The VHF antenna checkup

As part of your spring commissioning, inspect the jacketing for cracks on any coaxial cable that is exposed to the weather. If the outer jacketing on a coax cable is brittle or compromised, water will make its way into the cable, causing the outer shield of the coax to corrode. Moisture inside of a coaxial cable will also change the impedance of the 50 Ohm cable, resulting in a significant reduction in range.

Clean connections at the coaxial terminals is essential to preventing loss of signal strength.

If your antenna cable has been extended with an inline splice, make sure that the connectors are taped well with self-sealing tape. PL-259/UHF connectors typically used to splice antenna coax are not water-resistant. A good dielectric antenna grease (not automotive grease), or even petroleum jelly, will help keep the moisture out of the in-line splice connectors and keep the copper shield of the coaxial cable from turning black or green with corrosion.

Keep the antenna vertical. Marine VHF antennas are vertically polarized. If the radiating elements inside the antenna are not parallel with the horizon, you'll experience a significant reduction in range.

There are three basic types of UHF/PL-259 connectors on the market—the traditional solder type connectors for the purist, the twist-on type for the DIY boaters, and the certified crimp connectors that most manufacturers and professional marine electronics installers use. Which is the best? Done properly, soldering provides a very good electrical connection. However, in order to ensure that the solder flows across the connector properly, you need the right size soldering iron, one that will heat the connector fast enough to melt the solder without melting the center conductor's insulation. Make sure to solder the shield of the coax to the connector and not just solder the tip. The shield connection is the other half of the antenna.

For consistency, installation speed, and mechanical strength, the certified crimp connectors are the champs, but require a dedicated crimping tool which takes this choice of connectors out of the DIY realm.

MULTIPLE ANTENNAS

When an installation requires that a vessel be fitted with two or more VHF antennas, the antennas need to be horizontally separated by the distance of one antenna length. If two VHF antennas are mounted side by side in close proximity, the omni-directional polar patterns of each antenna will be distorted, even if one of the radios is turned off. This type of antenna interaction is known as parasitic oscillation, and as we were told by Shakespeare's lead engineer, this is becoming more prevalent as the number of communication antennas that new vessels are being fitted with increases every year.