

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Coax Cables X31W415R P1/P2 and X31W417R P1/P2 and Feed Through Connectors X31J1 and X31J2 (RSS A and B RF Signals from RSS Antennas A and B to Hybrid Coupler)

PART NO.: Cables: 10400-0073, 10400-0075
Feedthrough: UG-30 D/U

FM CODE: A22

ITEM CODE: 50-04-X31

REVISION: BASIC

CRITICALITY CATEGORY: 1R

REACTION TIME: Seconds

NO. REQUIRED: 1 each cable and
2 each feed throughs

DATE: March 1, 1995

CRITICAL PHASES: Boost

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-749

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 caused by: connector not fully mated, 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.

- 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 VSWR and insertion loss after installation per 10REQ-0021 para. 1.2.1.1.3 and 1.2.1.1.4.

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 during Ordnance Installation/ connection per OMRSD File II, Vol. 1, requirement numbers S00000.380.(Open loop test) (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. 1, 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.