

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: A54

ITEM CODE: 50-01-01-03

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Immediate

NO. REQUIRED: 1

DATE: March 1, 2002

CRITICAL PHASES: Boost

SUPERCEDES: March 31, 1998

FMEA PAGE NO.: D-93

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 3

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FAILURE MODE AND CAUSES: Loss of SRM ignition PIC A and B fire 1 or fire 2 command caused by:

- o Wiring harnesses (open or shorted)

FAILURE EFFECT SUMMARY: Loss of SRM ignition for one SRB leads to thrust imbalance 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 - SRM Ignition PIC A and B Load Test B55X1824X, B55X1825X.
- 2) Fail - Not verified.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A. DESIGN:

1. System Description

See Appendix B, Section 1, Paragraph (s) G, K

2. Component Description

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

B. TESTING

1) VENDOR RELATED:

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

2) KSC RELATED:

See Appendix B, Section 3, Paragraph B

3) SYSTEM FUNCTIONAL/FAILURE MODE UNIQUE:

Assembly Checkout (ACO) - ACO Aft Skirt Stand Alone Test- The SRB Aft IEA ignition thru-circuit paths, are verified per 10REQ-0021, para. 2.2.2.7.4. (Wiring Harnesses)

Prelaunch Tests -

Ordnance Installation - The SRM IEA PIC Arm and Fire is verified in OMRSD File II, Vol. 1, requirement number S00000.525. This test verifies the IEA PIC wire harness functions. (Wiring Harness)

Last Test of Failure Mode Prior to Launch - The SRB IEA PIC Arm and Fire test per OMRSD File II, Vol. 1, requirement number S00000.525 is the last verification of the SRM ignition A and B circuit redundancy. (Wiring Harness)

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C. INSPECTION

1) VENDOR RELATED:

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

2) KSC RELATED:

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

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, 5, 7-15.