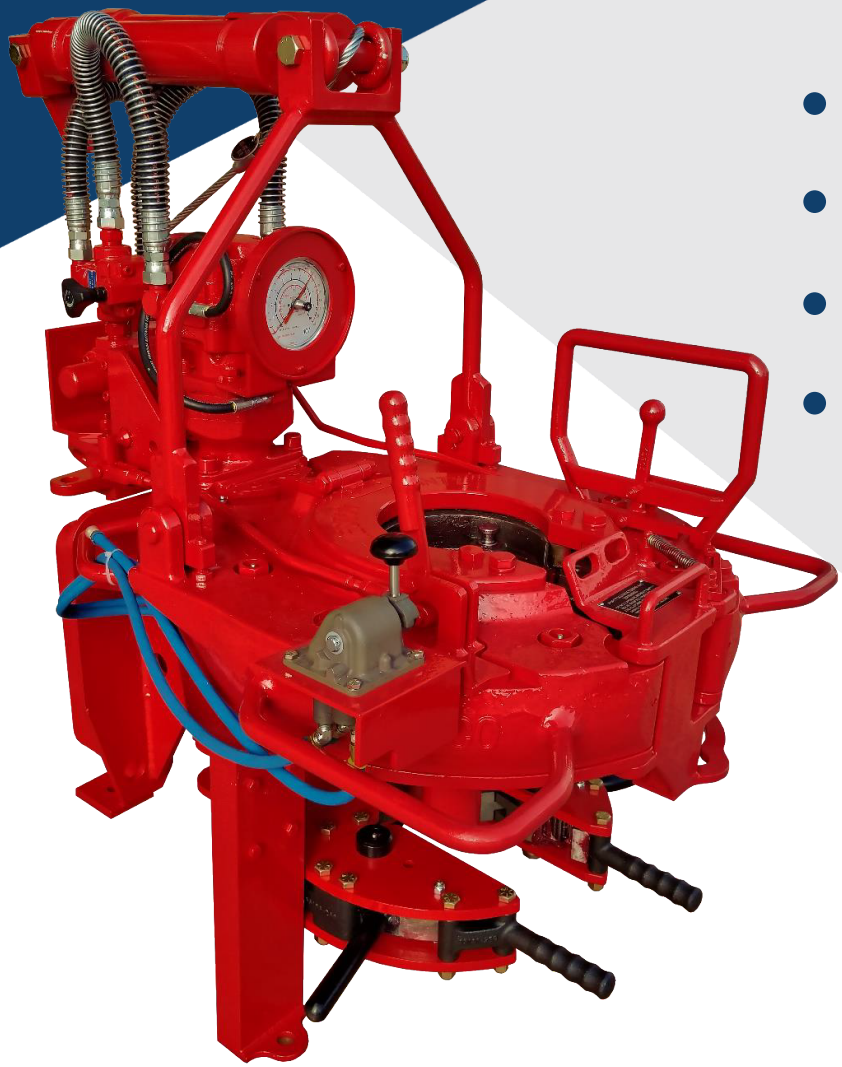
MANUFACTURED IN THE USA

# MODEL 5500
## HYDRAULIC TUBING TONG
### PRODUCT MANUAL



- SPECIFICATIONS
- MAINTENANCE
- OPERATIONS
- ASSEMBLY

REV: 1 Date:07/23/2019
Approved by: Bryan Stafford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## WESTCO Operating Manual

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## INTRODUCTION

This manual contains instructions on the installation, operation, safety, and maintenance of the WESTCO model 5500 hydraulic tubing tong. Illustrations with detailed notes are included in this manual in order to help assemble, disassemble, and or maintain these tongs. Proper maintenance is highly recommended in order to maximize the service life of the tong. The operator should thoroughly familiarize himself/herself with the contents of this manual before operating, making adjustments, or performing any maintenance procedures on this equipment.

## SAFETY

Safety is the highest priority! Use precautions in this section to protect yourself and coworkers from possible injury or death while using the tubing tong. These precautions reduce the risk of damaging the tong, rig, and tubular string.

**Warnings and Hints:**

This manual uses the following symbols:


**Shows advice to avoid death, injury, or equipment damage**

**Presents hints**

**Designated Use**

WESTCO model 5500 Hydraulic Tubing Tongs are fast, safe, and accurate tongs for making up and breaking out 1.315" to 4.75" O.D. tubing. Hydraulic power is directed to a manually controlled throttle valve and hydraulic motor unit. Fluid power input is converted to the rotary mechanical output, which drives the tong's gear train. The simple but rugged gear train consists of a planetary type gearbox mounted directly beneath the motor, and a gear reduction system which provides the extra torque capacity. The tong is suspended in the derrick or mast by a wire line and swung onto the tubing. Tong jaws grip automatically and the safety guard door closes. Operate the throttle in the forward position, and the tubing is automatically made up to the required specifications as indicated on the torque indicator gauge.


This equipment is NOT designed to be used for drilling operations. Using this equipment for purposes and/or configurations and/or modifications other than what is expressly mentioned in this manual is considered contrary to its designated use and is, therefore, prohibited. Operating this equipment within the limits of its designated use also involves complying with the operational inspection and maintenance directives contained within this operating manual.

**Precautions for Installation**

- Connect hydraulic couplings in the following order: 1) return line 2) pressure line. Always disconnect in the reverse order: 1) pressure line 2) return line.
- Secure hydraulic hoses: do not bend or clamp hoses in a way that might hinder flow of hydraulic fluid. Hoses should not obstruct workers on the rig floor.
- Use only the original suspension hanger that comes with the tong to suspend it off the rig floor.
- A stiff arm is strongly recommended, but if a flexible line (chain or cable) is used, the line must be completely horizontal and at a right angle to the longitudinal axis with no slack in the line.


***A snub line must be securely attached to the rear of tong and to an anchor point. All slack must be out of the snub line before the tong is operated. Failure to comply with this warning may cause serious bodily harm***.

**Precautions for Operation**

- Do not operate, adjust, or repair this equipment without proper training.
- Do not operate the tong if the front guard door is open or missing.
- Adhere to all safety warnings
- Keep all body parts and clothing away from moving parts


***Keep hands clear of rotating parts. Failure to comply with this warning may cause serious bodily harm.***

**Precautions for Maintenance and Troubleshooting**

- Before attempting any maintenance or troubleshooting, de-energize the hydraulic power to the tong, turn off the hydraulic power source, decompress the hydraulic hoses, and then disconnect the hoses. Ensure jaws cannot move. Make sure to lock/tag out all disabled power sources.


***Failure to shut down hydraulic power prior to performing any maintenance, service, and or troubleshooting may lead to serious bodily injuries.***

- Immediately shutdown and repair the hydraulic system if leaking is present.
- Never disconnect any hydraulic hose while it is under pressure.
- Use only spare parts from WESTCO or WESTCO approved vendors.
- Allow only qualified personnel to carry out troubleshooting, service, and maintenance tasks.
- When disposing any tong parts/components, follow appropriate environmental regulations.

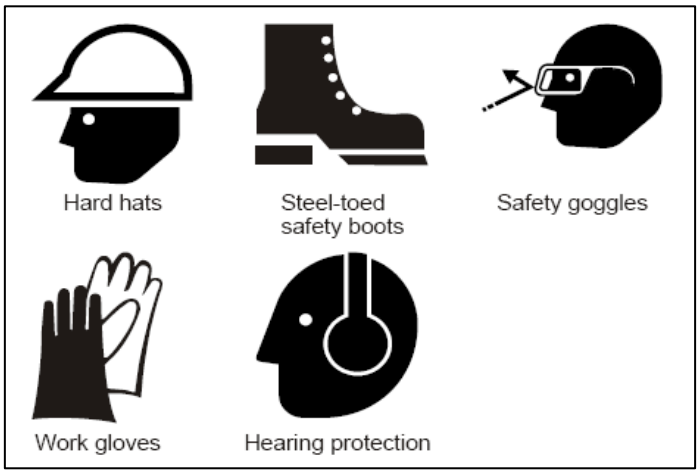
**Precautions for Transportation**

The tubing tong must be secured properly to avoid any movements during transportation. Before moving any components, verify that you have proper lift equipment and space to safely move the tubing tong. The operator must have adequate training and follow standard safety procedures such as always move a suspended load slowly and smoothly; keeping it in a horizontal position and balanced. A set of chains or straps may be utilized to secure the tong to the transport vehicle.


***Only use the designated hanger on the tong to lift it off the ground. Failure to do so may damage the equipment and or cause serious injuries.***

**Personal Protective Equipment (PPE)**

While handling/operating the tubing tong, it is very important to wear the following minimum PPE:

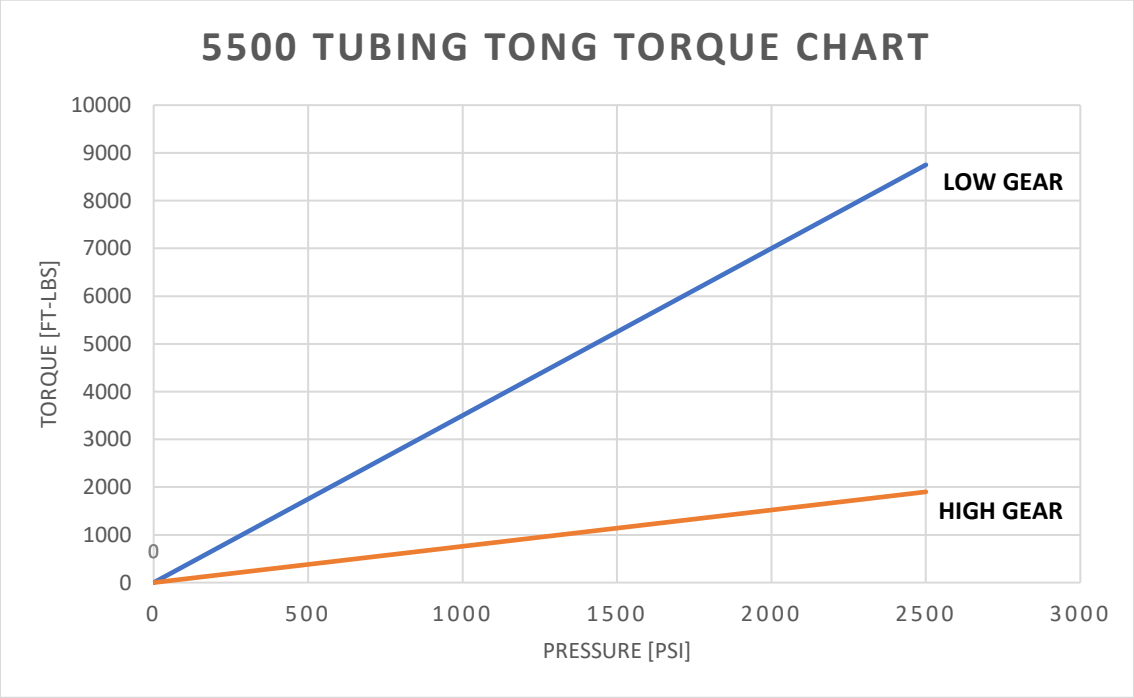




***The output noise of a tubing tong during operation exceeds 70 dB (A). The use of ear protection (i.e. earplugs) is recommended while operating the tubing tong. Failure to do so may lead to serious hearing injuries.***

**MODEL 5500 TUBING TONG SPECIFICATIONS**

- Hydraulic Nominal Requirements: 35-40 GPM @ 2,500 PSI
- Pipe Size Range: 1 ¼" to 4 ½"
- Max Torque in Low Gear: 8,750 ft-lbs.
- Max RPM in High Gear: 100 RPM @ 40 GPM
- Tong Weight: 575 lbs.



**Fluid Requirements**

To obtain the proper torque during make/break operations, the tubing tong requires a flowrate of approximately 35 to 40 gallons per minute (132.5 LPM to 151.4 LPM) at 2000 PSI. Every effort should be made to keep the hydraulic system clean. Whenever the hoses are disconnected, make sure the quick-coupling ends are capped/plugged to prevent any debris from entering the hydraulic system.

**NOTE:** Hydraulic power units must provide sufficient hydraulic fluid cooling to prevent the tubing tong from overheating. The maximum allowed temperature of the hydraulic oil flowing through the tubing tong pressure inlet line is 158°F (70°C).

**Hydraulic Oil Specification**

The quality of hydraulic oil used to power the tong affects its performance and service life. The following are key items to consider when choosing a hydraulic fluid for the power unit:

- The hydraulic oil must contain additives to ensure high anti-wear characteristics. Not all hydraulic oils contain these in sufficient amounts.
- The hydraulic oil must have the proper viscosity in order to provide adequate lubrication. The oil must also have a temperature rating that is adequate for this application.
- The hydraulic oil must have good anti-rust and oxidation properties.

