CHAPTER 8

WATCHSTANDING DUTIES

Visual communications at sea usually involve messages that require specific and often immediate compliance. Through tactical communications, ships are joined in formation and maneuvered together as a unit; combat information, passed rapidly between ships, weapons, and aircraft, are coordinated for attack or mutual defense of the group.

Because of their importance, tactical communications are handled by specially trained, responsible personnel. Usually the staff communications officer or staff watch officer on a flagship disseminates signals for the officer in tactical command (OTC) by voice radio located in the flag plot, or through the flagship signal bridge. On other ships in the force, tactical communications are handled by key personnel that assist the commanding officer in receiving and interpreting communications. These personnel include the OOD, JOOD, CIC personnel, and the signal watch.

The signal officer, if one is assigned, takes direct charge of the signal bridge during maneuvers, tactical drills, general quarters, and when the ship is leaving or entering port.

Basic communications doctrine stipulates that visual signaling, in preference to radio, be used for communicating whenever practicable. Visual communications, therefore, constitutes an integral part of the overall communications effort of the ship. The signal bridge plays an important role in the effectiveness of communications as a function of the command.

The point of this introduction is to emphasize the importance of your job as a watch stander on the signal bridge. During periods of independent steaming and when the task force is not maneuvering, the watch is necessarily slow. When maneuvers begin, the pace is rapid and requires “instant response.” When the OTC puts a signal in the air, the sign of a smart ship is to answer, acknowledge, and execute with minimum loss of time. A signal watch aboard a ship with a fast-maneuvering task force can be a major challenge.

This chapter describes the major responsibilities of the signal force, including lookout duties and a short discussion of forms and publications you will use. It also discusses signals that a boatcrew Signalman must be familiar with, and explains UNREP procedures.

DUTIES OF THE WATCH

LEARNING OBJECTIVES: List and explain the duties of the signalbridge watch, including the duties of the signal supervisor, spotter, and recorder. Explain the procedures for using a maneuvering board to locate ships and to plot formations.

Frequently, the duties of Signalmen, spotters, and recorders may be rotated to better qualify strikers. When the pace is quick, however, the supervisor makes sure the best qualified personnel are in the most important spots.

SIGNAL SUPERVISOR

A Signalman 3 or 2 frequently is assigned the duties of signal supervisor. During the watch, the supervisor is in complete control of signal personnel on watch and of signal material in use, and ensures that a proper lookout is kept at all times. When the ship is under way, the signal supervisor is subject to the leading Signalman and the signal officer. The supervisor stations the watch so as best to carry on the signal activities and to attain watch discipline. The supervisor's primary concerns are with traffic handling and watch discipline, and only secondarily (as necessary) with actual operation. It is the supervisor's responsibility to make sure instructions are complied with for internal routing and filing of messages applicable to the signal section.

Any person assigned as a watch supervisor must be thoroughly familiar with *Communications Instructions, Visual Signaling Procedures,* ACP 129; *Allied Maritime Tactical Signal and Manuevering Book,* ATP 1, volume II; *Call Sign Book for Ships,* ACP 113; *International Code of Signals,* Pub. 102, and all other applicable instructions and publications pertaining to visual communications. The supervisor should be proficient in all forms of visual

communications and be able to draft a message for transmission in any visual system. The supervisor must know the watch standers' duties in various emergency bills, with emphasis on man overboard.

During the watch, the supervisor is required to do the following:

- Ensure that an alert watch is maintained at all times.
- Coordinate and supervise operations and activities of the watch in such a way as to maintain efficiency in handling visual message traffic with minimum noise and confusion.
- Know the recognition signals that are in effect.
- Keep the watch informed of the disposition, organization, formation, and location of all units in visual company.
- Know the visual responsibility of own ship for relaying and repeating signals and messages.
- Safeguard communications publications on the signal bridge; make sure a watch-to-watch inventory is maintained.
- Conduct training and instruction for personnel on watch, as practicable, under existing operating conditions.
- Assume responsibility for cleanliness and orderliness of the signal bridge and personnel on watch.
- Acquaint the watch with the location and use of emergency signal equipment.
- Make all required reports to the bridge or quarterdeck. These reports include ships or objects sighted, status of signals on own ship and ships in the vicinity, execution of signals, and casualties to signal bridge equipment.
- Make sure receipts are obtained for messages accepted by the watch for delivery or relay.
- Maintain the visual station file and visual log.

Before becoming a Signalman supervisor, you must complete *Personnel Qualification Standard for Visual Communications,* NAVEDTRA 43354A.

SIGNALMEN

Signalmen should be proficient in all means of visual communications and have knowledge of the following:

- Correct visual procedures, including the uses of procedure signals, procedure signs, and call signs
- Recognition procedures and recognition signals in effect
- The organization, disposition, formation, and location of all units in company
- Log and file maintenance
- Meanings of all special flags and pennants
- The location and method of operation of all emergency signaling gear

Signalmen should be able to compose and break down any visual or radio message heading in naval form. They also must know how to communicate by visual means with a merchant ship at sea and should have a basic knowledge of visual communications with aircraft.

Signalmen should pay particular attention to the following conditions:

- Keep halyards taut in fair weather. In fog or inclement weather and when it is too dark for flaghoist, slack the halyards off to prevent unnecessary strain from shrinkage
- Do not leave Irish pennants, loose equipment, or personal gear about the signal bridge
- Report lost, damaged, or inoperable equipment at once, and take steps to repair or replace it
- Keep bunting dry and covered in bad weather, and air it as often as necessary to prevent mildew. Before airing bunting, obtain permission from the senior officer present afloat (SOPA)

Signalmen must always be mindful that an alert signal force is the mark of a smart ship. The following items make for smartness in flaghoist signaling:

- Accuracy in *bending on* the correct flag the first time
- Smoothness in hoisting and making a quick turn with the uphaul
- Speed in hauling up the hoist
- Assurance that all flags are sent up clear
- Certainty that the signal is kept visible while the hoist is flying. The downhaul is kept fairly taut
- Signals are hauled down sharply, smoothly, and in such manner that they are not allowed to stream to leeward or over the side

Signalmen must be alert to respond to a flashing light or semaphore call without delay.

At night, Signalmen must use extreme care to avoid illuminating the ship's bridges and aircraft. Such illumination reduces the night visual acuity of pilots and conning officers. Whenever practicable during carrier night-flight operations, infrared (IR) systems should be used instead of visible flashing light.

LOCATING SHIPS IN FORMATION

Before you can send a visual message to another ship, you first must know where that ship is located. A Signalman with a message in hand, not knowing the location of the addressee, would be in the same plight as a postman trying to deliver a letter that has no address.

When operating with only one other ship, there is no great difficulty. Operating with a large force, however, does present a problem, and the problem becomes even more complex at night. Infrared communications during darken ship operations would be impossible without some method of keeping track of ships in the formation or locating them.

Signalmen on the signal bridge maintain an up-to-date plot of all ships in company. One of the best systems for plotting ships is a formation plot drawn on a maneuvering board. The maneuvering board itself is a compass rose with range circles, containing speed, distance, and time scales. Your only interest in the board at this time is how to use it in plotting and locating other ships in formation. You will learn more about how to solve maneuvering board problems in *Signalman,* volume II.

The different formations and their component stations are contained in *Allied Maritime Tactical Instructions and Procedures,* ATP 1, volume I. Using the formation in figure 8-1, imagine yourself as the Signalman on USS *Farragut* (DDG-37) with a message for USS *Dewey* (DDG-45).

By checking the formation plot, you find that *Dewey* is in station No. 4 and that your own station is No. 8. Place a set of parallel rulers so they intersect your station and that of *Dewey* (single dashed line in fig. 8-1). Move the parallel rulers to the center of the plot (along the paths of the double lines). Where the parallel rulers cross the outside ring of the maneuvering board is the true bearing (330°T) of *Dewey* from your ship. The formation course is 050°T, so the relative bearing of *Dewey* is 280° (true bearing less course), or just forward of your port beam. Now that you have located the addressee, you can deliver your message.

SPOTTERS

When operating in company, spotters are stationed on the signal bridge from dawn to dark to watch for signals from the OTC and other ships in company. They must be alert at all times.

Spotters must be able to read flaghoist accurately. They call out each flag in the signal in a loud, distinct voice so that personnel on the flag bags and personnel relaying the signal to those responsible for determining the meaning of the signal can hear the signal clearly.

If the originating ship maneuvers in such a manner that its signals cannot be distinguished, the spotter should immediately inform another member of the signal force to spot the ship from another position on the signal bridge. Where there are obstructions such as smoke, haze, fouled flags, or sun glare, the spotter should be given assistance. Regardless of the effort involved or the means necessary, the signal must be obtained with minimum delay. Chapter 5, covered flaghoist terminology used by the spotter.

RECORDERS/MESSENGER

An important duty of Signalmen and strikers is to record signals and messages being read by another Signalman. The date, time of transmission or receipt, reference numbers, date-time group, means of transmission, transmitting and receiving ships, and relaying ships or stations all must be carefully recorded.

Messages are initialed by the operator and supervisor at the time of receipt or transmission. Normally, originals of nontactical messages, after being initialed, the signalbridge messenger, usually the same person that recorded the message, routes it to the OOD or captain, after which a copy is sent to the communications center for write-up and internal distribution. The method for handling tactical signals was discussed in chapter 5. *Personnel Qualification Standard for Visual Communications,* NAVEDTRA 43354A, section 301 must be completed to perform the duties of signalbridge recorder/messenger.

