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|---|--------------------------------|---|-----------------------|----|-----------------|
| 1 | REMOTE PLUS JOYSTICK | 5 | BATTERY CABLE | 9 | LEFT MOTOR |
| 2 | POWER MODULE | 6 | FRONT BATTERY HARNESS | 10 | CIRCUIT BREAKER |
| 3 | REDEL CABLE | 7 | REAR BATTERY HARNESS | 11 | RUN PLUG |
| 4 | POWER TAKE-OFF/INHIBIT HARNESS | 8 | RIGHT MOTOR | 12 | REDEL RUN PLUG |

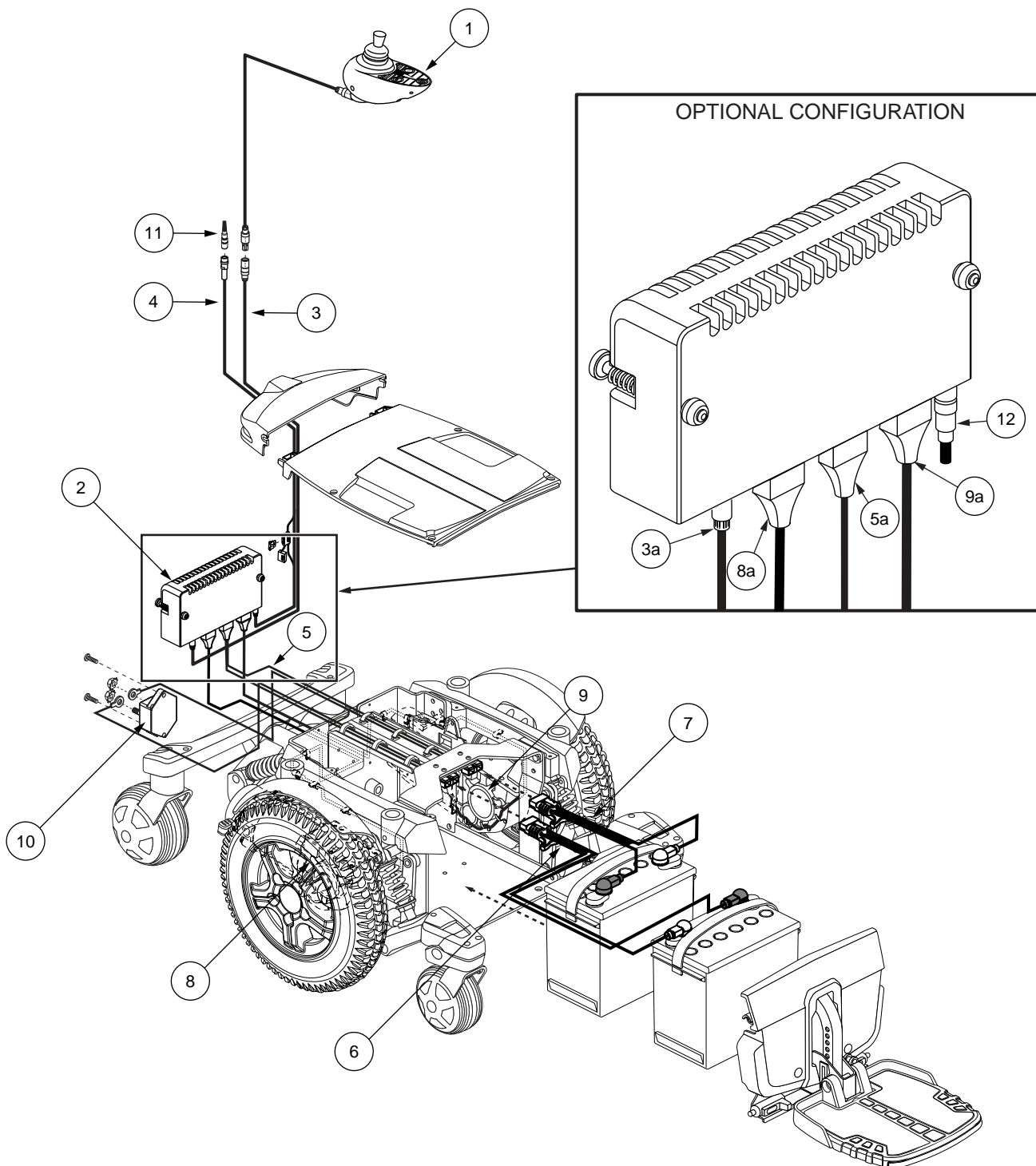


Diagram 1. Quantum 6000 Troubleshooting Key

From step 1

7. Swap connector 3a and the Redel run plug (12). See **diagram 2**.
 - If the unit runs, replace the power module and retest the system.
 - If the unit does not run, replace the run plug and retest the system.

