CHAPTER 7

MAINTENANCE PLANNING AND ADMINISTRATION

As the work center or branch supervisor, you are directly responsible for the maintenance effort of your work center. The planning, scheduling, control, and parts ordering are essential to accomplishing that maintenance. The factors that you must consider in maintenance planning are equipment status, operational requirements, the workload, and the personnel assets available to perform the job.

LEARNING OBJECTIVES

When you have completed this chapter, you will be able to do the following:

1. State the responsibility for managing Planned Maintenance System (PMS) programs for equipment aboard ship.
2. Identify three considerations used to determine PMS procedures.
3. Describe the types of information displayed on PMS schedules.
4. State the purpose of each PMS schedule.
5. State the purpose of the Maintenance Data System (MDS).
6. Describe the types of maintenance actions on the following Operational Navy (OPNAV) forms; 4790/2K, 4790/CK, 4790/2P.
7. Recognize the different types of stock and control numbers.
8. State the purpose of cognizance symbols.
9. Recognize sources of identifying material when a stock number is not available.
10. Recognize the uses of different supply publications.
11. Describe the use and maintenance of various logs and reports used to record details of catapult and arresting gear operations and maintenance.

PLANNED MAINTENANCE SYSTEM

The Planned Maintenance System (PMS) is a simplified, yet thorough, means of accomplishing preventive maintenance aboard ship. It identifies maintenance requirements and schedules maintenance actions to make the best use of resources. It increases economy and simplifies records. It improves management, workload planning, equipment reliability, and on-the-job training of shipboard personnel. As a system, however, it is neither self-starting nor self-sustaining, and it requires careful supervision at all levels.

PMS procedures and the frequently with which to perform the actions are developed for each piece of equipment based on good engineering practices, practical experience, and technical standards. These step-by-step procedures are published on maintenance requirement cards (MRCs). The cards contain detailed information on each maintenance requirement, such as who (specific rate) should perform the maintenance, when, how, and with what resources. Some MRCs have equipment guide lists (EGLs) and a tag guide list (TGL) to identify the locations and power panels of various pieces of the same type of equipment—such as motors, controllers, valves, life rafts, deck fittings, and hatches—that are serviced at the same time.

Keep in mind that PMS actions, as preventive maintenance actions, are the minimum maintenance actions required to maintain the equipment in a fully operable condition. If PMS actions are performed according to schedule, they allow equipment operators and maintenance personnel to identify
possible problems before equipment failure. Properly performed PMS actions will help prevent failures that could result in repeated corrective maintenance actions.

PMS procedures are developed by the activities and offices of the systems commands responsible for the development and procurement of the systems and equipment they control. PMS maintenance index pages (MIPs) and MRCs are developed as part of the Integrated Logistics Support effort for all new procurements, alterations, and modifications of systems and equipment. Management tools provided by PMS for each ship, department, and supervisor include the following:

1. Comprehensive procedures for planned maintenance of systems and equipment
2. Minimum requirements for planned maintenance
3. Scheduling and control of maintenance
4. Description of the methods, materials, tools, and personnel needed to perform maintenance
5. Prevention or detection of hidden failures or malfunctions
6. Test procedures to determine material readiness

PMS, though standard in concept and procedures, is flexible enough for the ship to adjust to be compatible with operational and other types of schedules.

DEPARTMENTAL MASTER PMS MANUAL

Each department maintains a Departmental Master PMS Manual for use in planning, scheduling, and supervising required maintenance. The information contained in this manual pertains only to equipment for which the department is responsible. The Departmental Master PMS Manual contains the following:

Supplementary Information

Additional instructions, information, and data provided to assist in implementation and accomplishment of PMS are found in supplementary information.

List of Effective Pages (LOEP)

The Departmental LOEP (Figure 7-1) provides a listing of the maintenance index page (MIP) assigned to each department, divided by work centers, and contains the following information:

1. Report date
2. Force Revision (FR)
3. Type Commander (TYCOM)
4. Ship's hull number and unit identification code (UIC)
5. Work center
6. MIP number
7. Nomenclature (brief description of the system/equipment)
8. Equipment status code
Maintenance Index Pages (MIP)

MIPs are prepared and issued for each installed system or piece of equipment for which PMS support has been established. MIPs are basic PMS reference documents. Each MIP is an index of a complete set of MRCs applicable to a ship system, subsystem, and equipment. A sample of MIP to work center file is shown in Figure 7-3. MIPs (Figure 7-2) contain the following information:

1. Ship system, subsystem, or equipment description
2. Reference publications
3. Preparation date
4. Test and System Command (SYSCOM)
5. Maintenance requirement.
6. Periodicity code
7. Rate (skill level)
8. Man-hours (MH)
9. Related maintenance
10. Scheduling aids
11. SYSCOM MIP control number.
12. Inactive equipment maintenance (IEM)
<table>
<thead>
<tr>
<th>TIME</th>
<th>SYSCOM MRC CONTROL NO</th>
<th>MAINTENANCE REQUIREMENT DESCRIPTION</th>
<th>PERIODICITY CODE</th>
<th>RATES</th>
<th>MAN HOURS</th>
<th>RELATED MAINTENANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>46 6UMU N</td>
<td>A scheduling aid; Review maintenance requirements. Omit MRC(s) which do not apply; no feedback report required. # Mandatory scheduling required.</td>
<td>D-1</td>
<td>HT2</td>
<td>0.2</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>42 8UNR N</td>
<td>1. Inspect high-capacity AFFF injection station.</td>
<td>D-2</td>
<td>HT2</td>
<td>0.2</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>42 8UNQ N</td>
<td>1. Turn AFFF proportioner shaft by hand. 2. Inspect oil level in AFFF proportioner.</td>
<td>W-1</td>
<td>HT/DC3</td>
<td>0.4</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>B4 6UMV N</td>
<td>1. Inspect high capacity AFFF injection station operation. 2. Test AFFF concentrate for seawater contamination.</td>
<td>Q-1</td>
<td>HT3</td>
<td>2.0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FN</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>80 6DAAN</td>
<td>1. Test operate, inspect, and clean 1000 gpm AFFF proportioner station.</td>
<td>Q-2</td>
<td>HT/DC3</td>
<td>2.0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FN</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>16 6DAD N</td>
<td>1. Test AFFF concentrate for seawater contamination at FP-180 station.</td>
<td>Q-3</td>
<td>HT3</td>
<td>2.0</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>88 8DRU N</td>
<td>1. Clean and inspect hose reel stations.</td>
<td>Q-4</td>
<td>HT/DC3</td>
<td>0.5</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>44 6UMW N</td>
<td>1. Lubricate AFFF injection pump bearings.</td>
<td>Q-5</td>
<td>HT3</td>
<td>0.3</td>
<td>Q-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>EM3</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>54 C1TH N</td>
<td>1. Test operate, inspect, and clean AFFF FP-180 station. 2. Lubricate FP-180 proportioner. NOTE: Accomplish quarterly or after each use, whichever occurs first.</td>
<td>Q-6R</td>
<td>HT/DC3</td>
<td>2.0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FN</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>97 8GMG N</td>
<td>1. Accomplish liquid foam quantitative analysis at FP-180 stations.</td>
<td>S-2</td>
<td>DCA</td>
<td>0.7</td>
<td>D-2#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HG3</td>
<td>0.4</td>
<td>Q-3#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Q-4#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>or R-1#</td>
</tr>
<tr>
<td>4</td>
<td>44 6UYN Y</td>
<td>1. Change oil in AFFF injection station reducer.</td>
<td>S-3</td>
<td>HT3</td>
<td>0.4</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>38 8HQR N</td>
<td>1. Inspect AFFF bilge sprinkling system nozzles.</td>
<td>S-4</td>
<td>HT/DC3</td>
<td>1.0</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HTFN/DCFN</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>39 6UMZ N</td>
<td>1. Accomplish AFFF concentration analysis</td>
<td>A-1</td>
<td>HT/DC3</td>
<td>0.7</td>
<td>D-1#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HG/DC2</td>
<td>0.4</td>
<td>Q-1#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Q-4#</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>or R-1#</td>
</tr>
<tr>
<td>4</td>
<td>44 6UNA N</td>
<td>1. Lubricate high-capacity AFFF injection station flexible couplings.</td>
<td>A-2</td>
<td>HT3</td>
<td>0.8</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>10 8NPR N</td>
<td>1. Inspect and hydrostatically test AFFF station hose(s).</td>
<td>A-3</td>
<td>HT/DC2</td>
<td>0.3</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2FN</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 7-2 — MIP.**
**NOTE**

OPNAV forms shown in this chapter such as MRC, MIP, LOEP, EGL, TGL, and Feedback Reports (FBR) are not current and are **SAMPLES** only. These forms should **NOT** be used as actual maintenance reference. Current Catapult and Arresting Gear MRC(s), MIP(s) and LOEP(s) are available through the departmental 3M maintenance coordinator onboard the ship.

<table>
<thead>
<tr>
<th>MIP</th>
<th>Nomenclature</th>
<th>Work Center Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1230/001-54</td>
<td>TANKS, VOIDS, AND TRUNKS</td>
<td>EM04</td>
</tr>
<tr>
<td>1501/001-32</td>
<td>SUPERSTRUCTURE &amp; FITTINGS</td>
<td>ER01</td>
</tr>
<tr>
<td>1631/004-A2</td>
<td>SEA CHESTS</td>
<td>EA01, EM01, EM02</td>
</tr>
<tr>
<td>1671/003-33</td>
<td>ARMORED DOORS &amp; HATCHES</td>
<td>ER09</td>
</tr>
<tr>
<td>1671/005-B1</td>
<td>WTRTT, DR, TORPEDO MAGAZINE</td>
<td>ER09</td>
</tr>
<tr>
<td>1672/001-32</td>
<td>ARMORED DOORS &amp; HATCHES</td>
<td>ER09</td>
</tr>
<tr>
<td>1681/002-32</td>
<td>DECKHOUSE STRUCT CLOSURES</td>
<td>ER09</td>
</tr>
<tr>
<td>1921/001-A9</td>
<td>COMPARTMENT TESTING</td>
<td>ER01</td>
</tr>
<tr>
<td>2000/001-A2</td>
<td>MACHINERY LUBRICATING OIL</td>
<td>EM01, EM02, EM04</td>
</tr>
<tr>
<td>2340/004-44</td>
<td>MAIN PROPULSION GAS TURBIN</td>
<td>EM01, EM02</td>
</tr>
<tr>
<td>2400/013/-44</td>
<td>XMSN &amp; PROPULSOR SYSTEMS</td>
<td>EM01, EM02</td>
</tr>
<tr>
<td>2411/015-44</td>
<td>PRPLN REDUCTION GEARS</td>
<td>EM01, EM02</td>
</tr>
<tr>
<td>2421/002-C2</td>
<td>PROPULSION CLUTCH COUPLING</td>
<td>EM01, EM02</td>
</tr>
<tr>
<td>2451/006-33</td>
<td>PROPELLERS AND PROPULSORS</td>
<td>EM01, EM02</td>
</tr>
<tr>
<td>2513/007-34</td>
<td>COMBUSTION AIR SYSTEM</td>
<td>EM01, EM02</td>
</tr>
</tbody>
</table>

**Figure 7-3 — MIP to work center file.**
The Work center PMS Manual contains only the planned maintenance requirements applicable to a particular work center. It is designed to provide a ready reference of planned maintenance requirements for the work center supervisor and should be retained in the working area, near the Weekly PMS Schedule, in the holder provided.