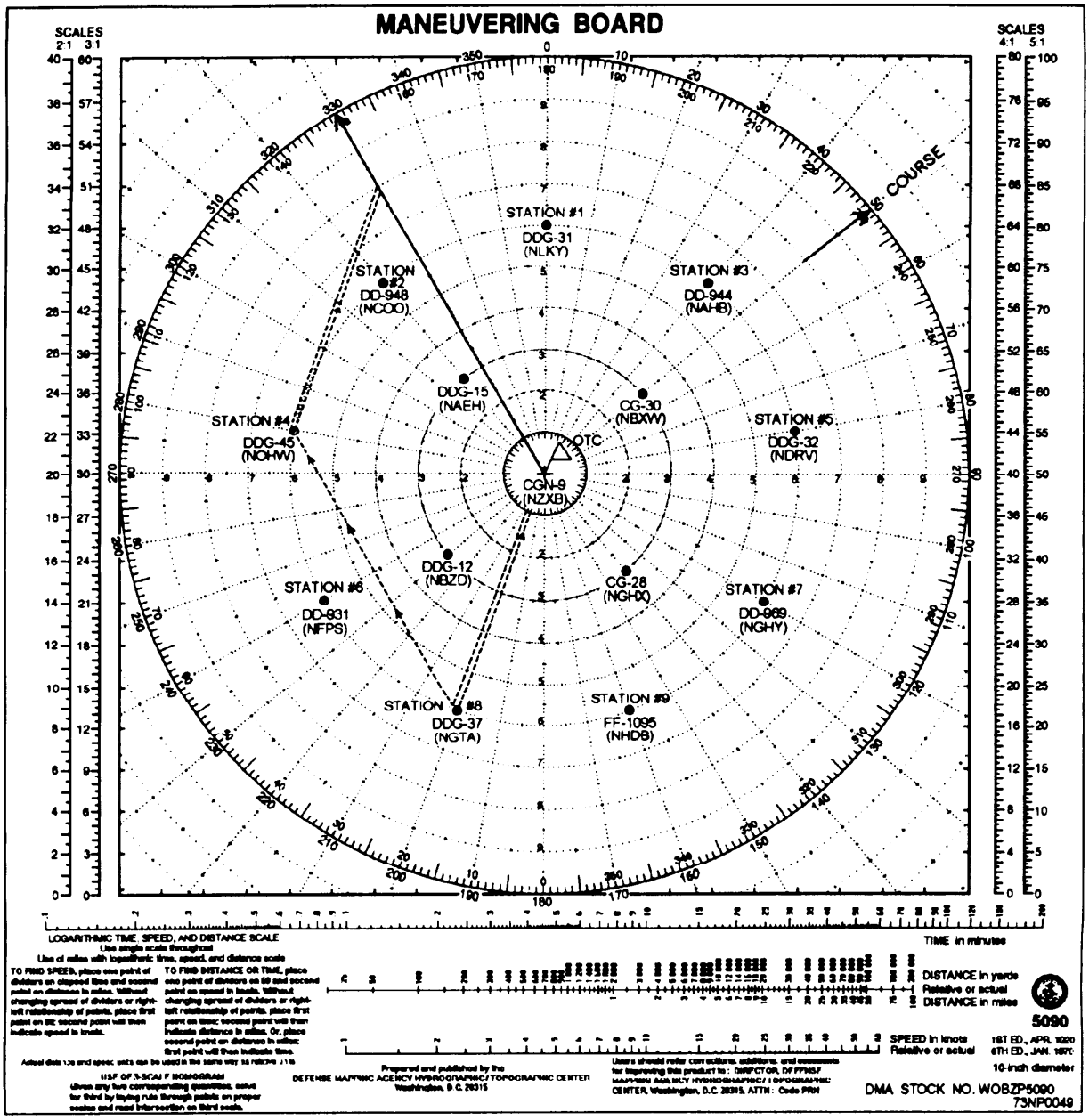


Figure 8-1.—Locating a ship by use of the formation plot.

LOOKOUT DUTIES

LEARNING OBJECTIVES: Explain the importance of maintaining a good visual lookout. Define *night vision* and *dark adaptation.*

On every ship, the lookout has an extremely important job. A Signalman's duties also require keeping a sharp lookout. **As a matter of pride, the Signalman should be the first to sight and identify objects, even on ships with an assigned lookout team.**

A good 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. Report everything you observe; a normal tendency is to hesitate until you are certain an actual contact has been sighted. Do not hesitate. Many important sightings have been made on hunches.

Navy radar is the best that can be built; but there are many things that even radar cannot always detect, such as small buoys, planes low on the water, small life rafts and flares, and many other kinds of danger to navigation. There have been a number of occasions

where persons have fallen overboard and have been saved because of the timely action of a good lookout.

Also, as a Signalman, you must be familiar with the international distress signals (covered in chapter 6). Recognition of ships and aircraft, both U.S. and foreign, is another important part of your duties (covered in chapter 13).

You also have to know the different aids to navigation and their purposes; and naturally, as a Signalman, you must keep a sharp eye on the ships in company for signals. It sounds like a tough job, and if done correctly, it is. But remember, it is a part of your job, so apply yourself.

NIGHT VISION

If you were to go on night watch directly from a lighted compartment, you would be almost blind for a few minutes. As your eyes become accustomed to the weak light, your vision gradually improves. After 10 minutes you can see fairly well. After 30 minutes you reach your best night vision. This improvement of vision in dim light is called dark adaptation.

DARK ADAPTATION

Effective dark adaptation must be planned well in advance. Exposure to excessive glare during the day will hamper the ability of the eyes to adapt to the dark. This effect may last for several days if severe; therefore, you should wear sunglasses as much as possible in the daylight.

Dark adaptation before going on watch consists of spending at least 30 minutes in darkness or with the eyes protected by red goggles. Wearing red goggles is effective because red light does not affect the eyes. To complete adaptation for a night watch, spend 5 minutes on deck before relieving the watch. These 5 minutes allow your eyes to adjust to the amount of illumination in which they will work.

Once you have your night vision, be careful that you do not ruin the effect by looking into a white light. If you have to record a message or make a log entry, always use a light with a red lens. Dim red light does not spoil your night vision.

Lookout duties, and reporting procedures are discussed in the training manuals *Basic Military Requirements* and *Lookout Training Handbook.*

LOGS AND FILES

LEARNING OBJECTIVE: Explain procedures for maintaining the visual communications log, the visual station file, and the watch-to-watch inventory.

Naval Telecommunications Procedures Fleet Communications, NTP 4, requires that an accurate and complete record be maintained of all events that occur during each watch. Included in these records are visual logs, visual station files, and publications custody logs for the purpose of maintaining accurate watch-to-watch publication inventories.

VISUAL COMMUNICATIONS LOG

The visual communications log is maintained in a ledger-type record book or other bound book printed for that purpose. The visual log will contain a complete, accurate, and chronological record of all visual traffic except operator-to-operator ZWC and service messages that do not contain the prosign BT sent and received by the command.

The visual log is to be safeguarded and maintained by the watch supervisor when the visual watch is set, and by the duty Signalman or person qualified as the duty Signalman when the visual watch is not set.

Before assigning any security classification to the visual log, consult OPNAVINST 5510.1.

The visual log is retained and disposed of according to the SECNAVINST 5212.5 (Disposal of Navy and Marine Corps Records). At the minimum, the visual log must be retained for 1 month. However, the visual log may be disposed of when the ship is decommissioned provided the log does not meet any of the special criteria specified in SECNAVINST 5212.5.

Visual Log Guidelines

The guidelines for the visual log entries are based upon usages. The following guidelines do not cover every situation. For situations not covered, good judgment by the watch supervisor or duty Signalman should suffice.

- Use black ink and print legibly.
- Leave no blank spaces between lines.

- Correct errors by drawing a single line through the error and inserting personal sign.
- Close out the page at 2359Z. Begin a new page at 0001Z each day. This procedure is not applicable when visual watch is not set.
- Sign in when assuming the watch/duty. Sign out when relieved of watch/duty.
- Enter all traffic, including challenge and reply, exchanging call signs, casualties to personnel and equipment, time zone changes, day shapes, setting or securing visual watch, and any other events pertaining to visual communications.
- Use local time to indicate watches (00-04, 16-20).
- Lengthy plain language addresses denoting task organizations may be converted to special task organization call signs before entry in the visual log.
- Visual transmission abbreviations are as follows:

  FL—Small signal searchlight

  SL—Large signal searchlight

  BK—Yardarm blinkers

  NFL—Infrared directional

  NBK—Infrared nondirectional

  SEM—Semaphore

  FH—Flaghoist

  MPL—Multipurpose light

Visual Log Entries

Visual log entries will include the time of receipt/delivery and, as applicable in the case of signals, the time the signal is executed/hauled down. It will also show the method used, from whom the traffic was received, to whom the traffic was transmitted, including the originator, the action addressee(s), the information addressee(s), and the exempted addressee(s). Even though traffic is not transmitted to an exempted addressee, exempted addressee(s) must be recorded in the log. The visual log starts at the beginning of each new day, 0001Z, and ends at 2359Z. The first entry will be “assumed the watch,” and the supervisor signs in. At 2359Z, the day's log is to be closed out and the watch entries continued on the next page. All entries except the watch identification (for example, 00-04, 04-07) are to be made in Greenwich mean time (GMT).

