

CRITICAL ITEMS LIST (CIL)

SYSTEM: ASI
 SUBSYSTEM: Support Hardware
 REV & DATE: J, 12-19-97
 DCN & DATE: 004, 6-30-99
 ANALYSTS: H. Keefe/E. Howell

FUNCTIONAL CRIT: 1
 PHASE(S): b
 HAZARD REF: S.11

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 Attaching Hardware
 REDUNDANCY SCREENS: Not Applicable
 FUNCTIONAL DESCRIPTION: Provide support for the flexible section of the GO2 pressurization line at the LO2 umbilical cable tray.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.4.29.1	80921021037-010	Guide Assy (GO2)	1	LWT-54 thru 84, 89 thru 96
	80921021073-009	Guide Assy (GO2)	1	LWT-85 thru 88, 97 & Up
4.4.30.1	80921021037-019	Guide Assy (GO2)	1	LWT-54 thru 84, 89 thru 96
	80921021074-009	Guide Assy (GO2)	1	LWT-85 thru 88, 97 & Up

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

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CONTINUATION SHEET

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

DESIGN:

- A, B: The Guide Assemblies consist of 6061-T6511 (for 80921021037-010 and 80921021073-009) and 2219-T87 (for 80921021037-019 and 80921021074-009) aluminum alloy parts with attached Rub Strip of (Commercial SP-1) Dupont Vespal shapes. Materials selected for these part numbers are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Acceptable surface finish of machined parts is assured by penetrant inspection per STP2501.
- A: The Guide Assemblies are designed to the required ultimate safety factor of 1.4 (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 Assembly (G02) is certified. Reference HCS MMC-ET-TM08-L-S168 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S524 (LWT-89 & Up).

Vendor:

- A: Perform Adhesive Hardness Test (drawings 80921021037 and STP6001 for LWT-54 thru 84, 89 thru 96, and 80921021073, 80921021074 for LWT-85 thru 88, 97 & Up).
- B: Attaching fasteners are procured and tested to standard drawings 26L17, 26L23 and 33L1.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A, B: Verify materials selection and verification controls (MMC-ET-SE16 and standard drawings 26L17, 26L23, 33L1; drawings 80921021037 for LWT-54 thru 84, 89 thru 96; drawings 80921021073 and 80921021074 for LWT-85 thru 88, 97 & Up)
- A: Witness Adhesive Hardness Test (STP6001 and drawings 80921021037 for LWT-54 thru 84, 89 thru 96; drawings 80921021073 and 80921021074 for LWT-85 thru 88, 97 & Up).
- A: Inspect dimensional conformance (drawings 80921021037 for LWT-54 thru 84, 89 thru 96; drawings 80921021073 and 80921021074 for LWT-85 thru 88, 97 & Up).
- A: Penetrant inspect part for FMEA Item Code 4.4.30.1 (STP2501, Type I, Method A and drawings 80921021037 for LWT-54 thru 84, 89 thru 96; 80921021074 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).

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.