

CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASJ	FUNCTIONAL CRT:	1
SUBSYSTEM:	Propulsion	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	P.03, S.11
DCN & DATE:			
ANALYSTS:	C. Rush/E. Howell		

FAILURE MODE: Structural Failure

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

TIME TO EFFECT: Immediate

FAILURE CAUSE(S):  
 A: Failure of Clevis  
 B: Failure of Attaching Hardware  
 C: Failure of Attaching Hardware and Dowel Pins

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Transports LO2 to the Orbiter umbilical.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.6.2.1	80921011009-009 -500	Propellant Feed Installation (LO2)	1 1	LWT-54 thru 88 LWT-89 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: ASI  
SUBSYSTEM: Propulsion  
PMEA ITEM CODE(S): 4.6.2.1

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

RATIONALE FOR RETENTION

DESIGN:

- A-C: The clevis is machined from 67M-5163 2219-T6 CL1 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 clevis is designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).
- B, C: The attaching hardware and dowel pins are selected from the Approved Standard Parts List (ASPL 826-3500). Bolts are 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 Propellant Feed Installation (LQ2) is certified. Reference NCS MMC-ET-TM08-L-5170 (LWT-54 thru 88) and NCS MMC-ET-TM08-L-5520 (LWT-89 & Up).

Vendor:

- B, C: Attaching fasteners are procured and tested to standard drawings 22L4, 26L2, 26L4, 33L1, 33L2, 33L6 34L2, and MS24665.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80921011923 and standard drawings 22L4, 26L2, 33L2, 26L4, 33L6, 33L1, 34L2 and MS24665).
- B: Inspect dimensional conformance (drawing 80921011923).
- A: Penetrant inspect part (drawing 80921011923 and STP2501 Type 1, Method A).

MAF Quality Inspection:

- A-C: Inspect that attaching hardware is free from damage (drawing 80921011009 and STP2014).
- B, C: Verify installation and witness torque (drawing 80921011009 and STP2014).
- C: Verify locking feature (drawing 80921011009 and STP2014).
- B: Inspect cotter pin installation (drawing 80921011009 and STP2013).

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.