Maintenance Requirement Cards (MRCs)

Maintenance Requirement Cards (MRCs) provide the detailed procedures used to perform a maintenance action and state who is to perform the maintenance and what is to be done, and when, how, and with what resources a specific requirement is to be accomplished. MRCs contain the following information and instructions:

Ship System, System, Sub-system and, Equipment

These blocks contain the identification of the ship system (functional group), subsystem, or equipment involved.
<table>
<thead>
<tr>
<th>SHIP SYSTEM</th>
<th>SUBSYSTEM</th>
<th>MRC CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000</td>
<td>Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000X</td>
<td>3000 M-4/Q-2R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>EQUIPMENT</th>
<th>RATES</th>
<th>M/H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000</td>
<td>Miscellaneous Shipboard Electrical Equip and Installed Receptacles 3000XY</td>
<td>EM2</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMFN</td>
<td>0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TOTAL M/H</th>
<th>ELAPSED TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**MAINTENANCE REQUIREMENT DESCRIPTION**
1. Inspect portable electrical tool/device equipped with two-prong plug.
2. Measure Insulation resistance.

**SAFETY PRECAUTIONS**
1. Forces afloat comply with Navy Safety Precautions for Forces Afloat, OPNAVINST 5100 series.
2. Ensure all tag-out procedures are in accordance with current shipboard instructions.
3. Tool test set (SCAT 4547) can produce voltages dangerous to life. Wear rubber gloves.

**TOOLS, PARTS, MATERIALS, TEST EQUIPMENT**

**TEST EQUIPMENT**
1. [0399] Electrical tool testers, SCAT-4547, 07239-235000
2. [0883] Megger, 500V, 100M0hm, SCAT-4452
3. [0901] Multimeter, AC/DC, SCAT-4245

**MATERIALS**
1. [0096] Pen, ball-point
2. [1144] Tag, safety
3. [1657] Tag, safety check
4. [2277] Pad, writing paper

**NOTE:** Numbers in brackets can be referenced to Standard PMS Materials Identification Guide (SPMIC) for stock number identification.

**PROCEDURE**

**NOTE 1:** For equipment issued on permanent or semi-permanent loan to work centers, accomplish monthly, all other accomplish quarterly or before each issue. For repair locker equipment, accomplish quarterly or after each use, whichever occurs first.

**DISTRIBUTION STATEMENT D**
Distribution authorized to DOD components and DOD contractors only; critical technology; February 1994. Other requests for this document shall be referred to Naval Sea Systems Command (SEA 04TD). Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

**LOCATION**
Equipment Guide List Recommended

**DATE**
February 2000

---

Figure 7-4 — MRC.
Rate
The rate is the recommended skill level of the person who should be qualified to do the work, identified by rate or NEC (Navy Enlisted Classification). Qualified personnel other than those specified may be assigned. When more than one person in the same rate is required, the appropriate number of persons precedes the rate. When more than one person in the same rate is required and time requirements are not equal, each person is listed separately.

MRC Code
The MRC code consists of two parts. The first part of the MRC code is the MIP series code. For MRCs applicable to more than one MIP series enter each MIP series in this block. If more than four MIP series apply, make reference to a note in the Procedure block. The second part is the maintenance requirement periodicity code. The only authorized periodicities are listed in Figure 7-5.

The periodicity code also includes a number for specific identification. When more than one MRC of the same periodicity exists in the same MRC set, the MRCs, in most cases, will be numbered consecutively; for example, D-1, D-2, D-3, or M-1, M-2, M-3. An existing MRC may be reapplied to a revised MIP even though the periodicity code of the reapplied MRC may not fall within the normally sequential numeric periodicity codes. For example, W-1, W-2, W-3, and W-6 may appear on an MIP, since W-6 was an existing MRC that was reapplied to this equipment. Technically, valid MRCs will not be reprinted merely to change the periodicity code number. Non-sequential numbers will not affect scheduling or management control.

```
<table>
<thead>
<tr>
<th>PERIODICITY CODES</th>
</tr>
</thead>
<tbody>
<tr>
<td>D - Daily</td>
</tr>
<tr>
<td>S - Semiannually</td>
</tr>
<tr>
<td>2D - Every 2nd day</td>
</tr>
<tr>
<td>8M - Every 8th month</td>
</tr>
<tr>
<td>3D - Every 3rd day</td>
</tr>
<tr>
<td>A - Annually</td>
</tr>
<tr>
<td>W - Weekly</td>
</tr>
<tr>
<td>18M - Every 18 months</td>
</tr>
<tr>
<td>2W - Every 2nd week</td>
</tr>
<tr>
<td>24M - Every 24 months</td>
</tr>
<tr>
<td>3W - Every 3rd week</td>
</tr>
<tr>
<td>30M - Every 30 months</td>
</tr>
<tr>
<td>M - Monthly</td>
</tr>
<tr>
<td>36M - Every 36 months</td>
</tr>
<tr>
<td>2M - Every 2d month</td>
</tr>
<tr>
<td>48M - Every 48 months</td>
</tr>
<tr>
<td>Q - Quarterly</td>
</tr>
<tr>
<td>54M - Every 54 months</td>
</tr>
<tr>
<td>4M - Every 4th month</td>
</tr>
<tr>
<td>60M - Every 60 months</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NON-Calendar PERIODICITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>R - Situation requirement</td>
</tr>
<tr>
<td>U - Unscheduled maintenance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INACTIVE EQUIPMENT MAINTENANCE (IEM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU - Lay-up</td>
</tr>
<tr>
<td>PM - Periodic maintenance</td>
</tr>
<tr>
<td>SU - Start-up</td>
</tr>
<tr>
<td>OT - Operational test</td>
</tr>
</tbody>
</table>
```

Figure 7-5 — Periodicity codes.
Dual periodicity codes are used when permanent configurations or utility differences exist between installations of the same system/equipment. A dual periodicity may be assigned if no other aspect of the MRC requires modification to fit both periodicities. For example, equipment installed in an SSN or in a surface unit may see daily use, while the same equipment installed in an SSBN may be idle for long periods of time because of the nature of the ship’s mission. This long period of idleness may result in less frequently performed maintenance requirements. In this case a dual periodicity, such as M-1/Q-I or Q-1/S-2, may be assigned. When dual periodicities are assigned, a note on the MIP and the MRC will specify the frequency of maintenance, for example, “NOTE: SSBN, schedule quarterly; all others schedule monthly.” Delete the unrequired periodicity by drawing a line through it.

Use situation requirement codes with a calendar periodicity code in certain circumstances. These situations fall into two general categories:

1. When the situation governs the scheduling of the requirement
2. When the calendar periodicity governs the scheduling of the requirement

For example, consider the occasion of weekly measurement of values when a certain system is in operation. The measurement of these values will not be required when the equipment is not being operated, regardless of how prolonged the idle period may be. There are cases in which requirements must be scheduled with regard to the situation rather than the calendar timing. The periodicity code will state the R for situation first, and after the hyphen and a unique number, a letter will recognize the calendar contingency. An example of a situation-calendar periodicity code is that an R-IW requires you to schedule equipment lubrication weekly when at sea. That means that the R-IW is entered into a daily column of the weekly schedule only when the ship is at sea. During in-port times the R-IW will remain in the outstanding repairs and preventive maintenance checks due in next 4 weeks column.

When the periodicity code is of the calendar situation combination, the calendar controls the scheduling and is only occasionally overtaken by the situation. The calendar periodicity is referred to first in the code, for example, 18M-2R. In the example, the 18M indicates that the longest time between accomplishment is every 18 months, and the 2R indicates that a situation could arise which would require it to be done more often. An explanation of such situations will appear on the MRC. When the situation no longer exists, scheduling reverts to the 18-month period. Some examples of the combined calendar and situation requirements are as follows:

- M-1R: Monthly or every 600 hours, whichever occurs first
- W-3R: Weekly or after each use, whichever occurs first
- S-1R: Semiannually or during each upkeep period, whichever occurs first
- Q1-1R: Quarterly or prior to getting underway, whichever occurs first

When the periodicity code includes a situation requirement (such as R-1 or Q-1R), a note of explanation is required in addition to the basic code. This note is the first entry in the Procedure block.

**Maintenance Requirement Description**

The maintenance requirement description is a brief definition of the PMS action to be performed.

**Man Hours (M/H)**

Man-hours is the average amount of time required of each rate listed in the Rates block to perform the maintenance on each piece of identical equipment, listed in hours and tenths of an hour. When more than one person in the same rate is required and time requirements are equal, man-hours listed are the sum of their requirements. When more than one person in the same rate is required and time requirements are not equal, man-hours are listed for each person separately. Total man-hours is the
sum of all entries in the M/H block. It does not include make ready and put away time, including removal and/or replacement of anything that interferes with the maintenance (covers, other equipment, and so on).

**Safety Precautions**

This section of the MRC provides a listing of precautions and publications that direct attention to possible hazards to personnel or equipment during maintenance. The word “NOTE” will precede procedural advisories. Specific categories of direction are as follows:

- **Warning**: Explains operating procedures, practices, and so forth that, if not followed correctly, may lead to injury or death. Warnings are listed in the Safety Precautions block and are repeated preceding the procedure involved.

- **Caution**: Explains operating procedures, practices, and so forth that, if not correctly followed, may lead to damage to equipment. Cautions are not listed in the Safety Precautions block; however, they do precede the instructions for the procedure involved.

**Tools, Parts, Materials and Test Equipment.**

This section lists the test equipment, materials, parts, tools, and miscellaneous requirements necessary to perform the maintenance action. Each of the above categories may include both Standard PMS Item Name (SPIN) and non-SPIN items. Entries in this block can be cross-referenced to the Standard PMS Materials Identification Guide (SPMIG) for stock number identification.

**Equipment Guide List (EGL)**

The EGL, OPNAV Form 4790/8 (*Figure 7-6*) is a 5x8-inch card that is used with a controlling MRC when the MRC applies to a number of identical items, such as motors, controllers, life rafts, valves, test equipment, and small arms. Each supervisor prepares his/her own EGLs.

