

# 6TB TWIN BATTERY VOLTAGE REGULATOR INSTRUCTIONS

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**THIS REGULATOR IS ONLY SUITABLE FOR NEGATIVE EARTH SYSTEMS.**

These instructions cover the following models 6TB12 : 6TB24 : 6TB12-T : 6TB24-T (6TB12-T & 6TB24-T) have built in temperature compensation - 25mV/degC (12v model) and 50mV/degC (24v model)

A table overleaf shows the maximum dump current for each model. The 6TB regulator is designed to sense and limit the output voltage of an Aero6gen generator to 14.0 - 14.2 volts (12v models) 28.0 - 28.4 volts (24v models) and thus prevent batteries becoming over charged. It includes a voltage monitoring / PWM circuit, a Power Mosfet, and two Schottky Blocking Diodes, which allows the Aero6gen generator to charge two batteries totally independent of each other therefore making it ideal for separate charging of engine starting and domestic batteries. The battery with the lowest terminal voltage will be charged first, then when both batteries become fully charged the Aero6gen generators output is automatically diverted to the dump resistor, this does two things it stops the batteries over charging and keeps the generator always on load.

**WARNING !** The 6TB regulator is potted to fully protect the electronics for a marine environment so the warnings below must be carefully followed as **THE UNIT IS NOT REPAIRABLE.**

1. Whilst initially wiring in the Aero6gen and 6TB regulator or carrying out future maintenance ie. removing battery terminals for cleaning or replacing battery, it is MOST IMPORTANT THAT THE AEROGEN FAN IS STATIONARY - NOT ROTATING so it produces no output. This eliminates the most damaging situation where the 6TB regulator is not connected to a battery but the open circuit voltage of the Aero6gen generator.
  2. The output cable from an Aero6gen MUST be connected to the 6TB regulator with the correct polarity. (+ to + RED TO RED) (- to - BLACK TO BLACK)
  3. The two dump resistors MUST always be connected to the 6TB regulator via the Grey cables. There are two RED cables leaving the 6TB regulator one must be attached to the + positive terminal of battery No1. and the other red cable to battery No.2.
  4. The Black negative cable leaving the 6TB regulator must be connected to a - negative terminal on one of the batteries.
- A heavy duty common negative link cable must be connected between the two batteries.

FOLLOW THE WIRING DIAGRAM OVERLEAF WHEN CONNECTING 6TB REGULATOR INTO A YACHT WIRING SYSTEM.

The dump resistors can become VERY HOT when switched on, but this will only occur when the batteries are fully charged, and the Aero6gen generator is at its maximum output. The dump resistor should be mounted horizontally on a heat resistant surface in a well-ventilated position. The 6TB regulator should be positioned as close as possible to the batteries. If the 6TB regulator output cables require extending over 1 metre in length, then a cable with a larger cross sectional area must be used to reduce voltage drop. With the regulator now positioned and connected to the batteries, the dump resistors can be connected to it via the grey cables. Use a connector block rated at 30A to connect the output cable of the Aero6gen to the 6TB regulator observing polarity + to +, - to -.

The 6TB regulator MUST be attached directly to the battery terminals as shown in the wiring diagrams. It MUST NOT be wired indirectly to the batteries via change over/isolating switches. This will prevent the Aero6gen operating open circuit when the switch is in an off/isolate position and ensure the batteries are charged by the Aero6gen at all times. The 6TB regulator can be left connected to the batteries whilst other charging systems are operating e.g. Onshore battery charges, engine alternators. The 6TB regulator will not effect the operation of alternator controllers (T.W.C./ADVERC). Up to four batteries/banks can be regulated by fitting an additional diode unit LVM 6DU which incorporates two diodes. Separate instructions available. Switches can be fitted in both RED positive cables leaving the 6TB regulator, to charge and regulate one or both batteries.

**NOTE:** The 6TB regulator unit must always be connected to at least one battery. If one battery (battery bank) only is to be charged the two red cables leaving the 6TB regulator should be connected directly to one positive battery terminal. The switch rating must be the same as the dump amps shown in the table above.

**INTERFERENCE:** All aerial cables should be routed a minimum of one Metre from the Aero6gen and regulator/dump resistor cables to avoid interference on Decca, Radar, Sat. Nav., Radio, etc.

