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# NAVAL COMMUNICATIONS

Prepared by  
BUREAU OF NAVAL PERSONNEL

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## PREFACE

Naval Communications has been prepared primarily to provide junior naval officers with general information needed to carry out successfully a tour of duty in a communication billet afloat. It may, however, serve as a refresher for officers with previous communication experience, touching as it does on the procedures and instructions necessary to perform basic communication functions. The content and organization of the text are based upon that of The Communication Officer, NavPers 10780-A, except that all classified material has been deleted.

This publication is intended as a guide. It does not supersede or supplant official publications with regard to doctrine, equipments, shipboard organization, or shipboard operations.

Naval Communications was prepared by the U. S. Navy Training Publications Center, Washington, D. C., for the Bureau of Naval Personnel. Throughout this text, references to other publications, instructions, and so forth, pertain to the effective editions thereof or the latest changes thereto.

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# **THE UNITED STATES NAVY**

## **GUARDIAN OF OUR COUNTRY**

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

## **WE SERVE WITH HONOR**

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

## **THE FUTURE OF THE NAVY**

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

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# CHAPTER 1

## INTRODUCTION TO NAVAL COMMUNICATIONS

The first known publication to be concerned with U.S. naval communications was the (Commodore Thomas) Truxtun Signal Book, published in 1797. Truxtun's system included nearly 300 basic signals requiring numeral pennant displays in daylight hours and lights or false fires at night. The book was printed a year before the Navy Department was established by act of Congress, and it was used for about 65 years.

An embryo electric telegraph was in service some 15 years before the Civil War, and the forerunner of the present-day flashing light system, based on the Morse code, made its appearance in 1864. Under this system a lantern, ball, or other object was exposed, or a flag was lowered and raised, in dot-dash patterns. In poor visibility, a trumpet was blown in short and long blasts.

In August 1888 Rear Admiral (then Lieutenant) Bradley A. Fiske first experimented with ship-to-ship wireless at the New York Navy Yard. Insulated cable was wrapped around the USS Newark and a Navy tug, and interrupted current was sent into Newark's coils. Lieutenant Fiske listened from the tug with a telephone receiver in series with the coil system, and reported that he received signals a short distance from the ship.

The first official U. S. Navy wireless telegraph message was sent in 1899 from the steamship Conce to the Navy's Highland Station on the New Jersey coast. Guglielmo Marconi, who was given the patent in 1896 for inventing the wireless communication device, was the operator.

With the success of wireless transmission established, naval communications began a period of rapid growth around the turn of the century. By 1904, 18 shore stations and 33 ships were radio equipped. In 1908, one-half of the nearly 400 wireless stations in the world were manned by U. S. naval personnel. The same year saw the first successful test of the wireless telephone—voice radio—between the USS Connecticut and the naval radio station at Point Loma, California. The Naval Radio Service, forerunner of our present Naval

Communication System, was established by a Navy General Order issued in December 1912.

In subsequent years, the Navy introduced a number of communication "firsts." President Wilson's historic Fourteen Points were transmitted from the United States to Germany by a naval radio station. In 1919, the Navy was instrumental in helping to create R. C. A.—the Radio Corporation of America—the first wholly U. S. -owned commercial radio communication company. This was a national security measure in which foreign radio interests on U. S. soil were bought out and their operations dissolved. The year 1920 ushered in the beginning of scheduled broadcasting by the first radio broadcasting station in the Nation's capital, at the Anacostia Naval Air Station, Washington, D. C. As a matter of interest, the Anacostia station actually pioneered in the disc jockey field. Reportedly, requests for musical recordings were received from listeners in 28 states. The Navy installed the first radio receiving set in the White House in 1921. The following year, the Navy broadcast for the first time the voice of a President of the United States—that of Warren G. Harding—during the dedication of the Lincoln Memorial in Washington.

In the early 1920s, naval personnel already were investigating and testing radio facsimile equipment. In 1923, pictures of President Harding were transmitted by the Navy from Washington to Philadelphia. Twenty-two years later, photographs of the Japanese surrender ceremonies on board the USS Missouri were transmitted by the Navy more than 5000 miles to the United States and the Nation's press.

