U.S. Gov't

SAA09FTAB31-001
OCT 13 1993

B/L: 252.00
SYS: PAYLOAD GROUND HANDLING MECHANISM

**Critical Item:** ROLLER CHAIN (8 Items Total)

**Find Number:** 178, 104

**Criticality Category:** 2

| | | | |
|---|---|---|---|
| **SAA No:** | 09FTAB31-001 | **System/Area:** | UPPER/LOWER FLOATING BEAM ASSEMBLY / PADS A & B |
| **NASA Part No:** | NONE | **PMN/ Name:** | H70-0534 PAYLOAD GROUND HANDLING MECHANISM |
| **Mfg/ Part No:** | ACME CHAIN ANSI STD, No. 40 | **Drawing/ Sheet No:** | 79K22693, 79K22694 1 TO 5 |

**Function:**

Transmits torque from the manual Zo drive wheel to the 10 Ton actuator for moving and holding the payload.

**Critical Failure Mode/Failure Mode No:**

Chain Disengages/09FTAB31-001.003

**Failure Cause:**

Structural Failure of chain, sprocket keys or chain slips from sprocket.

**Failure Effect:**

Loss of holding torque could cause the manually driven 10 ton actuator to backdrive resulting in a shift of the payload. This could cause loss (damage) to a vehicle system. Detection Method : Visual. Time to Effect : Seconds

**ACCEPTANCE RATIONALE**

**Design:**

- The chain is an off-the-shelf item manufactured by Acme Chain Co. Inc.

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- With a 71,000 lb. load on the front end consisting of a 65,000 lb payload and 6,000 lbs. of support equipment, the chain safety factor based on the manufacturers maximum loading is greater than 59:1 (ultimate) and the sprocket key 34:1 (ultimate).
- Chain material is AISI 1040 carbon steel (Side Plates) and AISI 1024 carburized and hardened carbon steel (Pins).
- Design is based on ANSI B29.10M.

**Test:**

The Upper/Lower manual Zo actuators are operationally checked (without a load) monthly per OMI V6F09 except during a payload flow.

**Inspection:**

OMRSD File VI requires the drive chains and sprockets to be inspected annually for the following.

- The chain is inspected for corrosion, tightness, sprocket/chain alignment, and the master link for security.
- The sprocket key setscrew on the handwheel and actuator is inspected for security.

**Failure History:**

- The PRACA database was researched and no failure data was found on this component in the critical failure mode.
- The GIDEP failure data interchange system was researched and no failure data was found on this component in the critical failure mode.

**Operational Use:**

- Correcting Action:

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

- Timeframe:

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

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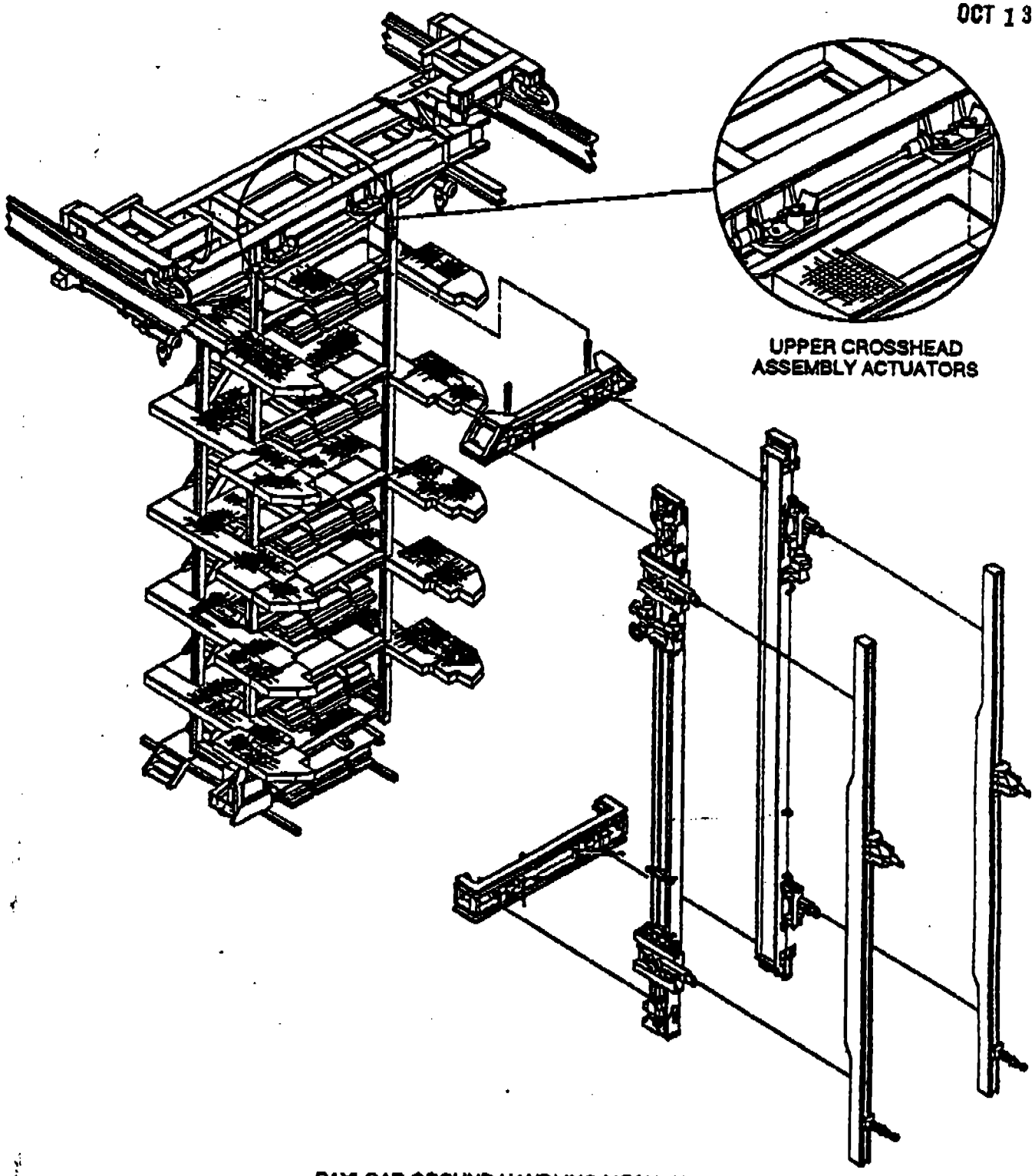


