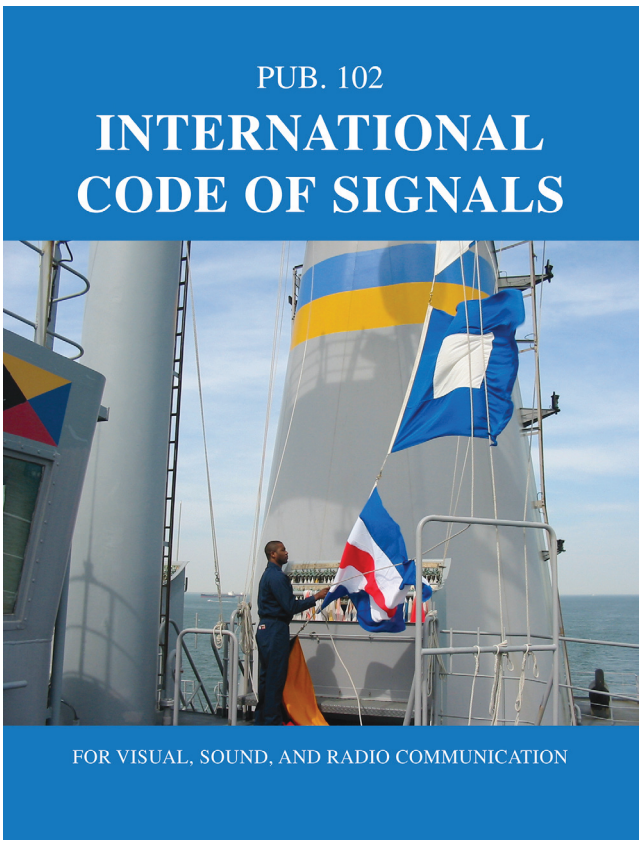
"K" is for Communicate



The enduring value of *International Code of Signals— NIMA Pub. 102* in maritime communications

by David Burch

"K" (DAH DIT DAH) IS A ONE letter code used in maritime communications to mean "I want to communicate." You can send this with Morse code by keying the mic or by sounding your air horn. Or by flashing lights, or with signal flags, or by hoisting the single code flag K (rectangle with left side yellow, right side blue). Or you could tap it out on the wall of your jail cell, or on your girlfriend's desk at work.

DEFINITIVE ANSWERS

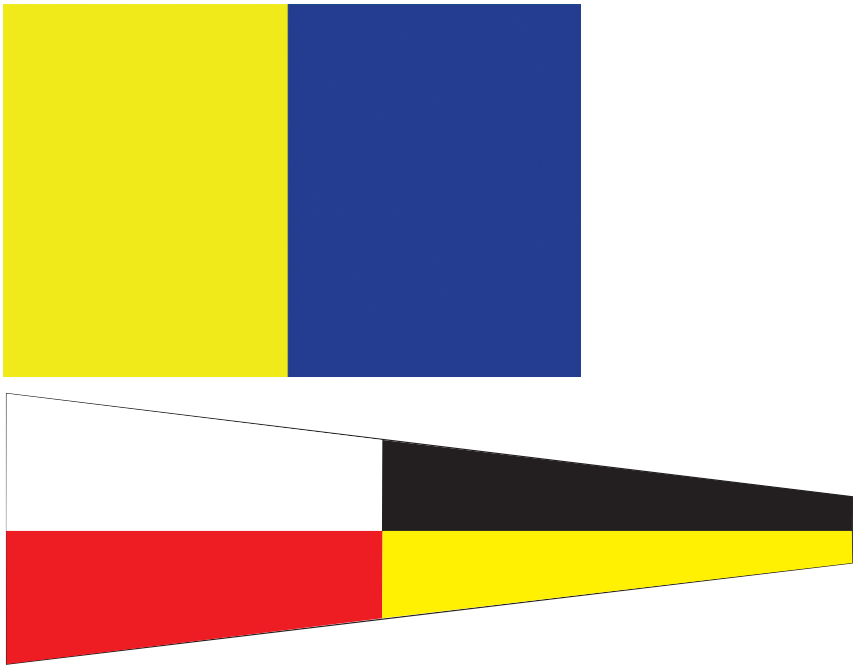
But how are you going to know that? And how are you going to reply? The answers are in a definitive little book called the *International Code of Signals— NIMA Publication 102*. These 157 pages tell you all you could ever want to know about communication by signals. A "K" followed by a "9," for example, means "I want to communicate by VHF on channel 16." "K" followed by "4" means "I want to use Morse code with flashing lights."