SECTION 3 - FLASH CODE DIAGNOSTICS

Flash Code #1 - Low Battery Voltage

Symptoms:

There is a steady flash of one battery condition meter LED (red).

Diagnosis:

Voltage at the power module is below 22VDC.

Solution:

Use the following procedure to find the source of the problem:

1. Measure voltage across pin 1 (B+) and pin 2 (B-) of the off-board charger socket (connector 1a). See **diagram 2** and **figure 17**.
 - If your multimeter indicates less than 16VDC (but not 0VDC), then go to step 8.
 - If your multimeter indicates 0VDC, then replace the Remote Plus joystick and retest the system.
 - If your multimeter indicates greater than 16VDC, then go to
2. Plug the off-board charger into connector 1a and then plug the charger power cord into a standard electrical outlet.
3. Observe the status indicator lights on the off-board charger to determine if it has power and is charging.

NOTE: Refer to the charger's user's guide or owner's manual for status indicator light information.

- If the off-board charger status indicator lights do not turn on, then go to the next step.
 - If the off-board charger status indicator lights turn on and indicate that the charger is charging, allow the batteries to charge for 8-14 hours and retest system.
 - If the off-board charger status indicator lights indicate that the charger has power but is not charging, then replace the charger and retest the system.
4. Unplug the charger power cord from the off-board charger. If the off-board charger power cord cannot be unplugged from the charger, then go to step 6.
 5. Measure the AC voltage across pin 1 and pin 2 and then across pin 1 and pin 3 of the power cord. See **figure 18**.
 - If your multimeter indicates about 120 VAC for both tests, then replace the off-board charger and retest the system.
 - If your multimeter does not indicate 120 VAC for both tests, then go to the next system.

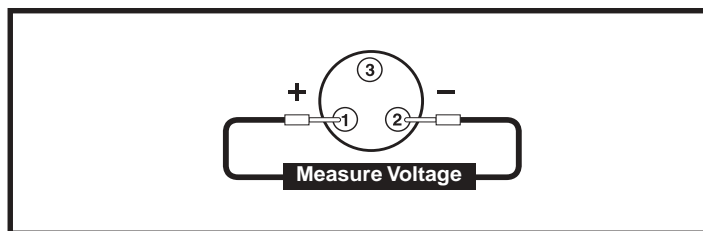


Figure 17. Connector 1a

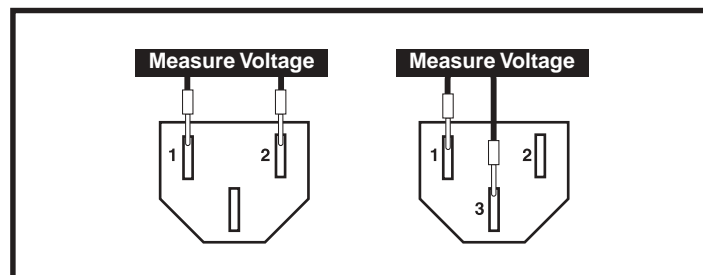


Figure 18. Power cord

6. Unplug the charger power cord from the electrical outlet.
7. Measure AC voltage across pin 2 and pin 3 and then across pin 1 and pin 3 of the electrical outlet. **See figure 19.**
- *If your multimeter indicates about 120 VAC for both tests, then replace the charger power cord and retest the system. (If the power cord does not detach from the charger, then replace the off-board charger.)*
- *If your multimeter does not indicate about 120 VAC for both tests, then try a different electrical outlet and retest the system.*

From step 1

8. Remove the foot platform and front cover. Refer to the power base owner's manual.
9. Measure voltage across connectors 6c and 7b. **See figure 20.** (If your multimeter indicates 0VDC, then measure voltage across connectors 6b and 7c. **See figure 21.**)
- *If your multimeter indicates the same voltage as indicated in step 1, then the batteries are too low to charge with the off-board charger. Take the batteries to an authorized service center for load testing and charging.*
- *If your multimeter indicates a greater voltage than that indicated in step 1, then go to the next step.*
10. Disconnect the power module (2) from the module mounting bracket. **See figure 7.**
11. Unplug connector 5a from connector 2c. **See diagram 3.**
12. Measure voltage across pin 1 and pin 2 on connector 5a. **See figure 22.**
- *If your multimeter indicates the same voltage as indicated in step 9, then go to **step 16**.*
- *If your multimeter indicates a greater voltage from that indicated in step 9, then go to the next step.*

