

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
DCN & DATE:	002, 2-28-99		
ANALYSTS:	H. 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.

FMEA ITEM CODE(S)	PART_NO.	PART_NAME	QTY	EFFECTIVITY
4.4.40.1	80911001473-009	Yoke Assy (LO2 Feedline)	2	LWT-54 thru 68
	-009		3	LWT-69 thru 599
	-009		4	LWT-600 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: Support Hardware
FMEA ITEM CODE(S): 4.4.40.1

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

RATIONALE FOR RETENTION

DESIGN:

- A, B: The Yoke is machined from 2219-T87 aluminum alloy plate stock. 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 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-S093 (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: Penetrant inspect part (drawing 80911001473 and STP2501, Type 1, Method A).
- A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911001473 and standard drawings 26L4, 33L1 and 36L8).
- A, C: Inspect lubricant application (standard drawing 36L8).
- A, C: Inspect dimensional conformance (drawing 80911001473 and standard drawing 36L8).
- A, C: Inspect staking of bearing (drawing 80911001473 and STP2010, Type 1).

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.