

USA Ground Operations CIL Sheet

Critical Item: 0.5-Ton Manual Chain Hoist

Criticality Category: 2

NASA Part No: None

Total Quantity: 2

Mfg/Part No: Ingersoll Rand / C3H005

System: Payload Ground Handling Mechanism

Find No.	Qty	Area	PMN	Baseline	Drawing / Sheet
None	1	Pad-A	H70-0534	252.00	80K57906 / 7
None	1	Pad-B	H70-0534	252.00	80K57906 / 7

Function:

The hoist is used to move cargo from the PGHM elevator to the PCR Late Access Platform (PLAP).

Failure Mode No. Failure Mode	Failure Cause Failure Effect	Detection Method Time to Effect	Crit Cat
09FTAB31-001.007 Gearbox Failure	Worn or damaged load gear, pinion gear, or intermediate gear and pinion. Mechanical linkage is lost between gearbox components; load will drop without means of control possibly resulting in loss (damage) of a vehicle system.	Abnormal noises and movements. Immediate	2
09FTAB31-001.008 Mechanical Load Brake Failure	Worn or damaged holding pawl, brake lining, brake plate, or holding ratchet. Mechanical linkage between handwheel and gearbox is lost; load will drop without means of control possibly resulting in loss (damage) of a vehicle system.	Abnormal noises and movements. Immediate	2

ACCEPTANCE RATIONALE

Design:

- Hoist design is in accordance with ASME/ANSI B30.16 and the American Gear Manufacturers Association standards.
- The hoist was designed with a minimum safety factor of 4:1 and is in compliance with NSS/GO-1740.9 requirements.
- The gears are splined to shafts or integrally machined and are retained in place by shoulders within the confines of the gearbox.

Test:

- OMRSD File VI requires annual performance of a rated load test.
- Acceptance proof load test at 125% of the rated load was performed on initial installation.
- Operational testing of the hoist per TPS GA5-00872-00-001-005 verifies proper operation of all hoist functions.

Inspection:

- Visual inspections will be completed annually in accordance with TPS GA5-00872-00-001-005 and include: Inspections of the load bearing parts (suspension bolts, shafts, bearings, support structure) for wear, cracks and distortions without disassembly of the hoist; Inspection for lubrication leakage; and Chain wear (twists, damage links, foreign matter) hook deformations, corrosion and damage inspections.

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 modes.
- The GIDEP failure data interchange system has been researched and no failures of this component were found in the critical failure modes.

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.