CHAPTER 15

INFORMATION: INPUT AND OUTPUT

This chapter deals with paperwork covered in the Qualifications under Administration. As a member of the weapons department you have a share in its administration. True, most of your working day is spent in keeping the launching system in working condition. However, it is your work, ability, and training, plus your equipment, that is being administered and you have some say in the administration policies.

The operational and maintenance policies on your equipment are based in part on data obtained from the records and reports that you make. Thus, administration is a tool to aid you, and is well worth the paperwork involved. The assistance you receive from administration is not always apparent; but the paperwork is yet, in the name of expediency, sometimes disregarded or slighted. When this happens, everyone loses because something is taken away from the organization.

Your big job is to keep launching system equipment in top working order. To help you do this, the Navy provides many publications and other written material pertinent to the maintenance task. In return, the Navy requires you to provide written reports on how well you are maintaining your equipment. By a roundabout way there is a constant flow of information between you and the Navy, principally between you and NAVORDSYSCOM.

Your information may leave your ship in the form of a letter or report which is processed by a machine or an individual of the Command. It is possible that information you have supplied will trigger some kind of action in the Command.

To illustrate, let's assume you have sent in five failure reports on the same relay. You may think that this recurring casualty happens only in your particular equipment, but ten other ships have also sent similar reports to the Command. An engineer in the guided missile launching system section in NAVORDSYSCOM sees a failure pattern and analyzes the relay circuit. He detects a faulty circuit design.

Than he makes a design change to correct the relay failures. The engineer writes instructions on how to rewire the existing relay circuit and sends these instructions to all ships that have your launching system. These instructions are called Ordnance Alterations - OrdAlts for short. If the circuit change is not complicated or requires minor changes to equipment, you will make the circuit alterations. Thus, we have completed a correspondence loop, or in Navy jargon, we have "feedback." You have fed information to NAVORDSYSCOM and it has fed back information to you. This feedback system is very important. Any break in the loop destroys the effectiveness of the system. Don't you break it.
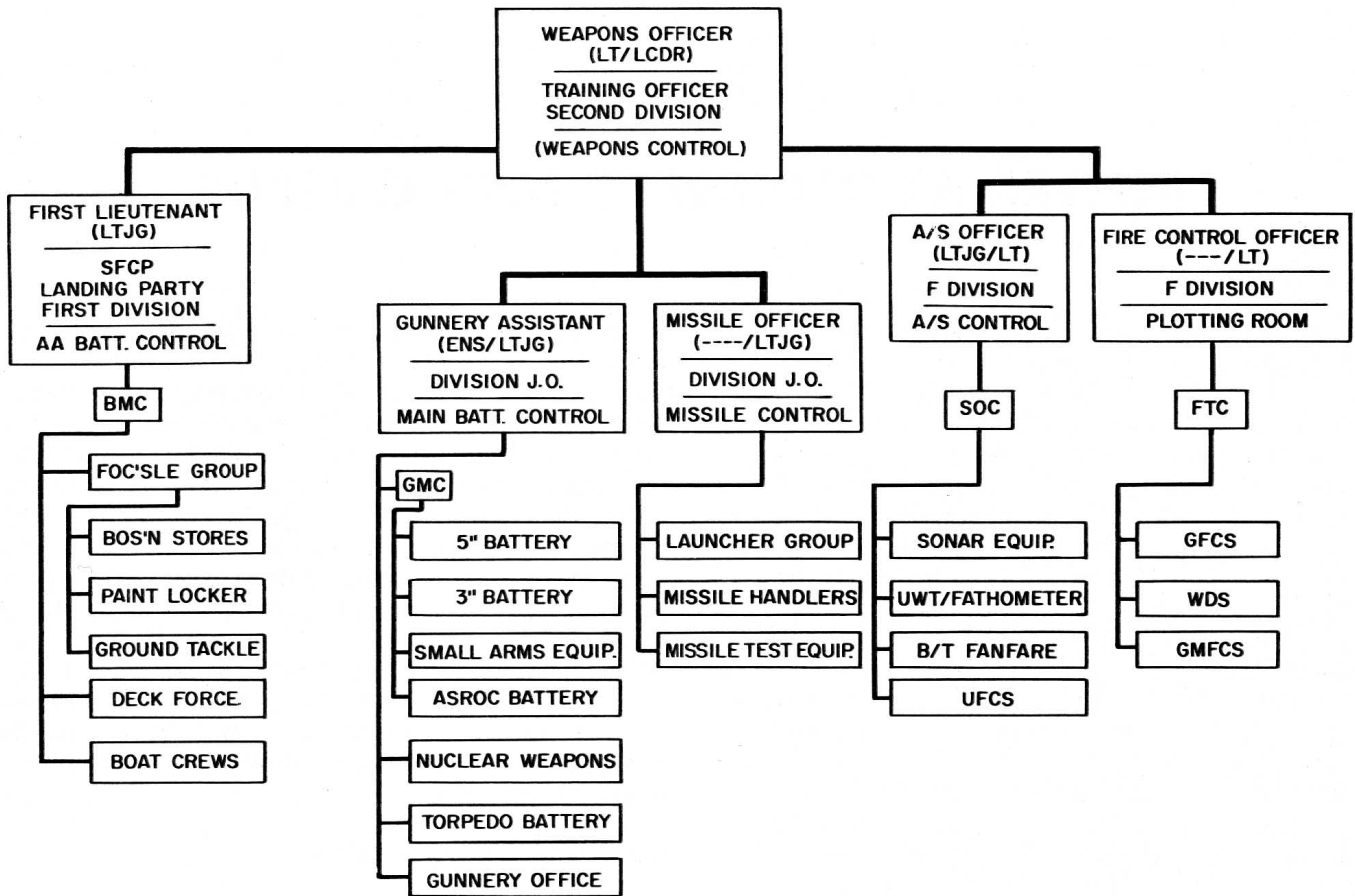
WEAPONS DEPARTMENT

Before going into the administrative aspects of the weapons department, let's review the department organization.

