SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Nonwatertight Reusable Cables 131W413R P7/P11 (231W413R P7/P11), and 131W414R P4/P6 (231W414R P4/P6) (RSS IRD A and B Arm/Fire Commands)

PART NO.: 10400-0108 (10400-0119)
10400-0109 (10400-0120)

FM CODE: A19, A20, A21

ITEM CODE: 50-04-X31

REVISION: BASIC

CRITICALITY CATEGORY: 1R

REACTION TIME: Seconds

NO. REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Boost

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-475, D-747, D-748

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: F. Kalia

FAILURE MODE AND CAUSES: Loss of Arm or Fire commands from IRD A and IRD B (both cables) due to:

- One pin or wire open caused by: open crimp, open wire, broken/bent pin, unseated pin, broken pin locking mechanism, corroded pin.
- One pin or wire short to ground caused by: bent pin, contamination in connector, insulation breakdown, frayed shielding, abraded or cut insulation.
- Loss of connector caused by: connector not fully mated, mechanical overstress, failure of locking mechanism.

FAILURE EFFECT SUMMARY: Loss of Arm or Fire commands from IRD A and IRD B to the Range Safety Distributor results in loss of SRB destruct capability should it break away from the cluster. Loss of Arm or Fire command from IRD A and IRD B and cross strap from the other SRB (loss of connectors) results in loss of SRB destruct capability when clustered leading to loss of life or injury to the public. 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 # V

B. TESTING

1) VENDOR RELATED Per Appendix B Section # IA

2) KSC RELATED Per Appendix B Section # IIA

3) SYSTEM/ UNIQUE FUNCTIONAL

Cables are tested during ACO per 10REQ-0021, para. 1.2.1.15.2 and 1.2.2.17.1 (Arm and Fire and Cross-strapped Arm/Fire Circuitry Verification). (Open, Short or Loss of Connector)

After transfer to SPC, Cables are tested per OMRSD File II, Vol.1, requirement number S00000. 200, 210, 220, 230.(Open, Short or Loss of Connector)

Cables are tested during final Ordnance Installation and Connection per OMRSD File II, Vol. 1, requirement number S00000.380 and .390. (Open, Short or Loss of Connector)

Cables are tested at T-50 minutes during Final Countdown per OMRSD File II, Vol. 1, requirement number S00FH0.031. (Open, Short or Loss of Connector)

C. INSPECTION

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

2) KSC RELATED Per Appendix C Section # IIA 1,2,3,4 and 9

D. FAILURE HISTORY

Failure Histories may be obtained from the PRACA database.

E. OPERATIONAL USE

Not applicable to this failure mode.