<table>
<thead>
<tr>
<th>EQUIPMENT GUIDE LIST</th>
<th>PAGE OF</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPNAV 4790/81 (2-76)</td>
<td></td>
</tr>
<tr>
<td>S/N 0107-LF-047-9405</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MIIP NO. (Less last 2 characters)</th>
<th>MRC PERIODICITY</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>EQUIPMENT NAME NOMENCLATURE</th>
<th>SERIAL NO. QUANTITY</th>
<th>LOCATION</th>
<th>APPLICABLE DATA AS REQUIRED BY MRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The number of items included on an EGL is directly related to the time required to do the maintenance on each item. Each EGL normally contains no more than a single day’s work. If more than 1 day is required, prepare separate EGL pages for each day and number them consecutively.

In some instances it may be unnecessary or impractical to list the equipment on EGLs. For instance, if the equipment is listed on a TYCOM-directed checklist or if an Automated Calibration Recall Program is in effect, a notation of the applicable instruction in the Location block of the MRC is all that is required.

**Tag Guide List (TGL)**

The TGL, OPNAV Form 4790/107 (Figure 7-7) contains the information necessary for the equipment tag-out required during PMS actions. The TGL contains the number of tags required, locations of the tags, position of each tagged item (open, shut, off, on, and so on) and permission or notification requirements. Each supervisor also prepares his/her own TGLs.

<table>
<thead>
<tr>
<th>TAG GUIDE LIST</th>
<th>NUMBER OF TAGS PER EQUIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPNAV 4790/107 (10-80) S/N 0107-LF-947-9545</td>
<td>NOTIFICATION DATA</td>
</tr>
<tr>
<td>MIP &amp; MRC NO.</td>
<td>COLD IRON</td>
</tr>
<tr>
<td>EQUIPMENT</td>
<td>IMPORT STEAMING</td>
</tr>
<tr>
<td></td>
<td>UNDERWAY</td>
</tr>
<tr>
<td>EQUIPMENT SERIAL NO.</td>
<td>SERIAL NO. SWITCH / VALVE</td>
</tr>
<tr>
<td>LOCATION OF SWITCH / VALVE</td>
<td>POSITION OF TAGGED ITEM</td>
</tr>
<tr>
<td></td>
<td>AMPLIFICATION DATA</td>
</tr>
</tbody>
</table>

**Figure 7-7 — Tag guide list.**

**Location of MRCs, EGLs, and TGLs**

A master MRC deck is maintained at the departmental level. Each departmental master deck contains only one copy of applicable MRCs filed by SYSCOM control number. Applicable master EGLs and TGLs are attached to related master MRCs. In addition, a complete working deck of applicable MRCs, EGLs, and TGLs is located in MRC holders in each work center. Maintenance personnel use these to perform assigned planned maintenance.

**FEEDBACK REPORT (FBR)**

The PMS Feedback Report, OPNAV 4790/2B (FBR) is a form maintenance personnel use to notify NAVSEACEN, NAVAIRENGCEN, and TYCOM, as applicable, of technical and nontechnical matters.
related to PMS. The FBR is a five-part form composed of an original and four copies. It also has two categories, category A and category B.

**Category A FBR**

This category (Figure 7-8) is nontechnical and is intended to meet PMS needs that do not require technical review. Category A FBRs are submitted to request classified or other PMS documentation that cannot be obtained locally. With the ship’s master PMS requirements on compact disk, replacement copies will be generated with the print-on-demand capability.

![Figure 7-8 — Category A FBR.](image-url)
Category B FBR

This category (Figure 7-9) is technical. These FBRs are submitted by the ship's maintenance and material management (3-M) coordinator to the applicable TYCOM and pertain to the following:

1. Technical discrepancies that inhibit PMS performance. These discrepancies can exist in documentation, equipment design, maintainability, reliability, or safety procedures as well as operational deficiencies in PMS support (parts, tools, and test equipment).

---

Figure 7-9 — Category B FBR.
7-13
2. **Shift of maintenance responsibilities.** Individual ships sometimes need to shift maintenance responsibility from one work center to another. Such changes can only be made with the approval of TYCOM. When changes are necessary, ship’s personnel submit a FBR (category B) via the applicable TYCOM, indicating from which work center(s) equipment is to be deleted and to which work center(s) it is to be transferred.

## CYCLE PMS SCHEDULE

PMS schedules are categorized as Cycle, Quarterly, and Weekly Schedules.

The Cycle PMS Schedule (*Figure 7-10*) displays the planned maintenance requirements to be performed during the period between major overhauls of the ship; that is, from the first quarter after overhaul to the next first quarter after a ship’s overhaul. For ships in phased maintenance or similar incremental overhaul programs and other short industrial availability programs, the first quarter after overhaul is the quarter immediately following completion of the docking availability. Cycle and multi-month requirements need to be scheduled during this time period. Any checks that have not been accommodated in this cycle period are front loaded into the new cycle schedule period.

### CYCLE PMS SCHEDULE (CONVENTIONAL)

**OPNAViform: 01007-FN 0107-LF-220**

<table>
<thead>
<tr>
<th>SHIP</th>
<th>WORK CENTER</th>
<th>SCHEDULE QUARTER AFTER OVERHAUL AS INDICATED</th>
<th>APPROVAL SIGNATURE</th>
<th>DATE</th>
<th>QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>USS ROOSEVELT</td>
<td>EA07</td>
<td></td>
<td>B. A. Olson Lcdr, USN</td>
<td>30 Jan 94</td>
<td>EACH QUARTER</td>
</tr>
<tr>
<td>CVN-71</td>
<td>(pg 1 of 1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MIP</td>
<td>COMPONENT</td>
<td>SCHEDULE DATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MACHINERY LUB OIL NO. 1 AMR</td>
<td>18M-1 (6) (18)</td>
<td>18M-1 (12) (24)</td>
<td>2M-6, R-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Misc Shipboard</td>
<td>S-4R</td>
<td>S-4R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ELECT EQUIPMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RECEPTACLES EGL-1</td>
<td>A-2</td>
<td>2W-1, 3W-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rubber Gloves EGL-1</td>
<td>S-3R</td>
<td>S-3R</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Firemain &amp; Flushing</td>
<td>S-2</td>
<td>Q-1, Q-5R#</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compressed Air</td>
<td>A-11</td>
<td>A-5R#</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>System EA07-001</td>
<td></td>
<td>M-1, M-2, R-1, R-5W</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02N2 System FWID 1-30-6</td>
<td>S-1#</td>
<td>S-1#</td>
<td>A-14#</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pump 27345</td>
<td>A-1</td>
<td>Q-3, R-16D, R-17W</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valves EGL-1</td>
<td>A-13R</td>
<td>A-13R, R-11M, D-1R, W-1R</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 7-10 — Cycle PMS schedule.*
Content of the Cycle PMS Schedule

1. Ship's name and hull number
2. Work center designator
3. Schedules as indicated – the annual, semiannual, multiple month (4M and greater) maintenance requirements, and any related maintenance checks
4. Approval signature/date – the department head's signature and the approval date
5. Maintenance that is performed every 2 weeks, monthly, every 2 months, quarterly maintenance requirements, and any related maintenance checks

Preparation of the Cycle PMS Schedule

Cycle PMS schedules are used to plan and schedule maintenance requirements to be conducted during each calendar quarter. Department heads devote considerable attention to the preparation of the cycle schedule since these efforts directly affect long range PMS scheduling. The materials required and the procedures followed in schedule preparation are detailed in the paragraphs that follow.

The materials required are:

1. Blank cycle schedules (OPNAV 4790/13). Use of automated forms generated from PMS scheduling programs that have been approved by Chief of Naval Operations (CNO) and the TYCOM are authorized for use in lieu of paper forms.
2. Work center PMS Manuals or list of effective pages (LOEP).
3. Applicable MRCs.

The following are basic instructions for filling out the cycle schedule (Figure 7-10):

1. Neatly enter initial entries, either typed or in black ink, on the cycle schedules. Make changes in ink and have them initialed by the department head.
2. From the LOEP, list each item of equipment in MIP sequence. The cycle schedule does not need to match the LOEP line for line.
3. From the applicable MIP, list the periodicity codes in the schedule quarter after overhaul as indicated and each quarter column as described in the sections that follow. From the related maintenance column of the MIP schedule, all mandatory related maintenance requirements to be completed during the quarter are indicated by the pound sign "#". The pound sign placed next to a primary check indicates mandatory related maintenance associated with that maintenance requirement (e.g. S-1#).
   a. List each semiannual (S) maintenance requirement in one of the four columns, and then list it again 6 months later. For example, an S-1 requirement scheduled to occur in the 1st, 5th, and 9th quarters is also scheduled in the 3d, 7th, and 11th quarters.
   b. List each annual (A) maintenance requirement in one of the four columns.
   c. List each multiple month periodicities MR (18M, 24M, 30M, 36M, and so on). The quarter after overhaul must be indicated in parentheses. (For example, 18M-1(6) indicates an "every 18 months" periodicity MR scheduled for the sixth quarter after overhaul). Figure 7-11 serves as an example for determining the quarter after overhaul. To use the table, first determine in which quarter after overhaul the MR will be first scheduled. Go to this quarter in the first row of the table. Then schedule the MR for the quarters in that column as applicable. For example, if an 18M-1 is scheduled for the 4th
quarter after overhaul, it must also be scheduled for the 10th, 16th, and 22d, as applicable.

d. Ships with overhaul cycles of less than 24 quarters must schedule cycle requirements within this operational time frame. Ships delayed beyond 24 quarters must extend their cycle PMS schedule by adding quarter numbers in the schedule quarter after overhaul as indicated column. (Multiple month requirements needed before entering overhaul must be reviewed and rescheduled as necessary.)

In the each quarter column, list every 2 weeks, monthly, every 2 months, and quarterly maintenance requirements (2W-1, M-1, 2M-1, Q-1, and so on), and situation requirements (M-IR, Q-IR, S-IR, A-IR, 18M-IR, R-1, and so on). Daily, every 2d day, every 3d day, and weekly maintenance requirements are not listed here.

4. Have the completed cycle PMS Schedule reviewed, signed, and dated by the department head.

5. After completing the cycle schedule do not move maintenance requirements listed from one quarter to another. If rescheduling becomes necessary, reflect it on the quarterly PMS Schedules.

