

CRITICAL ITEMS LIST (CIL)

SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	ET Interface Hardware	PHASE(S):	a, b
REV & DATE:	J, 12-19-97	HAZARD REF:	P.03, S.11
DCN & DATE:			
ANALYSTS:	C. Rush/E. Howell		

FAILURE MODE: Structural Failure

FAILURE EFFECT: a) Loss of mission and vehicle/crew due to fire/explosion.
 b) Loss of mission and vehicle/crew due to fire/explosion or debris source to Orbiter from cable tray and fairing details.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S): A: Improper Manufacture
 B: Failure of Attaching Hardware
 C: Failure of Dowel Pin and Bearings

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Crossbeam cable tray and pressurization line fairing support fittings.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.5.4.1	80911071880-320	Crossbeam Mechanical Assy	1	LWT-54 thru 63
	-339		1	LWT-64 thru 73
	-340		1	LWT-74 thru 88
	-500		1	LWT-89 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: ET Interface Hardware
FMEA ITEM CODE(S): 4.5.4.1

REV & DATE: J, 12-19-97
DCN & DATE:

RATIONALE FOR RETENTION

DESIGN:

- A-C: The crossbeam mechanical assembly details are made from 2024-T62, 2024-T81, and 2219-T62 aluminum alloy sheet stock, 2219-T87 and 6061-T651 plate stock, 2219-T6 aluminum die forging and 2024-T8511, 6061-T6511, 7075-T7351 and 7075-T73511 aluminum alloy extrusions. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Surface integrity is assured by penetrant inspection per STP2501.
- B, C: The attaching hardware, bearings, bushing and dowel are selected from the Approved Standard Parts List (ASPL 826-3500) (ET Stress Report 826-2188). 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.
- A: The crossbeam assembly details are designed to the required yield (1.1) and ultimate (1.4) safety factors (ET Stress Report 826-2188).

TEST:

The Crossbeam Mechanical Assy is certified. Reference HCS MMC-ET-TM08-L-S103 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S516 (LWT-89 & Up).

Vendor:

- B, C: Attaching fasteners, dowel pin and bearings are procured and tested to standard drawings 22L1, 26L3, 26L14, 33L1, 33L2, 34L2, 36L3, 36L8, 36L9 and M27426.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A-C: Verify materials selection and verification controls (MMC-ET-SE16, standard drawings 22L1, 36L3, 36L8, 36L9, 26L3, 26L14, 34L2; 33L2 for LWT-54 thru 88, 33L1 for LWT-89 & Up, and M27426, drawings 80911071701, 80911071703, 80911071711, 80911071804, 80911071831, 80911071881 and 80911071882 for all effectivities; drawings 80911071705, 80911071708, 80911071731, 80911071756, 80911071757 and 80911071758 for LWT-54 thru 63; drawings 80911071705, 80911071708, 80911071756, 80911071757 and 80911071758 for LWT-64 thru 73; drawings 80911071705, 80911071708 and 80911071825 for LWT-74 & Up).
- A: Penetrant inspect parts (STP2501 Type 1 Method A, drawings 80911071804, 80911071881, 80911071708 and 80911071712 for all effectivities; drawings 80911071756, 80911071757, 80911071758 for LWT-54 thru 73; drawing 80911071825 for LWT-74 & Up).

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: ET Interface Hardware
FMEA ITEM CODE(S): 4.5.4.1

REV & DATE: J, 12-19-97
DCN & DATE:

RATIONALE FOR RETENTION

INSPECTION: (cont)

A: Inspect dimensional conformance (drawings 80911071804, 80911071881, 80911071708 and 80911071712 for all effectivities; drawings 80911071756, 80911071757, 80911071758 for LWT-54 thru 73; drawing 80911071825 for LWT-74 & Up).

MAF Quality Inspection:

- A: Penetrant inspect parts (drawings 80911071702, 80911071704 and 80911071706).
- A: Inspect dimensional conformance (drawings 80911071702, 80911071704 and 80911071706).
- B, C: Inspect that attaching hardware is free from damage (drawing 80911071880 and STP2014).
- A, B: Verify fastener installation and witness torque (drawing 80911071880).
- B: Verify locking feature (drawing 80911071880 and STP2014).
- C: Verify installation of dowel pin (drawing 80911071880).
- C: Verify installation of retainer ring and bearings (drawing 80911071880).

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.