

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME :SRB OF Watertight Reusable Cable X13W8R P1/P2 and X13W9R P1/P2 (Aft BSM PIC A and PIC B Output to Aft BSM NSI A and NSI B)

PART NO.: 10400-0024  
10400-0025

FM CODE: A09

ITEM CODE: 50-04-X13

REVISION: Basic

CRITICALITY CATEGORY: IR

REACTION TIME: Immediate

NO. REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Separation

SUPERCEDES: March 1, 1994

FMEA PAGE NO.:D-669

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of Aft BSM PIC A and PIC B output to Aft BSM NSI A and NSI B in both cables due to:

- o One pin or wire open caused by: open crimp, open wire, broken/bent pin, unsealed pin, broken pin locking mechanism, corroded pin.
- o One pin or wire short to ground caused by: bent pin, contamination in connector, insulation breakdown, frayed shielding, abraded or cut insulation.
- o Loss of connector caused by: connector not fully mated, improperly safety wired, improperly torqued, defective threads, mechanical overstress.

FAILURE EFFECT SUMMARY: Possible loss of mission, vehicle and crew due to loss of ability to fire the Aft Separation Motors at separation. Loss of separation thrust will lead to vehicle damage caused by recontact between the SRB and ET/orbiter. One success path remains after the first failure. Operation is not affected until both paths are lost.

REDUNDANCY SCREENS AND MEASUREMENTS:

- 1) Pass - All cables are system tested during ground turnaround sequence.
- 2) Fail - Not verified.
- 3) Pass - No credible causes.

**RATIONALE FOR RETENTION:**

**A. DESIGN Per Appendix A Section # II**

**B. TESTING**

- 1) **VENDOR RELATED Per Appendix B Section # IA**
- 2) **KSC RELATED Per Appendix B Section # IIB**
- 3) **SYSTEM/ UNIQUE FUNCTIONAL**

Cables are also subjected to a resistance test per OMRSD File V, Vol. I, requirement number B75PIO.011 (SRB PIC Resistance Test). (Open, Short or Loss of Connector)

Cables are tested per OMRSD File V, Vol. I, requirement number B75PIO.011 (PIC Resistance Test). Cables are again tested after Final Ordnance Installation and connection per OMRSD File II, Vol. I, requirement number S00000.410 ("GO" PIC Resistance Test). (Open, Short or Loss of Connector)

The last time the cables are checked is at T-4 hours during Final Countdown per OMRSD File II, Vol. I, requirement number S00FAO.015 ("GO" PIC Resistance Test).

**C. INSPECTION**

- 1) **VENDOR RELATED Per Appendix C Section # I (Crimped Connector)**
- 2) **KSC RELATED Per Appendix C Section # IIE**

**D. FAILURE HISTORY**

Failure Histories may be obtained from the PRACA database.

**E. OPERATIONAL USE**

Not applicable to this failure mode.