CRITICAL ITEMS LIST (CIL)

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

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to LO2 tank structural failure or debris source to Orbiter.

TIME TO EFFECT: Immediate

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provides support and attachment for the LO2 cable tray segments and GO2 pressurization line on the LO2 tank.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.4.5.1	80911141201-010	Support Assembly (LO2)	3	LWT-54 thru 84
	-039		1	LWT-54 thru 84
	-010		4	LWT-85 & Up
4.4.6.1	80911141201-010	Support Assembly (LO2)	5	LWT-54 & Up
4.4.7.1	80911141201-029	Support Assembly (LO2)	1	LWT-54 & Up
4.4.8.1	80911141201-030	Support Assembly (LO2)	2	LWT-54 & Up

REMARKS: The support assemblies 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:	
FMEA ITEM CODE(S):	4.4.5.1, 4.4.6.1, 4.4.7.1, 4.4.8.1		

RATIONALE FOR RETENTION

DESIGN:

A-C: The Support Assemblies are fiberglass/epoxy back to back channel assemblies. Materials selected for these part numbers are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Acceptable characteristics of the laminated fiberglass epoxy parts are assured by using glass fabric per STP1517, epoxy resin per MIL-R-9300 and bonding per STP6001.

A, B: The Support Assembly is designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).

C: 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 Support Assembly (LO2) is certified. Reference HCS MMC-ET-TM08-L-S073 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S504 (LWT-89 & Up).

Vendor:

A, B: Perform Lap Shear Specimens Test (drawing 80911141202).

C: Attaching fasteners are procured and tested to standard drawings 26L3, 33L1 and 33L3.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911141202 and standard drawings 26L3, 33L3 and 33L1).

A, B: Witness Lap Shear Specimens Test (drawing 80911141202).

A, B: Inspect dimensional conformance (drawings 80911141201 and 80911141202).

MAF Quality Inspection:

C: Inspect that attaching hardware is free from damage (drawing 80912041000, 80911141200, and STP2014).

A-C: Verify installation and witness torque (drawing 80912041000, 80911141200 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.