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SECTION 1

EQUIPMENT INFORMATION AND SPECIFICATION

1.1 INTRODUCTION

The Mini Tong (Little Jerk 2) was designed with rig floor and service shop safety in mind. Extensive industry operator input was obtained in its development to ensure that the tool was designed to be practical. This compact service tool provides a safe and easy way to make up and break out connections on small tools and pipes. The unit is easily handled and controlled and can be operated from a variety of power sources:

- **Size (LxWxH):**
  24 1/4”x 22 7/8”x 15 1/4”
  (616mm x 581mm x 400mm)

- **Distance between jaws:**
  3” (76mm)

- **Weight:**
  226 lbs (102kg)

- **Maximum torque:**
  5,000 ft-lbs (6800Nm)

- **Operating pressure (max):**
  2,900 psi (20000 KPa)
Unit can be used in two different positions:

- **Vertical Standard**
  - Joined Tubing Mode (backup at the bottom, tong at the top).

- Coiled Tubing Mode (backup at the top, tong at the bottom).
It takes less than 2 minutes to convert the unit to the coiled tubing position:

- Lower the unit to the floor and place it on its side.
- Undo the locking nut until it hits the retaining ring.
- Push on the nut (locking bolt) and compress locking bolt spring.
- Holding locking bolt in this position, lift the Lifting Cylinder/Bracket up, free the bolt from the mounting plate.
- Thread the Lifting Cylinder/Bracket assembly through the Crash Frame and attach to mounting plate on other side.
- Screw the locking nut tight.

- Horizontal
Vertical
“Little Jerk” has a big advantage over conventional tongs, it can torque any connection between 1 11/16” and 3 1/2” OD without changing dies (In addition the two sides of the connection can have different OD’s)

Read carefully the remaining sections of the manual before you start using your Mini Tong.
1.2 MINI TONG NAME AND SERIAL NUMBER TAG

There is a Serial Number Tag located at the back of the crash frame. It is very important to have the serial number handy when ordering spare parts or asking for technical information.
SECTION 2

CALIBRATION PROCESS

The Mini Tong assembly is calibrated to check the difference between the set values on the torque gauge and the actual torque. All results are recorded on the attached Calibration Certificate. Use calibration results for setting the torque value for connection (see attached Calibration Certificate).
SECTION 3

OPERATING SAFETY GUIDELINES

- Read manual before using the Mini Tong.
- Try to operate Mini Tong with one person.
- Follow the instruction written on the side of the Control Panel.

- Do not grip the workpiece with less than the full length of the tong die.
- Do not grip the workpiece with the dies placed on conical surface.
- Do not grip on irregular and bend sections.
- Do not grip on hard surfaced areas.
4.1 Attach the return and pressure line to the hydraulic power pack, 
ENSURE RETURN HOSE IS FIRMLY ENGAGED TO AVOID BLOWING 
OUT THE RUPTURE DISK.

KEEP PRESSURE AND FLOW TO RECOMMENDED PARAMETERS

OPEN LOOP-CLOSED CENTER HYDRAULIC SYSTEM REQUIRED
MAX PRESSURE – 2900 PSI
MAX FLOW – 4 GPM
FILTRATION – 10 MICRON NOMINAL
CLEANLINESS LEVEL OF 19/16 PER ISO 4406
4.2 Hook up the Mini Tong to the winch line or jib boom and bring it to the well center.

4.3 ADJUST CLAMPING FORCE

- Reduce torque value to minimum.
- Adjust clamping pressure to 800 PSI (recommended pressure for regular use, lower it down for very thin wall connections, turn it up for heavy-wall-used once).
- After initial setup clamp pressure will increase automatically with torque increase.

**WARNING**

WRONG ADJUSTMENT OF THE CLAMPING FORCE CAN DAMAGE THE TOOL
4.4 ADJUST TORQUE VALUE

- Using the torque adjustment knob and torque gauge, adjust torque to the required value (for lower torques correct the value according to Calibration Certificate).
4.1 ADJUST THE VERTICAL POSITION OF THE MINI TONG

- Use the winch line for rough adjustment.

- Use the lift handle and lifting cylinder to do precise adjustment. Place one tong close to the connection on the pin side, this will place second tong farther from the connection on the box side.

