

CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Support Hardware	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:			
ANALYSTS:	H. Keefe/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.

TIME TO EFFECT: Immediate

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provide GH2 pressurization and cable tray line support on the LH2 tank.

<u>FMEA ITEM</u> <u>CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.4.15.1	80914041411-010	Fitting Assembly (GH2)	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: Support Hardware
PMEA ITEM CODE(S): 4.4.15.1

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

RATIONALE FOR RETENTION

DESIGN:

- A-C: The Fitting is machined 2219-T87 from aluminum alloy plate stock and shear pin is made from A286 Bar Cres. Materials selected for this assembly are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Acceptable surface finish of machined parts is assured by penetrant inspection per STP2501.
- A: The Fitting 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.
- C: The Shear Pin is designed to the required ultimate safety factor of 1.4 (ET Stress Analysis Report 826-2188).

TEST:

The Fitting Assembly (GH2) is certified. Reference HCS MMC-ET-TM08-L-S080 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S506 (LWT-89 & Up).

Vendor:

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

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A-C: Verify material selection and verification control (MMC-ET-SE16, drawings 80914041427, 80914041411 and standard drawing 26L2 and 34L2).
- A: Inspect dimensional conformance (drawings 80914041411 and 80914041427).
- A: Penetrant inspect part (drawing 80914041411 and STP2501, Type 1, Method A).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80914041409 and STP2014).
- A-C: Verify installation and witness torque (drawing 80914041409 and STP2014).
- B: Verify locking feature (drawing 80914041409 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.