# APPENDIX I

# GLOSSARY

**ABEAM**—Bearing 90° or 270° relative from own ship.

**ACP**—Allied Communications Publication.

**CELESTIAL NAVIGATION**—Navigation with the aid of celestial bodies.

**CLASSIFICATION**—The determination that official information requires, in the interest of national security, a specific degree of protection against unauthorized disclosure, coupled with a designation signifying that such a determination has been made.

**CODRESS**—Message having the address buried in the encrypted text.

**COMMISSION PENNANT**—A long, narrow, starred and striped pennant flown aboard a commissioned ship.

**CONVOY**—A number of merchant ships or naval auxiliaries, or both, usually escorted by warships and/or aircraft, or a single merchant ship or naval auxiliary under surface escort, assembled and organized for the purpose of passage together.

**DAYSHAPES**—Shapes specified in both International and Inland Rules of the Road to visually indicate particular operations or situations from one vessel to another.

**DEBARKATION STATION**—The place on a ship where personnel assemble to debark in boats.

**DECLASSIFICATION**—The determination that in the interest of national security, some classified material no longer requires any degree of protection against unauthorized disclosure, coupled with removal or cancellation of the classification designation.

**DEFENSE MAPPING AGENCY**—Government agency that produces and sells navigational charts and publications.

**ENCODE**—To convert plain text into unintelligible language, usually word by word, by means of a code book

**FATHOM**—A unit of length equal to 6 feet.

**FLAGHOIST**—A nondirectional means of transmitting signals with predetermined meanings taken from authorized publications. The U.S. and Allied Navies use 68 different flags/pennants or combinations thereof for this purpose. International use consists of 40 different flags and pennants.

**FLASHING LIGHT**—The term applied to the transmission of signals by light. The equipment employed may be directional or nondirectional in operation. The use of directional flashing light reduces the possibility of its interseption, thus providing some security. When security is required at night, only highly directional flashing light should be used and its brilliancy should be the minimum necessary to provide communication. Nondirectional flashing light permits simultaneous transmission to a number of stations in any direction but has little security from interception, particularly at night.

**FORETRUCK**—The highest point of the forward mast.

**FORMATION**—Any ordered arrangement of two or more ships or aircraft proceeding together.

**FUSELAGE**—The body of an airplane.

**GAFF**—A small spar abaft the mainmast from which the national ensign is flown when the ship is underway.

**GIVE-WAY VESSEL**—As directed by Rules of the Road, any vessel required to keep out of the way of another vessel.

**GNOMONIC PROJECTION**—A map projection in which points on the surface of a sphere or spheroid, such as Earth, are conceived as projected by radials from the center to a tangent plane.

**GREENWICH MEAN TIME**—Local mean time at the Greenwich meridian; the arc of the celestial equator, or the angle at the celestial pole, between the lower branch of the Greenwich celestial meridian and the hour circle of the mean sun, measured westward from the lower branch of the Greenwich celestial meridian through 24 hours;

Greenwich hour angle of the mean sun, expressed in time units plus 12 hours.

**GUIDE**—Vessel designated in a formation or disposition as the one for others to keep station on.

**GUN SALUTE**—Blank shots fired to honor a dignitary or in celebration.

**H-HOUR**—The term used to designate the time for an operation to commence.

**HEAD-ON VESSEL**—One vessel meeting another on a reciprocal or nearly reciprocal course involving risk of collision.

**HOIST**—To move an article vertically upward by means of some hoisting rig.

**HULL DOWN**—Said of a vessel when, because of distance and curvature of Earth, only the superstructure is visible.

**INFRARED**—Transmission of signals by light outside the visual spectrum. This method, which may be directional or nondirectional, necessitates the use of special equipment and affords greater security than normal visual means.

**IRISH PENNANT**—A loose end of line carelessly left dangling.

**JANAP**—Joint Army-Navy-Air Force Publication.

**LATITUDE**—Distance north *(N)* or south *(S)* of the equator, expressed in degrees and minutes.

**LONGITUDE**—Distance east *(E)* and west *(W)* of the prime meridian, which runs through Greenwich, England.

**LORAN**—An electrical navigation system by which hyperbolic lines of position are determined by measuring the differences in the time of reception of synchronized pulse signals from two fixed transmitters.

**MANEUVERING BOARD**—A polar coordinated plotting sheet devised to aid in the solution of problems involving relative movement.

**MASTHEAD LIGHT**—The white running light placed over a vessel's fore-and-aft centerline showing an unbroken light over an arc of the horizon of 225°, fixed to show the light from right ahead to 22.5° abaft the beam on either side of the vessel.

**MEAN TIME**—Time based upon the rotation of Earth relative to the mean sun.

**MERCATOR PROJECTION**—A conformal cylindrical map projection in which the surface of a sphere or spheroid, such as Earth, is conceived on a cylinder tangent along the equator.

**MESSENGER**—(l) A line used to haul another heavier line across an intervening space; (2) One who delivers messages.

**NEED-TO-KNOW**—A criterion used in security procedures that requires the custodians of classified information to establish, prior to disclosure, that the intended recipient must have access to the information to perform his/her official duties.