4.2 MAKING CONNECTIONS

- Using the green painted handles pull the Tong towards the connection until the two centralizing plates collapse completely.
- Keep Tong aligned with the connection and at the same time move the back up clamp control lever with your thumb. This will activate clamping cylinder on the backup tong and clamp one side of the connection.

- Move the tong torquing lever to the break out position to rotate the tong.

- Move the tong clamping lever to the clamp position (keep handle in this position during the torquing operation) and clamp the tong on the other side of the connection.

- Move the tong torquing lever to the make up position and torque the connection. If 30° of rotation is not enough to make the connection, try to take another bite (open tong jaws, rotate the tong, clamp the tong jaws, torque again.) Connection has been torqued to the value set on the torque gauge (Remember about corrections from the Calibration Certificate for the low torques).

- Open the tong, then backup and remove unit from the connection.
The Mini Tong must be maintained and serviced on a regular basis to ensure a long, trouble free life. Failure to do so can result in unsafe operating conditions and lead to a premature breakdown of parts.

5.1 LUBRICATION

- Close backup and tong arms.
- Grease pins through arm grease nipples.
- Grease main bearing.
- Oil top & bottom centralizing plates.
- Grease torque cylinder pins.
5.2 CHANGING DIES

- Close backup completely.
- Insert screwdriver through hole in backup body.
- Press bottom v-plate in so screwdriver can pass through the hole.

- Do the same with the top v-plate.

- Undo the bolts and nuts from all three dies.
- Knock the used dies out.

- Put in new set of dies and secure them with bolts and nuts.

**REMOVE SCREWDRIVER BEFORE OPENING BACKUP OR DAMAGE TO MINI TONG WILL RESULT**

- Open backup jaws and follow the same procedure for tong. No screwdriver is needed for tong die replacement.
5.3 ADJUSTING LIFTING CYLINDER MANIFOLD

- ADJUSTING THE COUNTERBALANCE VALVE
  - Loosen the adjustment screw lock nut on the Counterbalance Valve.
  - Turn adjusting screw all the way out.
  - Move the cylinder to the fully raised position.
  - Slowly turn adjusting screw in until cylinder starts to creep down, turn back out until the cylinder stops. Turn out another ½ turn and lock.

- ADJUSTING THE LOWERING SPEED
  - Move cylinder to the fully raised position.
  - Loosen the adjustment screw lock nut on Lowering Flow Control Valve.
  - Turn adjusting screw all the way in.
  - With the Lifting Cylinder Control Valve in the lowering position slowly turn adjusting screw out until desired lowering speed is achieved, then lock.

- ADJUSTING THE LIFTING SPEED
  - Move cylinder to the fully lowered position.
  - Loosen the adjustment screw lock nut on Lifting Flow Control Valve.
  - Turn adjusting screw all the way in.
  - With the Lifting Cylinder Control Valve in the lifting position slowly turn adjusting screw out until desired lifting speed is achieved, then lock.
SECTION 6

ORDERING PARTS PROCEDURE

Please supply the following information when ordering parts:
Size, Model and Serial Number of Unit

Description of Part

Part Number from Parts List

Parts List Number and Revision

Threaded Connections, if applicable

Maximum Operating Temperature, if applicable

Orders may be placed by telephone, fax, email or written request. A Purchase Order Number and Shipping Instructions must be provided at the time an order is placed.

Our terms of payment are Net 30 Days from date of invoice.

All parts are sold, F.O.B. Edmonton.

For additional information please contact:

Mailing address: National Oilwell Varco
   Downhole Tools
   3620 – 93 St.
   Edmonton, Alberta
   Canada, T6E 5N3

Telephone Number: (780) 944-3929

Fax Number: (780) 436-3492

E-Mail: dhpsales@nov.com
TONG/BACK UP ASSEMBLY (8071-B-16) SHT3
TONG/BACK UP ASSEMBLY (8071-B-16) SHT 6
BACK UP/TONG MANIFOLD SUB-ASSEMBLY (8071-B-15)
NOTE: Pressure Relief Valve (Item 28 – Inlet Manifold Sub-assembly) is factory set to 2900 psi for protection of the Intensifiers (Item 30 – Tong/Back Up Assembly (SHT 2)).

Rupture Disk (Item 26 – Inlet Manifold Sub-assembly) is included as a protective device for protection of the Intensifiers (Item 30 – Tong/Back Up Assembly (SHT 2) if the return line is not hooked up (the Intensifiers will be irreparably damaged!).