The last column in the visual log is used to record visual numbers. This is a convenient method of accountability. As each message is logged, it is assigned a visual number. After a message has been internally routed or, if required, relayed, it is finally placed in the visual station file and its number circled in the visual log.

No blank lines are to be left between entries in the visual log. The log is to be kept in black or blue ink. Errors must be corrected by drawing a single line through the error and relogging the correct entry. The person making the correction must initial the entry, adjacent to the correction. The visual log must be legible if it is to perform its function as a record.

All narrative entries must be logged under the Text/Remarks column. Shipboard events and evolutions recorded in other official records (for example, ship's deck log) need not be logged. Corresponding signals paralleling shipboard evolutions must be entered.

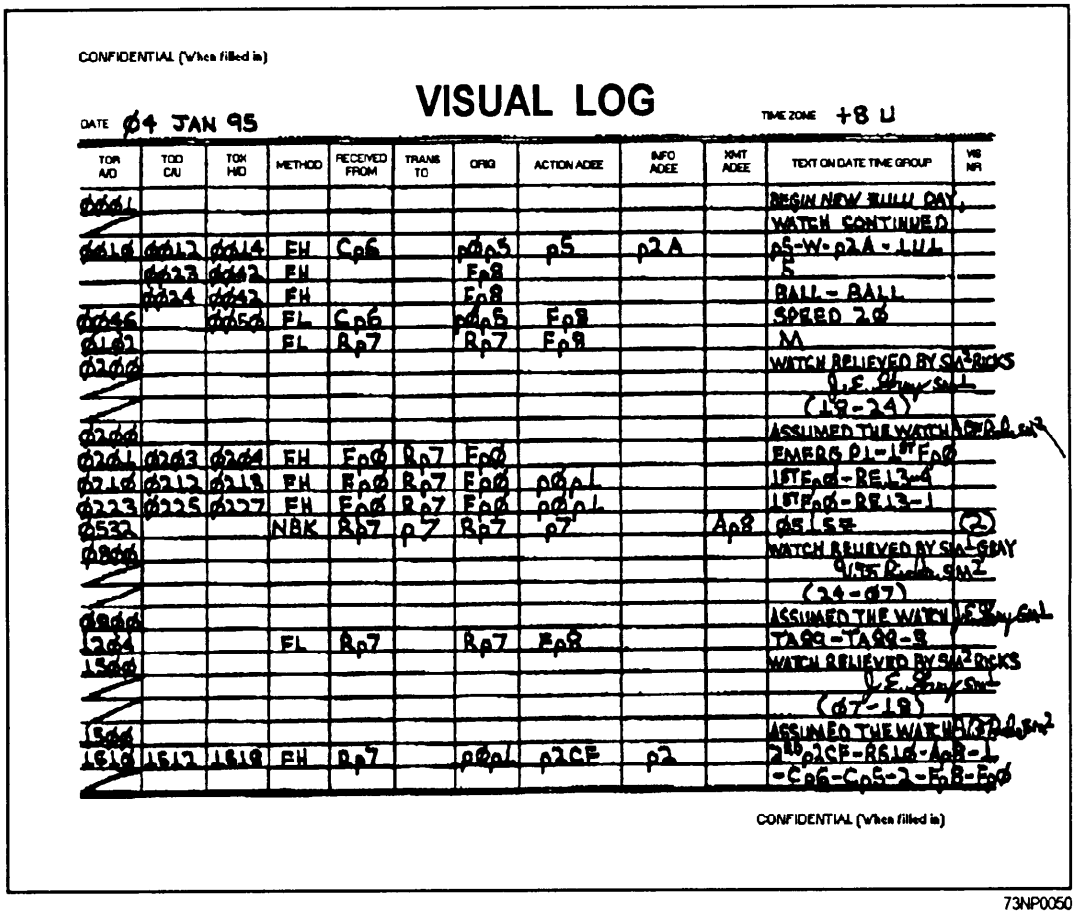
Figure 8-2 is an example of a page from a visual log. This example is not intended to cover every situation that could arise. If there is any doubt as to whether something should or should not be logged, log it. Supervisors must continually monitor the visual log to ensure that it is correct. As a general rule, the leading Signalman should check the visual log once every day.

Drills and Exercise Log

A separate log is maintained for recording visual communications drills and exercises. The format for this log is basically the same as the official log, but the log must be clearly labeled "Visual Communications Drill Log." There are no retention requirements for the drill log. Signals and messages used to begin or end drills are logged in the official log.

VISUAL STATION FILE

The visual station file contains all outgoing and incoming messages handled visually except those signal and service messages that do not contain the prosign BT. It includes either the original copy of unclassified messages or a filler for classified messages. These messages/fillers are filed in date-time-group order.



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VISUAL LOG

DATE 04 JAN 95 TIME ZONE +8 U

TOR A/O	TOD CIU	TOK HID	METHOD	RECEIVED FROM	TRANS TO	ORIG	ACTION ADEE	INFO ADEE	XMIT ADEE	TEXT OR DATE TIME GROUP	VIS NR
0001										BEGIN NEW BULL DAY	
										WATCH CONTINUED	
0010	0012	0014	FH	C06		0005	05	02A		05-W-02A-LUL	
	0023	0042	FH			F08				5	
	0024	0042	FH			F08				BALL - BALL	
0046		0050	FL	C06		0005	F08			SPEED 20	
0101			FL	R07		R07	F08			M	
0200										WATCH RELIEVED BY SA RICKS	
										(19-24)	
0200										ASSUMED THE WATCH	
0201	0203	0204	FH	F00	R07	F00				EMERG DI-1ST F00	
0210	0212	0213	FH	F00	R07	F00	0001			1STF00-RE12-4	
0223	0225	0227	FH	F00	R07	F00	0001			1STF00-RE13-1	
0532			NBK	R07	07	R07	07		A08	05 15Z (2)	
0800										WATCH RELIEVED BY SA GRAY	
										(24-07)	
0800										ASSUMED THE WATCH	
1201			FL	R07		R07	F08			TA99-TA99-8	
1500										WATCH RELIEVED BY SA RICKS	
										(07-19)	
1500										ASSUMED THE WATCH	
1610	1612	1618	FH	R07		0001	02CF	02		2ND 02CF-RE16-A08-1 -C06-C05-2-F08-F00	

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Figure 8-2.—Visual communications log (page 1 of 2).

On a flagship, if the embarked flag so desires, a separate visual station file will be maintained for flag traffic. If separate ship and flag files are maintained, many messages originated by and filed in the embarked flag's file must, if the address so indicates, also be filed in the ship's file. Duplicate filing is also required when incoming messages are addressed to both the embarked flag and the ship.

The visual station file must be classified, safeguarded, and stored according to the highest classification of its contents. The visual station file is retained and disposed of according to SECNAVINST 5212.5. The visual station files must be retained for a minimum of 30 days.

COMMUNICATIONS CENTER MASTER FILE

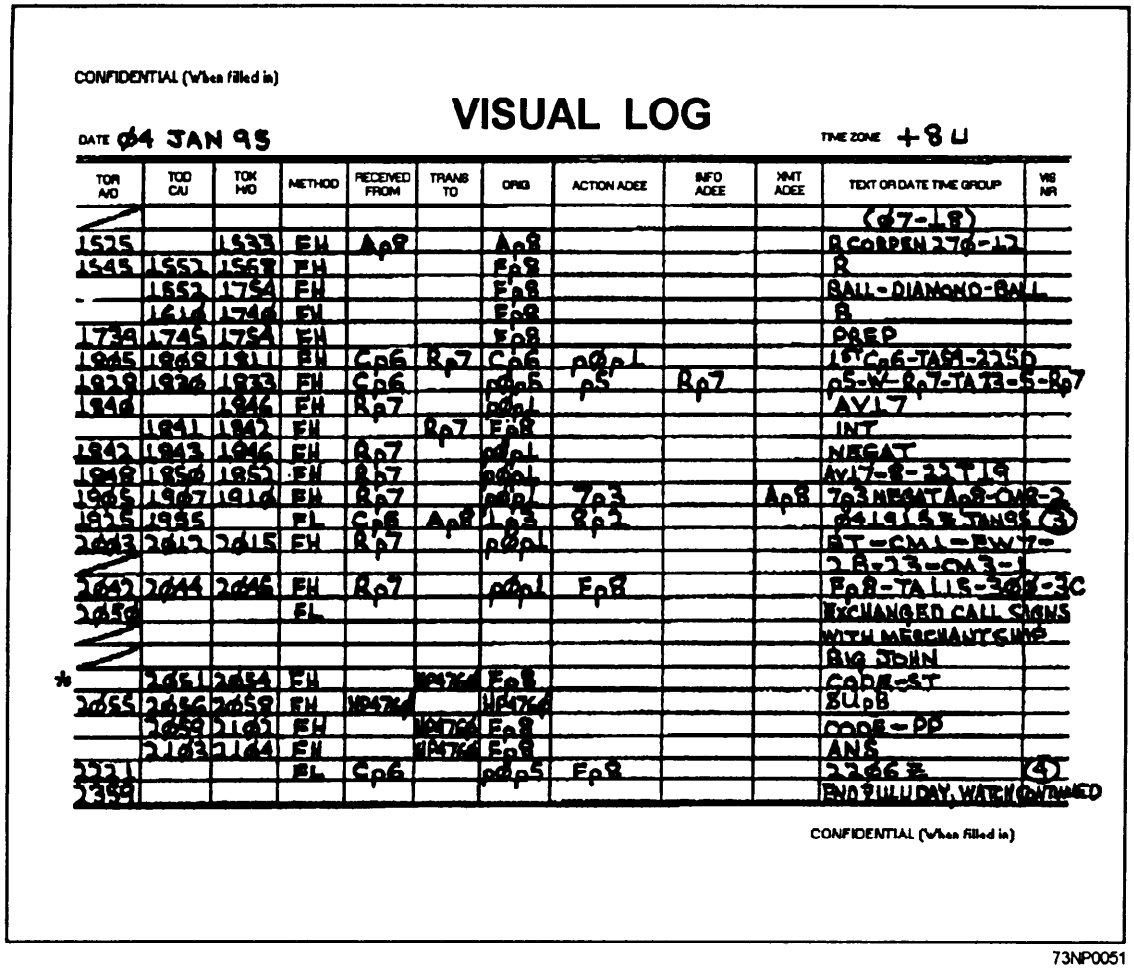
The communications center master file will contain a copy or filler of every message sent or received by the center, including visual messages processed by the communications center. Messages/fillers will be filed in date-time-group order. Separate incoming and outgoing communications center master files may be maintained at the command's discretion.

