

CRITICAL ITEMS LIST (CIL)

SYSTEM:	Venting	FUNCTIONAL CRIT:	:
SUBSYSTEM:	Intertank	PHASE(S):	B
REV & DATE:	J. 12-19-97	HAZARD REF:	S.01, S.05
DCN & DATE:	004, 6-30-99		
ANALYSTS:	P. Ghendji/E. Howell		

FAILURE MODE: Blockage

FAILURE EFFECT: b) Loss of mission and vehicle/crew due to overpressure causing TPS debris.

TIME TO EFFECT: Seconds

FAILURE CAUSE(S):
 A: Foreign Obstruction
 B: Improper Drilling of Vent Holes

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Provides venting for stringer compartments during ascent phase.

FMEA ITEM CODE(S)	PART NO.	PART NAME	QTY	EFFECTIVITY
7.2.9.1	80913000401-001	Skin Panel, Intertank	1	LWT-54 thru 88
	-411	(9 stringers, 2 vent holes	1	LWT-89 thru 113
	-421	per stringer)	1	LWT-114 & Up
7.2.10.1	80913000401-002	Skin Panel, Intertank	1	LWT-54 thru 88
	-412	(7 stringers, 2 vent holes	1	LWT-89 thru 113
	-423	per stringer)	1	LWT-114 & Up
7.2.11.1	80913000401-003	Skin Panel, Intertank	3	LWT-54 thru 88
	-411	(9 stringers, 2 vent holes	3	LWT-89 thru 113
	-422	per stringer)	3	LWT-114 & Up
7.2.12.1	80913000401-005	Skin Panel, Intertank	1	LWT-54 thru 88
	-414	(7 stringers, 2 vent holes	1	LWT-89 thru 113
	-425	per stringer)	1	LWT-114 & Up

REMARKS: All stringer vent holes are grouped as the failure mode, causes and effects are the same.

There are 55 stringers and 108 stringer vent holes on the Intertank in the TPS debris critical zone. However, the following stringers are open to the Intertank: S1-3, S1A-3, S2-3, S17-1, S18-1. These five stringers will not exhibit this failure mode and are considered excluded from this FMEA. The number of stringers per part and the number of vent holes per part have been adjusted to reflect these exclusions.

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: Venting
SUBSYSTEM: Intertank
FMEA ITEM CODE(S): 7.2.9.1, 7.2.10.1, 7.2.11.1, 7.2.12.1

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

RATIONALE FOR RETENTION

DESIGN:

Stringers are mechanically fastened to the six stringer-stiffened panels on the Intertank. Both ends of each stringer are closed. The windward end of the stringer is closed with a metal cap, and the aft end of the stringer is closed with TPS.

Each stringer vents to the Intertank via two 0.18 inch diameter vent holes. The largest stringer compartment encloses a volume of 1232 cubic inches. The two 0.18 inch diameter holes were chosen to yield essentially zero pressure lag for the stringer compartments.

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: Intertank cleanliness is verified by MPP 80913001005.

B: Engineering drawing 80913000401 specifies the size and locations of stringer vent holes. Engineering drawing 80913000430 specifies the size and location of one vent hole for stringer 4-3 through doubler and Intertank skin.

TEST:

The Skin Panel, Intertank is certified. Reference HCS MMC-ET-TM08-L-5151 (LWT-54 thru 88) and HCS MMC-ET-TM08-L-5502 (LWT-89 & Up).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

B: Inspect hole size and location (drawings 80913000401 and 80913000430).

MAF Quality Inspection:

A: Inspect (visually) Intertank internal cleanliness during post installation shakedown inspection (MPP 80913001005).

A: Inspect (visually) vent areas for freedom of obstruction (MMC-ET-TM04k and drawing 80900000008).

Launch Site

A: Inspect (visually) Intertank internal cleanliness (OMRSD File IV).

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.