

The  
**SERVICES  
SIGNALLING  
MANUAL**



# **SEMAPHORE HELIOGRAPH**

**INTERNATIONAL CODE  
OF FLAG SIGNALS**

**MORSE CODE  
ETC. ETC.**

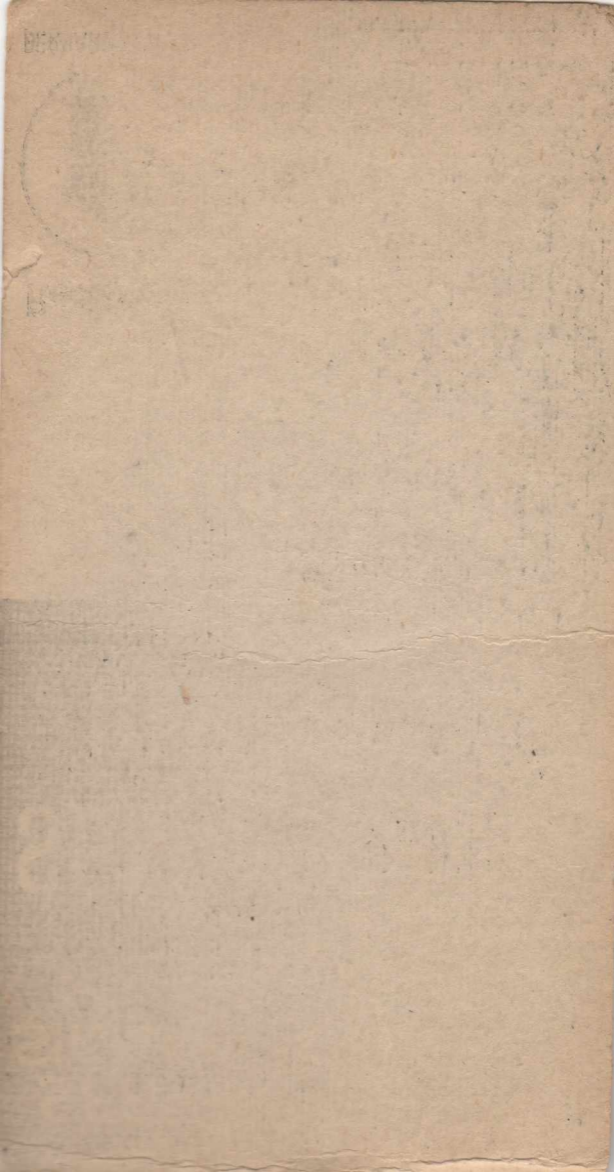
Recommended for



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## SEMAPHORE.

Signalling by Semaphore is probably the best mode of communication between points close enough to enable the signals to be discerned clearly either with the naked eye or by the aid of binoculars or a telescope.

The average rate of signalling by semaphore should be at least eight words per minute, and this is not hard to achieve by means of a little practice and a thorough memorising of the various flag positions.

Two flags of identical pattern are all that are required to enable any signal to be dispatched. These flags are usually black and white divided diagonally, the white being at hoist position. The combination of these two colours have proved in practice to be most likely visible at long distance.

To denote that a semaphore signal is about to be made, the "J" Flag position is raised. This denotes that a message is about to be made by semaphore.

All messages transmitted by semaphore are normally made in plain language. Where numbers occur in a message they are to be spelt out as words, thus "7" should be signalled by letter flags thus s-e-v-e-n.

A decimal point between numbers is also spelt in this manner thus d-e-c-i-m-a-l. This rule also applies to punctuation marks, etc., etc.

The end of a word is shown by dropping the arms to the break position. When double letters occur in a word, after the first of the double letters is made, the arms are dropped to the break position and then without a pause, moved to the second letter.

The receiver of the message will always acknowledge the correct reception of every word by making a letter "C" sign after each word. If this letter signal is not made, the sender must repeat the word, as obviously the receiver has not been able to distinguish or interpret the word in question.

Should an error occur in the transmission of a message, it is indicated by the successive signalling of a number of "E's" thus (EEEEEE).

# SEMAPHORE



A



B



C

Answering Sign



D



E



F



G



H



I



J



K



L



M



N



O



# SEMAPHORE



To denote that a message has ended the signal "AR" is flagged and it is absolutely vital that this should never be omitted at its correct place

Special note should be made by careful inspection of the diagram showing the position of the flags in Semaphore, to see that on no account when signalling, that the flags are held pointing to the left hand side when the right hand side is indicated and vice versa.

## **INTERNATIONAL CODE OF SIGNALS.**

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When signalling it is very important that flags are placed the right way up as indicated in the colour diagrams.

The numeral pendants are to be used exclusively for the signalling of numbers. When the number that is to be signalled contains a decimal, the answering pendant is to be inserted where it is desired to indicate the decimal point.

Substitute flags are to be used when the composition of a word, code group, or numerical group contains a repetition of a letter or number respectively.