The weapons department of combat vessels whose main armament consists of guns or missile launching systems is headed by a weapons officer who, in turn, is responsible to the commanding officer.

Within the weapons department are several divisions which are designated by special letters or numbers. Each division is headed by an officer who is responsible to the weapons officer. Figure 15-1 shows a typical weapons department organization on a combat ship.

As an example of how a division operates, we will use the F division. Personnel in the F division man the gun and missile launching system fire control equipment and the plotting room. The F division personnel are further divided into units that are assigned to specific systems. Each unit operates and maintains the particular system to which it is assigned.

A relatively new concept of division designation within the weapons department has recently been implemented in the fleet. The divisions

83.207

Figure 15-1.—Organization chart, weapons department, USS Farragut class DLG.

are WM (weapons-missiles), WG (weapons-guns), WD (weapons-deck), and ASW (anti-submarine warfare). Within the WM division are the GMMs and FTMs who are assigned to a specific launching system. The GMMs maintain and operate a particular launching system and the FTMs maintain and operate the fire control equipment for the missile system. If more than one launching system exists within the WM designation, the division designations would be WM 1, WM 2 and so on.

Each division officer usually is assisted by a junior division officer. When making reports, most division officers do not report to the weapons officer directly, but report through an additional echelon. This usually is an assistant under the weapons officer.

Figure 15-1 is not considered to be a complete organizational chart because the weapons department may have minor changes even in

ships of the same class. In the figure, certain technical personnel (such as warrant gunners) are omitted, and functional relationships are not shown. Also, the assistant weapons officer may perform dual functions.

On small ships, the weapons department organization follows the pattern of larger ships. However, since small ships have fewer officers and, relatively, a greater variety of armament, some of the billets are expanded to cover more functions.

To fully understand your weapons department, study your departmental manual. H you have any questions, do not hesitate to ask your division senior petty officer for an explanation.

Now let's see how NAVORDSYSCOM, in particular, and other commands, in general, send out information to direct the affairs of the Navy.

CHAPTER 15 - INFORMATION: INPUT AND OUTPUT

THE NAVY DIRECTIVE SYSTEM

Your maintenance work is governed to a large extent by directives. The Commands and offices of the Navy Department issue directives. Fleet and force commanders and district commandants also issue directives to subordinate commands. Your own ship or station issues directives to departments and divisions within you ship's organizational structure.

For uniformity, ease of filing, and quick identification, each directive, regardless of the originator, is numbered according to a standard system. SECNAVINST 5210.11A. Department of the Navy Standard Subject Identification Codes, spells out the numbering system. But before we talk more about how directives are numbered, you should know the kinds of directives.

There are two types of directives:

1. INSTRUCTIONS, which contain information of continuing nature or require continuing action, or action which must be taken but cannot be completed in less than 6 months. An instruction can be used as a reference for a long time and is effective until the originator cancels it.

2. NOTICES, on the other hand, are directives of one-shot nature, or those which contain information or action applicable for a brief time only (usually 6 months or less. but in no case more than 1 year). A Notice has the same force and effect as an Instruction but does not have permanent reference value. It therefore contains a paragraph which indicates when it shall be cancelled. When the exact length of time a Notice is to remain in effect cannot be determined at the time it is issued, the specific date for record purposes is set far enough into the future to allow all necessary use of the notice.

You can better understand how directives are identified and numbered by considering some typical examples:

(a)	(b)	(c)
NAVORD	INST	8200.1
OPNAV	INST	1500.8
BUPERS	INST	1440.5B
BUPERS	NOTE	1223

(a) The authorized abbreviation of the originator is placed here.

(b) This part refers to the type of release (Notice or Instruction).

(c) This is the subject number which is determined by the subject matter of the directive, and is obtained from the Table of Subject Classification Numbers. You will find this table in SECNAVINST 5210.11A. The table is too long to reproduce here. But to give you some idea of what is in the instruction, here is a list of the 13 major subject groups:

1000-1999:	Military Personnel (The OPNAV Instruction, BUPERS Inst, and BU-PERS Note, above, fall into this category.)
2000-2999:	Communications
3000-3999:	Operations and Readiness
4000-4999:	Logistics
5000-5999:	General Administration Management
6000-6999:	Medicine and Dentistry
7000-7999:	Financial Management
8000-8999:	Ordnance (From maintenance viewpoint, most important)
9000-9999:	Ship's Design and Ship's Material
10000-10999:	General Material
11000-11999:	Facilities and Activities Ashore
12000-12999:	Civilian Personnel
13000-13999:	Aeronautical and Astronautical Material

These major subject groups are subdivided into primary, secondary, and sometimes tertiary breakdowns. Complete information on how Ute major groups are broken down is in the SECNAVINST we have mentioned. When you get a spare moment, go to the ship's office and look over the instruction. In particular, study the information concerning the 8000-8999 major group and it's subgroups. These groups and subgroups will be of interest to you because they are guided missile weapons directives.

To point up the importance of directives in the maintenance task, the information in NAVORD INST 8200 is about synchros, tachometer generators, and other rotating electrical components. This instruction directs you to disconnect synchros and tach-generators from the circuit during a ground test. This procedure prevents putting a high breakdown voltage across the windings of a synchro or tachometer: generator.

TECHNICAL PUBLICATIONS

ORDNANCE PAMPHLETS

The main source of technical information on operation and maintenance of ordnance is the Ordnance Pamphlet (OP for short). NAV-ORDSYSCOM publishes these technical manuals, each under its own OP number. They may be prepared by some other naval activity, by the manufacturer, by a commercial specialist in such publications, or by the Command itself. OPs dealing with ordnance equipment are organized according to the following general outline:

Introduction
Physical description
Theory and functional description
How to operate
Maintenance of equipment

In the introduction you will find a brief explanation of what the equipment is, where it is used, what it is intended to do, and the like, as well as a description of the difference among various marks and mods, if appropriate.

The section on physical description gives you a word picture of the equipment. Many illustrations of equipment are used in this section so you can easily identify the major parts.

The functional description explains in detail how such things as electrical, electronic, and hydraulic circuits in the equipment work. The operating principles of mechanical systems are also explained here.

