

# PARIS - RHONE MARINE MODEL

# **INSTALLATION INSTRUCTIONS**

A NEGATIVE TWC Regulator must be used

09-89

**DATA SHEET** 

The following is a general guide to installing the TWC regulator in most alternator charging systems whilst specific data sheets for individual alternator makes and types are also supplied, where

IMPORTANT: Whilst the TWC regulator is not difficult to fit, it is essential that you understand these basic installation instructions, before commencing. If in doubt, please consult your TWC specialist.

- Make sure you have a NEGATIVE TWC Regulator, indicated on the case.
- B Disconnect the battery
- Mount the regulator in a dry, protected place. C
- Protect the contacts with water repellant grease, e.g. Valvoline, Castrol anti-corrosion grease. Also fill the space around the contacts on the regulator to prevent ingress of
- E. Disconnect the original regulator.
- Remove the connections to the original regulator as shown in fig. 1, pos. 10.
- The cable that runs from (-) must be disconnected, as shown in fig. 1, pos. 11 and not used again.
  - Note: With Bukh marine engines, a separate charge indicating lamp must be used, since there is a special alarm connected to the existing charge indicating lamp. Failure to do this will damage the TWC unit.
    - If however you wish to use the existing warning light, a TWC Data Sheet giving the required wiring is available on request.
- The cable from 61 on the alternator should be soldered securely on to one of the carbon brush retainers as shown on fig. 1, pos. 13.
  - Note: That this cable runs on the inside of the black plastic casing, and should be completely severed from the original regulator.
- Solder cable 5 (GREEN from TWC) securely on to the other carbon brush retainer as shown in fig. 1, pos. 14.
- Refit the original regulator as a spark arrester as shown in fig. 1, pos. 15. J.
- Disconnect the ignition warning light cable attached to terminal 61 and reconnect to TWC cable 6 (YELLOW) Note: Only the actual charge indicating lamp (max. 5W) must be connected to the YELLOW cable, or the TWC Regulator will be damaged. Any automatic functions connected to this cable must be reconnected to 61 on the alternator or to the oil pressure transmitter.
- Connect up cable 1 (BROWN), cable 2 (BLUE) and cable 4 (BLACK) as shown in fig. 1.
  - If a blocking diode is incorporated in the system, cable 2 (BLUE) should be connected as shown in fig. 1, pos. 16.
- Connect cable 3 (RED) to the battery (+) terminal, as shown in fig. 2.

If a blocking diode is present, cable 3 (RED) must be connected to the service battery.

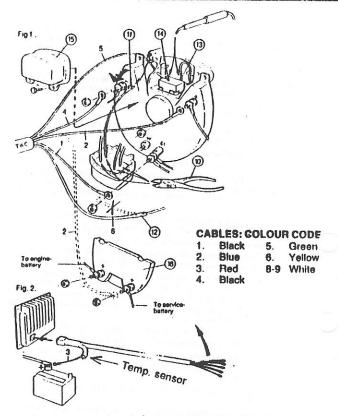
If a manual isolating switch is litted, instead, connect the RED lead to the COMMON pole on the switch. This will ensure that the appropriate battery is sensed.

ATTENTION! Don't cut the wiring harness, as there is a temperature sensor inside.

Note: When two alternators are used, a special TWC cable for twin alternators should be used. Refer to separate instructions for connection of this cable.

# INSTALLATION CHECK

- Connect a digital voltmeter over the battery (2-battery systems over the service battery) It will show the prevailing battery voltage.
- Turn the ignition key to the position for starting and check that the ignition warning light gives a steady emission.
- Start the engine. The ignition warning light should go out.
   If it flashes see ALARM/WARNING MODE.
- Increase the engine revs. to approx. 2000 rpm. The voltage should now rise to approx. 14 volts with 12 volt system (28 volts with 24 volt systems) refer to TEMPERATURE/CHARGING VOLTAGE RELATIONSHIP. If the battery has been heavily discharged this could take a relatively long time
- Alter approx. 5 minutes, charging will cease whilst the battery status is measured by TWC. Thereafter the voltage will be increased to approx. 14.6 volts with a 12 volt system (approx. 29 2 volts with a 24 volt system) refer to TEMPERATURE/CHARGING VOLTAGE RELATIONSHIP.
- Load the alternator by switching on electrical equipment having a high consumption, such as beaters, lamps, blower-lans, etc. Should the charge control lamp give a rapid-flash alarm – see ALARM/WARNING MODE.



- Check and record the S.G. of the acid in all the battery cells of all the batteries.
- The TWC regulator will now adjust the charging voltage to the theoretically correct voltage. If the battery has deteriorated or is heavily sulphated, it cannot receive charge, instead of storing energy it will become warm.

### After several hours running time:

Check that the acid S.G. has increased. (Note: This will take longer for older batteries). Feel-the battery/batteries with your hand. They should not get noticeably warm by the charging if they are in good condition. If a battery gets warm, it is defective and should be replaced.

Note: New batteries have been known to be defective.

Make it a habit to regularly check S.G. and fluid levels.

# ALARM/WARNING MODE:

# 'SLOW BLINK' (1 per second)

- 1. Too low alternator rpm. Solution - increase revs.
- Excessive energy démand from electrical accessories. Solution switch something off!

# 'FAST BLINK' (3 per second)

Indicates an excessive voltage drop between generator and battery resulting from:

- 1. Faulty isolating switch (if fitted).
- 2. Bad connections in electrical system.
- 3. Too thin gauge electrical wiring.

## NOTE:

Following HEAVY DISCHARGES a 'SLOW BLINK' may persist for several minutes after starting the engine, due to the initial high load on the generator.

If the 'SLOW BLINK' still persists under normal conditions charging voltage is suspect.

The 'FAST BLINK' mode should NOT be ignored. Please contact your Electrical Specialist IMMEDIATELY!

#### TEMPERATURE/CHARGING VOLTAGE RELATIONSHIP (12 volt system):

A contract to the contract of	Hotter than		Colder than	
Temperature	+30°	+30° to +10°	+10° to -10°	-10°
Normal Charge	13.8 V	14.0 V	14.2 V	14.4 V
High Charge	14,4 V	14,6 V	14,8 V	15,0 V
For 24 volt system	ns, multig			by 2.