



DATE: June 18, 1993

**SUBJECT:** Top Drive Inspection Following Periods of Rough Drilling

**SERIAL NUMBERS:** 007, 008

**DISCUSSION:** The following inspection procedure is recommended after periods of rough drilling:

1. Perform a thorough visual examination of the top drive looking for any signs of damage.
2. Visually inspect the mud inlet piping.
3. Check all wire locked bolts for damage or broken wires. If broken wires are detected, check the affected bolts for tightness and rewire. Torque specifications are documented in Parts Book. Replace damaged wires.
4. Check all external bolts that are not wired for tightness. The following list is provided as a guide. (see table)
5. Check all guards, vents and covers for tightness.
6. Ensure that all safety cables are properly and securely attached.
7. Visually examine inside of junction box for loose components.

Description	Parts Book Drawing Reference	Check
4.1 Link Title upper support leg	D-1-689-01-1	6 bolts
4.2 Link Title Cylinder end caps	D-1-689-01-1	2 bolts
4.3 Bonnet	D-1-692-01-1	12 bolts
4.4 Upper Well Control Valve Actuator	D-1-692-01-1	2 bolts
4.5 Upper Bearing Seat	D-1-692-01-1	12 bolts
4.6 Gooseneck split ring	D-1-692-01-1	12 bolts
4.7 Gooseneck male half coupling	D-1-692-01-1	12 bolts
4.8 Top Drive guides		Visual
4.9 Lube Pump Assembly	D-1-694-01-1	4 bolts
4.10 Air Duct	D-1-696-01-1	4 bolts
4.11 Block Guide assembly	D-1-701-02-1	32 bolts
4.12 Top Drive guard	D-1-702-01-1	4 bolts
4.13 Torque Boost assembly	D-1-602-01-2	12 bolts + 2 bolts
4.14 Rotary Manifold lift	D-1-684-01-1	Visual
4.15 Back-up Wrench mounting	D-1-687-01-1	4 bolts
4.16 Back-up Wrench frame	D-1-687-01-1	
4.17 Handler Rotate	D-1-691-01-1	

**RECOMMENDATION:**

**A. MONTHLY INSPECTION**

1. Remove the saver sub and lower well control valve and inspect the connections (including the quill pin) using magnetic particle techniques according to API RP7G.
2. Pressure tests the circulating path from saver sub to the upper well control valve to 200psi and 5000 psi.
3. Visually inspect the following for hoisting integrity:
  - Bail (if applicable)
  - Upper links
  - Housing
  - Rotary manifold outer sleeve
  - Upper link support
  - Elevator links
  - Elevators (if applicable)
4. Visually check the top drive unit for loose bolts.

5. Check the drive motor according to the General Electric Publication, which is in the Component Literature (electrical) section of the top drive manual.
6. Visually inspect the electrical cables on the top drive unit.

**NOTE:** Items 3,4,5, & 6 from the above list should also be checked after operation for one day and one week on a new top drive installation.

#### **B. INSPECTION EACH MOVE**

1. Visually check the integrity of all of the torque guide turnbuckles, pins, spherical bushings and flange connection bolts. (if applicable).
2. Check for loose bolts and mountings for the blower, mast junction box, cable trays and hydraulic tubes.
3. Visually check the service loop.
4. Visually check the blower duct.

#### **C. ANNUAL INSPECTION**

1. Check the clearance in the main top drive bearings and re-shim if necessary according to the instructions in the manual.
2. Remove the drive motor and check the condition of the lower shaft seals (see Top Drive Drilling Motor Assembly). Replace the seals if necessary and ensure that the space between the seals is packed with grease. Also ensure that there is adequate grease in the bearing at this time.

#### **D. INTERNAL INSPECTION**

The following major inspection is recommended every 1000 working days or at alternate intervals which may be specified by regulatory authorities, operator policies or contractor policies:

1. Disassemble the top drive unit.
2. Inspect all of the following hoisting load path components using magnetic particle techniques:
  - Quill
  - Spindle
  - Support nut
  - Elevator links
  - Elevators (if applicable)
  - Upper link support
  - Rotary manifold outer sleeve
  - Housing
  - Upper links
  - Bail (if applicable)
  - Upper link pins (4)
3. Check all bearings, seals, and seal running surfaces, gears and splines. Refurbish as necessary.

#### **INFORMATION :**

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## CANRIG TOP DRIVE DRILLING SYSTEMS RECOMMENDED INSPECTION PROGRAM

### A. MONTHLY INSPECTION

1. Remove the saver sub and lower well control valve and inspect the connections (including the quill pin) using magnetic particle techniques according to API RP7G.
2. Pressure test the circulating path from the saver sub to the upper well control valve to 200 psi and 5000 psi.
3. Visually inspect the following for hoisting integrity:
  - Bail (if applicable)
  - Upper links
  - Housing
  - Rotary manifold outer sleeve
  - Upper link support
  - Elevator links
  - Elevators (if applicable)
4. Visually check the top drive unit for loose bolts.
5. Check the drive motor according to the General Electric Publication which is in the Component Literature (electrical) section of the top drive manual.
6. Visually inspect the electrical cables on the top drive unit.

NOTE: Items 3,4,5, and 6 from the above list should also be checked after operation for one day and one week on a new top drive installation.

### B. INSPECTION EACH RIG MOVE

1. Visually check the integrity of all of the torque guide turnbuckles, pins, spherical bushings and flange connection bolts. (If applicable)
2. Check for loose bolts and mountings for the blower, mast junction box, cable trays and hydraulic tubes.
3. Visually check the service loop.
4. Visually check the blower duct.

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## C. ANNUAL INSPECTION

1. Check the clearance in the main top drive bearings and re-shim if necessary according to the instructions in the manual.
2. Remove the drive motor and check the condition of the lower shaft seals (see Top Drive Drilling Motor Assembly). Replace the seals if necessary and ensure that the space between the seals is packed with grease. Also ensure that there is adequate grease in the bearing at this time.

## D. INTERNAL INSPECTION

The following major inspection is recommended every 1000 working days or at alternate intervals which may be specified by regulatory authorities, operator policies or contractor policies:

1. Disassemble the top drive unit.
2. Inspect all of the following hoisting load path components using magnetic particle techniques:
  - Quill
  - Spindle
  - Support nut
  - Elevator links
  - Elevators (if applicable)
  - Upper link support
  - Rotary manifold outer sleeve
  - Housing
  - Upper links
  - Bail (if applicable)
  - Upper link pins (4)
3. Check all bearings, seals, seal running surfaces, gears and splines. Refurbish as necessary.