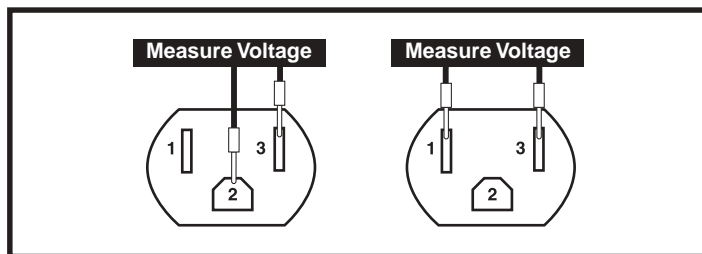


Figure 19. Electrical outlet

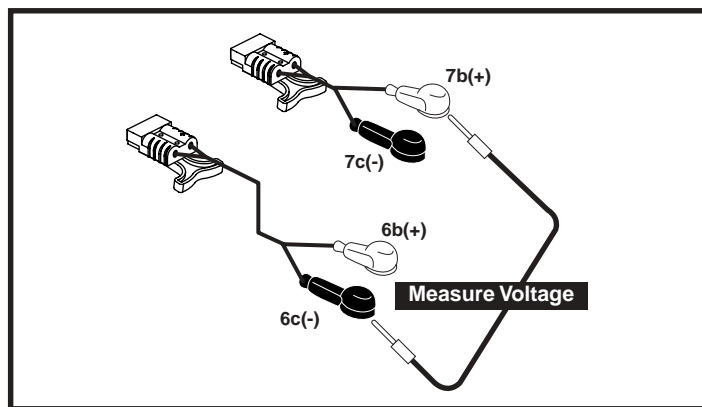


Figure 20. Connectors 6c and 7b

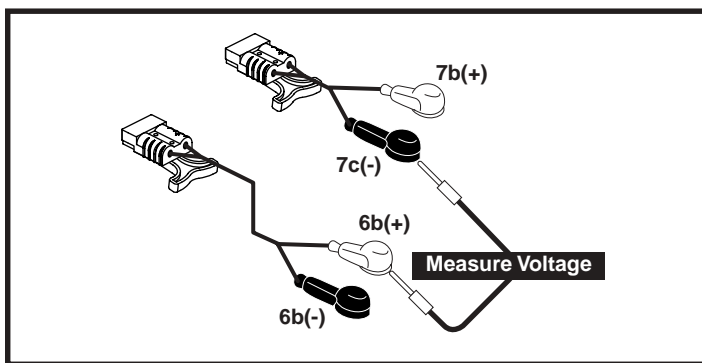


Figure 21. Connectors 6b and 7c

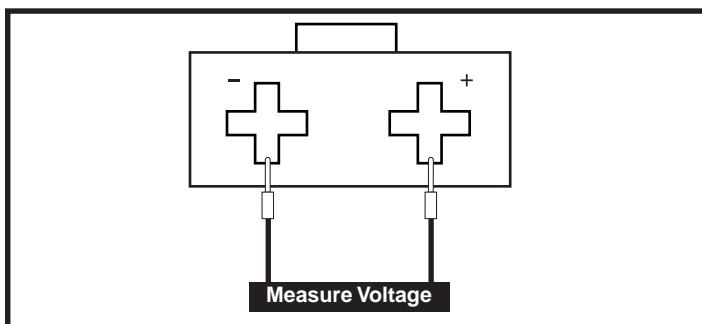


Figure 22. Connector 5a

13. Measure voltage across pin 1 and pin 2 on connector 6a, then measure voltage across connectors 6b and 6c. **See figures 23 and 24.**
- *If your multimeter indicates the same voltage for both tests, then go to the next step.*
 - *If your multimeter does not indicate the same voltage for both tests, then replace the front battery harness (6) and retest the system.*
14. Measure voltage across pin 1 and pin 2 on connector 7a, then measure voltage across connectors 7b and 7c. **See figures 25 and 26.**
- *If your multimeter indicates the same voltage for both tests, then go to the next step.*
 - *If your multimeter does not indicate the same voltage for both tests, then replace the rear battery harness (7) and retest the system.*
15. Measure resistance across the two terminals of the circuit breaker (10). **See figure 27.**
- *If your multimeter indicates less than 1 ohm, then replace the battery cable (5) and retest the system.*
 - *If your multimeter indicates greater than 1 ohm, then replace the circuit breaker (10) and retest the system.*

