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|---|--------------------|--------------|-------------|
|  | <b>DRAWING NO:</b> |              | <b>REV:</b> |
|   | WI 005-152-501     |              | A           |
|   | <b>APPROVAL</b>    |              |             |
|   | ISSUER:            | WRC 10/29/10 |             |
|   | ENGINEERING:       |              |             |
| <b>Work Instruction<br/>Field Battery Installation</b>                            | PROD/MTL:          |              |             |
|   | QA APPROVAL:       |              |             |

**REVISION HISTORY**

| <b>LTR</b> | <b>DESCRIPTION</b>      | <b>DATE</b> |
|------------|-------------------------|-------------|
| 1          | Preliminary Release     | 10/29/10    |
| A          | Released for Production | 11/04/10    |
|            |                         |             |
|            |                         |             |
|            |                         |             |
|            |                         |             |

## 1. PURPOSE

This Instruction defines the methods, materials and processes used to remove and replace the Tr/IPST<sup>™</sup> battery assembly and its Circuit Card Assembly (CCA) in the Master Control Unit (MCU).

### **Note:**

**Read this instruction in its entirety before beginning any work.**

## 2. RESPONSIBILITY

- 2.1. Operator: responsible for following this instruction during the removal and replacement of the battery Assembly PN 005-152-501.
- 2.2. Manufacturing / Process Engineering: responsible for generating and maintaining this instruction.

## 3. REFERENCE DOCUMENTS

- 3.1. LM 005-152-501 List of Materials battery Assembly, TrIPs MCU
- 3.2. PD 158-2050 Handling Electrostatic Discharge Sensitive Devices

## 4. MATERIALS

LM 005-152-501 Battery Installation kit  
Isopropyl alcohol or equivalent

## 5. TOOLS

- 5.1. Torx #10 bit and driver
- 5.2. Lint Free wipes
- 5.3. Masking Tape or equivalent
- 5.4. Torque Driver TS-30 or equivalent
- 5.5. Small flat blade screwdriver
- 5.6. Appropriate ladder and or scaffolding to reach MCU location

## 6. INSTRUCTIONS

- 6.1. Position ladder / scaffolding so the MCU can be accessed
- 6.2. Remove the 8 electronic module mounting screws that hold the electronic module (EM) in place using the Torx bit and a driver see Figure 6.2
- 6.3. Carefully remove the EM by lifting the corners on the Solar panel side of the EM about  $\frac{1}{4}$  to  $\frac{1}{2}$  inch, or just enough to be sure that all screws are loose and the EM can be lifted off the baseplate.

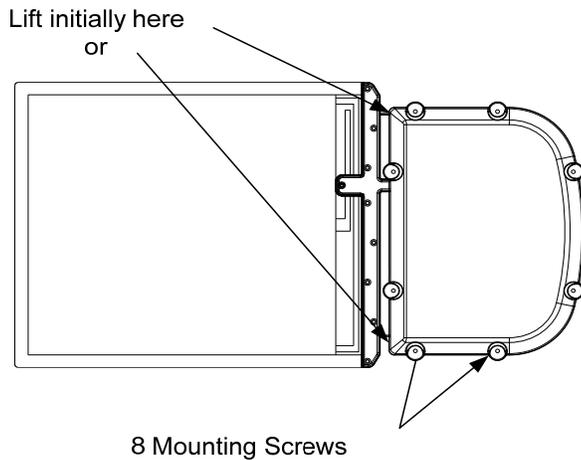


Figure 6.2

### CAUTION

DO NOT REMOVE THE COVER BY LIFTING IT AWAY FROM THE SOLAR PANEL. THIS MAY BREAK OR DAMAGE THE SOLAR PANEL WIRING.

- 6.4. After the EM is loose at the solar panel side, work along one of the sides toward the curved (front) side of the EM. Using careful but required force, loosen the curved side from the VHB Tape that may be holding the cover to the baseplate on that edge. Once the cover is loosened on all edges, lift it from the curved side turning the module over and laying it on the solar panel with the electronics exposed.

### CAUTION

Do not stretch the wiring from the baseplate (solar panel) to the battery CCA, it is possible to damage (break) the wiring.

