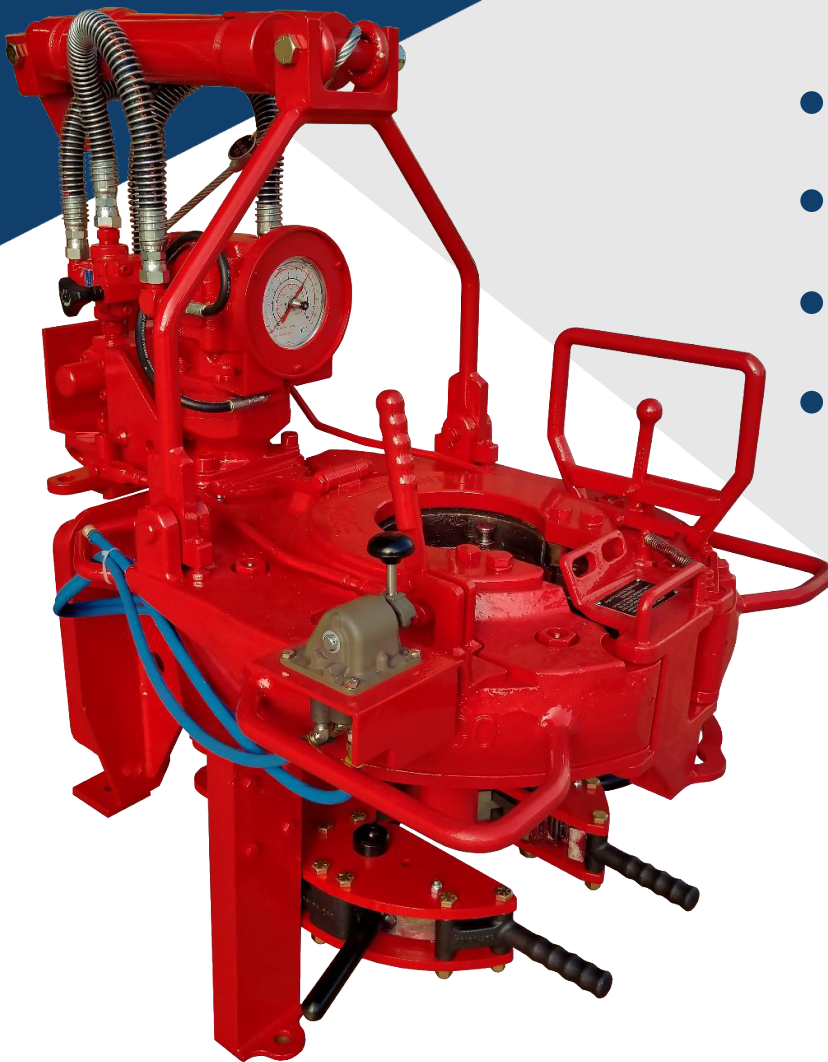




MANUFACTURED IN THE USA

MODEL 5500 HYDRAULIC TUBING TONG PRODUCT MANUAL



- SPECIFICATIONS
- MAINTENANCE
- OPERATIONS
- ASSEMBLY

REV: 1 Date:07/23/2019
Approved by: Bryan Stafford

CONTACT:

 805-648-5004

 805-648-5018

Street Address: 1360 N. Olive Street Ventura, CA93001 | Mailing Address: P.O.Box 66 Oak View, CA 93022

www.westcointl.com

WESTCO Manufacturing, LLC
1360 N Olive Street
Ventura, CA 93001 USA
TEL: (805) 648-5004
www.westcointl.com

WESTCO Operating Manual
Terms and Conditions of Use

A. The materials contained in this WESTCO operating manual are protected by copyright, trademark, and other forms of propriety rights. Nothing contained herein shall be construed as conferring any license or right to use or practice any copyright, trademark, patent or other forms of propriety rights. This operating manual may not be copied or converted to any mechanical, electronic or machine-readable form, in whole or in part, without WESTCO's consent.

B. This operating manual is not intended to address every issue that may arise in the course of operations of the device described therein or the planning of the same. Each well and each job are unique and have numerous variables. Experience and other specialized training can complement the materials used in this manual.

C. WESTCO makes no representation as to the accuracy or completeness of the materials in this operating manual. All materials are provided "AS IS" WITHOUT WARRANTY OF ANY KIND WHATSOEVER, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR NON-INFRINGEMENT. WESTCO expressly disclaims all responsibility for the consequences, direct, indirect, consequential or otherwise, of any inaccuracies or omissions in the materials.

D. This information is confidential and proprietary property of WESTCO. Do not disclose to unauthorized parties. Do not use except as permitted by WESTCO.

TABLE OF CONTENTS

Introduction	3
Safety	3
Tubing Tong Specifications	
Torque Chart	7
Fluid Requirements	8
Grease Specification	9
Envelope Dimensions	10
Controls	11
First Time Startup Procedure	12
Installation	13
Operation	18
Tubing Tong Adjustments	18
Gear Train Timing Procedure	19
Preventative Maintenance	20
Troubleshooting	22
Tubing Tong Replacement Parts	
Tong Assembly Exploded View	25
Duel Suspension Hanger Assembly	31
Jaw Assemblies	32
Bushing Assemblies	33
Tubing Tong Spare Parts List for one-year operation	36
Tubing Tong Back-up Assemblies	37
MS Back-up	38
Standard Three Jaw Open Mouth Back-up	41
Standard back-up mount assembly	45
Universal Stiff-Arm Assembly	46
Control Valve Assembly	47
Torque Gauge Assemblies	48
Hydraulic Motor Seal Replacement	50

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)

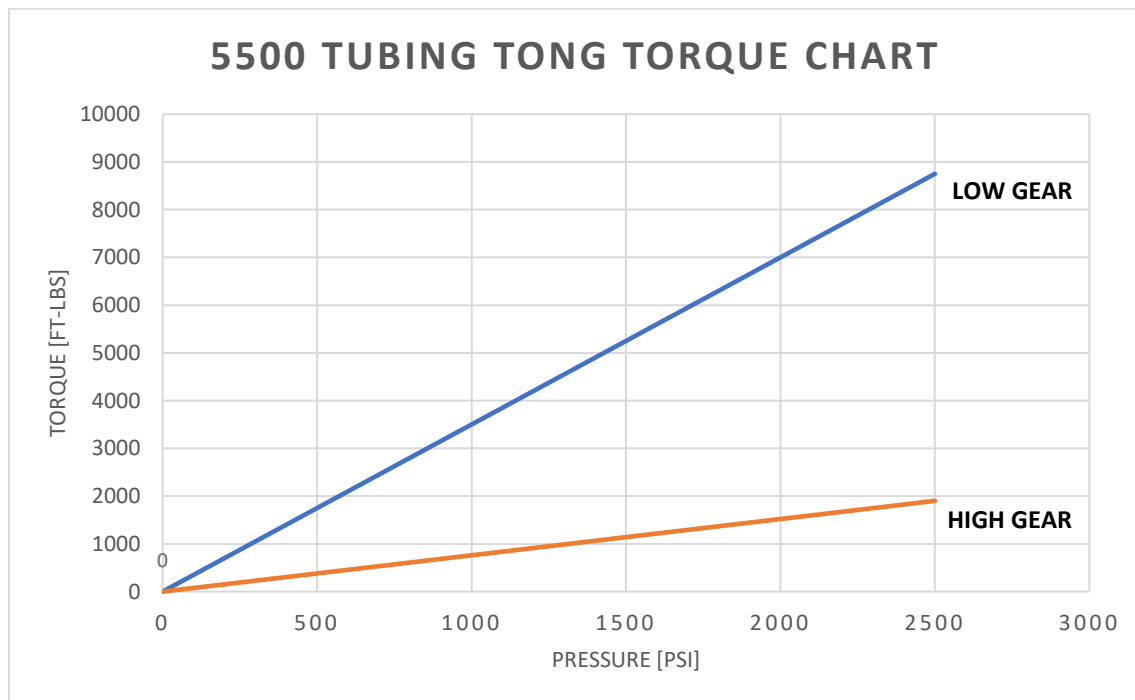
While handling/operating the tubing tong, it is very important to wear the following minimum PPE:



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.

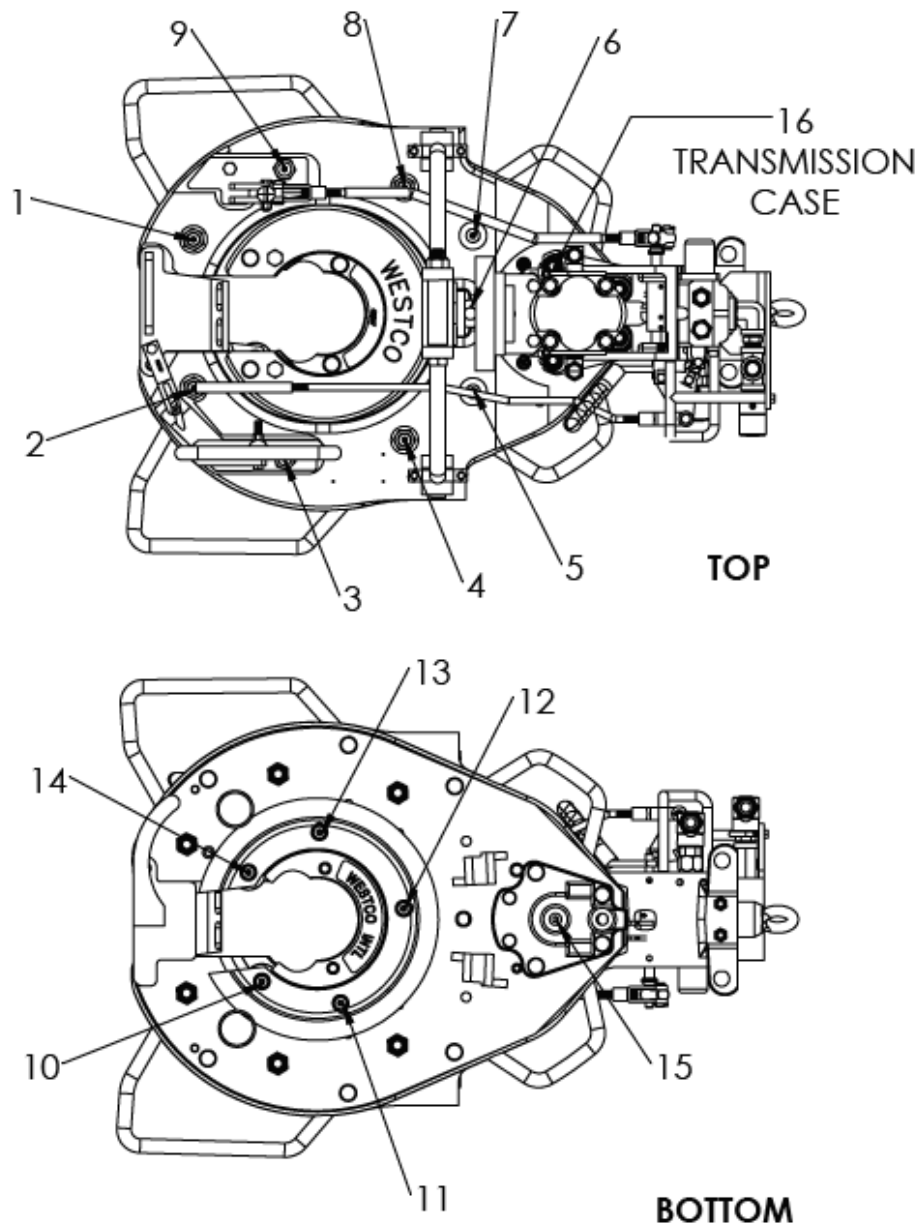
Acceptable hydraulic oils for running the tubing tong are as follows:

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	SAE 10W	SAE 10W-30	SAE 20W-20
API - CC/SE OR CD			

