

RITCHIE / MAG/ONE™

Installation and Operation Instructions for **MG-10F** and **MG-11D**

Made in U.S.A.

Introduction: The Ritchie MAG/ONE is a highly accurate, self-contained electronic compass. Outstanding features of the Ritchie MAG/ONE include: Ritchie's Exclusive MagTronic™ Sensor with ± 0.5 degree accuracy, large three (3) digit display, a 26 Segment Graphic Off Course Indicator, Transflective Polarizer Display for clarity, Automatic Sea State Dampening, a Compensation mode for correction of on board deviation including steel hulled boats, and electronic correction capabilities for Alignment Error or Off Set Installation.

The **Dash Mount MG-10F** or the **Deck Mount MG-11D** is easily installed, requiring only simple hand tools and basic 12-volt wiring. All necessary hardware for mounting your MAG/ONE is included, however, you will also need an external **ON/OFF** switch and a **1-AMP** fuse or breaker. On most modern boats the builder has included a switch panel with on/off switches to control on board systems such as running lights, bilge pumps, blowers and accessories. You can wire your MAG/ONE directly to an existing Accessory Switch or add a separate switch to your instrument cluster. The switch should be wired to the positive lead. To protect the sophisticated electronics in your MAG/ONE Compass from short circuits, we recommend that the positive lead have a 1-AMP Fuse at the power source. This could be a simple in-line fuse, a fused bus bar or a breaker panel (see Figure 1. Wiring Diagram).

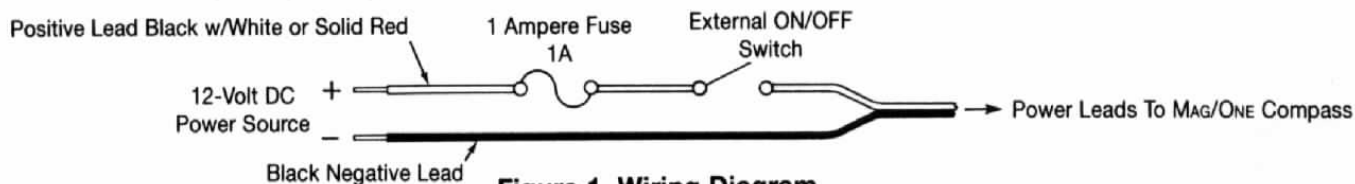


Figure 1. Wiring Diagram

General Location

The MAG/ONE was designed to provide the ultimate in performance as a primary steering compass. Ideally, the compass should be positioned in front of the Helmsman at a height which will allow continued monitoring without unnecessary or tiring head or eye movement. The MAG/ONE will likely be placed near other electronic instruments and equipment that may create stray magnetic fields. Although the SELF COMPENSATION mode will automatically correct for these situations, the best performance and accuracy can be assured if the mounting location avoids interference from the following: radio, stereo and hailer speakers; microphones, electro/magnetic motors such as windshield wipers and some tachometers; and, current-carrying wires.

Before proceeding, a temporary installation will insure that you have selected the best location for your MAG/ONE compass. Simply wire the compass to any 12-volt power source and place the compass at the location you have selected. Check for ease of final installation, viewing and operation. Also check the compass against a known heading (Charted Course) for deviation. Remember to follow the INSTRUCTIONS FOR COMPENSATION. If you find that the deviation is in excess of 35° , we recommend an alternative location be selected. In most cases, moving the compass a few inches will result in an acceptable location.

The MAG/ONE compass also features an electronic Off Set Alignment adjustment which allows you to locate the compass on either side of the helm, in the wings of an instrument panel or in a NAV station, and still have the three digit display facing the helmsman. Mounting the compass in this manner allows easy viewing while avoiding excessive deviation in your primary location. The Off Set alignment adjustment will allow a maximum viewing angle of 90° to the center line of the vessel.

