

CRITICAL ITEMS LIST (CIL)

SYSTEM:	Venting	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Aft Cable Trays	PHASE(S):	b
REV & DATE:	J. 12-19-97	HAZARD REF:	E.01
DCN & DATE:	001, 6-15-98		
ANALYSTS:	P. Gandhi/E. Howell		

FAILURE MODE: Excessive Leak Area

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to loss of SRB command signals.

TIME TO EFFECT: Seconds

FAILURE CAUSE(S):
 A: Out of Tolerance Dimensional Clearance Between TPS on Cable Tray and TPS on Cover
 B: Out of Tolerance Dimensional Clearance Between Cable Trays

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provides venting for the LM2 umbilical to crossbeam cable tray compartment during the ascent phase.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
7.4.13.1	80911031849-030 -500	Cable Tray, Feiring and Cover Instl, ET/Orbiter (LH Vertical Strut to Crossbeam Cable Tray Compartment Vent/Leak Area)	1 1	LWT-54 thru 88, 600 & Up LWT-89 thru 599

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: Venting
SUBSYSTEM: Aft Cable Trays
FMEA ITEM CODE(S): 7.4.13.1

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

RATIONALE FOR RETENTION

DESIGN:

The system of cable trays on the ET/DRB/SRB aft attachment is a network of interlocking individual cable tray compartments. Most of the vent/leak locations occur at a juncture of these individual cable trays. In order to model the pressure conditions at a vent/leak location, the space between the overlapping trays were divided into three distinct areas. These areas were defined according to whether they experience windward, leeward or tangential air flow. External pressure coefficients and discharge coefficients are documented in MMC-ET-SE05-95 and MMC-ET-SE05-579.

The gap formed at the juncture of the LH2 umbilical cable tray and the crossbeam cable tray is the vent/leak area.

Vent system performance verification is by analysis (MMC-ET-SE05-95 for LWT-54 thru 88 and MMC-ET-SE05-579 for LWT-89 & Up).

- A: Engineering drawings 80971028421 and 80971078475 specify TPS thickness requirements for the cable trays and covers.
- B: Engineering drawings 80911071808 and 80911071822 specify fabrication requirements for the cable trays.

TEST:

The Cable Tray, Fairing and Cover Instl, ET/Orbiter (LM Vertical Strut to Crossbeam Cable Tray Compartment Vent/Leak Area) is certified. Reference HCS MMC-ET-TM08-L-5155 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-5517 (LWT-89 & Up).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- B: Inspect dimensions (drawings 80911071808, and 80911071822).

NAF Quality Inspections:

- B: Dimensionally inspect vent/leak area. (MMC-ET-TM04k and drawing 80900000008).

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.