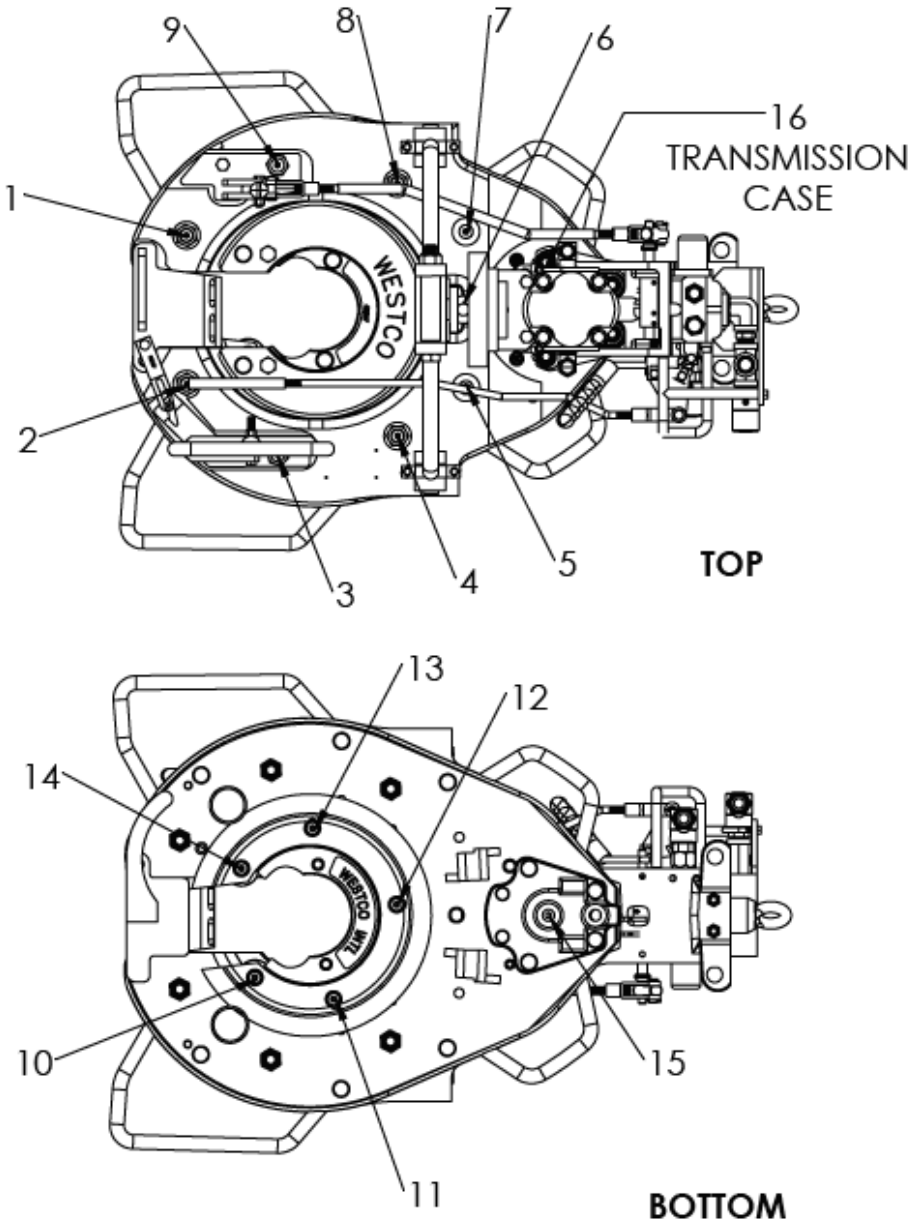
Acceptable hydraulic oils for running the tubing tong are as follows:

| MANUFACTURER | AIR TEMP. LESS THAN 45°F (7°C) | AIR TEMP. 45-85°F (7-30°C) | AIR TEMP GREATER THAN 85°F (30°C) |
|---|---|---|---|
| AGIP | OSO 32 | OSO 46 | OSO 68 |
| AUIA | AVILUB RSL 32 | AVILUB RSL 46 | AVILUB RSL 68 |
| AMOCO | RYKON #15 | RYKON #21 | RYKON #51 |
| ATLANTIC-RICHFIELD | DURO 150 | DURO S 215 | DURO 295 |
| BP | ENERGOL HLP 32, D32 | ENERGOL HLP 46, D46 | ENERGOL HLP 68, D68 |
| CHEVRON | EP HYD. OIL #32 | EP HYD. OIL #46 | EP HYD. OIL #68 |
| CITIES SERVICE | CITGO A/W 32 | CITGO A/W 46 | CITGO A/W 68 |
| CONOCO | DN 600, TYPE 2 | SUPER 21 | SUPER 31 |
| EXXON | NUTO H32 | NUTO H46 | NUTO H68 |
| GULF | HARMONY 43 W | HARMONY 48 W | HARMONY 54 AW |
| MOBIL | DTE 24 | DTE 25 | DTE 26 |
| SHELL | TELLUS 32 | TELLUS 46 | TELLUS 68 |
| SUN | SENECO 1100 | HYDRAULIC OIL 2105 | HYDRAULIC OIL 2105 |
| TEXACO | RANDO HD A32 | RANDO HD B-46 | RANDO HD C-68 |
| HD ENGINE OIL API - CC/SE OR CD | SAE 10W | SAE 10W-30 | SAE 20W-20 |

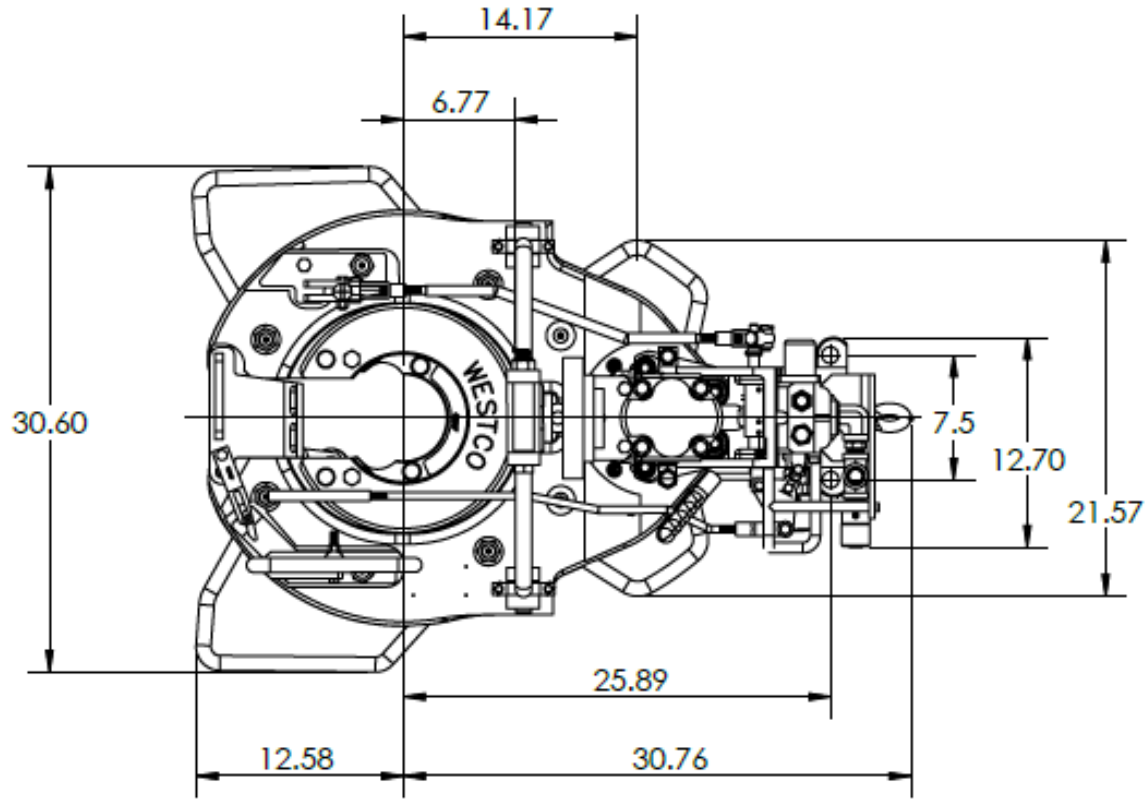
**Grease Specification**

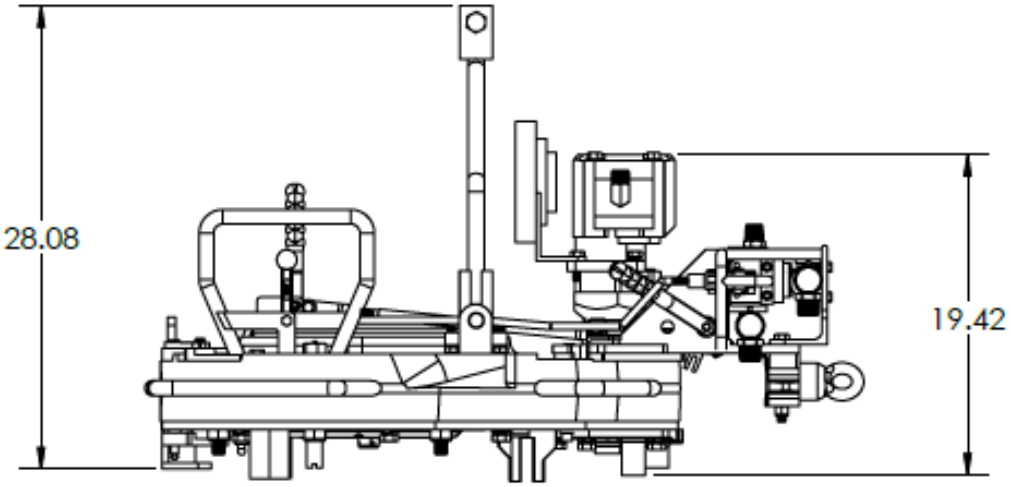
Tong grease lubrication is very important to ensure optimum performance. In addition, proper lubrication is key to increase the service life of the tong. WESTCO Int. recommends the following grease:

- Standard Service – Chevron Ultra-Duty Grease EP NLGI 0,1 or 2 (or equivalent)
- Cold Weather Service – Chevron RPM Artic Grease NLGI-1 (or equivalent)

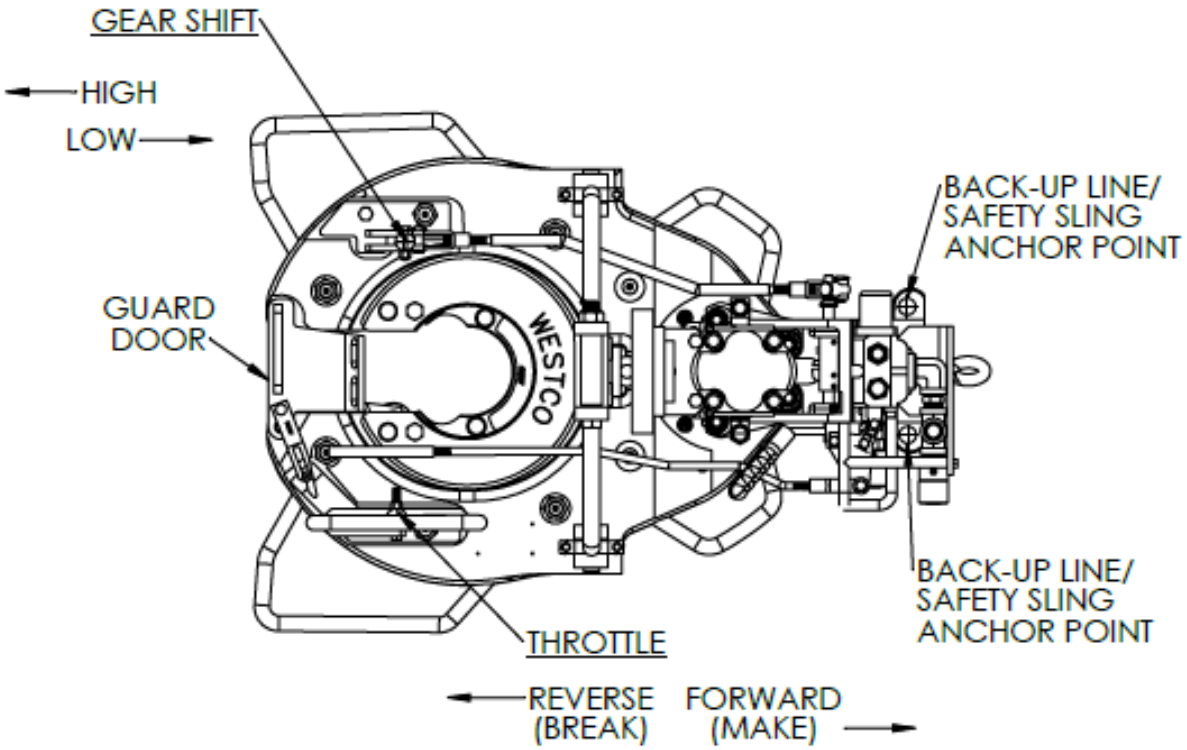


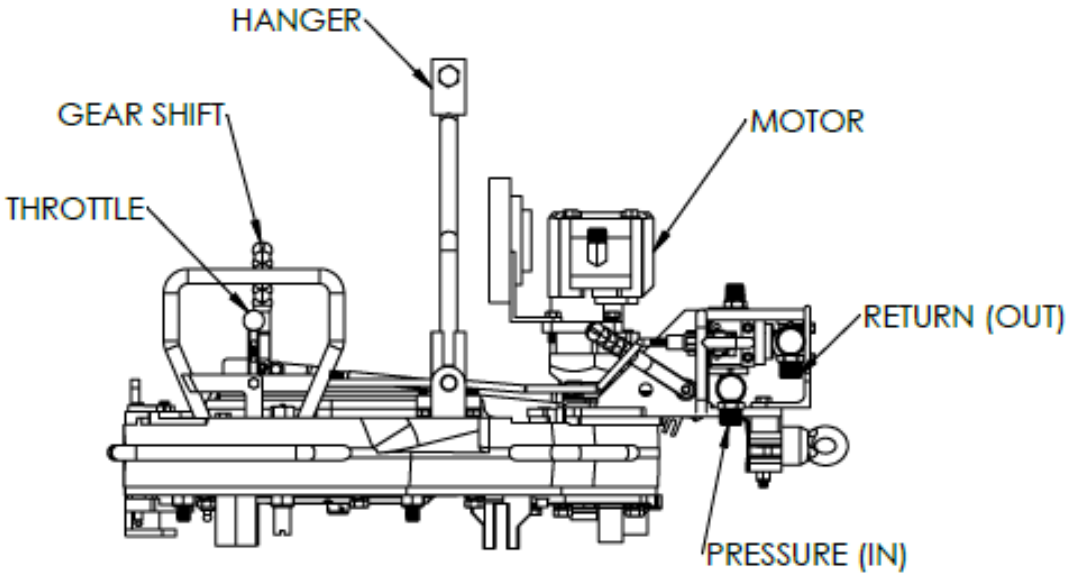

**ILL-223: Tubing Tong Lubrication Locations**




| DRAWING NUMBER | ILL-001 | REV A |
|---|---|---|
| TITLE: | TONG ENVELOPE DIMENSIONS | |




| DRAWING NUMBER | ILL-065 | REV A |
|---|---|---|
| TITLE: | TUBING TONG CONTROLS | |

**FIRST TIME STARTUP PROCEDURE**

When preparing to operate a new or re-conditioned hydraulic tubing tong or a tong that has been in storage, perform all of the operations listed below:

Tong:

Clean the tong and remove any packing material. Grease, oil, and lubricate brake band. Function test linkage and shift mechanism for free operation. Suspend in derrick.

Hydraulic Hoses**:**

1. Adjust hydraulic system pressure to 500 PSI or less
2. Shift tong to neutral position.
3. Engage hydraulic system clutch.
4. Push throttle lever toward tong.
5. Hold the tong throttle open and allow the hydraulic fluid to circulate for approximately five minutes.
6. Check system for leaks.
7. If operating in cold weather engage tong in high gear and rotate 2-3 minutes for warm up. Check tong linkage adjustments.

**INSTALLATION**

WESTCO Int. Tubing Tongs are assembled using carefully engineered and machined components. Each tong is thoroughly tested, inspected, and shipped from the factory after passing quality inspection. The following pages outline important procedures/requirements that will ensure proper tong operation.

**Hose Connections**

- Shut down all hydraulic power to the tong
- Connect hydraulic couplings in the following order: 1) return line 2) pressure line. Always disconnect in the reverse order: 1) pressure line 2) return line (refer to ILL-065 for connection locations).
- Secure hydraulic hoses: do not bend or clamp hoses in a way that might hinder flow of hydraulic fluid. Hoses should not obstruct workers on the rig floor.