CRYPTOCENTER FILE

The cryptocenter file will contain a copy of each message sent or received by the communications center that is TOP SECRET, SPECAT, or designated for special privacy regardless of classification. These messages are to be in date-time-group order, and fillers for these messages will be filed in appropriate files.

GENERAL MESSAGE FILES

General message files will contain a copy of all effective general messages that require retention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VISUAL LOG

DATE 04 JAN 95 TIME ZONE +8 U

TOR A/O	TOD CU	TOK M/O	METHOD	RECEIVED FROM	TRANS TO	ORIG	ACTION ADEE	INFO ADEE	XMIT ADEE	TEXT OR DATE TIME GROUP	VIS NR
										(07-18)	
1525		1533	FH	Ap8		Ap8				R CORPEN 270-12	
1545	1552	1558	FH			Ep8				R	
	1652	1754	FH			Ep8				BALL-DIAMOND-BALL	
	1614	1746	FH			Ep8				R	
1739	1745	1754	FH			Ep8				PREP	
1905	1909	1911	FH	Cp6	Rp7	Cp6	pOp1			16 Cp6-TAS1-225D	
1929	1936	1933	FH	Cp6		pOp5	p5	Rp7		p5-W-Rp7-TA73-5-Rp7	
1940		1946	FH	Rp7		pOp1				AV17	
	1941	1942	FH		Rp7	Ep8				INT	
1942	1943	1946	FH	Rp7		pOp1				NEGAT	
1948	1950	1953	FH	Rp7		pOp1				AV17-8-23 T 19	
1905	1907	1910	FH	Rp7		pOp7	7p3		Ap8	703 NEGAT Ap8-OWR-2	
1915	1955		FL	Cp6	Ap8	1p3	Rp2			04 1915 Z TANGS (3)	
2013	2012	2015	FH	Rp7		pOp1				ET-CM1-RW17-	
										2 R-23-CM3-1	
2042	2044	2046	FH	Rp7		pOp1	Ep8			Ep8-TA118-3605-3C	
2050			FL							EXCHANGED CALL SIGNS	
										WITH MERCHANTSHIP	
										BVO JOHN	
*	2051	2054	FH			Ep8				CODE-ST	
2055	2056	2059	FH	WP476		WP476				8UpB	
	2059	2101	FH			Ep8				OOOS-PP	
	2103	2104	FH			Ep8				ANS	
2221			FL	Cp6		pOp5	Ep8			2206 Z (4)	
2359										END 2ND WATCH, WATCH CONTINUED	

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Figure 8-2.—Visual communications log (page 2 of 2).

based on the communications center's current guard list. This file is subdivided by general message title and filed in serial number order. General message files are given the classification of the highest classified message contained within.

To learn more about the communications center master file, cryptocenter file, and general message file, you need to visit your local radio shack.

WATCH-TO-WATCH INVENTORY

The signal supervisor is responsible for all publications issued to the signal bridge. Because many of the publications are classified, they must be safeguarded. Others may be in limited supply. All are essential for efficient operation of the signal bridge. To provide positive control of communications publications, a watch-to-watch inventory similar to the one shown in figure 8-3 should be used.

At the change of each watch, the watches will jointly conduct a sight inventory of every publication. Some loose-leaf publications require a page check at the change of the watch in addition to the sight inventory. These loose-leaf publications will be specifically indicated on the watch-to-watch inventory. The signing of the watch-to-watch inventory by the relieving watch certifies that the publications were sighted, that the required page checks were conducted, and that the relieving watch stander is responsible for them. Any discrepancies noted must be resolved before the watch is relieved. All signatures must be in ink. Watch-to-watch inventories of communications publications may be destroyed after 30 days provided they are no longer required for local reference. On board ships, if an inventory is not conducted on a watch-to-watch basis, a daily inventory is required.

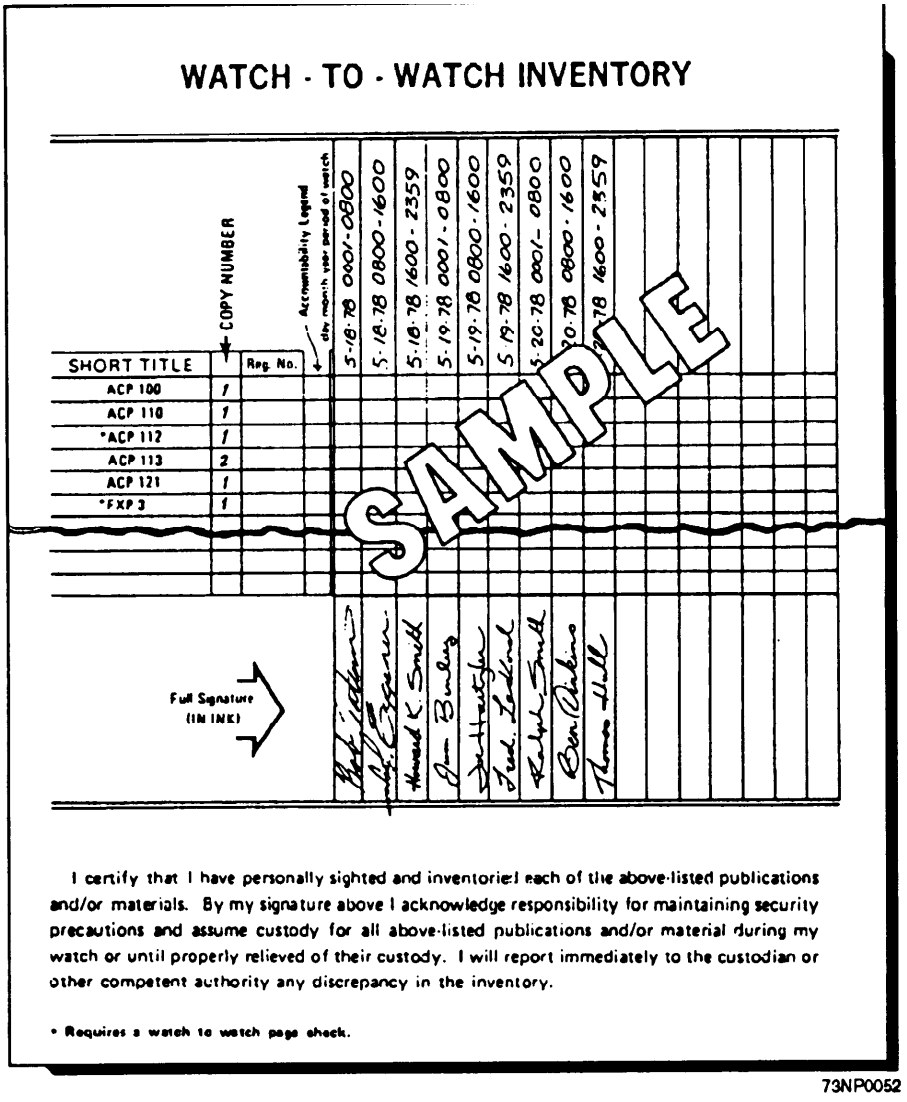

Figure 8-3.—Watch-to-watch inventory sheet.

HANDLING CLASSIFIED MATERIAL

Classified material available on the signal bridge while under way involves not only signal publications as such, but may include such documents as encrypted call signs and task force call signs.

Classified material is made available to personnel only on a "need-to-know" basis. In other words, the material is on the signal bridge only because Signalmen need it to perform their duties. As a signal supervisor, you are directly responsible for the classified matter on the signal bridge during your watch. If possible, keep the material out of sight until needed. Do not allow lookouts, telephone talkers, or other watch standers to have access to it. In the first place, they have no need for the information. Secondly, you have no way of knowing whether they have been granted the appropriate security clearance.

When the ship is not under way, classified matter required for use by the signal bridge generally is retained in the communications spaces where facilities are available to provide adequate security. Needed material is delivered to the signal bridge by the communications officer when the ship gets under way and is removed by the communications officer when the ship enters port. In ships having proper stowage facilities on the bridge, the signal officer is responsible for delivering, collecting, and securing the classified material.

