

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: A69

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-106

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 2

APPROVED: S. Parvathaneni

CN 044

FAILURE MODE AND CAUSES: Unscheduled output of A or B Aft Booster Separation Motor (BSM) ignition PIC after arm command caused by:

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

FAILURE EFFECT SUMMARY: Premature Aft BSM ignition leads to recontact of SRB with Orbiter/ET at separation 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 B55X1836X, B55X1837X, PIC Capacitor Voltage B55V1615C, B55V1616C.
- 2) Fail - Not verified.
- 3) Pass - No credible causes.

RATIONALE FOR RETENTION:

A. DESIGN:

1. System Description

See Appendix B, Section 1, Paragraph (s) I(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 A and B Separation PIC functions are verified per 10REQ-0021 paras. 2.2.2.4.3.3, 2.2.2.4.4.3, 2.2.2.4.3.4 and 2.2.2.4.4.4. These tests verify PIC output switch functions. (All Failure Causes)

Prelaunch Tests -

Ordnance Installation - The SRB A and B Separation PIC Arm and Fire test is verified per OMRSD File II, Vol. 1, requirement number S00000.525. (All Failure Causes)

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

CN 044

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),A.(2)(k),B.(1)(k)

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.