

# C-CHARGER

## MARINE BATTERY ISOLATOR

The C-CHARGER series....

...a product of extensive heat-chamber engineering and testing.  
The performance is far superior to comparable labels on the market.

Larger output wire is necessary  
when installing a higher current isolator on any boat.  
Refer to wiring chart.

Please contact our engineering or service department if assistance is desired.

### CONGRATULATIONS!

...for choosing this high quality C-CHARGER PRODUCT. The latest state of the art engineering plus years of experience have gone into each C-CHARGER product.

The attached instructions are provided to assist you with step-by-step installation. Test procedures are also provided to be kept with your equipment should future reference be desired.

Every effort has been made to use the finest materials and workmanship. In the event that service is ever needed or you have questions regarding the product, installation or performance please give us a call.

Your Friends at the factory



Charles Industries, LTD  
Marine Group  
Rolling Meadows, Illinois

## LIMITED WARRANTY

Charles Industries warrants each new product against factory defects in material and workmanship for 12 months.

Exclusions from this warranty for damage or failure due to accident, misuse, negligence or improper installation.

### **Warranty Service and Repair:**

If the unit fails to operate properly after following all the instructions in the manual, or if the isolator requires service, take the following steps:

1. Contact Charles Marine Products Customer Service and obtain a "Returned Material Authorization" (RMA) number and a Service Center address.
2. Ship or Mail the Isolator together with the RMA to the appropriate Service Center. Shipping costs to and from the facility are your responsibility.
3. When service is completed, Charles Marine Products will return the Isolator to you.

### **Customer Service:**

If technical assistance or customer service is required, contact Charles Marine Products at:  
(800) 830-6523 (Customer Service)  
(217) 932-2473 (Fax)

### **For Correspondence Only, Mail to:**

Charles Marine Products  
Charles Center  
5600 Apollo Drive  
Rolling Meadows, IL 60008-4049

There are no warranties, expressed or implied (including any implied warranties merchantability or fitness), which extend beyond this warranty period. The loss of use of the product, loss of time, inconvenience, commercial loss or consequential damages are not covered.

Charles Industries reserves the right to change the design or any product without assuming any obligation to modify any product previously manufactured.

This warranty gives you specific legal rights. You may also have other rights that vary from state to state. Some states do not allow limitations on how long an implied warranty lasts. Some states do not allow the exclusion or limitations of incidental or consequential damages. Therefore, the above limitation(s) or exclusion(s) may not apply to you.

- **C-CHARGER ISOLATORS** are **NOT** designed for and will not work with “one wire” alternator such as Delco alternator.
- **C-CHARGER ISOLATORS** are designed to handle the total power rating through any battery leg.
- **All C-CHARGER ISOLATORS** are designed for negative-ground, multi-battery systems. Please contact the factory if you need positive ground product or if your system requires a special model.

## **INSTALLATION INSTRUCTIONS**

**CAUTION:** Isolator ratings must be equal or greater than alternator amperage rating.

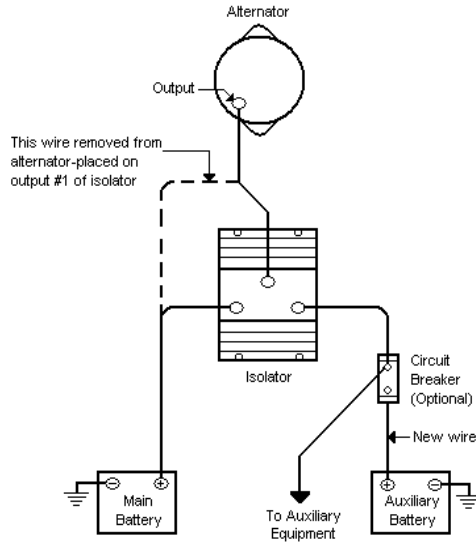
Prior to starting this isolator installation, start engine and run it at fast idle. Measure voltage at the battery terminal. It should be about 14 volts. After installation, recheck above to confirm the same voltage.

1. Disconnect ground/negative cable from battery.
2. Mount Isolator in location away from maximum engine heat and in a location that will let the Isolator receive maximum airflow.
3. Remove all wires connected to the original alternator output post. Move these wires to the B#1 battery post on the isolator, if original factory isolator is used. If you are upgrading to a higher output alternator, tape off original output wire from original alternator. Consult wire size chart and install a new larger output wire from the system battery to the B#1 post of the isolator.
4. Install new wire from alternator output post to the “Alt” post of the isolator. Make up a new #8 gauge minimum or refer to wire size chart for proper wire size based on alternator rating.
5. Attach auxiliary battery to the B#2 auxiliary battery post of isolator. Again, refer to wire size chart for proper wire size.
6. If a circuit breaker is going to be used, it would be installed next to auxiliary battery. NO circuit breaker is to be installed from alternator to isolator or from isolator to main system battery.
7. Connect all auxiliary loads to the auxiliary battery. For best results all batteries need to be of the same type construction.
8. Reconnect the ground/negative cable to the original battery.

In many cases a larger amperage alternator is required to handle the increased electrical loads and keep your batteries charged.

# TYPICAL WIRING DIAGRAM

## DIAGRAM FOR INSTALLATION WITH ORIGINAL EQUIPMENT ALTERNATOR



WIRE SIZE CHART					
ALTERNATOR RATED OUTPUT IN AMPS	MINIMUM CHARGING WIRE SIZE FOR WIRE LENGTH IN FEET				
	Up to 10'	11' to 15'	15' to 20'	20' to 25'	25' to 30'
Up to 70 amp	10	8	8	6	6
70 to 90 amp	8	8	6	6	4
95 to 130 amp	6	6	4	2	1
120 to 170 amp	4	4	2	2	0

Note: Both the positive and negative cable length must be measured to determine cable size.

## TEST INSTRUCTIONS FOR C-CHARGER ISOLATOR WITH OHMMETER

1. Remove all wires from the isolator.
2. Using a needle movement ohmmeter Rx- I scale or a digital ohmmeter diode scale, hold the Red prod on terminal "A" and with the Black prod touch terminal B#1 and B#2. A good Isolator will show a current flow from "A" to B#1, B#2.
3. Next hold the Black prod on terminal "A" and with the Red prod touch terminal B#1 and B#2. A Good isolator will allow no current flow from "A" to B#1, B#2.
4. Hold one prod on the aluminum heat sink, being sure there is contact. Then touch with the other prod terminals "A", B#1, B#2. A good isolator will show no current flow.

NOTE: Some import ohmmeters, the Red and Black prods are reserved for these tests.

### TEST INFORMATION FOR ELECTRICIAN All tests to be taken with fully charged batteries.

1. Engine not running: B#1 terminal of isolator should read system battery voltage. B#2 should read auxiliary battery voltage. The "A" terminal should read 0 volts.
2. Engine running and alternator charging: B#1, B#2 should read approximately the same voltage, which will be the voltage regulator setting or less. The "A" terminal should read .8 to 1 volt higher than the reading of B#1, B#2 terminals.
3. For 12-volt systems, the "A" post should read approximately 15 volts. The B#1 and B#2 posts should read 13.8 to 14.2 volts. If the "A" posts reads 13.8 to 14.2 volts, the regulator is sensing the alternator output rather than the main battery. This situation needs to be corrected for proper charging.

**Please contact our engineering or service department if assistance is desired.**