

CRITICAL ITEMS LIST (CIL)

SYSTEM: Venting  
 SUBSYSTEM: Aft Cable Trays  
 REV & DATE: J, 12-19-97  
 DCN & DATE:  
 ANALYSTS: P. Ghanchi/E. Howell

FUNCTIONAL CRIT: 1  
 PHASE(S): a  
 HAZARD REF: T.02

FAILURE MODE: Blockage  
 FAILURE EFFECT: a) Loss of mission and vehicle/crew due to hazardous gas condition causing fire/explosion.  
 TIME TO EFFECT: Seconds  
 FAILURE CAUSE(S): A: Foreign Obstruction  
 B: Undersize or Omission of Vent Hole  
 REDUNDANCY SCREENS: Not Applicable  
 FUNCTIONAL DESCRIPTION: Provides venting for the LM2 umbilical cable tray during the ascent phase and vents Orbiter cable tray purge gases during prelaunch (also provides water drainage).

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
7.4.18.1	B0911C31857-002	Cable Tray, Fairing and Cover Instl, ET/Orbiter (LM2 Umbilical Cable Tray Compartment Vent Hole)	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

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RATIONALE FOR RETENTION

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DESIGN:

The LH2 cable tray umbilical compartment vent hole (.750" dia.) provides venting for the LH2 umbilical cable tray during the ascent phase and vents Orbiter purge gases during prelaunch.

The LH2 umbilical fairing is purged with helium gas per 100-2-0A002 to avoid build-up of hazardous gases. The purge gases pass through a 0.03 in<sup>2</sup> orifice per 100-2-12001, and vent out through the LH2 cable tray umbilical compartment vent hole thus sweeping out any hydrogen leak from the interface and precluding any hazardous gas build-up in the umbilical compartment.

- B: Engineering requirements (drawing 80911031857) assure that the vent hole will be drilled to the required dimension.
- B: Engineering requirements (drawing 80971028421) assure TPS fabrication of the LH2 umbilical cable tray compartment vent hole.

TEST:

The Cable Tray, Fairing and Cover Instl, E1/ORB (LH2 Umbilical Cable Tray Compartment Vent Hole) is certified. Reference MCS NMC-ET-TM03-L-S158 (LWT-54 thru 88) and MCS NMC-ET-TM03-L-S517 (LWT-89 & Up).

INSPECTION:

MAF Quality Inspection:

- A: Inspect (visually) cleanliness during installation (drawing 80911031849).
- A, B: Inspect vent for no obstruction (NMC-ET-TM04k and drawing 80900000008).
- B: Inspect vent hole size and location (drawing 80971028421).

Launch Site:

- A, B: Inspect vent area for no obstruction (DMSRD file IV and drawing 80901019008).

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.