

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Watertight Reusable Cable X21W101R P1/P2, X21W102R P1/P2 and X21W103R P1/P2  
(SRM Chamber Pressure Outputs)

PART NO.: 10400-0051  
10400-0052  
10400-0053

FM CODE: A04

ITEM CODE: 50-04-X21

REVISION: Basic

CRITICALITY CATEGORY: 1R

EACTION TIME: Seconds

NO. REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Boost

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-703

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of two of three SRM Chamber Pressure measurements in two out of three 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 separation cue from two of three SRM Chamber Pressure measurements to Orbiter leading to loss of mission, vehicle and crew due to premature separation. 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 # II
  
- B. TESTING
  - 1) **VENDOR RELATED** Per Appendix B Section # IA
  
  - 2) **KSC RELATED** Per Appendix B Section # IIB
  
  - 3) **SYSTEM/ UNIQUE FUNCTIONAL**

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

The 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 Connector)
  
  - 2) **KSC RELATED** Per Appendix C Section # IIB

**D. FAILURE HISTORY**

Failure Histories may be obtained from the PRACA database.

**E. OPERATIONAL USE**

Not applicable to this failure mode.