The equipment operation section tells you what switches and other control devices to manipulate so you can put the equipment through its paces. Maintenance procedures are described in another section. Usually a whole volume is devoted to maintenance.

OPs on small equipments usually devote one chapter to each heading, though with complex

systems each topic may require an entire volume. Thus there are variations but the main topic list above. or one much like it. is used by OP writers as their checklist; it shows what information you can expect to find in standard OPs on equipment, and approximately where to find it.

Some OPs (for example, OP 2213, Pyrotechnic, Screening. and Marking Devices) take up a subject matter AREA rather than a specific item of ordnance gear; such OPs do not follow the standard outline above.

OP O

OP O is the official list of OPs. It is a consolidated listing of all publications and forms which pertain to ordnance activities. OP O is divided into three parts:

Part 1. NAVORD Ordnance Publications (OPs) consists of a complete numeric listing of all OPs. It includes Special Projects. Do Not List. Cog I. Non-Cog I. Under Preparation. Cancelled and obsolete publications.

Part 2. NAVORD Ordnance Data (ODs) this part consists of a complete numerical listing of all ODs. It includes Cog I, Non-Cog I, CTDO, Non-CTDO, under preparation, Special Projects, Do Not List, Reserved Cancelled and Obsolete publications.

Part 3. Subject Index is a listing of all NAVORD OPs and ODs listed in this publication under equipment identification.

Most Ops are massive publications; some require 4 or 5 volumes. Their preparation is costly in terms of both time and money. So, when one is issued, it's likely to be a rather long time before it can be replaced by a revised edition.

But ordnance equipment is changing all the time, and the OPs on every piece of equipment must be kept up to date. This is done by issuing changes. A change is a leaflet or pamphlet that specifies in detail actual text alterations in the OP to which it applies. Changes are issued automatically to the same distribution list as the OP concerned. When received, the change should be attached inside the front cover of the OP, and the text and illustration changes called for should be entered promptly in the OP itself. There is a good chance you will make these changes. Make every effort to enter the changes as soon as received.

Publications issued between revisions of OP O are listed in the Naval Ordnance Bulletin, a classified publication issued quarterly to give information on new developments and changes.

Interpreting OPs

As mentioned before, it requires several volumes to describe in detail all the parts of a missile launching system, its operation, and its maintenance. OP O lists them by number. title, and subject classification, and tells on what ships each system is installed. Suppose we take as an example the Terrier Launching System Mk 10 Mod 7. The chart in Appendix A of OP O tells us that this system is installed on DLGs 26 through 34 and DLG(N) 35. Turning to the listing by number and title, we see that there are four volumes of OP 3114. Earlier mods of the Mk 10 Launching system, which do not have the Asroc capability, are described in other OPs (OP 2351 being one of them) consisting of three volumes and several volumes of Illustrated Parts Breakdown (IPBs). Many of the components of the Mod 7 are identical with earlier mods. Other OPs are referenced for detailed descriptions of those components, such as OP 2350 for the launcher.

Volume 1 of OP 3114 gives the general description and operation of Guided Missile Launching System Mk 10 Mod 7, and the physical and functional description of the ready service mechanism, plus safety precautions. Volume 2 describes the special maintenance tools; volume 3 contains lubrication charts and electrical schematics; and volume 4 describes magazine components, loader components, and miscellaneous systems.

As you read the description, refer often to the illustrations accompanying the text and locate the parts named. Notice the placement of the components on your ship. Since the OP is written for the missile system installation on your class of ship, this should not be hard to do. You might take the illustration with you to help you identify components. The illustration reproduced as figure 5-13 in this manual, for example, points out the approximate location of components of the assembler. Figure 5-14 points out parts of a component. When you know where the components are and what they look like, it is easier to visualize what takes place when the equipment is operated. In fact, the OP says, "Personnel should have some familiarity with the Mk 10 Mod 7 launching system before attempting to follow figures 1-19

and 1-20." These figures in the OP show Asroc automatic operation and Terrier automatic operation.

The need for combining the study of the manual with use of the illustrations is indicated by this statement from the OP;

"It is imperative that the reader have available wiring diagrams 2206727 and 2206728 while reading the following text. The diagrams illustrate the firing circuitry and the associated relays. These diagrams are included in Volume 3 of this OP."

When you have seen the components of the launching system so that you have in mind their appearance and their location, you'll find it much easier to follow the steps in operation when you read them in the OP.

ORDNANCE DATA

Ordnance Data (ODs) are a kind of catchall. They are used for publishing advance information or instructions on ordnance equipment installation and alignment data, parallax data, and other miscellaneous information, such as tables of weights and dimensions. Formerly, ODs were used for publication of test and inspection data. Ordnance Reports are now used for this purpose. ODs are numbered consecutively by the issuing agency. ODs, like OPs, are listed in OP O.

One OD that is required reading for you, and for all other Gunner's Mates, is OD 3000, Lubrication of Ordnance Equipment. It is the one OD that your ship's library of ordnance publications must not be without. Other ODs may be useful to you, depending on the type ship you are aboard and its armament; but for that information you should consult OP O. If they are not already in your ship's library, they can be ordered.

ORDNANCE ALTERATIONS

The publications discussed so far have to do with installation, operation, maintenance of ordnance material, but not with any changes that must be made to ordnance material. At the same time, such changes must be made uniformly so that all items of a given type will continue to conform to standard specifications of performance and interchangeability.

When changes must be made to ordnance material already in the hands of the fleet, they are usually made by means of a publication

called an ORDNANCE ALTERATION (symbol: OrdAlt). OrdAlts are numbered serially and are classified not only by security level but also by priority as either Urgent, Emergency, or Routine. They are issued only to ships and other activities which have in active service the items affected by them. OrdAlts are more than mere sources of information; they constitute a basis for requisitioning material required by the alterations involved. OrdAlts are listed in NAVORD OrdAlt 00, List of Alterations to Ordnance Equipment for All Classes of Vessels, Aircraft, and Shore Stations, which also indicates their current status; you will not find them in OP O.

