

DIRECTIVE
 840904K - 13 - 22
 SAA09PP03-001
 REV. E
 B/L 8/30
 MPS LH2, LOA SYSTEM

Critical Item: Filter

Find Number: A100707

Criticality Category: 1

SAA No: 09PP03-001

System/Area: LH2 MPS/LOA/VAA

NASA Part No: 79K80231-13

PMN/ Name: S72-0109/LH2 System, MLP Distribution System

Mfg/ Part No: Wintec 14112-010

Drawing/ Sheet No: 79K06063/79K40023 1

Function: Provides 10 micron filtering of the GHE supplied to the LH2 transfer line for drain assist and MPS leak check purges.

Critical Failure Mode: Pass contaminants. FM. No. 09PP03-001.002

Failure Effect: Possible contamination of the Shuttle main propulsion system and damage to the Orbiter SSMEs resulting in a loss of vehicle. This failure is not detectable.

Acceptance Rationale

Design:

- o This filter is operated within all design specifications.

	<u>Rated</u>	<u>Actual</u>
Pressure (psig)	6500	1020
Flow (scfm)	1470	329
Temperature (°F)	-300 to +450	70
Element Collapse Pressure (PSID)	3000	
Max Differential Operating Press. Across Element (PSID)	20	.909 (calculated)

- o The filter element and body is constructed of 300 series SST.

340204K - 14 = 22 =

SAAO9PP03-001
REV. E
B/L 8/30
MPS LH2, LOA SYSTEM

Filter, A100707 (Continued)

Test/Inspection:

- o File VI verifies the following:
 - Filter element cleaned to KSC-C-123 Level 300 or greater.
 - Filter replacement annually.
 - Bubblepoint per ARP-901.
 - Absolute micron rating.
- o The manufacturer's certification test required the following tests:
 - Proof
 - Leak
 - Bubble point
- o Drawing 79K12402 Requirements:

The element will be replaced after the first functional test (cold flow) of an MLP or Pad. Thereafter replace the filter annually (12 months) or when contamination is suspected. At time of filter replacement, filter will be cleaned and NDT tested.
- o NDT testing shall consist of bubble pointing per ARP-901, dye penetrant and/or x-ray as necessary to verify structural integrity.

Failure History:

- o PRACA - There was 1 Problem Report for this type component found in the PRACA Data Base.

No failures found in the critical failure mode.
- o GIDEP - The GIDEP Failure Data Interchange System has been researched, and no data on this component was found.

LH2 SYSTEM PAD A/B AND VAA CSFP RISK ACCEPTANCE RATIONAL

