

SAA09GS01-002
Rev. 0
B/L: 72.09
SYS: SSME GSE
JAN 14 1986

Critical Item: Pressure Regulator (Manual)

Find Number: A115829

Criticality Category: 15

SAA No: 09GS01-002, Rev. 0

System/Area: SSME GN2 and GHe
Purge System/SLS

NASA Part No: 79K80008-1

PMN/ Name: 570-1247/SSME Purge Panel
(GN2 and GHe)

Mfg/ Part No: Grove Valve and
Regulator Co.
Model 15KX
Figure 10931KK2A

Drawing/ Sheet No: 79K12447/
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Function: Load dome-loaded pressure regulator A115828.

Critical Failure Mode: Regulate low. FM No. SAA09GS01-002.009.

Failure Cause: Structural failure.

Failure Effect: Dome-loaded pressure regulator A115828 will regulate low. Loss of or inadequate hazardous purge of panel electrical component enclosures. Possible fire and/or explosion if hazardous gases present in the vicinity of the Orbiter during postlanding servicing. Potential loss of life and/or damage to vehicle. Failure detectable by loss of pressure reading on panel pressure gauges A115835 and A116473 and loss of purge flow at SSME exit.

Acceptance Rationale

Design:

- o This component designed in accordance with NASA Dwg. 79K80008-1.
- o This component is used within the design specifications.
- o Component specifications:

	<u>Rated</u>	<u>Actual</u>
o Pressure (psig)	5000	2250
Flow (scfm)	22	0
Temperature (°F)	-20 to +250	Ambient at SLS

Pressure Regulator (Continued)

Design (Continued)

- o Material:
 - Body and trim - 300 Series Stainless Steel
 - Seats - 300 Series Stainless Steel
 - Diaphragm - Nitrile rubber and Teflon
- o Burst pressure: Four times rated pressure.

Test:

- o Manufacturer's Certification Test
 - Proof
 - Operational
 - Leak

Inspection:

- o OMRSD File VI requires that pressure creepage requirements (no creepage within five minutes at nominal operating pressure) are met prior to or at Validation Test, at component replacement, and at each use.
- o OMRSD File VI requires that the GN2 purge to heater A115839 and to heater controller cabinet shall be verified prior to applying electrical power to the heater.
- o OMI V1038 gives caution/warning that heated GN2 purge/heater shall not be used and will be secured in a hazardous atmosphere. The area shall be evacuated.

Failure History:

- o PRACA - The PRACA data base was queried, no failure data found for this component in this failure mode.
- o GIDEP - The GIDEP Failure Data Interchange System has been researched and no data on this component was found.

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Operational Use:

- o At the SLS, OMI V1038 which initiates and maintains heated GN2 purge to SSME for HPFTP bearing drying, verifies audibly that the S70-1247 electrical enclosures are being purged prior to turning the GN2 heater power on.
- o OMI V1038 Appendix Z (Emergency Instructions) turns S70-1247 GN2 heater ac power off in event of an emergency including hazardous gas leakage.
- o OMI V1038 procedure for operation of the S70-1247 contains the following caution note: "If for any reason GN2 flow is lost, immediately decrease thumbwheel setting to 'minimum' which turns the GN2 heater off".