

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 LH2 tank structural failure or debris source to Orbiter from cover.
 TIME TO EFFECT: Immediate
 FAILURE CAUSE(S): A: Improper Manufacture
 B: Failure of Attaching Hardware
 REDUNDANCY SCREENS: Not Applicable
 FUNCTIONAL DESCRIPTION: Provide environmental protection for lines and cables routed along the LH2 tank surface.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.3.22.1	80911041418-010	Cover, Cable Tray (LH2)	1	LWT-54 & Up
4.3.23.1	80911041418-019	Cover, Cable Tray (LH2)	1	LWT-54 & Up
4.3.24.1	80911041418-020 -020	Cover, Cable Tray (LH2)	7 10	LWT-54 thru 59 LWT-60 & Up
4.3.25.1	80911041418-039	Cover, Cable Tray (LH2)	2	LWT-54 & Up
4.3.26.1	80911041418-040	Cover, Cable Tray (LH2)	1	LWT-54 & Up

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

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: Electrical Cable Trays
FMEA ITEM CODE(S): 4.3.22.1, 4.3.23.1, 4.3.24.1, 4.3.25.1,
4.3.26.1

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RATIONALE FOR RETENTION

DESIGN:

- A, B: The cable tray covers are machined from 2024-T81 aluminum alloy sheet stock. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties.
- A: The cable tray covers 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 Lists (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 Cover, Cable Tray (LH2) is certified. Reference HCS MMC-ET-TM08-L-S019 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S514 (LWT-89 & Up).

Vendor:

- B: Attaching fasteners are procured and tested to standard drawings 26L17 and 34L1.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911041418 and standard drawings 26L17 and 34L1).
- A: Inspect dimensional conformance (drawing 80911041418).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80911041429 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911041429).
- B: Verify locking feature (drawing 80911041429 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.