6. Retain all superseded cycle schedules for 12 months.

<table>
<thead>
<tr>
<th>(NUMBERS INDICATE QUARTER AFTER OVERHAUL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18M Scheduling Table</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>19</td>
</tr>
<tr>
<td>24M Scheduling Table</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>17</td>
</tr>
<tr>
<td>30M Scheduling Table</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>11</td>
</tr>
<tr>
<td>21</td>
</tr>
<tr>
<td>36M Scheduling Table</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>13</td>
</tr>
<tr>
<td>48M Scheduling</td>
</tr>
<tr>
<td>First scheduling in first 16 quarters and second scheduling 16 quarters later.</td>
</tr>
<tr>
<td>60M Scheduling</td>
</tr>
<tr>
<td>First scheduling in first 20 quarters and second scheduling 20 quarters later.</td>
</tr>
</tbody>
</table>

Figure 7-11 —Multiple month periodicity scheduling table.
QUARTERLY PMS SCHEDULE

The Quarterly PMS schedule, (Figure 7-12) displays the PMS requirements each work center is required to perform during a specific 3-month period. This schedule, when updated weekly, provides a ready reference to the current status of PMS for each work center. This schedule represents a departmental directive and, once completed, may be changed only at the department head’s discretion. Responsibility for changes is sometimes delegated to division officers on carriers and cruisers.

![Quarterly PMS Schedule](image)

**Contents of the Quarterly PMS Schedule**

1. Space is provided for entering the work center, year, quarter after overhaul, department head’s signature, date prepared, and months covered.
2. Thirteen columns, one for each week in the quarter, are available to permit scheduling of maintenance requirements on a weekly basis throughout the quarter. Additional columns provide space to enter the complete MIP codes and any PMS requirements that may need to be rescheduled into the next quarter. Take care to ensure that rescheduling changes conform to the periodicity specified for the requirement.

Preparation of the Quarterly PMS Schedule

1. Enter the work center code.
2. Enter the calendar year of the current quarter.
3. Enter the number of the quarter after overhaul as reflected on the cycle PMS schedule.
4. Enter the calendar months of the quarter as follows: JAN/FEB/MAR as first quarter, APR/MAY/JUN as second quarter, JUL/AUG/SEP as third quarter, and OCT/NOV/DEC as fourth quarter.
5. A ship ending a major overhaul, conversion, or construction in August would use the months of July, August, and September as the first quarter after overhaul. If the ship finished a major overhaul, conversion, or construction during the last 2 weeks in September, the first quarterly PMS Schedule prepared would include the months of October, November, and December as the first quarter.
6. Ships completing overhaul late in the quarter are not expected to do all planned maintenance scheduled during that quarter, but should do a certain amount based on the time remaining in the quarter. In this instance, the maintenance done and the effective dates are recorded on the back of the quarterly PMS Schedule, and the schedule is marked to show that it is only a partial quarterly PMS record.
7. Each column represents a week and is divided into 7 days by tick marks across the top. The first tick marked space within a column represents Monday. Place Monday's date for each week in the quarter on the pedestal between each column.
8. Lightly shade in across the tick marks the days that the ship expects to be underway.
9. Using both the LOEP and the cycle PMS schedule, enter the MIP number including the date code in the MIP column in a space on line with the subject equipment on the cycle schedule.
10. From the cycle PMS schedule, select the Schedule Quarter After Overhaul as Indicated column corresponding to the quarter being scheduled. Each of the maintenance requirements listed in this column and the each quarter column will be transcribed to an appropriate weekly column of the quarterly PMS schedule. If possible, do not schedule in the last 2 weeks of the quarter. These 2 weeks may then be used for rescheduled maintenance requirements.
11. Refer to the MIPs and the departmental master deck of MRCs for a brief description of the maintenance actions represented by the periodicity codes on the cycle PMS schedule to determine if the actions should be performed in port or at sea. Schedule the requirements on the quarterly PMS Schedule in the week most appropriate. With the exception of related daily and weekly PMS requirements, ensure that all mandatory related maintenance is scheduled within parentheses on the same line and during the same week as the primary maintenance requirement.
12. From the cycle PMS Schedule column titled Each Quarter, schedule monthly, quarterly, and applicable situation requirements into the appropriate weeks of the quarterly PMS schedule. All calendar situation requirements (24M-2R, A-2R, S-IR, Q-3R, M-IR) must be accomplished at least once during the periodicity specified and also each additional time the situation arises.
Schedule 2M ( ) periodicity as indicated by a number in parentheses. For example, 2M (2) occurs twice in the quarter (7 to 10 weeks apart).

13. From the cycle PMS schedule column, titled Schedule Quarter After Overhaul as Indicated, schedule the annual, semiannual, and multiple month requirements. Schedule the cycle requirements for which the number in parentheses matches the quarter after overhaul being scheduled.

14. Be sure that any PMS requirement listed in the reschedule column of the previous quarterly PMS schedule is brought forward to the quarterly PMS schedule you are preparing.

15. The department head reviews the complete quarterly PMS schedule and then signs and dates it in the appropriate block. If the ship’s operating schedule changes significantly, PMS requirements scheduled in the affected periods may need to be reviewed and rescheduled as necessary to coincide with the new operating schedule.

Use of Quarterly PMS Schedule

The Quarterly PMS Schedule serves as a directive to work center supervisors for scheduling weekly maintenance. Quarterly PMS Schedules are used as follows:

1. Each Monday, the division officer updates the previous week’s column of the Quarterly PMS Schedule, using the following symbols:
   - X – Completed maintenance. The symbol X indicates completion of a maintenance requirement. Address and cross mark fully accomplished MRs on the quarterly schedule. Be sure to add and cross mark off each accomplished situation requirement separately.
   - 0 – Maintenance not completed. A circled requirement indicates a requirement that was not accomplished according to the applicable MRC.
   - ¢ – Satisfied by higher authority test. This symbol is used to mark scheduled equipment maintenance or lower level MRC requirements that have been satisfied by the completion of the parent system test. A brief explanation of the parent system test (including the MIP, who performed the maintenance, and when) is required on the reverse side of the quarterly schedule. An X marked over the higher level test symbol indicates that the lower level test requirement annotated with the ¢ has been satisfied. (MRCs that are so satisfied are identified on the applicable system level test MIP.)

2. The division officer is responsible for rescheduling circled requirements still within periodicity and for determining the reason for non-accomplishment.

3. From the Quarterly PMS Schedule, the work center supervisor schedules the requirements for the following week on the Weekly PMS Schedule and updates the information in the Outstanding Repairs and PMS Requirements Due in the Next 4 Weeks column.

4. Any requirement that was not completed in strict accordance with the applicable MRC within its periodicity during the quarter must (in addition to being circled on the front of the quarterly PMS schedule) be identified on the back of the schedule by the complete MIP number and MRC code, followed by a brief reason for non-completion. Example: “C-2/1 - 11 M-1 unable to accomplish step I.J., “Test operate transmitter,” due to antenna casualty.” (This is an indication of a partial completion.) Another example: “G-58/3-72 Q-1 Heavy seas preclude accomplishment as scheduled.” Add unaccomplished semi-annual, annual, or multiple-month periodicity requirements to the reschedule column for accomplishment in the next quarter if they are within their assigned periodicities. At the end of the quarter the department head should indicate awareness of the maintenance actions which were not accomplished by reviewing, signing, and dating the back of the schedule for the quarter just completed. The department head should also take positive steps to ensure that priority is given to completing
maintenance requirements rescheduled from the previous quarter and those not accomplished within their assigned periodicities.

5. Remove the completed quarterly PMS schedule from the holder after the close of each quarter and retain it as a planned maintenance record. Retain the four previously completed quarterly schedules.

6. Do not recopy quarterly schedules to facilitate legibility without the division officer’s written approval.

**WEEKLY PMS SCHEDULE**

The Weekly PMS schedule *(Figure 7-13)* displays the planned maintenance scheduled for a given work center during a specific week. A Weekly PMS schedule is posted in each work center, and the work center supervisor uses it to assign and monitor the accomplishment of required PMS tasks by work center personnel.

**Content of the Weekly PMS Schedule**

The Weekly PMS Schedule contains the following information:

1. Work center code.
2. Date of current week.
3. Division officer’s approval signature.
4. MIP number (minus the date code).
5. A list of applicable components/equipment.
6. Maintenance responsibilities assigned, by name, to each line item of equipment.
7. The periodicity codes of maintenance requirements, listed by columns for each day.
8. Outstanding major repairs, applicable PMS requirements, and all situation requirements.

**Preparation of Weekly PMS Schedule**

1. Using OPNAV Form 4790/15 or approved automated form, type in or neatly enter in ink the following basic (permanent) information from the cycle PMS schedule, the LOEP, and applicable MIPs: work center identification, MIP codes and component nomenclature, daily and weekly PMS requirements as indicated in the MIPs for each work center. List all weekly requirements in the Monday column and daily requirements once in each Day of the Week column and twice in the Sat.-Sun. column. Schedule 2D periodicity on Monday, Wednesday, Friday, and once in the Sat.-Sun. period; list all situation requirements in the next four weeks column, and schedule them, as the situation requires. Also list the 2W periodicity requirements in the next four weeks column.

2. Using the quarterly PMS schedule, the work center supervisor transposes all PMS requirements from the column for the week being scheduled to the weekly PMS schedule.

3. Using information from the Quarterly PMS Schedule, the work center supervisor lists in the next four weeks column of the Weekly PMS Schedule all PMS requirements due in the next 4 weeks.

4. The work center supervisor assigns personnel, by name, to specific line entries.

5. The division officer signs and dates the weekly PMS schedule prior to its posting in the holder in the work center.
**Figure 7-13 — Weekly PMS schedule.**
Use of the Weekly PMS Schedule

The work center uses the Weekly PMS Schedule as follows:

1. Maintenance personnel obtain PMS assignments from the weekly PMS schedule and report completed and uncompleted maintenance actions to the work center supervisor.

2. When satisfied that the work has been properly completed, the work center supervisor crosses off, with an X, the maintenance requirement. If the maintenance is not completed, the maintenance requirement is circled and rescheduled. However, if material deficiencies or casualties that are unrelated to the maintenance requirement are discovered, the maintenance requirement can be crossed-off, but the discrepancy must be reported to the work center supervisor. PMS requirements (other than daily checks) accomplished during the prescribed week but not on the day specified are considered completed on schedule and crossed off.

3. Each Monday morning, the division officer compares the preceding week's weekly PMS schedule with the quarterly schedule and ensures that the quarterly schedule is properly updated as follows:
   - Crossed out (X) – maintenance completed
   - Circled – maintenance not completed
   - Circled and crossed out – maintenance done ahead of schedule

4. Each Monday morning, the division officer reviews the current week's weekly PMS schedule, ensures that it is properly made out according to the quarterly schedule, and signs and dates the Weekly Schedule in the appropriate block.

MAINTENANCE DATA SYSTEM

The Maintenance Data System is used to record information considered necessary for workload planning and coordination and to provide a data base for evaluating and improving equipment installed in the fleet. Much of the data collected by MDS returns to the ship in the form of a material history known as the Current Ship's Maintenance Project (CSMP).