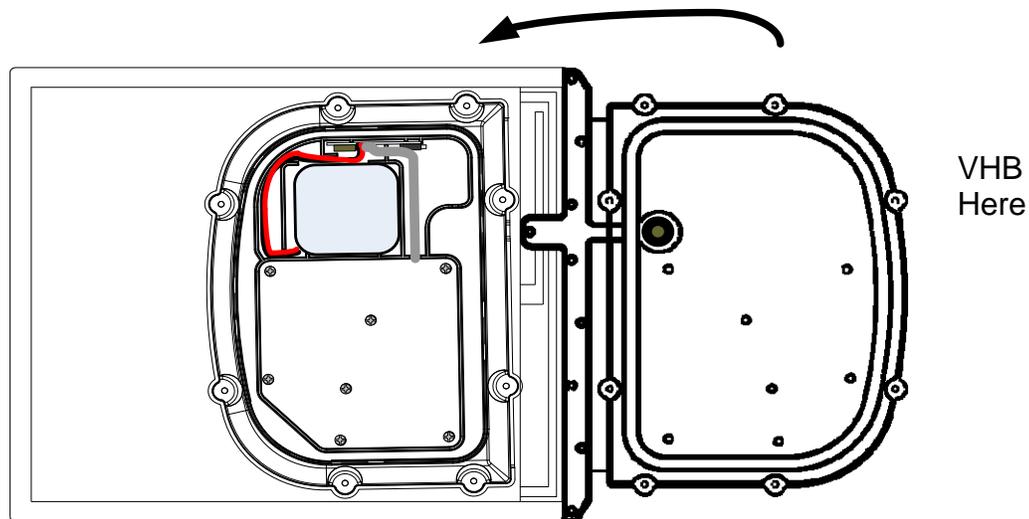


Figure 6.3

- 6.5. With the Electronics module exposed remove the baseplate (solar panel) connector (P1) from the battery board connector. Two different configurations are used one with a daughter board on the baseplate and one without a daughter board. Disassembly is the same in both configurations.
- 6.5.1. The circuit card may be pulled up out of its mounting location using small needle nose pliers (pad the jaws of the pliers with masking tape to prevent damage to the CCA board) to make this easier. Again be careful not to stretch the wiring.
- 6.5.2. Using a small flat blade screwdriver or equivalent press on the center tab on the back of the connector to release it and gently pull the male connector out of the receptacle on the battery CCA. Reference photo figure 6.5
- 6.5.3. Remove the battery from its mounting position. The battery is held in place in one of two methods:
- 6.5.3.1. The first is silicone on the back of the battery. To remove the battery gently pry up on the side of the battery pack with a small screwdriver to free the silicone. After battery removal any remaining silicone should be removed from the inside of the mounting surface so it does not interfere with the new battery installation.
- 6.5.3.2. If the battery is held in with tape, remove the tape holding the battery assembly in place and remove the battery from the module.
- 6.5.4. Disconnect the connector P2 from the receptacle J2 of the battery CCA Then disconnect P1 Connector wiring from the Battery CCA reference Figure 6.5.4

