

840200K - 31 = 32

SAA09PP03-001
REV. E
B/L 8/30
MPS LH2, LOA SYSTEM

Critical Item: Check Valve
Find Number: A75585
Criticality Category: 1S

SAA No: 09PP03-001

System/Area: LH2 MPS/LOA

NASA

Part No: 79K80130-1

PMN/ S72-0685-2/LH2 Tank Press. and
Name: He Umbilical Purge Panel.

Mfg/ James, Pond & Clark

Part No: H220T-488

Drawing/ 79K06063/79K40023
Sheet No: 2

Function: Isolates the helium leg from the GN2 leg in the LH2 T-0 umbilical purge (helium) line.

Critical Failure Mode: Fail closed. FM. No. 09PP03-001.011

Failure Effect: Failing closed during LH2 flow would result in loss of the LH2 T-0 umbilical purge helium. This would result in a hazardous condition, a fire or explosion is possible if loss is coupled with a LH2 leak. This failure is detectable by pressure transducer A75583. Possible loss of life and/or vehicle.

Acceptance Rationale

Design:

- o This check valve is operated within all design specifications.
- o Component specifications:

	<u>Rated</u>	<u>Actual</u>
Pressure (psig)	6000	750
Flow (scfm)	300	100 (nominal)
Temperature (°F)	-100 to +450	Ambient in the MLP

- o The burst pressure is 4 times rated pressure (24,000 psig).
- o The check valve body is made of 300 series SST, the spring is made of 302 SST and the seals are Teflon.

Check Valve, A75585 (Continued)

Test/Inspection:

- o File VI verifies the following:
 - Functional operation of the primary and redundant purges prior to each launch and at component replacement. The purges must satisfy purge pressure and pressure decay rate specifications.
- o The manufacturer's certification test requirements included the following tests:
 - Proof
 - Leak
 - Functional
- o Drawing 79K12402 requires an annual check valve test and a component replacement test consisting of leak test, cracking pressure and reverse seat leakage tests.

Failure History:

- o PRACA - There were 24 Problem Reports for this type component found in the PRACA Data Base.

No failures in the critical failure mode.
- o GIDEP - The GIDEP Failure Data Interchange System has been researched, and no data on this component was found.