B/L: 11.00
SYS: L02/G02 FCSS, PADS A & B

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Critical Item: Regulator, Pressure, Spring-Loaded (2 Items 1/Pad) (2 Items Total)

Find Number: A105240

Criticality Category: 1S

SAA No:	09PPAB12-002	**System/Area:**	L02/G02 FCSS/Pads A & B
NASA Part No:	79K80010-3	**PMN/ Name:**	S72 0697-03 OMBUU FCSS GN2/GHe Service Panel
Mfg/ Part No:	Grove Valve and Regulator Company/Model #15I H, Part #10929HK3A	**Drawing/ Sheet No:**	79K06004 & 79K40034

Function: Reduces GN2 supply pressure (3000 psig) to 750 psig.

Critical Failure Mode/Failure Mode No: Regulates low (Fails closed)/FM No. 09PPAB12-002.001.

Failure Cause: Structural failure, contamination, sensing port restricted

Failure Effect: When regulator closes, GN2 will not flow. Complete loss of GN2 would render the 0-3 Mid-Body Umbilical Carrier Plate Compartment purge inoperative, detectable by pressure transducer A105244. There is a potential fire/explosion hazard if this failure is coupled with a hazardous leak. Could cause loss of life or vehicle.

Time To Effect: Immediately.

ACCEPTANCE RATIONALE

Design:

- Max inlet operating pressure: 6000 psig
- Actual inlet pressure: 3000 psig
- Outlet operating pressure range: 0 to 1000 psig
- Actual outlet set pressure: 750 psig
- Proof pressure inlet: 9000 psig
- Proof pressure outlet: 1500 psig
- Burst pressure: 24,000 psig.
- Service: Nitrogen

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- Operating temperature: 20°F to 165°F
- All metal parts in the flow stream are stainless steel
- 20 micron Filter A105235 upstream of regulator
- Internal inlet filter

Test:

Manufacturer's certification test requirements include the following tests:

- Proof
- Leak
- Flow capacity
- Regulation

Inspection:

- OMRSD, File VI

  Verify purge pressure of 750±30 psig is present on transducer A105244, and there is audible flow at carrier plate.
  Frequency: Prior to cryo loading.

- OMI V1040 validates the PRSD servicing system.
- Upon installation or modification of system, clean and inspect per KSC-C-123.

Failure History:

- The PRACA database was researched and no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange system was researched and no failure data was found on this component in the critical failure mode.

Operational Use:

- Corrective Action:

  Loss of GN2 purge pressure is detectable by pressure transducer A105244 and pressure gauge A105243.

  Upon loss of the purge pressure, the LO2 flow is automatically terminated, by closure of the normally closed LO2 high pressure block valve A102112, which receives its actuation pressure from the same source as the GN2 purge. The FCSS LO2 fill, vent and drain lines may be drained and inerted by manual action. These actions mitigate the effect of the loss of purge by removing system pressure and draining LO2/GO2 from the umbilical carrier plate.

- Timeframe:

  Immediately.

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