During World War II, the east and west coasts of the United States were linked by teletypewriter circuits. The first overseas radio-teletypewriter channel, between California and Pearl Harbor, was opened in 1945. Extensions followed to Guam, Balboa, Adak, and San Juan. These were the first moves that led to the present system that crisscrosses the continent and spans much of the world.

After the landings at Leyte in the Philippines in 1944, a concerted effort was made to utilize

radioteletypewriters in a shipboard environment, extending operational concepts first tested in the 1920s. By 1947, the Navy was ready to establish its first radioteletypewriter broadcast to ships at sea.

Within the United States, the teletypewriter network has been re-engineered into an automatic teletypewriter switching (relay) system. The cutover was completed in 1959. Having only five primary stations, the system serves a basic network of over 200 tributary stations throughout the country. There is a tie-in to the Navy's overseas radio circuits, to ships at sea and to other Armed Forces communication systems. The speed of message delivery is increased greatly through centralized control and relatively simple operations requiring minimum personnel.

Experiments leading to the discovery that the moon can be used as a natural satellite communication relay station began in 1951. The first moon-relayed voice message was transmitted by the Naval Research Laboratory (NRL) in 1954; in 1955, the NRL accomplished transcontinental communication over the moon radio circuit by transmitting a teletype message from Washington, D. C. to San Diego. In 1959 the Navy first sent operational traffic via the moon between Washington and Pearl Harbor when solar disturbances disrupted conventional circuits. Facsimile photographs are sent in the same way, and the quality of reception is improving steadily. Demonstrations in recent years have shown the feasibility of both ship-to-shore and shore-to-ship message transmission using the Communications Moon Relay (CMR) System.

Improvements are being made continuously in the field of manmade satellites for the purpose of communication relay. One of the first big dividends from the U. S. space effort will occur in satellite communications. In general, the Navy's role in this program, which is managed by the Bureau of Ships, has been as a participant in joint projects.

**MISSION, POLICY, AND BASIC PRINCIPLES**

In the modern missile age, it is a foregone conclusion that a future war would not allow a period of grace during which to procure vast amounts of equipment and to train thousands of new men. It has been stated often that any future general war will be won or lost in hours or

days, rather than in years. Naval communications, being a function of command, must always be in a condition of preparedness. In the event of hostilities, the operating forces would depend on communication facilities in existence at the time.

A navy that operates on a worldwide scale requires the services of a global communication network. A commander must be able to pass the word—to communicate—whenever necessary, in any mode, between and among ships separated by varying distances, and from ships to and from shore stations, aircraft, and satellites. The ability to communicate makes possible effective command and control, thus ensuring that every mobile nerve center in the fleet is responsive to the tactical and strategic needs and services of every other element. The major shore stations in today's Naval Communication System form a global network that is the backbone of naval communications, spreading their circuits wherever our mission requires.

A force of ships is never out of touch with its base of operations. In support of the force is a global organization of communication stations with hundreds of radio and landline circuits. Orders and information affecting the successful outcome of the force's mission are exchanged swiftly and accurately throughout every level of command. The direct result of reliable communications is a tightly directed fighting unit.

**MISSION**

The mission of naval communications—the voice of command—is to provide and maintain reliable, secure, and rapid communications, based on war requirements adequate to meet the needs of naval command; to facilitate administration; and to satisfy, as directed, JCS-approved joint requirements.

**POLICY**

The policy of naval communications is to—

1. Cooperate with the military services and other departments and agencies of the U.S. Government and Allied Nations.
2. Encourage development of the amateur and commercial communication activities of the United States to strengthen their military value and safeguard the interests of the Nation.
3. Promote the safety of life at sea and in the air, maintain facilities for adequate communication with the U.S. merchant marine,

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aircraft over the sea, and appropriate U. S. and foreign communication stations.

