

CRITICAL ITEMS LIST (CIL)

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

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

FAILURE MODE: Blockage  
 FAILURE EFFECT: a) 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 nose cone purge GN2 flow rate to 15 lbs per minute.

<u>FMEA ITEM CODE(S)</u>	<u>PART NO.</u>	<u>PART NAME</u>	<u>QTY</u>	<u>EFFECTIVITY</u>
2.12.17.1	57L1-4-127	Orifice	1	LWT-54 & Up

REMARKS:

CRITICAL ITEMS LIST (CIL)  
CONTINUATION SHEET

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RATIONALE FOR RETENTION

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DESIGN:

The nose cone purge delivers heated GN2 from the Intertank umbilical disconnect to the nose cone. Tube assemblies transport the gas through the Intertank, up the LO2 cable tray, into the nose cone terminating at a diffuser assembly. An orifice .127 diameter located at the diffuser entrance controls the flow rate to approximately 15 pounds per minute. The launch facility provides 25 micron filtration and gas sampling for particles 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 HCS MMC-ET-TM08-L-P015.

Vendor:

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

MAF:

Perform flow test (MMC-ET-TM04k).

Launch Site:

Perform audible flow test (OMRSD File IV).

Purge gases used shall meet cleanliness requirements per NSTS SE-S-0073 (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:

Witness flow test (MMC-ET-TM04k).

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.