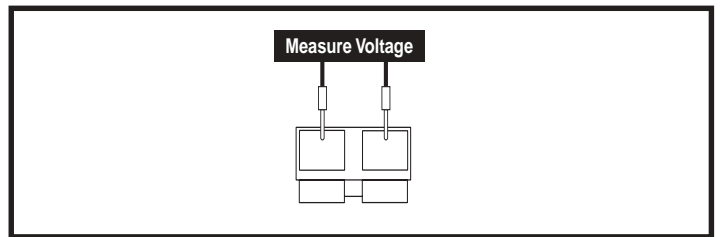


Figure 23. Connector 6a

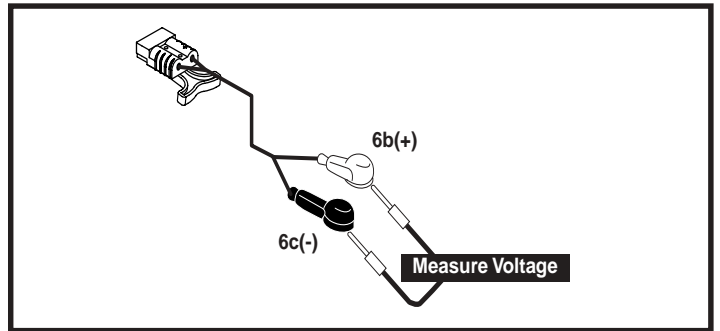


Figure 24. Connectors 6b and 6c

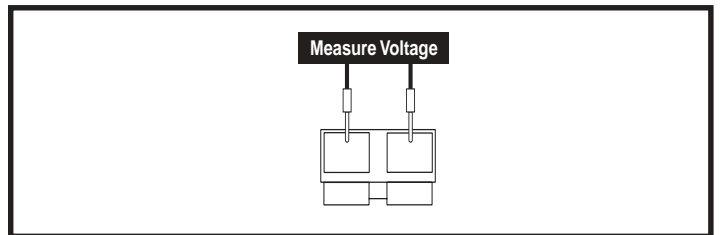


Figure 25. Connector 7a

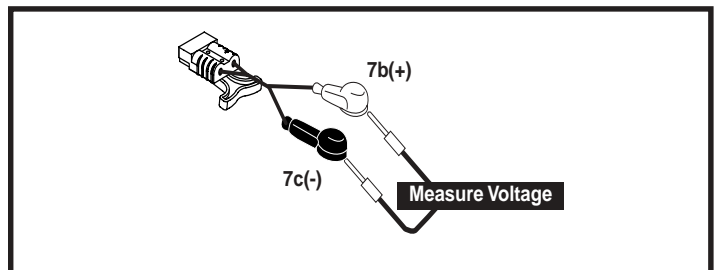


Figure 26. Connectors 7b and 7c

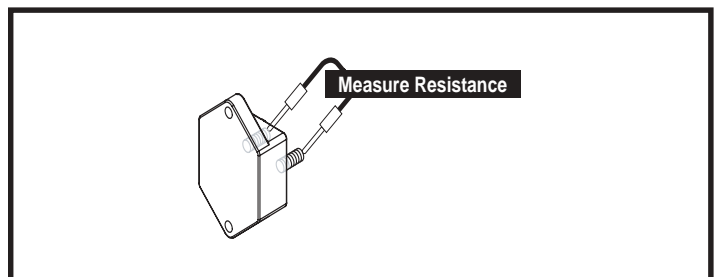


Figure 27. Circuit Breaker (10)

From step 12

16. Unplug connector 3a from connector 2a. **See diagram 3.**
17. Measure resistance from pin 1 on connector 2c to pin 1 on connector 2a. **See figure 28.**
18. Measure resistance from pin 2 on connector 2c to pin 2 on connector 2a. **See figure 29.**
 - If your multimeter indicates less than 1 ohm for both tests, then go to the next step.
 - If your multimeter indicates greater than 1 ohm for either test, then replace the power module (2) and retest the system.
19. Measure resistance from pin 1 on connector 3a to pin 1 on connector 3b. **See figure 30.**
20. Measure resistance from pin 2 on connector 3a to pin 2 on connector 3b. **See figure 31.**
 - If your multimeter indicates greater than 1 ohm for either test, then replace the Redel cable (3) and retest the system.
 - If your multimeter indicates less than 1 ohm for both tests, then replace the Remote Plus joystick (1) and retest the system.