**NOTE:** The dump resistors will make a very slight buzzing sound when operating ie. dissipating current.

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# 6TB VOLTAGE REGULATOR WIRING DIAGRAM

\* 6TB-T AND 6TB24-T MODELS HAVE BUILT IN TEMPERATURE COMPENSATION

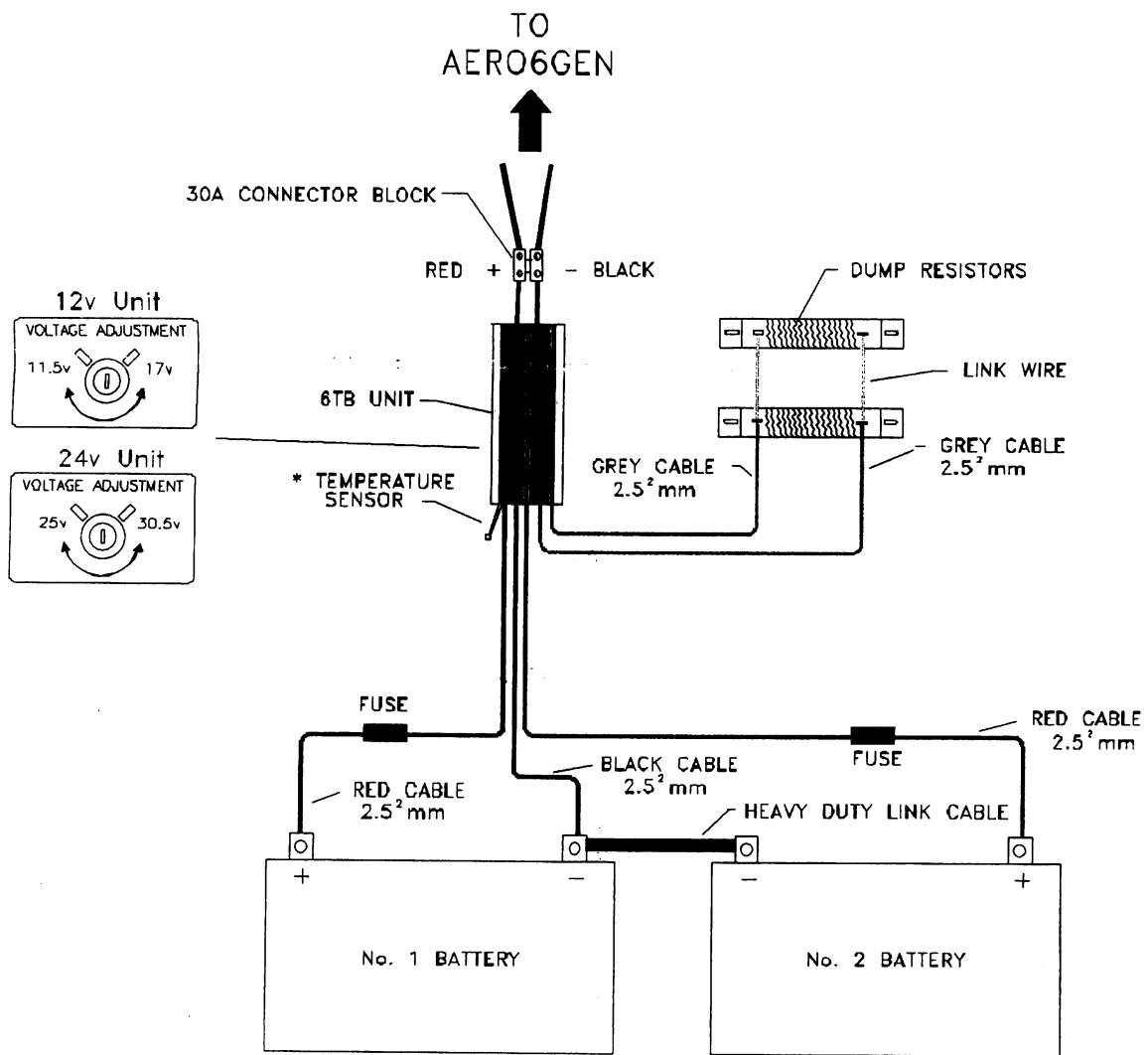
NOTE : ALL REGULATORS ARE FACTORY SET TO -  
 (14.2 for 12v MODELS) (28.4 for 24v MODELS) @ 20 Deg.C

IF YOU ARE CHARGING SPECIAL BATTERIES WHICH REQUIRE A DIFFERENT VOLTAGE SETTING ADJUSTMENTS CAN BE MADE AS FOLLOWS.

On the underside of the unit (potted side) is a hole which allows a small screwdriver to pass through and adjust the trimmer to change the voltage setting of the regulator. It is advisable to make a note of the original setting position of the trimmer before making any adjustments. Adjustment should only be carried out whilst the wind generator is charging a fully charged battery and the dump resistor can be heard emitting a slight bussing sound as it starts to cut in, (this indicates the voltage setting of the regulator). Gradually make very small adjustments whilst monitoring the battery voltage with a multimeter.