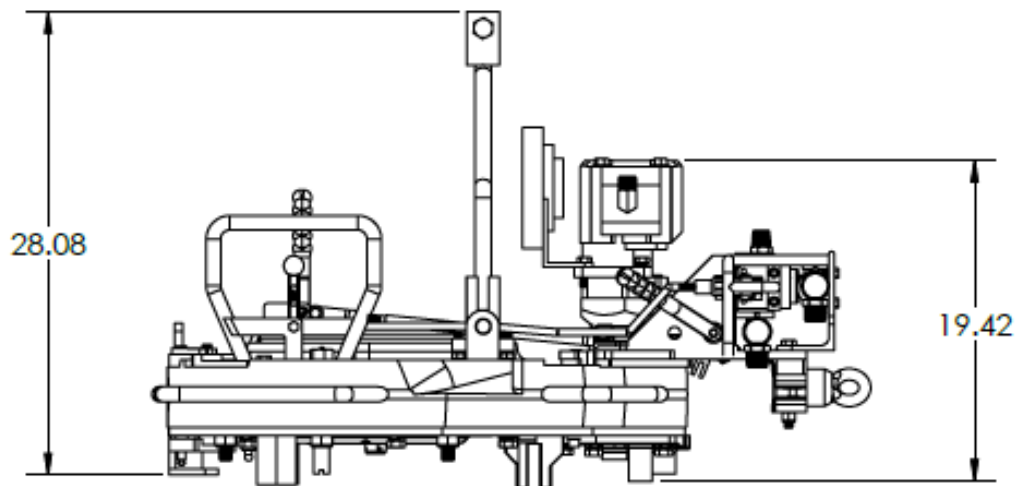
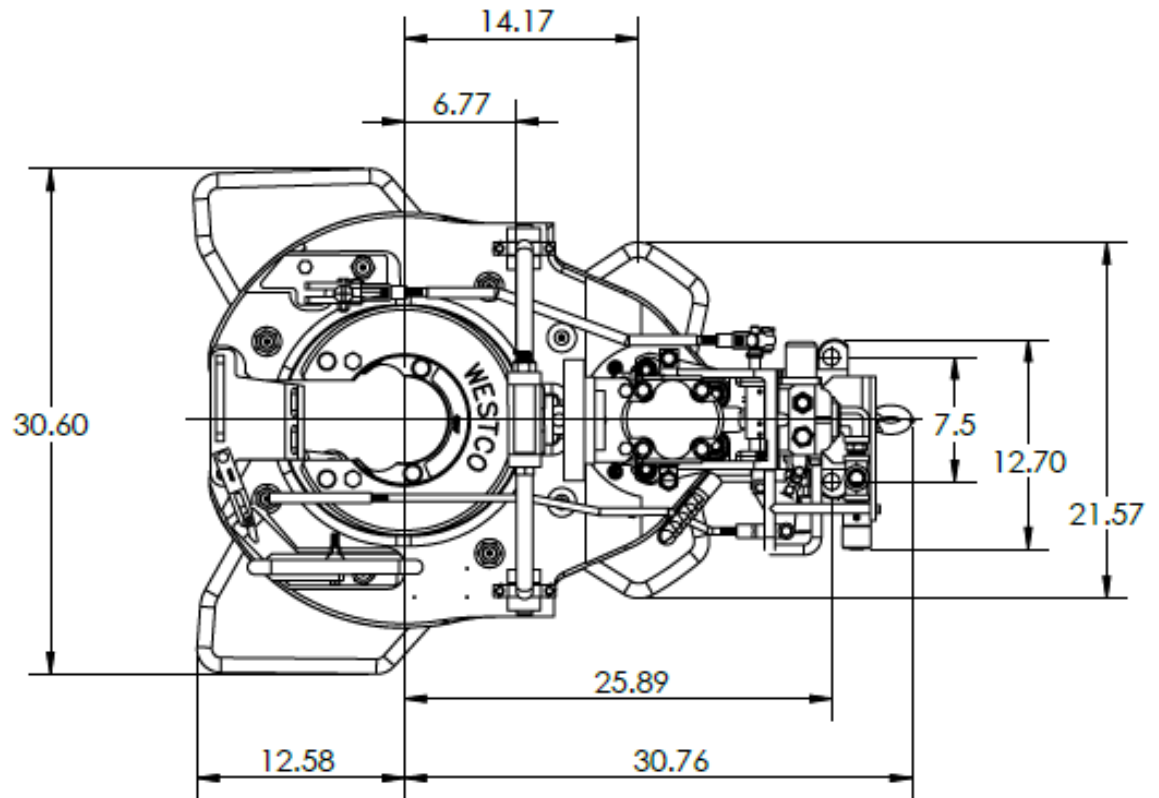
Grease Specification

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:

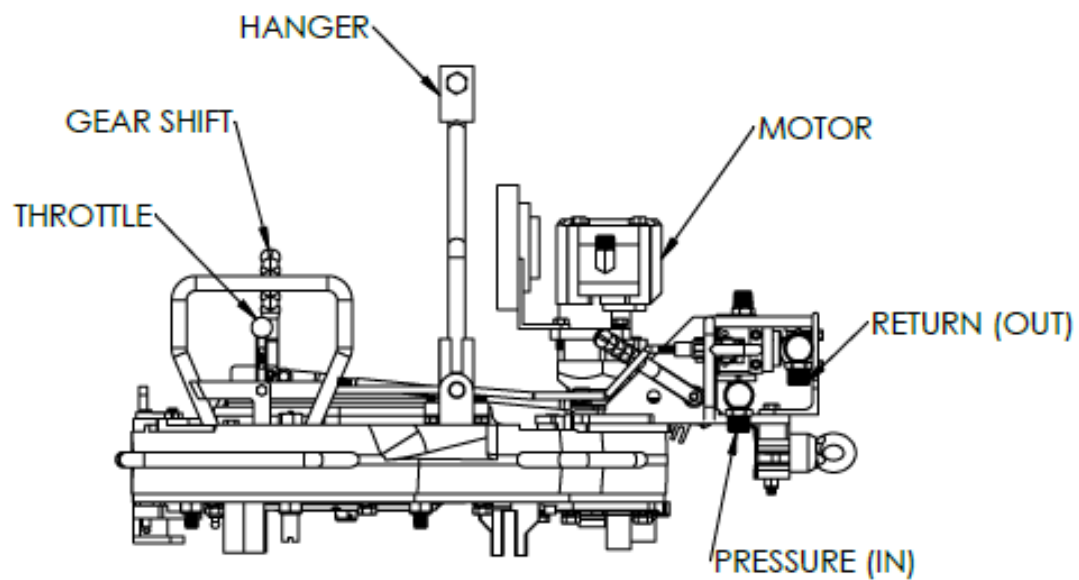
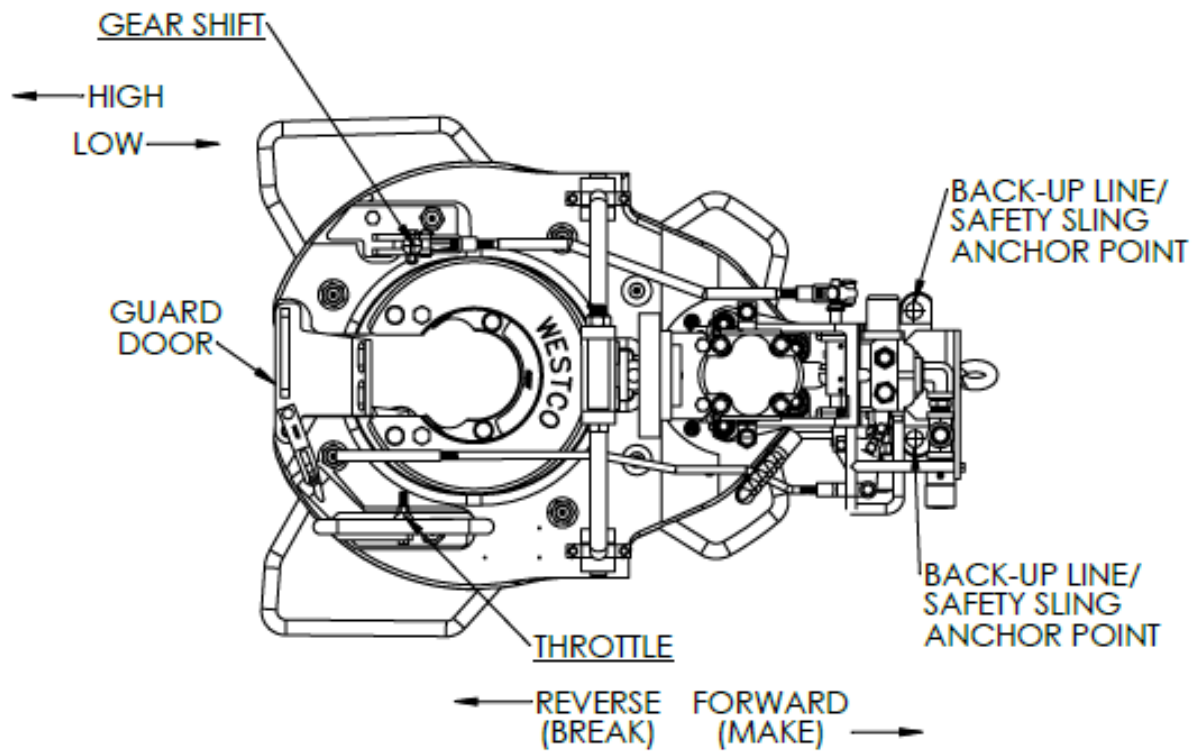
- Standard Service – Chevron Ultra-Duty Grease EP NLGI 0,1 or 2 (or equivalent)
- Cold Weather Service – Chevron RPM Artic Grease NLGI-1 (or equivalent)



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)

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).