***Failure to shut down all hydraulic power prior to making any hose connection may lead to serious injuries.***

**Suspending the tong in the derrick**

- The tong shall be suspended at a height that allows the tong jaws to grip the tube six inches above the upset. The angle of the vertical suspension line when the tong is over the tubing MUST NOT be large enough to cause the tong to come off the tube.
- Connect the tong to the stiff-arm assembly (if a stiff-arm assembly is not in use, continue to next steps).
- Connect a back-up line to the tong. The back-up line (and any accessories used with the back-up line) must have a load rating of at least 9,000 lbs. The back-up line must be horizontal to the rig floor; it must not pull up or down while operating the tong. A load cell may be assembled in line with the back-up line to obtain torque measurements. To ensure accurate torque readings, the back-up line must be perpendicular to the tong.
    - WESTCO International recommends the use of a safety sling to prevent injuries caused by failure of the main back-up line or stiff-arm assembly. Attach one end of the safety sling to the eyebolt

located on the back of the tong. Attach the other end of the sling to the rig. The safety sling should also be rated for 9,000 lbs.

**NOTE**: A back-up line must always be used, with or without the coupling back-up assembly

- Connect hydraulic hoses and start power unit.
- Swing the tong onto a tubing joint connection. Throttle the tong slowly until the back-up line's slack is removed. Make sure that the tong is now parallel to the rig floor.

If the tong is not parallel with the rig floor, the tong hanger must be adjusted. To level out the tong, adjust the two bolts located on each side of the hanger.


Inspect the hanger assembly for any excessive wear or damage. The spring hanger should not be completely bottomed out while the tong is hanging. Replace any worn or damaged parts immediately.

*Figure 1: Jaws Installed (Break-out)*

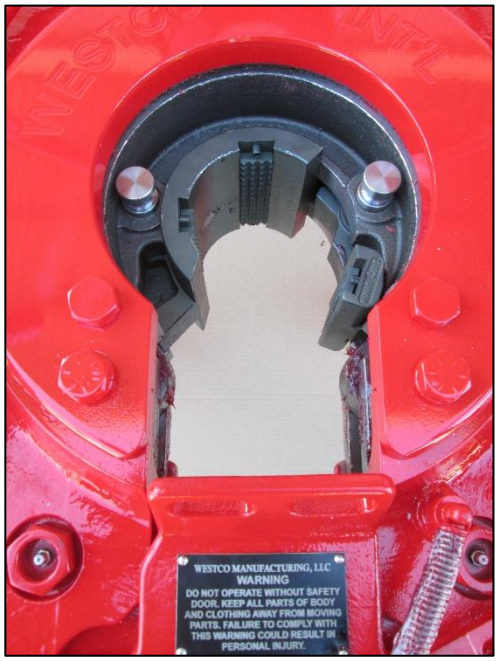



*Figure 2: Jaws Installed (Make-up)*

**JAW AND BUSHING ORIENTATION**

The jaw and bushing are reversible, depending upon the desired direction of rotation. If the jaw is installed on the left side (standing in front of the tong, as you look into the opening of the tong), the tong will rotate the pipe to the left (Figure 1). When the jaw is installed on the right side (Figure 2), it will rotate the pipe to the right (this is the pipe rotation when going into the hole).


***Shut down all hydraulic power to the tong before changing the jaw/bushing***


*Figure 3: Installation/removal of bushing*

**REMOVAL OF JAW AND BUSHING**

Position the tong as shown in Figure 3. Throttle the tong in reverse and position the bushing as shown in Figure 3. Slightly move the outer ring to eliminate any force acting on the pivot pin. Remove the pivot pin and then remove the bushing. Next, remove the jaw pivot pin and then remove the jaw.

**NOTE**: It is difficult to remove or install the jaw while the bushing is still in place.


*Figure 4: Installation/removal of jaw*

**REVERSAL OF JAW AND BUSHING**

Remove the jaw and bushing as outlined above. Move the outer ring slightly in order to get the lip of the jaw on the back of the front roller of the outer ring. Make sure that you are using the correct bushing and jaw size. Install the jaw as shown in Figure 4. Next, Install the bushing as shown in Figure 3.


***Shut down hydraulic power before changing the jaw/bushing***

**JAW AND BUSHING SIZES:**

Jaw and bushing sizes are stamped according to the actual O.D. of the tubing that they will fit - **not** the "nominal" size of the tubing.

| NOMINAL | STAMPED | NOMINAL | STAMPED |
|---|---|---|---|
| $\frac{3}{4}$" | 1.050" | $2\frac{1}{2}$" | $2\frac{7}{8}$" |
| 1" | 1.315" | 3" | $3\frac{1}{2}$" |
| $1\frac{1}{4}$" | 1.660" | $3\frac{1}{2}$" | 4" |
| -- | 1.750" | 4" | $4\frac{1}{2}$" |
| $1\frac{1}{2}$" | 1.99" | -- | -- |
| -- | $2\frac{1}{16}$" | -- | -- |
| 2" | $2\frac{3}{8}$" | -- | -- |

**OPERATION**

While the tong is suspended, move the gearshift lever (located towards the front of the tong) into high gear. Open the tong guard door and position the tong onto the pipe (the door spring assembly will close the door once the pipe is centered on the tong). NOTE: In order to grip the pipe correctly, it is critical that the tong's jaws are centered on the pipe. DO NOT SWING THE TONG ONTO THE PIPE TOO HARD AS IT MAY CAUSE THE TONG TO BOUNCE OFF. Once the tong is centered on the pipe, engage the throttle slowly until the jaws grip and the pipe rotates.

**TONG ADJUSTMENTS**

**Shift Rod Adjustment**

Shift rod adjustment is accomplished with jam nuts located on each end of the rod. Adjust the gearshift handle in neutral position.

**Throttle Adjustment**

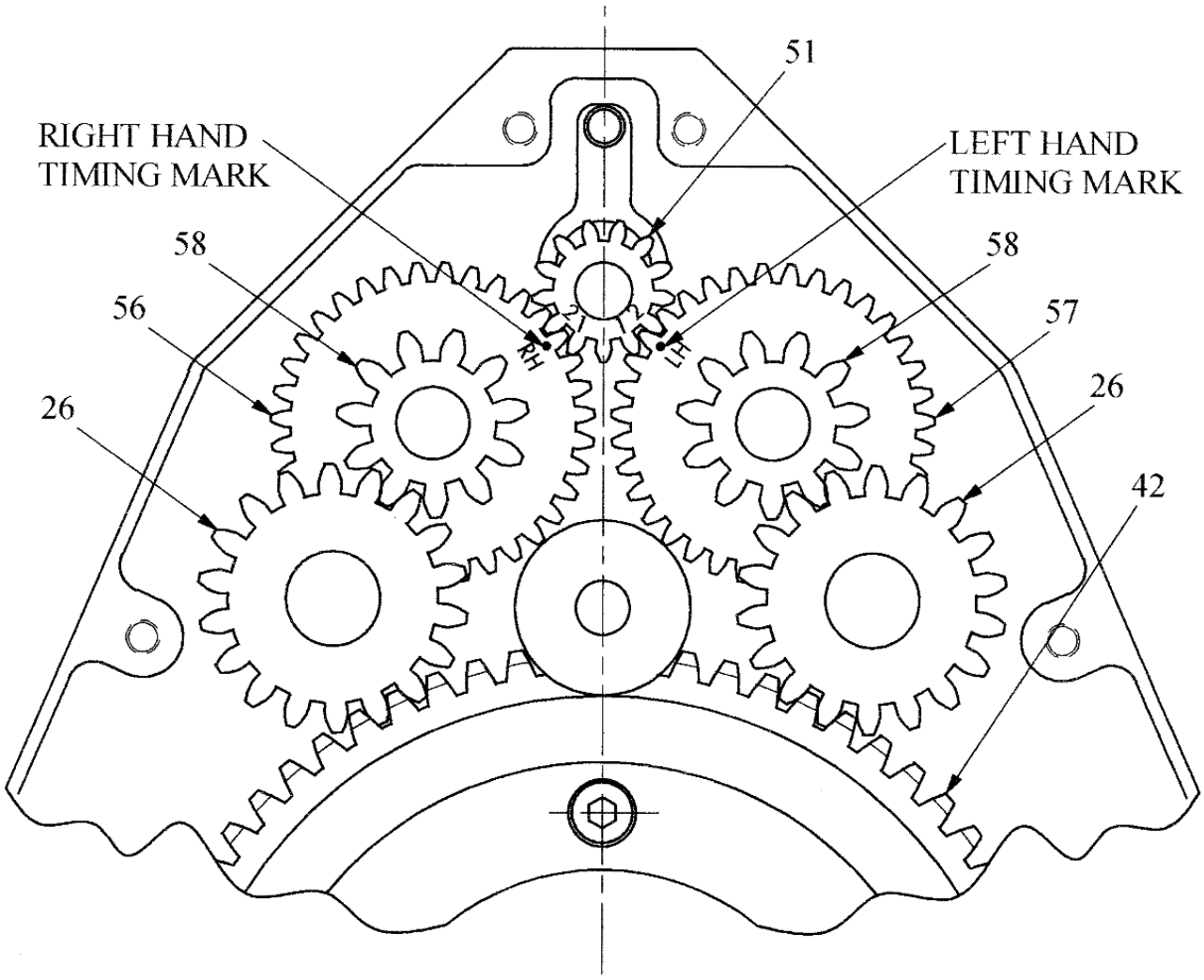
The throttle rod adjustment is set with the safety arm and the door in the open position. Adjust the safety bar to match the slot in the safety arm and secure by tightening the jam nut.

**NOTE**: Proper adjustment allows full throttle in both directions with the door closed and prevents throttling when door is open.

**Gear Shift Tension Adjustment**

Adjusting gearshift tension is accomplished by turning the setscrew in until the gears will not shift and then backing out setscrew until shifting is smooth. There will be approximately three threads of the setscrew exposed beyond the transmission cover when shifting mechanism is new. Setscrew position is also a wear indicator for the shift rod fork.

**GEAR TRAIN TIMING PROCEDURE**




The high-speed pinion gear (item 51) must be timed properly to the two cluster gears (item 56/57) in order for the gear train to rotate properly. Incorrect timing will cause the gear train to bind during operation. NOTE: This timing procedure must be followed each time the tong's gears are replaced. STEP 1: Align one tooth of the pinion gear (item 51) with the centerline of the tong (see above illustration). STEP 2: Install the left and right cluster gears (item 56/57). Orientate the stamped timing marks on the cluster gears between two of the pinion gear teeth (see illustration). NOTE: The above illustration is a bottom view of the tong.

**PREVENTATIVE MAINTENANCE**

To obtain the long life and best performance from a tong, the operator must adhere to the following instructions on lubrication and preventive maintenance. Areas to be oiled or greased, and proper care of the hydraulic hoses and couplings. The daily instructions pertain to routine or daily operation of a tong and not to new equipment. For new tongs, follow instructions given in "First Time Star-Up Procedures." The time intervals given in the instructions refer to actual hours on the tong.

- Lightly oil or grease the following items to prevent corrosion: throttle assembly, shift assembly, guard door spring, and jaw pins.

- Before and after each job, grease fittings should be lubricated thoroughly. Refer to illustration 223 (ILL-223) for grease point locations. During long periods of continuous use, WESTCO recommends greasing these areas every two hours.

- When connecting and disconnecting hoses, inspect the couplings to ensure that all the openings are free of dirt/debris. Hoses should be wiped clean and inspected for any wear or damage. Store hoses in a dry clean environment away from direct sunlight.

**Storage**

When a tong is to be stored or removed from operation, special precautions should be taken to protect the interior and exterior of the tong from corrosion. It is recommended that the tong be prepared for storage immediately after removal from operation. The tong needs to be stored in a dry building away from extreme weather conditions.

**Temporary Storage**

Storing the tong for a period of 30 days or less:

- Clean the entire exterior of tong with solvent and thoroughly dry all surface areas. Cleaning is especially important if the tong has been used in a salt water environment.

- Grease and oil the tong as recommended under "Preventive Maintenance" procedure.

- Cover the entire tong with a good water proof cover.

**Extended Storage**

Storing the tong for a period of 30 days or more:

- Perform the first two steps in "Temporary Storage" procedure above.

- Spray all exterior surfaces of the tong and with a suitable liquid automobile body wax, a synthetic resin varnish, or a rust preventive compound.

- Cover the entire tong with a good water proof cover. The stored tong should be inspected periodically. If there are any indications of rust or corrosion, corrective steps must be taken to prevent damage to the parts. Perform a complete inspection at the end of one year and apply additional treatment as required. To put the tong back into service, refer to "First Time Startup Procedure."

**TROUBLESHOOTING**

A. TONG RUNNING TOO SLOWLY

| | | |
|---|---|---|
| 1 | Pump intake line plugged. | Clean intake line and filter. |
| 2 | Reservoir oil lever too low. | Add oil. |
| 3 | Air leak in pump intake line (oil in reservoir may be too foamy). | Identify source of leak and make necessary repairs. |
| 4 | Pump speed too slow. | Check manufacturer's speed recommendations and actual speed of pump. Vane type pumps will not prime if running too slowly. |
| 5 | Excessively worn or damaged pump or tong. | Replace. Follow manufacturer's recommendations. **NOTE:** To determine which is defective, disconnect pump from motor, test pressure and volume of pump. |
| 6 | Pump control improperly set (variable delivery pumps). | Check position of control. |
| 7 | Viscosity of oil is too high. | Some pumps will not prime if the oil is too heavy. Check manufacturer's recommendations and viscosity of oil used. |
| 8 | Viscosity too low: | |
| | a. Excessive heat. | Restriction in line between power unit and tong. |
| | b. Contamination of oil, i.e. diesel, gasoline, etc. | Change oil |
| | c. Improper grade of oil. | Change oil of a higher viscosity or of a better viscosity index. |
| 9 | Restriction in line between power unit and tong. | This condition may be detected when pump pressure is not reaching the tong or when excessive backpressure is created in the return line. The return line pressure should be approximately 100-150 PSI. Check self-seal coupling to ensure they are properly engaged. Check self-seal couplings for rubber pieces lodged in valves. If couplings are clear, check for collapsed inner layers of the return hose. |
| 10 | Hose connection not made up properly. | Check hose connection procedure in "Installation." |

B. FAILURE OF JAWS TO GRIP TUBING

| | | |
|---|---|---|
| 1 | Improper tong suspension | Refer to "Installation" section in this manual. |
| 2 | Dull dies | Replace or clean with wire brush |
| 3 | Brake band worn | Replace |
| 4 | Improper jaw size | See jaw size charts |

