

## SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

ITEM NAME: Integrated Electronic Assembly (IEA), Aft (Logic and Networks Distributor and OF Signal Conditioner)

PART NO.: 10400-0328

FM CODE: A62

ITEM CODE: 50-01-01-03

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Immediate

NO. REQUIRED: 1

DATE: March 1, 2002

CRITICAL PHASES: Final Countdown, Boost

SUPERCEDES: March 31, 1998

FMEA PAGE NO.: D-100

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 2

APPROVED: S. Parvathaneni

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FAILURE MODE AND CAUSES: Unscheduled output of A or B fire 1 bus and fire 2 bus after arm command caused by:

- o Solid state switches fail (short)

FAILURE EFFECT SUMMARY: Premature separation (approximately 1 second) of one SRB leads to SRB recontact and vehicle breakup resulting in loss of mission, vehicle and crew. One success path remains after the first failure. Operation is not affected until two paths are lost.

REDUNDANCY SCREENS AND MEASUREMENTS:

- 1) Pass - Separation PIC Load Test Measurements B55X1826X through B55X1837X.
- 2) Fail - Not verified.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A. DESIGN:

1. System Description

See Appendix B, Section 1, Paragraph (s) H(2) & K

2. Component Description

See Appendix B, Section 2, Paragraph (s) A, F(3)

B. TESTING

1) VENDOR RELATED:

See Appendix B, Section 3, Paragraph(s) A(2), B

2) KSC RELATED:

See Appendix B, Section 3, Paragraph B

3) SYSTEM FUNCTIONAL/FAILURE MODE UNIQUE:

SRB Aft Skirt Assembly Checkout (ACO) - The SRB IEA PIC functional tests are verified per 10REQ-0021, paras. 2.2.2.4.1.3, 2.2.2.4.1.4, 2.2.2.4.2.3, 2.2.2.4.2.4, 2.2.2.4.3.3, 2.2.2.4.3.4, 2.2.2.4.4.3, and 2.2.2.4.4.4. These tests verify the operation of the solid state switches. (Solid State Switches)

Prelaunch Tests -

Ordnance Installation - The SRB PIC Arm and Fire tests are verified per OMRSD File II, Vol. 1, requirement number S00000.525. (Solid State Switches)

Last Test of Failure Mode Prior to Launch - The SRB PIC Arm and Fire tests per OMRSD File II, Vol. 1, requirement number S00000.525 are the last tests for redundancy of Separation circuits prior to launch. (Solid State Switches)

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C. INSPECTION

1) VENDOR RELATED:

See Appendix B, Section 4, Paragraph(s) A, F

2) KSC RELATED:

See Appendix B, Section 5, Paragraph(s) A.(1)(2)(j),B.(1)(j)

D. FAILURE HISTORY

Failure Histories may be obtained from the PRACA database.

E. OPERATIONAL USE

Not applicable to this failure mode.

F. WAIVERS/DARS

See Appendix E, Paragraphs 2, 4, 7-15.