

CHAPTER 1

INTRODUCTION TO VISUAL COMMUNICATION

Your choice to become a Signaller is a very good one. The Signaller rating is one of the oldest in the Navy, and visual communication—the first form of nautical communications—continues undiminished in importance today. You will find your job interesting, rewarding, and full of the satisfaction that comes of service to the Navy and the United States. At the level of operating forces, communications, as you will learn, is truly the voice of command in a visible way. The communication organization aboard ship is under the control of the commanding officer. In the transmission and reception of signals and messages, communicators actively participate in the exercise of command.

The fleet needs capable personnel in all ratings, because an effective naval force is only as good as the people who man the ships. Even with the most modern equipment, the force is seriously handicapped without competent personnel to operate and maintain that equipment. Good people are plentiful, but their capability depends on their training.

This manual contains the basic knowledge you need for advancement in the Signaller rating. Skills in personnel advancement requirements (PARs), including a performance test, also are required, but these can only be developed through practice and experience.

Personnel Qualification Standard (PQS) is a qualification for officers and enlisted personnel to perform certain duties. The Signaller PQS booklet, *Visual Communication*, NAVEDTRA 43354B, contains the fundamentals, systems, and watch stations recognized by CNET as the minimum qualification for Signaller supervisor aboard U.S. Navy ships. Included are expert lookout, flagbag operator, semaphore operator, searchlight operator, boat Signaller, amphibious Signaller, Signaller of the watch, in-port duty Signaller, recorder/messenger, signal bridge spotter, and AN/KAS-1 operator. This PQS will assist you in becoming a more productive member of the Signaller community.

As a part of the Navy's training program, *Signaller*, is designed to help you meet the occupational standards for advancement in the Signaller rating.

To become an expert is quite a challenge, and you will derive considerable satisfaction from mastering the art of signaling. Through your initiative, study, practice, and hard work, the time will come when your shipmates will look upon you as an expert.

THE SIGNALMAN RATING

LEARNING OBJECTIVES: State the purpose of a Signaller aboard ship. Identify five areas in which Signallers must be proficient.

All the planning, organizing, and training that go into the makeup of a signal gang are designed for one purpose—to perfect the Signaller's ability to transmit and receive messages vital to the operation of the ship. The Signaller mans the visual communication link with semaphore flags, flaghoist, and searchlights.

In addition to visual communications, a Signaller also must be proficient in navigation. Navigation duties include the reading, stowing, and correcting of charts; being able to help pilot a ship in restricted waters; and being familiar with the Rules of the Road, navigational aids, and using navigational equipment. (Navigational duties are discussed in chapter 9.) In addition, the Signaller must be skilled in voice radio operations and procedures; be able to properly render honors and ceremonies; be experienced in the principles of recognition and be quick to recognize personal flags and pennants of U.S. and foreign officers; be able to act as expert lookouts; and be able to demonstrate know how in many other related skills.

As a Signaller, you can expect to serve on a variety of ships—from the largest carrier to the smallest patrol craft—and at various shore commands. Aboard some ships, you may have to help with the navigation in addition to your visual signaling duties. On other ships you might practice only your visual signaling skills.

Now you know, in a general way, what is required of a Signaller. But you may ask, "What must I do to become a Signaller?" The demands are **A WILLINGNESS TO LEARN** and **A**

WILLINGNESS TO WORK. Together, these qualities can take you a long way in the Navy.

THE SIGNAL BRIDGE

LEARNING OBJECTIVES: Describe the various types of signal bridges and state one characteristic all have in common.

The signal bridge, where you will spend your working hours, is a platform high in the superstructure of a ship. All visual signaling takes place from this point. The size of the signal bridge and its location vary according to the type of ship. On some ships the bridge is on the same deck as the navigation bridge, where the conning officer is stationed. On others it is on the flag bridge or on a separate bridge.

A cruiser has a large bridge, providing ample space for the signal gang to operate. On the other hand, the bridge of a fast frigate cannot offer nearly as much signaling space. Some ships are equipped with divided signal bridges, port and starboard. Regardless of how the signal bridge is laid out, it always is designed to give the best possible vision from ship to horizon.

In many respects, flaghoist, semaphore, and flashing light are far superior to radio. Especially is this true when the mission of the unit or force demands radio silence; that is when security considerations silence all electronic communications. With radio silence in effect, only visual signals may be used to convey messages. Visual signaling is used widely, even in peacetime when security often is not a major issue. Flaghoist is used almost exclusively by task force commanders to maneuver their ships during daylight hours.

