

CHAPTER-1

Introduction

1.1 Background

The primary mission of the Navy is to further the national interest, deter threats and to provide an effective military response. In order to ensure these objectives, Indian Navy maintains a fleet of ships of various classes with each class of ship having an assigned role to play. These ships operate from four Naval Commands, viz. the Western Naval Command (Mumbai), the Eastern Naval Command (Visakhapatnam), the Southern Naval Command (Kochi) and Andaman Nicobar Command (Port Blair), an integrated Tri Services Command.

The repairs and refits undertaken by Navy are categorised as Short Refit Guarantee Defect (SRGD), Short Refit (SR), Normal Refit (NR), Normal Refit cum-Midlife Update (NR-MLU), Medium Refit (MR), Medium Refit-cum-Midlife Update (MR cum MLU) and Essential Repairs and Dry-Docking (ERDD). These repairs/refits are undertaken in accordance with the Operational-Cum-Refit-Cycle (OCRC) promulgated by Integrated Headquarters [IHQ MoD (Navy)] and Ministry of Defence (MOD) from time to time based on the operating experience, changes in technologies and induction/phasing out of different classes of ships.

1.2 Refit and its types

Modern warships are large platforms carrying complex equipment, weapons, sensors and machinery. These have to be repaired and maintained to keep them in a high state of readiness to face inclement weather, hostile atmosphere and operational exigencies near the shore or in the deep sea.



A Naval Ship at sea

Repairs and refits are a critical activity of a ship to make it operational again by repairing, re-equipping or re-supplying. To ensure seaworthiness and operational fitness of its fleet, Navy undertakes repairs and refits. Refits are carried out primarily in Naval Dockyards (NDs) but could also be outsourced to private/public sector shipyards.



These repairs and refits are to be undertaken in accordance with the 'Operational-Cum-Refit-Cycle (OCRC)' promulgated for each class of ship as stipulated in the Relevant Order. The OCRC is promulgated by IHQ MoD (Navy) from time to time based on the operating experience, changes in technologies and induction/ phasing out of different classes of ships and their built, whether foreign or Indian. Essentially, the OCRC depicts the period the ship is to remain at sea, available for deployment, followed by a period to be spent on a particular refit. This sequence is periodically repeated during a ship's life.

Short Refit (SR) - SR caters for defects arising within the ship's operational cycle and is basically meant for essential repairs and for repairs on equipment that has fallen due as per the recommendation of the Original Equipment Manufacturer (OEM), based on time and running hours.

Normal Refit (NR) - NR includes full hull survey and major routine maintenance on main equipment such as gear box, main engine, pumps, etc.

Medium Refit (MR) - MR includes all major repairs and replacements on the ship.

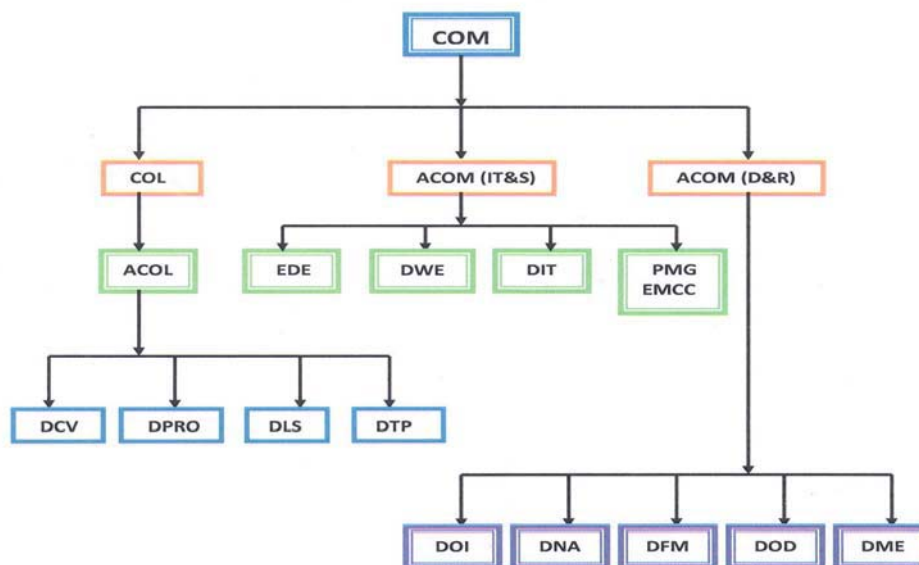
Medium Refit-cum-Mid Life Update (MR-cum-MLU) – This is planned when major up gradation is required to the obsolescent / obsolete / non-operational / non-supportable equipment on board a ship. The planning for this is done well in advance. The approval of the CCS is taken for the equipment planned to be replaced in the refit.

