

CRITICAL ITEMS LIST (CIL)

SYSTEM: ASI FUNCTIONAL CRIT: 1  
 SUBSYSTEM: Electrical Cable Trays PHASE(S): b  
 REV & DATE: J, 12-19-97 HAZARD REF: S.11  
 DCN & DATE:  
 ANALYSTS: J. Hicks/ E. Howell

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 angles.  
 TIME TO EFFECT: Immediate  
 FAILURE CAUSE(S): A: Improper Manufacture  
 B: Failure of Attaching Hardware  
 REDUNDANCY SCREENS: Not Applicable  
 FUNCTIONAL DESCRIPTION: Support for tray routed past RH Orbiter/ET ball fitting to LO2 umbilical.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.3.119.1	80911071818-041	Angle	1	LWT-54 & Up
4.3.120.1	80911071818-037	Angle	2	LWT-54 & Up
4.3.121.1	80911071818-038	Angle	1	LWT-54 & Up

REMARKS: The cable tray angles 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): 4.3.119.1, 4.3.120.1, 4.3.121.1

REV & DATE: J, 12-19-97  
DCN & DATE:

---

RATIONALE FOR RETENTION

---

DESIGN:

- A, B: The angles are machined from 2219-T62 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 angles 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 Angles are certified. Reference HCS MMC-ET-TM08-L-S070 (LWT-54 thru 88); HCS MMC-ET-TM08-L-S516 (for item codes 4.3.119.1 & 4.3.120.1) and HCS MMC-ET-TM08-L-S517 (for item code 4.3.121.1)(LWT-89 & Up).

Vendor:

- B: Attaching fasteners are procured and tested to standard drawings 26L3 and 33L1.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911071818 and standard drawings 26L3 and 33L1).
- A: Inspect dimensional conformance (drawing 80911071818).

MAF Quality Inspection:

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