

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: P.03 (4.3.9.1),
 S.11 (4.3.9.1,
 4.3.10.1,
 4.3.11.1,
 4.3.12.1,
 4.3.13.1), E.02
 (4.3.10.1,
 4.3.12.1,
 4.3.13.1)

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to L02 tank structural failure, debris source to Orbiter from segment assemblies or *autodetonation of LSC.
 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
 C: Failure to Slide

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>
4.3.9.1	80911001202-030	Segment Assembly (L02)	9	LWT-54 & Up
*4.3.10.1	80911001202-069 -500	Segment Assembly (L02)	2 2	LWT-54 thru 93 LWT-94 & Up
4.3.11.1	80911001202-040	Segment Assembly (L02)	1	LWT-54 & Up
*4.3.12.1	80911001202-070 -500	Segment Assembly (L02)	1 1	LWT-54 thru 93 LWT-94 & Up
*4.3.13.1	80911001202-079 -509	Segment Assembly (L02)	1 1	LWT-54 thru 93 LWT-94 & Up

REMARKS: The segment assemblies are grouped as the failure mode, and causes are the same. Effects noted by an * apply only to the FMEA Item Numbers also noted by an * thru LWT-73. LSCs removed effective with LWT-74 & Up.

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: Electrical Cable Trays
FMEA ITEM CODE(S): 4.3.9.1, 4.3.10.1, 4.3.11.1, 4.3.12.1,
4.3.13.1

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RATIONALE FOR RETENTION

DESIGN:

- A-C: The segments are machined from 2024-T8511 aluminum alloy extrusions stock. One end of each segment has slotted holes to provide capability for longitudinal motion. Fasteners in the slotted holes allow a minimum .004 inch gap between the slide block and the tray segment. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties.
- A: The segments 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 Segment Assembly (LQ2) is certified. Reference HCS MMC-ET-TM08-L-S017 (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 26L3, 33L1 and 33L3.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911001202, 80911001214 and standard drawings 26L3, 33L1 and 33L3).
- A, C: Inspect dimensional conformance (drawing 80911001202).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80911001200 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911001200).
- B: Verify locking feature (drawing 80911001200 and STP2014).
- C: Inspect gap clearance (drawing 80911001200).

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.