EMERGENCY SIGNALS

LEARNING OBJECTIVES: List and explain emergency signals for aircraft, submarines, and ships.

While on the bridge, you should be particularly alert for emergency signals in your area.

AIRCRAFT EMERGENCIES

An aircraft in distress will rock its wings initially to attract attention and to establish visual contact, and subsequently to acknowledge receipt of signals. An aircraft pilot may also rock the aircraft's wings on a cross-wind leg to indicate that he/she is unable to take a wave-off.

The signals contained in table 8-1 may be given by pilots in emergency situations over the seas:

A ship capable of recovering an aircraft in distress will Make use of the visual signals shown in table 8-2.

Special signals used by a ship not capable of recovering an aircraft in distress are the following:

- Flashing a white *R* is used initially to confirm visual contact and subsequently to acknowledge receipt of the signal.
- Flashing a red *G* indicates that the OTC has given permission for the aircraft in distress to approach the recovery ship.

Table 8-1.—Signals from an aircraft in distress

SIGNAL	MEANING OR PURPOSE
1. Rocking wings.	Initially, to attract attention and help establish visual contact. Subsequently to acknowledge receipt of signals. On crosswind leg of landing circuits indicates inability to take a wave-off.
2. Firing RED flare.	Require emergency landing. Considered IMMEDIATE unless other information is received.
3. Firing GREEN flare.	Any early landing is necessary in the interest of safety but can orbit for a short time.
4. Series of SHORT flashes.	Require IMMEDIATE emergency landing.
5. Series of LONG flashes.	Require emergency landing but can accept short delay.
6. Fly up the port side of the ship, low and close aboard, rocking wings, in a landing configuration with hooks DOWN. Navigation lights BRIGHT & STEADY with anti-collision lights ON. If turning final in the VHF pattern or approaching final on a CCA, momentarily turn on taxi light, if available.	I desire immediate landing.
7. Fly up the port side of the ship with landing gear UP, hook DOWN, navigation lights BRIGHT & STEADY, and anti-collision light OFF while abeam the ship.	I desire to land but can wait for the next recovery.
B. Fly up the port side of the ship, rocking wings, with landing gear and hook UP, navigation lights BRIGHT & STEADY, and anti-collision light ON. If fuel state and nature of the emergency permit, continue making passes until joining by a wingman. Upon reaching BINGO fuel state, proceed alone, setting IFF/SlF to emergency when departing.	I am proceeding to the BINGO field.
9. Flashing R.	To acknowledge receipt of message.
10. (Helicopter) fly close aboard starboard quarter, remaining clear of other traffic, with gear DOWN and floodlights/landing light ON. With complete electrical failure, fire a red flare to seaward.	I require immediate landing.
11. (Helicopter) fly or hover on the starboard side of the ship, low and close aboard with navigation lights BRIGHT & FLASHING and anticollision lights ON.	I desire to land but can wait for the next recovery.

Table 8-2.—Signals from a Ship to an Aircraft in Distress

SIGNAL		MEANING AND PURPOSE	
OPTICAL LANDING SYSTEM	** ALDIS LAMP	BLINKER	
1. Flashing cut and wave off lights.	Flashing RED light.	M,M	* BINGO—to alternate landing field.
2. Flashing, cut lights.	N/A	N/A	Add power—(jets and turbo props only).
3. N/A	Steady GREEN light	C	CHARLIE—Cleared to board
4. Flashing landing area lights.	Steady RED light	D	DELTA-Delay in landing. Enter DELTA pattern and maintain visual contact with the ship.
5. Landing area lights off. (night only)	N/A	N/A	Closed deck. Do not land.
6. N/A	Z	Z	Do not land. Ditch or bail out/eject in the vicinity of the ship.
7. Steady (3 sec.) cut lights.	N/A	N/A	LSO has control of the aircraft on final approach at approximately 1 l/2 miles.
8. N/A	H	H	Lower hook.
9. N/A	W	W	Lower wheels.
10. N/A	F	F	Lower flaps.
11. N/A	G	G	Jettison disposable fuel tank.
12. N/A	Q	Q	Jettison ordinance.
OTHER			
13. Series of GREEN FLARES (day only in wartime).			Ship ready to receive aircraft for IMMEDIATE emergency landing.
14. Series of RED FLARES.			Do not land even if previous authorization has been given.
15. Flag: EMERGENCY FOXTROT (aircraft) EMERGENCY HOTEL (helicopter)			Have emergency landing in progress. (Aircraft not involved keep clear.)

SUBMARINE EMERGENCIES

The following signals are prescribed for submerged submarines in emergency situations in which the submarine must come to periscope depth or surface:

- A yellow or white smoke bomb fired into the air, followed by a second yellow or white smoke bomb 3 minutes later indicates that the submarine is coming to the surface. Ships are to clear the immediate area but should not stop propellers. (White and yellow are synonymous because, under certain atmospheric conditions, white signals may appear yellow.)
- One red smoke bomb repeated as often as possible indicates "Keep clear, I am carrying out emergency surfacing procedures."

ACP 168, *Pyrotechnic Signals,* is an excellent reference to locate the different types of pyrotechnic signals.

SURFACE SHIP EMERGENCIES

International emergency signals for surface ships are discussed in chapter 6.

For a man-overboard situation, the daytime display is the OSCAR flag, flown at the foretruck or where it can best be seen (remember, as you learned

in chapter 5, the OSCAR should always be made up for the break). When a person is lost over the side at night, the peacetime procedure is to display two flashing red lights arranged vertically. These two red lights, visible 2 miles all around the horizon, are the not-under-command lights. They are pulsated 50 to 60 times a minute by means of a crank on the light panel in the pilothouse.

In addition to the two red lights, the ship losing the person sounds, either by day or night, at least six short blasts on the ship's whistle and/or fires one white star.

Another surface ship emergency is emergency breakaway, which is covered later in this chapter.

SIGNALMAN AS A MEMBER OF THE BOATCREW

LEARNING OBJECTIVES: List and explain the duties of the boatcrew Signalman, including day and night movements, the use of the Mk 135 pyrotechnic signaling kit, and safety precautions for using the pyrotechnic kit.

One of the most important single billets you can fill in your naval career is that of boat Signalman. You will be on your own; you won't have any other Signalmen on whom to rely. The success of a particular mission depends on your ability to send and receive communications, both by visual means and by voice radio. Your ability to recognize and interpret signals will have a direct bearing on the success of that mission.

The normal boatcrew allowance does not include a Signalman; however, there will be one assigned whenever the boat is used for distress or emergency purposes.

In the event of a man overboard, a downed aircraft, or other cases where personnel are to be rescued, a Signalman is assigned to the boat. In a small boat, the range of visibility is very limited, because of the low height of eye. For this reason, other personnel are assigned to stations high in the ship to keep the person in sight. The ship can then direct the lifeboat to the vicinity of the person in the water by means of flaghoist, semaphore, flashing light, pyrotechnics, or voice radio. It is your job to receive these directions and pass them on to the boat officer and coxswain.

The emergencies that arise at sea that require a boat Signalman are many. So that you will not be found wanting in one of these emergencies, you must be familiar with all phases of visual communications and proper voice radio procedures.

DIRECTING THE BOAT BY VISUAL SIGNALS

Most boat signals are made by pyrotechnics (signal flares fired by the Mk 135 signal kit), multipurpose lights, semaphore, and flaghoist.

Vari-Color Illumination Signal Kit

The Vari-color Illumination kit (fig. 8-4) or Mk 135 is a small, lightweight unit used primarily for distress signaling. A complete kit consists of a projector and a plastic bandoleer containing three red signals, two white signals, and two green signals. An instruction sheet is included with each kit. Other combinations of signals and projectors are also available. When fired from the projector into the air, the flare burns for a minumum of 4.5 seconds at a altitude of no less than 250 feet. The signal in these kits produces a single red, green, or white star.

Operation

To operate the Mk 135, first cock the firing pin of the projector by moving the trigger screw to the bottom of the vertical slot and slipping it to the right so that it catches at the top of the safety slot. Bend the protective tab away from a signal in the bandoleer to allow removal of the signal flare. Signalmen must be familiar with the arrangement of colors in the bandoleer in the case of night operations to prevent firing of the incorrect color signal. A good practice would be to arrange the signals in the bandoleer with the green signals to starboard (right), the red to port (left), and the white in the middle.

CAUTION

The projector must not be loaded until immediately before firing. If after loading a signal it is not used, it must be removed and returned to the bandoleer.