**NIGHT VISION DEVICES**—Precision instruments that use electronic optics for observation, surveillance, and navigation. Also referred to as Night-Vision Sights.

**NTP**—Naval Tactical Publication.

**NWP**—Naval Warfare Publication.

**OCCULTING LIGHTS**—A navigational aid in which the period of light is equal to or more than the period of darkness.

**OCCUPATIONAL STANDARDS**—The minimum requirements for enlisted occupational skills of a certain rate or rating.

**OFFICIAL INFORMATION**—Information that is owned by, produced by, or subject to the control of the United States Government.

**OFFICIAL VISIT**—A formal visit of courtesy requiring special honors and ceremonies.

**OMEGA**—An electronic navigational system.

**PELORUS**—Device for taking relative bearings.

**PERSONNEL QUALIFICATION STANDARDS**—Qualification for officers and enlisted personnel to perform certain duties.

**PHYSICAL SECURITY**—That part of security concerned with physical measures designed to safeguard personnel; to prevent unauthorized access to equipment, installations, material and documents; and to safeguard them against espionage, sabotage, damage, and theft.

**POSITION ANGLE**—The number of degrees an object seen in the sky is above the horizon.

**POWER-DRIVEN VESSEL**—Any vessel propelled by machinery.

**PRECEDENCE**—The relative order in which naval messages are to be handled and delivered.

**PYROTECHNICS** —Ammunition containing chemicals that produce smoke or a brilliant light in burning; used for signaling and illumination.

**QUICK-FLASHING LIGHT**—A navigational light, such as a lighthouse, that flashes continually at least once a second.

**RADIOTELEPHONE (R/T)**—Used by ships and aircraft as the primary method for voice tactical and administrative communications.

**RELATIVE BEARING**—Bearing relative to heading or to the ship.

**SAILING DIRECTIONS**—A book issued by the Navy Department to supplement charts of the world. *Sailing Directions* contains descriptions of coastlines, harbors, dangers, aids to navigation, and other data that cannot conveniently be shown on a chart.

**SECURITY CLEARANCE**—An administrative determination by competent authority that an individual is eligible, from a security standpoint, for access to classified material.

**SEMAPHORE**—May be considered directional or nondirectional; however, nondirectional procedures are used during transmission. This method uses small hand flags during daylight hours and wands fitted with red lenses during hours of darkness. The position or movement of the flags represents letters.

**SIDELIGHT**—A running light showing green to starboard and red to port, showing an unbroken light over an arc of the horizon of 112.5°, fixed to show the light from right ahead to 22.5° abaft the beam on the respective sides.

**SOUND SIGNALING**—The use of sirens, whistles, bells, and similar devices used to transmit short messages normally consisting of prearranged signals. Such methods are slow and satisfactory for short messages only; they are usually confined to warning or alert signals.

**STANDARD OPERATING PROCEDURES (SOP)**—Guidelines tailored to the unique requirements of a signal bridge. These orders are drafted by the leading Signalman and approved by the communications officer.

**VISUAL SIGNALING**—The means of passing tactical and administrative traffic between ships within visual signaling range, and between ships and shore stations.

# APPENDIX II

# FLASHING LIGHT AND SEMAPHORE DRILLS

## FLASHING LIGHT

*LEARNING OBJECTIVE:* List tips on sending and receiving flashing light and on light qualifications.

International Morse code, a series of dots and dashes representing letters and numerals, is the standard for all flashing light and radio CW communications. The original code system was worked out in 1832 by Samuel F. B. Morse.

You must know international Morse code before you can use flashing light equipment effectively. Figure AII-1 shows the alphabet, numbers, and punctuation with the code equivalent. Basically, the code consists of 44 sight patterns: 26 letters, 10 numerals, and 8 punctuation marks. Each sight pattern (mental picture) except for punctuation contains from one to five dots or dashes (dits or dahs) or a combination of both, representing a letter or numeral. Except for the left parenthesis and slant/oblique stroke, punctuation sight patterns consist of dots and dashes in groups of six.

Experience has proved that the best way for most communications personnel to learn code is by "wholes." For example, the Radioman is taught to relate whole tonal sounds to characters. Similarly, the Signalman should learn by whole sight patterns. Don't break each character into dits and dahs that you have to count. Try, instead, to learn each character as a complete mental picture. When you see one dit and one dah, say and think the letter A. Don't count them one dit, one dah, and then conclude that it is the letter A.

The best tip you will ever get on how to be a good Signalman is this: **PRACTICE**—don't neglect it! Practice is the stepping-stone to success. When you see a good Signalman sending and receiving a message on the light, you can rest assured that he or she had plenty of practice.

Once you memorize the code, ask one of the more experienced Signalman to send to you, using a blinker card, a multipurpose light, or even one of the searchlights. For the first few times, have the sender to tell you in advance what character he or she is going to send so you can get use to how that particular sight pattern looks. When you are reasonably sure you have the sight patterns memorized, ask the sender to send a character without telling you what it is, and you call out the character. If you miss, ask the sender to tell you at once what character it was and ask him or her to repeat it. After you gain considerable practice on individual patterns, have some code groups consisting of random characters sent to you. If you notice that you confuse a few characters with others or that you seem to miss them more often than the rest, devote more time to those characters.

