

USA Ground Operations CIL Sheet

AUG 9 2000
Criticality Category: 1
Total Quantity: 14

Critical Item: Jackscrew
NASA Part No: None
Mfg/Part No: Duff-Norton / Series 2800
System: Extensible and Auxiliary Access Platforms

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	7	VAB HB-1	K60-0554	398.01	79K09164 / 175
None	7	VAB HB-3	K60-0555	398.02	79K05424 / 104

Function:
Provide mechanical motion to raise and lower platforms.

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FY02-006.015 Lift screw disengagement from drive sleeve	Mechanical wear of drive sleeve beyond operational limits, structural failure, improper maintenance. Uncontrolled descent of the platform. Platform would break its hinges and continue to fall causing loss of life and or vehicle.	Visual Immediate	1

ACCEPTANCE RATIONALE

Design:

- The jackscrew is rated at 20 tons. It is a ball screw type.
- The platform weight is 1164 lb. yeilding a 34:1 operational safety factor.
- The manufacturer states that the jackscrew is serviceable until the backlash reaches 50% of the screw thread thickness.

Test:

- OMRSD File VI requires performance of an annual backlash test of the jackscrew to determine wear on the mechanism in accordance with KSC-5600-5610, Jackscrew Wear Inspection.

Inspection:

- OMI Q6152 requires a biennial inspection of the lifting screw for damage and application of oil.
- OMI Q6152 requires a biennial adjustment of the clevis to the jackscrew shaft to maintain a clearance of 0.060 in. or less.

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 data was found on this component in the critical failure mode.
- A failure of another jackscrew did occur in the ET Gox Vent Arm Hood an 4/6/98 (PR PV-6-336823). The NASA KSC Malfunction Lab inspected the failed unit (Report #MSL-0422-1998) and attributed its failure to worn out threads on the drive sleeve unit.

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.