

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 G02 pressurization line 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>
4.4.18.1	80914041416-009	Fitting Assembly (G02)	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: ASI  
SUBSYSTEM: Support Hardware  
FMEA ITEM CODE(S): 4.4.18.1

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RATIONALE FOR RETENTION

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DESIGN:

- A-C: The Fitting is machined from 2219-T87 aluminum alloy plate stock and shear pin is made from A286 Bar Cres. Materials selected for this part number 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 (G02) is certified. Reference HCS MMC-ET-TM08-L-S083 (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 materials selection and verification controls (MMC-ET-SE16, drawing 80914041416, 80914041427 and standard drawings 26L2 and 34L2).
- A: Inspect dimensional conformance (drawings 80914041416 and 80914041427).
- A: Penetrant inspect part (drawing 80914041416 and STP2501, Type 1, Method A).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80914041409 and STP2014).
- A, B: 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.