

## SRB CRITICAL ITEMS LIST

SUBSYSTEM: ELECTRICAL AND INSTRUMENTATION

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

PART NO.: 10400-0329-803

FM CODE: A26

ITEM CODE: 50-01-01-02

REVISION: Basic

CRITICALITY CATEGORY: 1R

REACTION TIME: Immediate

NO. REQUIRED: 1

DATE: March 1, 2002

CRITICAL PHASES: Final Countdown

SUPERCEDES: March 31, 1998

FMEA PAGE NO.: D-23

ANALYST: C. Webster/S. Finnegan

SHEET 1 OF 2

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FAILURE MODE AND CAUSES: Premature output of SRM Ignition PIC A or B after SRM ignition arm command (from T-15 to T-0) caused by:

- o Solid State Switches (Fire 1 and Fire 2) fail (shorted)
- o PIC failure (output switches, Fire 1 and Fire 2, fail shorted)

FAILURE EFFECT SUMMARY: Premature ignition of one SRB leads to thrust imbalance, resulting in loss of mission, vehicle and crew. One failure will not affect system operations. Two failures causing premature output from either PIC A or B will ignite SRM.

### REDUNDANCY SCREENS AND MEASUREMENTS

- 1) Pass - Ignition PIC Load Test B55X1824X, B55X1825X.  
Ignition PIC Resistance Test B55X1806X, B55X1807X.
- 2) Fail - Not verifiable; no measurements available.
- 3) Pass - No credible causes.

### RATIONALE FOR RETENTION:

#### A. DESIGN:

##### 1. System Description

See Appendix A, Section 1, Paragraph (s) D(2) & I

##### 2. Component Description

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

B. TESTING

1) VENDOR RELATED:

See Appendix A, Section 3, Paragraph(s) A(3)(5), B

2) KSC RELATED:

See Appendix A, Section 3, Paragraph B

3) SYSTEM FUNCTIONAL/FAILURE MODE UNIQUE:

SRB Forward Skirt Assembly Checkout (ACO) - SRB Forward Skirt Stand alone tests verify the redundancy of the SRM Ignition Fire- 1/Fire-2 switch circuits of the SRM Ignition A & B PICs per 10REQ-0021, para. 1.2.2.8.1.3, 1.2.2.8.1.4, 1.2.2.8.2.3, and 1.2.2.8.2.4. (All failure causes)

Ordnance Installation - The SRM Ignition A and B PIC Arm, Fire-1 and Fire-2 circuits series redundancy is verified per OMRSD File II, Vol. I, requirement number S0000.525. (All failure causes)

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C. INSPECTION

1) VENDOR RELATED:

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

2) KSC RELATED:

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

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, 6-15.