

CRITICAL ITEMS LIST (CIL)

SYSTEM: ASI  
 SUBSYSTEM: Electrical Cable Trays  
 REV & DATE: J, 12-19-97  
 DCN & DATE:  
 ANALYSTS: J. Hicks/E. Howell

FUNCTIONAL CRIT: 1  
 PHASE(S): b  
 HAZARD REF: S.11

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to ET structural failure or debris source to Orbiter from cable tray.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S):  
 A: Improper Manufacture  
 B: Failure of Attaching Hardware

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Tray assembly to protect cables routed from both RH and LH SRB's to RH and LH vertical struts.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.3.106.1	80911031801-060	Cable Tray Assembly	2	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

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RATIONALE FOR RETENTION

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DESIGN:

- A, B: The cable tray is machined from aluminum alloy 2219-T87, 6061-T651 plate; 6061-T6 sheet; and 6061-T6511 extrusion. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Surface integrity is assured by penetrant inspection per STP2501.
- A: The cable tray is designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).
- B: The attaching hardware is selected from the Approved Standard Parts List (ASPL 826-3500). The hardware is installed per STP2014 and torqued using values specified on Engineering drawings. Tensile installation loads are sufficient to provide screening for major flaws in individual fasteners.

TEST:

The Cable Tray Assembly is certified. Reference MCS MMC-ET-TM08-L-S061 (LWT-54 thru 88) and MCS MMC-ET-TM08-L-S517 (LWT-89 & Up).

Vendor:

- B: Attaching fasteners are procured and tested to standard drawings 26L2, 26L3, 33L3, 33L1, 26L17 and 58L6.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawings 80911031801, 80911031803 and standard drawings 26L3, 33L1, 33L3, 26L2, 26L17 and 58L6).
- A: Inspect dimensional conformance (drawing 80911031801 and 80911031803).
- A: Penetrant inspect part (drawing 80911031801 and STP2501 Type 1, Method A).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80911031849 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911031849 and STP2014).

FAILURE HISTORY:

Current data on test failures, unexplained anomalies and other failures experienced during ground processing activity can be found in the PRACA data base.