

SEP 11 1995

B/L: 323 60

SYS: Simon MPH-62
Self Propelled
Aerial Platform

Critical Item: Boom Hoist Cylinder Holding Valve (3 Items Total)
Find Number: V9
Criticality Category: 2

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|----------------------|----------------------------|--------------------------|-------------------------------|
| SAA No: | 09FY02-016 | System/Area: | Simon MPH 62/ OPF,VAB,RPSF |
| NASA Part No: | None | PMN/Name: | K60-1037-01 Simon MPH 62 |
| Mfg/Part No: | Simon Aerials 01-003600 | Drawing/Sheet No: | SDS-218469-0 1 |

Function: Prevents the boom hoist cylinder from retracting by not allowing hydraulic fluid out of the cylinder.

Critical Failure Mode/Failure Mode No: Fails open/09FY02-016.001

Failure Cause: Mechanical Failure, Contamination on the Valve Seal

Failure Effect: Hydraulic fluid is allowed to leave the cylinder causing the boom and platform to descend. The platform may impact flight hardware causing loss (damage) to a vehicle system.
Detection Method: Visual. **Time To Effect:** Seconds.

ACCEPTANCE RATIONALE

Design:

- Designed to 3000 psi. per the manufacturer. System operating pressure is 2650 psi.
- Body material is aluminum for better corrosion resistance.
- Seals are Viton.
- Expansion of hydraulic fluid due to temperature and high internal pressures caused by spikes can open the valves to release the pressure and prevent ruptures in the lines or valve.
- Contamination is reduced by the use of a 25 micron high pressure inline filter installed directly after the pump, and a 10 micron filter at the inlet of the solenoid valves.

SEP 11 1995

Test:

- Operational check of the boom retraction and extension is performed before use per "Pre-Operations Maintenance Mobile Equipment Checklist" KSC Form 28-528 or "Startup Procedures" as outlined in the Vendor's Operator's Manual.
- Annual load test, using the manufacturer's safe load limit, is performed annually per PMI L-30.
- OMRS File VI requires annual performance of a rated load test.

Inspection:

- Inspection of hydraulic system and controls for leaks and integrity are before use per "Pre-Operations Maintenance Mobile Equipment Checklist" KSC Form 28-528 or "Startup Procedures" as outlined in the Vendor's Operator's Manual.

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:
The operator may mitigate the failure by raising the basket with the controller.
- Timeframe:
Seconds.