Alterations which are extensive enough to modify materially the military characteristics of a ship are authorized by CNO, and are issued as NavAlts or ShipAlts by the technical bureau having cognizance over the equipment concerned. The NAVORDSYSCOM issues those NavAlts that deal with ordnance equipment, and they are listed under both OrdAlt and NavAlt numbers in NAVORD OrdAlt 00. Naval Air Systems Command (NAVAIRSYSCOM) issues instructions for ordnance used by the air arm of the Navy. This includes missiles delivered by air, such as the Sidewinder, Bullpup, and Sparrow.

REPORTS, FORMS, AND RECORDS

You probably have heard the so-called joke about the man who did a little repair job on a piece of equipment in 5 minutes but it took him 2 hours to write up his report on it. The reports are necessary; the use of forms is intended to reduce the time required for making reports as well as to improve their accuracy, and to produce uniformity that makes it possible to use machine processing of data.

REPORTS

In administering as large and complex an organization as the Navy, it is necessary to establish reporting procedures to keep the technical commands and other management activities continuously informed about the status of operations throughout a farflung network of ships and shore activities. Evaluations of new equipments, and of the methods of using them, are constantly underway. The results of these evaluations are sent to the various technical commands and the Chief of Naval Operations through

the appropriate reporting channels. So you can see that the reporting procedures have a definite and valid purpose because they pave the way to improvements in equipments and operations. Not only is the Navy's operational readiness improved, but your job is made easier. Always keep in mind when you are making out a log or report, that you are contributing to these improvements.

Make sure that what you put into a report is accurate. Many occasions will arise when you will provide information that will go into, say, an ordnance inventory. In this case you will have to record name plate data from every ordnance item in your system. Such things as mark, mod, and serial numbers must be read accurately. Name plates are sometimes put in out-of-the-way places. Those that are easy to find may have a light coat of paint on them. But regardless of how difficult it may be to see the data, make certain that what you put down on paper is correct. The ordnance inventory that leaves your ship is used, among other things, to allocate spare parts.

Now then, what is a report? Broadly speaking, a report is any narrative, tabular, or graphic type of information transmitted from one office or command to another. Who requires reports? Besides NAVORDSYSCOM, the Chief of Naval Operations, fleet, force, and type commanders require reports on ordnance matters. But in this chapter we will just talk about reports that are sent to NAVORDSYSCOM and activities under its control.

Report Symbols

Like notices and instructions, reports are coded. In fact, they use the same identifying and numbering system. For example, we will use the report symbol- NAVORD 8000/. The numbers to the left of the diagonal mark indicate the subject classification number- or what the report is reporting on. In our example, it is general ordnance material. Any number to the right of the diagonal line is the sequential number of the reporting symbol in this subject matter area. The tie-in with the Navy Directives System facilitates filing and referencing of reports.

NAVORDSYSCOM
Policy on Reports

NAVORDSYSCOM and its activities are required to keep reports from any source at

a minimum, especially those from the fleet. The people in the Command are aware that your maintenance duties keep you busy. But when you must make out a report, prepare it carefully and submit it on time.

Regard all reports objectively; forms or formats are tools only. You should make every effort to provide the information available or obviously needed in your reports, rather than conform blindly to filling out forms or formats.

Recurring Reports

If you are on a ship in the operating forces, you will find recurring reports listed in OPNAVINST 5214.1C (current). This list shows the report symbol, title, form number, controlling directive, frequency of reporting, and preparing activities for each report. Reports may also be required by the Type Commander, SOPA, Operational Commander, or other Commands.

SHIP ARMAMENT INVENTORY LIST/ ORDALT REQUIREMENT

The Ship Armament Inventory List (SAIL) is produced on ORDLIS data-processing equipment. It replaces the Ordnance Inventory/ORDALT Status Reporting Program formerly used. Each ship has two copies of SAIL. Prior to a scheduled overhaul, one copy should be annotated with ORDALTs that have been completed since the last printing; this copy should be sent to NAVORDSYSCOM 7 months prior to the scheduled availability. The other copy is kept on board. Revised copies of the SAIL will be sent to each ship before overhaul. After completion of overhaul, annotate the SAIL to indicate all changes, deletions, additions, and corrections and forward a copy to NAVORDSYSCOM. Changes made at other times are reported on Ship Armament Inventory List (SAIL) Change Report, NAVORD Form 8000/2. NAVORDSYSCOM again revises the SAIL to include the changes made at overhaul. When you receive the revised SAIL, destroy the previous one.

The SAIL lists in sequence the following: all items pertaining to missile launchers, turrets, mounts, rocket launchers, projectors, torpedo tubes and depth charge release equipment; target designation systems (TDS), and weapons direction system (WDS); all items pertaining to missile test and telemetering equipment; and all items pertaining to target control systems.

The ORDALT Accomplishment Requirements (OAR) list is issued by NAVORDSYSCOM about 6 months prior to the overhaul of a ship. It shows the ORDALTs in the order of priority of accomplishment, the estimated man-hours required to accomplish, and the cost of each. The ship receives one copy, which must be given a thorough review and a report submitted within two weeks. The report must list all the ORDALTs completed after the "Prior to Overhaul" SAIL was submitted, ORDALTs that are on the OAR list but are not applicable, and a list of all the ORDALT material on board. The report goes to NAVORDSYSCOM, NAVSHIPSYSCOM, and the Ship's Parts Control Center (SPCC). They amend the OAR list, requisition supplies, and plan to accomplish as much of the additional work as is possible within the limits of the funds appropriated and the time available.

ORDALT Requirement (OAR) Lists are also published by NAVORDSYSCOM for new ships and major conversion ships. The lists are reviewed by the ship and the shipyard, and revisions submitted as in the case of ships in the active fleet.

Within 10 days after completion of overhaul, the fitting-out yard submits a report of what has been accomplished. A revised SAIL, including information from the latest OAR, is then issued by NAVORDSYSCOM and sent to the ship.