Extended SR/NR - This is a planned refit with a provision of extra time required due to additional work.

1.3 Organisational Structure

The maintenance of Naval fleet and creation of infrastructure are the responsibility of the Material Branch of IHQ MoD (Navy). The Material Branch is headed by an Officer of the rank of Vice Admiral designated as Chief of Material (COM). The COM is assisted by three officers of the rank of Rear Admiral viz. Controller of Logistics (COL), Assistant Chief of Material, IT and Systems, [ACOM (IT & S)] and ACOM, Dockyard & Refit [ACOM (D&R)] and various Professional Directorates.

Organisational Chart (Material Branch of IHQ MOD (Navy))



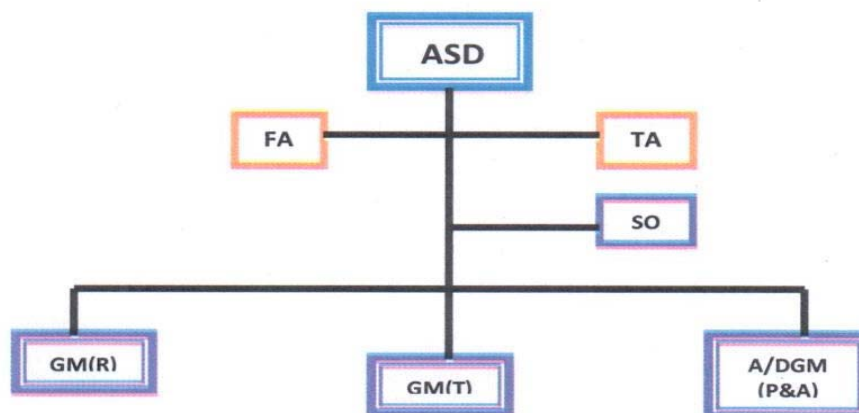
The Principal Director of Fleet Maintenance (PDFM) is responsible to the ACOM (D&R). His charter of duties, *inter alia*, includes framing of policies for maintenance and refits of ships and submarines and review of the same in consultation with Professional Directorates. Besides, PDFM is responsible for finalisation of refit plans of ships and submarines in NDs and Naval Ship Repair Yards (NSRYs) and their implementation. Abbreviations used in this report are explained in Annexure-I.

1.4 Repair Yrds

The responsibility of Principal Director of Dockyards (PDODY) is, *inter alia*, to frame policies regarding existing NDs and NSRYs including modernisation/ augmentation of facilities and the replacement of machinery and equipment etc. PDODY is also responsible to ACOM (D&R).

The repair and refits of naval ships are carried out at two NDs at Mumbai and Visakhapatnam and three NSRYs at Port Blair, Kochi and Karwar. In addition, Navy off-loads (fully or partially) refits to defence and commercial shipyards. Jobs related to in-house refits are also off-loaded partially to trade due to capacity constraints / lack of expertise and facilities at the NDs / NSRYs. The NDs, Mumbai and Visakhapatnam are headed by an officer of the rank of Rear Admiral called Admiral Superintendent, Dockyard (ASD). The ASD is assisted by General Managers of the rank of Commodore in the Navy. NSRYs are headed by the officers of the rank of Commodore called Commodore Superintendent of the Yard. An abridged organisational chart of NDs is given below:

Organisational Chart of Naval Dockyards



1.5 Financial Aspects

The refits are undertaken either at the Naval Dockyards / Repair Yards or could be off-loaded to other agencies. In case of refits at Naval Dockyards / Repair Yards expenditure incurred on the Pay & Allowances of Navy service personnel and defence civilians is booked under various heads of accounts. While expenditure on emoluments of civilian personnel is booked under Major Head 2077, Navy, Minor Head – 104 Pay & Allowances of civilians, the Minor Head 101, Sub Head A & B depicts emoluments of service personnel posted at Dockyards / Repair Yards. The details of expenditure booked under Major Head 2077 under various Detailed Heads are given in Annexure II.

The expenditure on offloaded refits is compiled under Major Head 2077-Navy, Minor Head 106-Refits and Repairs, Sub-Head-A. This head of account captures the expenditure incurred on refits offloaded to Public Sector Undertakings (PSUs), Private Firms and foreign repair yards.

1.6 Reasons for selecting the topic

The Comptroller and Auditor General's Audit Report No. 8 for the year 1999 had highlighted the following areas of concern in the refit of naval ships at Mumbai dockyard.

- Overshooting of the scheduled refit time due to poor planning and material management.
- Creation of infrastructure facility on an *ad hoc* basis in absence of a long term plan.
- Cost escalation in construction of new dry dock due to inconsistencies and indecisiveness of Naval Headquarters.

