SYSTEM:	ASI	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Electrical Cable Trays	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	S.11
DCN & DATE:			
ANALYSTS:	J. Hicks/E. Howell		

FAILURE MODE: Structural Failure

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to ET structural failure or debris source to Orbiter from cable tray support components.

TIME TO EFFECT: Immediate

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

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Support for tray routed past RH Orbiter/ET ball fitting to LO2 umbilical.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
4.3.118.1	80911071813-004	Support Fitting	1	LWT-54 & Up
4.3.123.1	80911071813-001	Support Fitting	1	LWT-54 & Up
4.3.124.1	80911071813-005	Support Fitting	1	LWT-54 & Up
4.3.125.1	80911071813-002	Support Fitting	1	LWT-54 & Up

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

SYSTEM:	ASI	REV & DATE:	J, 12-19-97
SUBSYSTEM:	Electrical Cable Trays	DCN & DATE:	
FMEA ITEM CODE(S):	4.3.118.1, 4.3.123.1, 4.3.124.1, 4.3.125.1		

RATIONALE FOR RETENTION

DESIGN:

A, B: The support fittings are machined from aluminum alloy 2219-T851 and 2219-T87 plate stock. 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.

A: The fittings are designed to the required yield (1.1) and ultimate (1.4) safety factors (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 Support Fittings are certified. Reference HCS MMC-ET-TM08-L-S069 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-S516 (LWT-89 & Up).

Vendor:

B: Attaching fasteners are procured and tested to standard drawings 26L2, 34L2, 26L3, 33L1 and 33L2.

INSPECTION:

Vendor Inspection-Lockheed Martin Surveillance:

A, B: Verify materials selection and verification controls (MMC-ET-SE16, drawing 80911071813 and standard drawings 26L2, 33L2, 34L2, 26L3 and 33L1).

A: Inspect dimensional conformance (drawing 80911071813).

A: Penetrant inspect part (drawing 80911071813 and STP2501 Type 1, Method A).

MAF Quality Inspection:

B: Inspect that attaching hardware is free from damage (drawing 80911071809 and STP2014).

A, B: Verify installation and witness torque (drawing 80911071809 and STP2014).

B: Verify locking feature (drawing 80911071809 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.