

SAA09FY02-013
 B/L: 323.60
 SYS: SIMON AERIAL
 WORK
 PLATFORM
 MPL-60

Critical Item: Swing Reducer Assembly (2 Items)

DEC 14 1993

Find Number: 02-006100

Criticality Category: 2

SAA No: 09FY02-013

System/Area: Simon Aerial Work
 Platform/VAB

NASA
 Part No: None

PMN/
 Name: K60-1037
 Platform, Aerial Work,
 Simon, 907-283, 285

Mfg/
 Part No: Gear Products Inc.
 105-00036-1

Drawing/
 Sheet No: Simon D1/A5.2
 F2.4

Function: Transfers torque from the swing drive hydraulic motor to the turn-
 table assembly to rotate the superstructure.

Critical Failure Mode/Failure Mode No: Gears disengage, FM No.
 09FY02-013.001

Failure Causes: Structural failure of the gear assembly.

Failure Effect: Torque for controlling rotation and holding the superstruc-
 ture in position will be lost. The platform may impact flight hardware and/or
 GSE resulting in loss (damage) of a vehicle system.

Acceptance Rationale

Design:

- o The swing reducer is an off-the-shelf item manufactured by Gear Products Inc., Tulsa, Oklahoma.
- o Gears, pinions, and shafts are manufactured from AISI 8620 carburized steel or AISI 4140 carbon steel.
- o The Swing Reducer Assembly is in accordance with the American Gear Manufacturer's Association Specification AGMA 420.04 - "Practice for Enclosed Speed Reducers or Increases Using Spur, Helical, Herringbone and Spiral Bevel Gears."

Attachment
 5050234CB
 sheet 2 of 13

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Swing Reducer Assembly 02-006100 (Continued)

- The drive ratio is 6.5:1.
- The gears are splined to the shafts or integrally machined and are retained in place by shoulders within the confines of the gearcase.

Test:

- Pre-operational positioning, per OMI Q3512 (i.e., platform entry and boom extension positioning for 5 minute static creepage test), verifies operation of the swing reducer assembly.
- PMI No. L30 requires an annual load test to 100% of the rated capacity (750 lb.) of the platform. The load test will include operation of the swing function.
- OMRSD File VI requires annual verification of the rated load test.

Inspection:

- Pre-operational visual inspection, per OMI Q3512, of the turret ring gear bolts and hydraulic system after pre-operational positioning verifies proper operation of the swing reducer assembly.
- PMI No. HBC requires quarterly inspection to:
 - examine unit for structural damage
 - examine unit for hydraulic leaks
 - inspect for corrosion and/or deteriorated paint
 - verify the ring gear bolts are properly torqued
 - examine unit for damaged, deteriorated, or missing hardware

Note: Inspection is limited to the swing gear and the swing reducer housing and pinion gear.

Failure History:

- The PRACA database was queried and no failure data was retrieved against this component failure mode.
- The GIDEP failure data interchange system has been researched and no failures of this component were found.

Attachment
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Operational Use:

o Correcting Action:

There is no action which can be taken to mitigate the failure effect.

o Timeframe:

Since no correcting action is available, timeframe does not apply.