### BASIC PRINCIPLES

The primary concept of naval communications is to meet the requirements of war. Peacetime organization, methods, procedures, facilities, and training must be such that only minor changes will be required when shifting to an emergency or war status. Based on the foregoing concept, the following basic principles have been proved under war conditions:

1. Reliability, security, and speed are the three fundamental requirements of naval communications. Reliability is always paramount; it must never be sacrificed to achieve security or speed. When there is a conflict between the demands of security and speed, however, one or the other must be sacrificed in the light of the demands of the situation.

2. Effective communications require a basic knowledge and appreciation of how, when, and where to send messages. Instructional publications and the latest equipment in no way lessen the need for initiative, commonsense, and good judgment in the planning and conduct of naval communications.

3. Correct methods of operation and precise use of established procedures are essential to effective communications.

4. Administrative planning and foresight are required to ensure that rapid communications are employed only when other means of communication will not suffice.

5. The proper choice of frequency is of the greatest importance in establishing and maintaining reliable radio communications.

6. Communication media that are susceptible to interception should not be used in wartime when a more secure means will serve.

### TELECOMMUNICATIONS

The term telecommunications embraces any transmission, emission, or reception of signs, signals, writing, images, and sound; or intelligence of any nature by visual or oral means, or by wire, radio, or other electromagnetic systems. Telecommunications used in the Navy are of three types: electrical, visual, and sound.

### ELECTRICAL COMMUNICATIONS

The means of communicating electrically are by radio and wire. The former uses

electromagnetic waves not guided by a physical path between sender and receiver, whereas wire uses electromagnetic waves carried by electrical conductors that connect the sending and receiving equipments. Following is a brief description of the various methods of electrical communications.

#### Radiotelegraph

Radiotelegraph (continuous wave or CW telegraphy) is a system for transmitting signals by using a wave of radiofrequency (r-f) energy. The radio operator separates the continuously transmitted wave into dots and dashes, based on the Morse code, by opening and closing a telegraphic handkey. Despite the development of automation in electronic communications, manual CW telegraphy still is one of the most efficient and reliable communicating systems used by the Navy.

#### Teletypewriter

Teletypewriter (TTY) signals may be transmitted by either landline (wire) or radio. The landline TTY is utilized both by the military services and by commercial communication companies. Radioteletypewriter (RATT) is used mainly for high speed automatic communication across ocean areas. The teletypewriter unit is equipped with a keyboard similar to a typewriter. When the operator presses a key, a sequence of signals is transmitted. At receiving stations, the signals are fed into terminal equipments that type the message automatically.

Although RATT can be used for ship-to-ship and between ships and shore stations, the main shipboard use of the radioteletypewriter is for the receipt of fleet broadcast messages. RATT can clear traffic at a rate in excess of 100 wpm. Because the shipboard operator is freed from manual copying, and hundreds of ships may be receiving a single broadcast, the total saving in manpower is considerable.

#### Radiotelephone

The radiotelephone (voice radio) is considered one of the most useful military communication devices. Because of its directness, convenience, and ease of operation, voice radio is used almost exclusively between ships and between ships and aircraft for short-range (20 to 25 miles) tactical communications. There is

little or no delay while a message is prepared for transmission, and acknowledgements can be returned instantly. The R/T equipment usually is operated on frequencies that are high enough to have line-of-sight characteristics. That is, the radio waves do not follow the curvature of the earth, and this provides a degree of communication security. Because most radiotelephone transmissions are sent in plain language, strict circuit discipline is mandatory.

Facsimile

Facsimile (FAX) is the process used to transmit photographs, charts, and other graphic information electronically. The image to be transmitted is scanned by a photoelectric cell, and electrical variations in the cell output, corresponding to the light and dark areas being scanned, are transmitted to the receiver. At the receiver, the signal operates a recorder that reproduces the picture. The FAX signals may be transmitted by either landline or radio.

VISUAL COMMUNICATIONS

Visual communications are the preferred means for communicating at short range during daylight. In reliability and convenience, they are the equal of radio and are more secure. Visual signaling systems include flaghoist, flashing light, and semaphore.

