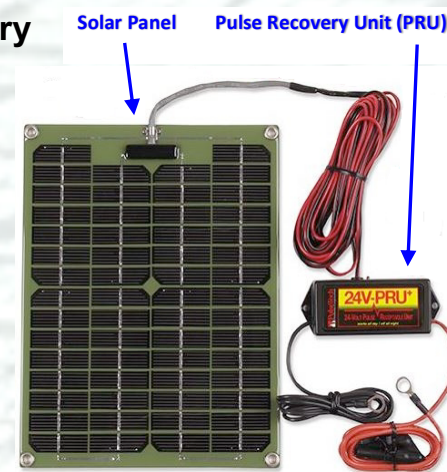


There are a plethora of solar applications being used on military equipment. The most often used for PulseTech solar systems is the 735X640 (NSN: 6130-01-487-0035). This system and others should provide many years of service, but sometimes need to be checked to ensure optimum performance.

The below is a generic set of steps to take to quickly test Solar Panel serviceability. Note: **We recommend testing for serviceability as needed, and not less than once per year.**

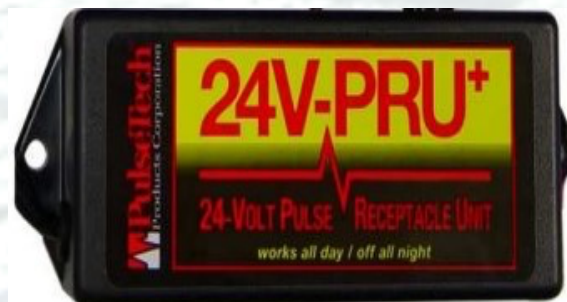
Tools needed: Digital Multimeter and a 1/2" wrench.

To Field Test the Solar Panel start by ensuring direct sun exposure. If it is raining or overcast the solar panel should still be working but the voltage will not be as high.



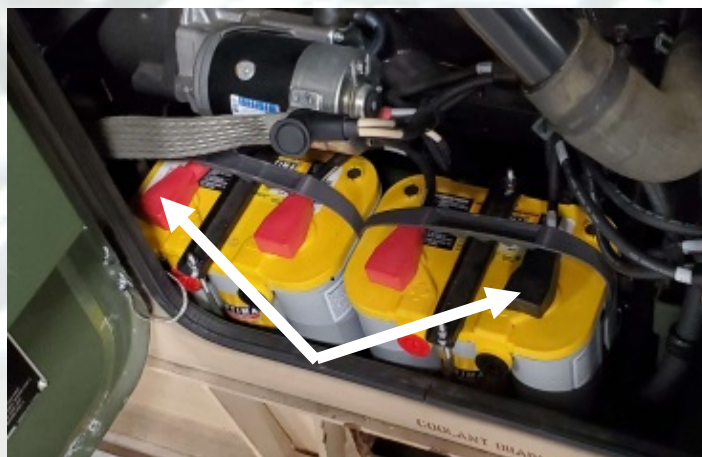
PRU Check: With direct sunlight there should be a *flashing red LED on the top.

1. If you observe a flashing LED proceed to test#1.
2. If no flashing LED on the PRU, check wires for serviceability and adequate connections. Repair any wire connections as needed and check for flashing LED.
3. The PRU has failed if no flashing LED with adequate sunlight and serviceable wire connections. Replace panel and PRU.



Test#1: Measure VDC at the batteries with cables still connected.

1. See example at right. Measure the VDC at the main positive (+) and main negative (-) posts.
2. After noting the battery VDC, cover the solar panel completely to block the sun.
3. Wait several minutes (at least 5) and read battery VDC again. The difference of two readings should show a slight decrease in battery voltage from when the panel was covered compared to when the panel was exposed.
4. If the first reading matches the 2nd reading the panel and/or the PRU may be inoperative. Maybe, as sometimes the VDC drop after covering the panel may take 10+ minutes or longer to see a noticeable VDC drop. **Go to test#2** on next page.



Test#2: Measure the VDC at the batteries with cables disconnected.

1. Expose the solar panel to full or at least partial sun. Even when cloudy the panel may produce enough VDC to engage the PRU, but for testing purposes it is always better to have decent direct sunlight.
2. Disconnect the main Negative terminal in the equipment battery box. Note: This should also be where the Neg connection from the solar panel PRU is connected.
3. Place the NEG multimeter lead on neg connection coming from PRU.
4. Place the POS multimeter lead on POS (+) post where the PRU POS (+) lead is connected.
5. When functioning properly and not connected to any batteries you should observe:
 - a. 24V Panel: between 28 and mid 30s VDC. If you do not see at least 28VDC with adequate sunlight, there is an issue, and the system should be replaced.
 - b. 12V Panel: between 14 and mid 20s VDC. If you do not see at least 14VDC with adequate sunlight, there is an issue, and the system should be replaced.



2. If there is an issue with panel output, we suggest conducting the following checks:
 - a. Inspect ALL wires, and connections between the panel, the Pulse Recover Unit (PRU), and the batteries. Repair any damaged wires.
 - b. Check the in-line fuse near POS(+) battery connection for serviceability.
 - c. If no faults are found the system should be replaced.

END Trouble-shooting steps: Contact your supporting FSR for additional information.