C. TONG WILL NOT PRODUCE SUFFICIENT TORQUE

| | | |
|---|---|---|
| 1 | Tong valve or relief valve on tong not working: | |
| | a. Valve stuck | Check for dirty or gummy sludge. Check for contamination of oil. Check for broken spring valve. |
| | b. Valve leaking | Check valve seat for damage. Check oil seals. Check for particles stuck under valve stem. |
| 2 | Stuck, worn, or damaged pump parts | Inspect and clean. |
| 3 | Pump speed too slow | Check motor speed. |
| 4 | Oil viscosity too high | Some pumps will not prime if oil is too heavy. Check viscosity at working temperature (also at initial temperature if this is considerably lower). |
| 5 | Oil viscosity is too low. | Restriction between power unit and tong. |
| 6 | Oil by-passed to reservoir | Check relief valve for proper operation. Check directional valves; open center neutral position should return oil to the reservoir. |
| 7 | Tong motor worn or damaged, allowing excessive slippage | Repair and/or replace damaged parts. |
| 8 | Excessive drag in tong due to damaged bearing or gears | Repair and/or replace damaged parts. |
| 9 | Restriction in line between power unit and tong | This condition may be detected when pump pressure is not reaching the tong or when excessive backpressure is created in the return line. Check self-seal couplings to make certain they are properly engaged. |

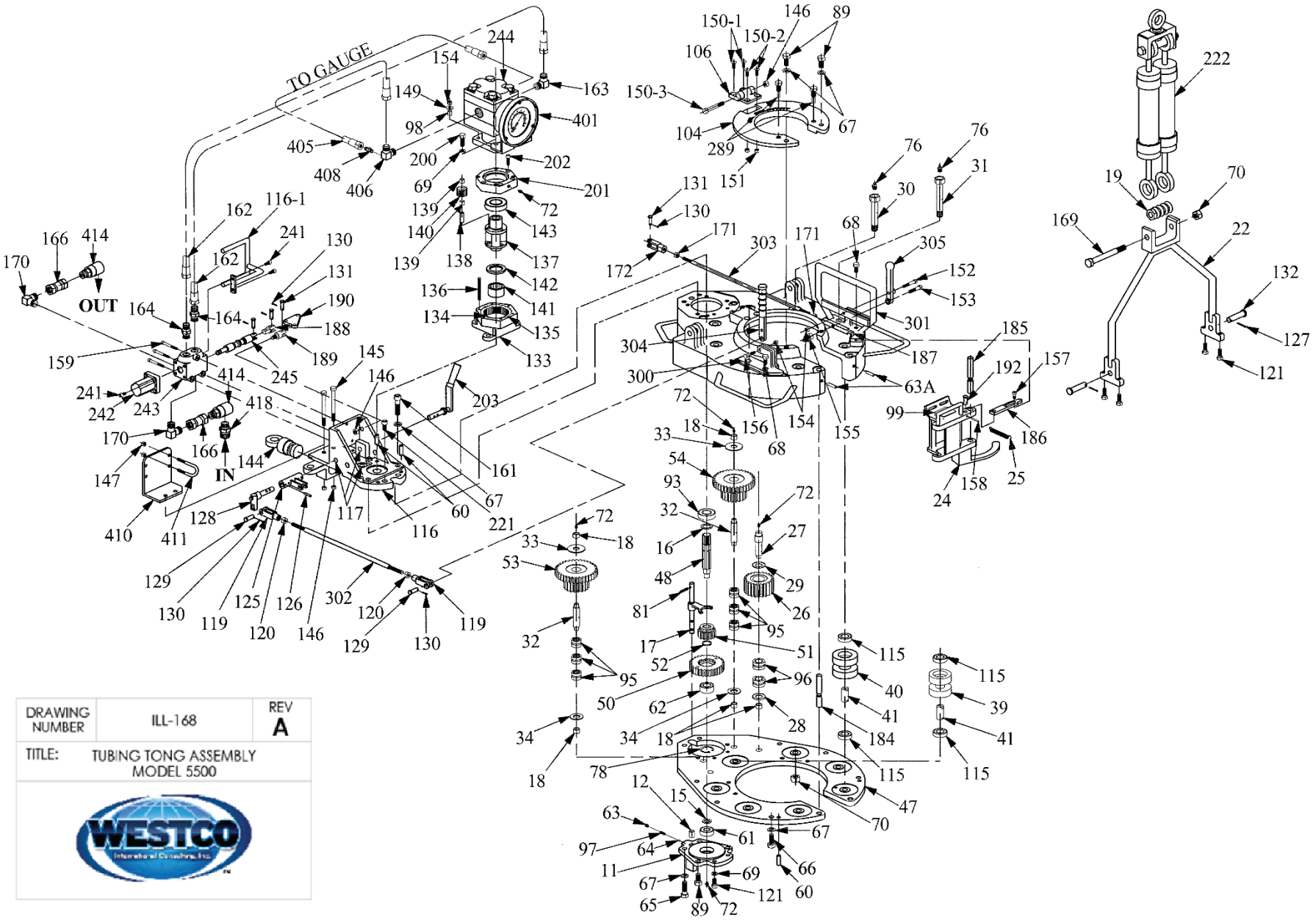
D. FAILURE OF TONG TO SHIFT OR DIFFICULTY SHIFTING

| | | |
|---|---|---|
| 1 | Shifting mechanism is worn | Replace |
| 2. | Shift is attempted at high R.P.M. | Shift at lower R.P.M. or after momentary stop. Shift with rotor opening at rear of tong. |

E. POOR DIE LIFE

| | | |
|---|---|---|
| 1 | Improperly suspended tong; tong hanger bottomed out | Refer to "Installation" section in this manual. |
| 2 | Improperly reconditioned dies | Replace jaw. |

# MODEL 5500
# TUBING TONG
# REPLACEMENT PARTS




| DRAWING NUMBER | ILL-168 | REV A |
|---|---|---|
| TITLE: | TUBING TONG ASSEMBLY MODEL 5500 | |

| See ILL-168 | | | | |
|---|---|---|---|---|
| **Item #** | **Part Number** | **QTY** | **Description** | **Weight/Lbs.** |
| -- | **55011-100** | **1** | **Bottom Transmission Assembly (Includes items #: 11, 12, 17, 48, 50-52, 61-64, 72, 78, 97)** | -- |
| 11 | 45011 | 1 | Bottom Transmission Cover | 10.00 |
| 12 | 45012 | 1 | Bushing | .06 |
| 15 | 45015 | 1 | Bearing Spacer | .06 |
| 16 | 45016 | 1 | Thrust Washer | .13 |
| 17 | 45017 | 1 | Shift Fork | .06 |
| 18 | 45018 | 4 | Gear Shaft Bushing | .13 |
| -- | **45022-100** | **1** | **Hanger Assembly (Includes items #: 19, 22, 70, 121, 127, 132, 169)** | -- |
| 19 | 45019 | 1 | Hanger Balancing Screw | .13 |
| 20 | 992093-12 | 1 | Nut | .12 |
| 22 | 45022-200 | 1 | Hanger | 17.00 |
| -- | **45023-100** | **1** | **Hanger Suspension Assembly (Includes items #: 127,160, 223-229)** | **6.75** |
| 23 | 45023-1 | 1 | Safety Sling | 1.00 |
| 24 | 45024-200 | 1 | Door | .25 |
| 25 | 45025 | 1 | Doors Spring | .25 |
| 26 | 55026 | 2 | Idler Gear | 1.00 |
| 27 | 45027 | 2 | Idler Gear Shaft | 1.00 |
| 28 | 45028 | 2 | Thrust Washer | .25 |
| 29 | 45029 | 2 | Thrust Washer | .25 |
| **30** | **45030** | **5** | **Guide Roller Shaft Assembly (includes item # 76)** | **.25** |
| **31** | **45031** | **2** | **Guide Roller Shaft Assembly (includes item # 76)** | **.25** |
| **32** | **45032** | **2** | **Cluster Gear Shaft Assembly (includes item # 72)** | **.06** |
| 33 | 45033 | 2 | Thrust Washer | .13 |
| 34 | 45034 | 2 | Thrust Washer | .13 |
| 39 | 55039 | 1 | Guide Roller | 4.50 |
| 40 | 45040-01 | 6 | Guide Roller | 5.00 |
| 41 | 45041 | 7 | Guide Roller Spacer | .06 |
| 42 | 55042 | 1 | 68 Teeth Rotor Gear | 40.00 |
| -- | **55042-100** | **1** | **Rotor Gear Assembly (includes items #: 42, 277-280, 287)** | **62.25** |
| 44 | 55044-200 | 1 | Tubing Tong Housing | 140.00 |
| 47 | 55047-200 | 1 | Tong Cover | 54.00 |
| 48 | 45048 | 1 | Pinion Shaft | 2.50 |
| 50 | 55050 | 1 | 20 Tooth High Speed Gear | 1.50 |
| **51** | **55051** | **1** | **13 Tooth Low Speed Gear Assembly (includes item # 52)** | **2.00** |
| 52 | 45052 | 1 | Retaining Ring | .06 |
| 53 | 55061 | 1 | 35 Tooth Right Cluster Gear | 6.00 |
| 54 | 55060 | 1 | 35 Tooth Left Cluster Gear | 6.00 |
| 60 | 992082-96 | 4 | Long Dowel Pin | .13 |
| 61 | 940007-304 | 1 | Bearing | .25 |
| 62 | 940048-5205 | 1 | Bearing | .50 |

| | | | | |
|---|---|---|---|---|
| 63 | 992134-86 | 3 | Set Screw | .06 |
| 64 | 900572-5 | 1 | 1/4" Ball | .06 |
| 65 | 992007-05 | 2 | Cap Screw | .06 |
| 66 | 992007-03 | 6 | Cap Screw | .06 |
| 67 | 992051-14 | 16 | Lock Washer | .13 |
| 68 | 992005-03 | 2 | Cap Screw | .13 |
| 69 | 992051-10 | 4 | Lock Washer | .13 |
| 70 | 992162-09 | 7 | Nut | .06 |
| 71 | 992082-95 | 2 | Short Dowel Pin | .06 |
| 72 | 992073-01 | 11 | Grease Fitting | .06 |
| 76 | 992073-04 | 7 | Grease Fitting | .06 |
| 78 | 992253-200 | 1 | Snap Ring | .13 |
| 81 | 992011-138 | 1 | Roll Pin | .13 |
| 89 | 992007-02 | 4 | Cap Screw | .13 |
| 93 | 940021-206 | 1 | Bearing | .50 |
| 95 | 45095 | 2 | Bearing Set | .50 |
| 96 | 45096 | 2 | Bearing Set | .50 |
| 97 | 45097 | 1 | Transmission Spring | .06 |
| 98 | 45098 | 2 | Motor Bushing | .13 |
| 99 | 45099 | 1 | Caution Plate | .06 |
| -- | 992209-01 | 4 | Mounting Pin for Caution Plate | .01 |
| 104 | 45104 | 1 | Top Cover | 13.00 |
| **106** | **45106-200** | **1** | **Top Cover Hinge Assembly (includes items #: 146, and 150-3)** | **.15** |
| 115 | 940007-304 | 14 | Bearing | .25 |
| -- | **45116-200** | **1** | **Tail Handle Assembly (includes items #: 116, 116-1, 117,125,128,189, and 203)** | **40.00** |
| 116 | 45116 | 1 | Tail Handle | 36.00 |
| **116-1R** | **45116-250** | **1** | **Throttle Back Guard (For tongs with relief valve. Includes Items #: 116-1R, 202, 241, and 417.** | **3.00** |
| 116-1 | 45116-1 | 1 | Tong Handle Back Guard (for tongs without relief valve) | 3.00 |
| 117 | 45117 | 3 | Shift Bushing | .06 |
| 119 | 900470-16 | 2 | End Yoke | .06 |
| 120 | 992107-10 | 2 | Jam Nut | .06 |
| 121 | 992005-04 | 6 | Cap Screw | .13 |
| 125 | 45125 | 1 | Shift Lever | 1.00 |
| 126 | 992011-138 | 4 | Roll Pin | .13 |
| 127 | 992012-45 | 2 | Cotter Pin | .13 |
| 128 | 45128 | 1 | Shift Link | .50 |
| 129 | 992049-125 | 2 | Clevis Pin | .13 |
| 130 | 992012-34 | 6 | Cotter Pin | .06 |
| 131 | 992049-106 | 4 | Clevis Pin | .13 |
| 132 | 992049-165 | 2 | Clevis Pin | .13 |
| **133** | **45133-200** | **1** | **Gear Housing Assembly (includes items #: 134-135)** | **8.00** |
| 134 | 45134 | 1 | Inner Gear | 2.00 |
| 135 | 992082-38 | 2 | Dowel | .13 |

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|---|---|---|---|---|
| 136 | 45193 | 2 | Stud | .13 |
| **137** | **45137-200** | **1** | **Gear Frame Assembly (includes items #: 138-140)** | **3.00** |
| 138 | 992082-97 | 3 | Planet Gear Shaft | .06 |
| 139 | 45139 | 6 | Bearing | .06 |
| 140 | 45140 | 3 | Planet Gear | .50 |
| 141 | 903317-17 | 1 | Bearing | .31 |
| 142 | 45142 | 1 | Thrust Washer | .13 |
| 143 | 940016-208 | 1 | Bearing | .25 |
| 144 | 45144-200 | 1 | Back Swivel | 1.00 |
| 145 | 992005-17 | 2 | Cap Screw | .25 |
| 146 | 992089-09 | 3 | Nylon Lock Nut | .06 |
| 147 | 992164-05 | 2 | Hex Nut | .06 |
| 149 | 992155-04 | 2 | Flat Washer | .06 |
| 150-1 | 992066-04 | 2 | FH Socket Screw | .13 |
| 150-2 | 992066-03 | 2 | FH Socket Screw | .13 |
| 150-3 | 992005-13 | 1 | Screw | .5 |
| 151 | 992107-05 | 2 | Heavy Thin Nut | .06 |
| 152 | 992003-10 | 1 | Cap Screw | .06 |
| 153 | 992004-07 | 1 | Cap Screw | .13 |
| 154 | 992089-05 | 6 | Nylon Lock Nut | .06 |
| 155 | 992089-07 | 1 | Nylon Lock Nut | .06 |
| 156 | 992003-08 | 1 | Cap Screw | .13 |
| 157 | 992217-01 | 1 | Shoulder Bolt | .06 |
| 158 | 992011-102 | 1 | Roll Pin | .06 |
| 159 | 992017-13 | 3 | Cap Screw | .06 |
| 160 | 992213-15 | 1 | Hex Nut | .06 |
| 161 | 992025-07 | 4 | Socket Screw | .06 |
| 162 | 900706-240 | 2 | Hydraulic Hose | 2.00 |
| 162-S | 900706-241 | 1 | Hydraulic Hose (short) (for tong with relief valve) | 1.50 |
| 163 | 992141-S-12-12 | 2 | Hydraulic Fitting 90° NPT (For tong with relief valve) | .50 |
| 164 | 992138-S-12-12 | 2 | Hydraulic Fitting | .50 |
| 165 | 992434-S-12-12 | 1 | Hydraulic Fitting Tee (For tong with relief valve) | .50 |
| 166 | 46056 | 2 | Hex Coupling NPT x NPT (For tong without relief valve) | .14 |
| 166 | 46056 | 1 | Hex Coupling NPT x NPT (For tong with relief valve) | .7 |
| 168 | 992142-S-12-12 | 2 | Adapter 90° elbow .75 NPT x .75 NPT (For tong with relief valve) | .50 |
| 169 | 992008-19 | 1 | Cap Screw | .50 |
| 170 | 992338-S-12-12 | 2 | Adapter 90° elbow .75 NPT x .75 NPT (For tong with relief valve) | .7 |
| 171 | 992107-08 | 2 | Jam Nut | .06 |
| 172 | 900470-7 | 1 | End Yoke | .50 |
| 184 | 45184 | 1 | L.H. Door Spring Pin | .50 |
| 185 | 45185 | 1 | R.H. Door Spring Pin | .50 |
| 186 | 45186 | 1 | Safety Latch Plate | .50 |
| 187 | 45187 | 1 | Safety Latch Bar | .50 |
| 188 | 45188 | 1 | Control Valve Swivel Yoke | .25 |

