EO 2-SAA09VE03-004
SHEET 15 OF 16

## USA Ground Operations CIL Sheet

**Critical Item:** Gear Reducer
**NASA Part No:** None
**Mfg/Part No:** Trasmital / 313M5
**System:** Orbiter Engine Service Platform

**Criticality Category:** 2
**Total Quantity:** 1

| Find No. | Qty | Area | PMN | Baseline | Drawing / Sheet |
|----------|-----|------|-----|----------|-----------------|
| 16 | 1 | MLP | A70-0663 | 302.00 | VEN-2805 / 12 |

**Function:**

Reduces rotational speed and transmits power from the winch motor to the cable drum.
Note: This winch is a contingency item that could be mounted on any of the three MLPs.

| Failure Mode No. Failure Mode | Failure Cause Failure Effect | Detection Method Time to Effect | Crit Cat |
|-------------------------------|------------------------------|---------------------------------|----------|
| 09VE03-004.003 Gear disengagement | Structural failure of gears, gear box, or shafts. Load suspended from winch will drop. Possible damage to SSME. | Visual Immediate | 2 |

### ACCEPTANCE RATIONALE

**Design:**

- Rated Load: 25,000 lbs.
  Maximum Actual Load: 17,275 lbs.
  Operational Safety Factor: 1.45:1

- Procurement spec. 80K57291 required that the hoist be designed and manufactured according to ANSI B30.7 and NSS/GO-1740.9.

- NSS/GO-1740.9 requires that the gear reducer meet all applicable requirements of OSHA, ANSI, and CMAA.

- NSS/GO-1740.9 requires that the gear reducer be designed and manufactured to comply with AGMA standards.

**Test:**

- OMRSD, File VI requires annual performance of a rated load test to verify system integrity.

- An annual load test and operational check of each winch is performed in accordance with OMI V6C44.

- Oil sample testing is performed annually by ferrography per OMI V6C44.

**Inspection:**

- A maintenance check of each winch is performed semi-annually per OMI V6C44.

**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. |