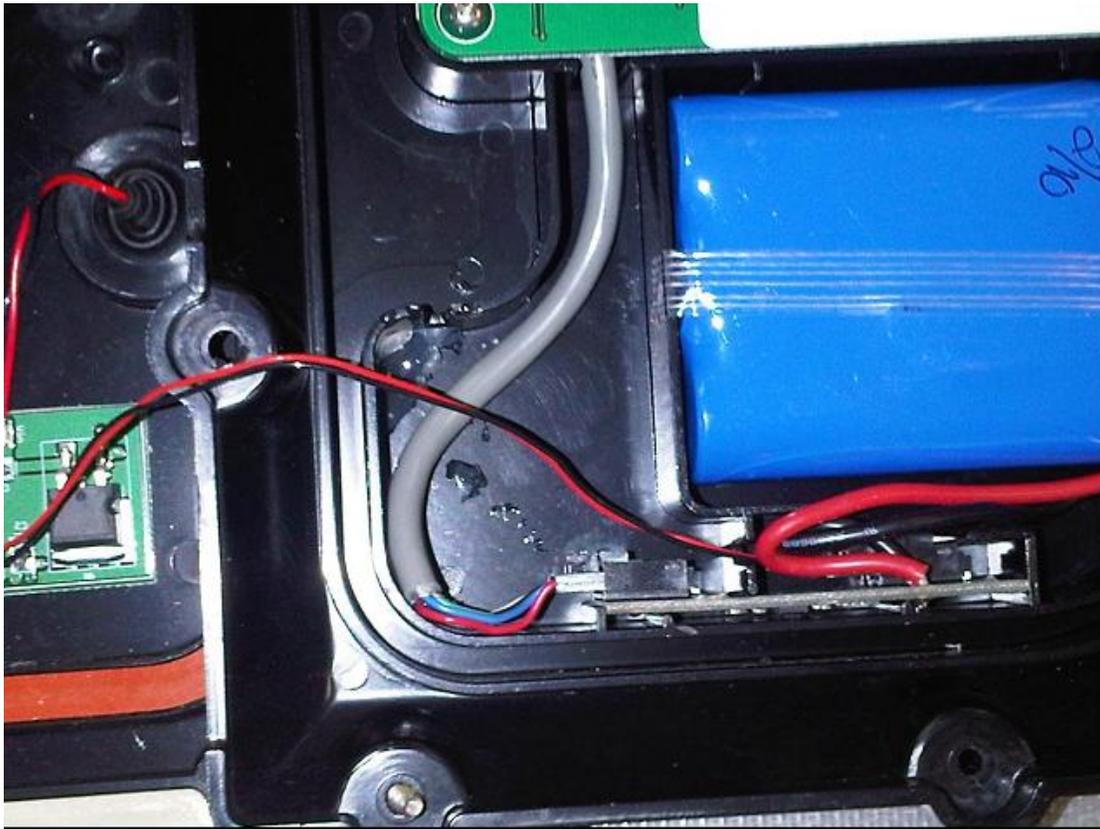


Figure 6.5.4

6.6. Remove the orange-colored gasket from the channel in the baseplate; it will be replaced during reassembly.

## 7. Reassembly

7.1. Verify that the gasket channel is clean and free of moisture or debris. If necessary use a lint free wipe and isopropyl alcohol or equivalent to clean the area. Install the new gasket in the channel in the baseplate, ensuring the gasket is flat in the channel.

7.2. To install battery assembly place battery in the cavity as shown in Figure 6.6 Note the wire dress may be different than the battery removed. The wiring from the battery to the battery circuit card assembly shall be dressed so that a service loop is provided and there is no strain on the wiring when the battery and CCA are properly positioned. Reference Figures 6.3 and 6.5.4.

7.2.1. Masking tape is used to hold the battery in place.

7.2.2. Install connector P2 into receptacle J2 on the battery CCA.

7.2.3. Install connector P1 into the receptacle J1.

7.2.4. Position the battery CCA in its mounting location.

7.2.5. Dress the wiring from the battery to the battery CCA so it will not be pinched.

7.2.6. Lay the EM so it is positioned IAW Figure 6.3

7.2.7. With the EM lifted up 90° from the baseplate, dress the wiring from the baseplate to the battery CCA so that it will fit in the cavity where connector J2 is positioned. Loop the excess wiring so that it will not be pinched during assembly. Reference Figure 7.2.7



Figure 7.2.7

7.2.8. Position the EM on the baseplate. It should sit flat on the gasket without rocking. If it rocks check the position of the wiring to be sure it is not interfering with how the EM seats. When it is seated properly, install the 8 sealing screws.

7.2.8.1. The nuts should have stayed in place during disassembly, if needed push down lightly on the module so the screw threads engage the threads in the hex nut.

7.2.9. Using the Torx T-10 bit and a torque screwdriver Torque the mounting screws to 10 in-lbs +/- 1in-lb IAW the pattern shown in figure 7.2.9.

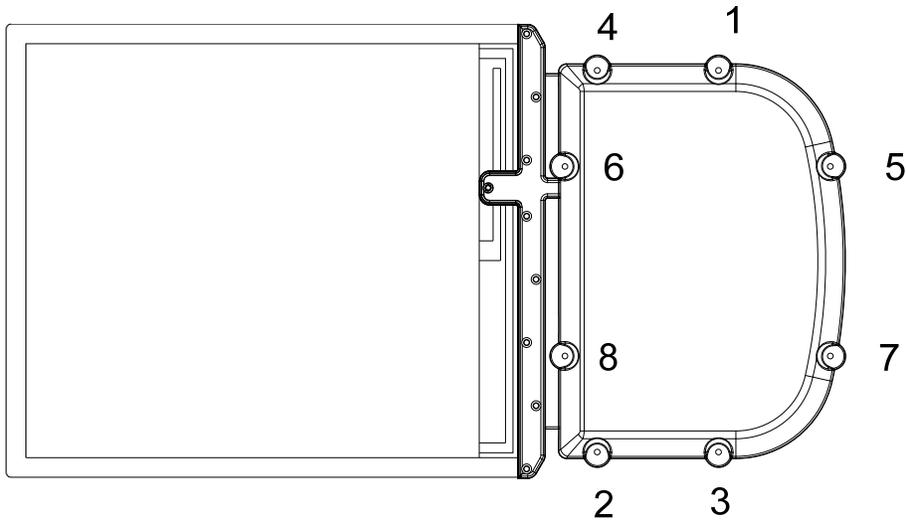


Figure 7.2.9

7.2.10 Visually inspect that the electronics module is properly seated on the baseplate and there is no damage to the enclosure or the solar panel.