FUSE TABLE	
LVM MODEL	FUSE RATING
612	30 AMP
624	20 AMP

Model	Voltage	Dump Amps
6TB12	12	40.0
6TB24	24	20.0

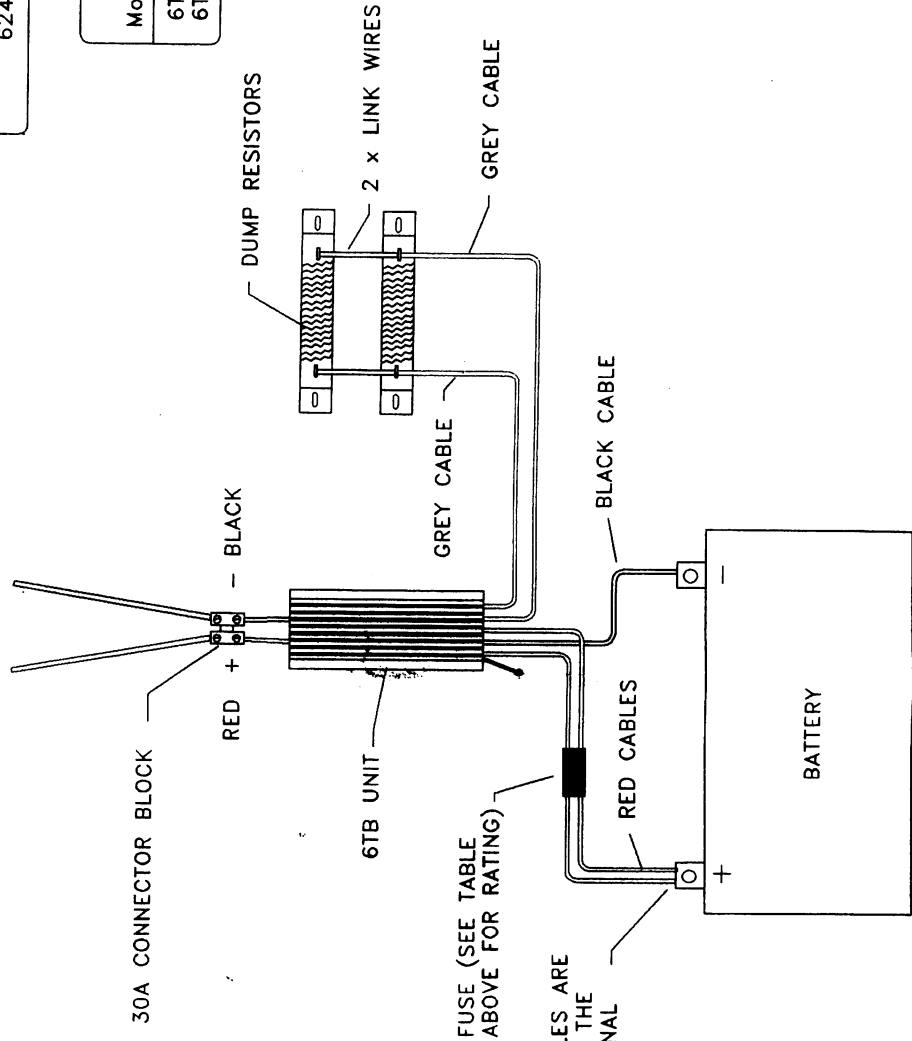


6TB VOLTAGE REGULATOR WIRING DIAGRAM  
 SHOWING CONNECTIONS FOR A SINGLE BATTERY INSTALLATION.