Practice these code groups as starters:

| | | | |
|---|---|---|---|
| **AFARF** | **EBBEU** | **NSPNP** | **LMZLM** |
| **ARFQZ** | **FEKUG** | **RBAPU** | **GVMCD** |
| **UQIWT** | **EHOXA** | **YSFTI** | **KNPUR** |
| **UFIEI** | **IAZIP** | **CBRIE** | **ULXWK** |

You can make up all sorts of combinations yourself. Just be sure they are code groups, not ordinary words. At this stage of the game, there is a definite reason why you should not attempt plain language drills: You may fall into the habit of anticipating the rest of the word or even the next logical word in the text.

When you become really proficient in receiving code groups, only then should you progress to plain language. Even in these drills, try not to anticipate the next letter or word. You will be wrong more often than right, and you will find when you guess wrong you become confused and miss the entire word. Anticipating is a bad habit.

### TIPS ON SENDING FLASHING LIGHT

After you become fairly adept at receiving, try sending code. You will find this phase a bit easier. Keep in mind, however, that there is a definite physical limitation to the speed with which flashing light can be sent and still be readable. Depending upon the skill of the operator, the 12-inch Navy signal searchlight can be used to send up to 15 words a minute.

NEVER SEND FASTER THAN YOU CAN RECEIVE. If you transmit a message at 10 words a

| LETTER | | NUMBER | |
|---|---|---|---|
| A | .- | 1 | .---- |
| B | -... | 2 | ..--- |
| C | -.-. | 3 | ...-- |
| D | -.. | 4 | ....- |
| E | . | 5 | ..... |
| F | ..-. | 6 | -.... |
| G | --. | 7 | --... |
| H | .... | 8 | ---.. |
| I | .. | 9 | ----. |
| J | .--- | 0 | ----- |
| K | -.- | PUNCTUATION (MORSE) | |
| L | .-.. | COLON | ---... |
| M | -- | COMMA | --.-- |
| N | -. | HYPHEN OR DASH | -....- |
| O | --- | PARENTHESIS/LEFT HAND BRACKET | -.--. |
| P | .--. | PARENTHESIS/RIGHT HAND BRACKET | -.--.- |
| Q | --.- | PERIOD OR DECIMAL POINT | .-.-.- |
| R | .-. | QUESTION MARK | ..--.. |
| S | ... | SLANT/OBLIQUE STROKE | -..-. |
| T | - | PUNCTUATION (SEMAPHORE) | |
| U | ..- | COLON | $\overline{OS}$ |
| V | ...- | COMMA | $\overline{MIM}$ |
| W | .-- | HYPHEN OR DASH | $\overline{DU}$ |
| X | -..- | PARENTHESIS/LEFT HAND BRACKET | $\overline{KN}$ |
| Y | -.-- | PARENTHESIS/RIGHT HAND BRACKET | $\overline{KK}$ |
| Z | --.. | PERIOD OR DECIMAL POINT | $\overline{AAA}$ |
| | | QUESTION MARK | $\overline{IMI}$ |
| | | SLANT/OBLIQUE STROKE | $\overline{XE}$ |

**Figure AII-1.—Formation of characters in Morse Code.**

minute, an experienced SM probably will reply at the same rate; but you will be out of luck if you can read only 6 or 7 words a minute. Speed, incidentally, does not imply noise. The shutters can be moved quickly without banging them up and down.

When you are first learning to send code by light, it is wise to increase the interval between characters and groups. The extra time enables the beginner to see each character in the proper time ratio. Moreover, the greater period between the characters and groups allows the mind to verify or realize what the eyes have seen. Practice reduces this reception time, and the periods can be decreased.

The period the shutter remains open for a dit or dah and closed between characters and groups, when sending by flashing light, is given in the following list. Note that the interval between dits and dahs is the same.

- A dit equals 1 unit of duration.
- A dah equals 3 units.
- The period between dits or dahs in the same character equals 1 unit.
- The period between two characters equals 3 units.
- The period between groups equals 7 units.

## FLASHING LIGHT QUALIFICATIONS

Certain flashing light standards are required of the Signalman for advancement to the third and second class levels. You must demonstrate your ability to meet these standards before you are recommended for advancement. They are required as part of your performance tests, which must be taken for advancement in rating.

For advancement to Signalman 3, you must be able to transmit and receive code groups at six groups per minute, and plain language messages at an approximate speed of eight words per minute. (Five characters equals one group.)

For advancement to Signalman 2, you must be able to transmit and receive code groups at an approximate speed of eight groups per minute and plain language at an approximate speed of 10 words per minute.

Following is a series of Morse code drills. Practice each drill until you can send and receive it at the rate of 25 characters per minute before going on to the next exercise. To estimate the time required to attain that speed, divide the number of characters in each drill by 25. Drill 1, for example, contains 150 characters. Before going on to drill 2, practice drill 1 until you can send or receive it in 6 minutes.

