SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Support Hardware	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:	004, 6-30-99		
ANALYSTS:	H. Keefe/E. Howell		

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to LH2 tank structural failure or debris source to Orbiter.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S): A: Improper Manufacture
B: Failure of Attaching Hardware

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provide support for the flexible section of the GH2 pressurization line.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.4.26.1	80921021037-009	Guide Assy (GH2)	1	LWT-54 thru 84, 89 thru 96
	80921021071-009	Guide Assy (GH2)	1	LWT-85 thru 88, 97 & Up
4.4.27.1	80921021037-020	Guide Assy (GH2)	1	LWT-54 thru 84, 89 thru 96
	80921021072-009	Guide Assy (GH2)	1	LWT-85 thru 88, 97 & Up
4.4.28.1	80921021037-005	Support (GH2)	2	LWT-54 & Up

REMARKS: The support components are grouped as the failure mode, causes and effects are the same.

SYSTEM:	ASI	REV & DATE:	J, 12-19-97
SUBSYSTEM:	Support Hardware	DCN & DATE:	004, 6-30-99
FMEA ITEM CODE(S):	4.4.26.1, 4.4.27.1, 4.4.28.1		

RATIONALE FOR RETENTION

DESIGN:

A, B: These Support Components (except 80921021037-005) are made from 6061-T6/T6511 aluminum alloy sheet, plate or extrusion. The 80921021037-005 support is made from 2219-T62 aluminum alloy sheet. Assemblies contain Rub Strips that are made from Dupont (Commercial SP-1) Vespal shapes. Materials selected for these part numbers are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties.

A: The support components are designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).

B: The attaching hardware is 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 Guide Assy (GH2) and the Support (GH2) are certified. Reference HCS MMC-ET-TM08-L-S167 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S524 (LWT-89 & Up).

Vendor:

A: Perform Adhesive Hardness Test for FMEA Item Codes 4.4.26.1 and 4.4.27.1 (STP6001 and drawing 80921021037 for LWT-54 thru 84, 89 thru 96; 80921021071 and 80921021072 for LWT-85 thru 88, 97 & Up).

B: Attaching fasteners are procured and tested to standard drawings 26L23, 26L17, 33L1 and 34L1.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80921021037 and standard drawings 26L23, 26L17, 33L1 and 34L1; drawings 80921021071 and 80921021072 for LWT-85 thru 88, 97 & Up)

A: Inspect dimensional conformance (drawing 80921021037; drawings 80921021071 and 80921021072 for LWT-85 thru 88, 97 & Up).

A: Witness Adhesive Hardness Test for FMEA Item Codes 4.4.26.1 and 4.4.27.1 (STP6001 and drawing 80921021037 for LWT-54 thru 84, 89 thru 96; 80921021071 and 80921021072 for LWT-85 thru 88, 97 & Up).

MAF Quality Inspection:

B: Inspect that attaching hardware is free from damage (drawing 80921021009 and STP2014).

A, B: Verify installation and witness torque (drawing 80921021009 and STP2014).

B: Verify locking feature (drawing 80921021009 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.