As a Signaller 3 or 2, you must have the ability to send and receive messages and recognition signals by flashing light, semaphore, and flaghoist. You must learn to prepare the headings for outgoing messages and to become proficient in the correct procedures for handling, routing, and filing messages.

GETTING ORIENTED

One of your first steps in becoming a Signaller is to learn all you can about the organization in which you will work. Obviously, no book can anticipate or cover all the questions you will have about your new job; so when questions arise, check with your division petty officer. Make it a point to learn something new each day about your job and your ship. On a modern

ship, ignorance is a very real danger to you and your shipmates.

Become familiar with all the different spaces of your ship and what their functions are. Put particular emphasis on the communication and navigation spaces, such as the communication center, radio central, the bridge, and the signal bridge. Learn the quickest, shortest, and alternate routes to each from different sections of the ship.

MILITARY APPEARANCE

Another thing to learn is that Signallers are generally considered the very smartest in military appearance. Therefore, always be in a clean, neat, and proper uniform. Also, the spaces in which you work should be the cleanest and most orderly aboard ship. It is your job to make it so.

DUTIES TO PERFORM

LEARNING OBJECTIVES: Define the term *phonetic alphabet*; list procedures to form letters of the alphabet and numerals; state the purpose of the message blank. Describe the following Signaller duties: flagbag operator, spotter, searchlight operator, semaphore operator, Signaller of the watch, boat Signaller, in-port duty Signaller, and Signaller supervisor.

As a Signaller, you will be tasked to perform many duties. How you perform these duties could directly affect the mission of your ship. Some of these duties are explained in the following paragraphs.

RECORDING MESSAGES

One of your first duties after joining the signal gang will be to record visual messages. Probably on your first day on the bridge you heard one of the operators call out, "Stand by to record." You may have noted that the operator went directly to the signal light and began to receive the message, while another Signaller, maybe a striker like yourself, grabbed a message blank and began to record the information the operator called out.

Phonetic Alphabet

Some of the words called out may not have made much sense to you—words like ALFA, YANKEE, and DELTA. To experienced communicators they mean the letters A, Y, and D. The Signaller was using the phonetic alphabet, a system set up in which each letter of the alphabet has a word equivalent. It is used widely in naval communications, to avoid mistaking letters that sound alike, such as B and C or M and N. You will have to know this alphabet before you can go any further in communications, so study the alphabet and the proper pronunciation, as shown in figure 1-1. It is not very difficult, and you should not have any trouble mastering it in a few days.

Lettering

The accuracy of communications, especially of coded messages, depends on exact adherence to procedures and on legibility of writing. For this reason it is necessary that all letters and numerals be distinctly and legibly made, not only so that you can read them but also so that they can be

easily read by anyone else. If you write a letter or numeral and it is mistaken for some similar letter or numeral, confusion will result. Often one mistake can change the entire meaning of a message. This can be disastrous when lives and ships are at stake.

Figures 1-2, 1-3, and 1-4 show how letters and figures should be formed and what sequence should be followed in making the various strokes.

To ensure uniformity, it is necessary that letters and numerals be printed and that you learn the following system of lettering:

1. A straight line is the foundation stroke. The letters E, H, and F have the center horizontal stroke slightly above the middle. The strokes of the letters X, Y, and K join slightly above the middle.

2. The letters O, Q, C, and G are made as circles. The letter B is slightly smaller at the top and has the center horizontal part slightly above the middle. The letters R and S are slightly smaller at the top.

LETTER	PHONETIC ALPHABET	PRONUNCIATION GUIDE	
A	ALFA	AL FAH	• —
B	BRAVO	BBRAH VOH	• • • •
C	CHARLIE	CHAR LEE/SHAR LEE	• • • •
D	DELTA	DEL TAH	• • • •
E	ECHO	ECK OH	• • • •
F	FOXTROT	FOKS TROT	• • • •
G	GOLF	GOLF	• • • •
H	HOTEL	HOH TELL	• • • •
I	INDIA	IN DEE AH	• • • •
J	JULIETT	JEW LEE ETT	• • • •
K	KILO	KEY LOH	• • • •
L	LIMA	LEE MAH	• • • •
M	MIKE	MIKE	• • • •
N	NOVEMBER	NO VEM BER	• • • •
O	OSCAR	OSS CAH	• • • •
P	PAPA	PAH PAH	• • • •
Q	QUEBEC	KEH BECK	• • • •
R	ROMEO	ROW ME OH	• • • •
S	SIERRA	SEE AIR PAH	• • • •
T	TANGO	TANG GO	• • • •
U	UNIFORM	YOU NEE FORM/QQ NEE FORM	• • • •
V	VICTOR	VIK TAH	• • • •
W	WHISKEY	WISS KEY	• • • •
X	XRAY	ECKS RAY	• • • •
Y	YANKEE	YANG KEY	• • • •
Z	ZULU	ZOO LOO	• • • •