After locating the correct color signal, mate the projector with the signal. Hold the projector over the head with the arm fully extended. The projector should

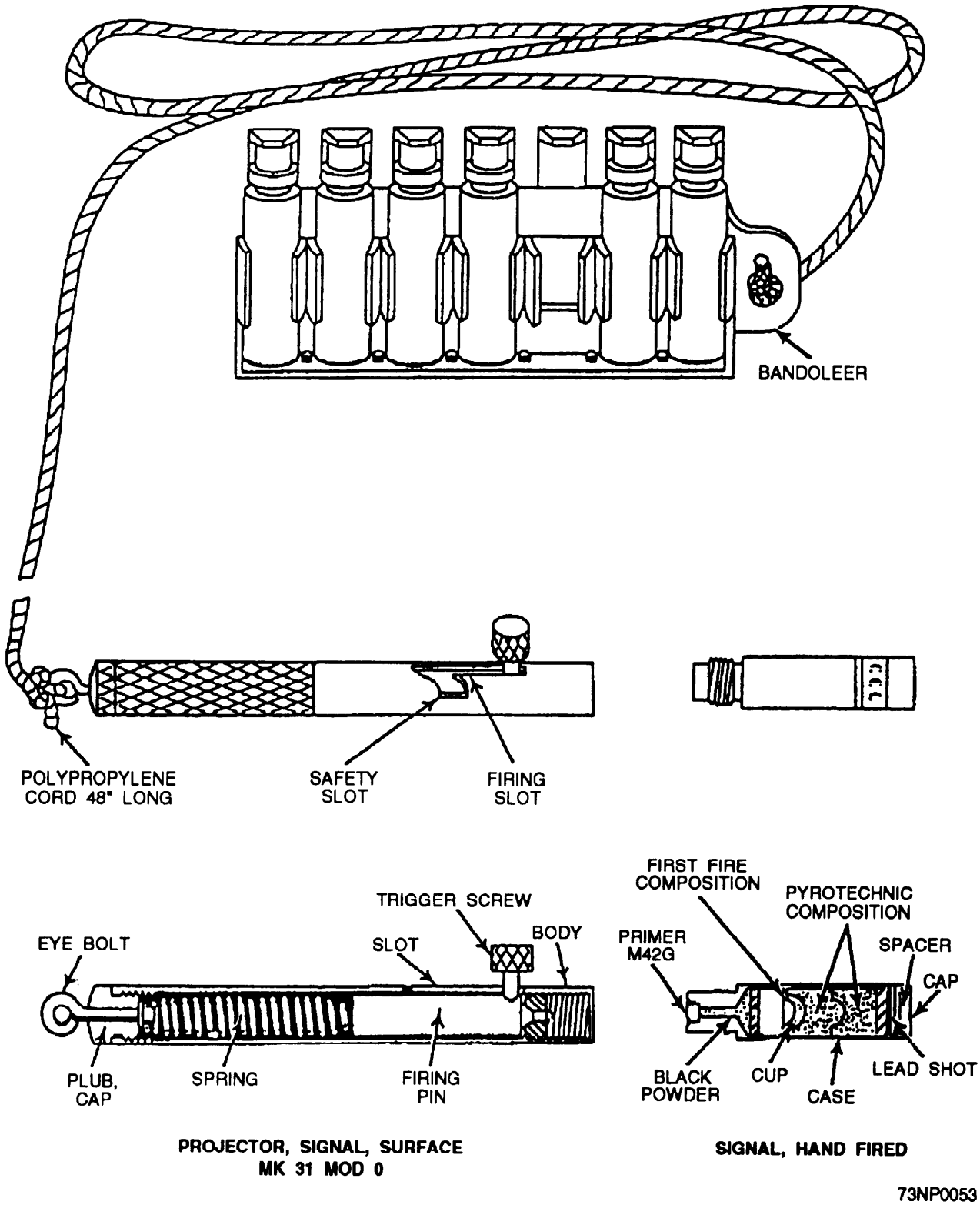

Figure 8-4.-Vari-color signal illumination kit (Mk 135).

be pointed at a slight angle to the body. While firmly gripping the projector, fire the signal by slipping the trigger screw to the left out of the safety slot and into the firing slot. If the signal fails to fire, try again by depressing the trigger screw to the bottom of the firing slot with the thumb and releasing it quickly. Unscrew the spent signal case or a signal that has failed to fire. Discard by throwing it overboard.

The following signals are designed to direct the ship's boat during recovery operations and to help the Signalman relay information to the ship:

Ship to Boat—The following signals are given at night to direct a recovery operation:

One white star—Steer straight away from the ship

One red star—Steer left (to port)

One green star—Steer right (to starboard)

Two green stars—Steer straight toward the ship

Two red stars—Return to ship

Two white stars—Steady on present course

Boat to Ship—The following signals are nighttime boat signals used to inform the ship of the situation:

One white star—Have recovered man

One red star—Need assistance

One green star—Cannot find man

The kits are kept in a specially designed stowage box that is retained on the bridge while at sea. All signal personnel must know the exact location of the stowage box and must know how to load and fire the projector properly.

Pyrotechnic ammunition is a fire hazard. It forms a hot fire that is difficult to extinguish. Most types furnish their own oxygen upon combustion. Pyrotechnic ammunition must be protected against the direct rays of the sun, high temperatures, absorption of moisture, corrosion, and rough handling.

The signal projector's trigger screw must be checked frequently to ensure that it is tight. A loose trigger can release prematurely and cause injury. Pyrotechnic ammunition must be inspected periodically to ensure that they are not dented or corroded. Damaged signals should be reported at once to the signal officer, who will make the necessary report to the weapons officer.

Flashing Light

Table 8-3 shows ship-to-boat and boat-to-ship flashing light signals.

Table 8-3.—Flashing Light Signals.

SHIP-TO-BOAT FLASHING LIGHT "TAPS CODE"		
MEANING	SHIP	BOAT
Steer straight away from ship.	Flash series of 'A's.	Answer with series of ‘A's.
Steer straight toward ship.	Flash series of 'T's.	Answer with series of ‘T's.
Standby for port turn.	Flash series of 'P's.	Answer with series of 'P's.
Commence slow port turn.	Steady light.	Steady light.
Stop turn, steady on present course.	Drop steady.	Drop steady.
Standby for stbd turn.	Flash series of ‘S's.	Answer with series of ‘S's.
Commence slow stbd turn.	Steady light.	Steady light.
Stop turn, steady on present course.	Drop steady.	Drop steady.
Return to ship.	Flash series of ‘Q's.	Answer with series of ‘Q's.
BOAT-TO-SHIP FLASHING LIGHT “ARC CODE"		
MEANING	BOAT	SHIP
Need assistance.	Flash series of ‘A's.	Flash ‘RRR'.
Have recovered man.	Flash series of ‘R's.	Flash ‘RRR'.
Cannot find man.	Flash series of ‘C's.	Flash ‘RRR'.

Multipurpose Lamp

When using the portable multipurpose light (discussed in chapter 2) in a small boat, bear in mind that (1) it requires extra effort to keep the light accurately trained because of the boat's possible extreme pitch and roll, and that (2) consequently your rate of sending must be slower than normal.

Semaphore

When signaling by semaphore, use normal procedure but, again, transmit at a reduced rate of speed. If you have a poor background for sending, Signalmen on the ship may have difficulty reading your message.

Flaghoist

The following signals are used to direct a lifeboat by flaghoist:

EIGHT—Steer straight away from the ship.

EIGHT PORT—Steer left; when hauled down, cease turn and steady on present course.

EIGHT STBD—Steer right; when hauled down, cease turn and steady on present course.

EIGHT SCREEN—Steer straight toward ship.

QUEBEC—Return to ship.

Personnel Qualification Standard for Visual Communications, NAVEDTRA 43354A, section 308, must be completed before a person can be qualified as a boat Signalman.

IN-PORT DUTY SIGNALMAN

LEARNING OBJECTIVE: Explain the duties of the in-port duty Signalman.

The duties of the in-port duty Signalman range from standing a visual watch on the signal bridge to being a member of the rescue and assistance detail. Whatever your duty is, you as a Signalman must perform it to the best of your ability. Some of the duties you will perform in port are discussed in the following paragraphs.

VISUAL WATCH

Signal watches in port are normally stood between the hours of sunrise and sunset unless SOPA requires that a 24-hour visual watch be maintained.

Signalmen on watch are required to report to the OOD all ships departing and arriving in port and the movement of small boats in the harbor, and to provide the OOD with advance warning of possible passing honors.

COLORS/ABSENTEE PENNANTS

The in-port duty Signalman is responsible for hoisting and hauling down PREP for sunrise, morning, and evening colors, and frequently signals morning and evening colors by whistle.

The Signalman on watch also assures that the appropriate absentee indicator flies when the senior officers are ashore, and hauls it down when the officers return to the ship.

Semaphore and flashing light are used in port for administrative traffic. Signal watches in port are as important as those at sea. Because fewer personnel are available for each watch, a signal watch in port can be more difficult than one at sea.

Occasionally, a destroyer or smaller ship may get a tender to take its visual guard. Another possibility is that the squadron flagship may assign a rotating guard among ships in a nest. More frequently—especially aboard larger ships—each ship maintains its own visual watch in port.

Before standing the duty as an in-port duty Signalman, you must complete *Personnel Qualification Standard for Visual Communications,* NAVEDTRA 43354A, section 307.

STORM-WARNING SIGNALS

LEARNING OBJECTIVES: List and define day and night storm-warning signals.

