

**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, c  
 HAZARD REF: E.02, S.11

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to L02 tank structural failure, debris source to Orbiter from cable tray cover or autodetonation of LSC. Autodetonation effects are not applicable for LWT-74 & Up due to LSC removal.  
 c) Loss of life due to ET impact outside footprint.

TIME TO EFFECT: Immediate (b) Seconds (c)

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 L02 tank surface.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.3.4.1	80911041206-020 -040	Cable Tray Cover Assy (L02)	3 3	LWT-54 thru 83 LWT-84 & Up
4.3.5.1	80911041206-029 -049	Cable Tray Cover Assy (L02)	1 1	LWT-54 thru 83 LWT-84 & Up

REMARKS: The cover assemblies 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): 4.3.4.1, 4.3.5.1

REV & DATE: J, 12-19-97  
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RATIONALE FOR RETENTION

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DESIGN:

- A, B: The 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 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 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 Cover Assembly (L02) is certified. Reference HCS MMC-ET-TM08-L-S016 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S510 (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 80911041206 and standard drawings 26L17 and 34L1).
- A: Inspect dimensional conformance (drawing 80911041206).

MAF:

- B: Inspect that attaching hardware is free from damage for LWT-80 & Up (drawing 80911041205 and STP2014).
- A, B: Verify installation and witness torque for LWT-80 & Up (drawing 80911041205).
- B: Verify locking feature for LWT-80 & Up (drawing 80911041205 and STP2014).

Launch Site:

- B: Inspect that attaching hardware is free from damage for LWT-54 thru 79 (drawing 80911019201 and STP2014).
- A, B: Verify installation and witness torque for LWT-54 thru 79 (drawing 80911019201).
- B: Verify locking feature for LWT-54 thru 79 (drawing 80911019201 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.