

SAAO9SY03B-002

OCT 31 1997
 8050234HK
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Critical Item: Check Valve
Total Quantity: 4 items Total
Find Number: See Table
Criticality Category: 13

SAA No: 09SY03B-002	System/Area: Pad Water/Pad B
NASA Part No: 79K80133-3	PMN Name: See Table
Mfg/ Part No: Circle Seal HP269T-8BB	Drawing/ Sheet No: 79K40019 6, 7, & 8

Function: Prevents GN2 supply pressure from flowing back into GN2 system supply line.

Critical Failure Mode/Failure Mode No: Fail closed / 09SY03B-002.006

Failure Cause: Caused by corrosion, contamination or structural failure of internal piece part.

Failure Effect: See Table. Possible loss of life or vehicle in the event of a hazardous condition. An operational failure can be detected by monitoring associated water valve position indicator switch function designators. (NOTE: Water valve V10A supporting the LH2 transfer area and water valve V11A supporting the LOX transfer area do not have position indicator switches. Visual confirmation of no leak water flow in each area is the only method to detect check valve failure.) Time to effect: Immediate.

ACCEPTANCE RATIONALE

Design:

	<u>Rated</u>	<u>Actual</u>
Working pressure	6000 psig	50 psig
Temp (° F)	-40 to 250	Ambient at Pad

- Body material: 300 series stainless steel
- Seat material: TFE
- Disc & Shaft material: 316 Stainless Steel

Test:

- System validation (OMI M2086) requires cycling of perimeter area water valves to verify proper operation.

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- OMRSD, File VI requires verification of the operational function of the water valves in all modes of operation . . annually and at replacement.
- Manufacturer hydrostat test 450 psig.

Inspection:

- Pre-mission OMI's require the inspection of the fire valves for signs of corrosion and/or contamination.

Failure History:

- Current data on test failures, unexplained anomalies, and other failures experienced during ground processing activities can be found in the PRACA database. The PRACA database was researched and no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange was researched and no failure data was found on this component in the critical failure mode.

Operational Use:

- **Correcting Action:**
There is no action which can be taken to mitigate the failure effect.
- **Timeframe:**
Since no correcting action is available, timeframe does not apply.

Table 22. Circle Seal Check Valve Critical Items Summary

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<u>Find No.</u>	<u>Failure Effect</u>	<u>PMN/Name</u>
A530410 (CK-12)	Loss of firex water flow to LH2 and GH2 Storage Areas	K80-0049-01/ LH2 Storage Area
A530412 (CK-11)	Loss of firex water flow to LOX Storage Area	K60-0052-01/ LOX Storage Area
A530414 (CK-57)	Loss of firex water flow to Hypergol Fuel Area	K80-0053-01/ Hypergol Fuel Area
A530416 (CK-61)	Loss of firex water flow to Hypergol Oxidizer Area	K61-2942-01/ Hypergol Oxidizer Area