

CRITICAL ITEMS LIST (CIL)

SYSTEM: ASI  
 SUBSYSTEM: Support Hardware  
 REV & DATE: J, 12-19-97  
 DCN & DATE: 001, 6-15-98  
 ANALYSTS: J. McAllister/A. Thadhani

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 loss of support for LH2 feedline resulting in fire/explosion.  
 TIME TO EFFECT: Immediate  
 FAILURE CAUSE(S): Improper Manufacture  
 REDUNDANCY SCREENS: Not Applicable  
 FUNCTIONAL DESCRIPTION: The fitting provides mounting surfaces and structural support for the internal and external LH2 feedlines.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.4.49.1	80914940986-001	Fitting, Feedline (LH2)	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: ASI  
SUBSYSTEM: Support Hardware  
FMEA ITEM CODE(S): 4.4.49.1

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RATIONALE FOR RETENTION

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DESIGN:

The feedline fitting is machined from a 2219-T6 aluminum forging and has a 16.60 inch inside diameter. 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. The feedline fitting is edge trimmed during assembly. Threaded inserts and bolts are installed in the feedline fitting per STP2024 and STP2014 respectively.

The LH2 feedline fitting is welded into LH2 aft dome. Integrity of weld and weld design is covered in details in the Critical Items List (CIL) for Pressure Vessels (Volume VI).

The fitting is designed to a required yield (1.1) and ultimate (1.25) safety factor for well-defined loads and (1.4) for other loads (ET Stress Report 826-2188).

TEST:

The Feedline Fitting (LH2) is certified. Reference HCS MMC-ET-TM08-L-S184 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S503 (LWT-89 & Up).

Vendor:

The fasteners are procured and tested to standard drawings 26L2 and 34L2.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

Verify material selection and verification controls (MMC-ET-SE16, STM-Q-250, STM5163, drawing 82614420026 and standard drawings 26L2 and 34L2).

Verify cold cycle stress relief (drawing 80914940986).

Penetrant inspect part (drawing 80914940986 and STP2501 and Type 1, Method A).

Inspect dimensional conformance (drawing 80914940986).

MAF Quality Inspection:

Inspect hole dimensions for inserts (STP2024 and drawing 80914961960).

Verify installation and witness torque (drawings 80914940945, 80921011009, 80924901916 and STP2014).

Verify application of chemical film (drawing 80914961960 and STP3001, Class 1A).

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.