Flaghoist

Flaghoist is a method of communication in which various combinations of colored flags and pennants are hoisted to send messages. It is the principal means of transmitting brief tactical and informational signals between surface units. Signals are repeated by the addressee to provide a check on the accuracy of reception. Texts of messages sent in this manner usually are limited to those contained in signal books.

Flashing Light

Flashing light is a visual telegraphic system that utilizes visible or infrared light beams; it may be directional or nondirectional.

A directional flashing light is pointed and trained so as to be visible only by the addressee of the message. This method makes use of installed signal searchlights, on which the operator opens and closes the light shutter to form

dots and dashes, and portable lights, in which the source of light is switched on and off to form the Morse code characters.

Nondirectional (omnidirectional) lights are located above the superstructure on the yard-arm. Because the light beams are visible in every direction from the ship, this method of communicating is suitable for messages destined for several addressees.

In time of war, flashing light communications carried on after dark usually utilize infrared beams that are not visible unless viewed through a special receiver. As a general rule, infrared is the most secure means of visual communications. Directional infrared uses the standard signal searchlights fitted with special filters. For omnidirectional signaling, yard-arms are fitted with infrared blinker lamps.

Semaphore

Semaphore is a communication medium by which a man signals with two hand flags, moving his arms through various positions to represent letters, numerals, and special signs. In clear weather, because of its speed, it is the preferred means of short-range (not beyond 2 miles) message transmission.

SOUND COMMUNICATIONS

Sound communication systems include whistles, sirens, bells, and acoustics. The first three are used by ships for transmitting emergency warning signals such as air raid alerts, for navigational signals prescribed by the Rules of the Road, and, in wartime, for communications between ships in convoy.

Provision is made in many search sonar (underwater sound) equipments to permit their use for CW transmission. The term acoustic communications, however, usually pertains to an underwater sonar communication equipment called Sea Talk. Sea Talk (frequently referred to as Gertrude) may be used for either radiotelephone or CW communications. The range of transmission varies with the condition of the sea and the relative noise output of the ship. Under favorable conditions, communications may take place between ships at ranges in the vicinity of 12,000 yards. Unusual machinery noises may create extraneous sounds sufficient to blot out incoming signals. This action, in effect, reduces the effective range, particularly when the equipment is being used for voice communicating.

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ELEMENTS OF NAVAL COMMUNICATIONS

The major elements of naval communications are the—

1. Office of Naval Communications.
2. Naval Security Group.
3. Naval Communication System.
4. Communication departments of shore establishment activities.
5. Communication organizations of the operating forces.

OFFICE OF NAVAL COMMUNICATIONS

The Office of Naval Communications, headed by the Director, Naval Communications (DNC), is an organization within the Office of the Chief of Naval Operations. The DNC's full title is Assistant Chief of Naval Operations (Communications)/Director, Naval Communications (ACNO (COMM) /DNC). The office is the headquarters of naval communications, responsible for department level communication coordination and planning. Its objective is to provide efficient communications for the Naval Establishment based on both present and contemplated requirements. The DNC promulgates, among other texts, the communicator's most important doctrinal publication U. S. Naval Communication Instructions, DNC 5.

NAVAL SECURITY GROUP

The Naval Security Group is a worldwide organization that provides for the protection of naval communications by directing the communication security effort. It furnishes cryptographic equipment for the Department of Navy (including the U. S. Coast Guard), administers the Registered Publication System and its registered publication issuing offices (RPIOs), supervises the naval portion of the Armed Forces Courier Service (ARFCOS), performs cryptologic and related functions based on requirements originated by or placed upon the Chief of Naval Operations (CNO), and performs special functions in connection with communication security and communication electronic intelligence.

NAVAL COMMUNICATION SYSTEM (NCS)

The Naval Communication System is a fixed, integrated communication network that includes

all shore-based communication activities plus the landlines and radio circuits by which all elements of naval communications are linked. The NCS comprises three types of activities: communication stations, radio stations, and communication units.

A naval communication station (NAVCOMMSTA) consists of the communication facilities and ancillary equipment required to provide the essential fleet support and fixed communication services for a specific area.