FORMS

Definition and Purpose of Forms

Forms are any printed labels and tags, placards, signs, decals, drawing formats, form letters, and any other duplicated or printed papers which require clerical fill-ins or have blank spaces for the insertion of information to complete their meaning. Forms are used for requisitioning repair parts, recording information, and reporting. Completing a form requires careful reading and checking the correct answers but it is much simpler and quicker than writing up a narrative report. Besides, it makes possible the accurate tabulation of results which are used as the basis for command decisions at all levels.

Form Numbers

The assignment of a NAVORD form number to a form shows that, before the form is issued,

the originating activity has checked the form to make sure it does not duplicate or overlap existing forms. Sometimes the form number is the same as the reporting symbol. But this is not always true. You might even find a form with the same number as the Instruction that initiated the form. You can see that there can be confusion in identifying a form or instruction. The program is designed to eliminate and to prevent approval of unnecessary forms; to consolidate all similar forms; to standardize and simplify forms and related procedures; to ensure economical production, utilization, distribution, and stowage of forms; and to provide a central source of information about all forms.

You can find a list of forms, full information on their distribution, and instructions for requisitioning them in NAVSUP 2002. Incidentally, NAVORDSYSCOM welcomes recommendations from the fleet for the improvement of forms.

New Forms

Whenever new weapons or equipments are brought into the Navy, extra reports on all phases are needed so the performance of the new weapons or equipment can be evaluated. New report forms are introduced, tried, and revised, and some are discarded. Detailed instructions are issued to tell you how the reports are to be filled out. NAVORDINST 8821.3A gives procedures for Standardized Fleet Data Collection for Surface Missile Systems (SMS) and enclosed (with instructions) examples of NAVORD Form 8821/5, Non-Expendable SMS Equipment Status Log; NAVORD Form 8821/8, SMS Firing Report; and NAVORD Report Symbol 8821-10, Commanding Officers Narrative Report on Surface Missile Systems. These have replaced earlier forms used in reporting on missile system performance. To be of value in spotting deficiencies in the missile system, the facts recorded in the reports must be accurate. When you supply data to the person filling out the report, be sure you give correct information.

Reports used in the Maintenance Data Collection Subsystem (MDCS) are described in Military Requirements for Petty Officer 3 & 2, NAVPERS 10056-C, Chapter 13. All the forms described are of importance to you. As a GMM 2 you will be required to assist in the preparation of OPNAV Form 4700-6, Weekly schedule.

The use of OPNAV Form 4790/2K is also described in Military Requirements for Petty Officer 3 & 2, NAVPERS 10056-C. This is the form you have to fill out when you are unable to complete the maintenance work on a particular piece of equipment and it must be deferred until you can get parts and assistance from a repair facility. OPNAV Form 4790/2K is also used to report certain completed maintenance actions and as a work request. All details on this form must be carefully and accurately filled in. When used for deferred action, it may be several months before you can get repair assistance, and some important information could easily be forgotten in that time, so timely and accurate filling in of the form is essential.

SHIPBOARD ORDNANCE LOGS AND RECORDS

Logs

An ordnance log is a book which you record chronologically information about tests, overhauls, repairs, alterations, maintenance work, and operating performance on certain ordnance equipment.

The type commanders administrative inspection check off list determines the minimum requirements for logkeeping on your ship. It is anticipated that when the 3-M system becomes fully implemented in the Navy, the number of logs to be kept will be drastically reduced. However, because the documentation under the 3-M system does not give adequate life history of specific equipment, many rough and smooth logs are still required. Why keep an ordnance log? What is its practical value? An ordnance log serves a number of purposes. It gives the NAVORDSYSCOM a complete accounting of equipment operation. Such logs, over a period of years, help shape the policy of the Command as to the design of parts and the types of material used.

A well-kept log is handy to YOU as a casualty reference. If a casualty occurs that has happened before, the log can be consulted for the method of repair previously used. If a certain type of repair method has proved unsatisfactory, repetition of that method can be prevented by referring to the log. When a new man takes over a piece of launching system equipment or the system itself, he can refer to the equipment logs and become familiar with the equipment's peculiarities.

Alterations to equipment, and replacement of old equipment with new, have greatly increased ordnance efficiency over the years.

These advances result from analysis of present equipment performance. This analysis must be based on accurate and complete data. Ordnance logs are an important source of this data. There are four general types of logs: smooth logs, rough logs, printed form logs, and maintenance checkoff lists. Deck logs and engineering logs were described in Seaman, NAVPERS 10120-E, with instructions given for keeping them.

Small Arms Log

The small arms log should show all pertinent information on all small arms aboard ship. It should list the weapons by serial number and type. Log entries should include any repairs, modifications, and types of casualties of each weapon, results of small arms inventories, and the location of each weapon.

Magazine Log

These logs are a record of the location and the material condition of ammunition, missiles, and pyrotechnics stored on board ship. The logs also record the condition of magazines and sprinkling systems. The GMM in charge of a magazine group maintains the log. It is a smooth log and kept in a bound ledger. The following items are usually included in the log.

1. Location and compartment number of all spaces where ammunition, missiles, or any explosive components are regularly stored.
2. Location of all maximum/minimum thermometers to be checked daily by the magazine petty officer.
3. Chronological entry of all scheduled tests, inspections, and repairs accomplished on any unit within the magazine.
4. List of equipment and components comprising the pyrotechnic allowance and the locations of each of these components.
5. Record of inspection section, usually in the back of the log.
6. Checkoff lists for inspections.

Magazine Temperature Log

As a striker or GMM, you will be expected to keep a magazine temperature log. This log shows the daily maximum and minimum temperature of missile magazines. Temperatures are also recorded daily on temperature cards posted in each magazine, warhead stowage space, and pyrotechnic locker. Space is provided on this card for recording the maximum and minimum temperatures and for the initials of the person taking the readings.

After you take the magazine temperatures, you must make out a daily temperature report. One copy goes to the commanding officer via the officer of the deck and another copy to the weapons officer. The magazine temperature log can be divided into two sections. The first section contains a chronological record of daily maximum and minimum magazine temperatures. The second section has a chronological record of monthly tests of sprinkler systems.