The combinations of storm-warning flags, pennants, and light signals in figure 8-5 are hoisted or displayed at weather bureau facilities and other shore stations in the United States and its possessions to warn and indicate the severity of storms in the area. It should be noted that the four day and night storm-warning signals and their meanings are not international in their usage. The ability of a Signalman

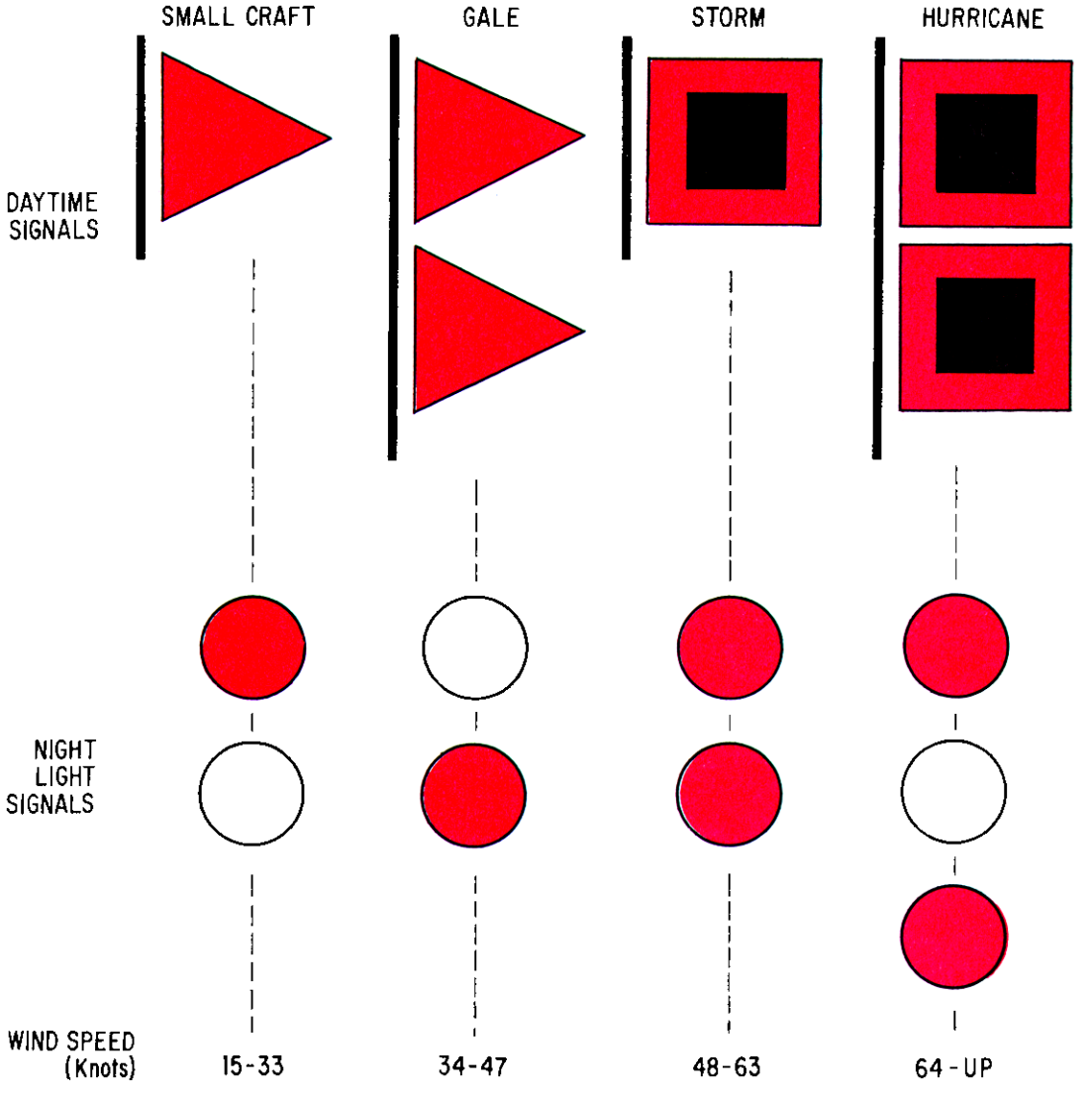

Figure 8-5.—Day and night storm-warning signals.

on watch to recognize and know the meanings of these storm-warning signals will prove invaluable to bridge personnel both in leaving and in entering port.

UNDERWAY REPLENISHMENT

LEARNING OBJECTIVES: Explain procedures for day and night underway replenishment (UNREP). List ships involved. Explain the use of flag signals, transfer station markers, distance line marker, emergency breakaway, and communications alongside.

Another part of your duties as a Signalman is to be able to communicate effectively during night and day UNREP. To be able to communicate during replenishment, you first must understand what UNREP is all about. This section defines UNREP, including the ships involved and the day and night signals used to communicate.

Underway replenishment is a broad term applied to all methods of transferring fuel, munitions, supplies, and personnel from one vessel to another while under way.

SHIPS INVOLVED

There are usually two ships involved in an UNREP. One serves as the control and delivery ship, the other as the approach and receiving ship.

Control Ship

The control ship is normally the ship delivering the product. She maintains replenishment course and speed and normally serves as the guide.

Approach Ship

The approach ship maintains station on the control ship. The approach ship furnishes the bridge-to-bridge phone/distance line.

Delivery Ship

The delivery ship, normally the control ship, furnishes the rigs and the station-to-station phone lines.

Receiving Ship

The receiving ship, normally the approach ship, handles all phone lines.

REPLENISHMENT SIGNALS (FLAGHOIST)

Figure 8-6 shows flaghoist signals used during UNREP. These signals will be hoisted on request of the OOD.

> **NOTE**
>
> At night, signals must be signaled by flashing light.

REPLENISHMENT PROCEDURES (DAYTIME)

Daytime replenishment procedures include the procedures of approaching, alongside procedures, and emergency breakaway.

Approaching Procedures

The control ship steadies on course and speed and hoists ROMEO to the dip on the side rigged when preparing to receive a ship alongside and closes up ROMEO when ready to receive the approach ship.

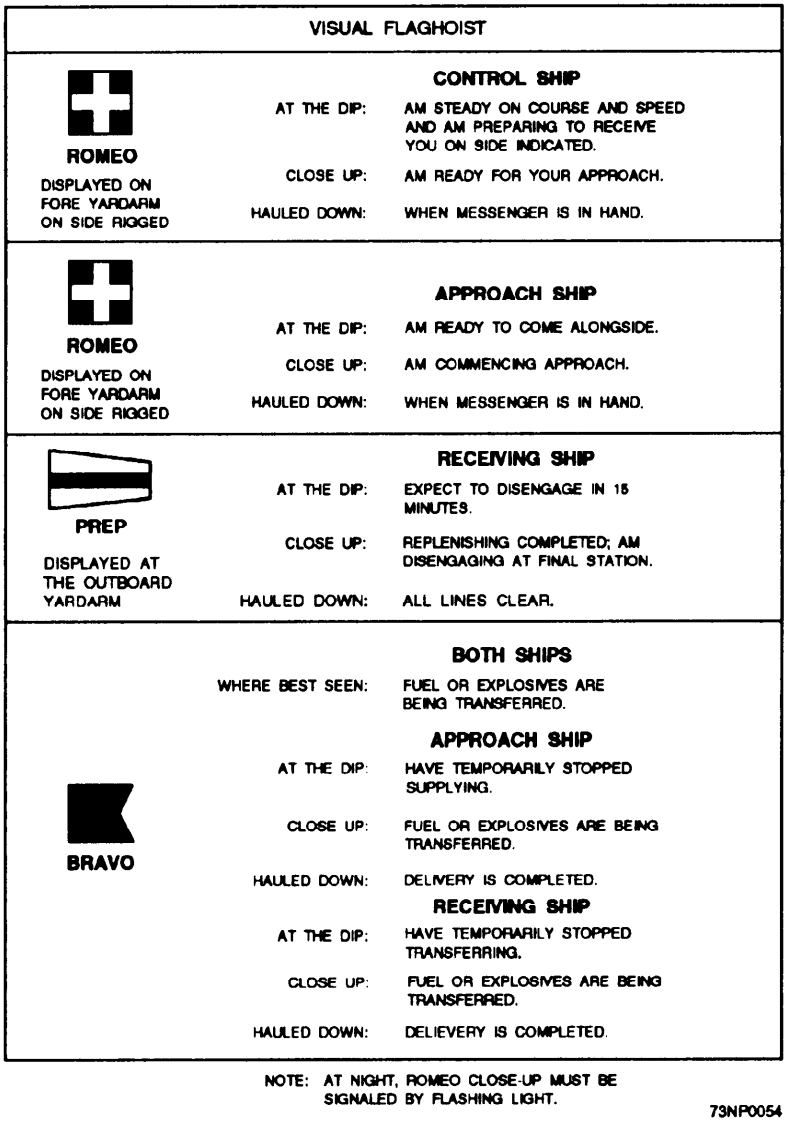

Figure 8-6.—Flaghoist replemishment signals.

The approach ship when on station and ready to make an approach on the control ship hoists ROMEO at the dip on the rigged side and closes up ROMEO when starting its approach.

The control and approach ships will display the dayshape signal for restricted movement (BALL-DIAMOND-BALL) when the approach ship closes up ROMEO. The dayshapes will be hoisted on the unrigged side or centerline and hoisted from 30 minutes prior to sunrise until 30 minutes after sunset.

Alongside Procedures

ROMEO is hauled down by both ships when the messenger is in hand.

BRAVO is closed up by both ships where best seen to indicate the transfer of fuel or explosives. BRAVO may be brought to the dip during the transfer to indicate a temporary interruption.

PREP is hoisted to the dip by the receiving ship to indicate that disengagement is expected in 15 minutes. PREP is closed up to indicate completion of replenishment and disengaging at final station. PREP is hauled down when all lines are clear.

DAYSHAPES are hauled down when each ship is clear and free to maneuver in an unrestricted manner.

