

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Nonwatertight Reusable Cables X31A31W1R P1/P2 and X31A31W2R P1/P2 (RSS Destruct Output Signal from RSS Distribu- tor to Range Safety NSI A and NSI B)

PART NO.: 10400-0079, 10400-0080

FM CODE: A24

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-753

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P Kalia

FAILURE MODE AND CAUSES: Loss of destruct output signal from RSS Distributor to Range Safety 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, 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: failure of locking mechanism, connector not fully mated, mechanical overstress.

FAILURE EFFECT SUMMARY: Loss of destruct output signals from the RSS Distributor to Range Safety NSI A and NSI B results in loss of SRB destruct capability should it break away from the cluster 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 ACD per 10REQ-0021, para. 1.2.2.15.2 (RSS Arm Fire Circuitry Verification). (Open, Short or Loss of Connector)

After transfer to SPC, cables are tested during SIT per OMRSD File V, Vol. 1, requirement number B75PI0.011 (PIC Resistance Test). (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 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 (Crimped 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.