

CRITICAL ITEMS LIST (CIL)

SYSTEM: Propulsion/Mechanical FUNCTIONAL CRIT: 1
 SUBSYSTEM: Helium Inject PHASE(S): a, b
 REV & DATE: J, 12-19-97 HAZARD REF: P.02, S.11
 DCN & DATE:
 ANALYSTS: J. Attar/H. Claybrook

FAILURE MODE: Leakage
 FAILURE EFFECT: a) Loss of mission and vehicle/crew due to fire/explosion.
 b) Loss of mission and vehicle/crew due to fire/explosion.
 TIME TO EFFECT: Seconds
 FAILURE CAUSE(S): A: Structural Failure of Elbow
 B: Disengagement of Elbow
 C: Structural Failure of Bulkhead Nut
 D: Disengagement of Bulkhead Nut
 REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Connects the helium inject (downstream) tube assy to the bulkhead attachment.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
2.4.28.1	MS24394-J4	Elbow	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: Propulsion/Mechanical
SUBSYSTEM: Helium Inject
FMEA ITEM CODE(S): 2.4.28.1

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RATIONALE FOR RETENTION

DESIGN:

The elbow is attached to the bulkhead of the helium inject filter/valve assembly compartment by a bulkhead nut and provides the connection for the tube assemblies downstream of the orifice.

- A, C: The elbow and nut are fabricated from 304 CRES and was selected for usage based on operational experience and their capability to meet ET requirements for Class 3 threads. The elbow meets the required ultimate (4.0) and yield (1.25) safety factors for pressure (ET Stress Report 826-2188). Material selected in accordance with MMC-ET-SE16 and controlled per MMMA Approved Vendor Product Assurance Plan assures conformance of composition, material compatibility and properties. Procurement is governed by material, fabrication, processing, and inspection specification per Standard Drawings MS2439 and 57L10. Installation loads are sufficient to provide screening for major flaws.
- B, D: The elbow and bulkhead nut are installed and torqued as specified on the engineering installation drawing and the nut is lockwired to prevent disengagement.

TEST:

The Elbow is certified. Reference MCS MMC-ET-TM08-L-P015.

Acceptance:

MAF:

- A, B: Perform leakage test (MMC-ET-TM04k).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16 and Standard drawings MS24394 and 57L10).

MAF Quality Inspection:

- A-D: Verify installation and witness torque (drawing 80921011941).
- A, B: Witness leakage test (MMC-ET-TM04k).

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.