

CRITICAL ITEMS LIST (CIL)

SYSTEM: Propulsion/Mechanical
 SUBSYSTEM: Intertank Purge
 REV & DATE: J, 12-19-97
 DCN & DATE:
 ANALYSTS: J. Attar/H. Claybrook

FUNCTIONAL CRIT: 1
 PHASE(S): a, b
 HAZARD REF: P.04

FAILURE MODE: Blockage

FAILURE EFFECT: a) Loss of mission and vehicle/crew due to fire/explosion.
 b) Loss of mission and vehicle/crew due to fire/explosion.

TIME TO EFFECT: Seconds

FAILURE CAUSE(S): Foreign Obstruction

REDUNDANCY SCREENS: Not Applicable

FUNCTIONAL DESCRIPTION: Controls heated GN2 flow rate into the distributing manifold to approximately 100 lbs per minute.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
2.13.6.2	57L1-6-173	Orifice	2	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)
CONTINUATION SHEET

SYSTEM: Propulsion/Mechanical
SUBSYSTEM: Intertank Purge
FMEA ITEM CODE(S): 2.13.6.2

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RATIONALE FOR RETENTION

DESIGN:

The intertank purge supplies dry, heated GN2 gas from the Intertank umbilical disconnect to distribution manifolds at Station 985 in the intertank. Two .173 Dia Orifices located at the entrance to the manifolds are provided to control the flow of the heated GN2 to approximately 100 lb/min. The launch facility provides 25 micron filtration and gas sampling for particles no greater than 100 microns that precludes entry of foreign particles. Blockage is controlled by component contamination cleanliness in accordance with STP5008 during installation.

TEST:

The Orifice is certified. Reference MCS MMC-ET-TM08-L-P015.

MPTA Firings/Tankings: The Intertank purge system was installed on MPTA and supported all cryogenic loadings/detankings and accumulated 62.5 minutes of firing time. There was no evidence of leakage or structural damage.

Vendor:

Perform material properties, strength and finish (Standard drawing 57L1).

Launch Site:

Purge gases used shall meet cleanliness requirements per NSTS SE-S-0073 (OMRSD File IV).

Perform audible flow test (OMRSD File IV).

INSPECTION:

Vendor Inspection - Lockheed Martin Surveillance:

Verify material selection and verification controls (MMC-ET-SE16 and Standard drawing 57L1).

MAF Quality Inspection:

Visually inspect for obstruction (drawing 80923021009).

Launch Site:

Witness flow test (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.