

S050234KC  
ATTACHMENT 2  
SHEET 2 OF 3

MAR 12 1999

USA Ground Operations CIL Sheet

Critical Item: Manual Chain Hoist

NASA Part No: None

Mfg/Part No: Lift Tech International Inc. / Budget Part No. 8311

System: Drag Chute Canister/Orbiter Manuvering Engine Hoist Systems

Criticality Category: 2

Total Quantity: 3

| Find No. | Qty | Area  | PMN      | Baseline | Drawing / Sheet |
|----------|-----|-------|----------|----------|-----------------|
| None     | 1   | OPF-1 | H70-1269 | 380.00   | 80K53804 / All  |
| None     | 1   | OPF-2 | H70-1269 | 380.00   | 80K53805 / All  |
| None     | 1   | OPF-3 | H70-1269 | 380.00   | 80K53708 / All  |

**Function:**

Provide the means to raise, lower, and position the load (drag chute canister, OME).

| Failure Mode No.<br>Failure Mode  | Failure Cause<br>Failure Effect   | Detection Method<br>Time to Effect | Crit<br>Cat |
|-----------------------------------|---|------------------------------------|-------------|
| 09FTP3-013.001<br>Brake Failure   | Structural Failure of Ratchet, Pawl, or Spring<br>Uncontrolled descent of the load could result in damage to a vehicle system.          | Visual<br>Immediate                | 2           |
| 09FTP3-013.002<br>Gear Disengages | Structural Failure of Gears, Shafts, or Gearbox Housing<br>Uncontrolled descent of the load could result in damage to a vehicle system. | Visual<br>Immediate                | 2           |

**ACCEPTANCE RATIONALE**

**Design:**

- The hoist is an off-the-shelf item manufactured by Lift Tech International Inc. formerly Dresser Industries, and its design complies with the American Gear Manufacturers Association (AGMA) standards. The hoist is also on QPL-804 to military specifications.
- The spur gear and load chain wheel are machined from the same piece of forged steel.
- The hoist is rated at 1/2 ton, with a safety factor of 5 to 1 minimum.
- The hoist is designed for a maximum ultimate load of 5000 lbs., the heaviest load is the OME and attached GSE weighing 700 lbs., therefore the lowest operational safety factor is 7.1 to 1.
- The manufacture's duty cycle is 5 - 10 lifts per hour at 50% rated load. The hoist is dedicated to lift the drag chute canister and OME operations, which will only require approximately 20 lifts per year.

**Test:**

- The OMRS File VI requires annual performance of a rated load test.
- An acceptance test at 125% rated load is to be performed on initial installation.
- An operational load test at 100% rated load is performed annually in accordance with manufacturer procedures per OMI V6H68.
- Tests are performed in accordance with NSS/GO-1740.9 requirements.

**Inspection:**

- A visual inspection of hoist and chain assembly overall condition shall be performed prior to critical lifts, per OMI V6H68.

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- An annual inspection of the hoists is performed per OMI V6H68.
- Inspections are performed in accordance with NSS/GO-1740.9 requirements.

**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.

**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. |