Nearly all the reporting of maintenance actions other than normal PMS actions is done on a single multipurpose form, the Ship's Maintenance Action Form, OPNAV 4790/2K. Personnel completing a maintenance action fill out the appropriate sections of the form and send it via the ship's data collection center to an automatic data processing (ADP) facility to be processed. The 4790/2K contains information about the reporter's ship, work center, equipment worked on, and initial symptoms observed. In other sections, space is provided to record completion information, deferral of the work for various reasons, remarks, and special information for work requests. A space also exists for recording time meter and counter readings where required.

Normally, the following types of maintenance actions will be reported on the 4790/2K: system or equipment repairs or improvements, maintenance actions that require the use of parts or materials specifically requisitioned for the job, actions that cannot be completed in the usual amount of time due to the ship's operations, requirements for outside assistance, or unavailability of parts or material, assistance received from non-reporting activities, such as ships repair activity (SRA) or technical representatives, major work associated with corrosion control and preservation of the ship, and certain PMS actions listed in the 3-M Manual, OPNAV 4790.4.

To prevent the loss of significant data when it is recorded on several forms, each maintenance action must be assigned a unique identifier. Under MDS, this identifier is known as the job control number (JCN). It consists of a five-character unit identification code (UIC), a four-character work center code, and a four-character serial number called the job sequence number (JSN). Figure 7-14 shows an example of a JCN log used to record the JSNs. This system gives a work center at least 9,999 JCNs. If additional JCNs are desired, letters can be substituted for the first numeral. In any event, be sure not to assign the same JCN to two different jobs.
Ships Maintenance Action form (OPNAV 4790/2K)

The ship's maintenance action form, OPNAV 4790/2k (Figure 7-15), printed on a single sheet of "no-carbon-required" paper, is the basic MDS document. If multiple copies are needed, fasten the necessary number of forms together and fill them in at one time.

This form contains six sections that require entries to describe the type of maintenance action being reported. Print entries in capital letters. All entries must be legible and inserted within the tic marks. If you make an error, line it out using a single line, and enter the correct information.

Use the OPNAV 4790/2K to report all deferred maintenance actions and the completion of maintenance actions that do not result in configuration changes. Report partially completed maintenance actions that will result in configuration changes and complete or partial accomplishment of alterations on OPNAV 4790/CK. A description of the OPNAV 4790/2K information sections is presented in the following paragraphs.

Section I-Identification

This section identifies the equipment or system on which maintenance actions are being performed.

Section II-Deferral Action

Fill in this section to report the deferral of a maintenance action. Indicates ship's force man-hours expended up to the time of deferral, the date of the deferral, ship's force man-hours remaining, and if the work must be completed by a certain date.

Section III-Completed Action

Fill in this section in to report the completion of a maintenance action.

Section IV-Remarks/Description

This section must be filled in when the deferral of a maintenance action is reported. Fill it in when the completion of a maintenance action is reported, only when such remarks are considered important to the maintenance action. This section must also be filled in to report maintenance actions on selected equipment requiring second level reporting, and to describe safety related situations are.

Section V-Supplementary Information

This section contains helpful information about deferred maintenance actions, such as what technical manuals and blueprints are available and whether or not they are retained on board the requesting ship.
**Figure 7-15 — MDS form (OPNAV 4790/2K).**
Section VI—Repair Activity Planning Action

The repair activity may use this section for internal planning and scheduling of the workload.

Block G, Completed Block

This block contains the signature and rate/rank of the senior person actively engaged on the job in the lead work center. For maintenance actions not requiring assistance from an outside work center, the senior person working on the job signs this block and indicates his or her rate.

Block H, Accepted Block

This block contains the signature and rate/rank of the individual authorized by the tended ship to verify the acceptability of the work performed. Completion of this block is mandatory when an OPNAV 4790/2K is used to report completion of a previously deferred maintenance action. For maintenance actions not requiring assistance from an outside work center, the work center supervisor will sign this block and indicate his or her rate/rank.

The commanding officer or his/her authorized representative, places his/her signature on all original deferrals in block E. Two copies are held in a deferral suspense file in the work center until the JCN appears on the automated CSMP report, at which time the copies are transferred to the active suspense file held in the work center.

Maintenance Planning and Estimating form (OPNAV 4790/2P)

The maintenance planning and estimating form, OPNAV 4790/2P (Figure 7-16) is used along with the OPNAV 4790/2K form for deferring maintenance to be done by an intermediate maintenance activity (IMA). Attached to the original 2K at the intermediate maintenance activity, the IMA uses it to screen and plan the job in detail.
Figure 7-16 — Maintenance planning and estimating form (OPNAV 4790/2P).
Supplemental Form (OPNAV 4790/2L)

The supplemental form, OPNAV 4790/2L (Figure 7-17) is used by maintenance personnel to provide amplifying information (such as drawings and listings) related to a maintenance action reported on an OPNAV 4790/2K. Never enter the information on this form into the computer.
Figure 7-17 — Supplemental form (OPNAV4790/2L).
Reporting Changes to Equipment Configuration

One of the major objectives of the MDS is to provide the capability for reporting configuration changes. The importance of configuration change reporting cannot be overemphasized. Whenever any system, equipment, component, or unit within the ship is installed, removed, modified, or relocated, the change must be reported. This action will ensure proper documentation of changes, and will improve PMS coverage such as technical manuals, PMS coverage. The Configuration Change form, OPNAV 4790/CK (Figure 7-18) is used to provide this service.

The accomplishing activity completes the OPNAV 4790/CK form to the maximum extent possible and provides it to the ship or activity 3-M coordinator.

The 3-M coordinator then reviews the forms for legibility (all copies) and completeness and provides the forms to the applicable work center supervisor, who ensures that the proper documentation is completed and processed when a configuration change is accomplished, including required signatures to indicate verification of all reported configuration changes.

The ship is also responsible for reporting and monitoring all changes accomplished by ship's force during any type of availability and for providing the Configuration Change Form to the overhauling activity. The ship is not responsible for reporting configuration changes accomplished by an overhauling activity during availabilities.

A configuration change is either (1) the accomplishment of any action prescribed by an alteration directive or (2) the installation, removal, or modification of any system, equipment, component, or unit. The replacement of repair parts (such as nuts, bolts, wires, O-rings, gaskets, resistors, and capacitors) with the same parts does not constitute a configuration change.

The OPNAV 4790/CK form is used to report a configuration change or to report the completion of a previous deferral that resulted in a configuration change. Deferred maintenance actions and completed maintenance actions that do not result in configuration changes are reported on OPNAV 4790/2K. The OPNAV 4790/2K form will never be used to report accomplishment of any maintenance action that results in configuration changes.

A configuration change occurs whenever the accomplishment of a maintenance action results in:

1. Addition or installation of any new equipment.
2. Deletion, removal, or turn-in of any installed equipment.
3. Replacement or exchange of any equipment. A replacement or exchange is reported as the removal of an installed item of equipment and the installation of a new item of equipment.
4. Modification of any installed or in-use equipment. A modification occurs when a maintenance action alters the design or operating characteristics of the equipment or when nonstandard replacement parts (not identified on the APL or in the technical manual) are used.
5. Relocation of any equipment to a new deck, new frame, or new compartment.
6. Accomplishment of any alteration, such as a field change or ship alteration (SHIPALT).
Figure 7-18 — Configuration change form (OPNAV4790/CK).
Caution on Errors

Since the data entered on the MDS forms is used by data processing equipment to provide information to a ship in the form of the CSMP report, it is essential that each form be filled in completely and accurately. A computer cannot recognize anything that it is told does not exist. It will reject incorrect and incomplete entries and the data will not be available for use. To prevent this from happening, it is important that the completed forms be reviewed at all levels. Some of the common errors that work center supervisors, division officers, department heads, and 3-M coordinators should be alert for are the following:

1. Omission of slash marks on zero(s)
2. Incorrect equipment identification code (EIC)
3. Use of improper codes for alterations and field changes
4. Too many or not enough spaces between words in the remarks section
5. Incorrect dates
6. Incorrect entries

These are only a few of the many errors detected each day by a typical TYCOM 3-M staff section. Some areas on the 4790/2K require special mention. Alterations and field changes are identified in block 18 by a two-letter code in the first two spaces, followed by the identification number of the change. A title code, such as A, D, F, or K may be shown in the authorizing directive of SHIPALTs. This title code, if assigned, must be entered in the extreme right hand position of the block.

In block 18, the first two letters identify SHIPALT (SA), ORDALT (OA), field change (FC), or any other appropriate instruction. Electronic equipment is always identified by serial number, and only one piece of equipment may be reported under a given JCN. If several pieces of the same type of equipment are altered by field changes, there must be one document for each piece of equipment.

Example:

A new aircraft carrier ship has four C-13 Mod 2 catapults, and field change 17 is to be installed in all of them. Each catapult will be changed, and the changes will be reported on separate documents showing a specific JSN and equipment serial number. This will enable the computers to identify which items of equipment have been changed and which have not. It also will be reflected on the readouts returned to the ship as part of its material history.

Another problem is the use of the noun name in block 5. For electronic equipment the "AN" designation is the best entry for the noun name. If there is no "AN" designation, use the name from the nameplate. You may enter up to 16 characters of a name.

In block 35, a space follows each word, and words that cannot be completed on a line are continued on the next line with no spaces or hyphens inserted. On deferred actions, do not separate the XXX's used to separate the trouble from the desired corrective action. If they cannot be fitted in on one line, leave extra spaces blank on that line and put the XXX's in the first spaces of the next line.

SUPPLY

One of the duties of an Aviation Boatswain Mate Equipment (ABE) is to identify and requisition material. This section provides basic information to help you develop the knowledge you need to perform these duties. Proper material identification is essential to the requisitioning and receipt of the correct item. You must understand the terminology used in material identification.

Material is managed according to category (Federal Supply Classification) and its intended use. An inventory manager is assigned for each category of material with overall responsibility for all items.
within the category. All items in the supply system have an assigned two-position cognizance symbol code. This code identifies the inventory manager and the stores account in which the material is carried. The items assigned to bureau, office, or systems command for inventory management includes the following material:

1. Material in the research and development stage
2. Material that requires continuing logistics, engineering, or fiscal administration and control at the department level
3. Material recognized as a onetime installation that was bought and issued for a specific use

Naval Supply System Command (NAVSUP) Inventory Control Point (ICP) items are those for which bureau, office, or systems command management is not essential. The NAVSUP ICP provides stocks of these items to its segment of the supply system. This group of items includes equipment, repair parts, and consumables. It also includes those items for which stocking determination, quality control, funding, and issue control can be accomplished by the ICP if required; the ICP ensures that these items are available from commercial sources and other government agencies. NAVSUP selects the items assigned to ICP for inventory management with the advice of the appropriate bureau, office, or systems command.