A naval radio station (NAVRADSTA), generally a remote component of NAVCOMMSTA, performs either radio transmitting or radio receiving functions. To indicate the function performed, the designation letter T or R is added in parentheses to the activity; e.g., NAVRADSTA(T), Lualualei, Oahu.

A communication unit (NAVCOMMU) is assigned a limited or specialized functional mission, and consequently is smaller in terms of personnel and facilities than its counterpart, the NAVCOMMSTA.

COMMUNICATION DEPARTMENTS OF SHORE ESTABLISHED ACTIVITIES

The organization of an activity of the shore establishment usually provides for a communication department. The communication department maintains and operates communication facilities mainly to afford local communications as necessary for accomplishing the activity's assigned mission. It also may provide general communications in furtherance of the worldwide functions of the NCS.

Where radio transmitting and receiving facilities are required, it is the policy to install the equipments in regularly established transmitter or receiver stations of the Naval Communication System and remotely control these facilities from the communication center of the activity concerned.

COMMUNICATION ORGANIZATIONS OF THE OPERATING FORCES

At the level of the operating forces, communications is the voice of command in a visible and tangible way. The communication organization aboard ship is under the direct and positive control of the commanding officer. Often, the communications provided influence directly and materially the degree of success achieved by the combat unit. In the transmission

and reception of signals and messages, the communication organization participates in the exercise of command.

DEFENSE COMMUNICATIONS

The Defense Communications System (DCS) comprises the major portions of the individual Army, Navy, and Air Force communication complexes brought together under a single system to provide a single system response to the Department of Defense worldwide communication needs. The military departments continue to maintain and operate their assigned portions of the DCS, but are responsive to the overall operational control and supervision of the Defense Communications Agency (DCA), which is the management agency for the DCS.

With certain exceptions, the DCS includes all Department of Defense circuits, terminals, control facilities, and tributaries, regardless of the military department to which they are assigned. Of particular significance to the Navy, the implementing directive states that the DCS normally does not include land, ship, and airborne communication facilities of broadcast, ship-to-shore, ship-to-ship, and ground-air-ground systems. Tactical circuits within a tactical organization usually are excluded from the DCS.

The Defense Communications Agency is an activity of the Department of Defense under the authority and control of the Secretary of Defense. The chain of command runs from the Secretary of Defense through the Joint Chiefs of Staff to the Chief, DCA.

The operational control and supervision of the DCS is accomplished through a complex of communication control centers. The functions and tasks associated with the control centers are to tabulate, assemble, store, and display information on current conditions of the components of the system; allocate channels and circuits to meet requirements of authorized users; and perform continuous system analysis and such other tasks as are necessary. The principal objective of the control center system is to assure the greatest possible responsiveness of the DCS to the needs of its users.

The communication control centers receive and process performance data based on hourly and spot reports made by the various DCS reporting stations on networks, circuits, channels, and facilities of the DCS. These reports provide a knowledge of the status of the DCS at all times.

The control centers know of the traffic backlogs, if any; conditions of circuits; status of installed equipment at some 200 switching centers throughout the world; and the status of channels allocated to the various users. With this knowledge and that of alternate route capabilities between any two points, spare capacity, and radio propagation conditions, the control centers restore elements and reallocate channels according to the needs and priorities of users.

The heart of the communication control center complex is the Defense Communications Agency operations Center, located in the Washington, D. C. area. In this automatic processing center, complete information on the communication traffic and system status throughout the world is processed and acted upon.

Information presented on display panels in the Operations Center covers the full range of data required to analyze intelligently this worldwide communication system. Included in this information are trunk status, assignment, and availability of individual circuits, station status, and the scope, priority, and quantity of message backlog.

Subordinate to the DCA Operations Center are four Defense Area Communications Control Centers (DACCCs). These control centers exercise operational control and supervision of DCS components in their geographical areas. The Pacific DACCC is located in Hawaii; the European DACCC at Dreux AFB, France; the Alaska DACCC at Elmendorf AFB, Anchorage; and the Continental U. S. DACCC at Fort Carson, Colorado.

