

SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: SRB OF Watertight Reusable Cable X02W10R J1/P9 and X02W11R J1/P9 or SRB OF Throwaway Cable X02W10 J1/P9 and X02W11 J1/P9 (Orbiter Bus A and Bus B Power - Hydraulic Fluid Reservoir Excite Voltage)

PART NO.: 10400-0011, 10400-0661
10400-0012, 10400-0662

FM CODE: A17

ITEM CODE: 50-04-X02

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Immediate

NO. REQUIRED: 1 each

DATE: March 1, 1995

CRITICAL PHASES: Boost, Separation

SUPERCEDES: March 1, 1994

FMEA PAGE NO.: D-653

ANALYST: R. Smith/A. Craft

SHEET 1 OF 2

APPROVED: P. Kalia

FAILURE MODE AND CAUSES: Loss of Orbiter Bus A and B 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: Boost: Loss of mission, vehicle and crew due to loss of TVC. Separation: Loss of SRB separation leads to vehicle breakup resulting in 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 - Bus A and B voltage measurements B76V1600C and 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) (Power Bus Isolation and Voltage Level Verification) per 10REQ-0021, para. 2.2.1.3.1, 2.2.1.3.2, and 2.2.2.1.1. (Short)

Cables are again tested during hotfire operations per 10REQ-0021, para. 2.3.16.2.

After transfer to SPC, cables are tested during SRB/ET Strut Electrical Mate per OMRSD File V, Vol. 1, requirement numbers B75BU0.010 (SRB Bus Isolation Test). Cables are also tested during SIT per OMRSD File II, Vol. 1, requirement number 500000.470 (Orbiter/SRB Power Transfer Buses A and B). (Short)

C. INSPECTION

- 1) VENDOR RELATED Per Appendix C Section # I (Soldered 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.