Critical Item: Pressure Switch

Find Number: A107944

Criticality Category: 1S

SAA No: 09G505-003

System/Area: ECS/SLF/SLS

NASA
Part No: N/A

PMN/ 570-0534/
Name: Portable Purge Unit

Mfg/
Part No: Johnson Controls/P70-MA-30

Drawing/
Sheet No: 79K06061/1

Function: Disables compressor when pressure is outside predetermined limits (high discharge pressure - 225 psig, low suction pressure - 15 psig).

Critical Failure Mode: Low - Contacts fail open. FM No. 09G505-003.003
High - Contacts fail open. FM No. 09G505-003.034

Failure Cause: Structural failure, contamination.

Failure Effect: Compressor limit switches disable compressor, compressor/blower interlock disables 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 Switch is designed for use in commercial refrigeration systems.
o Design of unit is compatible with use in R-12 refrigerant environment.
o Operating pressure on high side of 120-180 psig; low side is 20-30 psig.
o Contacts protected by enclosure.

Test:

o The OMRSD, File VI will require that operation of the purge unit is verified prior to each use.

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Pressure Switch A107944 (Continued)

Test:

o The purge unit is powered up and verified operational approximately three hours prior to Orbiter landing per OMI S0028 and S0026.

Inspection:

o The contact points are inspected monthly for electrical overheating or arcing (OMI V6072).

Failure History:

o No PRACA failure history identified.

o No GIDEP failure history identified.

Operational Use:

o There is nothing that can be done immediately to mitigate the effects of the failure.

o The purge unit is monitored for any indication of malfunction.

o The switch can be manually bypassed after the failure is detected.

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