Drill 1

**GM7OH JMOHl GOMG7 MOJG7**
**HOMJG O7AMG H4OJM 7GHOJ**
**MJ7GM OH1JG OMJ4H OGlJH**
**MOlGJ HOM4G JHJOO GMlHJ**
**HlGOM JH7G7 H07GM J4HJG**
**OMGlJ H4MOG JGHM7 GOJMH**
**GGJ4O MlJGH 4GMOG JOGH4**
**OMGNl OGM7A**

Drill 2

**DOGJK SK7MY HMJOD GSHKD**
**7M28J YOSKH SKDOH MZGJK**
**87M0Y MGJOH G7S2K DY7GO**
**J7MHD SKG28 MJ7K0 G8SMR**
**DJH72 KYDS8 KGOMJ SHD28**
**K7GO2 DKSJ4 280HY 7GKSD**
**HJDYM HSK07 82GJH DSK82**
**HOYMG 7D8KS**

Drill 3

**EJZPH U8IOA YBMKW 7GO85**
**SD3YB KH5E5 PWJY7 JBK3H**
**YW7SD EOGP5 W3BWP ES5K2**
**YMOG7 HJKYO BP827 MGSDW**
**KHOP3 KSJME W7G5B B28YD**
**2POHB 5SKJM OMOG2 KYJH7**
**8SDW3 YBEP5 7HJG0 MYK2D**
**PS85P EB3WJ PKWGY MJW28**
**HOGKS**

Drill 4

**6B82H 00QP3 5T4HY FLEWY**
**WEMJO GSK3P OHYDL JFB6Q**
**FNL08 KDJ07 KMGOP 3W5BE**
**OKYDS LFNGJ YS5WN JKOBF**
**POLQN 5PEDS 87HJ2 GKY3W**
**BQ6FO PWO96**

Drill 5

**UJKLV AHYQP 96WX4 JO9UC**
**A4XQO 6LS2G WOHPW 6F7YM**
**W9NSD NGMJB CUPEX QKOH6**
**YOXC3 POH7G 5BA94 HUWEM**
**J28N6 QOSKY EDLF8 X4ACU**
**FQ7LN C0536 PBW5G 7HJOM**
**8DSKY 2DNQL 6JP9C AW6YF**
**AN8PV PW096**

Drill 6

This exercise contains all the letters of the alphabet and the 10 numerals. On completing this drill, you should be proficient in receiving all 36 characters when transmitted at the rate of 25 characters per minute.

| | | | |
|---|---|---|---|
| JH7K2 | YDLRl | ITF9X | 40WEM |
| JUG8S | D0QZT | VACU3 | P0HSN |
| OL6B3 | GO2KH | 7JDS8 | GYMLO |
| B5VEF | Q6N3W | IZPCA | UIPR9 |
| X4JH7 | 2KTM0 | G6SDE | P5NPL |
| W3B80 | UCTVZ | 14X9B | AIJPQ |
| IFZLD | YKSOQ | ITRV6 | N82G7 |
| B5A9X | G39PH | QJMBW | U4YJO |
| ZXGPK | RVZQO | J2ENU | VHKPO |
| CZ7Y5 | LAIM8 | W65RI | GSKE4 |

A single word is considered five characters. You should now be able to send or receive at the rate of five words per minute. Let's go on to drill 7 and find out whether you can.

Drill 7

Practice drill 7 until you can send or receive it in 15 minutes. By then you will have attained a solid speed of 25 characters per minute.

0 P K H V U N E 2 J O Q Z V R
K P G X Z O J Y 4 U W B M J Q
H P 9 3 G X 9 A 5 B 7 G 2 8 N
6 V R T 1 Q 0 S K Y D L Z F 1
Q P J 1 A B 9 X 4 1 Z V T C U
0 8 B 3 W L Q N 5 P E D S 6 G
0 M T K 2 7 H J 4 X 9 R P I U
A C P Z 1 W 3 N 6 Q F E V 5 B
X J 7 F 9 K T 2 Y 1 I D R L H
T 4 Z O Q U E 0 M D J S W U 8
3 V B A 6 C L U O 3 N P 5 O H
0 G L O M K Y 2 G 7 H 8 S J D
A B C 5 P V Z E 1 J W Q 3 N 6
0 U M I T P K R 2 H 7 X 4 J 9
0 G 8 B 6 S 3 D W L E Q P 5 N
Q U C T P V I Z A 1 B 4 J X 9
6 1 V F R Z T L 1 D Q Y 0 K S
0 L M Y G 8 S D J 7 H 2 O K G
3 B 6 L O N S H O P 3 U C A V
T Z Q O D S 8 G U J M E W O 4
X 9 F T I 1 R L D Y 2 K 7 H J
H 8 P 2 G 9 C 3 X 7 B 5 A 9 N
K Q P J G M X B X W O U J 4 Y
0 R P V K Z H Q O V J U 2 N E
I C R 7 2 4 Y 6 W 5 L 8 M 1 A

With 5 words per minute accomplished, we will now try to boost your speed.

