

E01-SAA09FT06-030
SHEET 13 OF 16SAA09FT06-030
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ATTACHMENT -
Page 28 of 66**CRITICAL ITEM:** Solenoid valve**Find Number:** A124429**System:** Environmental Control Subsystem
for the Payload Canister, Set 2**Failure Category:** 15**SAA No.:** 09FT06-030**NASA Part No.:** None**PMN/Name:** H70-1326**Mfr's** Circle Seal Corp.**Drawing/****Part No.:** SV10532P4P**Sheet No.:** 79K15271, Sheet 5**Function:** In normally closed mode, blocks flow of GN2 to the (normally open) return vents. During smother and vent modes, the valve opens, allowing the closing of the return vents.**Critical Failure Mode:** Fail closed (FMN 09FT06-030.007)**Cause:** Internal part failure**Failure Effect:** Loss of smother mode capability. Loss of ability to contain a fire or payload hypergol leak. Possible loss of life or payload.**ACCEPTANCE RATIONALE:****Design:**

- o **Materials:** Body - type 303 stainless steel Seats - nylatron
Trim - type 303 stainless steel Seals - Buna N
Coil housing - aluminum alloy
- o **Specifications:**

	<u>Rated</u>	<u>Actual</u>
Pressure (psig)	3000 (max)	20
Temperature (°F)	-65 to +165	Ambient
- o Solenoid valve is 3-way, 2-position type for use with GN2, balanced poppet design with bubble tight shutoff, and hermetically sealed.
- o Life expectancy: 6000 cycles

Test:

Per File VI OMRSD requirements, the valve is checked at validation test, prior to each critical use, semiannually, and at component replacement as outlined in OMI E3005 and OMI E6401 and the addition of operations and maintenance instructions deviation sheets P004-P013.

Inspection:

Pressure gauge A124427 in ECS control panel can detect solenoid valve failure. This gauge is calibrated annually.

Failure History:

On the Canister Transporter ECS, Set 1, there was one PRACA report written on this valve in the control panel. The solenoid would not cycle properly, resulting in a failure in a critical failure mode (fail closed). The solenoid was replaced and the valve then cycled properly. Data on Set 1 from 1981 to present; data on Set 2 from 1984 to present.

Operational Use:

Systems are secured and personnel are evacuated in accordance with OMI E5506 (vertical) and OMI L5050 (horizontal), Appendix Z.