The Navy Retail Office items are items for which joint military supply management responsibility is vested to the Defense Logistics Agency (DLA). These items include components, repair parts, consumables, and other material. The requirement determination and procurement of these items can be accomplished by the defense supply center on a combined basis for all military services.

**MATERIAL CATALOGING and CLASSIFICATION**

Material cataloging and classification will help you understand the information used in material identification. There are more than 4 million supply items in the Department of Defense (DOD) supply system. The Navy supply system alone stocks more than 1 million items. Each item must be identified to make buying, stocking, and issuing easier. To accomplish this, each item must be listed in different groups or categories.

**Federal Catalog System**

The Federal Catalog System encompasses the naming, description, and numbering of all items carried under centralized inventory control by the Department of Defense (DOD) and civil agencies of the Federal Government as well as the publication of related identification data. Only one identification may be used for each item in all supply functions from purchase to final disposal. The North Atlantic Treaty Organization (NATO) countries also use the Federal Catalog System. The Defense Logistics Agency (DLA) administers the Federal Cataloging System under the direction of the Assistant Secretary of Defense (Installation and Logistics).

**Federal Supply Classification System**

The Federal Supply Classification (FSC) System was designed to permit the classification of all items of supply used by the Federal Government. Each item of supply is classified in only one four-digit Federal Supply Classification class. The first two digits denote the group or major division of commodities within the group. Currently, there are 76 groups assigned. Group numbers start from 10 and end at 99. *Figure 7-19* is an example list of federal supply groups and titles.

<table>
<thead>
<tr>
<th>GROUP</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Aircraft launching, landing, and ground handling equipment</td>
</tr>
<tr>
<td>48</td>
<td>Valves</td>
</tr>
<tr>
<td>53</td>
<td>Hardware and abrasives</td>
</tr>
</tbody>
</table>

*Figure 7-19* — Example list of federal supply groups and titles.
The number of classes within each group varies. Each class covers a particular area of commodities according to physical or performance characteristics. The items in the class are usually requisitioned or issued together. This classification system is used as a basis for including items in the same area of commodities. Examples of how classes are used to divide types of material within a stock group are shown in Figure 7-20. The stock group and class together make the Federal Supply Classification (FSC).

The Navy uses groups 01 through 09 for forms and publications that are not included in the Federal Catalog System. The forms and publications are numbered according to the following system:

- 01 Navy Department forms.
- 02-08 Publications.
- 09 District and fleet forms.

### NATIONAL STOCK NUMBER (NSN)

All items of supply that are centrally managed or bought for system stock are required to have a National Stock Number (NSN) assigned to them. National Stock Numbers are used in all supply management functions and publications that mention the items. The NSN is a 13-digit number assigned by the Defense Logistics Information Service (DLIS) to identify an item in the supply distribution system. The following paragraph discusses the breakdown of an NSN. Figure 7-21 is an example of an NSN.

<table>
<thead>
<tr>
<th>GROUPS</th>
<th>CLASSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 17</td>
<td>1710 Arresting gear and barricade equipment</td>
</tr>
<tr>
<td>Aircraft launching, landing, and ground handling equipment</td>
<td>1720 Catapult launching equipment</td>
</tr>
<tr>
<td>Group 48</td>
<td>4810 Valve solenoid</td>
</tr>
<tr>
<td>Valves</td>
<td>4820 Valve angle</td>
</tr>
<tr>
<td>Group 53</td>
<td>5305 Screws</td>
</tr>
<tr>
<td>Hardware and abrasives</td>
<td>5306 Bolts</td>
</tr>
<tr>
<td></td>
<td>5307 Studs</td>
</tr>
<tr>
<td></td>
<td>5310 Nuts and washers</td>
</tr>
<tr>
<td></td>
<td>5320 Rivets</td>
</tr>
</tbody>
</table>

![Figure 7-20 — Examples of supply classes in groups.](image)

<table>
<thead>
<tr>
<th>1710</th>
<th>00</th>
<th>1234567</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Supply Classification Code Number</td>
<td>National Codification Bureau Code</td>
<td>National Item Identification Number</td>
</tr>
</tbody>
</table>

![Figure 7-21 — Examples of National stock number.](image)

### National Codification Bureau (NCB) Code

The National Codification Bureau (NCB) code is a two-digit code that occupies the fifth and sixth position of a North Atlantic Treaty Organization (NATO) stock number. This code identifies the NATO country that originally cataloged the item of supply. The NCB codes currently assigned are listed in Afloat Supply Procedures Manual P-485. The NSN assigned by United States uses NCB codes “00” and “01.”

### National Item Identification Number (NIIN)

The National Item Identification Number (NIIN) consists of a two digit National Codification Bureau (NCB) code and seven digits which, in conjunction with the NCB code, uniquely identify each NSN item in the federal supply distribution system. Although part of the NSN, NIINs are used independently for material identification. Except for identification list, most federal supply catalogs are arranged in NIIN order.
Cognizant (COG) Symbol

The cognizant (COG) symbol consists of a two-character code that identifies the stores account and cognizant inventory manager of an item. The cognizant symbols are listed in Figure 7-22.

<table>
<thead>
<tr>
<th>COG SYMBOL</th>
<th>COGNIZANT INVENTORY MANAGER</th>
<th>STORES ACCOUNT</th>
<th>TECHNICAL RESPONSIBILITY</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0I</td>
<td>Naval Publication and Forms Directorate</td>
<td>None</td>
<td>Navy Publication and Printing Service</td>
<td>Publications</td>
</tr>
<tr>
<td>1I</td>
<td>Naval Publication and Forms Directorate</td>
<td>NSA</td>
<td>Navy Publication and Printing Service</td>
<td>Forms</td>
</tr>
<tr>
<td>1R</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>NSA</td>
<td>Naval Air System Command</td>
<td>Aeronautical, photographic, and meteorological 1 material (consumable or expense type material).</td>
</tr>
<tr>
<td>4R</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>APA</td>
<td>Naval Air System Command</td>
<td>Catapult and arresting gear material (repairable or investment type material).</td>
</tr>
<tr>
<td>4V</td>
<td>Naval Air System Command</td>
<td>APA</td>
<td>Naval Air System Command</td>
<td>Aircraft engines.</td>
</tr>
<tr>
<td>4Z</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>APA</td>
<td>Naval Air System Command</td>
<td>Airborne armament.</td>
</tr>
<tr>
<td>5R</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>NSA</td>
<td>Naval Air System Command</td>
<td>Catapult and arresting gear material (consumable or expense type material).</td>
</tr>
<tr>
<td>6R</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>APA</td>
<td>Naval Air System Command</td>
<td>Aviation ground support equipment (repairable or investment type material).</td>
</tr>
<tr>
<td>6V</td>
<td>Naval Air System Command</td>
<td>APA</td>
<td>Naval Air System Command</td>
<td>Technical directive change kits.</td>
</tr>
<tr>
<td>7R</td>
<td>Naval Inventory Control Point Philadelphia (NAVICP PHIL)</td>
<td>NSA</td>
<td>Naval Air System Command</td>
<td>Depot-level repairable aviation material.</td>
</tr>
</tbody>
</table>

Figure 7-22 — Cognizant symbol.
To understand cognizant symbols, you must understand the following terms:

**Stores Account**

This is an account reflecting the value of material, supplies, and similar property on hand. The stores accounts are made of two different accounts, the Appropriation Stores Account (APA) and the Navy Stock Account (NSA).

**Appropriations Purchase Account (APA)**

This account is for all stock material paid for out of appropriations. This material is not charged to the user's operating funds. If the material was bought for a purpose other than its original appropriation, the material is chargeable to the user's fund.

**Navy Stock Account (NSA)**

The NSA consists of all material paid for from the Defense Business Operating Fund (DBOF). NSA material is always charged to the user’s allotment, operating budget, or operating target funds.

**Inventory manager**

The inventory manager is an organizational unit or activity within the Department of Defense that has the primary responsibility for controlling the functions of cataloging, identification, determination of requirements, procurement, inspection, storage, and distribution of categories of material.

**Technical responsibility**

The technical responsibility is the systems command or office that determines the technical characteristics of equipment. For example, the electronics equipment characteristics include items such as circuitry and the types and arrangement of components.

**Expense type item**

This term identifies stock items that are financed by the Defense Business Operating Fund; those items are the same as NSA items.

**Consumable**

Consumable material is material that is consumed in normal use. Some of the examples of these materials are paints, cleaning supplies, office supplies, and common tools.

**Cognizance Symbols**

Cognizance symbols are two-character, alphanumeric codes prefixed to national stock numbers. Cognizance symbols are listed in *Figure 7-22*. The first character of the cognizance symbol identifies the stores account. The following information refers to the first character of the cognizance symbol:

- Cognizance symbols 0 (zero), 2A and 8A is not carried in the stores account and is issued without charge to the requisitioned.
- Even numbers 2, 4, 6, and 8 are carried in the Appropriation Stores Account (APA).
- Odd numbers 1, 3, 5, and 7 are carried in the Navy Stock Account (NSA).
- Number 9 is Navy-owned material carried in NSA and managed-by the Naval Inventory Control Point Mechanicsburg.

The second position of the cognizance symbol identifies the item manager. The item manager exercises supply management over specified categories of material.
Material Control Codes

A Material Control Code (MCC) is a single alphabetic character assigned by the inventory manager. It is used to segregate items into manageable groupings (fast, medium, or slow movers) or to relate to field activities’ special reporting and control requirements. Figure 7-23 contains a list of MCCs commonly encountered.

NAVY ITEM CONTROL NUMBER (NICN)

As discussed in a previous paragraph, NSNs are required for all items centrally managed or bought for supply system stock. With changes of equipment and products, the Navy buys new items from the suppliers. New items entering the Navy supply system are identified in time to permit assignment of NSNs before shipment. In numerous instances, the Navy Item Control Number (NICN) is used to identify the items before an NSN can be assigned. Some items are permanently identified by the NICN because of the nature of the items. The 13-digit NICN designation includes the following:

1. Inventory Control Point ICP control numbers
2. Kit numbers
3. Publications and forms ordering numbers
4. Local Navy Activity Control (NAC) numbers
5. Other locally assigned numbers
6. Federal Supply Classification (FSC) code (numbers that occupy the first four digits of the NICN)
7. Navy Item Control Number (NICN) code (letters that occupy the 5th and 6th position)
8. Serial number (alphanumeric and occupies the 7th through the 13th position)

The NIC numbers with which you must be familiar are listed in Figure 7-24. These codes differentiate the types of NICN.

