

USA Ground Operations CIL Sheet SEP 5 2000**Critical Item:** Swing gearbox assembly**Criticality Category:** 2**NASA Part No:** NA**Total Quantity:** 2**Mfg/Part No:** Condor / 27638**System:** Condor 170 Work Platform Truck

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	2	KSC	K60-1018	323.60	92164-003 / 60

Function:

Transfers 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
09FT01-005.009 Gear disengagement	Structural failure of the gears or key. Torque for stopping horizontal rotation will be lost. Boom will continue to swing until the weight of the load or an object stops it. Possible loss (damage) of a vehicle system.	Visual Immediate	2

ACCEPTANCE RATIONALE**Design:**

- The gears are designed in accordance with ASTM standards.
- The pinion gear is case hardened to a ROC hardness of 58-60 minimum.
- The key is designed to Spec. C1018 with a Brinell hardness of 116 minimum.
- The ring gear has a Brinell hardness of 262 to 302 minimum.

Test:

- Operational check of the turret rotation is performed before use per "Pre-Operational Maintenance Mobil Equipment Checklist" KSC form 28-528 or Startup procedures as outlined in the Vendors Operators Manual.
- OMRSD File VI requires an annual operational test of turret rotation.

Inspection:

- OMRSD File VI requires an annual inspection of the ring and pinion gear.
- Gearbox is visually inspected during Pre-Op checkout.

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 this 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.