

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Coax Cables X31W418R P1/P2 and X31W419R P1/P2 (RSS A and B RF Signals from RSS Antennas A and B to Hybrid Coupler.

PART NO.: 10400-0076,
10400-0077

FM CODE: A23

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-751

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of RF signals from Range Safety Antenna A and B to Hybrid Coupler in both cables due to:

- o One pin or wire open caused by: open crimp, open wire, broken/bent pin, 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 P2 caused by: connector not fully mated, improperly safety wired, improperly torqued, defective threads, mechanical overstress.
- o Loss of connector P1 caused by: connector not fully mated, improperly torqued, defective threads, mechanical overstress.

FAILURE EFFECT SUMMARY: Loss of antenna coverage for one SRB 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 # VI

- B. TESTING
 - 1) VENDOR RELATED Per Appendix B Section # IC

 - 2) KSC RELATED Per Appendix B Section # IIA

 - 3) SYSTEM/ UNIQUE FUNCTIONAL

Cables are tested for insertion loss after installation per 10REQ-0021, para. 1.2.1.1.3.(Open, Short or Loss of Connector)

Cables are tested per 10REQ-0021, para. 1.2.2.13.2 and 1.2.2.13.3 (Range Safety System Verification) during ACO RSS Open Loop Test. (Open, Short or Loss of Connector)

Cables are tested by SPC per OMRSD File II, Vol. I, requirement numbers S00000.380 at Final Ordnance Installation and Connection. (Open, Short or Loss of Connector)

The last time cables are checked is at Final Countdown, at T- 50 minutes, per OMRSD File II, Vol. I, requirement number S00FH0.031 when Eastern Test Range brings up RSS carrier for launch. (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.