Flash Code #2 - Left Motor Disconnected

Symptoms:

There is a steady flash of two battery condition meter LEDs (red).

Diagnosis:

There is an open in the left motor (9).

Solution:

Use the following procedure to find the source of the problem:

1. Unplug connector 9a from connector 2b. **See diagram 3.**
2. Measure resistance from pin 1 to pin 2 on connector 9a. **See figure 32.**
 - If your multimeter indicates an open, then go to the next step.
 - If your multimeter indicates about 0.5 – 1.5 ohms, then replace the power module (2) and retest the system.

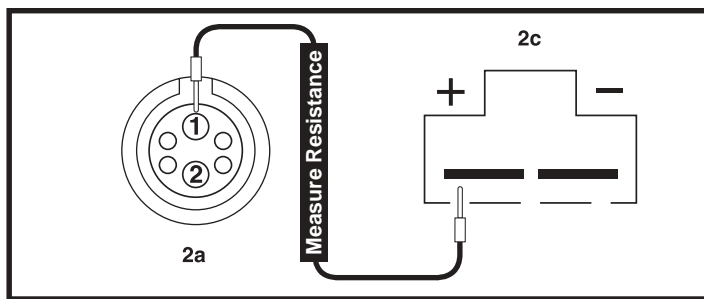


Figure 28. Connectors 2a and 2c

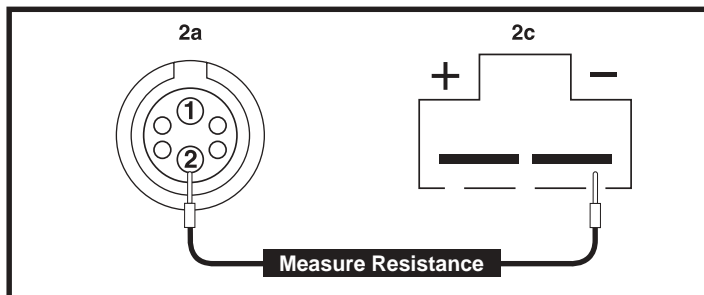


Figure 29. Connectors 2a and 2c

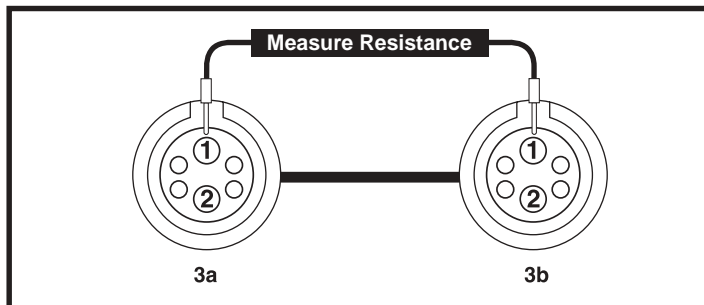


Figure 30. Connectors 3a and 3b

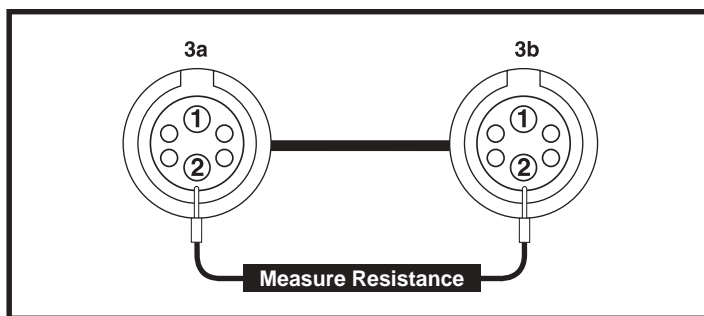


Figure 31. Connectors 3a and 3b

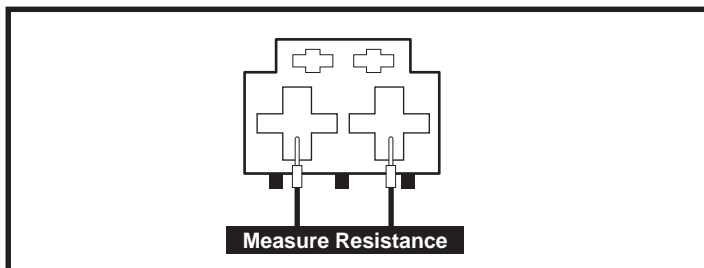


Figure 32. Connector 9a