Drill 8

Practice drill 8 until you can send or receive at the rate of 30 characters (6 words) per minute.

| | | | |
|---|---|---|---|
| B1EF6 | EQ3MY | 7ADQC | 31PXZ |
| AVDTS | 61ZNA | 5NTON | J8SW5 |
| BGWHG | 9ZM2C | 9LUFD | 9PW1Y |
| 8LD4H | DK700 | 3UY4K | 7WJVX |
| IZG4R | 2XA0H | S5Q06 | RCMTV |
| JW7K0 | 1RUP0 | LF8V2 | MZ9GF |
| 8LY1I | X5NOP | T3UHC | S6B4Q |
| IRDZE | 7QVGF | UL9C4 | GZIXO |
| Q5SHM | 6ET8D | IRY23 | PNJWB |
| 2V9Y4 | RIN95 | WFKOM | EJ70X |
| S8L0Z | 5XPUT | M6CR0 | N5XI4 |
| T3Q10 | 2K7HP | A8O0D | 6BVFK |
| A1LUT | D3HBA | 2GWEC | U3SQ4 |
| Z6B7D | H8AKH | | |

Drill 9

Practice this exercise until you can send or receive 35 characters (7 words) per minute.

| | | | |
|---|---|---|---|
| B2V9Y | HXLB1 | 1HBXL | 0E7YA |
| LIXHB | 4RIN9 | 16NDU | U1D6N |
| DPB1T | NU6ID | 5WFKO | 75ZGF |
| F7G5Z | CR2JM | ZF7GH | MEJ70 |
| 08THE | EOH8T | 04VSW | TE8OH |

Drill 9

**XS8LO G3UCA AGC3U Q3YKA**
**UA3GC Z5XPU A0YE7 7AEQY**
**ORVG6 PWY7T 2H9NK TDlBP**
**PTBDl 94NSK 1UXZR 31FQM**
**MCJR2 2MRCJ 2HDJL ONQRV**
**GSJBV WOS4V VW40S BAC31**
**SXTG5 YA3QK 5QEFA QK3YO**
**2YIF8 RCWTV Y2B9U ZP5XP**
**lA6Z6 APZIP XZU5l 9R4NK**
**2NlH9 H8L3U 3LHU8 N92KH**
**F0EM7 VG6SJ CM494 MK9CQ**
**F3MIJ 0EM7M 3QIF0 7EBWB**
**EOW76 JGVS8 QSXLT 8WRC0**
**J4LDL 40DJW C8TRD 6ZIPI**
**ZDP6Z P6DlP DL6S6 IPZDW**
**7TYPU XZ812 DLS86 D9LWP**
**FAW9Q XO3LA 7E0BP KJE0l**
**P92NX IEGW2 6VQAL U8TE3**
**VNY75 HRE46 8OXZG OSXNM**
**SLD72 JWGWS QJP8E BIT4C**
**NCM8T R5ALF FKOVE YWNMA**
**70JMK**

Drill 10

Practice drill 10 until you can send or receive it in 13 minutes if you are studying for advancement to E-4, and in 10 minutes for E-5. These rates are about 8 and 10 words per minute, respectively. Drill 10 is a quotation. Remember that when you receive, you should not anticipate. The intent of the drill is to build up your solid speed.

> "All persons who in time of war or of rebellion against the supreme authority of the United States come or are found in the capacity of spies or who bring or deliver any seducing letter or message from any enemy or rebel or endeavor to corrupt any person in the Navy to betray his trust shall suffer death or such other punishment as a court-martial may adjudge. If any person belonging to any public vessel of the United States commits the crime of murder without the territorial Jurisdiction thereof he may be tried by court-martial and punished with death. All persons in the naval service shall be zealous in..."

## SEMAPHORE QUALIFICATIONS

*LEARNING OBJECTIVES:* List the semaphore characters, including special signs, position drill, the system of opposites, and unnecessary movement. List tips on learning semaphore and the qualification needed for advancement.

For advancement to Signalman 3, you must be able to transmit and receive plain language semaphore messages at an approximate speed of 10 words per minute; and, for advancement to Signalman 2, to transmit and receive plain language at an approximate speed of 15 words per minute.

### TIPS ON LEARNING SEMAPHORE

The "semaphore expert" achieved his or her reputation as a result of PRACTICE. The only pointers we can give you is the code itself and a few helpful hints gathered from the experts to assist you in meeting and surpassing the qualifications in our rate. The semaphore alphabet isn't at all difficult to learn. The speed at which you learn to send or receive it depends on how consistently you work at it.

First of all, take a look at figure AII-2. It shows how the semaphore alphabet and certain special signals used with it are formed by using two flags. As you memorize the positions for the various letters and signals, practice moving your arms quickly and surely to each of the various positions. The person in figure AII-2 is the sender, and you are looking at the illustration as though you are the receiver.

In figure AII-3, you see a man swinging through a position drill. He moves his flags smartly to their positions, using his arms from the shoulders. The flags form an extension of the plane of his shoulders. Notice that there is no mistaking his *B* for *A* or *C,* for example. Don't try for speed at first; that will come after you master the alphabet thoroughly. A sloppy sender not only spends time repeating messages because no one can read them, but also may cause the receiver to make a mistake on a word or a code group, resulting in the message having an entirely different meaning.

