

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: A72, A75, A78

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-109, D-111, D-113

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 3

APPROVED: S. Parvathaneni

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FAILURE MODE AND CAUSES: Unscheduled output of any SRB Aft Separation Bolt (Upper, Middle, or Lower) PIC A or B after SRB Separation arm command caused by:

- o PIC failures, output switches (Fire 1 and Fire 2) fail (shorted)

FAILURE EFFECT SUMMARY: Premature Aft upper, middle or lower strut bolt 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 two paths are lost.

REDUNDANCY SCREENS AND MEASUREMENTS:

1. Pass - PIC Load Test B55X1828X thru B55X1833X. PIC Capacitor voltage B55V1607C through B55V1612C.
2. Fail - Not verified.
3. Pass - No credible causes.

RATIONALE FOR RETENTION:

A. DESIGN:

1. System Description

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

2. Component Description

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

B. TESTING

1) VENDOR RELATED:

See Appendix B, Section 3, Paragraph(s) A(4), 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 system A and B Separation strut PIC functions are verified per 10REQ-0021 paras. 2.2.2.4.1.3, 2.2.2.4.2.3, 2.2.2.4.1.4, and 2.2.2.4.2.4. These tests verify PIC output switch functions. (PIC Failures)

Prelaunch Tests -

Ordnance Installation - The SRB system A and B Separation PIC Arm and Fire test is verified per OMRSD File II, Vol. 1, requirement numbers S00000.525. This test verify PIC output switch functions. (PIC Failures)

Last Test of Failure Mode Prior to Launch - The SRB system A and B Separation PIC Arm and Fire test per OMRSD File II Vol. 1, requirement numbers S00000.525 is the last test for redundancy of A and B Separation PICs prior to launch. (PIC Failures)

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C. INSPECTION

1) VENDOR RELATED:

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

2) KSC RELATED:

See Appendix B, Section 5, Paragraph(s) A.(1)(2)(l),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, 6-15.