

AUG 11 1988

Critical Item: Oil Pump

Part Number: A125572

Criticality Category: IS

SAA No: 09G505-003

System/Area: ECS/SLF/SLS

NASA

PMI/ S70-0534/

Part No: N/A

Name: Portable Purge Unit

Mfg/ Houdeille Industries/

Drawing/

Part No: 93AT3

Sheet No: 79K06061/1

Function: Prime mover of oil to lubricate compressor.

Critical Failure Mode: Fails to operate. FM No. 09G505-003.009

Failure Cause: Structural failure/overheating.

Failure Effect: Loss of oil flow to compressor will trip pressure switch (A107946), which disables compressor. Blower/compressor interlock shuts down blower. Loss of air flow results in loss of purge to Orbiter compartments. Loss of ability to monitor purge air for leaks. Possible loss of life or vehicle during a hazardous condition such as leakage of hazardous fluids or gases.

Acceptance Rationale

Design:

- o The oil pump is a gear type pump.
- o Thermal switches are imbedded in the motor windings to protect them from overheating.

Test:

- o The OMRSD, File VI shall require the pump tested to verify proper operation at component replacement.
- o The OMRSD, File VI will require that operation of the purge unit is verified prior to each use.
- o The purge unit is powered up and verified operational approximately three hours prior to Orbiter landing per OMT 50028 and 50025.

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Oil Pump A125572 (Continued)

Inspection:

- o There is no inspection available that would not require the refrigerant system to be open to the atmosphere.

Failure History:

- o PRACA failure history indicates that three problem reports were written against the component in the Critical failure mode.
 - Unit shutdown on low oil due to excessive leak, pump replaced.
 - Unit shutdown on low oil due to leakage, pump replaced.
 - Oil pump motor would not start, pump replaced.
- o No GIDEP failure history identified.

Operational Use:

- o There is nothing that can be done immediately to mitigate the effect of the failure.
- o The purge unit is monitored for any indication of part malfunction. If any anomalies are observed, appropriate steps are taken to repair or replace the item.

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