SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Support Hardware	PHASE(S):	a, b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:			
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 attachment fittings on the LH2 tank for the LO2 feedline strut and yoke assemblies.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.4.39.1	80914041454-019	Fitting Assy (LO2 Feedline)	1	LWT-54 & Up

REMARKS:

SYSTEM:	ASI	REV & DATE:	J, 12-19-97
SUBSYSTEM:	Support Hardware	DCN & DATE:	
FMEA ITEM CODE(S):	4.4.39.1		

RATIONALE FOR RETENTION

DESIGN:

A, B: The fitting is machined from an A357-T6 aluminum alloy casting. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Acceptable characteristics of cast parts are assured by testing at least one integrally cast test bar from each casting. Integral cast test bars must meet MIL-A-21180 mechanical properties.

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 (LO2 Feedline) is certified. Reference HCS MMC-ET-TM08-L-S092 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S507 (LWT-89 & Up).

Vendor:

A: Perform coupon sampling test (drawing 82611001033).

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

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

A: Inspect castings and coupon acceptance (drawing 82611001033).

A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 82611001033 and drawings 26L2, 34L2 and 36L9).

A, C: Inspect lubricant application (standard drawing 36L9).

A, C: Inspect dimensional conformance (drawing 80914041454 and standard drawing 36L9).

A, C: Inspect staking of bearing (drawing 80914041454 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.