

CRITICAL ITEMS LIST (CIL)

SYSTEM:	Venting	FUNCTIONAL CRIT:	1
SUBSYSTEM:	Aft Cable Trays	PHASE(S):	b
REV & DATE:	J, 12-19-97	HAZARD REF:	T.02
DCN & DATE:			
ANALYSTS:	P. Ghanchi/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 SRB Cable Tray, Cover and Fairing
 B: Out of Tolerance TPS on SRB Cable Tray, Cover, and ET

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provides venting for the aft SRB cable tray fairing compartment during ascent phase.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
7.4.25.2	80911019139-039	Fairing Instl, Upper, Aft ET/SRB - KSC (RH Aft ET/SRB Cable Tray to SRB Fairing Vent/Leak Area)	1	LWT-54 & Up
7.4.26.2	80911019139-040	Fairing Instl, Upper, Aft ET/SRB - KSC (LH Aft ET/SRB Cable Tray to SRB Fairing Vent/Leak Area)	1	LWT-54 & Up

REMARKS: These items are grouped as the failure mode, causes and effects are the same.

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: Venting
SUBSYSTEM: Aft Cable Trays
FMEA ITEM CODE(S): 7.4.25.2, 7.4.26.2

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

RATIONALE FOR RETENTION

DESIGN:

The system of cable trays on the ET/SRB/SRB aft attachment is a network of interlocking individual cable tray compartments. 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 flow. External pressure coefficients and discharge coefficients are documented in MMC-ET-SE05-95 and MMC-ET-SE05-579. The aft ET/SRB cable tray to SRB fairing vent/leak area is defined by the gap formed between the ET/SRB cable tray and the upper Aft SRB fairing.

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 drawing 80911009125 specifies fabrication requirements for the aft SRB fairing. Engineering drawing 80911031802 specifies fabrication requirements for the cable tray cover. Engineering drawing 80911031801 specifies fabrication requirements for the cable tray.
- B: Engineering requirements (drawing 80971028445) assure that the TPS on the SRB cable tray and cover will be manufactured to the correct dimensions within drawing tolerances.
- B: Engineering requirements (drawing 80974018411) assure that the TPS on the LH2 barrel will be applied within drawing tolerances.

TEST:

The Fairing Instl, Upper, Aft ET/SRB KSC (Aft ET/SRB Cable Tray to SRB Fairing Vent/Leak Area LH & RH) is certified. Reference HCS MMC-ET-TM05-L-S173 (LWT-54 thru 88) and HCS MMC-ET-TM05-L-S522 (LWT-89 & Up).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

- A: Inspect dimensions (drawings 80911031801 and 80911031802).

Launch Site:

- A: Verify assembly and installation (drawing 80911019139).
- A, B: Inspect vent/leak area (drawing 8090101900B).

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.