



PFR-207 Title: F4 +/-X EFI SPB Cables swapped during TV Installation

Assembly : EFI	SubAssembly : SPB	
Component : TV Cables	Units Affected:	Units fixed:
Originator: Ellen Taylor	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Organization: UCB	Date: 7/26/06 (date found)	
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Failure Occurred During (Check one ☒)

☐ Functional test ☐ Qualification test ☐ S/C Integration ☐ Launch operations ☒ Other (Flight Assy)

Environment when failure occurred:

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

Problem Description

The expected LEDs on the EFI Boom Simulator Box did not turn on when the LPT EFI SPB test was run prior to Thermal Vacuum pump down on Probes 3 and 4. It was also discovered that current drawn during the simulated EFI door deploy was twice what was expected.

Analyses Performed to Determine Cause

A look at the schematics showed that the most likely cause for the improper LED readback and the additional current was that the F4 +/-X EFI SPB TV cables were swapped (+X installed on -X side, -X installed on +X sided).

When the Boom Loads Box X-axis harnesses were swapped, instead of the nominal 14-ohm SMA load plus 3.9-ohm harness load (17.9 ohm total), a 10.9 ohm load was placed across the SMA door actuator circuit. Nominal load on that actuator circuit during flight (and actual deploy testing) is 14 ohms, or about 2.6 A at the maximum actuator service voltage of 36 volts. The load accidentally placed on that circuit during the LPT was at most 3.3 A. The switching FET for that actuator circuit is rated at 6.5 A at 25 C; thus the actuator circuit was not overstressed in the off-nominal test configuration.

Corrective Action/ Resolution

The Probe was completely enclosed in the thermal box, so it was decided that the best course of action would be to swap the pins on the TV cable outside the thermal chamber. The cable remained as is during both F3/4 TV and F1/5 TV.

Update 8/22/06: The EFI SPB TV cable pins were swapped back prior to the post-environmental CPT.

Acceptance:

MAM: Ron Jackson _____ ; MSE: Ellen Taylor _____

PM: Peter Harvey _____ ; Cognizant Engineer _____

Date of Closure _____