Permanent LL Coded NICNs

NICNs with “LL” in the 5th and 6th positions and a “C” in the 7th position mean that the ICPs or other Navy item managers (including field activities) assigned them. The purpose of this type of NICN is to identify and monitor non-stocked items that are not expected to have enough demand to qualify for NSN assignment. The NICNs are assigned to permit the maintenance of a complete and uniform inventory control point weapons system file. It is also used to ensure that selected items are considered for inclusion in future allowance lists. Stock points must purchase items identified by this type of NICN. Stock points currently do not have the capability to translate permanent LL coded

---

**Table: Material Control Codes**

<table>
<thead>
<tr>
<th>CODE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Field level repairable.</td>
</tr>
</tbody>
</table>
| E    | (1) Depot-level repairables.  
|      | (2) Material (expendable ordnance) requiring lot and serial number control, but is reported by serial number only. |
| H    | Depot-level repairables. |
| L    | Items of local stock or items pending NSN assignment. |
| M    | Medium demand velocity items (consumables). |
| S    | Slow demand velocity items. |
| T    | Terminal items. |
| W    | Ground support equipment. |
| X    | Special program repairables. |
| Z    | Special program consumables. |

---

**Table: Navy Item Control Number (NICN)**

<table>
<thead>
<tr>
<th>NIC NUMBER CODES</th>
<th>USED TO DESIGNATE</th>
</tr>
</thead>
</table>
| LD               | Directive ordering number (COG 01).  
|                  | Example: 1234-LD-123-4567 |
| LF               | Form ordering number (COG 11).  
|                  | Example: 1234-LF-123-4567 |
| LK               | Aircraft change kit number.  
|                  | Example: 1234-LK-123-4567 |
| LP               | Publication ordering number (COG 01 and 0P).  
|                  | Example: 1234-LP-123-4567 |
| LX               | Control number assigned by NAVICO PHIL field activities to certain items under their inventory control.  
|                  | Example: 1234-LX-123-4567 |
NICNs to applicable part numbers. The items are requisitioned by using the DD 1348-6 format (part number requisition).

**Temporary LL Coded NICNs**

NICNs with “LL” in the 5th and 6th positions and any letter except “C” in the 7th position are assigned by ICPs or other Navy inventory managers for temporary identification. These NICNs enable the item manager to establish and maintain automated file records, to ease procurement action, and to maximize automated processing of requisitions. When a requisition identifies an item by a temporary NICN that has been converted to an NSN, the status card will include the new NSN. The Defense Logistics Information Service (DLIS) publishes a NICN to NIIN cross-reference monthly.

**Local Item Control Number (LICN)**

The LICN (*Figure. 7-25*) is an identification number assigned by an activity for its own use. However, LICNs are not authorized in supply transaction documents. LICNs are for local use only and may be assigned to shipboard stocked consumable items that are not identified by an NSN or another type of NICN. A LICN consists of 13 characters. The first four will be numbers corresponding to the federal supply classification (FSC) of similar NSN items, the fifth and sixth will be LL and the remaining seven alphanumeric.

**SOURCES OF MATERIAL IDENTIFICATION**

This chapter presents different sources of information needed to perform technical research. Material identification does not end with the assignment of the NSN. Some means of identifying other particular needs by the stock number must be provided to the customers. This identification includes the means of determining the correct quantities of these items to carry in stock. Identification of needs may be determined by using the lists described in the following paragraphs.

<table>
<thead>
<tr>
<th>1710</th>
<th>LL</th>
<th>0000123</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Federal Supply Classification Code Number</td>
<td>Designation for locally assigned identification number</td>
<td>Serially assigned identification number</td>
</tr>
</tbody>
</table>

*Figure 7-25 — Example of an LICN.*
Federal Logistics (FED LOG)

The FED LOG on compact disc read-only memory (CD-ROM) (Figure 7-26) provides access to DOD logistics data. The FED LOG includes the basic management data for preparing requisitions and includes an integrated historical record of deleted and superseded NIINs with appropriate codes to indicate disposition action.

![Federal Logistics Data on Compact Disc (FED LOG)](image)

Figure 7-26 — Example of FED-LOG.
Commercial and Government Entity (CAGE)

The Commercial and Government Entity (CAGE) code (Figure 7-27) is a five-digit, numeric identification code assigned to manufacturers who have previously produced or are currently producing items used by the Federal Government. The CAGE is used in conjunction with part number, item number, symbol, or trade name assigned by the manufacturer to a product. The CAGE catalog handbook is published on Defense Logistics Information Service (DLIS) on the FED LOG CD-ROM.

![Figure 7-27 — Example of CAGE from FED-LOG.](image)

Management List Consolidated (ML-C)

The Management List Consolidated (ML-C) is a consolidated, cumulative listing of National Stock Numbers for all branches of the armed services. Each NSN is listed one time only. The integrated material manager and service or agency are listed separately. The ML-C is a tool used for determining management data applicable to items used or managed by other military activities.
Master Cross Reference List (MCRL)

The Master Cross-Reference List (MCRL) (Figure 7-28) Part I, provides a cross-reference from a reference number (manufacturer’s part number, drawing number, design control number, etc.) to its assigned National Stock Numbers (NSN). The MCRL, Part II, provides a cross-reference from an NSN to a reference number. The MCRL is published on the FED LOG CD-ROM.

![Figure 7-28 — MCRL from FED-LOG.](image)

Master Repairable Item List (MRIL)

The Master Repairable Item List (MRIL) (Figure 7-29) is a catalog of selected Navy-managed items which, when unserviceable and not locally repairable, are required to be turned in to a Designated Overhaul Point (DOP) for repair and return to system stock. The MRIL is part of the FED LOG that is distributed in compact disc format.

Hazardous Material Information System (HMIS)

The DOD Hazardous Material Information System (HMIS) provides information concerning the use, procurement, receipt, storage, and expenditure of hazardous material. The NAVSUPSYSCOM maintains and distributes the HMIS hazardous item list. This list includes information concerning hazardous ingredients, use of hazardous material, protective clothing, and emergency treatment.
Illustrated Parts Breakdown (IPB)

An illustrated Parts Breakdown (IPB) is prepared by the manufacturer for each model aircraft, engine, accessory, electronic equipment, support equipment, or other equipment considered advisable by Naval Air (NAVAIR). The IPB is printed and issued by the authority of NAVAIR. It is used as reference for identifying and ordering replacement items.

Group Assembly Parts List (GAPL)

The GAPL is the main text of the publication. It consists of a series of illustrations and a parts list in aircraft or equipment parts are shown in assembly breakdown order. The items in the illustration pages are identified by index numbers. These index numbers match the numbers listed in the parts list of the assembly breakdown. The parts list is arranged in numerical sequence by index number to make it easier to use. The information in the parts list includes index number; part number; description; units per assembly; Usable On code; and the Source, Maintenance, and Recoverability (SM&R) code. Each major assembly in the parts list is followed immediately by its component parts or subassemblies. Component parts listed in the description column may be prefixed with a dot or indented to show their relationship. Use this information to identify and obtain the required material in accordance with the SM&R code. The numerical index of the IPB lists all parts in reference/part number sequence. Each reference/part number is cross-referenced to the figure and index number or the work package where the item is listed in the text.
Afloat Shopping Guide

The Afloat Shopping Guide (ASG) (Figure 7-30) is designed to assist the fleet personnel in identifying the NSNs for items that are frequently requested by ships. It includes a detailed description of each item, and (when applicable) the stock number for substitute items. The ASG is distributed in CD-ROM format and printed form.

General Services Administration

The General Services Administration (GSA) supply list is approximately 20,000 line items that are stocked in GSA supply distribution facilities. The items listed in this catalog are assigned cognizance 9Q. The GSA supply catalog series serves as the major merchandising instrument of the Federal Supply Service (FSS) Stock Program. Since GSA is prepared for civilian agencies, the FED LOG must be referred to for supply management data.

The GSA supply catalog guide contains consolidated alphabetical and NSN indexes to all stock items. These are items divided into four commodity catalogs and other items available through the FSS program.

GSA Supply Catalog, Tools contains listings of common and special-use tools. It includes alphabetical and numerical indexes and a price list.

GSA Supply Catalog, Office Products lists a wide variety of items for office use, including paper supplies, standard and optional forms, and many items of equipment. It includes alphabetical and numerical indexes and a price list.

GSA Supply Catalog, Industrial Products contains descriptive listings of a broad range of items, such as hardware, paints, adhesives, and cleaning equipment and supplies. It includes alphabetical and numerical indexes and a price list.

GSA Supply Catalog, Furniture provides a single source of information for all furniture items stocked by the FSS.

Source, Maintenance and Recoverability Codes (SMR)

The SM&R code consists of a two-position source code, two single-position maintenance codes, a single-position recoverability code, and if applicable, a single-position service option code. Figure 7-31 breaks down the SM&R code by position and defines the source, maintenance level, and reparability level of the component.

Source Code is a two-character code that occupies the first two positions of the SM&R code format. This code shows the manner of getting the material needed for maintenance, repair, or rework of items.

Maintenance Code is indicated in the third and fourth positions of the SM&R code. It indicates levels of maintenance authorized to replace and repair an assembly or part. The code shown in the third position provides the lowest level of maintenance authorized to remove or replace the assembly or part. The fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level authorized to perform the repair.

Recoverability Code is indicated in the fifth position; this code defines the approved disposition of unserviceable items.
GROUP 48
VALVES
CLASS 4820
VALVES, NONPOWERED

BOOT DUST AND MOISTURE SEAL

Silicone Rubber Body, thru-hole style. Compression type mtg. 1.469 in. O/A H.,.080 in. thk., 2.000 in. body OD, 2.875 in. base CD, 1.875 in. base ID, and .875 opening ID. Used on Valves, Pressure Regulating. Leslie Co Navy Sales Ref No. 37740.

00-615-6762

COCK, DRAIN

AUTOMOTIVE TYPE

Threaded male pipe inlet. Brass body. For use in fluid piping systems up to 150 PSI pressure.

Straight Internal Seat

00-684-0880 1/8-27NPTF MS35782-1
00-720-4488 1/4-18NPTF MS35782-2
00-174-0339 3/8-18NPTF MS35782-3

Straight External Seat

00-752-9040 1/8-27NPTF MS35782-4
00-849-1220 1/4-18NPTF MS35782-5

Cross External Seat

00-276-9041 3/8-18NPT MS35782-6

125 PSI

00-826-2190 1/8-27NPT MS35785-1
00-272-3340 1/8-27NPT MS35785-2
00-197-4964 1/4-18NPT MS35785-4
00-554-6391* 1/2-14NPT MS35785-4

*Disc or stem flow control device.

Cock, Plug

FEMALE ENDS


00-845-1096 1/4-18NPTF MS35783-2

PET TYPE

Threaded male pipe inlet. Brass body. Use in liquid or gas systems up to pressure as indicated below. Spec MIL-C-1203.

00-274-3565 3/4-14NPT

FEMALE to MALE

(Threaded female and male pipe ends. Brass body. For use with fluid or gas to 125 PSI pressure.