A single semaphore flag may be held in eight correct positions. You can picture these positions easily if you imagine yourself standing inside a circle

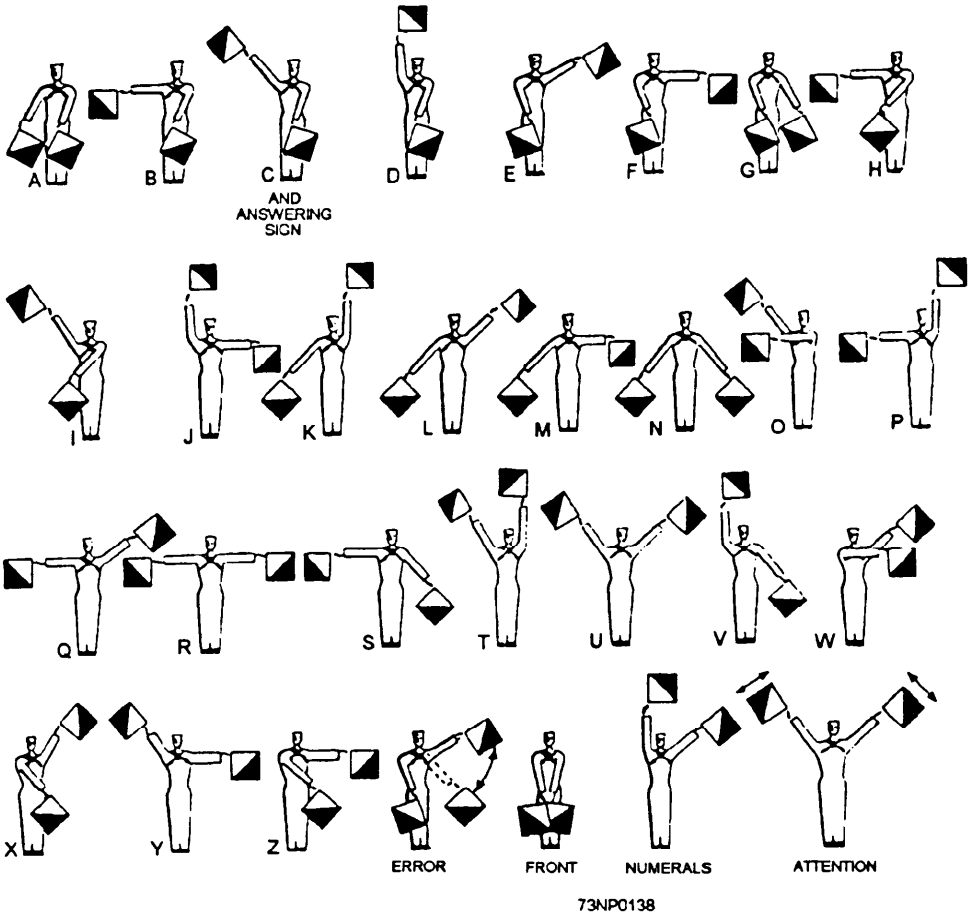


**Figure AII-2.—Semaphore alphabet and special signals.**

like the man in figure AII-4 Notice that the circle is divided into eight parts by equally spaced marks. These marks represent the correct flag positions. Anything between them is indefinite and will lead to confusion. Although one flag has only eight positions, innumerable combinations are possible when you use two flags as in semaphore. Of these possible combinations, 28 are used in semaphore communications. The semaphore alphabet is composed of 26 letters plus signs meaning NUMERALS and FRONT.

The FRONT sign is used after finishing a word. It is like the space left between words in ordinary writing. Also, it is used before and after each call sign, code group, operating signal, or prosign, and between all letters and numerals of a call sign. The NUMERAL sign is given just before you transmit a group of numbers or a group of mixed letters and numerals to be recorded in the text and counted as a single group. The sign is repeated when the group is completed.