TO  
 AERO66GEN

FUSE TABLE	
LVM MODEL	FUSE RATING
612	30 AMP
624	20 AMP

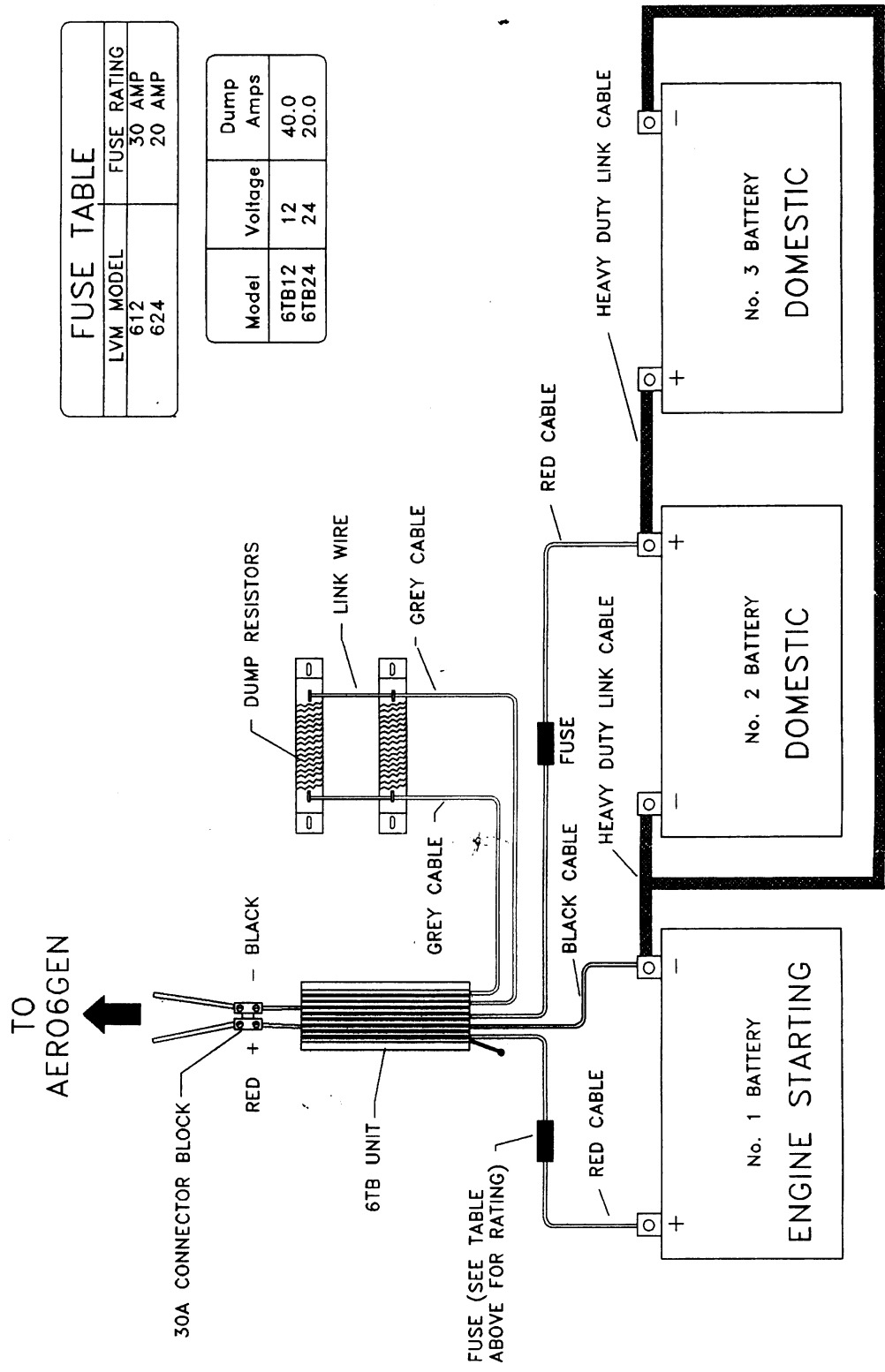
Model	Voltage	Dump Amps
6TB12	12	40.0
6TB24	24	20.0



