

EA80-3830 Dual Battery Kit Fitting Guide



The Dobinsons 140 amp Dual Battery has been designed to allow 2 separate batteries to be charged using the same vehicle charging system. It allows the operator to run 12 volt accessories such as portable fridges/freezers, lights etc from an auxiliary battery whilst automatically disconnecting both batteries to ensure the main/cranking battery is fully charged to start your vehicle, without operator input.

As soon as the vehicle has been started and the alternator begins charging, the Voltage Sensitive Isolator (V.S.I.) will isolate the auxiliary battery to ensure the main battery receives full charge. When the main battery has reached 13.3V for at least 5 seconds the Voltage Sensitive Isolator will engage (red light on V.S.I. on) providing equal charge to both batteries. If both batteries are receiving no charge and the voltage drops below 12.8V for more than 3 seconds the Voltage Sensitive Isolator will isolate the second battery (red light on V.S.I. will be off).

It is imperative that accessories such as portable fridge/freezers, lights, charges, amplifiers etc. are connected to the auxiliary battery to prevent power being drawn from the cranking/main battery when the engine is not running, to allow the cranking/main battery voltage to remain high enough to start the vehicle.

Winches MUST be connected to the cranking/main battery as certain winches may draw more than 140 amps and may damage the Voltage Sensitive Isolator.

It is recommended this kit be fitted by a suitably qualified technician.

Installation Process

1. First ensure the alternator will be able to supply sufficient charge to both batteries as a dual battery kit increases the work load on your alternator.
2. Ensure the original main battery and terminals are in good working condition.
3. Disconnect the main and auxiliary batteries.
4. Install the auxiliary battery tray and battery.
5. Find a suitable location for voltage monitor and Voltage Sensitive Isolator. The monitor screen can be turned upside down in the housing by removing the 2 screws in the bottom, sliding out the housing and re-fitting the screws. This allows overhead and foot well mounting. The wires can pass through the back or bottom of the monitor housing. The monitor should be viewable by the driver but not a distraction. The isolator should be mounted in the engine clear from heat sources and moving parts.
6. Mount the monitor using the screws supplied or alternatively by using small piece of double sided tape and route the wires through the cab and firewall towards the position of the Isolator.
7. Determine in which directions the wires will pass through the bottom of the isolator and using a drill, notch out the hole in the plastic housing to allow the 35mm square cable to pass through, and remove burrs. Sit the isolator where it is to be mounted.
8. The small red and green wire from the monitor also attach to the isolator. Cut these to length and crimp a lug on each one. The black wire is ground, which connects to the main battery negative terminal and the small white wire is an accessories or ignition switch wire to turn the monitor on and off. You may need to carefully strip back the insulation holding the 4 wires together to allow routing of these wires.
9. The Black wire from the monitor can connect to the main battery negative terminal. Cut this to length and crimp a 10mm terminal on the end. Fix to terminal.
10. Locate a suitable ignition/accessories switched wire. Cut the White wire from the monitor to length and using the snap on crimp connector connect the white wire to the ignition/accessories wire.
11. Measure out a length of the red 35mm square cable, this will need to go from the main battery positive terminal to the isolator and cut. Slide a piece of red heat shrink on each end. Crimp or solder a 35 x 10mm



lug on one of the cable and crimp a 35 x 6mm lug on the other end of the cable, slide the heat shrink over each connection and heat.

12. Put the 35 x 6mm lug from the cable on the "sense Battery" pole on the isolator, and put the lug of the red wire from the monitor on the same pole and fasten. This provides the monitor with the main battery reading.
13. Route the 35mm square cable to the main battery positive terminal.
14. Route the small black earth wire from the Isolator to the main battery negative battery terminal, cut to length, crimp on a circle lug and fasten.
15. Measure out another length of the red 35mm square cable from the isolator to the auxiliary battery positive terminal, cut and slide the 2 remaining pieces of read heat shrink over each end. Crimp or solder a 35 x 10mm lug on one of the cable and crimp 35 x 6mm lug on the other end of the cable, slide the heat shrink over each connection and heat.
16. Put the 6mm lug from the cable on the "second Battery" pole on the isolator, and put the lug of the green wire from the monitor on the same pole and fasten. This provides the monitor with the auxiliary battery reading.
17. Route the red 35mm square cable to the auxiliary battery positive terminal.
18. Screw the back plate on the isolator and fix the isolator into the desired position.
19. Measure and cut a length of 35mm square black cable from the negative terminal of the main battery to the negative terminal of the auxiliary battery and slide a piece of black heat shrink over each end.
20. Crimp or solder a 35 x 10mm lug on each end and fix to each terminal, slide the heat shrink over the connection and heat.
21. Fix the 35 x 10mm lugs to the main and auxiliary battery negative terminals.
22. Install split conduit on all 35mm square cables, and cable tie all wires neatly in engine bay and cab away from heat and moving parts.
23. Re-check over all connections and parts removed during installation and re-fit all battery terminals.

Trouble Shooting

Both batteries go flat.

- Check alternator condition and output.

Voltage Sensitive Isolator will not automatically engage:

- Check the condition of the main battery.
- Re-check all electrical connections.
- Ensure the auxiliary battery is connect to the second battery positive pole on the Voltage Sensitive Isolator and the main battery is connected to the Sense battery positive pole on the Voltage Sensitive Relay.
- If the auxiliary battery is fully charged and has a larger capacity than the main battery, the auxiliary battery will not require charge from the alternator. There for the Voltage Sensitive Isolator will not engage the auxiliary battery until a load is connected to it.

LCD Voltage Monitor does not work.

- Check that the black ground wire is connected to negative side of main battery and the connection is sufficient.
- Check the white wire from the ignition switch is getting sufficient voltage with ignition turned on.
- Check that green wire is connected to the second battery pole on the V.S.I., and red wire is connected to sense pole on V.S.I.
- Check the green and red wires connections on the Voltage Sensitive Isolator.

Main battery goes flat.

- Load test main battery.
- As mentioned at the beginning of the guide, check all accessories that operate when the engine is switched off are connected to the auxiliary battery.

V.S.I. functions erratically.

- Ensure sure that all ground connections are connected to the negative side of the main battery.



EA80-3830 140 AMP DUAL BATTERY KIT WIRING DIAGRAM

