

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: A60

ITEM CODE: 50-01-01-03

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Seconds

NO. REQUIRED: 1

DATE: March 1, 2002

CRITICAL PHASES: Separation

SUPERCEDES: March 31, 1998

FMEA PAGE NO.: D-98

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 2

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FAILURE MODE AND CAUSES: Unscheduled activation of Separation A and B fire 2 bus, and either fire 2 test power outputs or fire 1 bus outputs, caused by:

- o Solid state switches fail (short)

FAILURE EFFECT SUMMARY: Failure leads to loss of separation capability for (one) SRB resulting in flight instability and loss of mission, vehicle and crew.

NOTE: This failure requires a minimum of four failures.

REDUNDANCY SCREENS AND MEASUREMENTS

- 1) Pass - Separation PIC load test.
- 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(1), 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 Separation System functions and IEA PIC BITE and Energy tests are verified per 10REQ-0021, paras. 2.2.2.3 and 2.2.2.4. These tests verify solid state switch operation. (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 is the last test 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.