Without the aid of substitute flags, it would be necessary to carry a number of complete sets of code flags to enable difficult words or numbers to be signalled.

The following rules are to be carefully noted with regard to the use of substitute flags.

(1) The first substitute flag always repeats the uppermost signal flag of that class of flags, which immediately precedes the substitute flag.

(2) The second substitute flag always repeats the second uppermost flag of that class of flags which immediately precedes the substitute flag

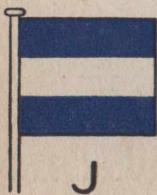
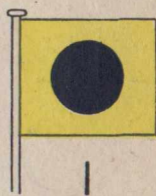
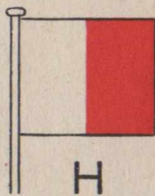
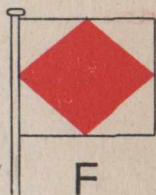
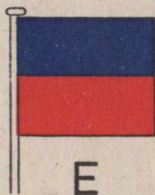
(3) The third substitute flag always repeats the third uppermost flag of that class of flags which immediately precedes the substitute flag.

(4) No substitute flag must ever be used more than once in the same group.

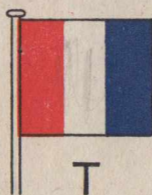
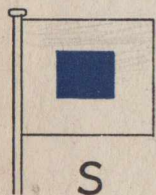
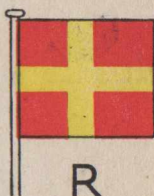
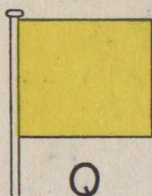
(5) The answering pendant when used as a decimal point, is to be disregarded in determining which substitute flag to use.

An example of the use of substitute flags is now given to explain the rules given above

# INTERNATIONAL CODE OF SIGNALS



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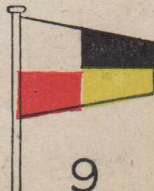
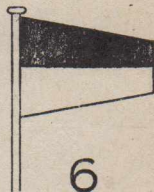
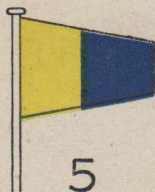
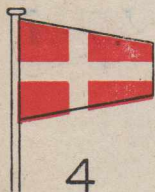
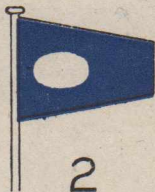
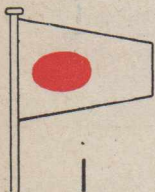




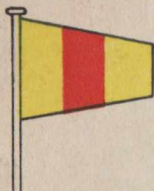
# INTERNATIONAL CODE OF SIGNALS



## NUMERAL PENDANTS



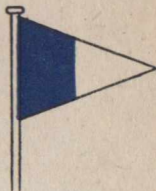
# INTERNATIONAL CODE OF SIGNALS



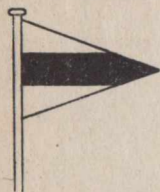
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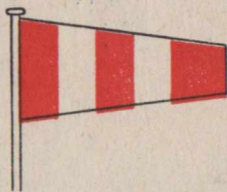
1<sup>st</sup> Substitute



2<sup>nd</sup> Substitute



3<sup>rd</sup> Substitute



Code Flag and Answering  
Pendant

"It is required to signal the number. 3663."  
The flags to be hoisted are as follows:—

Numerical Pendant	3 = 3
	6 = 6
2 <sup>nd</sup> "Substitute" flag	= 6
1 <sup>st</sup> " " "	= 3

The second substitute flag repeats the second flag counting from the top, in this case the numerical pendant "6." The first substitute flag repeats the first flag of the group, in this case the numerical pendant "3."

Apart from the Alphabetical or Numerical value that each flag or pendant has respectively, there is allotted, particularly in Naval Circles, a message to each single flag, and also to groups of flags up to five in number. Obviously it is impossible to give the meaning of all these international code signals

in a concise book of this nature, therefore for any information on these, reference should be made to the official "Naval International code book for flag signals."

The following course is to be used whenever names occur in the text of a message being signalled by flags. The names are to be spelt out by means of the alphabetical signals given below.

**Signal shown.** The answering pendant over Letter Flag "E."—this is known as the first alphabetical signal. It indicates that the letters hoisted after it until alphabetical signal No. 3 is made, do not represent signals in code, but are to be understood as representing letters of the alphabet spelling a word.

**Signal shown.** The answering pendant over Letter Flag "F."—this is known as alphabetical signal No. 2, and indicates the end of a word being spelt, or a dot between initials.

**Signal shown.** The answering pendant over Letter Flag "G."—this is known as alphabetical signal No. 3, and indicates that the spelling of real words is completed, and that the signals which follow are to be looked up in the Naval or Service Code book in the normal manner.