Subordinate elements of the DACCCs include regional control centers (DRCCCs) in the Philippines, Japan, Labrador, England, Spain, and Turkey. Thus, there are a total of 10 area and regional control centers throughout the world to provide control facilities that permit the DCS in their particular areas to be responsive to the changing needs of area commanders.

JOINT AND ALLIED COMMUNICATIONS

The need for coordinated and standardized communications among the military services has been apparent for many years, particularly since the early stages of World War II. Army and Navy facilities occasionally were duplicated locally, and differences in procedures made efficient interservice communications difficult. Communication procedures now are standardized

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within the Department of Defense, and the handling of interservice messages no longer is a special problem. Joint procedures are set forth in Joint Army-Navy-Air Force Publications (JANAPs).

Allied Communication Publications (ACPs) are promulgated to meet the need for standardized communications on an allied basis. The ACP series of publications provides the communication instructions and procedures essential to the conduct of combined military operations.

#### MILITARY AFFILIATE RADIO SYSTEM

The Military Affiliate Radio System (MARS) provides a source of trained operators having a potential for emergency communications in support of the military services. Basically, Navy MARS was established to train amateur radio operators in Navy communication procedures. The Army and Air Force each have their MARS, and with the Navy now form a tri-service MARS. The operators maintain an affiliation with the service of their choice and provide a backlog of competent personnel for use in local disasters or a general emergency.

Navy MARS operators ordinarily operate from their own amateur stations using Navy-assigned calls. They handle personal or semi-official message traffic of a morale nature that does not qualify for regular transmission over Navy circuits.

#### THE RELIEVING PROCESS

It might be well at this point to deviate somewhat from the subject of communications to suggest certain precautions, practices, and pitfalls to avoid during the process of assuming a shipboard communicator's duties. The way a relieving officer takes over his new responsibilities does not guarantee success. If he does it correctly, however, he may prevent many unnecessary headaches during the first few months. This is particularly true for an officer starting without experience in a new billet. For purposes of discussion, however, it is assumed that the relieving officer has a reasonable time to establish a contact relief.

#### SHIP/DEPARTMENT ORGANIZATION

Type commanders usually promulgate standard organization and regulations manuals

which commanding officers modify to some extent to meet the needs of their individual ships. The modifications are limited in number to ensure uniformity throughout the class of vessel. Before concerning himself with the details of a new job, the newly reported officer should study the ship's organization and regulations manual to get the feel of the ship as a working unit.

As a minimum requirement, the ship's organization book contains (1) a complete written and graphic description of the ship's administrative organization, (2) the organizational bills of the ship, and (3) the ship's regulations. The last are a group of instructions covering the more common recurring events or problems. Such matters as the ship's leave policy, routine for airing bedding, and procedures for dealing with public vendors are spelled out in detail.

The chief purpose of the organization and regulations manual is to provide ship's personnel with a ready source of information concerning their duties, responsibilities, and authority in administering and operating the ship.

In addition to studying the ship's organization, the new communicator should familiarize himself with the organization of the operations department. The operations officer is the immediate superior of the communication officer, and on occasion will assign the latter tasks that require a detailed knowledge of the entire department. In the absence of the operations officer, the communication officer may temporarily take charge of the department. The operations officer may have prepared a departmental organization book containing and amplifying the various sections of the ship's organization and regulations manual applicable to the operations department.

This text treats the subject of communications within the context of a typical destroyer organization. Owing to the limited number of officers available, there is much doubling up of duties. The executive officer may be navigator; the engineer officer may perform the duties of main propulsion assistant. On a large ship the communication officer has several assistants, such as a custodian of registered publications and a signal officer, but in a destroyer the communicator invariably has no officers to assist him. Elsewhere in this text specific tasks are spelled out in some detail, but the fundamental source with which all officers must be familiar is U. S. Navy Regulations, 1948, which includes a chapter on the duties of each officer.

