

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): a, b  
 HAZARD REF: S.11

FAILURE MODE: Structural Failure

FAILURE EFFECT: a) Loss of mission and vehicle/crew due to fire/explosion.  
 b) Loss of mission and vehicle/crew due to fire/explosion or debris source to Orbiter.

TIME TO EFFECT: Seconds (a), Immediate (b)

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provide attachment fittings on the LH2 tank for the LO2 feedline strut and yoke assemblies.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.4.36.1	80914041457-009	Fitting Assy (LO2 Feedline)	2	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: ASI  
SUBSYSTEM: Support Hardware  
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RATIONALE FOR RETENTION

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DESIGN:

- A, B: The Fitting is machined from an 2219-T6 aluminum alloy forging. 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 is designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).
- B, C: The bearing and attaching hardware are 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 Fitting Assembly (LQ2 Feedline) is certified. Reference HCS MMC-ET-TM08-L-S089 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S507 (LWT-89 & Up).

Vendor:

- B, C: Attaching fasteners are procured and tested to standard drawings 26L2 and 34L2, and bearings are procured and tested to standard drawings 36L9.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A: Penetrant inspect part (drawing 80914041457 and STP2501, Type 1, Method A).
- A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 82611001037 and standard drawings 26L2, 34L2 and 36L9).
- A, C: Inspect lubricant application (standard drawing 36L9).
- A, C: Inspect dimensional conformance (drawings 80914041457, 82611001037, and Standard drawing 36L9).
- A, C: Inspect staking of bearing (drawing 80914041457 and STP2010, Type 1).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80914041459 and STP2014).
- A, B: Verify installation and witness torque (drawing 80914041459 and STP2014).
- B: Verify locking feature (drawing 80914041459 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.