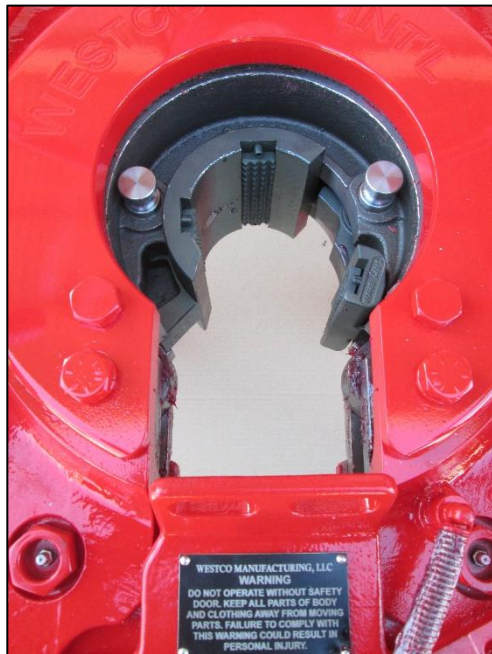


Figure 2: Jaws Installed (Make-up)



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

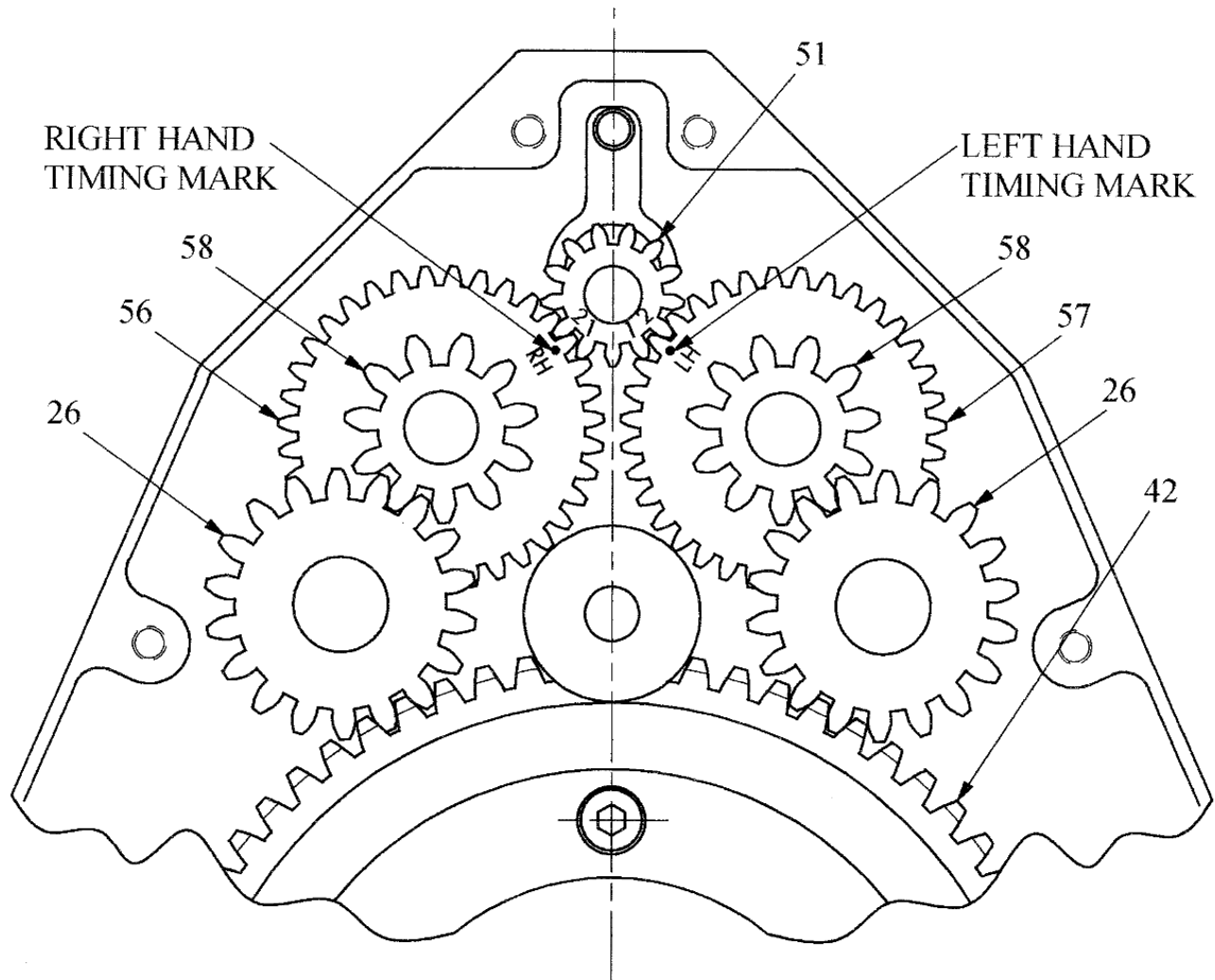
The throttle rod adjustment is set with the safety arm and the door in the open position. Adjust the safety bar to match the slot in the safety arm and secure by tightening the jam nut.

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 Start-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 level 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.