ADMINISTRATIVE CHECKOFF  
LISTS

Each type commander prepares a detailed administrative inspection checkoff list by which to evaluate the ships under his command. Everything considered important is covered by a question on the list. At intervals of approximately once each year a group of officers from another ship, supplemented by the type, flotilla, or squadron commander's staffs, will come aboard, go through the ship's records and compartments, ask innumerable questions, and finally evaluate the ship's administrative conditions.

The new division officer should request a copy of the checkoff lists that apply to the communication and signal spaces and go through them item by item. Examples of questions appearing on a list might include the following:

1. Is a watch, quarter, and station bill posted? Is it complete? Is it up to date?
2. Are the ship's communication instructions accessible to communication personnel?
3. Are emergency destruction bills posted in the proper spaces?
4. Are periodic drills in destruction procedures carried out?
5. Is an adequate communication training program in effect?
6. Are high-voltage signs posted at appropriate places?
7. Is the required registered publication allowance maintained?
8. Is the general message file complete?

This is a random sampling of a list that might contain well over a hundred questions. If any tangible item required by the checkoff list (the ship's communication instructions, for example) is nonexistent, it should be made a part of the relief letter, discussed later. Close observation of the schedules of required daily, weekly, and monthly checks of equipment will reveal whether required maintenance tests are in fact being performed, or whether someone is merely initialing the records.

Certain periodic reports require that data be gathered systematically throughout the period covered by the report. The relieving officer must determine by sighting whether his predecessor's tickler system effectively ensures that all reports are prepared and filed on time.

REGISTERED PUBLICATIONS

Probably more young officers have gotten into serious trouble because of careless handling of registered publications than for any other reason. The subject is so important that a full chapter of this book is devoted to it. A relieving officer should not accept custody for the registered publications of the ship until he has sighted them, checked them against the inventory, made page checks when necessary, and learned the regulations concerning them.

The basic instructions for custodians are contained in the effective edition of RPS 4. Any officer connected with communications must be thoroughly familiar with the regulations governing the proper handling of registered publications.

MATERIAL

Every division officer is responsible for the accountability and proper maintenance of the equipment and compartments over which he has cognizance.

The only way to be sure that the various articles and equipments that an officer is assuming responsibility for are those on board—no more, no less—is to take a complete inventory. The officer being relieved should have an inventory list showing all accountable articles and containing the type and identification (model and serial) number of every piece of equipment.

Certain items, such as office supplies, are expendable because they are used up in day-to-day operations, and no strict accountability is possible. Major items, however, are inventoried at least annually, usually in conjunction with the supply officer's yearly inventory. If a discrepancy arises between the annual inventory list and the relieving officer's initial inventory, the officer being relieved is responsible for taking corrective action. It may be that an item in question was replaced, the old equipment still being listed on the inventory. On the other hand, maybe another department borrowed a typewriter some months back. If no one except the officer being relieved and an already-transferred chief know where the typewriter actually is, how does the new officer explain the apparent loss when it shows up on the next annual inventory? In any event, if an item turns up missing, the communicator being relieved must initiate a request for survey, stating his reason for its loss. Essentially, a survey is an

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investigation of the cause, and a citing of responsibility, for lost or damaged equipment.

In company with his predecessor, the relieving officer makes a thorough inspection of all the areas of the ship for which he is about to assume responsibility. A thorough material inspection furnishes an indication of the standards of cleanliness in the division work spaces. The searchlights and the generators that supply the transmitters present a good insight into the maintenance standards. If the generator zerk (grease gun) fittings are painted over or are dirty, or if there is evidence of corrosion inside the searchlights, the new officer should be suspicious of the way routine maintenance schedules are being carried out. In the division's berthing compartment, he should inspect lockers and bedding for neatness and cleanliness.

### EQUIPAGE

The officer being relieved will have signed for equipage. This is material, such as binoculars and typewriters, of such value that individuals having custody of it are required to sign a card that is retained by the ship's supply officer.

Each department head signs the custody cards for all equipage allotted his organization. The department head may require that sub-custody cards be signed by the person having physical custody of each item. A relieving officer necessarily assumes custody of those items for which his predecessor has been accountable. He should sight each item before signing the custody card. Once his signature appears on the cards, the presence and condition of the equipment become his responsibility. In the event equipage is lost or damaged, it must be surveyed in the same way that missing or damaged material is surveyed.

