

CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	ET Interface Hardware	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:			
ANALYSTS:	C. Rush/E. Howell		

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to collapse of interface system resulting in fire/explosion.

TIME TO EFFECT: Immediate

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Interface and structural load path between ET and Orbiter interface structure.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.5.31.1	80911031157-020 -029	Fitting Assembly, Diagonal Strut, LH2 Tank	1 1	LWT-54 thru 83 LWT-84 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: ET Interface Hardware
FMEA ITEM CODE(S): 4.5.31.1

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

RATIONALE FOR RETENTION

DESIGN:

- A, B: The fitting is machined from a Ti-6AL-4V titanium casting (standard grade). Materials are selected in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Part integrity is assured by radiographic inspection per STP2503 and by penetrant inspection per STP2501. The fitting and attachment hardware are designed to the required ultimate safety factor of 1.4 (ET Stress Report 826-2188).
- B: Attaching hardware is selected from the Approved Standard Parts List (ASPL 826-3500), 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 Fitting Assembly, Diagonal Strut, LH2 Tank is certified. Reference HCS MMC-ET-TM08-L-S176 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S516 (LWT-89 & Up).

Vendor:

- B: Attaching fasteners are procured and tested to standard drawings 26L2 and 34L2.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911031156 and standard drawings 26L2, 34L2, 36L9; STM5632 for LWT-54 thru 83; STM5633 for LWT-84 & Up).
- A: Penetrant inspect part (drawing 80911031157 and STP2501 Type 1 Method A).
- A: Radiographic inspect part (drawing 80911031156 and STP2503).
- A: Inspect retaining ring installation (drawing 80911031157 and STP2025).
- A: Inspect dimensional conformance (drawing 80911031157).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80911031149 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911031149).
- B: Inspect safety wiring (drawing 80911031149 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.