

Technical Support Bulletin: S3-FRLPR-01

Field Repair of the BVS-S3 Load Plate Resistance

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This procedure outlines the steps required to troubleshoot and modify the resistance of the load plate circuit in the BVS-S3.

ELECTROCUTION HAZARD!

High voltage is present within the BVS chassis. The voltage sensing leads and load current leads carry full battery voltage. Battery Voltage can be as high as 600Vdc depending on the battery system! If you are not trained to work with high voltage equipment, do not attempt to use this procedure!

Tools required:

- Soldering iron and solder
- Drill with 1/8" bit**
- Pop Rivet gun with rivets**
- Thermal Adhesive
- 7/16" socket or open ended wrench
- Multimeter

1. Inside the unit, remove the load leads from the Hypertronics connector(s) at the top, left corner.
2. Turn the Run/Standby switch to the Standby position and the NiCad On/Off switch to the Off position.
3. Remove the cover on the load plate.
4. Using a multimeter on the diode check setting, measure from the red load lead at the screw terminal to the black wire on the IGBT. Be sure to have the red lead from the multimeter on the red load lead and the black on the IGBT. This checks the positive half of the string.
5. To check the negative half, place the red lead from the meter on the orange load lead at the screw terminal and the black lead on the black wire on the IGBT. NOTE: If there is a center disconnect place the red lead on the green load lead at the screw terminal.
6. A reading of approximately 0.5 V should be obtained for steps 4 and 5. If the multimeter leads are switched and the reading is 0.5 V, the diode is in backwards and should be switched. Follow the steps to remove the load plate and then remove the diode in the resistor string on the back of the plate and re-insert it properly.
7. Remove all connectors attached to the chassis.
8. Using a 7/16" socket or open-ended wrench, remove the 6 nuts (and other hardware) that attach the load plate to the unit.
9. Remove the load plate.
10. Using a multimeter set to measure resistance, determine the offending resistor by measuring across the resistor. Be sure that the reading is approximately the value of the resistor. Typical values for resistors are 0.25 ohm, 0.5 ohm, 0.75 ohm, and 1.0 ohm. In some systems, 2.0 ohm or 3.0 ohm resistors may be used.

11. Additionally, check the isolation between the resistor and the plate by measuring the resistance between each resistor and the load plate. The reading should result in an overload.
12. Once the bad resistor is found, unsolder the resistor from the circuit.
13. Drill the resistor out from the front side of the load plate using an 1/8" drill bit. Be very careful when drilling that none of the metal filings fall into any of the connectors or circuitry.**
14. Prepare the new resistor with a small amount of thermal adhesive and position it on the plate. See Figure 1 below.
15. Insert the pop rivets to hold the resistor in place.**
16. Solder the new resistor into the circuit.
17. Re-install the load plate.
18. Replace the cover on the load plate if it was removed
19. Attach all connectors on chassis.
20. Turn the Run/Standby switch to Run and the NiCad On/Off switch to On
21. Connect the load leads in the Hypertronics connector(s).

**NOTE: If a drill and/or a pop rivet gun is not available, the modifications are still possible. Attach the new resistor at a convenient location on the load plate using #4 or M3 screws, nuts, and lock washers and thermal compound. Unsolder the bad resistor and leave it attached to the plate. Then solder the new resistor into the circuit using the appropriate length of wire.

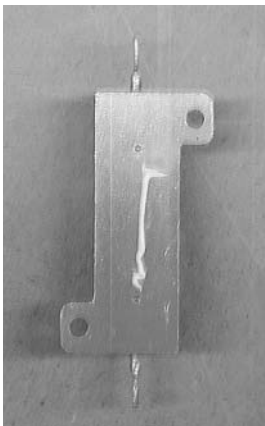


FIGURE 1:
Resistor with
Thermal Compound