

Operation

Dual Phase II is a unique battery management system that provides charging for your main and auxiliary batteries both off-shore while you run your main engine and on-shore when the charger is plugged in. Since Dual Phase II is totally automatic, there is very little that you need to do.

All off-shore charging will occur automatically whenever your engine is started.

For on-shore charging, it will be necessary to follow all of the safety instructions provided in this booklet and then simply plug the charger into any standard grounded outlet.

Every time before charging follow these simple steps:

- 1) Open up the compartment in which the charger is mounted to provide for ventilation and to make absolutely certain that there are no objects resting on or otherwise blocking the air flow around the charger.

All chargers will generate heat when they are operating and because Dual Phase II is designed to rapidly charge multiple batteries, it will be noticeably hot to the touch when it is operating at full capacity. This heat is a normal part of operation and must be provided for with proper care and operation.

- 2) Make sure that there are no flammable materials or fumes in the vicinity of the charger.
- 3) Inspect the charger to make sure it is solidly attached to its mounting location, and inspect the battery cables and the power cord to make sure they are all secure and undamaged.
- 4) Plug the charger into an approved AC outlet. If using an extension cord, use only an approved extension cord as specified in the IMPORTANT SAFETY INSTRUCTIONS.

Using The Indicator Lights

Dual Phase II is equipped with three indicator lights that will come on when the charger is plugged in. (These lights do not come on when charging from the boat's alternator.) The "Power On" light indicates that the charger is receiving power from the outlet. This light should come on and stay on when you plug the charger in. The "Charging" indicator lights tell you when the batteries are charging. When you first plug the charger in, both charging lights will come on. After a while, the "Main" light will go off indicating that the starting battery is charged. Then when the auxiliary batteries are charged, the "AUX" light will go off and the charging cycle will be complete. After the charger shuts off, the main battery will reconnect to the auxiliary batteries, and the "Main" light will once again come on indicating that the batteries are equalized and are ready for use.

Typically, the starting battery will require less charging than the auxiliary batteries. However, in the event that the starting battery is more discharged than the auxiliary batteries, the charger will automatically restart after equalization and the charge cycle will be repeated. This will continue until the starting battery is fully charged.

In some cases where the auxiliary battery (ies) are fully discharged, you may find that the charging lights do not come on immediately when the charger is plugged in. Here, the batteries will equalize for a short period of time and then the charging cycle will commence.

The amount of charging time required for your batteries will depend upon the size of your batteries and the state of charge remaining in each of them. Of course, with Dual Phase II your batteries will be more fully charged by virtue of the fact that all of your batteries have been charging while your boat has been running.

As a general rule of thumb, your starting battery will typically not be less than 90% charged (unless it is also used as an auxiliary battery for operating accessories). Your auxiliary battery or batteries should not be less than 50% charged after a typical day of fishing and running your boat. So, the charging time required for a two battery system (a main battery and one auxiliary battery) should range from around 4 to 6 hours. The charging time required for a three battery system (a main battery and two auxiliary batteries) should range from around 6 to 8 hours.