When you are improvising your signals by tapping or blowing a horn, we learn from *Pub 102* that the noise you choose for the "dot" is the basic unit. A "dash" is then 3 units long, and the space between letters is one unit long.

Pub 102 is no longer printed by the U.S. government, but several commercial reproductions are available for $15 to $30. The International Maritime Organization (IMO) still offers their version in print at $129 for essentially the same book. In place of print distribution, NIMA (National Imaging and Mapping Agency, formerly the Defense Mapping Agency) offers the U.S. version online as a free PDF. See www.starpath.com/navpubs for a link to the NIMA source, which is somewhat of a moving target. There are other valuable resources at this link as well.

This book is an official statement of everything from the Morse code and phonetic alphabet on up to the less familiar double letter codes used in special circumstances. Rules and procedures for sending these letters by sound signals, waving your arms or flags, or using flashing lights are all explained.

Pub. 102 includes an extensive list of one letter codes such as "K," mentioned above. We are already familiar with some of these, but may not know it. "E" (dit) means "I am altering course to starboard" and "I" (dit dit) means "I am altering my course to port." Remember, these



"K" flag over "9" means "I want to communicate by VHF on channel 16"

are international signals, so this signal would not mean "I intend to leave you on my starboard side" as it would in U.S. inland waters. The letter "S" (dit dit dit), however, means "I am operating astern propulsion" no matter where you are. We might like to think it means "I am backing up," but it does not. It means what it says: the engine is running and in reverse. It does not require you to be moving backwards.

Leaving aside the details of the rules (no matter how interesting!), we should return to the topic at hand: the code. You could sound that code on your horn, or by flashing lights at the vessel you are communicating with. It is valuable to remember that you can supplement what we tend to think of as "sound signals" with flashing lights. Strong winds and big seas can be very noisy, but you can always see the lights. This is, of course, stated in the navigation rules themselves, not just in the code book.

We obviously don't know when we are going to need to use some form of code. It seems some ocean racing committees think it is less likely these days than it used to be. We used to have to carry the code book on every ocean race as part of the rules, as well as a full set of signal flags. Now I see at least one set of ocean racing rules that requires a satellite phone, but no mention at all of *Pub 102*.

KNOWLEDGE IS POWER

This is a mistake. It is like requiring extra GPS batteries, but no sextant—a believe-it-or-not actual rule in one race. And frankly, it's poor seamanship. Granted, we are all slowly becoming more dependent on electronics and the electronics are becoming slowly more dependable, but once you push off from the dock and head across the ocean in a small boat, you raise the bar on self-reliance and dependability.

The hallmark of good seamanship is solid preparation. If we lose conventional communication, we need a backup. It is a long shot that you will end up on a beach signaling an approaching aircraft to a safe place to land, or warning that it is not safe to land. Vertical versus horizontal waving of the arms is the difference between these totally opposite signals, which would be nice to see in print and not just in memory. Again, that is an extremely unlikely situation. But signaling a helicopter overhead in a bad storm that you need medical help when you do not have a radio working is—at least conceptually — less remote, and the code flag "W" would convey that without other specifications. *Pub 102*, however, contains extensive medical code signals to be more specific.

