

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME:SRB OF Nonwatertight Reusable Cables 131W16R J2/P1, X31W15R J2/P1 and X31W17R J2/P1
(Rate Gyro 1 (LSRB), 2 (RSRB), 3 (LSRB), and 4 (RSRB) Input Power)

PART NO.: 10400-0104
10400-0068
10400-0069

FM CODE: A28

ITEM CODE: 50-04-X31

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Seconds

NO. REQUIRED: 2 each X31W17R
1 each 131W16R
1 each X31W15R

DATE: March 1, 1995

SUPERCEDES: March 1, 1994

CRITICAL PHASES: Boost

ANALYST: R. Smith/A. Craft

FMEA PAGE NO.: D-726A

APPROVED: P. Kalia

SHEET 1 OF 2

FAILURE MODE AND CAUSES: Loss of input power to three of four Rate Gyro Assemblies in three out of four 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: connector not fully mated, improperly safety wired, improperly torqued, defective threads, mechanical overstress.

FAILURE EFFECT SUMMARY: Loss of input power to three of four Rate Gyros rate detection results in guidance system instability leading to loss of mission, vehicle and crew.

REDUNDANCY SCREENS AND MEASUREMENTS:

- 1) Pass - All cables are system tested during ground turnaround sequence.
- 2) Pass - Rate Gyro 1 (LSRB), 2 (RSRB), 3 (LSRB), and 4 (RSRB) Pitch and Yaw Rate measurements B79R1(2)410C, B79R1(2)412C, B79R1(2)411C, and B79R1(2)413C.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

- A. DESIGN Per Appendix A Section # Y

- 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. 1.2.2.19.1 (Rate Gyro Assembly Power ON and SMRD Test). (open, short or loss of connector)

Cables are tested per OMRSD File II, Vol. 1, requirement numbers S00000.640 and S00000.643 (SRB Rate Gyro Power ON/SMRD/Null Test and RGA Torque Test). (open, short, or loss of connector)

The last time the cables are tested is at final countdown per OMRSD File II, Vol. 1, requirement number S00FF0.230 (RGA Torque 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.