

Critical Items List (CIL) Sheet

Critical Item: Vernier Throat Plug
Total Quantity: 30
Find Number: 2P1, 2P2
Criticality Category: 1

B/L: 600.37 & 890.00
System: OMS/RCS

FMEA/CIL No.: SSD99FO027

System/Area: RCS/ OPF
VAB, PAD,
HMF, CLS, Ferry

**NASA
Part No.:** -

**PMN/
Name:** A70-1136/ Universal
& Evacuation Throat
Plug Assembly

**Mfg/
Part No.:** G070-300143-001, -002

**Drawing/
Sheet No.:** G070-300143/ 1

Function: Seals thruster throat to prevent moisture intrusion; supports test & desiccant assemblies

Critical Failure Mode/ Failure Mode No: Separates prematurely from thruster throat
SSD99FO027.004

Failure Cause: Material defect or end-of-life effect (fatigue)

Failure Effect: Plug falls from thruster. The falling plug may be ingested by the SCA engine resulting engine failure and possible loss of vehicle/life. Also, the falling plug may impact personnel causing injury or loss of life.

ACCEPTANCE RATIONALE

Design: Materials of Construction –
Plug Body & Plug Fingers, Teflon
Piston, Stainless Steel
Spring, Stainless Steel
Vent Assembly, Stainless Steel
O-Rings, Kalrez

Design Factor of Safety – 4:1

Inspection: - OMI V6029 requires/contains requirements for periodic inspection of the thruster GSE attachments.

- OMI V1070 and S0026 details plug installation and inspection requirements.
- OMI V6048 details inspection and refurbishment requirements after ferry/use.
- OMRSD File VI (TBD) requires inspection of the fingers with 10x magnification during refurbishment after ferry/flow to verify no cracks or defects.

Test: - Certification Testing completed to verify operational use and performance of plug prior to usage as GSE. Testing included fit check for snugness in thruster throat, insertion/removal force evaluation, ferry flight vibration, and an extended life test consisting of 256 insertion/removal cycles.

Acceptance testing performed on each new production plug. Testing includes insertion/removal force evaluation and fit check for snugness in the thruster throat.

Failure History:

- Current data on test failure, unexplained anomalies, and failures experienced during processing activities can be found in the PRACA database. The PRACA database was researched and no failure data was found on this component in the critical failure modes.
- The GIDEP failure data interchange system has been researched and no failure data was found on this component in the critical failure mode.

Operational Use:

- Correcting Action:

There is no action that can be taken to mitigate the failure effect.

- Time Frame

Since no correcting action is available, time frame does not apply.