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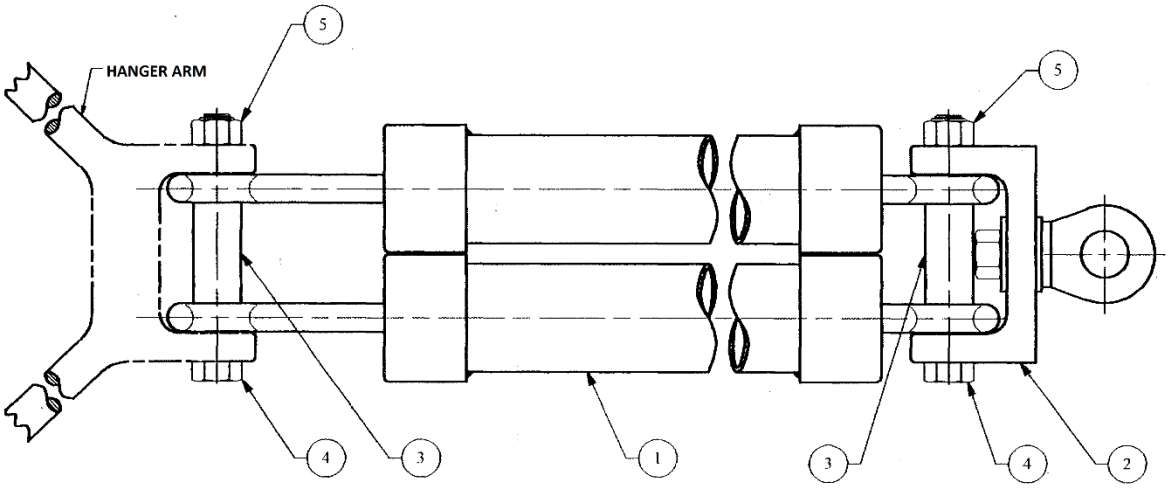
|---|---|---|---|---|
| 189 | 45189 | 1 | Fixed Control Valve Yoke | .25 |
| 190 | 45190 | 1 | Control Valve Pivot Plate | .50 |
| **--** | **45191** | **1** | **Control Valve Link Assembly (includes items #: 130, 131, and 190)** | **.75** |
| 192 | 45192 | 1 | Safety Latch Pin | .13 |
| 200 | 992005-05 | 2 | Cap Screw | .13 |
| 201 | 45201 | 1 | Motor Adapter | 2.00 |
| 202 | 992019-06 | 4 | Cap Screw | .13 |
| 203 | 45203-1 | 1 | Rear Shift Lever Handle | 5.00 |
| 221 | 992023-05 | 2 | Cap Screw | .25 |
| 222 | 45030-100 | 1 | Dual Suspension Hanger Assembly | 10.00 |
| -- | **45240** | **1** | **Control Valve Assembly (includes items #: 241-243, 245)** | **15.00** |
| -- | 800024 | 1 | Control Valve Repair Kit | -- |
| 241 | 992019-03 | 4 | Control Valve End Cap Bolt | .20 |
| 242 | 45242 | 1 | Control Valve End Cap | 2.00 |
| 243 | 45243 | 1 | Control Valve Body | 11.00 |
| **244** | **97400-5** | **1** | **Hydraulic Motor** | **47.00** |
| 245 | 45245 | 1 | Control Valve Spool | 2.00 |
| 277 | 45277 | 3 | Large Roller | 1.75 |
| 278 | 45278 | 2 | Small Roller | 1.00 |
| 279 | 45279 | 5 | Roller Bushing | .20 |
| **280** | **45280** | **5** | **Roller Pin Assembly (Includes item # 72)** | **.80** |
| 287 | 45287 | 1 | Inner Ring | 10.00 |
| 288 | 45288-200 | 1 | Brake Band | 5.00 |
| 289 | 45289 | 2 | Brake Band | .50 |
| 290 | 45290 | 2 | Jaw Pin | .75 |
| 291 | -- | -- | See Jaw Assemblies Part List | -- |
| 292 | -- | -- | See Jaw Assemblies Part List | -- |
| 293 | -- | -- | See Jaw Assemblies Part List | -- |
| 294 | -- | -- | See Jaw Assemblies Part List | -- |
| 295 | 992015-02 | 3 | Socket Screw | .20 |
| 300 | 45300 | 1 | Shift Bracket | 3.00 |
| 301 | 45301 | 1 | Throttle Bracket | 5.00 |
| 302 | 45302 | 1 | Shift Rod | 1.00 |
| 303 | 45303 | 1 | Throttle Rod | .50 |
| 304 | 45304 | 1 | Shift Handle | 1.00 |
| 305 | 45305 | 1 | Throttle Handle | .50 |
| 312 | 992151-S-12-12 | 1 | Hex Nipple (For tong Relief Valve Assembly) | .50 |
| 314 | 943972-45 | 1 | Relief Valve (For tong Relief Valve Assembly) | 5.00 |
| 337 | 900706-241 | 1 | Hydraulic Jumper Hose | 1.25 |
| 401 | 55403-101 | 1 | Torque Gauge Assembly [PSI,Ft-lbs] | 5.00 |
| 401 | 55403-102 | 1 | Torque Gauge Assembly [Bar,N-m] | 5.00 |
| 405 | 700B-04-024-02 | 1 | 1/4" Hose Assembly | .25 |
| 406 | 45406 | 1 | 90° Elbow Adapter | .10 |
| 408 | 992138-S-4-4 | 1 | Straight Hydraulic Fitting | .13 |
| -- | **45410-200** | **1** | **Back Guard Assembly (includes items#: 147, 410, 411)** | **--** |

| | | | | |
|---|---|---|---|---|
| -- | **45430-200** | **1** | **Back Guard Tong Assy (for tong with relief valve) (includes items #: 410R, 411R, 415, 416, 147)** | **2.50** |
| 410R | 45430-01 | 1 | Back Guard (For Tong with Relief Valve) | 2.40 |
| 410 | 45410 | 1 | Back Guard | 2.00 |
| 411 | 992327-018 | 1 | U-Clamp | 1.00 |
| 411R | 992327-019 | 1 | U-Clamp (For Tong with Relief Valve) | 1.00 |
| 414 | 992453-12 | 2 | Hydraulic Swivel 3/4" NPT | 1.00 |
| -- | **45407-202** | **2** | **Swivel Assembly (includes items #: 414 and 418)** | **1.50** |
| 415 | 992005-03 | 1 | Screw (For Tong with Relief Valve) | .10 |
| 416 | 992116-09 | 1 | 1/2" Nut (For Tong with Relief Valve) | .10 |
| 417 | 992051-06 | 1 | 3/8" Lock Washer (For Tong with Relief Valve) | .10 |
| 418 | 992131-S-16-12 | 1 | Hydraulic Fitting 3/4" NPT x 1" NPT | .20 |




**Dual Suspension Hanger Assembly**

| Item # | Part Number | QTY | Description |
|---|---|---|---|
| -- | **45030-100** | **1** | **Dual Suspension Hanger Assembly** |
| 1 | 45023-100 | 2 | Suspension Hanger |
| 2 | 45233-200 | 1 | Hanger |
| 3 | 45231 | 2 | Sleeve |
| 4 | 992008-19 | 2 | Bolt |
| 5 | 992162-09 | 2 | Nut |

**JAW ASSEMBLIES**
**(For 5500,5600, and 4500 Tubing Tongs)**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45291H-100** | **1** | **1.66" Jaw Assembly (1- 1/4" Pipe)** | **8.50** |
| 291 | 45291H | 1 | 1.66" Jaw | 6.50 |
| 293 | 45293H | 1 | 1.66" Die | 2.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291F-100** | **1** | **1.900" Jaw Assembly (1- 1/2" Pipe)** | **7.50** |
| 291 | 45291F | 1 | 1.900" Jaw | 6.50 |
| 293 | 45293F | 1 | 1.900" Die | 2.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291G-100** | **1** | **2.06" Jaw Assembly** | **6.50** |
| 291 | 45291G | 1 | 2.06" Jaw | 5.50 |
| 293 | 45293G | 1 | 2.06" Die | 2.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291A-100** | **1** | **2- 3/8" Jaw Assembly** | **5.50** |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45293A | 1 | 2- 3/8" Die | 1.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291B-100** | **1** | **2- 7/8" Jaw Assembly** | **5.50** |
| 291 | 45291B | 1 | 2- 7/8" Jaw | 4.50 |
| 293 | 45293B | 1 | 2- 7/8" Die | 1.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291C-100** | **1** | **3- 1/2" Jaw Assembly** | **4.75** |
| 291 | 45291C | 1 | 3- 1/2" Jaw | 4.50 |
| 293 | 45293C | 1 | 3/8" x 1" x 3- 7/8" Die | .25 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291K-100** | **1** | **3- 3/4" Jaw Assembly** | **4.37** |
| 291 | 45291K | 1 | 3- 3/4" Jaw | 4.25 |
| 293 | 45293K | 1 | 3/8" x 1" x 2- 1/4" Die | .12 |
| 294 | 992011-132 | 2 | Roll Pin | .01 |
| -- | **45291E-100** | **1** | **4" Jaw Assembly** | **4.75** |
| 291 | 45291E | 1 | 4" Jaw | 4.50 |
| 293 | 45293C | 1 | 3/8" x 1" x 3- 7/8" Die | .25 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291L-100** | **1** | **4- 1/4" Jaw Assembly** | **4.12** |
| 291 | 45291L | 1 | 4- 1/4" Jaw | 4.00 |
| 293 | 45293K | 1 | 3/8" x 1" x 2- 1/4" Die | .12 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45291D-100** | **1** | **4- 1/2" Jaw Assembly** | **3.12** |
| 291 | 45291D | 1 | 4- 1/2" Jaw | 3.00 |
| 293 | 45293D | 1 | 3/8" x 1" x 1- 7/16" Die | .12 |
| 294 | 992015-02 | 1 | Screw | .01 |
| -- | **45291M-100** | **1** | **4- 3/4" Jaw Assembly** | **3.12** |
| 291 | 45291M | 1 | 4- 3/4" Jaw | 3.00 |

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|---|---|---|---|---|
| 293 | 45293D | 1 | 3/8" x 1" x 1- 7/16" Die | .12 |
| 294 | 992015-02 | 1 | Screw | .01 |

**BUSHING ASSEMBLIES**
**(For 5500,5600, and 4500 Tubing Tongs)**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45292H-100** | **1** | **1.66" Bushing Assembly (1- 1/4" Pipe)** | **20.50** |
| 292 | 45292H | 1 | 1.66" Bushing | 16.00 |
| 293 | 45293H | 2 | 1.66" Die | 2.25 |
| 294 | 992012-74 | 4 | Cotter Pin | .01 |
| -- | **45292F-100** | **1** | **1.900" Bushing Assembly (1- 1/2" Pipe)** | **17.00** |
| 292 | 45292F | 1 | 1.900" Bushing | 15.00 |
| 293 | 45293F | 2 | 1.900" Die | 2.00 |
| 294 | 992012-74 | 4 | Cotter Pin | .01 |
| -- | **45292G-100** | **1** | **2.06" Bushing Assembly** | **15.75** |
| 292 | 45292G | 1 | 2.06" Bushing | 14.00 |
| 293 | 45293G | 2 | 2.06" Die | 1.75 |
| 294 | 992012-74 | 4 | Cotter Pin | .01 |
| -- | **45292A-100** | **1** | **2- 3/8" Bushing Assembly** | **15.00** |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45293A | 2 | 2- 3/8" Die | 1.00 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45292B-100** | **1** | **2- 7/8" Bushing Assembly** | **11.25** |
| 292 | 45292B | 1 | 2- 7/8" Bushing | 10.25 |
| 293 | 45293B | 2 | 2- 7/8" Die | 1.00 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45292C-100** | **1** | **3- 1/2" Bushing Assembly** | **9.00** |
| 292 | 45292C | 1 | 3- 1/2" Bushing | 8.50 |
| 293 | 45293C | 2 | 3/8" x 1" x 3- 7/8" Die | .25 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45292K-100** | **1** | **3- 3/4" Bushing Assembly** | **8.00** |
| 292 | 45292K | 1 | 3- 3/4" Bushing | 7.75 |
| 293 | 45293K | 2 | 3/8" x 1" x 2- 1/4" Die | .12 |
| 294 | 992011-129 | 4 | Roll Pin | .01 |
| -- | **45292E-100** | **1** | **4" Bushing Assembly** | **10.75** |
| 292 | 45292E | 1 | 4" Bushing | 10.25 |
| 293 | 45293C | 2 | 3/8" x 1" x 3- 7/8" Die | .25 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45292L-100** | **1** | **4- 1/4" Bushing Assembly** | **11.00** |
| 292 | 45292L | 1 | 4- 1/4" Bushing | 10.50 |
| 293 | 45293K | 2 | 3/8" x 1" x 2- 1/4" Die | .12 |
| 294 | 992011-128 | 4 | Roll Pin | .01 |
| -- | **45292D-100** | **1** | **4- 1/2" Bushing Assembly** | **11.50** |
| 292 | 45292D | 1 | 4- 1/2" Bushing | 11.00 |

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|---|---|---|---|---|
| 293 | 45293D | 2 | 3/8" x 1" x 1- 7/16" Die | .25 |
| 294 | 992015-02 | 2 | Screw | .01 |
| -- | **45292M-100** | **1** | **4- 3/4" Bushing Assembly** | **5.25** |
| 292 | 45292M | 1 | 4- 3/4" Bushing | 5.00 |
| 293 | 45293D | 2 | 3/8" x 1" x 1- 7/16" Die | .25 |
| 294 | 992015-02 | 1 | Screw | .01 |

