GALVANIC ISOLATOR

MODELS: GI-30 and GI-50

INSTALLATION INSTRUCTIONS

GENERAL INFORMATION:
The Galvanic Isolator (GI) is a device for reducing stray low voltage currents traveling between the shore power's AC safety ground (earth) and the boat's DC bonding system, while maintaining the safety requirement of an electrical path to ground in the event of a short circuit.

These stray currents are a chief cause of destructive galvanic corrosion (sometimes referred to as "electrolysis") which eats away at sacrificial zincs, or if there are none, destroys outdrives, propellers and through-hull fittings.

Installation of the GI blocks the flow of the majority of these stray currents, saving the boater the headaches and costs associated with haul-outs and zinc replacement.

The GI uses solid state components housed in a rugged anodized aluminum heat-sink case. 10" heavy gauge input/output leads (GI-30) or 1/4-20 studs (GI-50) are provided for easy in-line installation.

The GI is suitable for use with 115 or 230 VAC circuits up to 30 or 50 amps, depending on model, and has been engineered to conform to the latest ABYC (American Boat and Yacht Council) Standards pertaining to boat wiring. These standards specify that a galvanic isolator must be capable of carrying 135 % of the rated shore power current, while maintaining a maximum exterior surface temperature of 90° C, in the event of an AC fault condition aboard the vessel. Models GI-30 and GI-50 comply with these standards when utilized in 30 and 50 amps shorepower installations, respectively.

INSTALLATION:
1) CAUTION: Ensure that the shore power cord is disconnected and that any AC generators or DC-AC power inverters which are routed through the AC distribution panel have been shut down.

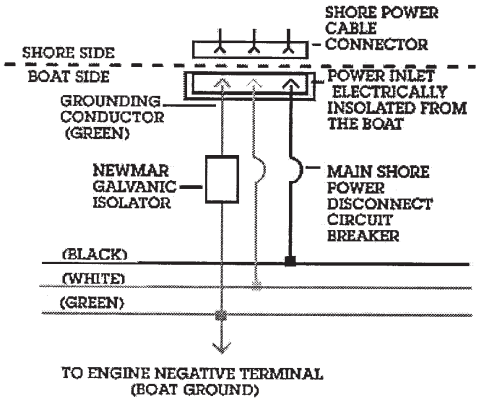
2) If the shore power inlet housing is a metal enclosure which is tied to the incoming shore ground, verify that it is <u>not</u> tied to boat ground.

3) Install the GI on a suitable mounting surface near the boat side of the AC power inlet. Caution: The GI is not to be installed in an area where ignition protection is required. The case of the GI is electrically isolated from the internal components, so it may be mounted on either a metal or non-metal surface.

4) Locate the ground wire which normally runs from the AC inlet to the distribution system/panel. In the USA this wire is always green or green with yellow stripes. In other countries this may vary. (See wiring diagram.) Typically, it runs adjacent to the hot and neutral wires. Cut the ground wire.

5) IMPORTANT STEP: In order to ensure that the GI will perform as required, you should verify that there is no electrical ground path from shore power ground to boat ground other than through the GI. Therefore, <u>prior to installation</u> you should check with an ohm meter to see that there is no continuity whatsoever between both ends of the ground wire which was cut in step 4. If any continuity is measured, its source must be located and disconnected for the GI to deliver the desired protection.

6) Install the GI as shown in the diagram below:



IMPORTANT:
The Galvanic Isolator is only to be installed by someone knowledgeable and qualified to work with AC circuits. Any questions regarding its suitability for a particular application or its proper installation within a particular circuit must be referred to a qualified marine electrician.

TROUBLESHOOTING:
To verify the integrity of the GI's internal back-to-back diodes and and capacitor, and hence the continuity of the green wire earth ground, use the following procedure:

1) Disconnect shore power and turn off all other on-board sources of AC power. Disconnect the GI from the ship's wiring.

2) Using an analog volt/ohm meter (VOM) set in the Rx1 resistance measuring mode, connect the VOM probes across the GI's two green wires (GI-30) or 1/4" stud posts (GI-50).

3) The VOM meter needle should move to the far right hand side of the scale and then move slowly back to the left hand side. Measurements may vary slightly with different VOM's, however the meter needle should steady in the range of 1/4 to 3/4 scale.

4) Reverse the VOM probes. You should get the same readings as you did with step 3. If the readings are significantly different than described, or if you would like to have the GI factory inspected, contact NEWMAR for a Return Authorization number.

SPECIFICATIONS:
SHORE POWER VOLTAGE:
115-230 VAC, 50-60 Hz
CURRENT RATINGS (NOMINAL):
GI-30: 30 AMPS, **GI-50:** 50 AMPS
MAXIMUM SHORT CIRCUIT (BOTH MODELS):
5,000 AMPS
STRAY CURRENT PROTECTION:
UP TO 1.4 VOLTS DC
DIMENSIONS:
GI-30: 2.75" x 4.75" x 7.3" (7 x 12.1 x 18.5 cm.)
GI-50: 4.5" x 4.75" 8.9" (11.4 x 12.1 x 22.6 cm.)
WEIGHT:
GI-30: 2.3 LBS., 1 Kg.
GI-50: 3.2 LBS., 1.5 Kg.

ADDITIONAL INFORMATION:
All boat wiring should conform to USCG 33 CFR 183-1 and ABYC Standard E11 (AC & DC systems). For copies of the applicable standards contact:

Superintendent of Documents
Government Printing Office
Washington, DC 20402

Request: 33CFR Subpart 1

American Boat and Yacht Council
613 Third Street, Suite 10
Annapolis, MD 21403

Request: Standards and Practices for Small Craft, Section E11

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