The maximum-minimum thermometer was illustrated in figure 10-19 and the method of reading it was described in the accompanying text. The forms used for recording the temperatures may be prepared aboard each ship, and therefore will show variations, or they may be prescribed by the Command. Figure 15-2 shows sample forms that may be used. The inspection of the magazines containing conventional ammunition components is done by the GMGs. The daily magazine temperatures are copied from the cards into a magazine log, which is the permanent record of all the magazine temperatures. Temperatures in excess of 100° F should be copied in red ink, or another color that will stand out. A separate section of the magazine log should be set aside for recording the results of the weekly sprinkling system tests. There will not be any smokeless powder samples, so you can ignore that question if it appears on the form. The temperature limit for missile propellants, however, is the same as for smokeless powder. When the temperature approaches this limit, the magazine may be cooled by turning on the ventilation. If the missile spaces are air conditioned, as they are on some new ships, you are not likely to have this problem. The temperature still has to be checked at least once a day to guard against possible breakdowns of the air conditioning system. Any time that the temperature is above 100° F, temperatures must be read and recorded every hour, and measures for cooling the area must be begun.

MISSILE LOGS

As Soon as a missile is brought on board, it must be entered and identified on the missile log. A record is kept of what happens to each

A. MAGAZINE TEMPERATURE RECORD
5ND GEN 90 (REV 11-48)

COMPARTMENT	THERM. NO.	MONTH
A 304 M	279	APRIL

DATE	MAXIMUM	MINIMUM	INITIAL
1	84	72	R4C
2	82	70	R4C
3			
4			
5			
6			
29			
30			
31			

P&PO NorVa 11-2-48 99614(Jc8) 8N

B. DAILY MAGAZINE TEMPERATURE DD, DE CLASSES

NOTE: To be submitted to O. O. D. by 1130 daily

U. S. S. T.F. TREMENDORF   DATE 1 APR 67

MAXIMUM 84°   IN A-304 m

MINIMUM 69°   IN A-204 m

INSPECTED MAGAZINE'S CONDITION OK

INSPECTED MAGAZINE VENTILATION CONDITION OK

INSPECTED SMOKELESS POWDER SAMPLES CONDITION OK

CONDUCTED WEEKLY TEST OF MAGAZINE SPRINKLER SYSTEMS
DATE 1 APR 67

REMARKS: TEST OF MAGAZINE SPRINKLER SYSTEMS SATISFACTORY

SIGNATURE (GMC or GM in Charge) L. Barker   SIGNATURE (Gunnery Officer) B.B. Benson

DESLANT FORM 8000-7 (Rev. 11/55)

Figure 15-2. — Magazine records: A. Magazine temperature record; B. Daily magazine temperature report.   5.66

missile, so that each missile has its own log. Always enter the date whenever you make an entry.

Rough Missile Logs

The missile log may be a ledger type notebook in which you write each item relating to the missile. The log should be neat, with each entry legibly written and clearly dated. The entries should be in sequence and orderly so the person who transfers them to the smooth log (usually the weapons officer) can see at once when each entry begins and ends and can read it easily.

Smooth Missile Battery Log

This log is a permanent record of important rough log items. The smooth log is not a copy of the launcher log or other equipment rough logs, but a condensation or amplification of

the rough logs. The smooth log writer, usually the missile officer, takes special care to include items applicable to entry in the Ordnance History or other form used in place of it. All smooth logs are typewritten and kept in a looseleaf binder in the weapons office.

Printed Form Logs

NAVORDSYSCOM issues these for certain equipment. They are simply forms in which data are entered. They can be classed as smooth logs because they provide a legible and complete record. They also have a NAVORD Form number.

Maintenance Checkoff Lists

These are printed by either the type commander, or the ship. Essentially they form a smooth log.

There are many other logs in which records must be kept, but the ones we have just covered concern you. For a complete list of logs and records that must be kept by the weapons department, see the appropriate ship's instruction.

MATERIAL RECORDS

Standardized material records have been established to keep track of all work done on each piece of equipment aboard ship. As a member of the weapons department, you will primarily be involved with the records concerning ordnance equipment.

Some record forms that have been in use in the past are being phased out to make way for the forms used in the 3-M system and the Maintenance Data Collection Subsystem.

Ordnance History Cards

The ordnance history cards and the shipboard 3-M system comprise the most important material records of the weapons department aboard ship. The weapons officer is responsible for maintaining these records in an up-to-date and useful manner.

The retained copies of the 3-M system schedules now are the principal sources of maintenance information on new construction. On older vessels, in addition to the retained copies of the 3-M schedules, material history is maintained on ordnance history cards. How maintenance history records are maintained depends on the type ship and how much change over from old type maintenance system to the 3-M system has been accomplished. Many of the former sources of maintenance history are replaced by the 3-M system. Various logs are also used in the weapons department for maintenance history information.

An ordnance history card contains the current history of each piece on board. Any information considered necessary in compiling a comprehensive history (major repairs, Ordalts accomplished, field changes made, etc.) is included on these cards. These history cards are retained as long as the equipment remains on board even if the vessel is placed out of service. In the event that a unit of equipment is transferred, the history card should accompany it.

A complete material history of an ordnance unit is important in determining maintenance, operational practices, safety precautions, and equipment capability. These cards can also be used as inventory records and should be grouped in a binder so that all cards for a given piece

of ordnance, a gun mount for example, or located together for easy ordnance inventories. Information can be obtained for these cards from battery logs, smooth logs and a visual inspection of the equipment.

NUCLEAR WEAPONS REPORTS AND RECORDS

On ships that have nuclear weapons other than the nuclear warheads in missiles, the GMTs have the responsibility for all reports on them. The warheads contained in the assembled missiles are not the object of separate reports by you, but are shown in the report on the number and type of missiles aboard. The location, condition, and disposition of all nuclear material must be precisely accounted for to the Defense Atomic Support Agency (DASA).

Rules for peacetime operation of nuclear weapon systems issued by the Chief of Naval Operations along with official Naval Ordnance Systems Command special weapons check lists are mandatory directives which must be followed.