Compensating MAG/ONE Deck Mount MG-10F & Dash Mount MG-11D

Compensation is the procedure of adjusting a compass to correct for errors in the displayed magnetic heading. These errors, commonly called deviations, are due to magnetic influences generated within the vessel. The MAG/ONE sensor removes the effects of these deviations with the execution of the following simple procedures:

1. Perform the procedure under calm conditions.
2. Push the **COMP** button and turn the boat through two 360°, circles. The slower and steadier the turn, the more accurate the results. While compensating, the **COMP** indicator will light in the display. When completed, the display will read *don*. Note: *Err* will be displayed if the compensation is unsuccessful. The procedure must be repeated until *don* appears on the display (see Figure 4. Compensation Display).



Figure 4. Compensation Display

3. Check the digital compass heading against known bearings to verify accuracy of the compensation. If a Constant Error is found on several headings this indicates that the MAG/ONE is not aligned parallel with the center line of the vessel. This can be corrected electronically by following the instructions in the section titled: Alignment Error Correction or Off Set Alignment Adjustment.

Alignment Error Correction or Off Set Alignment Adjustment.

Whether you are correcting for Alignment Error or Off Set Installation, the procedure is the same.

First, you must know the difference between the charted course and the compass (vessel's) heading. (For the purpose of illustration, we are using 90°, "east", as our charted course and 93° as the course steered). This means that there is + 3° Alignment Error or Off Set.

To activate the alignment mode, press **SET** and **LIGHT** Buttons simultaneously. *A00* should appear on the display. *A* indicates the alignment mode. The digits *00* indicate the number of degrees already entered into the alignment mode. (See Diagram). To decrease the error, (93° to 90°), Press and Hold the **LIGHT** Button until the *A03* appears in the display and 3 bars appear in the Off Course Indicator on the negative (-) or left side of the center. (See Correction or Alignment - Figure 5)



Installation of MAG/ONE Dash Mount Model MG-10F

The Dash Mount can be installed in any dash or bulkhead with a minimum angle of 15°, a maximum angle of 65° (See Diagram), and a maximum thickness of 3 inches (7.62cm). It will fit into a standard 3³/₈" (8.57cm) instrument panel hole or any hole from 3⁵/₁₆" (8.41cm) to 3¹/₂" (8.89cm). Simply remove the large nut, place the MAG/ONE through the hole with the gasket between the bezel and the dash/bulkhead, level the display by eye and rethread the nut until the unit is snug tight. DO NOT USE EXCESSIVE FORCE OR OVER TIGHTEN THE NUT. Lead the wires to the power source and make the connections per the wiring diagram (see Figure 2. Exploded View & Mounting Angles).