NUMBER	PHONETIC ALPHABET	INTERNATIONAL MORSE CODE
1	WUN	• — — —
2	TOO	• • — —
3	TREE	• • • —
4	FOUR-ER	• • • •
5	FIFE	• • • •
6	SIX	• — • •
7	SEV-EN	• — • •
8	AIT	• — • •
9	NINE-ER	• — • •
0	ZE-RO	• — • •

73NP0001

Figure 1-1.—Phonetic and Morse code alphabet.



Figure 1-2.—Straight-line lettering.

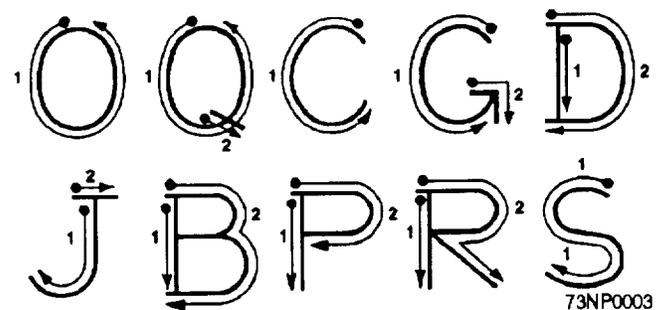
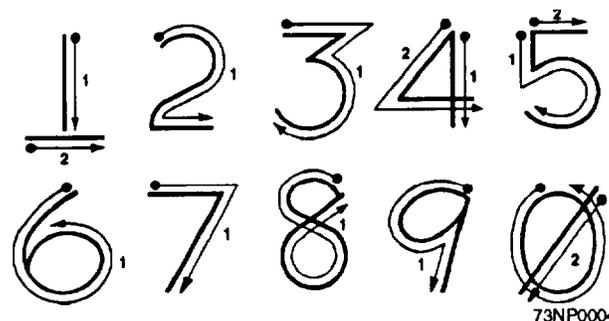


Figure 1-3.—Circular lettering.



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Figure 1-4.—Numerals.

SPOTTER

The spotter is the most valuable person in flaghoist communication. It is the spotter's job to get the signal hoisted and to make sure it is correct. To become a spotter, you must be able to recognize all flags in the flagbag without hesitation, know flaghoist terminology, and be able to read flaghoist in proper sequences. Spotter's duties and flaghoist terminology will be covered more in depth in chapter 5.

SEARCHLIGHT OPERATOR

Flashing light is used daily on the signal bridge. To become a searchlight operator, a Signalman must be efficient in Morse code. He or she must be knowledgeable in all procedures when communicating via flashing light. Searchlight operators must be able to energize equipment and to spot any malfunctions. Searchlight operator will be covered more in depth in chapter 4.

SEMAPHORE OPERATOR

Semaphore is a rapid and secure means of transmitting visual messages. It makes use of two hand flags (PAPA or OSCAR) attached to staffs about 22 inches long. This increases range of visibility. Semaphore may be used to send messages to several addresses at one time if they are positioned properly; because of its speed, it is better adapted for long messages. See appendix II for standard semaphore characters and a few helpful hints. Semaphore will be covered more in depth in chapter 4.

SIGNALMAN OF THE WATCH

No two signal bridges are run exactly the same; therefore, the duties of the Signalman of the watch will vary from ship to ship. The standard operating procedures (SOPs) on your signal bridge will define your duties as Signalman of the watch. In general, though, the Signalman of the watch, must be efficient in all forms of visual communication.

BOAT SIGNALMAN

Boat Signalman is one of your most important assignments; it usually comes in play to help save someone's life. Therefore, you must know all aspects of being a boat Signalman, including the identification of flares, directing boat by visual signaling, and being

able to operate a pyrotechnic kit. Boat Signalman procedures are discussed in chapter 8.

EXPERT LOOKOUT

On every ship, the lookout has an extremely important job. Even with today's radar, a good lookout is one of the OOD's most valuable sources of information. A Signalman's duties by nature also require keeping a sharp lookout. **As a matter of pride, the Signalman should be the first to sight and identify objects.**

An expert lookout has to be plenty sharp on a lot of things. Not only must lookouts be able to sight and identify objects, but they must be able to report them correctly, using relative bearings, distances, target angles, and in the case of aircraft, position angles. Lookout duties are covered in detail in chapter 8.