Annex IV, Section 1 (f), of the Navigation Rules reminds us that "N" and "C" flown together means "I am in distress and need assistance," implying that this should be recognized by all mariners as a distress call. It also states that this is found in the International Signal Code.

There are mundane code applications as well. I recall an ocean race where a yacht's radio was not functioning properly. When it keyed its mic, it made a distinct noise, though no words could be discerned. In this race, like most, boats must report position every day at a fixed time for all of the fleet to hear. If a crew fails to do so, it is penalized in time for each day missed.

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I bet you can guess what the yacht did. Yep, they keyed in their position in Morse code every day. It was painful to hear and record, but they met their obligation. The radio control vessel did the translation and relayed it, much to the relief of many navigators, though some, as I recall, took it on as a personal challenge to decipher the messages.

Which is of course reminiscent of Amelia Earhart. It is often reported that she and her navigator Fred Noonan did not know (or were not proficient at) Morse code. And on top of that, they had left the required radio equipment off the plane to save weight. This would have made sending and receiving easier, but reports are that she could indeed key her mic and be heard. So if she had some equivalent of *Pub 102* on board, she might have been able to send her location, and may have been saved.

MODERN APPLICATIONS

These days, life is simpler. Now you can get an app for your iPhone—and almost certainly multiple other phones in the near future—that does all of the Morse translation for you. Just type in what you want to say, and the code comes out—in characters, or audio, or flashing lights. For PCs, there are even apps that go the other way and decode what you receive. (In passing, I cannot mention iPhone apps without a plug for Philippe Kahn's super program MotionX GPS, which is a look at the future.)

Pub 102 is only 2 megabytes, so the entire text can fit in your phone. Idle reading when waiting in line could prove useful...and if that gets boring, you can switch over and read the navigation rules; they are only 1.3 Mb. This is the most important

Pub. 102 is the most important book in navigation. If you know and obey the rules, it is statistically nearly impossible to be involved in a collision—essentially every collision involves the violation of at least one rule by both vessels

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Whenever I have the opportunity to talk about communications at sea, another couple items always come to mind, beyond the main topics covered elsewhere in this issue. I will mention two.

If you are the captain or navigator, teach other crew members to use the radios. If you are a crew member, ask to learn to use the radios. I know of ocean passages where only the navigator and captain knew how to use the SSB radio and sat phone. This should be part of your routine station bill training.

In any ocean passage, there will end up being a sequence of crucial communications to make during the day. Making a written schedule of these before your departure could be of great benefit. If you do not start off with one, you will end up with one in a few days, so it is best to make up as much of it as you can before leaving.

The things that go into this schedule are the times of weather broadcasts, fax and voice, as well as times to check in or report your position, or to make some other planned communication, such as listening in on a cruising network. You also need reminders to record your weather observations (at least wind and pressure) at the synoptic times of 00z, 06z, 12z, and 18z (z=GMT). This data is needed to evaluate the weather maps.

A communications schedule is not as easy to make as it might seem because some event times will be in different time zones from your vessel's time.

Also, you have to interpret what you have on the list. If your vessel is keeping zone 7 time, then the weather map valid at 12z will be valid at 5am on your watch time, and this map might be broadcast at 1530z, which means you would record it at 0830 ship time. And so on. The cruiser's net you want to listen to might be broadcast every day at 1500 on zone 5, so you have to tune in every day at 1300.

Remember to put when to charge the batteries on the schedule so the radio will work when you need it.

Again, it seems like an easy thing to construct, but a communications schedule is not simple. It might not seem crucial to have a written schedule at first, but you will soon learn that it is critical to your navigation. But even with all this organization and state of the art communications, we must still do some basic navigation study if we are to travel around the world by boat.

A CAUTIONARY TALE

In recent news, we learned of a high tech racing yacht with state of the art navigation and communication equipment in place and working as it headed toward the start of the Dubai to Muscat Yacht Race from its

—INTERNATIONAL—
Sound and Light Signals

RULE 37
Distress Signals

When a vessel is in distress and requires assistance she shall use or exhibit the signals described in Annex IV to these Regulations.

