

EO5-SAA09PP02-001
Sheet 7 of 10

SAA09PP02-001
REV: H

CIL 199701
Attachment 2
Sheet 4 of 6

B/L: 9 and 32
SYS: LOX MPS

Critical Item: Pneumatic Ball Valve (1 Per Pad) APR 30 1997

Find Number: A106425

Criticality Category: 2

SAA No: 09PP02-001

System/Area: LOX MPS/LOA

NASA Part No: 80K80649-2

PMN/ Name: S72-0694-17
GN2 Anti-Ice Panel

Mfg/ Part No: Flodyne Control/
10A188

Drawing/ Sheet No: 79K06064/2
79K40027/2

Function: Provide redundant shut-off of GN2 to the ET nose cone.

Critical Failure Mode: Fail closed. FM No. 09PP02-001.009

Failure Cause: Structural failure.

Failure Effect:

The inability to provide heated GN2 to the ET nose cone. This could result in a violation of the lower calibration limit of 5°F for the ET LO2 ullage pressure transducers, with a resulting loss of visibility of ET pressure. Overpressure or underpressure could result in damage to the ET. Failure is detectable by temperature transducers A106437 and A106438.

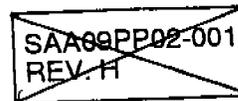
Acceptance Rationale

Design:

- This component was designed in accordance with NASA Specification 80K80649-2.
- Component specifications:

	<u>Rated</u>	<u>Actual</u>
Pressure Valve (max.) psig.	3500	3000
Pressure Actuator (max.) psig.	2000	750
Actuation Pressure psig.	> 500	750
Flow (scfm)	55,000	138
Temperature (°F)	0 to 250	Ambient at the FSS

EO5-SAA09PP02-001
Sheet 8 of 10



CIL 199701
Attachment 2
Sheet 5 of 6

B/L: 9 and 32
SYS: LOX MPS

Pneumatic Ball Valve, A106425 (Continued)

APR 30 1997

- The burst pressure is 4 times rated pressure.
- The pneumatic valve body and trim are constructed of 304 SST, and valve ball is 17/4 PH SST, the seat is Teflon, and the seals are Buna-N. O-rings and gaskets conform to MIL, AMS or NAS Standards.

Test:

- Qualification and acceptance testing was in accordance with the requirements of NASA component Specification 80K80649-2. Acceptance testing included the following:
 - Proof
 - Leak
 - Functional
 - Switch Operation

Inspection:

- Verification of solenoid valve operation is defined by OMRSD File VI. The OMRSD requires that a functional check be performed prior to each mission and after component replacement.
- Preventive maintenance will be in accordance with the requirements of NASA component drawing 79K90234.
- Manufacturing/assembly (source) inspection is in accordance with the requirements of NASA Component Specification 80K80649-2.
- Component operation is verified prior to each mission.

Failure History:

- The GIDEP failure data interchange system was researched, and no failure data on this component was found.
- The PRACA data base was queried and no failure history on this component was found.

CIL 199701
Attachment 2
Sheet 6 of 6

SAA09PP02-001
REV. H
B/L: 9 and 32
SYS: LOX MPS

APR 30 1997

Pneumatic Ball Valve, A106425 (Continued)

Operational Use:

- o Valve A106425 is a normally open valve and is not likely to fail close (critical mode) unless the valve is commanded closed, which could increase the possibility of valve failure. During normal operation, this valve would not be commanded closed except at T-minus one minute and fifteen seconds into terminal count.
- o Corrective Action: Initiate scrub procedure.
- o Time Frame: T-minus 6 hours to completion of operation.