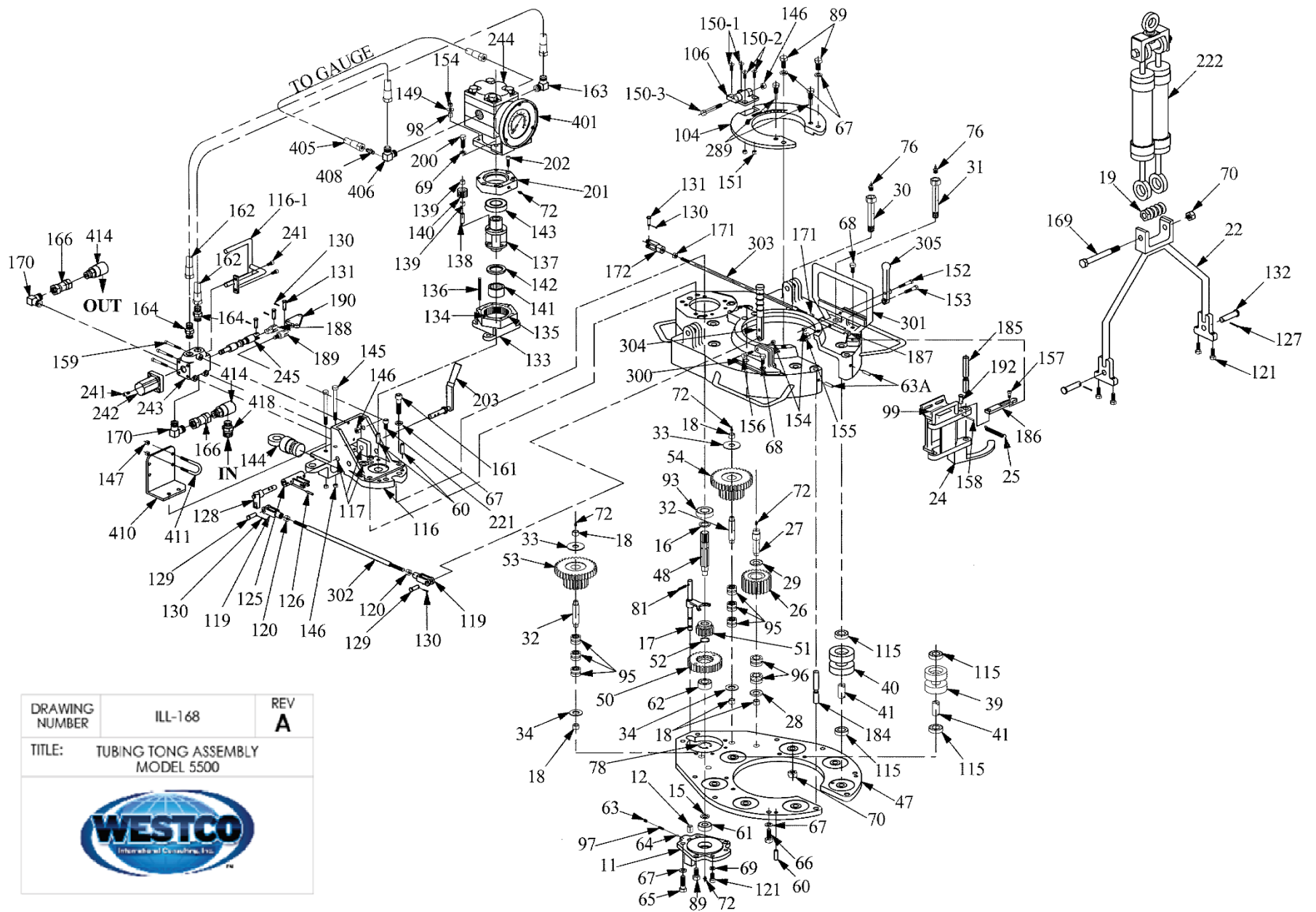
D. FAILURE OF TONG TO SHIFT OR DIFFICULTY SHIFTING

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		
		

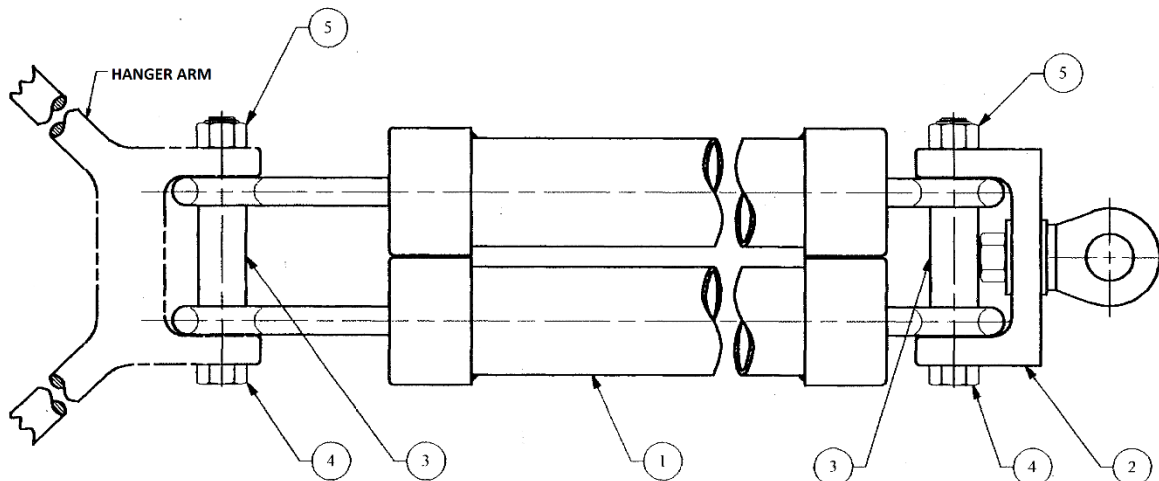
See ILL-168				
Item #	Part Number	QTY	Description	Weight/Lbs.
--	55011-100	1	Bottom Transmission Assembly (Includes items #: 11, 12, 17, 48, 50-52, 61-64, 72, 78, 97)	--
11	45011	1	Bottom Transmission Cover	10.00
12	45012	1	Bushing	.06
15	45015	1	Bearing Spacer	.06
16	45016	1	Thrust Washer	.13
17	45017	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

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

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

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

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

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.

