USA Ground Operations CIL Sheet

Critical Item: Swing Gear Assembly   **Criticality Category:** 2

NASA Part No: None   **Total Quantity:** 2

Mfg/Part No: JLG / 0252675

System: 100 Ft JLG Self Propelled Aerial Manlift

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	2	KSC	K61-5379	323.60	3121105 / 2

Function:

　　Transfer torque from the hydraulic motor to the turret assembly

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
00003.001	Structural failure of the gears or key.	Audible, Visual	2
Gear disengagement	Torque for stopping horizontal rotation will be lost. Boom will continue to swing until the weight of the load or object stops it. Possible loss (damage) of a vehicle system	Immediate	

ACCEPTANCE RATIONALE

Design:

　　• The gears are designed to ANSI and AGMA standards.

　　• The pinion gear teeth are hardened to a Rockwell C hardness of 40-45.

　　• The ring gear has a Brinell hardness of 277-321.

Test:

　　• Operational check of the turret rotation is performed before use per "Pre-Operational Maintenance Mobile Equipment Checklist" KSC form 28-528 or Startup procedures as outlined in the Vendor's Operators Manual.

　　• OMRSD File VI requires annual operational test of turret rotation.

Inspection:

　　• Gears are visually inspected during Pre-Op checkout.

　　• OMRSD File VI requires annual inspection of the ring and pinion gears.

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 the following data was found on a similar component in the critical failure mode.

　　• One problem report, PV-6-177113, was written against aerial manlift HE-907-287 (Condor 68) for swing gearbox failure (broken teeth) The failure was caused by operator error when the turret was rotated while the boom was restrained. No problems have occurred since this incident.

Operational Use:

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