Emergency Breakaway Procedures

Emergency breakaway can be initiated by either the delivery or the receiving ship. The initiated ship will hoist the emergency breakaway signal (EMERGENCY SIX). This signal is answered by all ships engaged in the emergency breakaway. Along with the flaghoist signal, the initiating ship will sound six short blasts on the ship's whistle.

Emergency signals will be passed to ships in waiting and to screen commanders.

NIGHTTIME PROCEDURES

Nighttime UNREP procedures require special equipment. The equipment is as follows:

- Signal lights fitted with screening hoods with a red filter and a 3-inch reducing diaphragm
- Infrared equipment
- Flashlights and wands
- Multipurpose lights
- Adequate supply of power sources

Approach/Alongside Procedures

The position of ROMEO is passed between the control and approach units. This is usually done by flashing light or voice radio.

PREP is passed to the control vessel, ships in waiting station, and screen commanders. Either visual or voice communication can be used, depending upon the OOD's preference.

Make sure when you are using flashing light not to train the light on the conning stations. This could blind the OOD. The use of the yardarm blinkers must be avoided.

Restricted Movement

The control ship and the approach ship will display the nighttime signal for restricted movement (special-task lights, RED over WHITE over RED) in the same manner as for the dayshapes.

TRANSFER-STATION MARKERS

Transfer-station markers are displayed to indicate the type of commodity that is being transferred at that station. Commodity being transferred by day (fig. 8-7) is indicated by a 3-foot-square piece of bunting, metal, or painted area. By night a light box (fig. 8-8) that has nine holes, each fitted with a red lens, is used.

DISTANCE MARKERS

Distance markers on the bridge-to-bridge distance line are arranged as shown in figure 8-9. The distance line markers are used to let appropriate personnel know the distance between the approach ship and receiving ship when alongside. The daytime and nighttime use of distance markers are described in the following paragraphs.

Daytime

These markers are colored cloth, nylon-coated fabric, or painted-canvas; each is 8 inches by 10 inches; they are spaced at 20-foot intervals, from 0 to 300 feet. The markers are color coded beginning with green, followed by red for 20 feet, yellow for 40 feet, blue for 60 feet, and white for 80 feet. The cycle then repeats itself, green for 100 feet, red for 120 feet, and so forth.

Nighttime

At nighttime, two blue chemical lights are used, one on each side of the 60-, 100-, 140-, and 180-foot

	CODE		
COMMODITY TRANSFERRED	DAY 3 ft^2 (91.4 cm^2) BUNTING OR PAINTED AREA		NIGHT LIGHT BOX
MISSILES	INTERNATIONAL ORANGE		
AMMUNITION	GREEN		
FUEL OIL	RED		
DIESEL OIL	BLUE		
F76	RED & BLUE TRIANGLES		
F44	YELLOW & BLUE TRIANGLES		
LUBE OIL	BLACK, YELLOW QUARTERS		
FEEDWATER	WHITE		
POTABLE WATER	WHITE WITH BLUE LETTER "P" CENTERED		
STORES	GREEN WITH WHITE VERTICAL STRIPES		
PERSONNEL AND/ OR LIGHT FREIGHT	GREEN WITH WHITE LETTER "P" CENTERED		
FUEL OIL AND F44	RED/YELLOW & BLUE TRIANGLES		
F76 AND F44	RED/BLUE & YELLOW/ BLUE TRIANGLES		
BRIDGE-TO-BRIDGE PHONE/ DISTANCE LINE	GREEN WITH WHITE LETTER "B" CENTERED		

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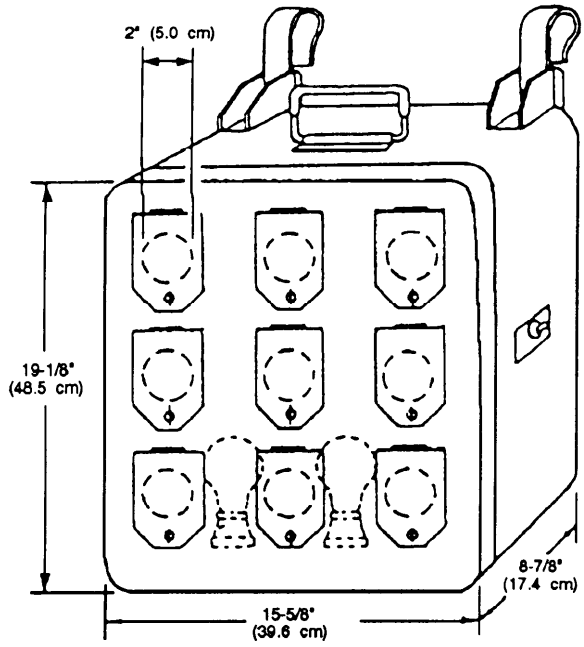
Figure 8-7.—Transfer-station markers.



BOX HAS NINE HOLES, EACH FTTED WITH A RED LENS. HAND-OPERATED INDIVIDUAL SHUTTERS HINGE UPWARD. ILLUMINATED BY TWO 25-WATT SHIELDED BULBS (ONE IS STAND-BY).
NSN-6230-00-658-3045

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Figure 8-8.—Station-marker light box.

markers. One red chemical light should be lashed on the approach-ship side of the other marker.

COMMUNICATIONS

Being alongside another ship is an excellent opportunity for you, as a Signalman, to sharpen your skills in semaphore and flaghoist. So when alongside, take the time to call up a striker and practice, practice, practice, or pull out those flaghoist signals you have made up in your drill log and commence exchanging signals. It's a good way to become an efficient operator. Remember, though, that before exchanging flaghoist signals, you must first request permission from the OOD.

SUMMARY

In this chapter you were taught the watchstanding duties of the Signalman. As you have read, Signalman duties cover a wide range, from locating ships in formation to recognizing the nighttime UNREP signal for ammunition. This chapter is a need-to-know for all of the Signalman community. Study and learn!

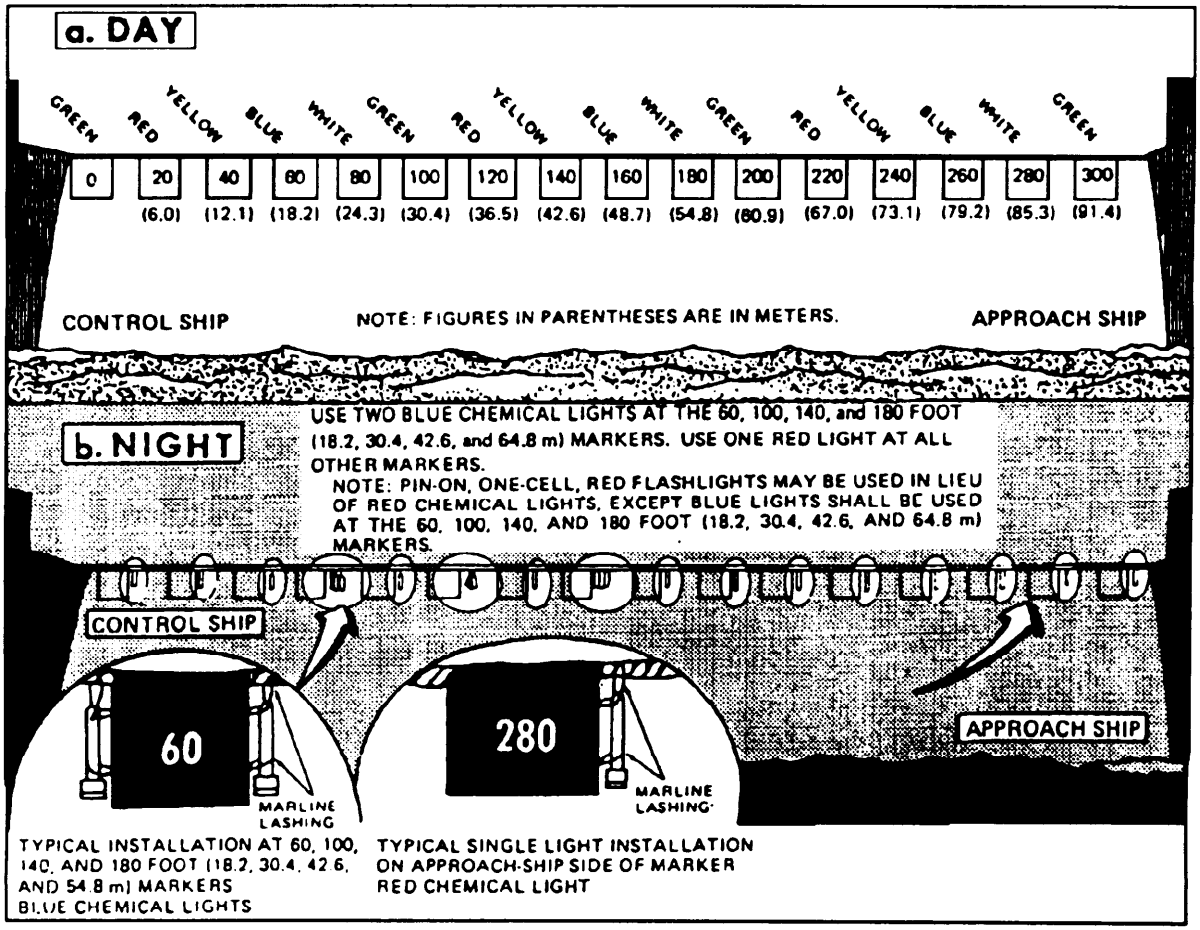

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Figure 8-9.—Distance line markings.