NOTE: BOTH RED CABLES ARE  
 CONNECTED TO THE  
 POSITIVE TERMINAL

6TB VOLTAGE REGULATOR WIRING DIAGRAM  
WITH DOMESTIC BATTERIES 2 & 3 CONNECTED IN PARALLEL

FILE 6TBPARA2



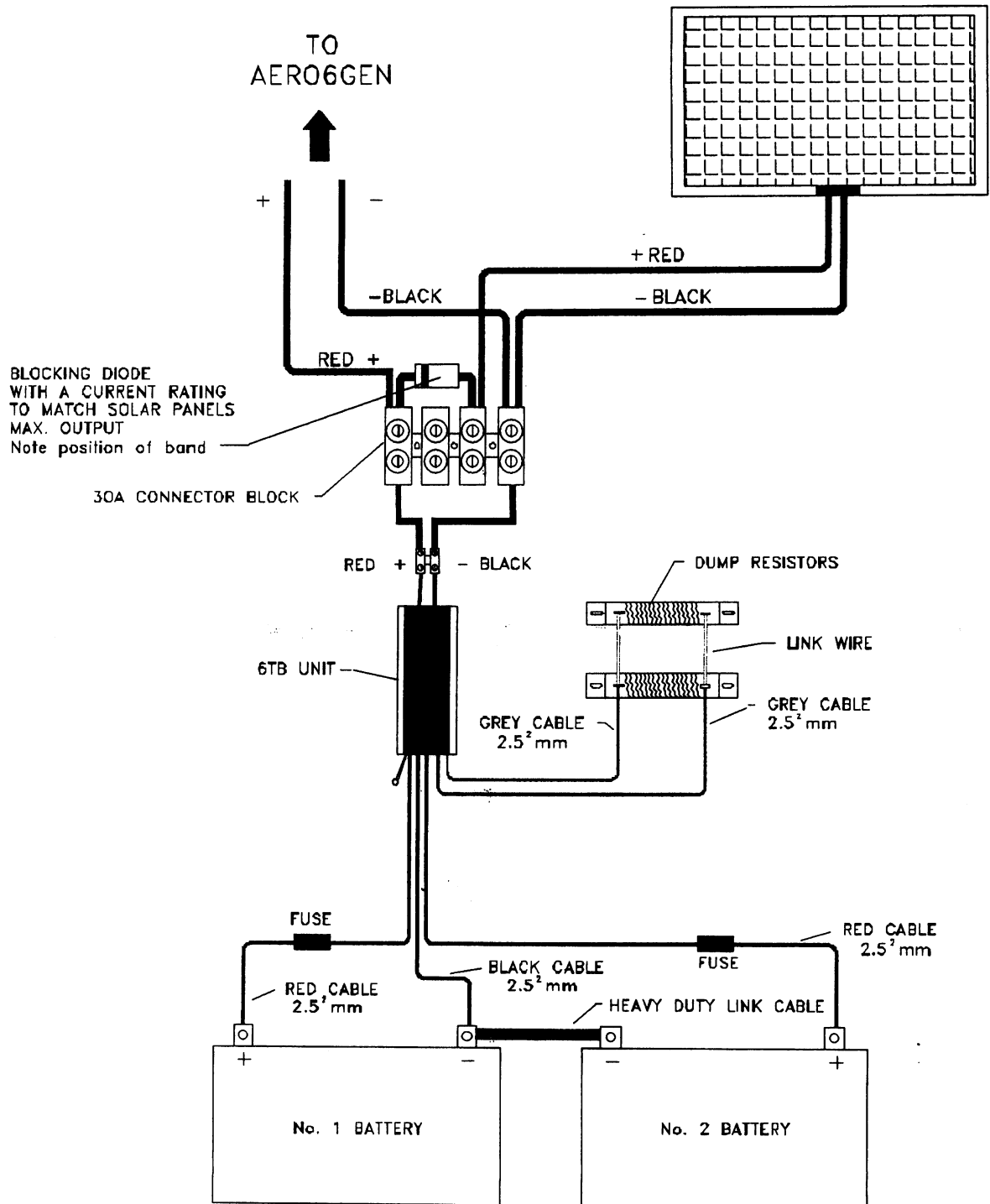
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CIRCUIT DIAGRAM SHOWING THE 6TB REGULATOR CONTROLLING AN AERO6GEN AND A SOLAR MODULE

REGULATOR MODEL 6TB	MAX. SOLAR PANEL WATTAGE 140 WATTS
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SOLAR MODULE  
(SEE TABLE ABOVE FOR MAX. WATTAGE)



# 6DU BLOCKING DIODE INSTRUCTIONS AND WIRING DIAGRAM

FILE 6DU

The 6DU unit is designed to be used in conjunction with an Aero6gen and a 6TB Voltage Regulator to enable two additional batteries to be charged and regulated independently of the other batteries.

### CONNECTING THE UNIT

The 6DU has two short RED cables, and two long (1 Metre) RED cables, they must be connected as follows. Each of the two long RED cables must be connected to the + positive terminal of the two batteries.

One of the short RED cables (it does not matter which one) must be connected to the + Positive output cable of the Aero6gen generator. The other short RED cable must be connected to the RED + input cable of the 6TB regulator.

**IMPORTANT : THERE MUST BE A HEAVY DUTY NEGATIVE CABLE LINKING ALL THE NEGATIVE TERMINALS OF EACH BATTERY**

As with the 6TB Voltage Regulators switches can be fitted in the long RED cables attached to batteries one and two, to permit individual batteries to be charged. Use 30A switches.

**NOTE: AT LEAST ONE BATTERY MUST BE CONNECTED AT ALL TIMES**

THE 1 Metre RED CABLES = 6DU OUTPUT  
THE 500mm RED CABLES = 6DU INPUT

FUSE (SEE TABLE ABOVE FOR RATING)

FUSE TABLE	
LVM MODEL	FUSE RATING
612	30 AMP
624	20 AMP