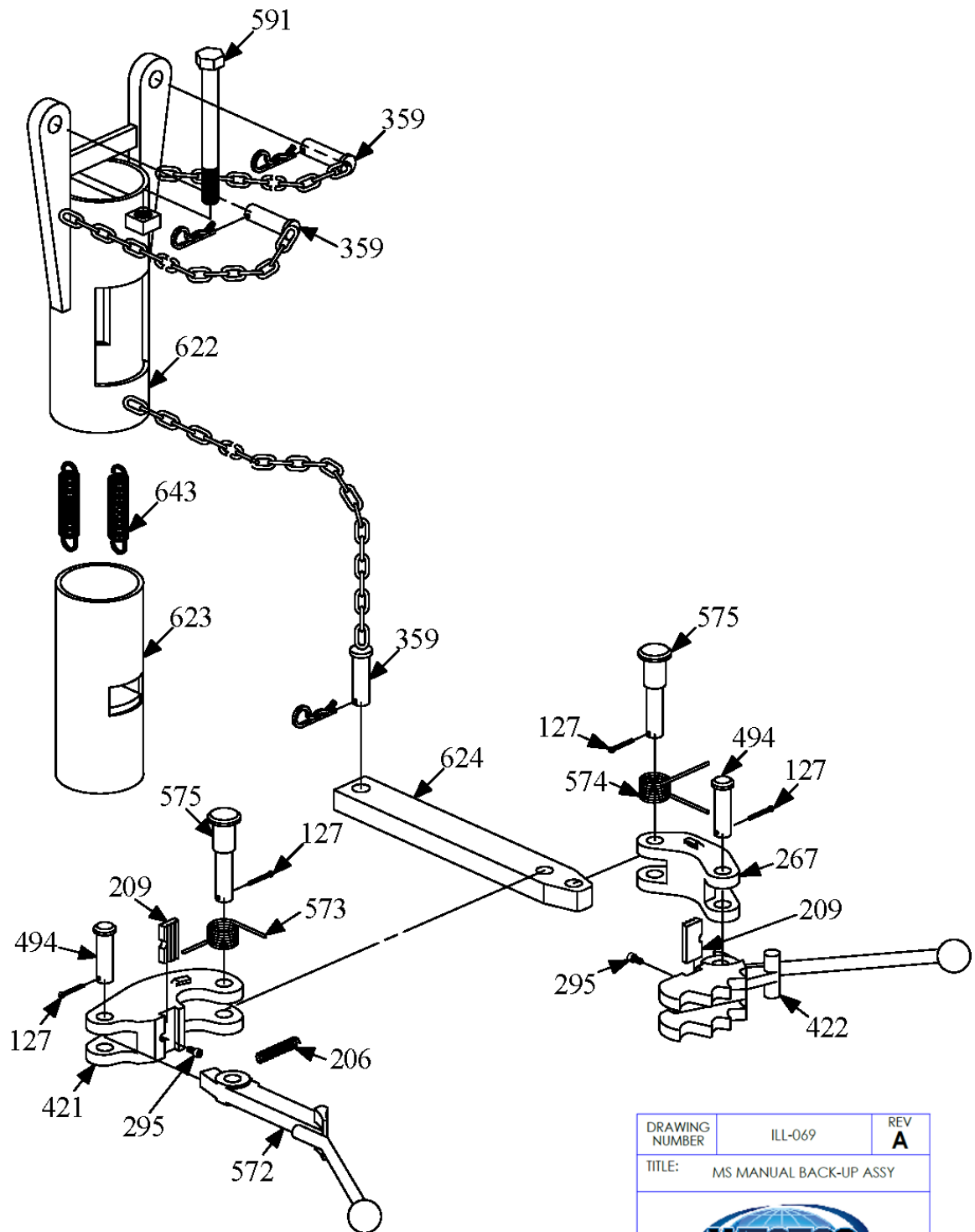
Back-up Usage


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 (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”

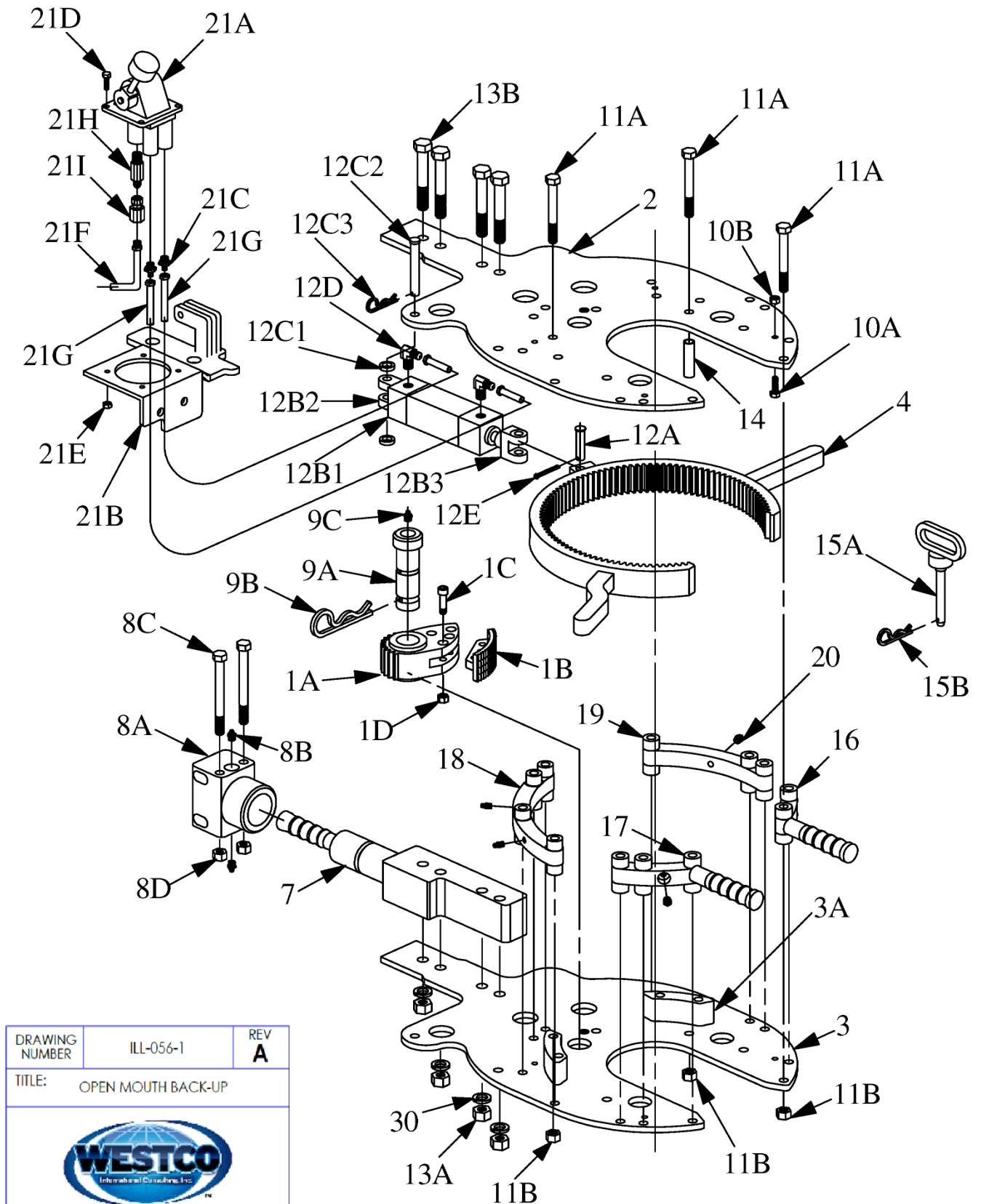
Pneumatic Standard Assemblies

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

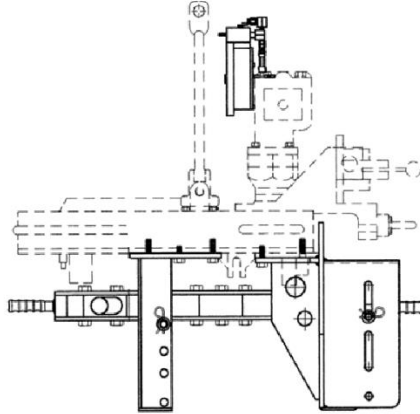


DRAWING NUMBER	ILL-056-1	REV A
TITLE: OPEN MOUTH BACK-UP		
		

THREE JAW OPEN MOUTH BACK-UP PARTS LIST
(FOR PNEUMATIC AND HYDRAULIC BACK-UP)

