

CRITICAL ITEMS LIST (CIL)

SYSTEM: Electrical  
 SUBSYSTEM: GH2 Pressurization System  
 REV & DATE: J, 12-19-97  
 DCN & DATE:  
 ANALYSTS: J. McCardle/T. McKeough/A. Oser

FUNCTIONAL CRIT: 1  
 PHASE(S): b  
 HAZARD REF: S.09

FAILURE MODE: Mechanical Failure of Mounting Bracket

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to fire/explosion when relief valve opens or debris source to Orbiter.

TIME TO EFFECT: Minutes

FAILURE CAUSE(S):  
 A: Material Defect  
 B: Assembly Error  
 C: Failure of Vibration Isolator

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: One vibration isolated bracket is used for mounting all four pressure transducers.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
3.4.6.1	80931003810-029 -030	GH2 Pressure Transducer Mounting Bracket	1 1	LWT-54 thru 83 LWT-84 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

SYSTEM: Electrical  
SUBSYSTEM: GH2 Pressurization System  
FMEA ITEM CODE(S): 3.4.6.1

REV & DATE: J, 12-19-97  
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RATIONALE FOR RETENTION

DESIGN:

- A, B: The bracket provides shock isolation for the four pressure transducers and incorporates the electrical and pressure connection into the respective system. The bracket is designed with an ultimate stress factor of 1.4. Reference Stress Report 826-2188.
- A, B: The bracket is a "T" section which is constructed of Phenolic blocks per STM A088 and angular supports made of CRES per MIL-S-5059. The basic inverted "T" section is mounted on a CRES plate which attaches to two vibration isolators. The vibration isolators are attached to a phenolic mounting plate which interfaces with the tank structure.
- C: The vibration isolator consists of a piece of stainless steel wire rope formed into loops and held in place by two stainless steel bar clamps. One of the clamps attaches to the LO2 tank and the other to the pressure transducer mounting bracket. The clamps are held together with stainless steel screws which are installed with locktite. The clamps also contain locking inserts which are used to fasten the isolator to the LO2 tank and to the pressure transducer mounting bracket.

TEST:

The bracket is qualified. Reference HCS MMC-ET-TM08-E007.

Vendor:

- A, B: Perform Lot testing (Lockheed Martin STM A088).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A: Verify Lot acceptance of material (Lockheed Martin STM A088).
- A: Verify material selection in accordance with MMC-ET-SE16 and verification controls per MIL-S-5059, MIL-S-6721 and QQ-A-250/30.
- C: Verify material selection (54L5).
- C: Verify screws are properly secured (54L5).
- C: Verify proper installation of inserts (Aeroflex C3148-75579).

MAF Quality Inspection:

- A: Inspect phenolic material for freedom of cracks or delaminated areas prior to assembly: MPP 80931003810-029.
- B: Inspect bracket for freedom of damage after installation (MPP 80901000SCL for LWT-54 thru 73: MPP 80901010000 for LWT-74 & Up).
- C: Verify vendor Certificate of Compliance for 54L5-1 vibration isolator.
- C: Verify installation and witness torque of 54L5-1 vibration isolator (80931003729).

Launch Site:

- B: Inspect bracket for freedom of damage prior to intertank door installation per (OMRSD FILE IV).

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.