

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 support components.
 TIME TO EFFECT: Immediate
 FAILURE CAUSE(S): A: Improper Manufacture
 B: Failure of Attaching Hardware
 REDUNDANCY SCREENS: Not Applicable
 FUNCTIONAL DESCRIPTION: Support parts for tray assembly routed aft of crossbeam to LH2 umbilical.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.3.37.1	80911071814-001	Support Fitting	1	LWT-54 & Up
4.3.38.1	80911071814-002	Support Fitting	1	LWT-54 & Up

REMARKS: The cable tray support fittings are grouped as the failure mode, causes and effects are the same.

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

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SUBSYSTEM: Electrical Cable Trays
FMEA ITEM CODE(S): 4.3.37.1, 4.3.38.1

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RATIONALE FOR RETENTION

DESIGN:

- A, B: The support components are machined from 2219-T851 aluminum alloy plate stock. 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 support components are 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 Support Fitting is certified. Reference HCS MMC-ET-TM08-L-S026 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S516 (LWT-89 & Up).

Vendor:

- B: Attaching fasteners are procured and tested to standard drawings 22L1, 26L2 and 34L2.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911071814 and standard drawings 22L1, 26L2 and 34L2).
- A: Inspect dimensional conformance (drawing 80911071814).
- A: Penetrant inspect part (80911071814 and STP2501, Type 1 Method A).

MAF Quality Inspection:

- B: Inspect that hardware is free from damage (drawing 80911071809 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911071809).
- B: Verify locking feature (drawing 80911071809 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.