

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Watertight Reusable Cable X02W1R J1/P6 and X02W2R J1/P6 or SRB OF Throwaway Cable X02W1 J1/P6 and X02W2 J1/P6 (APU A and B Pulse (Primary) Control Valve)

PART NO.: 10400-0003, 10400-0653
10400-0004, 10400-0654

FM CODE: A04B

ITEM CODE: 50-04-X02

REVISION: Basic

CRITICALITY CATEGORY: IR

REACTION TIME: Immediate

NO. REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Boost, Separation

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-631B

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of APU A and B Pulse Control valve power in both cables due to:

- o One pin or wire short to ground caused by: bent pin, contamination in connector, insulation breakdown, frayed shielding, abraded or cut insulation.

FAILURE EFFECT SUMMARY: Loss of OI Bus A and B power results in loss of TVC and separation 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 - Voltage measurements B76V1600C through B76V1601C.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A. DESIGN Per Appendix A Section # I & III

B. TESTING

1) VENDOR RELATED Per Appendix B Section # IA & IB

2) KSC RELATED Per Appendix B Section # IIA

3) SYSTEM/ UNIQUE FUNCTIONAL

Cables are tested during Assembly Checkout Operations (ACO) (HPU BITE interlock tests) per 10REQ-0021, para. 2.3.4.3. (Short)

Cables are again tested during hotfire operations per 10REQ-0021, para. 2.3.16.

After transfer to SPC, Cables are tested per OMRSD File V, Vol. 1 requirement number B42AP0.060 (APU BITE Frequency Tests).

Last time cables are tested is during final countdown per OMRSD File II, Vol. 1, requirement number S00FR0.070 (start SRE HPU and verify) at T-28 sec.

C. INSPECTION

1) VENDOR RELATED Per Appendix C Section # I

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.