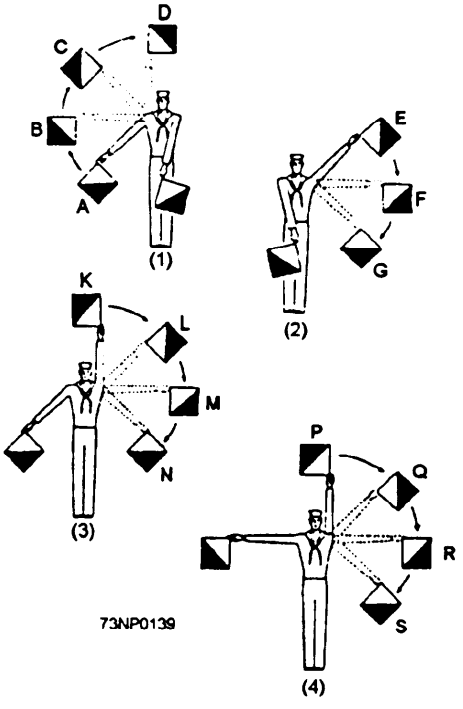


**Figure AII-3.—Position drill.**

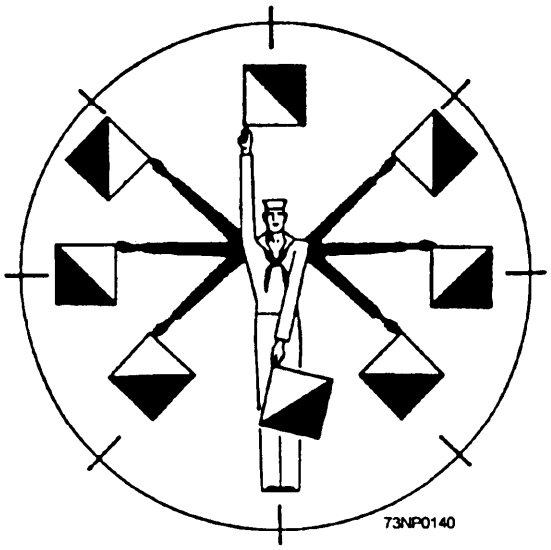


**Figure AII-4.—Semaphore position circle.**

Examining figure AII-2, you will see that *C* and *E* also are used as special signs. The ANSWERING sign is the same as letter *C.* The ERROR sign consists of letter *E* made eight or more times. ATTENTION is made by waving both flags from the horizontal to the overhead position.

The various instructors of semaphore in Navy schools teach different methods that they feel make learning easier. One of the most popular of these methods is the system of opposites. (See figure AII-5.) The idea here is to learn one letter, then learn a letter made by holding the hands in exactly the opposite position. Going down the list, you see that letters of the alphabet (except *L, D,* and *R)* have opposites that form other letters.

As you practice, move your arms from one position to another by the shortest route possible. Notice the movement of the man's arm(s) in figure AII-6 as he sends the word ships. Cutting out unnecessary movement of the arms makes your sending more uniform and increases your speed. As soon as possible, start sending and receiving with another striker. Always remember: Practicing correctly makes perfection.

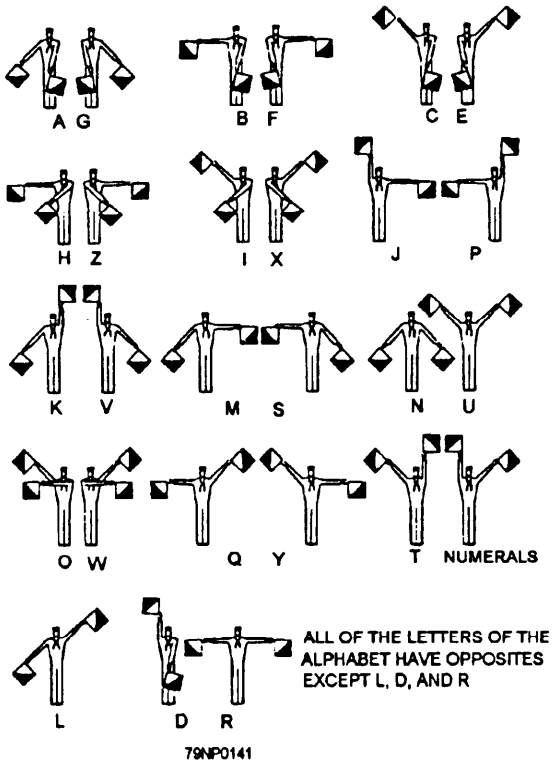


**Figure AII-5.—The system of opposites**

The remainder of this appendix is devoted to semaphore drills for you to practice.

Drill 1

When you are able to send each letter of the alphabet easily and without hesitation, you are ready to start sending groups. Start with this exercise. Do not try for speed; that will come later.

**EGMGH RILCO MUCVX LXDIR**
**ZKOBW MGQEH WFKZO SMGDH**
**QFWRK LUIVN CIJQV HJEGO**
**APSIJ BRSPZ PAYTD SCIVN**
**MGQEH LSMYZ FXNUV BRSPA**

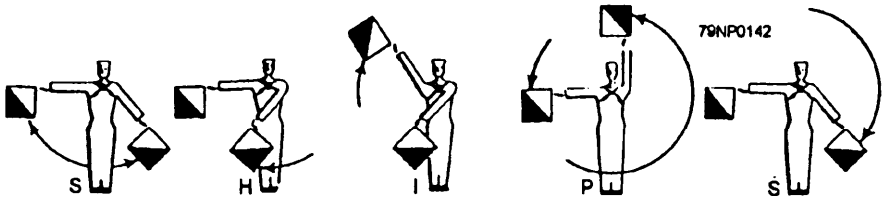


**Figure AII-6.—Eliminatlng unnecessary movement.**

Drill 2

Practice sending and receiving semaphore drill 2 using the front sign.

AGZMZ KGUGI LORPZ LAZLG
ISMFJ KOHZV CKEXQ BXQFY
FOTUB WBPYQ AYNDS NAVTR
KWUGS ZECOK CHVTE LMPIB
CTEVH NCJIE VORSZ HWDNV
XQTCY RAHED GLKUM BORAX
SJXQM

Drill 3

Practice this exercise until you can send or receive at the rate of 10 groups per minute.

