

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Throwaway Cables X13W16 J43/P2 (J56/P2), X13W17 J45/P2 (J54/P2), X13W18 J44/P2 (J55/P2)(SRM Chamber Pressure Sensor Input Power)

PART NO.: 10400-0031
10400-0032
10400-0033

FM CODE: A14

ITEM CODE: 50-04-X13

REVISION: Basic

CRITICALITY CATEGORY: IR

REACTION TIME: Seconds

NO REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Boost

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-679

ANALYST: R. Smith/ A. Craft

SHEET 1 OF 3

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of power to two of three SRM chamber pressure sensors in two out of three cables due to:

- o One pin or wire open caused by: open crimp or solder, 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 P2 caused by: connector not fully mated, improperly safety wired, improperly torqued, defective threads, mechanical overstress.
- o Loss of connectors J43 (J56), J45 (J54) or J44 (J55) caused by:
connector not fully mated.

FAILURE EFFECT SUMMARY: Loss of input power to two of three SRM chamber pressure sensors resulting in premature separation cue leading to loss of mission, vehicle and crew. 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) Pass -SRM chamber pressure measurements B47P1300C through B47P1302C.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A DESIGN Per Appendix A Section # IV

B. TESTING

- 1) VENDOR RELATED Per Appendix B Section # IB
- 2) KSC RELATED Per Appendix B Section # IIIB
- 3) SYSTEM/ UNIQUE FUNCTIONAL

Cables are tested per OMRSD File V, Vol. 1, requirement number S00000.450 (SRM Chamber Pressure Measurement). (Open, Short or Loss of Connector)

Last time cables are tested is during final countdown per OMRSD File II, Vol. 1, requirement number S00FFO.180 (SRM Chamber Pressure Bias and Calibration Check). (Open, Short or Loss of Connector)

C. INSPECTION

- 1) VENDOR RELATED Per Appendix C Section # I (Crimped or Soldered Connector)
- 2) KSC RELATED Per Appendix C Section # IIIB

Additional: J43(J56), J44(J55), and J45(J54) are pullaway connectors. SPC measures connector clearance to verify connector is fully mated (Loss of connector).

D. FAILURE HISTORY

Failure Histories may be obtained from the PRACA database.

E. OPERATIONAL USE

Not applicable to this failure mode.