DISTRESS SIGNALS
72 COLREGS

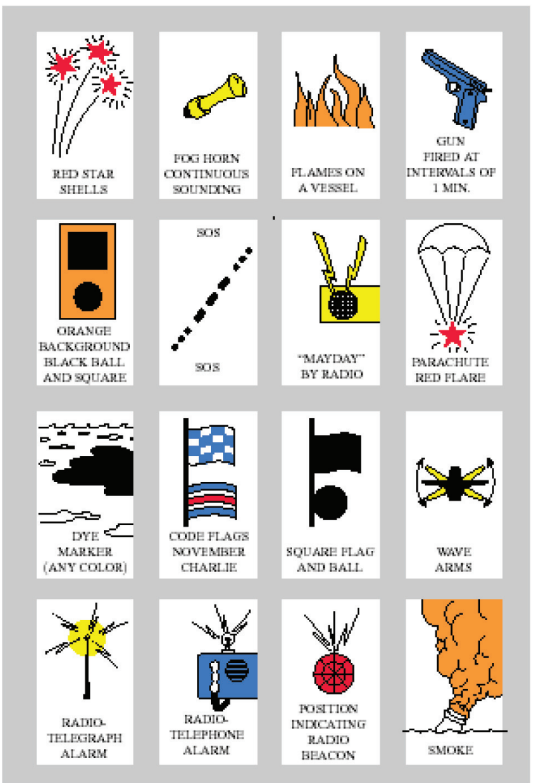

TABLE OF MORSE SIGNALING BY HAND FLAGS OR ARMS

1 Raising both hand flags or arms

"Dot"

2 Spreading out both hand flags or arms at shoulder level

"Dash"

3 Hand flags or arms brought before the chest

Separation of *"dots"* and/or *"dashes"*

4 Hand flags or arms kept at 45° away from the body downwards

Separation of letters, groups or words

5 Circular motion of hand flags or arms over the head

Erase signals, if made by the transmitting station.

Request for repetition if by the receiving station.

Note: The space of time between dots and dashes and between letters, groups, or words should be such as to facilitate correct reception.

home port in Bahrain.

The Iranian island of Sirri is 32 miles off the rhumb line course to the yacht club, which put the ter - ritorial waters of Iran just 20 miles to port as they pass. We can only guess that this must have been very well known, because even the notice to race issued six months earlier warned all participants to avoid the territorial waters of Iran. The race's sailing instructions even stated that yachts would be disqualified if they entered Iranian waters. A route well south of the rhumb line would have seemed more prudent in light of all these warnings. Not to mention the value of paying attention to location.

It is rather like sailing down past Cuba and not knowing if you are within 12 miles of the country, but a lot more serious. The yacht entered Iranian waters and the crew were arrested. Thankfully, they were released within a week, but I shudder to think of what could have happened as a result of this naviga - tional error. At the least, it cost them the race, and as self-described "full-time professional racing sailors," this is not good advertising.

Which brings us back to Pub 102, whose preface emphasizes that "The Code is intended to cater primarily for situations related to safety of navigation and persons, especially when language difficulties arise." The yacht's situation in Iran is just what the book was made for!

If it turned out (which it did not) that none of the yacht's radios were working, they might have been frantically flipping through the pages trying to figure out why the Iranian gunboat changed a signal code flag from just "L" to "S" over "N."

The CFRs tell us several places where we are obligated to know that code flag "L" means: "You should stop immediately." Fisheries enforcement vessels dealing with foreign vessels often have occasion for this signal. Changing the signal to "S" over "N" ratchets things up a level. "S" over "N" means "Do not Scuttle. Do not lower boats. Do not use wireless. If you disobey I shall open fire on you."

Then, when you are being towed into jail, you will have some time to practice tapping your cup on the deck. ≈

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