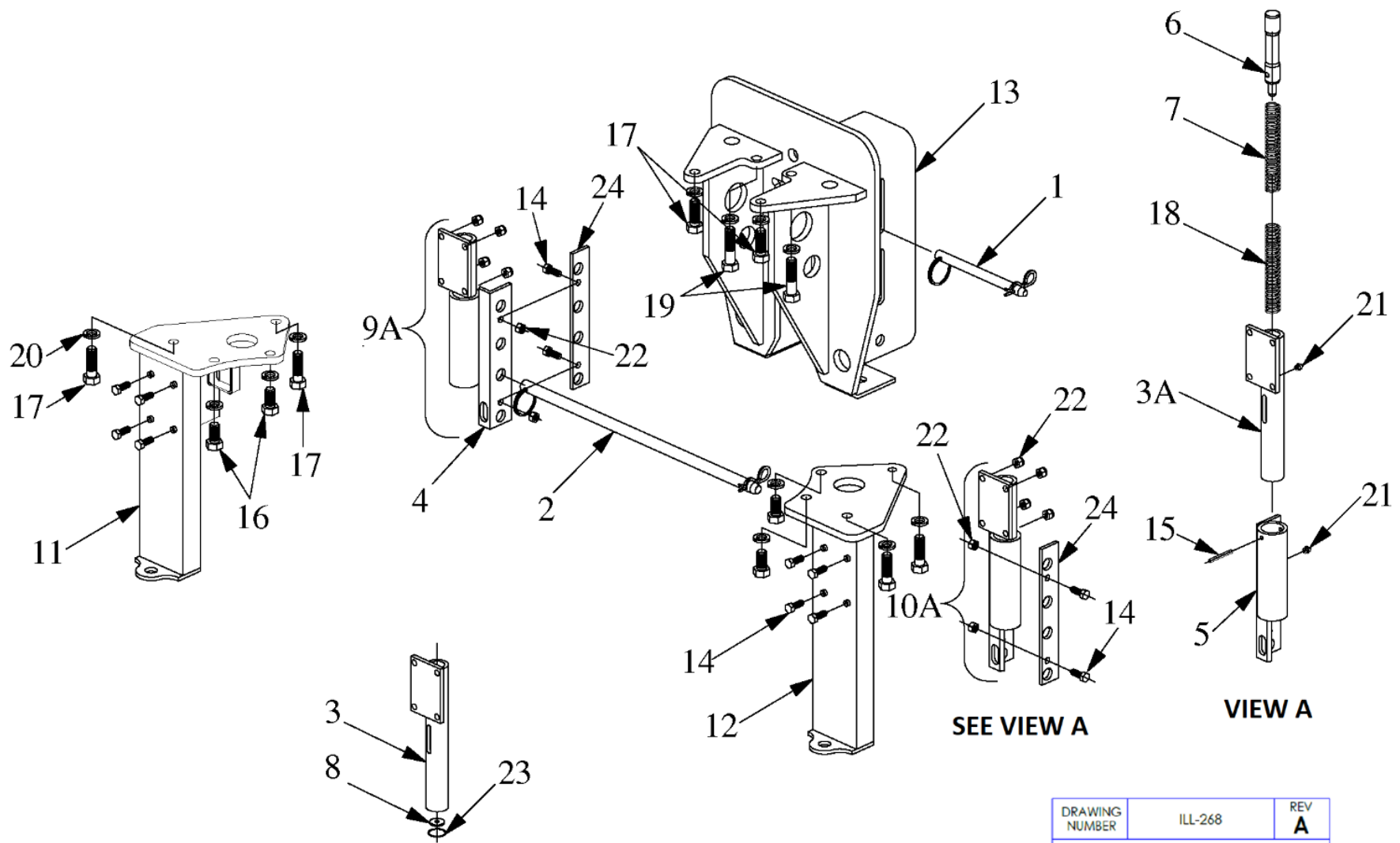
SEE ILL-056-1			
Item #	Part Number	QTY	Description
1	55157-100	3	2-7/8" – 5-9/16" Straight Tooth Jaw Assembly
a	55101	1	Jaw
b	55157	1	Straight tooth insert
c	55140	3	Screw
d	992116-05	3	Nylock Nut
1	55177-100	3	1.900"-4-1/2" Straight Tooth Jaw Assembly
a	55101	1	Jaw
b	55177	1	Straight tooth insert (1.900"-4-1/2")
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	1/4" Hose Assembly X 52" Length (Hydraulic)
g	55148-403	2	1/4" Hose Assembly X 60" Length (Hydraulic)




