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COMPASS DEVIATION AND HOW TO CORRECT IT WITH COMPENSATION

As any new boat owner soon learns, the sport has a lingo all its own. But even old salts often have a hard time grasping the magnetic compass dialect. Ritchie Navigation explains two unusual but easily understood terms that are vitally important to the accuracy of a compass: Deviation and Compensation.

Compass needles or dials react to the earth's magnetic field and point towards magnetic north. The trouble is, certain electrical equipment or metal items on the boat—and even local magnetic fields—can interfere with the compass providing an accurate reading. This error is referred to as "deviation" and can cause serious trouble. Being off just one degree will lead a boat astray by over 90' over the course of a mile. While it doesn't sound like much, even on a clear day that can take a boater accidentally up onto a hidden shoal.

One crucial element to reducing deviation is where the compass is installed. While important to place it where the helmsman can view it clearly, it should be mounted as far away from instrumentation, radios and other metal objects as possible.

A magnetic compass can also be affected by current flowing through wires. To determine if this is the case, components can be switched on and off and the compass watched. Electrically-induced magnetic fields can be

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eliminated by twisting together the two wires on a circuit leading to the switch on the dashboard or console.

Thankfully, there's a solution to deviation known as "compensation." Quality compasses such as those from Ritchie Navigation have an integrated module that allows minute adjustments. Combined with an on-water procedure, a DIY boat owner can adjust a compass to provide a correct bearing. Alternatively, a qualified technician can complete the task.

Both GPS-based and line-of-sight compensation methods exist, beginning with the compass installed but not locked into its final position. Detailed instructions are at www.bit.ly/RitchieCompensation.

If using a GPS, while on the water, the user obtains a bearing to a stationary buoy or landmark within 10 degrees of the north/south line chosen. The boat is positioned along that line and steered directly towards the mark. The port/starboard compensator is then turned until the compass heading matches the GPS bearing. Next, the vessel is steered 180 degrees away from the mark. If an alignment error is detected, the compass is rotated to correct for half of this error. By repeating this procedure the compass will be eventually have an accurate magnet reading, after which it can be secured in its final position.

If using the line-of-sight method, a course is selected on a chart using two identifiable buoys or landmarks that are within 10 degrees of the north/south line. From a position downrange of the marks, and keeping them in line, the boat is run along the course selected. The port/starboard compensator module is adjusted until the compass reads correctly. The direction is then reversed, keeping the same two marks in line. If the

compass reads incorrectly, the compass is rotated to remove half of the error. If after repeating there is still an error, an east/west course is chosen and the fore/aft compensator adjusted. Any alignment error should then be eliminated. When finished, the compass is secured into its final position.

For over 160 years, Ritchie Navigation has guided generations of professional mariners and recreational boaters across virtually every navigable waterway. The company manufactures a wide range of compasses and related accessories in the USA.

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