



## **PFR-010 Title: Grounding of SMA Circuit on SPB**

<b>Assembly :</b> SPB Release Mechanism	<b>SubAssembly :</b> SMA Circuit
<b>Component :</b> SMA Attach Block	
<b>Originator:</b> B. Donakowski/ 13 Jan 05	<b>Organization:</b> UCB/SSL/EFI
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### **Failure Occurred During (Check one ✓)**

☒ Functional test      ☐ Qualification test      ☐ S/C Integration      ☐ Launch operations

### **Environment when failure occurred:**

☒ Ambient      ☐ Vibration      ☐ Shock      ☐ Acoustic  
☐ Thermal      ☐ Vacuum      ☐ Thermal-Vacuum      ☐ EMI/EMC

### **Problem Description**

*(In this section it is important to document the specific symptoms which exhibited the problem. In the event we see it happen again, we would like to know as much as possible.)*

During CPT testing, the SMA circuit was found to be grounded to chassis. This SMA circuit is used to open the SPB Release Doors. Inspection revealed a screw head on the SMA Release ring (holding the SMA wire clamp) was touching the structure Front Panel.

(See attached sheet.)

### **Analyses Performed to Determine Cause**

*(How do we know how the failure happened? Was it a bad part, bad handling, what? )*

Inspection of hardware and design on SolidWorks reveals screw head is very close to Front Panel, nominal clearance approximately .005". Any misalignment or mis-machining of parts may allow screw head to contact Front Panel. Note this problem has occurred only in this unit.

### **Corrective Action/ Resolution**

*(How do we fix the unit? And how do we make sure it doesn't happen again?)*

Screw is used to hold a clamp block down which is required to keep SMA wire constrained during Sub-Assy build-up. Once the Release Ring Assy is installed into the SPB, the SMA wire is spring preloaded and therefore the clamp plate and screw is not performing any function.

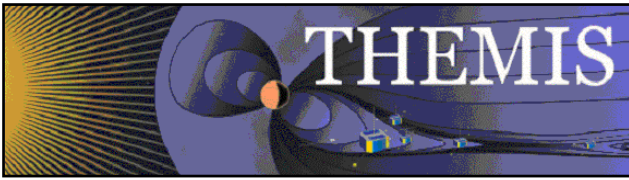
Corrective Action: Remove Screw and Clamp Plate on all Flight Units, F2 as well as F1 and all subsequent Flight units.

Acceptance:

MAM: Ron Jackson \_\_\_\_\_; MSE: Ellen Taylor \_\_\_\_\_

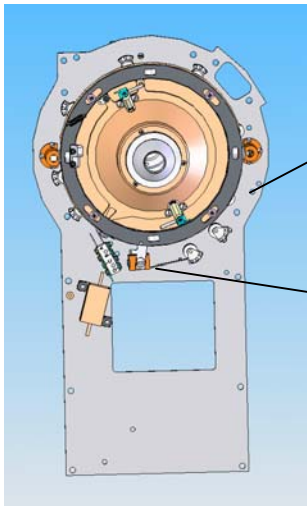
PM: Peter Harvey \_\_\_\_\_; Cognizant Engineer \_\_\_\_\_

Date of Closure \_\_\_\_\_



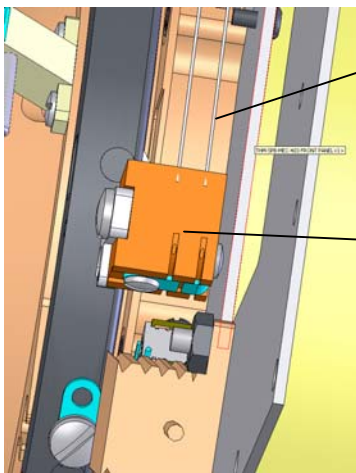
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### **Problem Description**



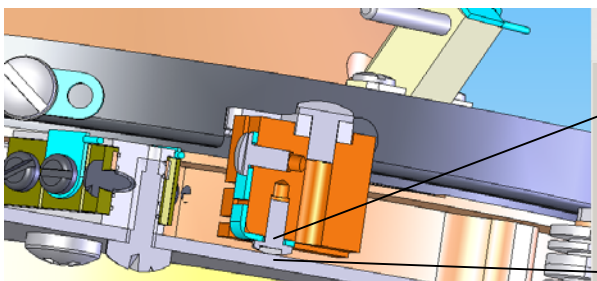
SPB FRONT  
PANEL  
ASSY

SMA WIRE



SMA WIRE

GROOVES FOR  
SMA WIRE



SCREW AND  
CLAMP PLATE

CONTACT POINT OF  
SCREW TO FRONT PANEL