00-555-9761 1/8-27NPTF MS35784-1
00-287-4268 1/4-18NPTF MS35784-2
00-272-3346 3/8-18NPTF MS35784-3
00-272-3347 1/2-14NPTF MS35784-4

CONTINUED ON FOLLOWING PAGE

Figure 7-30 — Example of Afloat shopping guide.
CASUALTY REPORTING (CASREP)

The casualty report (CASREP) is designed to support the Chief of Naval Operations (CNO) and fleet commanders in the management of assigned forces. The effective use and support of Navy forces requires an up-to-date, accurate operational status for each unit. An important part of operational status is casualty information. The CASREP system contains three types of reports: initial, update, and correct. These reports are described in general in the following paragraphs.

Initial Casualty Report (Initial)

An Initial CASREP identifies the status of the casualty and any parts or assistance needed. Operational and staff authorities use this information to set priorities for the use of resources.

Update Casualty Report (Update)

An Update CASREP is used to submit changes to previously submitted information.

Correction Casualty Report (Correct)

A Correct CASREP is submitted when equipment that has been the subject of casualty reporting is repaired and is back in operational condition.
CATAPULT AND ARRESTING GEAR ADMINISTRATION

Record keeping in relation to launch and recovery equipment is as important as the operation of the machinery or maintenance procedures. Because of the many 3-M maintenance requirements and required periodic reports, the important of accurate logs, reports, and records must be emphasized.

Catapult Work Center Maintenance Log

The work center maintenance log is the most important record kept on the catapult systems. Each catapult work center supervisor shall maintain a separate maintenance log for each catapult. The supervisor must make daily entries listing all maintenance performed during a 24-hour period. When a logbook is filled, the supervisor transfers historical or permanent data into a new maintenance log and retains the completed log for a minimum of two years. At the back of the front cover of work center maintenance log is the launch valve clock timers (Figure 7-32), which are permanently

Figure 7-32 — Launch valve clock timers.
attached. The data from these clock timers is very important and required periodically every time preventive and corrective maintenance is performed on the launch valve. The clock timer data serves as a guide, and if launch valve opens up outside these clocks, immediate attention is required.

**Catapult Steam Log**

The catapult steam log, also known as shot log (Figure 7-33), is maintained during all catapult operations by a catapult recorder stationed at the central charging panel (CCP) or main control console (MCC).

![Steam catapult log](image)

**Figure 7-33 — Steam catapult log.**

**Arresting Gear Work Center Maintenance Log.**

The work center maintenance log is similar to catapult work center maintenance log and is the most important record kept on the arresting gear system. The arresting gear supervisor shall maintain a separate maintenance log for each arresting engine. Sufficient pages in the front of the log are reserved for entering historical or permanent data nature. Make daily entries listing all maintenance performed during a 24-hour period. When a log is filled, transfer the historical or permanent data into a new maintenance log and retain the completed.
**Arresting Gear Recovery Log**

The Recovery Log (*Figure 7-34*) is maintained during all aircraft recovery operations by the primary fly (pri-fly) control pane operator to provide a uniform system of recording pertinent arresting gear data.

![Sample Recovery Log Sheet](image)

**Figure 7-34 — Recovery log sheet (NAVAIR form 13810/4).**
Recovery Wire Rope History Chart

The recovery wire rope history chart (Figure 7-35) provides a uniform system for recording arresting gear wire rope data. Engine operators shall maintain this for each specific engine, with the last recovery number being obtained from pri-fly. A new sheet shall be used at the beginning of each month.

![Sample Only]

**Figure 7-35 — Recovery wire rope history chart (NAVAIR form 13819/5).**
Flight Deck Operation (NAVAIR Form 13810/1 and Form 138/1A)

The flight deck operation report Figure 7-36 and Figure 7-37 is a two part form compiled from information contained in the catapult shot logs and the arresting gear recovery logs.

![Flight Deck Operation Report](image)

Figure 7-36 — Flight deck operation report, part 1.
### Flight Deck Operations (Part II - Landing)

**NAVAR Form 13810/1A (REV. 8-79) S/N 0102-LF-613-8106**

<table>
<thead>
<tr>
<th>AIRCRAFT SERIES AND MODEL NO.</th>
<th>DAY OR NIGHT</th>
<th>ARRESTED LANDINGS</th>
<th>TOUCH AND GO OR HELO LANDING</th>
<th>PENDANT NO.</th>
<th>LANDING PER PENDANT POSITION</th>
<th>NO. HITS EACH PENDANT CHANGED</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA-6B</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td>P1</td>
<td>152</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>0</td>
<td>P2</td>
<td>998</td>
<td>93, 98, 90, 83, 80, 90</td>
</tr>
<tr>
<td>F-14A</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td>P3</td>
<td>2114</td>
<td>93, 98, 95, 97, 99, 65, 100, 95, 98, 100, 92, 100</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>0</td>
<td>P4</td>
<td>152</td>
<td>96, 83, 90</td>
</tr>
<tr>
<td>F/A-18</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td>P5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US-3A</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>TOTAL ARRESTED LANDINGS THIS REPORT 3895</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>TOTAL ARRESTED LANDINGS TO DATE 283259</td>
</tr>
<tr>
<td>S-3B</td>
<td>D</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>TOTAL HELO LANDINGS THIS REPORT</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td>TOTAL HELO LANDINGS TO DATE</td>
</tr>
</tbody>
</table>

**LANDING INCIDENTS:** List date and summary of all landing incidents, include message DTG if applicable, note circumstances of all barricade engagements, failure of landing gear arresting hooks, cable, etc., or arresting gear malfunction and significant down-time. Give cause of purchase cable replacement and number of arrestments. Include other pertinent remarks. (Continue on reverse if necessary.)

1. Replaced purchase cables on P3 after maximum traps (reduced by heavies) of 1500.
2. Replaced purchase cables on P4 after 1467 traps due to exceeding "Q" factor limits.

**Signature (Commanding Officer)**

**Copy To Type Commander**
Aircraft Launch and Recovery Equipment (ALRE) Log Program

The Auto shot and recovery log program provides a computerized program for the collection and dissemination of launch and recovery log data. The automated program has been developed to record the Shot Log, Recovery Log, and Wire Rope History Report on computer disc. These discs are then sent to NAWC Lakehurst instead of the paper forms.

SUMMARY

In this chapter, you learned that the Planned Maintenance System is a means for accomplishing preventive maintenance aboard ship. You also learned that PMS procedures for a specific piece of equipment are based on good engineering practices, practical experience, and technical standards. You studied the role of the Maintenance Data System in planning workloads and providing a database for evaluating and improving equipment installed in the fleet. The supply information in this chapter is not intended to make you an expert in supply matters. Rather, this section was developed to give you a basic understanding and provide you with some of the information needed for ordering supplies. You also studied the maintenance logs and reports for recording the details of catapult and arresting gear operations and maintenance.
End of Chapter 7
Maintenance Planning and Administration

Review Questions

7-1. What PMS manual contains planned maintenance requirements and provides a ready reference for the supervisor?

A. Maintenance index page  
B. Work center  
C. Division  
D. MRC

7-2. What provides a listing of MIPs assigned to each department, divided by work center and contains force revision, unit, and work center?

A. LOEP  
B. EGL  
C. TGL  
D. MRC

7-3. What is used to perform detailed maintenance action and contains ships system, rates, and maintenance requirement description?

A. MIP  
B. LOEP  
C. MRC  
D. FBR

7-4. What is used along with the controlling MRC to assist in identifying identical equipment or items?

A. MIP  
B. SYSCOM  
C. TGL  
D. EGL

7-5. What PMS schedule displays maintenance requirements to be performed during the period of major overhauls?

A. Weekly  
B. Monthly  
C. Cycle  
D. Annually
7-6. What symbol is used in the maintenance column of a MIP to identify all mandatory related maintenance?

A. Asterisk  
B. Pound  
C. Circle  
D. Hyphen

7-7. Who is authorized to change the Quarterly schedule once its completed and finalized?

A. Work center supervisor  
B. Division officer  
C. Department head  
D. Commanding officer

7-8. What symbol indicates completion of maintenance requirements on a quarterly schedule?

A. X  
B. O  
C. #  
D. {}  

7-9. What schedule displays the planned maintenance schedule for accomplishment in a seven day work week?

A. Annual  
B. Quarterly  
C. Monthly  
D. Weekly

7-10. What is used to record necessary information for workload planning and coordination and provides data for evaluating and improving equipment?

A. CSMP  
B. MDS  
C. FBR  
D. PMS

7-11. What OPNAVINST is the 3M manual?

A. 4790.3  
B. 4790.4  
C. 4790.5  
D. 4790.6

7-12. What form is used to report all deferred maintenance actions?

A. OPNAV 4790/2K  
B. OPNAV 4790/2P  
C. OPNAV 4790/CK  
D. OPNAV 4790/2L
7-13. What form is used to report partially completed maintenance actions and partial accomplishment of alterations?

A. OPNAV 4790/2L  
B. OPNAV 4790/CK  
C. OPNAV 4790/2K  
D. OPNAV 4790 2P

7-14. What section/block of OPNAV 4790/2K contains the signature and rate/rank of individual accepting the work?

A. Section I  
B. Section II  
C. Block G  
D. Block H

7-15. What section/block of OPNAV 4790/2K identifies the equipment or system on which maintenance is being performed?

A. Section I  
B. Section II  
C. Block G  
D. Block H

7-16. What is used by maintenance personnel to provide amplifying information such as drawing and listings related to a maintenance action on OPNAV 4790/2K?

A. Maintenance planning form  
B. Deferred action form  
C. Supplemental form  
D. Repair action form

7-17. How many digits are assigned on national stock number?

A. 10  
B. 11  
C. 12  
D. 13
CNATT makes every effort to keep their manuals up-to-date and free of technical errors. We appreciate your help in this process. If you have an idea for improving this manual, or if you find an error, a typographical mistake, or an inaccuracy in CNATT manuals, please write or email us, using this form or a photocopy. Be sure to include the exact chapter number, topic, detailed description, and correction, if applicable. Your input will be brought to the attention of the Technical Review Committee. Thank you for your assistance.

Write: CNATT N9 Rate Training Manager
230 Chevalier Field Avenue
Pensacola, FL 32508
COMM: (850) 452-9700 Ext. 3171 for the N9 Integrated Project Team (IPT)
DSN: 922-9700 Ext. 3171 for the N9 Integrated Project Team (IPT)

E-mail: Refer to any of the Aviation Rating pages under CNATT on the NKO web page for current contact information.

Rate____ Course Name______________________________________________
Revision Date________ Chapter Number____ Page Number(s)____________

Description
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________

(Optional) Correction
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________

(Optional) Your Name and Address
_______________________________________________________________
_______________________________________________________________
_______________________________________________________________

7-55