

CRITICAL ITEMS LIST (CIL)

SYSTEM: Electrical
SUBSYSTEM: LH2 Aft Feedthru Receptacle
REV & DATE: J, 12-19-97
DCN & DATE:
ANALYSTS: J. Bowski/A. Oser

FUNCTIONAL CRIT: 1
PHASE(S): a, b
HAZARD REF: S.06

FAILURE MODE: Leakage
FAILURE EFFECT: a,b) Loss of mission and vehicle/crew due to fire/explosion.
TIME TO EFFECT: Seconds
FAILURE CAUSE(S): A: Improper Seating
B: Damaged Seal/Sealing Surface
REDUNDANCY SCREENS: Not Applicable
FUNCTIONAL DESCRIPTION: This seal is installed between the connector flange and feedthru interface to minimize leakage.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
3.11.8.1	55L5-16L	K-Seal	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

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RATIONALE FOR RETENTION

DESIGN:

The material used for the seal is A-286 corrosion resistant steel per AMS 5737. It is lead coated for hydrogen service in temperatures of -423°F to +350°F and is designed to withstand a pressure of 1000 psia.

The K-Seal 55L5 has been used on various space vehicles where cryogenic propellant sealing is required. Design features that aid in sealing are dual sealing surfaces, heel seal to provide mechanical stop and carries hoop tension, soft coating on the seals to seal surface finish imperfections, and flexible tapered lips to maintain stress levels.

A, B: The seal is designed with a soft coating, has hoop tension, and flexible taper lips to assure sealing.

TEST:

The K-Seal is certified. Reference HCS MMC-ET-TM08-L-P008.

MAF:

A, B: Perform Leak Test (TM04k).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

B: Inspect dimensions and finish of sealing surface (Standard Drawing 55L5).

B: Verify material selection (MMC-ET-SE16 and Standards Drawing 55L5).

MAF Quality Inspection:

B: Inspect the seal, flanges, and boss for cleanliness, nicks, scratches and other damage (Drawing 80934003709).

A: Witness torque application (Drawing 80934003709).

A: Inspect safety wire installation of the 81L2-2 connector (Drawing 80934003709 and STP2013).

A, B: Witness Leak Check Test (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.