**2- 3/8" BUSHING WITH REDUCING DIE**
**(For 5500,5600, and 4500 Tubing Tongs**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45296-000** | **1** | **2- 3/8" Bushing/1.06" Reducing Die Assembly** | **19.00** |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45294-00 | 2 | 2- 3/8" x 1.06" Reducing Die | 3.00 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45296-100** | **1** | **2- 3/8" Bushing/1.31" Reducing Die Assembly** | 18.00 |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45294-01 | 2 | 2- 3/8" x 1.31" Reducing Die | 2.50 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45296-101** | **1** | **2- 3/8" Bushing/1.66" Reducing Die Assembly** | **17.00** |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45294-02 | 2 | 2- 3/8" x 1.66" Reducing Die | 2.00 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45296-102** | **1** | **2- 3/8" Bushing/1.90" Reducing Die Assembly** | **16.50** |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45294-03 | 2 | 2- 3/8" x 1.90" Reducing Die | 1.75 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |
| -- | **45296-103** | **1** | **2- 3/8" Bushing/2.06" Reducing Die Assembly** | **16.00** |
| 292 | 45292A | 1 | 2- 3/8" Bushing | 13.00 |
| 293 | 45294-04 | 2 | 2- 3/8" x 2.06" Reducing Die | 1.50 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |

**2- 3/8" JAW WITH REDUCING DIE ASSEMBLIES**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45295-000** | **1** | **2- 3/8" Jaw/1.06" Reducing Die Assembly** | **7.50** |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45294-00 | 1 | 2- 3/8" x 1.06" Reducing Die | 3.00 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45295-100** | **1** | **2- 3/8" Jaw/1.31" Reducing Die Assembly** | 7.00 |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45294-01 | 1 | 2- 3/8" x 1.31" Reducing Die | 2.50 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45295-101** | **1** | **2- 3/8" Jaw/1.66" Reducing Die Assembly** | **6.50** |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45294-02 | 1 | 2- 3/8" x 1.66" Reducing Die | 2.00 |

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|---|---|---|---|---|
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45295-102** | **1** | **2- 3/8" Jaw/1.90" Reducing Die Assembly** | **6.25** |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45294-03 | 1 | 2- 3/8" x 1.90" Reducing Die | 1.75 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |
| -- | **45295-103** | **1** | **2- 3/8" Jaw/2.06" Reducing Die Assembly** | **6.00** |
| 291 | 45291A | 1 | 2- 3/8" Jaw | 4.50 |
| 293 | 45294-04 | 1 | 2- 3/8" x 2.06" Reducing Die | 1.50 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |

**2- 7/8" JAW WITH REDUCING DIE**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45295-104** | **1** | **2- 7/8" Jaw/2- 3/8" Reducing Die Assembly** | **12.75** |
| 291 | 45291B | 1 | 2- 7/8" Jaw | 10.25 |
| 293 | 45294-10 | 1 | 2- 7/8" x 2- 3/8" Reducing Die | 1.25 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |

**2- 7/8" BUSHING WITH REDUCING DIE**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45296-104** | **1** | **2- 7/8" Bushing/2- 3/8" Reducing Die Assembly** | **12.75** |
| 292 | 45292B | 1 | 2- 7/8" Bushing | 10.25 |
| 293 | 45294-10 | 2 | 2- 7/8" x 2- 3/8" Reducing Die | 1.25 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |

**3- 3/4" JAW WITH REDUCING DIE**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45297-100** | **1** | **3- 3/4" Jaw/3- 5/8" Reducing Die Assembly** | **12.75** |
| 291 | 45291K | 1 | 3- 3/4" Jaw | 10.25 |
| 293 | 45293-11 | 1 | 3- 3/4" x 3- 5/8" Reducing Die | 1.25 |
| 294 | 992012-72 | 2 | Cotter Pin | .01 |

**3- 3/4" BUSHING WITH REDUCING DIE**

| Item # | Part Number | QTY | Description | Weight/Lbs. |
|---|---|---|---|---|
| -- | **45298-100** | **1** | **3- 3/4" Bushing/3- 5/8" Reducing Die Assembly** | **12.75** |
| 292 | 45292K | 1 | 3- 3/4" Bushing | 10.25 |
| 293 | 45293-11 | 2 | 3- 3/4" x 3- 5/8" Reducing Die | 1.25 |
| 294 | 992012-72 | 4 | Cotter Pin | .01 |

**TUBING TONG SPARE PARTS LIST FOR ONE YEAR'S OPERATION**

| Part Number | Qty Required | Description |
|---|---|---|
| 45288-200 | 2 | Brake Band |
| 45277 | 3 | Large Roller |
| 45278 | 2 | Small Roller |
| 45279 | 5 | Bushing |
| 45280 | 5 | Roller Pin |
| 45290 | 2 | Jaw Pin |
| 45287 | 1 | Inner Ring |
| 45289 | 4 | Brake Band Pin |
| 45025 | 2 | Door Spring |
| 992154-214 | 4 | O-Ring for Spool |

**TUBING TONG BACK-UP ASSEMBLIES**

**M/S Manual Back-up Operation**

- Install the manual back-up hanger assembly on the tong. Make sure the leveling adjustment bolt is to the rear of the tong.
- Install the back-up tool in the hanger assembly; then place the pin and safety clip in the lever to secure the entire assembly.
- Break-out operation: To set the manual back up for breakout, the lug jaw assembly (item 422, ILL-069) must be positioned on the right-hand side of the backup. Open the back-up assembly and center the tong on the pipe. Close the back-up on the pipe and make sure the lug jaw is locked in place. Throttle the tong to break out the joint.
- Make-up operation: For make-up of tubing, remove the lever latch assembly from hanger assembly. Reposition and install so that the lug jaw is on the left-hand side. Center the tong on the tubing and close the jaw assembly. Throttle the tong to make up the joint.
    - To prevent injury, always grip the lever latch loosely with palm of hand. The lever latch and lug jaw may become separated if not fully engaged on the teeth of lug jaw when torque is applied to tubing.

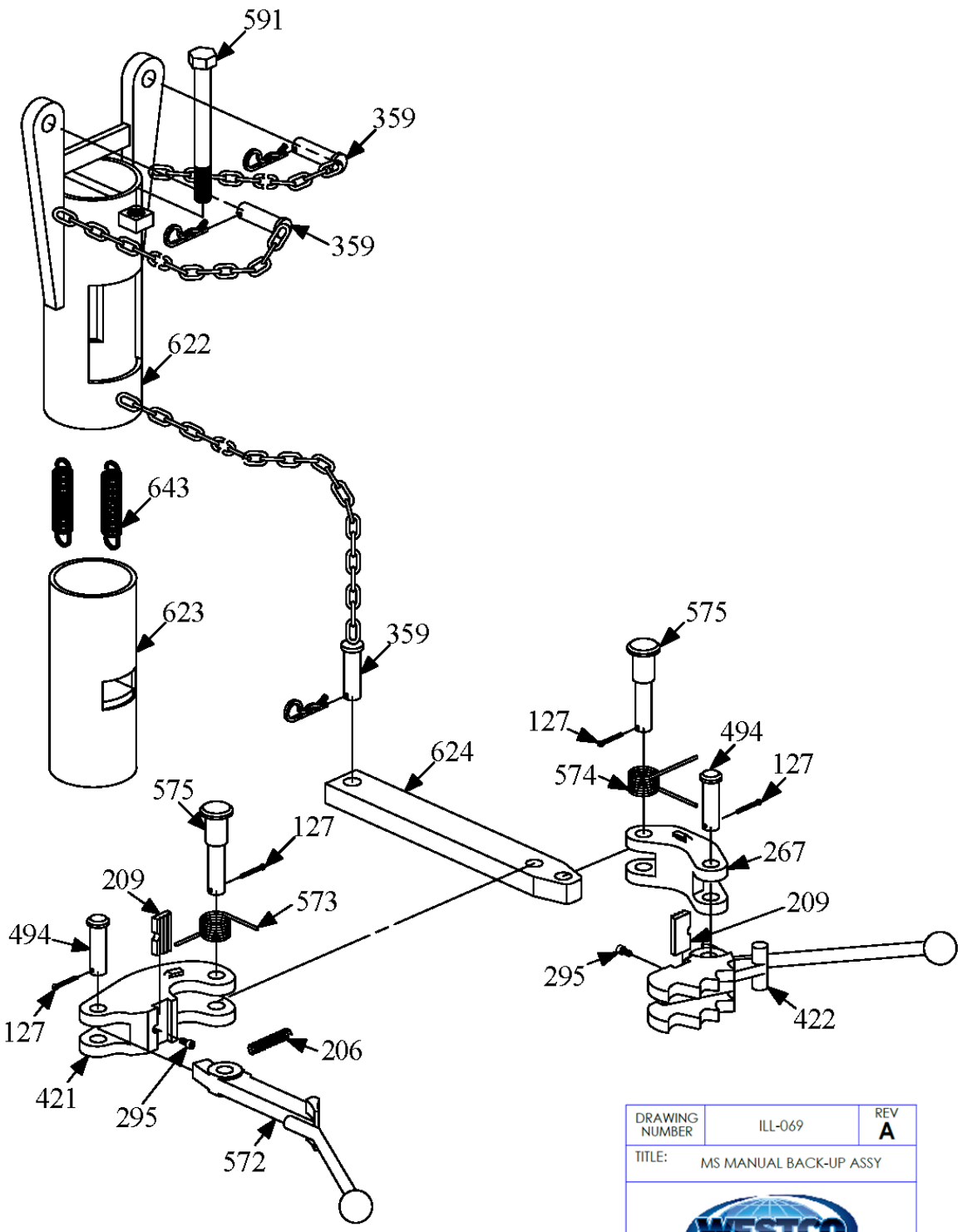
**Back-up Usage**

The back-up should be used during the following conditions:

- When pulling tubing out of the well and the coupling unscrews from pin on tubing in the well.
- When weight of pipe becomes light enough to allow pipe to rotate in slips.
- When running tubing in well until load is significant to prevent tubing from rotating in the slips. To prevent rotating, secure tubing spider to wellhead.

**NOTE**: When running tubing in the hole, back-up must be used:

- On the upset below the tubing to insure proper make-up of coupling.
- To prevent string from turning in the slips.
- To ensure the make-up of both threaded connections.
- The M/S back-up has maximum torque rating of 6,500 ft-lbs.




| DRAWING NUMBER | ILL-069 | REV A |
|---|---|---|
| TITLE: | MS MANUAL BACK-UP ASSY | |

## REPLACEMENT PARTS FOR M/S MANUAL BACK-UP ASSEMBLY

| SEE ILL-069 | | | | |
|---|---|---|---|---|
| **Item #** | **Part Number** | **QTY** | **Description** | **Weight/Lbs.** |
| 127 | 992012-36 | 4 | Cotter Pin | .10 |
| 206 | 45206 | 1 | Latch Spring | .13 |
| 209 | 45209 | 2 | Die | .25 |
| 267 | 45266 | 1 | Lever 1 5/16" - 2 1/16" | 2.00 |
| 267 | 45267 | 1 | Lever 1.900 - 4 1/2" | 2.00 |
| 295 | 992015-02 | 2 | Socket Screw | .25 |
| 359 | 45359 | 3 | Hanger Pin Assembly | 1.00 |
| 360 | 992047-12 | 3 | Hair Pin | .10 |
| 572 | 45572 | 1 | Lever Latch | 35.00 |
| 421 | 45421 | 1 | Long Jaw | 12.00 |
| 422 | 45420 | 1 | 1.31 - 2.06 Lug Jaw | 6.00 |
| 422 | 45422 | 1 | 2 3/8" - 3.668 Lug Jaw | 6.00 |
| 422 | 45424 | 1 | 3 1/2" - 4 1/2" Lug Jaw | 8.00 |
| 422 | 45579 | 1 | 4 1/2" - 5 1/4" Lug Jaw | 8.00 |
| 494 | 45494 | 2 | Hinge Pin 1.900 - 4 1/2" | .12 |
| 573 | 45573 | 1 | Long Spring (Left) | .12 |
| 574 | 45574 | 1 | Short Spring (Right) | .12 |
| 575 | 45575 | 2 | Hinge Pin | .20 |
| 591 | 992008-18 | 7 | Screw | .12 |
| -- | 45622-5 | | Inner/Outer Sleeve Assembly<br>(includes items #: 622, 623, 643, 591, 359) | 42.00 |
| 622 | 45622 | 1 | Outer Sleeve | 10.00 |
| 623 | 45623 | 1 | Inner Sleeve | 8.00 |
| 624 | 45624 | 1 | Lever, Bar | 5.00 |
| 643 | 945031-64 | 2 | Suspension Spring | .25 |
| -- | 45715-100 | 1 | Back-up Assembly Complete with 1.31 - 2.06 Lug Jaw | 55.00 |
| -- | 45700 | 1 | Back-up Assembly Complete with 2 3/8" - 2 7/8" Lug Jaw | 55.00 |
| -- | 45720 | 1 | Back-up Assembly Complete with 3 1/2" - 4 1/2" Lug Jaw | 55.00 |
| -- | 45725-100 | 1 | Back-up Assembly Complete with 4 1/2" - 5 1/4" Lug Jaw | 55.00 |
| -- | 45715-200 | 1 | Lever Latch Sub Assembly 1.31 - 2.06 | 40.00 |
| -- | 45730 | 1 | Lever Latch Assembly Complete with 2 3/8" - 2 7/8" Lug Jaw | 40.00 |
| -- | 45740 | 1 | Lever Latch Assembly Complete with 3 1/2" - 4 1/2" Lug Jaw | 40.00 |
| -- | 45725-200 | 1 | Lever Latch Assembly Complete with 4 1/2" - 5 1/4" Lug Jaw | 40.00 |

**Three Jaw Open Mouth Back-up**

The back-up accessory is used for both “make-up” and “break-out” operations. The back-up works by grabbing the bottom half of the joint while the tong’s jaws rotate the top section. The height of the back-up can be adjusted easily by changing the location of the pins on the mounting assembly.

When running pipe down the well, the back-up may be used to grab the body of the pipe. This prevents the pipe string from rotating in the slips. The orientation of the back-up is critical during operation. During “break-out” operations the “BREAK” side plate of the backup must be facing upwards. For “make-up” operations, the “MAKE” side plate of the must be facing upwards. NOTE: “MAKE” and “BREAK” is machined on the plates. To rotate the backup on its swivel, you must first set the tong down on a flat surface. Next, pull the front main support pin and then lift the tong up until the backup is completely vertical. Swivel the back-up 180 degrees and lower the tong back on the ground. Lastly, install the front support pin.

