

Tech Tips: Swinging the Compass

By Bill Whitney

Year after year we repeat the springtime rituals of launching and outfitting our boats. Being creatures of habit we also have a tendency to stow items aboard where they have been for years. But things change. Something new arrives aboard; a new set of tools, a new GPS, or we replace that beloved Teflon-coated frying pan with a new cast iron one. Little things that may seem inconsequential can add up over time. Big changes like an engine refit are more obvious, but both the big and the cumulative small changes can have a significant impact on the magnetic environment that the ship's compass lives within.

Checking out the compass, or "swinging the compass" is a procedure that should be conducted annually or whenever the location of anything made of steel or iron changes. It establishes the amount of deviation that the boat's magnetic field imposes on the compass. When the boat was new, a compass adjuster added compensation magnets, or adjusted those already installed, to counteract the magnetic field of the boat so that the compass pointed to the correct magnetic heading regardless of the boat's heading. When the compass adjuster finished installing or adjusting these magnets, a compass deviation card was provided that recorded any remaining deviation error that could not be removed. (You do have it, right? Oh, so it was installed 42 years ago? And you have checked it since, right?).

The accuracy of your steering compass on all angles of the ship's heading is really important. This is the one instrument that won't fail when the power goes out. A check of its performance should be part of your commissioning checklist. It is not only easy but can be accomplished several different ways, using several different "tools" that are already aboard the boat or in your pocket. Of course you could always hire a compass adjuster to come aboard and go through the exacting procedure of comparing the compass headings with the modern version of a gyro-compass, and pay whatever the current cost is, but why not check things out yourself to see if there is a problem before going that route and possibly spending money unnecessarily?

There are several ways to do it, but the quickest and easiest is to have someone steer due north (000°C) on the steering compass while another person uses a hand bearing compass to sight along the centerline of the boat while standing at the stern, well clear of any magnetic interference. You can also use the compass app on a smart phone (set for magnetic, not true) as long as you can sight along it or keep it aligned with the vessel's centerline. Have a note pad handy to record the readings of both the steering and handheld compasses and/or smart phone heading. Continue recording bearings every 30° until you have completed a full 360°. Compare the differences between the steering compass and handheld/smart phone headings and record the amount and direction of deviation for each course steered. If

deviation exceeds 5° on any course, it's time to hire a professional compass adjuster to correct the compass.

The 2018 Eldridge Tide and Pilot Book gives a good description of using your GPS; on page 213 for creating a deviation card, and on page 209 for adjusting the compass and determining any misalignment problems that may exist between the boat's centerline and steering compass, not as rare a problem as you may think!

A third method, although limited to one bearing line because of the timing of the sun, is to check the compass bearing of the sun at sunrise or sunset. Once again, your 2018 Eldridge gives a good description of the process on page 232. One potential drawback with this method, aside from being limited to one bearing, is the cognitive condition of the person taking the bearing. A sunrise bearing assumes one is awake and can recognize the sun when it comes up. The sunset bearing has its own set of issues. The

seductive comforts of a quiet cockpit while waiting for sunset may induce additional cognitive problems. The clear liquid refreshments, crackers and cheese, dips, chips and good company can easily cause one to forget entirely about sunset, not recognize that the sun is going down, or be unable to locate the compass. This method may not be terribly productive, but certainly sounds like the most fun!

