

## Technical Support Bulletin: S3-FTLPPT-02

### Field Testing of the BVS-S3 Load Plate and Power Transistors

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*This procedure outlines the steps required to verify functionality of the Load Plate and Power Transistors.*

#### **ELECTROCUTION HAZARD!**

**This procedure involves working with high voltage. 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!**

1. Unplug ALL Hypertronics connectors from the load plate but do not power down the BVS system.
2. Unplug the green load plate connector from the BVS chassis.
3. Using a Fluke meter on the "diode" setting, place the positive lead on the red wire terminal, and the negative lead on the orange terminal. This should result in an overloaded condition signaled by OL displayed on the meter.
4. Next, place the positive lead on the green wire terminal, and the negative lead on the black terminal. This should also result in an overloaded condition signaled by OL displayed on the meter.
5. If any of the readings are less than 1 Volt, the transistor or transistors for that side must be replaced. The red/orange wires are for the left transistor(s), and the black/green wires are for the right transistor(s). If failed transistors are detected, contact BTECH Inc. for service. If the meter readings are correct, continue with the following diagnostic steps.
6. Replace any open load current fuses.
7. Reconnect all connectors.
8. Measure voltage at the screw terminal strip. Red to Orange =  $\frac{1}{2}$  total battery voltage. Orange to Black =  $\frac{1}{2}$  total battery voltage. Red to Black = Total battery voltage. The voltage should approximate the values on the Pre-commissioning sheet for the BVS. If they do not contact BTECH.
9. Remove the Load Plate cover.
10. Using a voltmeter, measure the voltage from the black terminal to the white terminal on the top, left of the Dual Load Board. The voltage should be approximately -9 volts.
11. Repeat step 3 on the right side of the Dual Load Board.
12. If a -9 volt reading was not obtained, power down the BVS system.
13. Using an ohm-meter, measure the resistance between the center black lead of the plastic power transistor and the Load Plate. It should be an open circuit. If it is not, check for a damaged transistor insulator or a load resistor that is shorted to the plate (the power transistor may not be damaged).
14. Remove transistor-mounting screws from all transistors on the side that is malfunctioning and lift the device to check the insulator(s). Do not remove wires from transistors.
15. If a damaged insulator could not be found, remove the Load Plate and turn upside down.
16. There is a diode mounted into the resistor string. Measure the resistance from both ends of the diode to the plate. If the resistance is less than 1 M $\Omega$ , a resistor is shorted. Contact BTECH for service.

Please call **BTECH Inc.** Technical Support if any questions arise.