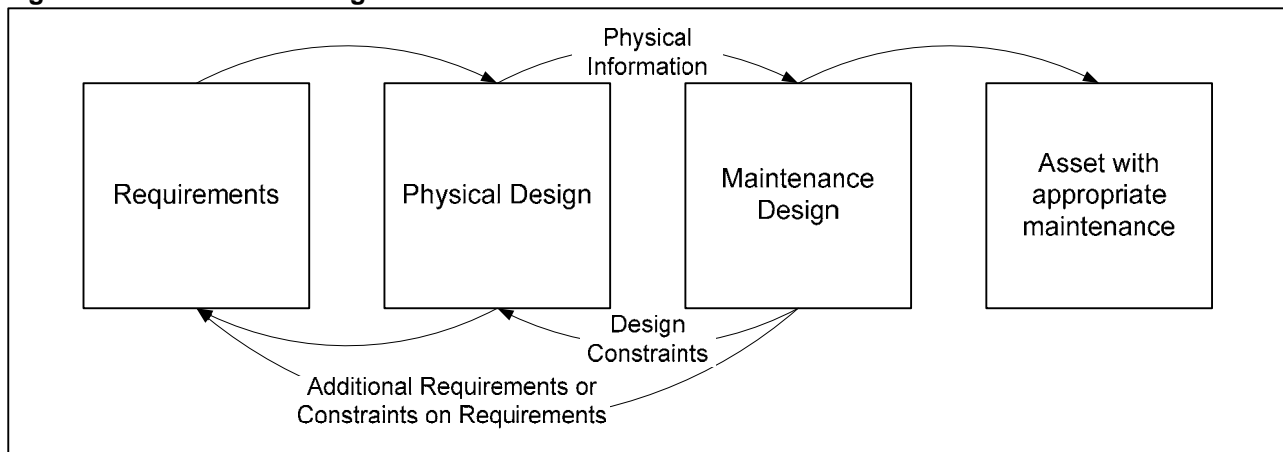
<sup>1</sup> Allied Administrative Publication-6 (AAP-6): NATO Glossary of Terms and Definitions.

## INTERNET VERSION – MASTER IS ON THE DEFENCE INTRANET

3. Very few items require no maintenance<sup>2</sup>. Where maintenance is required, it needs to be designed while the item is being designed, otherwise the resulting maintenance will be sub-optimal. Maintenance must be considered at the earliest stages of a project's life. The overall process is shown below.

4. Lowering the performance requirements of an item once in service, thereby increasing the reliability, can also reduce maintenance, resulting in an improved system. This type of trade-off can be made at any time, as the item has been designed to perform to its original requirement.

**Figure 2: Maintenance Design Process**



## POLICY

5. Maintenance Design is to be aligned to the design of the item ensuring that the requirements for maintenance are given equal consideration with the design for performance. Maintenance design is to follow a structured process that:

- a. Results in optimised maintenance.
- b. Generates evidence that the maintenance identified is appropriate.
- c. Gives confidence during the design process that suitable maintenance is being developed.
- d. Generates the supporting information that will allow maintenance to be undertaken.

## PRECEDENCE AND AUTHORITY

6. Ownership of Logistics policy in support of the Logistics Process falls to the Assistant Chief of Defence Staff Logistics Operations (ACDS Log Ops) as Chief of Defence Materiel (CDM) Process Architect<sup>3</sup>. This role is exercised through the Defence Logistics Policy Working Group (DLPWG) and the Defence Logistics Steering Group (DLSG) reporting up to the Defence Logistics Board (DLB). It is against this governance framework that

<sup>2</sup> Satellites typically have no maintenance due to the costs associated with getting a maintainer to the satellite, other things which may have no maintenance are those things which we use and dispose of, otherwise everything has some sort of maintenance.

<sup>3</sup> JSP899: Logistics Process – Roles and Responsibilities.

## INTERNET VERSION – MASTER IS ON THE DEFENCE INTRANET

sponsorship<sup>4</sup> for R&M policy is delegated to Hd JSC SCM. PTs are required to assess and show compliance with key policies and governance as signposted by the SSE.