SPECIAL WEAPONS PUBLICATIONS

Special weapons publications which you will use are products of the Joint Atomic Weapons Publications System. The system was established by an agreement signed jointly by the Department of Defense and the Atomic Energy Commission. All Joint Atomic Weapons Publications (JAWPs) are assigned a Defense Atomic Support Agency Technical Publication (DASA TP) number. The short title for a specific JAWP consists of two parts: (1) a letter-numeral group which identifies the organization having an interest in the equipment described in the publications, (2) a letter and/or manual group that codes the publication to a specific subject. When reference to a JAWP is necessary between any of the services or agencies, the identifying designation of DASA TP is given. However, when reference to a JAWP is within a service or agency, the applicable identifying designation is used. For example, within the Navy Establishment, a JAWP is referred to as a NAVY SWOP (Special Weapons Ordnance Publication).

Publications pertaining to specific weapons system applications of a particular weapon will be identified by decimal numbers following the mark number; i.e., NAVY SWOP W25.21-X, a Mark 45 warhead used in the Terrier missile.

Decimal numbers assigned, and presently in use or scheduled for use, are shown in NAVY SWOP 0-1.

DISTRIBUTION OF NAVY SWOPS

The Naval Ammunition Depot, McAlester, Oklahoma, maintains a NAVY SWOP Allowance list for each activity receiving NAVY SWOPs. This allowance list is kept current from the Naval Atomic Planning Support and Capabilities Report (NAPSAC), letter requests, and advanced planning information. Periodically, a copy of the allowance list is forwarded to the activity concerned for review. A copy is forwarded to the Type Commander, where appropriate, so that reference can be made to publications held by the ship. Distribution of NAVY SWOPs is made by NAD McAlester in accordance with the allowance list. NAD McAlester is the stocking and mailing point for all NAVY SWOPs except EODPs (Explosive Ordnance Disposal Publications). These are procured from the EODF (Explosive Ordnance Disposal Facility) at Indian Head, Maryland.

SPECIAL WEAPON OPERATION AND SAFETY

The operation of each type of nuclear weapon is described in the applicable NAVY SWOP. Nuclear weapons will be handled and stored in accordance with NAVY swap 50-1 and SWOPs of the 20 series. No ammunition assemblies or components shall be disassembled or modified unless authorized.

NUCLEAR WEAPON SECURITY

The Chief of Naval Operations is responsible for regulations for the security of classified matter. Basic security measures are set forth in U.S. Navy Regulations 1948, chapter 15, and OPNAVINST 5510.1 series. Specific references to classification policy, security of Restricted Data, security instructions for handling, transporting, and storing nuclear weapons components, and other security requirements are prescribed in OPNAVINST series 5510.

THE 3-M SYSTEM

During your studies of Military Requirements for Petty Officer 3 & 2, NavPers 10056-C, you learned about the Navy Maintenance and Material Management (3-M)System is now being implemented in the fleet.

The 3-M system is not covered in detail in this chapter. However, to refresh your memory on the details we will review some of the objectives of the 3-M system and its subsystems, which include the planned maintenance subsystem (PMS) and the maintenance data collection subsystem (MDCS).

The 3-M system is not designed as a cure for all equipment problems and attendant maintenance resource demands, nor does it eliminate the need for good leadership. The system is designed to: (1) reduce complex maintenance to simplified procedures that are easily identified and managed; (2) define the minimum maintenance required (preventive or corrective) and schedule and control its performance; (3) describe the methods and tools to be used; and (4) provide for the detection and prevention of impending casualties.

An effective 3-M system permits a ship to forecast and plan man-power and material needs, schedule maintenance, estimate and evaluate material readiness, and detect areas for improving training and maintenance techniques.

3-M SUBSYSTEMS

There are two subsystems of the 3-M system that are primary for shipboard personnel. The two subsystems are the Planned Maintenance and the Maintenance Data Collection Subsystems. When fully implemented and properly used, these two subsystems will:

Increase reliability. The reliability will be increased by regular planned maintenance thereby reducing the need for major corrective maintenance.

Increase Economy. Planned maintenance saves the cost of major repairs and/or equipment replacement.

Provide Better Planning. The 3-M system takes into account the many shipboard operations, upkeep, and employment schedules through advanced planning.

Simplify Records. Simplifies the recording of necessary data for shipboard maintenance management.

The MDC subsystem reduces paperwork aboard ship, superceding various reports and forms.

The Planned Maintenance Subsystem uses the Planned Maintenance System Manual, OPNAV

43P1. This is the Departmental Master Manual which identifies all the available planned maintenance requirements for the equipments maintained by a specific department. The master manual also contains information concerning fundamentals of the PMS and is used by the department head in planning, scheduling, and supervising the required planned maintenance.

Planned Maintenance Subsystem

To set up the maintenance requirements for a weapons system and its associated equipment, data is collected from the fleet, system commands, equipment manufacturers, and other sources. The data is then analyzed to determine the necessary maintenance requirement for a given system. After the determination has been made, the necessary maintenance procedures are listed on standard Maintenance Requirement Cards (MRC) and distributed to the fleet. Eventually, every ship will receive MRCs for every piece of ordnance equipment on board ship. MR cards are covered in Military Requirements for Petty Officer 3 & 2.

Maintenance Data Collection Subsystem

The Maintenance Data Collection Subsystem provides a means of recording maintenance actions (planned or corrective) in a form suitable for machine processing; this permits evaluation of equipment performance, repair parts used, delays incurred, reasons for the delays, and man-hours required to maintain the equipment.

The Planned Maintenance Subsystem differs from the Maintenance Data Collection Subsystem in that the PMS tells when, how, and by whom the maintenance is to be performed; the MDCS informs the collection center what was done, who repaired the equipment, how long it took, and what repair parts were required to accomplish it.

To list all this information so data processing machines can use it, it must be reduced to codes. The Equipment Identification Code Manual (EIC Manual) lists the codes you will need. At first it may seem difficult to enter information by means of a code letter but, after a while, you will know many of the codes without having to look them up. However. be sure you are right because the data processing machine can't tell when you have put in a wrong code letter - you have to do it right.