PAYLOAD GROUND HANDLING MECHANISM

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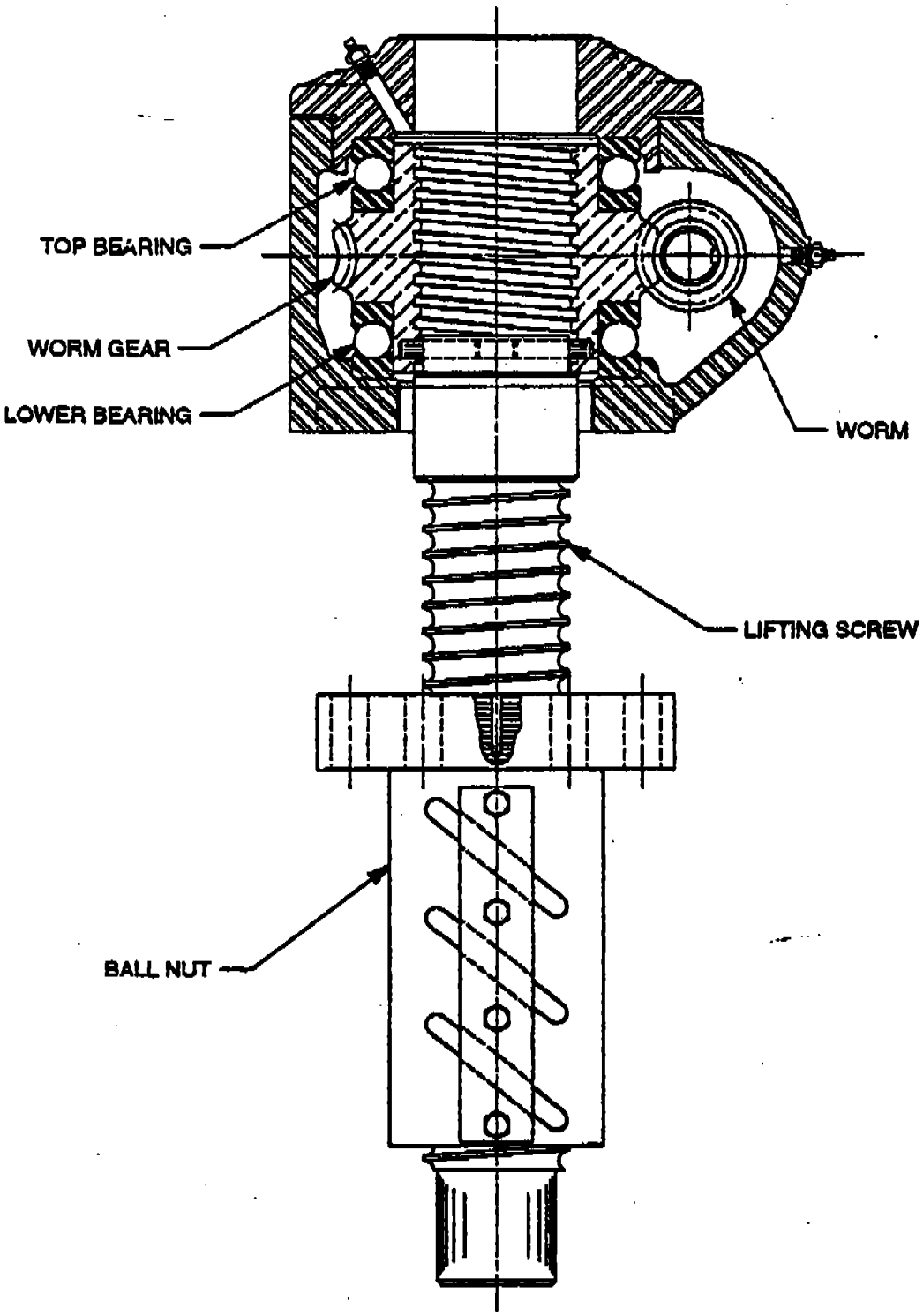


FIGURE 19. BALL SCREW ACTUATOR (ROTATING SCREW TYPE), UPPER CROSSHEAD - 53

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