IN-PORT DUTY SIGNALMAN

The duties of the in-port duty Signalman include the holding of colors, sunrise, routing of visual messages, making preparations for getting under way, serving as a member of the rescue and assistance detail, and maintaining the visual station file and log.

The duties of the in-port duty Signalman will vary from ship to ship. Your SOPs will outline your duties.

SIGNALMAN SUPERVISOR

The Signalman supervisor is overall responsible to the leading Signalman and/or signal officer for the communication and conduct of personnel on watch. Signalman supervisor duties are discussed in chapter 8.

COMMUNICATIONS PUBLICATIONS

LEARNING OBJECTIVES: List 12 important communication publications and state the purpose of each. State how publications may be obtained. Explain the importance of publication corrections and changes, and state procedures for making publication changes.

A variety of special publications is necessary in visual communication. You will be using these pubs daily, so you may as well familiarize yourself with them at the start.

Basic Operational Communication Doctrine, NWP 4, forms the basic communication plan for the operating forces.

Naval Telecommunication Procedures Fleet Communication, NTP 4, supports and amplifies NWP 4. It contains substantially the same procedures and instructions issued in the JANAP (joint Army, Navy, Air Force publication) and ACP (allied communications publication) series. In the case of conflict between NTP 4 and the JANAP/ACP series, NTP 4 will govern for intra—U.S. Navy use.

NTP 4 furnishes the instructions for the employment of all phases of naval communication on both the command and operator levels. Additional instructions for joint operations are contained in JANAPs, while the ACPs contain instructions for the proper use of communication in joint, allied, and combined operations.

Although there are many JANAP/ACP publications, the publications that contain the final word about communication procedures are the JANAP/ACP 121 through 134 series. They are known as the communications instructions group.

Specifically, ACP 129, *Communication Instructions, Visual Communication Procedures*; ACP 121, *Communication Instruction, General Procedures*; and ACP 125, *Communication Instructions, Radiotelephone Procedure*, should be thoroughly understood by signal bridge personnel.

The Allied Maritime Tactical Signal Book, ATP 1, volume II, is a NATO restricted publication supplied to naval vessels. It contains maneuvering signals, standard operational signals, and the more common administrative signals. A thorough knowledge of the instructions in chapter 1 is a must for all Signalmen.

NTP 13, *Flags, Pennants, and Customs*, is an excellent source of information on all matters concerning flags and pennants.

The *International Code of Signals*, Pub 102, contains signals for use with merchant vessels of all nationalities. A knowledge of the instructions in the front of this pub is also a must for all Signalmen. Pub 102 also contains the Incidents On and Over the High Seas (INCSEA) agreement. This agreement between the U.S. and former Soviet countries helps to avoid the risk of collision at sea

ACP 131, *Communication Instructions, Operating Signals*, and ACP 168, *Pyrotechnic Signals*, also contain valuable information for visual communicators.

You should also familiarize yourself with the uses and contents of the following joint call sign books:

ACP 113, *Call Sign Book for Ships*

ACP 100 Series, *U.S./Allied Call Sign and Address System*

JANAP 119, *Joint Voice Call Sign Book*

OBTAINING PUBLICATIONS

These publications and most corrections and changes, with the exception of Pub 102, which is distributed by the Defense Mapping Agency Hydrographic Center (DMAHC), are made available to you through the technical publications librarian or the registered publications custodian.

PUBLICATION CORRECTIONS AND CHANGES

As a Signalman, you should be familiar with the system used for making corrections and changes to publications.

Each correction or change to a publication will have instructions for making the correction included in it. These instructions adequately describe the procedure to use. Read and thoroughly understand the instructions before you make the actual entry.

Since communications are in a constant state of flux, governing documents are subject to frequent changes. Unless otherwise stated, these changes are to be entered immediately, and the appropriate record sheet annotated. If new pages have been inserted, the publication must be thoroughly page checked.

Recommended changes to NTPs may be submitted using a feedback report (fig. 1-6). Changes of an urgent nature may be submitted by message. Correspondence regarding proposed changes to communications publications is submitted through the normal chain of command to the cognizant authority of the publication (found in the letter of promulgation).