Range: 1.05” – 5 9/16”

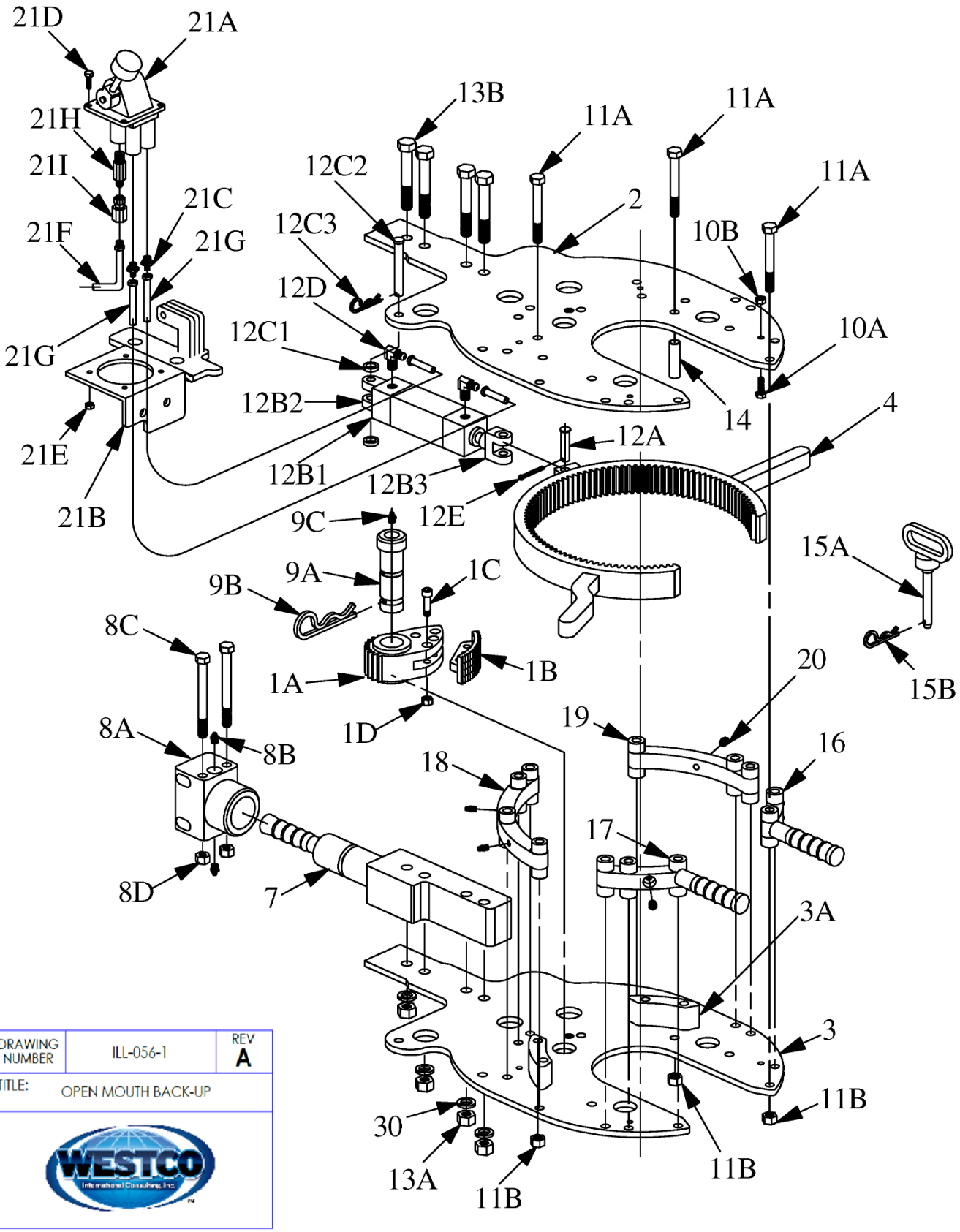
Pneumatic Standard Assemblies

| Part # | Description | Die Size | Die Type |
|---|---|---|---|
| 55510-102* | Air operated back-up Assembly | 1.900”-4.50” | straight tooth |
| 55510-101* | Air operated back-up Assembly (w/o hand valve assembly, w/o hose assembly) | 1.900” -4.50” | straight tooth |

Hydraulic Assembly

| Part # | Description | Die Size | Die Type |
|---|---|---|---|
| 55520-202* | Hydraulic operated back-up Assembly | 1.900”-4.50” | straight tooth |

*NOTE: These part numbers do not include the mounting assembly for the back-up



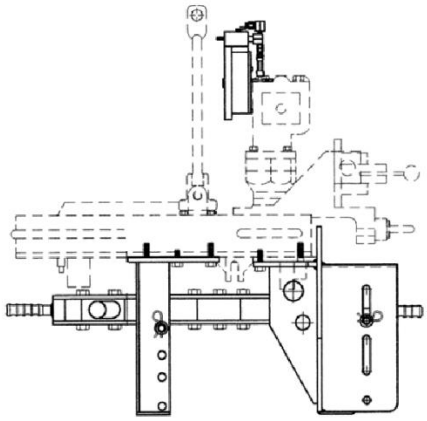

| DRAWING NUMBER | ILL-056-1 | REV A |
|---|---|---|
| TITLE: | OPEN MOUTH BACK-UP | |

**THREE JAW OPEN MOUTH BACK-UP PARTS LIST**

**(FOR PNEUMATIC AND HYDRAULIC BACK-UP)**

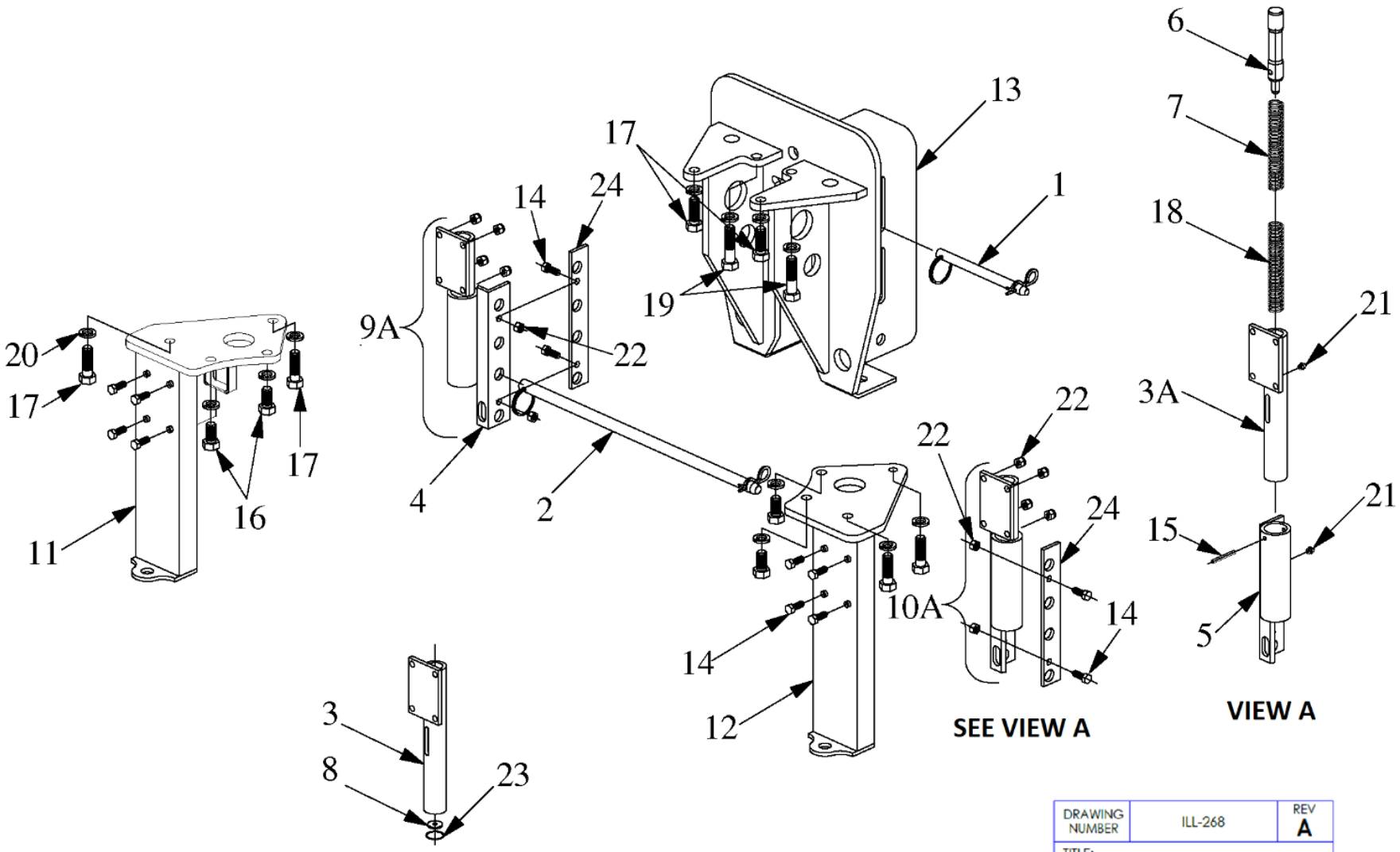
| SEE ILL-056-1 | | | |
|---|---|---|---|
| **Item #** | **Part Number** | **QTY** | **Description** |
| **1** | **55157-100** | **3** | **2-7/8" – 5-9/16" Straight Tooth Jaw Assembly** |
| a | 55101 | 1 | Jaw |
| b | 55157 | 1 | Straight tooth insert |
| c | 55140 | 3 | Screw |
| d | 992116-05 | 3 | Nylock Nut |
| **1** | **55177-100** | **3** | **1.900"-4-1/2" Straight Tooth Jaw Assembly** |
| a | 55101 | 1 | Jaw |
| b | 55177 | 1 | Straight tooth insert (1.900"-4-1/2") |
| c | 55140 | 3 | Screw |
| d | 992116-05 | 3 | Nylock Nut |
| **1** | **55152-100** | **3** | **1.05"-3.69" Diamond Tooth Jaw Assembly** |
| a | 55101 | 1 | Jaw |
| b | 55152 | 1 | Diamond tooth insert (1.05"-3.69") |
| c | 55140 | 3 | Screw |
| d | 992116-05 | 3 | Nylock Nut |
| 2 | 55103-01B | 1 | Top Plate (Break) |
| 3 | 55103-300 | 1 | Bottom Plate (Make) |
| 4 | 55105-200 | 1 | Jaw Actuation Ring |
| 7 | 55116-200 | 1 | Swivel Stem |
| **8** | **55118-100** | **1** | **Swivel Block Assembly** |
| a | 55118 | 1 | Swivel Block |
| b | 992073-01 | 2 | Grease Fitting |
| c | 992005-17 | 2 | Screw |
| d | 992166-08 | 2 | Nylock Hex Nut |
| **9** | **55126-100** | **3** | **Jaw Retainer Pin Assembly** |
| a | 55126 | 1 | Jaw Retainer Pin |
| b | 992047-14 | 2 | Bridge Pin |
| c | 992073-01 | 2 | Grease Fitting |
| **10** | **55141-100** | **8** | **Wear Bolt Assembly** |
| a | 992173-04 | 1 | Screw |
| b | 992174-03 | 1 | Nylock Hex Nut |
| **11** | **55142-100** | **11** | **Standoff Bolt Kit** |
| a | 992005-15 | 1 | Bolt |
| b | 992166-09 | 1 | Nylock Hex Nut |
| **12** | **55145-100** | **1** | **Pneumatic Cylinder Assembly** |
| **12** | **55145-200** | **1** | **Hydraulic Cylinder Assembly** |
| a | 55122 | 1 | Yoke Pin |
| **b** | **55143-100** | **1** | **Pneumatic Cylinder Sub-assembly** |
| **b** | **55145-200** | **1** | **Hydraulic Cylinder Sub-assembly** |
| b1 | 992264-01 | 1 | Pneumatic Cylinder |

| | | | |
|---|---|---|---|
| b1 | 992264-04 | 1 | Hydraulic Cylinder |
| b2 | 992264-02 | 1 | Clevis Mount |
| b3 | 992264-03 | 1 | Female Rod Clevis |
| **c** | **55146-100** | **1** | **Cylinder Pivot Pin Assembly** |
| c1 | 55121 | 2 | Spacer |
| c2 | 992049-135 | 1 | Clevis Pin |
| c3 | 992047-10 | 1 | Bridge Pin |
| d | 992141-S-4-4 | 2 | Elbow Fitting |
| e | 992012-35 | 1 | Cotter Pin |
| **13** | **55147-100** | **4** | **Stem Bolt Assembly** |
| a | 992166-14 | 1 | Nylock Hex Nut |
| b | 992294-13 | 1 | Screw |
| 14 | 55178 | 1 | Tube Stop |
| **15** | **55179-100** | **1** | **T-handle Timing Assembly** |
| a | 992391-01 | 1 | T-handle |
| b | 992047-12 | 1 | Bridge Pin |
| 16 | 55181-200 | 1 | Short Front Pad |
| 17 | 55182-200 | 1 | Long Front Pad |
| 18 | 55183-200 | 1 | Long Rear Pad |
| 19 | 55186-200 | 1 | Short Rear Pad |
| 20 | 992073-01 | 4 | Grease Fitting |
| **21** | **55148-200** | **1** | **Pneumatic Hand Valve Assembly** |
| a | 992277 | 1 | Pneumatic Valve (Hand Operated) |
| b | 55150-200 | 1 | Valve Bracket |
| c | 992138-S-4-4 | 2 | Straight Connector |
| d | 992001-04 | 4 | Screw |
| e | 992089-01 | 4 | Nut |
| f | 55180-100 | 1 | 3/8” Hose Assembly X 180” Length (Pneumatic) |
| g | 55148-303 | 2 | ¼” Hose Assembly X 52” Length (Hydraulic) |
| g | 55148-403 | 2 | ¼” Hose Assembly X 60” Length (Hydraulic) |