In their Action Taken Note, Ministry of Defence had stated, in June 2005, that there was considerable improvement in the compliance rate and in certain cases non-availability of critical spares, which caused delays, had been ameliorated with focused efforts. It was further stated that to obviate delays in refit due to extended dry docking periods, a conscious decision had been taken to ensure that the dry docking phase of refits was completed in the early part of the refits and this has served its purpose as substantial improvement in the timely completion of refits had taken place.

An efficiently managed refit programme also requires adequate infrastructure, spares, equipment and machinery etc. which in turn aids optimal availability of naval platforms which can discharge their operational roles efficiently and effectively.

Given the criticality of refit and repair activity to the Navy, we revisited this topic to assess improvements in the planning and execution of the refits of the Naval Ships.

1.7 Audit Objectives

The performance audit was undertaken with the objective to assess whether refits of warships were planned and executed in an efficient, effective and economical manner so as to ensure combat readiness and optimal operational availability of Naval ships.

In particular, we sought to ascertain:

- Audit Objective 1: Whether the Planning & Execution of Refits was in accordance with the Relevant Order and the OCRC, and whether these were effective?
- Audit Objective 2: Whether the Mid-Life-Updates (MLUs) were taken up as envisaged and were executed efficiently and timely?
- Audit Objective 3: Whether adequate infrastructure and human resources were made available for refits and MLUs?
- Audit Objective 4: Whether necessary spares and equipment for refits & MLUs were available and were provided timely?
- Audit Objective 5: Whether an effective Cost Accounting System, in relation to refit of Naval Warships was in place?

1.8 Scope of Audit

The Performance Audit covered the period from 2005-06 to 2009-10. We examined all 152 refits undertaken during the period in respect of frontline Naval Ships viz. destroyers, frigates, corvettes, off shore patrol vessels, mine sweepers and landing platforms in the NDs/NSRYs at Mumbai, Visakhapatnam, Kochi and Karwar. The refit of Naval ships other than those mentioned above was not examined.

Out of 152 refits, we took up detailed audit scrutiny of 14 MR / MLU, 16 NR / MLU and 22 SR totaling to 52 refits, which was 100 *per cent* MR / MR-MLU, 60 *per cent* NR/NR-MLU and 20 *per cent* SR

respectively. For analysis of reasons of delay in MR/NR, six refits and seven MLUs were selected for detailed examination.

The sample selection was based on the relative importance of the refit in overall refit management. Also, the number of MR, NR and SR actually completed, determined the sample size. However, all 152 refits were examined to ascertain delays in commencement and completion of refits and the reasons thereof.

1.9 Sources of Audit Criteria

The audit criteria for evaluation of performance were derived from:

- Operational cum Refit Cycle (OCRC) of the ships and the Relevant Order issued by Navy;
- Xth plan papers on MLUs;
- Defence Procurement Manual (DPM) / existing guidelines on procurements;
- Decision taken in Annual Refit Conference (ARC) meetings/ existing guidelines on procurements;
- Sanctions accorded by Ministry of Defence (MoD)/ Integrated Headquarters (IHQ) MoD (Navy)/ Command Headquarters;
- Delegation of Financial Powers under relevant Navy Instructions (NIs);
- Naval Dockyard Cost Accounting Instructions (NDCAIs), and
- Annual Works and Production Account (AWPA).

1.10 Acknowledgement

We acknowledge the support extended by the IHQ MoD (Navy), various Professional Directorates, especially, the Directorate of Fleet Maintenance (DFM), NDs, NSRYs and all subordinate offices during the course of the PA.

1.11 Audit Methodology

PA was initiated on the basis of a pilot study undertaken in February-March 2010. Subsequently, an “Entry Conference” was held on 9 June, 2010 with the officials of the Ministry of Defence and IHQ MoD (Navy) associated with refit related activities, wherein, the scope, objectives and the criteria of the PA were discussed. Thereafter, field audit was conducted through examination of relevant records, issue of questionnaires and audit slips and interaction with the concerned officers at IHQ MoD (Navy), refitting yards, MOs, command headquarters and selected subordinate offices from June 2010 to January 2011 and from February 2011 to May 2011 and again in February-March 2013.

The draft PA Report was issued to the Ministry of Defence and IHQ MoD (Navy) in December 2011. Meanwhile, based on our further examination and with reference to the replies received from NDs/NSRYs and IHQ, the PA Report was revised and issued to Ministry and IHQ in June 2012. An “Exit Conference” was held with the Ministry in November 2012 during which the salient findings were discussed. Reply of the Ministry was awaited as of November 2013.