The information is punched onto cards which are fed to the data processing machine to collect and collate the information. Summaries of the results can point out the need for changes. One such change is the reduction in the number of tests of missiles required of GMMs.

SUPPLIES

Although the supply department is responsible for supplies, you need to know how to identify what you want to get, how to write out the request, and how to report on your use of the supplies. The publications containing the stock numbers are maintained in the supply department. Cooperation with supply personnel is essential in accomplishing your own duties.

SUPPLY DUTIES OF THE GMM

Small quantities of consumable supplies are kept in the weapons department. Included are quantities of paint, greases, oils, cleaning materials, etc., and also Some frequently used small repair parts. As the materials are used, the GMM in charge of the supplies must make replacements. He has to know how to fill out the request form that he takes to the supply department to requisition supplies. These forms are illustrated and explained in Military Requirements for Petty Officer 3 & 2, NAVPERS 10056-C. The same text gives you information on sources of identification numbers for materials and spare parts. The Federal Stock Number is the most important identification number. All the FSNs are given in the Federal Supply Catalogs, but you may not have to use those to look up a number because the FSN for your equipment is usually given in several other sources. One of these is the COSAL, also described and illustrated in the above text, although no ordnance or weapons sections are shown.

COSAL AND WHAT IT MEANS

The Coordinated Shipboard Allowance list (COSAL) is the list of all operating equipment and equipage aboard a particular ship. Although the segments of the COSAL illustrated in your military requirements text are not ordnance items (except some propellants in the alphabetical listing), they show you the format of the COSAL. The ordnance segment uses the same arrangement of information. It has three parts. Part 1 lists

the ordnance equipment and the major components, and gives the component identification numbers. Part 2 lists the repair parts allowed for the ship. The quantity of each and the Federal Stock Number is given. Anything listed in Part 2 is available aboard ship. Part 3 of the COSAL . is the final authorized on- board allowance quantity for a repair part. This is of most use to the Storekeeper. Items that are common to more than one department are totaled in this section. For example, a particular type of switch may be used in various applications on the ship. Part 3 of the COSAL will tell how many are to be on board and how many are allotted to each department. For a more detailed explanation of COSAL and how it is used, refer to Military Requirements for Petty Officer 3 & 2, NAVPERS 10056-C.

SOURCES OF ORDNANCE IDENTIFICATION

The publications most often used to identify ordnance material are:

1. The ordnance parts of the Federal Supply Catalog for identifying repair parts for requisitioning.
2. Illustrated Parts Breakdown of Ordnance Equipment (IPB). This publication is prepared by Ships Parts Control Center (SPCC). Each IPB is published for one particular type or piece of equipment, and describes and illustrates the relationship of all assemblies and parts comprising the equipment. IPB 0000 is an index of all IPBs. These were published by the former Ordnance Supply Office (OSO), now absorbed by Ship's Parts Control Center (SPCC).
3. Coordinated Shipboard Allowance List (COSAL), which was previously discussed.

One of the most important sources of identification is the information on nameplates. This may include the manufacturer's name, make or model number, size, voltage, and like information. Identification publications such as manufacturer's technical manuals may help you in identifying an item.

ORDNANCE IDENTIFICATION DATA

Ordnance identification data are important in identifying ordnance items. They should be used on all requests for material if the stock number is not available. These data include:

The MARK NUMBER, which identifies the particular model of a certain type of ordnance equipment.

A MODIFICATION NUMBER (Mod), which indicates a modification of the basic mark number. Modifications are numbered serially, beginning with zero, for each separate mark.

An IDENTIFYING NUMBER, which is the number assigned to the blueprint plan of an ordnance component or assembly. It may be a drawing number, a list of drawing numbers (LD), a sketch number, or an assembly number.

A PIECE NUMBER, which is a subdivision of the drawing number and identifies by a serial designation every item appearing on a given drawing. Sometimes the drawing and piece numbers are stamped or etched on the part itself. Piece numbers are rarely used in later type ordnance assembly drawings. It is now standard practice that each item in a drawing will have its own separate drawing number.

A revision letter is often added to identify a particular revision of a drawing or list of drawings used in the manufacture of a part.

SAFEGUARDING CLASSIFIED MATTER

The security of the United States in general, and of naval operations in particular, depends in part upon the success attained in the safeguarding of classified information. Security is not a separate burden to be imposed on personnel, but an integral part of the routine duties performed by personnel. The ideal to be sought of all personnel is that they automatically exercise proper discretion in the discharge of their duties and do not think of security of information as something separate and apart from other things. In this way, security of classified information becomes a natural element and poses no additional burden.

You will find some basic information on security in chapter 7 of Military Requirements for Petty Officer 3 & 2, NAVPERS 10056-C. In Seaman, NAVPERS 10120-E, you learned about logging classified mail, and how to handle classified correspondence. Some general pointers on security of classified information were given in Basic Military Requirements, NAVPERS 10054-C.

Publications giving any information on nuclear weapons or components have the additional classification of RESTRICTED. The material

may be marked Confidential Restricted Data, Secret Restricted Data, or Top Secret Restricted Data. There is also Formerly Restricted Data. These also have the additional line "Atomic Energy Act of 1954" just below the classification. The old Restricted classification, not applied to nuclear information, has been discontinued.

Complete instructions on classified matters are found in OPNAVINST 5510.1C, "Department of the Navy Security Manual for Classified Information." This publication is one with which you should become familiar. Use it as the authoritative source of reference whenever a question of security arises.

The Two-Man Rule

The two-man rule is defined in OPNAV INSTRUCTION 05510.83. It is a security measure in relation to nuclear weapons and their components, including nuclear warheads. The two-man rule requires that a minimum of two authorized persons, each capable of detecting incorrect or unauthorized procedures with respect to the task being performed, and familiar with pertinent security requirements, will be present during all operations which require admittance to any portion of a nuclear weapon/delivery system which could permit its launching, arming, firing, or releasing.