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

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to collapse of interface system resulting in fire/explosion 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: Interface and structural load path between Orbiter/ET attach fitting and bipod.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.5.46.1	80911009190-099	Yoke Assembly	1	LWT-54 thru 83
	-150		1	LWT-84 thru 88
	-510		1	LWT-89 & Up

REMARKS:

SYSTEM:	ASI	REV & DATE:	J, 12-19-97
SUBSYSTEM:	ET Interface Hardware	DCN & DATE:	
FMEA ITEM CODE(S):	4.5.46.1		

RATIONALE FOR RETENTION

DESIGN:

A, B: The yoke, upper bipod strut fitting, shear pin and retaining cap are made from a TI-6AL-4V titanium casting, 7050-T74 aluminum alloy forging, AMS-5663 PPT HT Inconel bar and 7075-T351 aluminum alloy plate stock respectively. Materials are selected in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Surface integrity is assured by penetrant inspection per STP2501. The yoke fitting, upper bipod fitting, shear pin, retaining cap and attachment hardware are designed to the required ultimate safety factor of 1.4 (ET Stress Report 826-2188).

B: Attaching hardware is selected from the Approved Standard Parts List (ASPL 826-3500), 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 Yoke Assembly is certified. Reference HCS MMC-ET-TM08-L-S180 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S508 (LWT-89 & Up).

Vendor:

B: Attaching fasteners are procured and tested to standard drawings 26L2 and 33L2.

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawings 80911009181, 80911031695, 80911009123, STM5168, standard drawings 26L2 and 33L2; STM5632 for LWT-54 thru 83; STM5633 for LWT-84 & Up).

A: Penetrant inspect part (drawings 80911009181, 80911009186, 80911009122 and STP2501 Type 1 Method A).

A: Inspect dimensional conformance (drawings 80911009181, 80911009186, 80911009122 and 80911009123).

MAF Quality Inspection:

B: Inspect that attaching hardware is free from damage (drawing 80911009190 and STP2014).

A, B: Verify fastener installation and witness torque (drawing 80911009190).

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.