## MORSE OR INTERNATIONAL TELEGRAPH CODE.

Morse signalling is normally carried out by sound, and the whole range of alphabetical and numerical symbols are represented by two elements which are called a "dot" or a "short," and a "dash" or a "long," transmitted either singly or in any combination.

The standard time ratios that are observed between dots, dashes, letters, words, or groups are as follows:—

Interval space between each sound—one unit; interval between each letter—three units; interval between each word or group—five units.

The dot is taken as the unit, and the dash as equivalent to three units. No matter the rate of transmission, the above spacing must be strictly adhered to.

The standard speed for signalling by Morse Code is accepted at about 12 words per minute, but much

more rapid transmission and reception speeds are used particularly after constant practice.

Signals in Morse code can be transmitted by means of whistle, siren, fog horn, drums, and electric bell, etc., etc., apart from the normal Telegraphic or Radio keying method.

The full alphabet and numerical signs are given on the Morse code symbol page. It will also be noticed that various commonly used punctuation marks, etc., are given. It is important that these should be used where they occur in messages, and are well worth committing to memory, as they are enormous time savers during urgent transmissions.

Memorising the Morse code is no task at all if you simply make up your mind to apply yourself to the job and get it over with as quickly as possible.

Start by memorising the alphabet, and after this has been done, continue with the numerals, and punctuation marks. One very sound suggestion is to learn to think of the letters and numbers in terms of sound rather than their appearance as they are printed. Do not think of "A" as dot dash, but think of it as dit-dah and "B" as dah-dit-dit-dit, and "C" as dah-dit-dah-dit, etc., etc.

Learning the Morse code is like learning a new language, and the sooner you learn to understand this new language without mental translation, the easier it will be for you.

## Code Symbols

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### ALPHABET

Letter.	Code Symbol.	Letter.	Code Symbol.
A	. —	N	— .
B	— ...	O	— — —
C	— . — .	P	. — — .
D	— ..	Q	— — . —
E	.	R	. — .
F	.. — .	S	... .
G	— — .	T	—
H	. . . .	U	.. —
I	. .	V	. . . —
J	. — — —	W	. — —
K	— . —	X	— . . —
L	. — . .	Y	— . — —
M	— —	Z	— — . .



## N U M B E R S

Number.	Code Symbol.	Number.	Code Symbol.
1	• — — — —	6	— • • • •
2	• • — — —	7	— — — • •
3	• • • — —	8	— — — — •
4	• • • • —	9	— — — — •
5	• • • • •	0	— — — — —

## P U N C T U A T I O N   M A R K S ,   E T C .

Mark.	Code Symbol.
Period	• •   • •   • •
Comma	• — • — • —
Interrogation	• • — — — • •
Quotation Marks	• — • • — •
Exclamation	— — — • • — —
Colon	— — — — • •
Semicolon	— • — • — •
Parenthesis	— • — — — • —
Fraction Bar	— • • — •
Wait Sign	• — • • •
Double Dash (Break)	— • • • —
Error (Erase) Sign	• • • • • • • •
End of Message	• — • — •
End of Transmission	• • • — • —
International Distress Signal!	• • • — — — — • • •
Received Message (O.K.)	• — •
Invitation to Transmit (Go Ahead)	— • —

A suggested mode of learning the Morse code quickly, is by taking the first five letters, memorising them, and then the next five and so on. As you progress it would pay to review all the letters that you have learned up to that time. When you have memorised the alphabet you can go to the numerals, which will come very quickly since you can see that they follow a definite system. The punctuation marks now complete the code and you will find that by this system, the complete Morse code can be memorised by any person of normal capabilities within three to four days.

Another very useful tip from experienced operators to all beginners is, no matter where you happen to be, upon noting the first object that strikes the eye, try and tap out the name of this article with a finger on the table or any convenient place.

Do not worry about speed in transmission and reception as this can only be achieved by constant use and practice and will come to anyone who is constantly at his job of operator. Indeed it has been seen that where very rapid and experienced operators have left their transmission key for any length of time that upon return to their duties their speed has dropped tremendously.

## HELIOGRAPH.

The heliograph system of visible signalling is of exceptional use when it is not convenient or wise to transmit a message by means of a sound or audible system.

The system used in Heliograph signalling is the standard Morse or International Telegraph Code, the only change from the normal being that the various "dot" or "short" symbols and the "dash" or "long" symbols are given by the intermittent beam of a powerful light, either by switching the said light on and off at the correct intervals, or by the insertion of a blackout screen in front of the source of light should it happen to be either an oil, gas or wood flame, which naturally cannot be turned off and on as required.

In an emergency successful messages in code have been transmitted by means of smoke signals suitably dampened as required to form the various symbols of the Morse Code.

The original Heliograph was used by the reflection of natural sunlight in a mirror which had the advantage that only the recipient of the message was aware that a transmission was taking place as no beam was thrown as when using an artificial source of light.

Success in Heliograph signalling is achieved by using the same methods and suggestions as advocated for learning and utilising the normal Morse Code.

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