

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:	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 break up of out of control vehicle resulting from failure of aft SRB attachment.

TIME TO EFFECT: Immediate

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Upper aft interface and structural load path between ET and SRB.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
4.5.57.1	80911051124-010	Fitting Instl, Upper Aft, ET/SRB	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: ASI
SUBSYSTEM: ET Interface Hardware
FMEA ITEM CODE(S): 4.5.57.1

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

RATIONALE FOR RETENTION

DESIGN:

- A, B: The fitting is machined from a Ti-6AL-4V titanium casting (STD (STM5632) grade for LWT-54 thru 83; STD (STM5633) grade for LWT-84 & Up). The shear pin is machined from AMS-5663 PPT HT inconel bar. Materials are selected in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Part integrity is assured by radiographic inspection per STP2503 and by penetrant inspection per STP2501. The fitting assembly, shear pin and attachment hardware are designed to the required ultimate safety factor of 1.4 (ET Stress Report 826-2188).
- B: Attaching hardware and bearing is selected from the Approved Standard Parts List (ASPL 826-3500). Attaching 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 Fitting Installation, Upper Aft, ET/SRB is certified. Reference HCS MMC-ET-TM08-L-S181 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S509 (LWT-89 & Up).

Vendor:

- B, C: Attaching fasteners and bearings are procured and tested to standard drawings 36L12, 26L2 and 34L2.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A-C: Verify materials selection and verification controls (MMC-ET-SE16, drawings 80911051126, 80911051131 and standard drawings 26L2, 34L2 and 36L12-1; STM5632 for LWT-54 thru 83; STM5633 for LWT-84 & Up).
- A: Inspection retaining ring installation (drawing 80911051125 and STP2029).
- A: Inspect dimensional conformance (drawings 80911051126 and 80911051135).
- A: Radiographic inspect part (drawing 80911051131 and STP2503).
- A: Penetrant inspect part (drawing 80911051135 and STP2501 Type 1 Method A).

MAF Quality Inspection

- A, B: Verify installation and witness torque (drawing 80911051124).
- B: Inspect that attaching hardware is free from damage (drawing 80911051124 and STP2014).
- B: Inspect safety wiring (drawing 80911051124 and STP2013).
- B: Verify locking feature (drawing 80911051124 and STP2014).

Launch Site:

- C: Inspect bearing surface condition (OMRSD File II).

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.