

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Nonwatertight Reusable Cables 131W101R J1/P2 (231W101R J1/P2), 131W102R J1/P2 (231W102R J1/P2) and 131W105R J4/P1 (231W105R J4/P1) (SRM Chamber Pressure outputs A, B and C)

PART NO.: 10400-0105 (10400-0116)
10400-0106 (10400-0117)
10400-0107 (10400-0118)

FM CODE: A11, A12

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-729, D-731

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 or incorrect 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, B47P1301C and B47P1302C.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A. **DESIGN** Per Appendix A Section # V

B. **TESTING**

1) **VENDOR RELATED** Per Appendix B Section # IA

2) **KSC RELATED** Per Appendix B Section # IIA

Cables are tested during ACO per 10REQ-0021, para. 1.2.2.19.2 (Chamber Pressure Circuit Verification). (Open, Short or Loss of connector)

Cables are tested per OMRSD File II, Vol. 1, requirement number S00000.450 (SRM Chamber Pressure Measurement). (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 S00FF0.180 (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 # IIA

D. **FAILURE HISTORY**

Failure Histories may be obtained from the PRACA database.

E. **OPERATIONAL USE**

Not applicable to this failure mode.