SYSTEM: ASI   FUNCTIONAL CRIT: 1
SUBSYSTEM: ET Interface Hardware   PHASE(S):   b
REV & DATE: J, 12-19-97   HAZARD REF: S.11
DCN & DATE: 002, 2-28-99
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.

TIME TO EFFECT: Immediate

FAILURE CAUSE(S):   Improper Manufacture

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Aft interface and structural vertical load path between Orbiter/ET attach fitting and end
                        fitting.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.5.25.1	80911071745-010	Vertical Strut	2	LWT-54 thru 73
	-019		2	LWT-74 thru 98
	-500		2	LWT-99 thru 113
	-509		2	LWT-114 & Up

REMARKS:

SYSTEM: ASI   REV & DATE: J, 12-19-97
SUBSYSTEM: ET Interface Hardware   DCN & DATE: 002, 2-28-99
FMEA ITEM CODE(S):   4.5.25.1

RATIONALE FOR RETENTION

DESIGN:

    The strut is machined from an 7050-T74 aluminum alloy forging. Materials selected for this part number are in accordance with MMC-ET-SE16 which assures repetitive conformance of composition and properties. Part integrity is assured by ultrasonic inspection per MIL-I-8950 or ASTM B 594 and by penetrant inspection per STP2501. The strut is designed to the required ultimate safety factor of 1.4 (ET Stress Report 826-2188).

TEST:

    The Vertical Strut is certified. Reference HCS MMC-ET-TM08-L-S120 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S516 (LWT-89 & Up).

INSPECTION:

    Vendor Inspection - Lockheed Martin Surveillance:

        Verify materials selection and verification controls (MMC-ET-SE16, STM5168, drawing 80911071725).

        Inspect dimensional conformance (drawings 80911071745 and 80911071725).

        Penetrant inspect part (STP2501 Type 1 Method A and drawing 80911071745; drawing 80911071725 for LWT-74 thru 98).

        Verify ultrasonic inspect (80911071725).

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.