### KEY PRINCIPLES

7. A structured methodology shall be used to identify maintenance activities required to prevent failure or deterioration of an item below acceptable limits. (See JSP 886 Volume 7 Part 8.04: Reliability).
8. These studies shall be undertaken sufficiently early in the programme to allow elimination/minimisation of maintenance by redesign to be considered.
9. Required maintenance activities shall be packaged. Resource, manpower, facilities, tools etc for each maintenance package shall be identified. The ILS process requires that all maintenance activities shall be detailed in a Product Deliverable (the Maintenance Plan). This shall detail all physical and manpower resources necessary to maintain the item at the required availability, and outline how these will be delivered in the operating scenarios defined in the use study.
10. A strategy for the management of maintenance, fully integrated within the overall item support solution and compatible with other related items, shall be developed and detailed in the maintenance plan. The plan shall also outline the plan for the review of maintenance, including how these will be integrated with business reviews.
11. An audit trail of decisions with respect to the design of maintenance shall be kept.
12. For each major item the way the material state will be assessed and trigger a maintenance activity shall be determined. This can range from a very simple reactive approach, repairing when failed, through a fixed maintenance schedule, a reactive schedule based on rate of deterioration through full condition based maintenance & prognostics. Usage and/or condition information required to trigger a maintenance activity shall then be identified for each.
13. The usage of automatic systems to collect this information shall be investigated – the benefits of such systems shall be balanced against the costs of additional complexity and any needs for data bandwidth. These can be: immediate (alarms & warnings), near real time (HUMS/SIE) or off-line (forensic records).
14. For each item the need for maintenance records shall also be identified, consistent with whichever maintenance approach has been chosen.
15. The structure of the maintenance organisation and how it will operate will be included in the maintenance plan, outlining the responsibility for analysis of maintenance data necessary to support the maintenance approaches chosen. It will also include details on the amount of discretion the maintenance manager and other key personnel may have, and how their responsibilities map with safety delegations.
16. The appropriate maintenance management system(s) shall be populated with the requisite data in time for the commencement of maintenance activities.

---

<sup>4</sup> Sponsor - The person responsible for the content, currency and publication of a JSP (as per letter of delegation). Responsibility established through Letters of Delegation (LoD), issued through the DLPWG chair and exercised through Terms of Reference

## INTERNET VERSION – MASTER IS ON THE DEFENCE INTRANET

17. Once the item enters service the review of the maintenance records for trends and improvements shall be implemented in accordance with the strategy outlined in the management plan.

### ASSOCIATED STANDARDS AND GUIDANCE

18. Reference and, if practical, link to the relevant publications involved.

a. JSP 886: Defence Logistics Support Chain Manual:

- (1) Volume 7 Part 5: Management of Support Information.
- (2) Volume 7 Part 8.03A Maintenance Planning.
- (3) Volume 7 Part 8.03C Management of Maintenance.
- (4) Volume 7 Part 8.03D Conduct and Record Maintenance.
- (5) Volume 7 Part 8.03E Maintenance Record Exploitation.
- (6) Volume 7 Part 8.04: Reliability & Maintainability.

b. BR 1313 Maintenance Management in Surface Ships.

c. AESP 0200-A-090-013: DEME(Army) Engineering Standards.

d. JAP 100A-01: Military Aviation Engineering Policy, Regulation and Documentation.

e. Defence Standard 00-600: Integrated Logistic Support. Requirements for MOD Projects.

### OWNERSHIP

19. The policy for Technical Documentation is sponsored by DES JSC SCM-EngTLS.

a. Sponsor details:

[DES JSC SCM-EngTLS-RelA](#)

Elm 2A #4222, MOD Abbey Wood, BRISTOL BS32 8JH

Tel: Mil: 9679 37755, Civ: 030679 37755

b. Document Editor:

[DES JSC SCM-SCPOL Editorial Team](#)

Cedar 1A #3139, MOD Abbey Wood, BRISTOL BS32 8JH

Tel: Mil: 9679 82700, Civ: 030679 82700