

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Watertight Reusable Cable X02W8R J1/J2 and X02W9R J1/J2 or SRB OF Throwaway Cable X02W8 J1/J2 and X02W9 J1/J2 (Aft BSM PIC A and B Outputs to Aft BSM NSI A and B)

PART NO.: 10400-0009, 10400-0659
10400-0010, 10400-0660

FM CODE: A15

ITEM CODE: 50-04-X02

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-650

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 or solder, open wire, broken/bent pin, unseated 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 the 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.

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 # I & II

B. TESTING

1) **VENDOR RELATED** Per Appendix B Section # IA & IB

2) **KSC RELATED** Per Appendix B Section # IIA

3) **SYSTEM/ UNIQUE FUNCTIONAL**

After transfer to SPC, Cables are tested during SIT per OMRSD File V, Vol. 1, requirement number B75P10.011. (Open, Short or Loss of Connector)

Cables are again tested after Final Ordnance Installation and Connection per OMRSD File II, Vol. 1, requirement number S00000.410 (PIC Resistance Test). (Open, Short or Loss of Connector)

The last time the cables are checked is a test at T-4 hours during Final Countdown per OMRSD File II, Vol. 1, requirement number S00FA0.015 ("GO" PIC Resistance Test). (Open, Short or Loss of Connector)

C. INSPECTION

1) **VENDOR RELATED** Per Appendix C Section # I (Soldered Connector)

2) **KSC RELATED** Per Appendix C Section # IIA

D. FAILURE HISTORY

Failure Histories may be obtained from the PRACA database.

E. OPERATIONAL USE

Not applicable to this failure mode.