BQIZF ZGUZT BHMGV NBQIZ
HTEPD NKOYJ FAGLT RSKTB
MYKUC CEUDV ZQUHP MOWQE
GOJSX QTYYO ASCIQ RIPCG
VAWLR IKEJW XOJBV NRXPM
DAFJN IPURL RWAVL XOGJS
LYHSV FSCXR TEHDP JUMYC

Drill 4

Practice drill 4 until you can send or receive it without error in 5 minutes. This is a rate of 12 words per minute.

TWYJR MGLFU MFIZE DLFMS
VDKPD BIZOE AHSKD TPCNV
WSAXH HNXAW JCTGL AOGBU
ECOZB BSPKV BUONX HKOWX
UIFLM RCJYT PWVRY EZJRY
LCPND MKSGU NEDRX RJBPC
QEISV TLFVR WMAOC QKSDA
MAWHR EXHDN FQLPK ULMZI
FZTUO IWOCY SYBVJ ETNWF
XVGKY QPBZJ TIGZU VOGXH
ETKDU LFISG RWCHJ VMQNX
LAQVG MBRWH NCXSI ODTYJ
PIGWU HZJOQ VBNRC AXKSD
WBRMH XCSNI TYDOQ ZEUPK
NCXWD OEYVF PGZUG QIBTJ

Drill 5

Practice drill 5 until you can send or receive it without error in 4 minutes. When you have accomplished this, you will have attained a rate of 15 words per minute.

SCSNI YDTOJ ZEUPK AFVQL
OEYVF PGZUH QIBTJ RKASL
ODWHY PGQUJ QIATL RKSBM
LORNP MKOXC INELG JPAWQ
TFSHO KUBVH YRZSU GSJDK
GMBUF TVAQX LEMPB QLROI
JDBEI YKZHT SCBVD UWJRQ
WXLHA NPOHM SOWQR BJLTM
NVKGX GDUIK VEZFH GOCAU
OBIPB QTRVP QFUKG IYIWY
WCXAI XAYFZ QHOML EPGNY
EFQAQ FJZXD PUGWX FISKF
SDJRE JLSIR HJZMG FKASQ
MOEAM BNHMN BGQSC OIKLB
PCNHA KPDFE JLCGR PTRNI
THFYT STYEV

Drill 6

Practice drill 6 until you can send or receive it at the rate of 20 words per minute.

IFWTL PMBEV FWTLI VPMBE
DZLFG FCWRH JQUAA NWBKT
LIFWE VPMBA HLGYQ KHSVP
STCGE PKOZN ISTCG XNHRZ
STCGE PKOZN ISTCG XNHRZ
NWXAG ISUAH RSNGP LFDJA
YWUDK CGIST YPKHM EQBYD
IQYUE OTVYW TLIFB EVPMK
OPNGW RJFCU AHJQM ISFOI
QYUDP NGKOT VYELG YQHDJ
PTESF OMICL ZIESU AHISQ
ZTQGP RSNEQ NJXAG NWXUD
KYWPR SNGPH LVXXR VUCTQ
XWZRV UCXWZ TQSRU AZRZX
NHXVR TCFBM KZECL ZIAHJ
QUKAZ WBFOM ISIMI SFRJF
CWHLV XPQSW ZTBKD MOBYC

Drill 6

**GMOLJ DFDJA LNJXE QFGPR**
**WUDKY XAGNW KYWUD DKYWU**
**JALFD HRZXN BYMEQ PTEDJ**
**TEDJP ZFBMK TRCXV CXVRT**
**QUAHJ FCWRJ BKANW JQUAH**
**LIFWT QNJXE SNGPR ISFOM**
**BMKZF WXAGM VPKHS GISTC**
**GYSTC TVYEO QYUDI VRTCX**
**CSXRV DKMOB EQBUM LVXPH**
**FDOLJ TGGIS JFDOL BYCGG**
**MBYCP NGKOW BKANG KOPNC**

**WRJFN WBKAM KZFVZ XHNRJ**
**PTEDL ZIECU OAZRI ECLZK**
**ZFBMO AZRUE DJPTZ IECLM**
**OBDKJ XENYQ HLGAL FDJMB**
**EVZVU CXRGN WXAUD IQYAH**
**ISUDJ ALFOB DKMHI SUAYM**
**EQBTC XVRZR UOACG MBYXE**
**QNJQH LGYNG KOPVH RZXDE**

Drill **7**

Practice sending or receiving plain-language semaphore exercise 7 until you can do it in 5 minutes, or at the rate of 20 words per minute. For this seventh drill, work on the following quotation:

"Success of communication depends primarily upon knowledge of how, when, and where to send timely and intelligible messages and can be gained only through a common understanding on the part of those directly concerned in the vital business at hand. Communication personnel have an important place in the ship's organization. Only authorized frequencies should be used by the radio organization. Care must be exercised in the choice of a code or cipher for each message. The necessity for safeguarding visual traffic must not be overlooked. The use of standard phraseology or any external indications of...."

# APPENDIX III

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