### CURRENT SHIP'S MAINTENANCE PROJECT

The Current Ship's Maintenance Project (CSMP) is a written record of authorized and required alterations and repairs. Usually part of the CSMP is maintained by the electronics material officer (EMO) and the remainder by the engineer officer. Each part contains information of interest to a relieving officer, who should go over the lists of repairs with both the officer being relieved and the EMO. The new officer must understand the effect that inoperable

equipment has on the capability of the ship to furnish the circuits required during fleet operations.

### RELIEF LETTER

It is common practice for an officer being relieved to write a letter to the commanding officer; via the relieving officer and the executive officer, stating that he has been relieved, and the condition of the department or division for which he has been responsible. The relieving officer should ensure that anything he does not consider satisfactory is reported in his endorsement.

About 1 month after relieving, the new division officer may be required to prepare another letter to the captain, via the operations and executive officers, stating what he has done to correct the deficiencies found on arrival. The report should include any additional casualties that have occurred or difficulties being experienced.

### GETTING THE JOB DONE

Problems do not solve themselves. Ideas and suggestions have no meaning unless they are followed by decisions. An officer must attack each casualty and problem aggressively, determine the facts, and decide what has to be done.

For example, radio central might receive a complaint from a department head that he did not receive his copy of an incoming message rapidly enough to prepare a timely answer. Merely explaining that the routing system in effect should provide efficient service does not solve the problem. If an action message was not delivered promptly, something is wrong. It may be that the action message was placed inadvertently with messages received for information, the latter being delivered periodically during the day rather than upon receipt. On the other hand, the messenger may have stopped somewhere in his travels for a cup of coffee that lasted a half hour. In either case, the communication officer must take corrective action. A leading petty officer may be able to resolve the problem by revamping the delivery procedure. It is entirely possible that the man routing the messages knows more about the situation than anyone else and is eager to try out some of his own ideas.

There is a tendency on the part of some junior officers to believe that additional

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manpower is the panacea for all their difficulties. This might be true, but it is the least likely way of resolving a problem because the odds are that additional personnel will not be forthcoming. Every superior must learn to do the job with what he has on hand. Wherever possible, he establishes a system which, after the men have been properly instructed, will run itself with a minimum of personal supervision.

Many officers spend hours working on a number of tasks simultaneously, and in the final analysis rarely complete any of them. Do not become bogged down in too many projects at the same time. Plan each day to work on the most important problems. Report the completion of every task assigned by a superior officer. If an assigned task cannot be accomplished, this fact also must be reported.

In the matter of correspondence, every business has its standard operating procedures, and the Navy is no exception. When preparing a letter for the commanding officer's signature, it is not necessary that all controversial subjects should be omitted but rather that the facts are correct, and the conclusions or recommendations are well thought through. The letter should be in accordance with approved format. Most important, all correspondence forwarded to the captain must be grammatically correct and contain no misspelled words. Except in unusual instances, the letter should be smooth-typed.

Most U. S. Navy ships are deployed periodically to overseas areas. When overseas, the normal supply channels are lengthened, complicating logistics. In addition, the various fleet commanders issue instructions and procedures covering a wide range of subjects that may differ in detail from those in effect while operating from the continental United States. These problems throw a heavy workload on the communication officer. In general, each type commander has an effective instruction wherein all of the predeployment requirements are delineated. Approximately 3 months before sailing, procure a copy of this instruction from the ship's files and initiate action to obtain all required items.

Instructions usually are mailed to each ship in sufficient time to allow thorough study by interested personnel prior to arrival in the forward area. Do not intermingle these instructions in the ship's regular file binders, and keep them readily available to operating personnel. For the instructions which must be returned upon departure from the forward area, ensure that an accounting system is maintained.

Advance planning is necessary to ensure a successful tour of duty as a communicator. Don't wait until a problem arises to start checking effective instructions and publications for correct procedures. Many times it is too late to correct mistakes after the ship is underway.

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