

CRITICAL ITEMS LIST (CIL)

SYSTEM: ASI
 SUBSYSTEM: Support Hardware
 REV & DATE: J, 12-19-97
 DCN & DATE:
 ANALYSTS: H. Keefe/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 tank structural failure or debris source to Orbiter.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S):
 A: Improper Manufacture
 B: Failure of Attaching Hardware

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provide LH2 cable tray support on the LH2 tank.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.4.13.1	80914041414-010	Tray Support Assembly	15	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
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RATIONALE FOR RETENTION

DESIGN:

- A, B: The Tray Support is a fiberglass/epoxy laminated part. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Acceptable characteristics of the laminated fiberglass epoxy parts are assured by using fabric per STP1517, epoxy resin per MIL-R-9300 and bonding per STP6001.
- A: The Tray Support Assembly is 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 Tray Support Assembly is certified. Reference HCS MMC-ET-TM08-L-S078 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S506 (LWT-89 & Up).

Vendor:

- A: Perform Lap Shear Specimens Test (drawing 80914041414).
- B: Attaching fasteners are procured and tested to Standard drawings 26L2 and 33L1.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A, B: Verify material selection and verification control (MMC-ET-SE16, drawing 80914041414 and standard drawings 26L2 and 33L1).
- A: Witness Lap Shear Specimens Test (drawing 80914041414).
- A: Inspect dimensional conformance (drawing 80914041414).
- A, B: Verify installation and witness torque (drawing 80914041405 and STP2014).
- B: Inspect that attaching hardware is free from damage (drawing 80914041405 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.