Never use red ink when entering corrections. Normally, the only type of light you will use at night on the bridge is a red light. This light would render the red ink invisible, and you would be unable to read the

Communications Procedures Feedback Report

Date

From: _____

To: Commander, Naval Computer and Telecommunications Command (Code 31)
4401 Massachusetts Avenue, N.W.
Washington, D.C .20390-5290

Subj: Communications Procedures Feedback Report

Publication: _____

Paragraph No.: _____

Other: _____

Problem Areas: Typographical General Message
 New Procedures Other _____

Procedure is: Obsolete Inadequate Conflicting

Comments: _____

Figure 1-6.—Communications procedure feedback report.

corrections. If you have a quite lengthy pen-and-ink correction to make, it is better, both for neatness and legibility, to type it on a piece of paper and paste or tape it in. When you have a cutout correction to make (where you paste or tape the change to the old page of the pub), delete the superseded portion with, pen and ink.

ENERGIZING EQUIPMENT

LEARNING OBJECTIVES: Identify your responsibility regarding the location and operation of the ship's running lights.

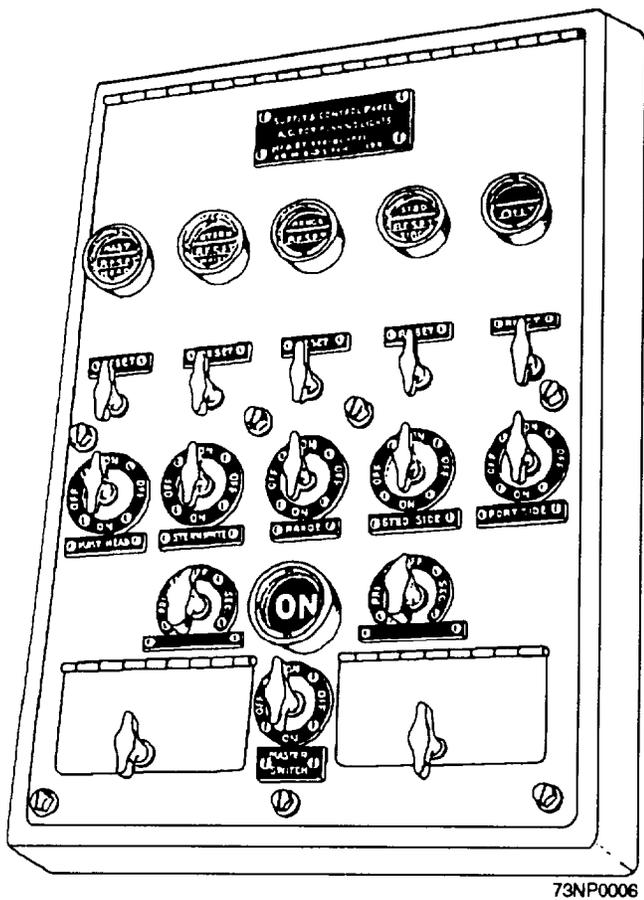


Figure 1-7.—Supply, control, and telltale panel.

The energizing of the signal searchlights, infrared, and other related equipment is covered in chapter 2. However, as a Signalmen, you should also know how to locate and operate the switches for your ship's running lights. You should be able to do this in the dark. The light panel, shown in figure 1-7, is located in the pilothouse; it controls the switches for the port and starboard running lights, towing lights, masthead light, second masthead light, and stern light. It affords an audible and visible signal when the primary

filament burns out in any of the five running lights. At the same time, it automatically switches to the secondary filament so that the defective light remains in service. Although the light remains in service on the secondary filament, the electrician should be notified so the defective lamp can be replaced at the earliest opportunity. In addition to the running light control panel, there is a signal and anchor light supply and control panel, also located in the pilothouse. The supply switches for these lights are individual **ON-OFF** rotary snap switches. This panel normally controls the aircraft warning lights, blinker lights, not-under-command lights, steering lights, stern light (blue), and wake lights.

The Not-Under-Command light switch is fitted with a crank handle to facilitate pulsating when the lights are used as a man overboard signal.

Learn where each individual switch is, and also where the master switch is located. In the event of an emergency, you must be able to turn the correct switch at the proper time.

SUMMARY

In this chapter you were informed of some of the many tasks that compile the Signalmen rating. These tasks ranged from sending and receiving messages by semaphore, flashing light, flaghoist, and radio, and lookout duties, to obtaining and updating publications. You were taught that to be successful you must be willing to work hard to master the varied skills used by Signalmen. You were reminded that your ability to perform your duties affects the operation of your ship, as well as other ships with whom you communicate. Your Navy and your Country need **TOP QUALITY SIGNALMEN**. Will you qualify?