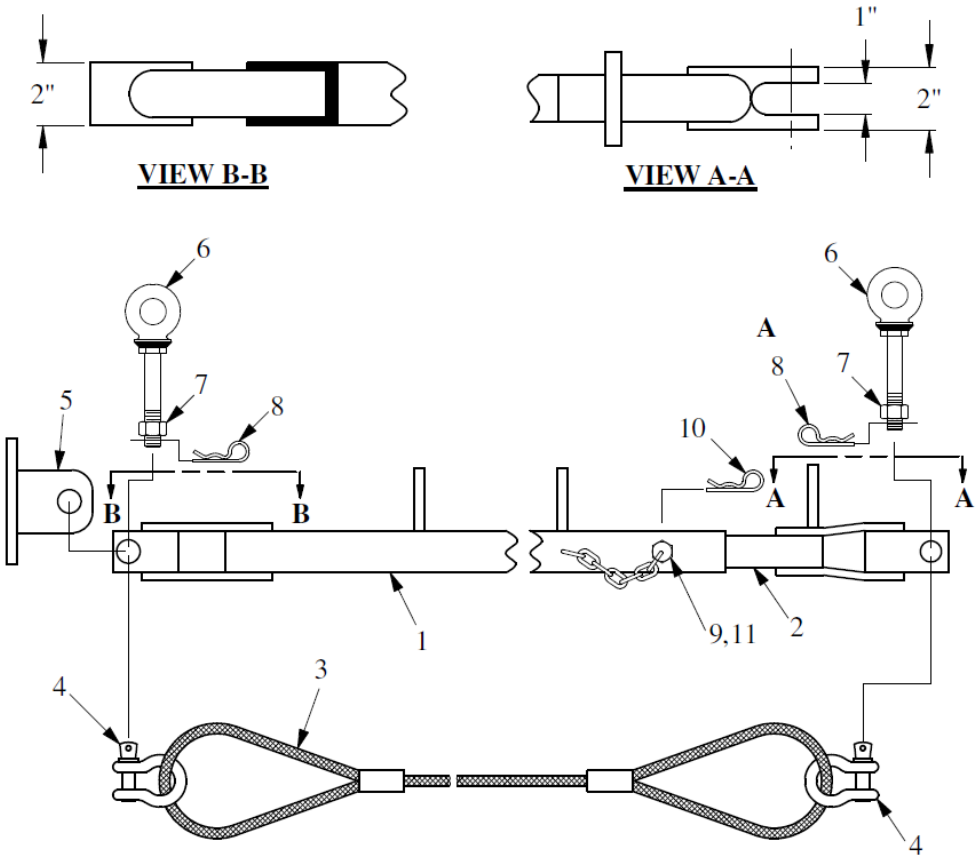
STANDARD BACK-UP MOUNT ASSEMBLY

| SEE ILL-268 | | | |
|---|---|---|---|
| **Item #** | **Part Number** | **QTY** | **Description** |
| **--** | **55200XS-200** | **1** | **Standard back-up Mount Assembly** |
| 1 | 55138-100 | 1 | Rear Support Pin |
| 2 | 55139-100 | 2 | Front Support Pin |
| 3* | 55229-100 | 1 | Spring Housing (OBSOLETE USE 55229-101-KIT) |
| -- | 55229-101-KIT | 1 | Spring Housing Kit (includes items #: 3A, 7, and 18) |
| 3A | 55229-101 | 2 | Spring Housing |
| 4 | 55237-100 | 1 | Left Sliding Sleeve |
| 5 | 55238-100 | 1 | Right Sliding Sleeve |
| 6 | 55239 | 2 | Piston |
| 7 | 55240 | 2 | Spring |
| 8* | 55241* | 2 | Washer (OBSOLETE) |
| 9* | 55247-100* | 1 | Left Spring Support (OBSOLETE USE 55247-104) |
| 9A | 55247-104 | 1 | Left Spring Support |
| 10* | 55248-100* | 1 | Right Spring Support (OBSOLETE USE 55248-104) |
| 10A | 55248-104 | 1 | Right Spring Support |
| 11 | 55255-100 | 1 | Left Alignment Post (includes item # 9) |
| 12 | 55256-100 | 1 | Right Alignment Post (includes item # 10) |
| 13 | 55127-201 | 1 | Swivel Support Rear Mount |
| 14 | 992003-05 | 12 | 3/8-16 X 1 Hex Cap Screw |
| 15 | 992011-144 | 2 | Roll Pin |
| 16 | 992037-02 | 4 | 5/8-11 X 1.25 Hex Cap Screw |
| 17 | 992037-04 | 6 | 5/8-11 X 1.75 Hex Cap Screw |
| 18 | 55240-25 | 2 | Spring |
| 19 | 992037-07 | 2 | 5/8-11 X 2.50 Hex Cap Screw |
| 20 | 992051-14 | 12 | Lock Washer |
| 21 | 992073-01 | 4 | Grease Fitting |
| 22 | 992089-05 | 12 | 3/8-16 Nylock Nut |
| 23* | 800097-OCM* | 2 | Retaining Ring Kit (OBSOLETE) |
| 24 | 55234-02 | 2 | Right/left Stiffener |
| ***OBSOLETE PART** | | | |



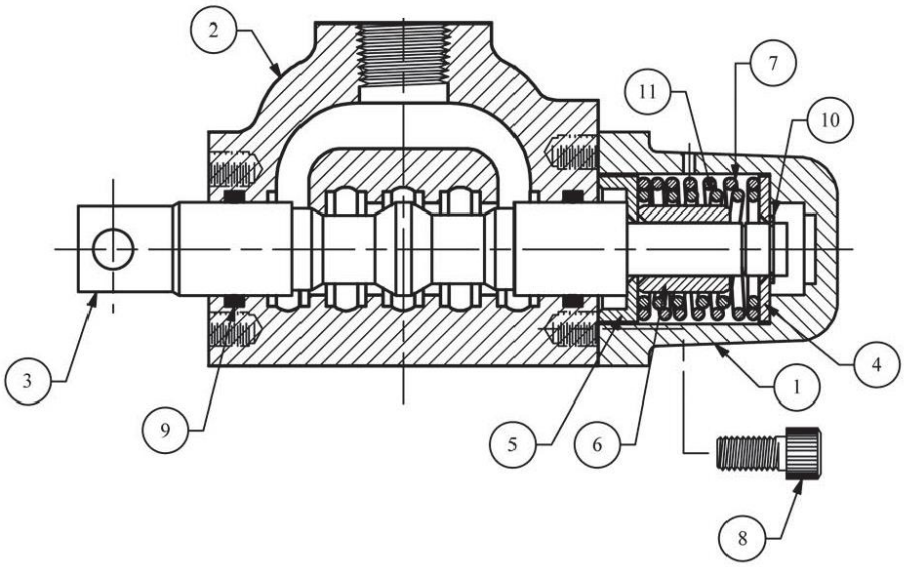

**OLD OBSOLETE STYLE**
**SEE PARTS LIST FOR DETAILS**

| DRAWING NUMBER | ILL-268 | REV A |
|---|---|---|
| TITLE: | STANDARD BACK-UP MOUNT | |




**Universal Stiff-Arm Assembly**
**For Open Mouth Tubing Tong**

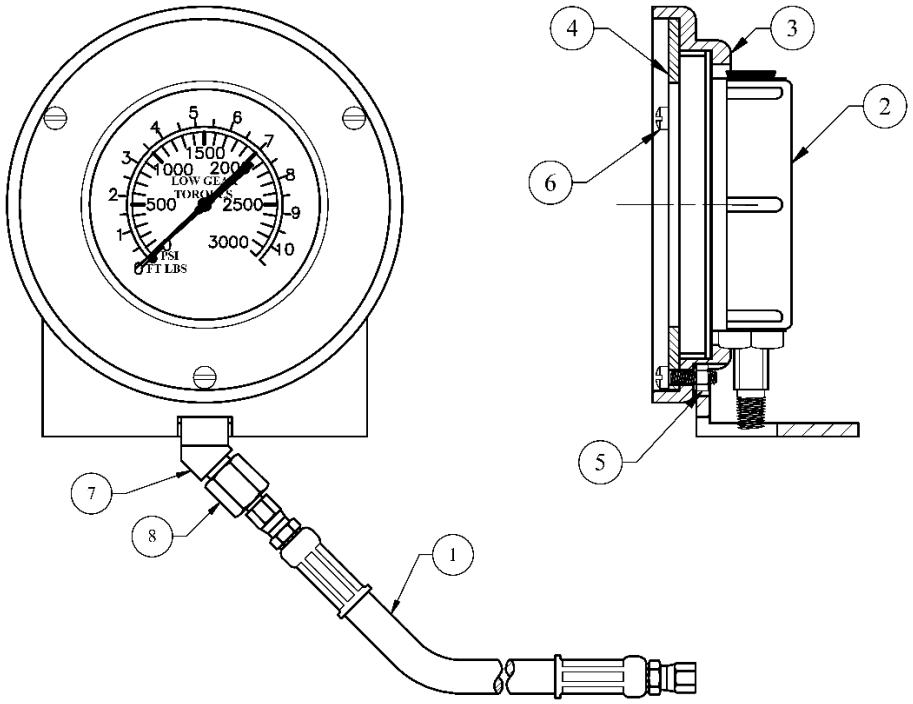
| Item # | Part Number | QTY | Description |
|---|---|---|---|
| -- | **58019-101** | **1** | **Universal Stiff-Arm Assembly** |
| 1 | 58022-300 | 1 | Female Arm Weldment |
| 2 | 58021-300 | 1 | Male Arm Weldment |
| 3 | 992252-84 | 1 | Safety Sling |
| 4 | 992331-3A-06 | 2 | Shackle |
| 5 | 58028-300 | 1 | Rig Bracket |
| 6 | 58025-400 | 2 | Anchor Pin Assembly |
| 7 | 992164-17 | 2 | Nut |
| 8 | 992047-13 | 2 | Hair Pin |
| 9 | 992007-07 | 1 | Bolt |
| 10 | 992047-11 | 1 | Hair Pin |
| 11 | 992164-15 | 1 | Nut |




**Control Valve Assembly**

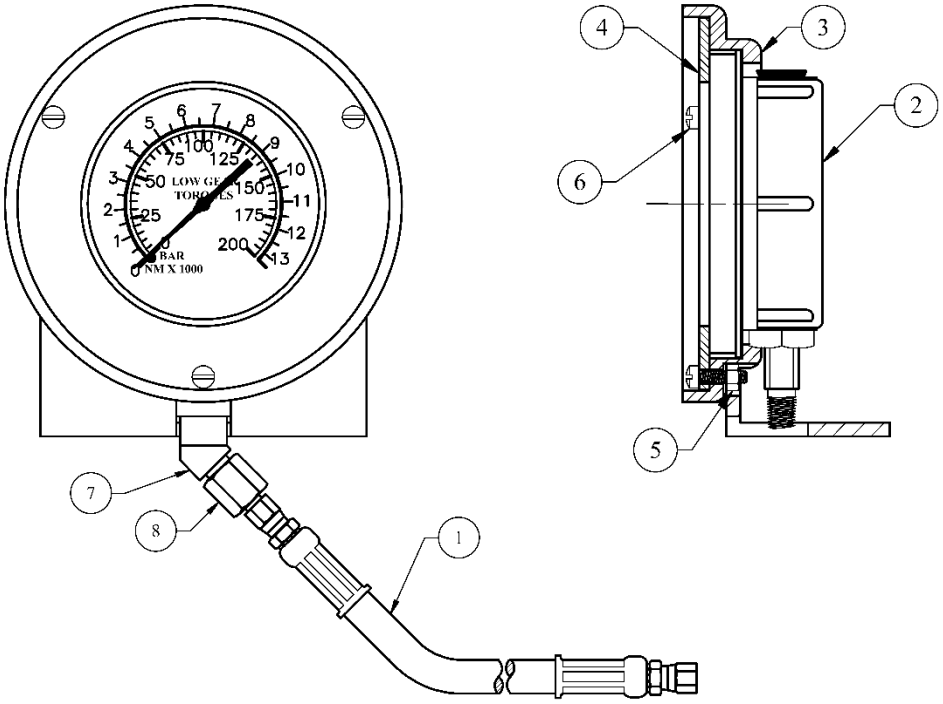
| Item # | Part Number | QTY | Description |
|---|---|---|---|
| -- | **45240** | **1** | **Control Valve Assembly** |
| 1 | 45242 | 1 | End Cap |
| 2* | -- | -- | Valve Body |
| 3 | 45245 | 1 | Spool |
| 4 | 45246 | 1 | Washer |
| 5 | 45247 | 1 | Spacer Cup |
| 6 | 45248 | 1 | Spacer |
| 7 | 943981-1009 | 1 | Compression Spring |
| 8 | 992019-03 | 4 | Cap Screw |
| 9 | 992154-214 | 2 | O-ring |
| 10 | 992256-56 | 1 | External Retaining Ring |
| 11 | 943981-1008 | 1 | Compression Spring |

*Valve Body not sold by itself. Must purchase entire control valve assembly 45240



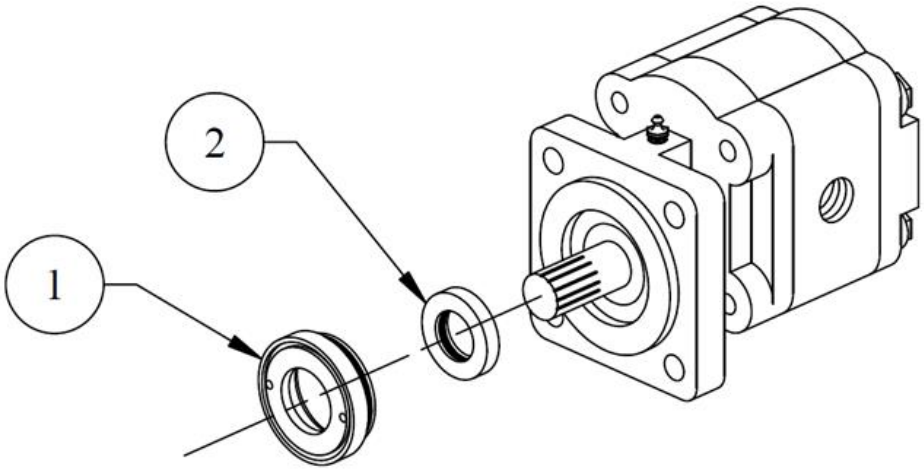

**4 ½" Gauge Assembly**
**For Models 5500/55700 Tongs**
**[PSI/FT-LBS Units]**

| Item # | Part Number | QTY | Description |
|---|---|---|---|
| -- | **55403-101** | **1** | **4 ½" Gauge Assembly** |
| 1 | 700B-04-024-02 | 1 | Hose Assembly |
| 2 | 55850-01 | 1 | Gauge |
| 3 | 55404-200 | 1 | Gauge Mount |
| 4 | 55405-01 | 1 | Gauge Retaining Plate |
| 5 | 992089-01 | 3 | ¼-20 Nut |
| 6 | 992204-52 | 3 | ¼-20 X .875 Screw |
| 7 | 992400-S-04-04 | 1 | Adapter 45° Fitting ¼ FNPT X ¼ MNPT |
| 8 | 992139-S-04-04 | 1 | Adapter Straight Fitting ¼ FNPT X #4 JIC |




**4 ½" Gauge Assembly**
**For Models 5500/55700 Tongs**
**[BAR/N-M Units]**

| Item # | Part Number | QTY | Description |
|---|---|---|---|
| -- | **55403-102** | **1** | **4 ½" Gauge Assembly** |
| 1 | 700B-04-024-02 | 1 | Hose Assembly |
| 2 | 55850-02 | 1 | Gauge |
| 3 | 55404-200 | 1 | Gauge Mount |
| 4 | 55405-01 | 1 | Gauge Retaining Plate |
| 5 | 992089-01 | 3 | ¼-20 Nut |
| 6 | 992204-52 | 3 | ¼-20 X .875 Screw |
| 7 | 992400-S-04-04 | 1 | Adapter 45° Fitting ¼ FNPT X ¼ MNPT |
| 8 | 992139-S-04-04 | 1 | Adapter Straight Fitting ¼ FNPT X #4 JIC |




**Motor Seal and Retainer**
**For Motor Part Numbers: 970400-5, 970400-6, 970400-7, 970400-10, 970400-15, and 970400-20**

| Item # | Part Number | QTY | Description |
|---|---|---|---|
| 1 | 452581 | 1 | Retainer Assembly |
| 2 | 45970 | 1 | Shaft Seal Assembly |