

CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Support Hardware	PHASE(S):	a, b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCM & DATE:	002, 2-28-99		
ANALYSTS:	M. Keefe/E. Howell		

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 support for the LO2 feedline 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>
4.4.42.1	80911001458-010 -019	Yoke Assy (LO2 Feedline)	1 1	LWT-54 thru 599 LWT-600 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: ASI  
SUBSYSTEM: Support Hardware  
FMEA ITEM CODE(S): 4.4.42.1

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

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RATIONALE FOR RETENTION

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DESIGN:

- A, B: The Yoke 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 characteristics of forged parts are assured by ultrasonic inspection per MIL-I-8950.
- A: The Yoke Assembly 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 Yoke Assembly (LO2 Feedline) is certified. Reference HCS MMC-ET-TM08-L-S095 (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 26L4 and 33L1, and bearings are procured and tested to standard drawing 36L8.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A: Verify ultrasonic inspection (drawing 82611001031).
- A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 82611001031 and standard drawings 26L4, 33L1 and 36L8).
- A, C: Inspect lubricant application (standard drawing 36L8).
- A, C: Inspect dimensional conformance (drawing 80911001458 and standard drawing 36L8).
- A, C: Inspect staking of bearing (drawing 80911001458 and STP2010, Type I).

MAF Quality Inspection:

- B: Inspect that attaching hardware is free from damage (drawing 80911001459 and STP2014).
- A, B: Verify installation and witness torque (drawing 80911001459 and STP2014).
- C: Inspect bearing for freedom of movement (drawing 80911001459).

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.