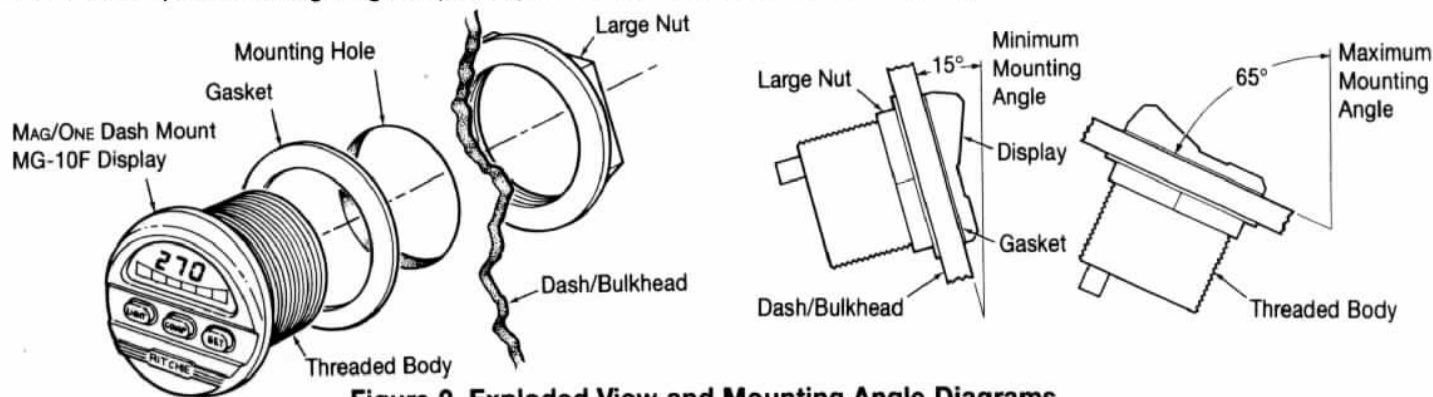


Figure 2. Exploded View and Mounting Angle Diagrams

Installation of MAG/ONE Deck Mount Model MG-11D

The Deck Mount should be mounted on a flat and level surface. Most modern powerboats have a location for a compass molded into the bridge deck at the helm. This is ideal. The top of most center/steering consoles is also a good location. If the mounting area is NOT level, we suggest using a leveling block. This will make the compass easier to read and provide the full gimbal range for the sensor. On sailboats with pedestal steering you should provide a mounting block that covers the top of the pedestal.

The MAG/ONE Deck Mount is fastened to the surface of the mounting area with an aluminum mounting plate using the three (3) self-tapping, non-magnetic screws supplied. The mounting plate must be aligned so that a line through the aft mounting tab and the alignment notch is parallel to the fore and aft center line of the boat. Drill a #25 or 5⁹/₃₂" hole for the wire forward of the mounting plate. Lead the wires to the power source and make connections per the wiring diagram. (Note: To prevent water penetration the hole should be caulked after installation). Place the compass unit down on the three mounting plate tabs and secure with three (3) screws supplied. (see Figure 3. Mounting Plate Installation).

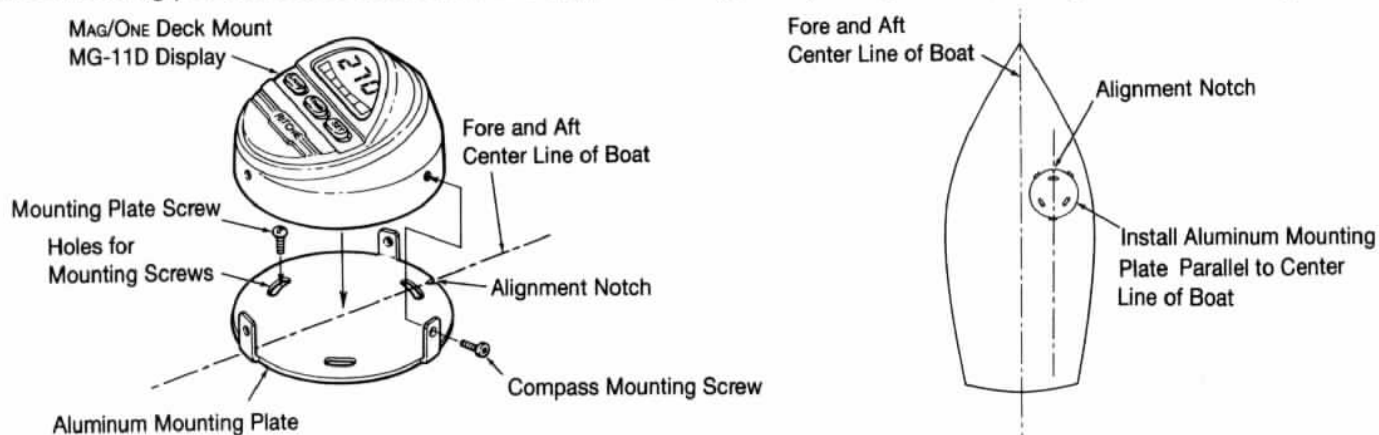


Figure 3. Aluminum Mounting Plate Installation