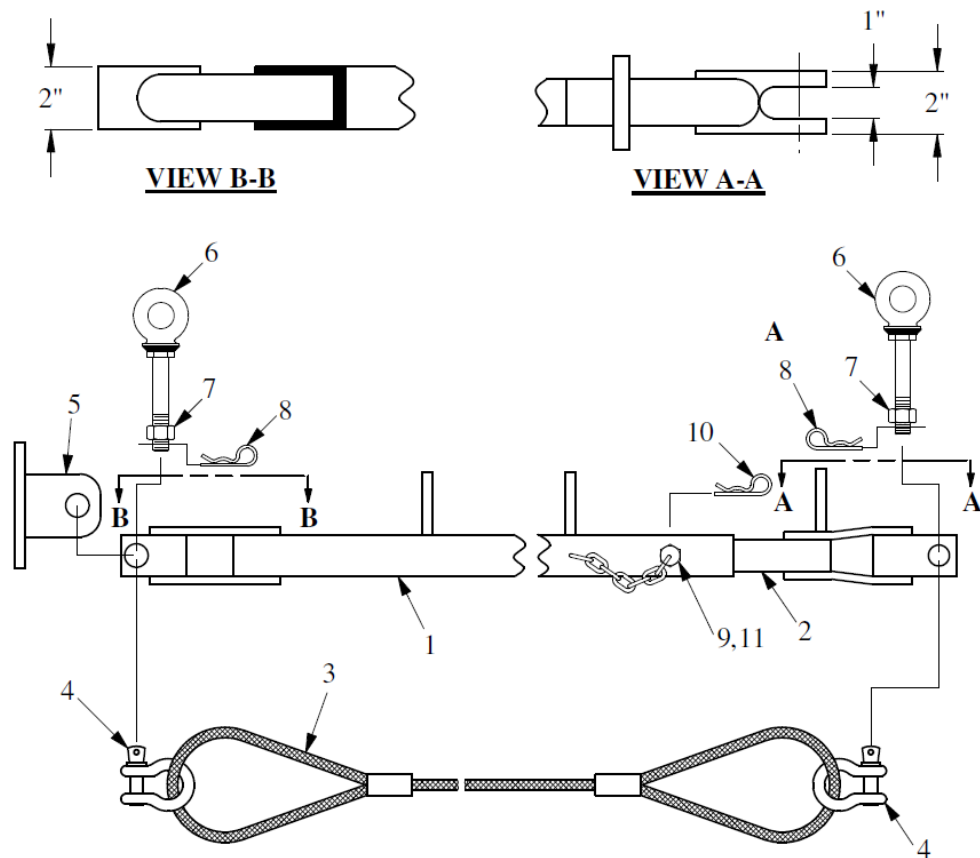
STANDARD BACK-UP MOUNT ASSEMBLY

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			



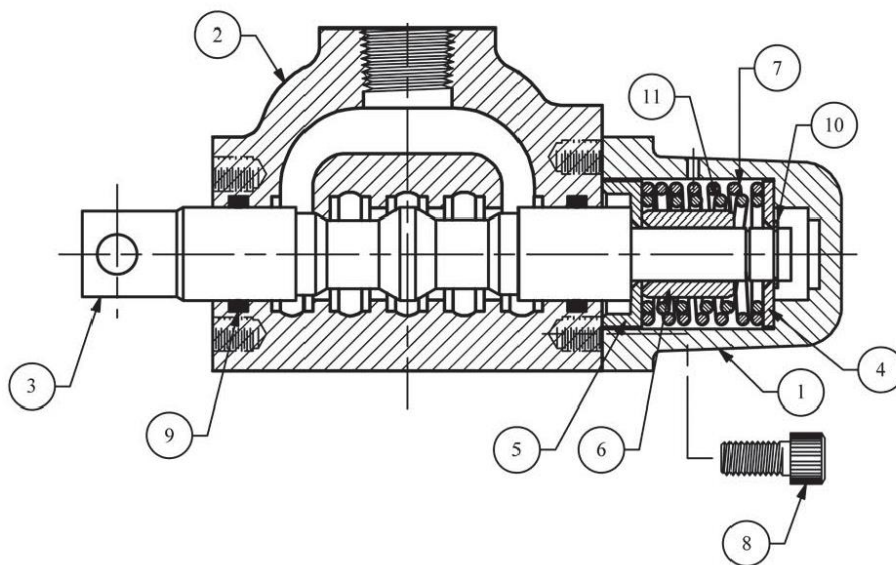
**OLD OBSOLETE STYLE
SEE PARTS LIST FOR DETAILS**

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



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

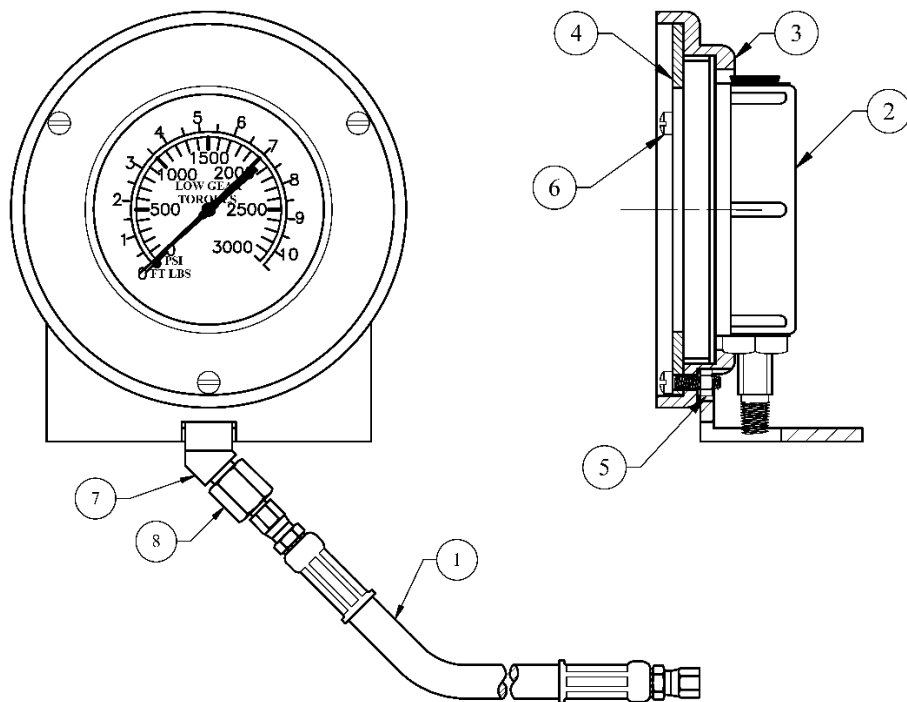
Item #	Part Number	QTY	Description
--	58019-101	1	Universal Stiff-Arm Assembly
1	58022-300	1	Female Arm Weldment
2	58021-300	1	Male Arm Weldment
3	992252-84	1	Safety Sling
4	992331-3A-06	2	Shackle
5	58028-300	1	Rig Bracket
6	58025-400	2	Anchor Pin Assembly
7	992164-17	2	Nut
8	992047-13	2	Hair Pin
9	992007-07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



Control Valve Assembly

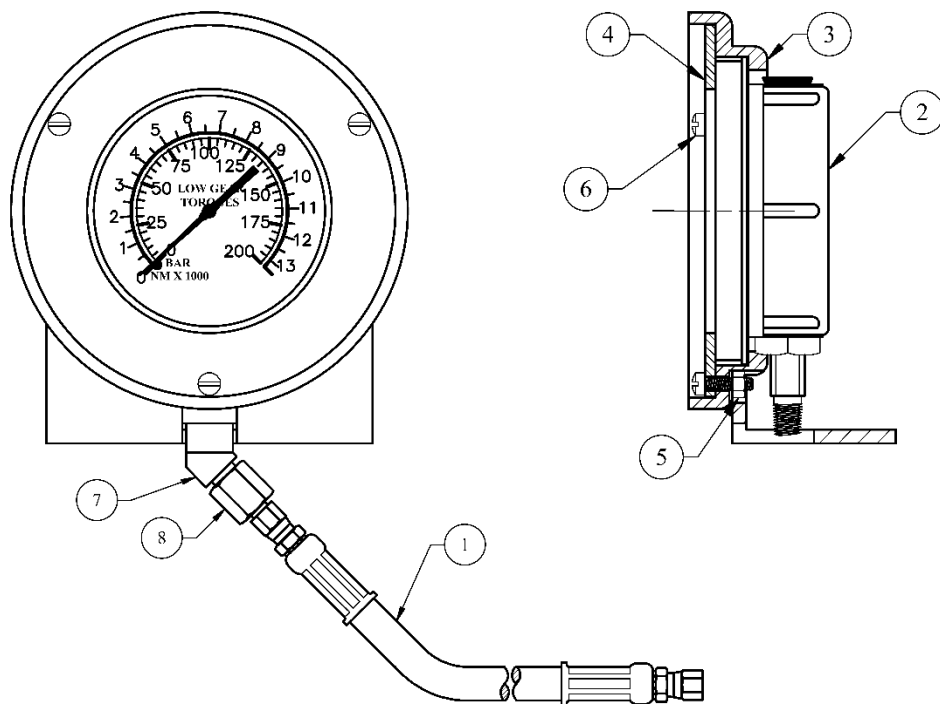
Item #	Part Number	QTY	Description
--	45240	1	Control Valve Assembly
1	45242	1	End Cap
2*	--	--	Valve Body
3	45245	1	Spool
4	45246	1	Washer
5	45247	1	Spacer Cup
6	45248	1	Spacer
7	943981-1009	1	Compression Spring
8	992019-03	4	Cap Screw
9	992154-214	2	O-ring
10	992256-56	1	External Retaining Ring
11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

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



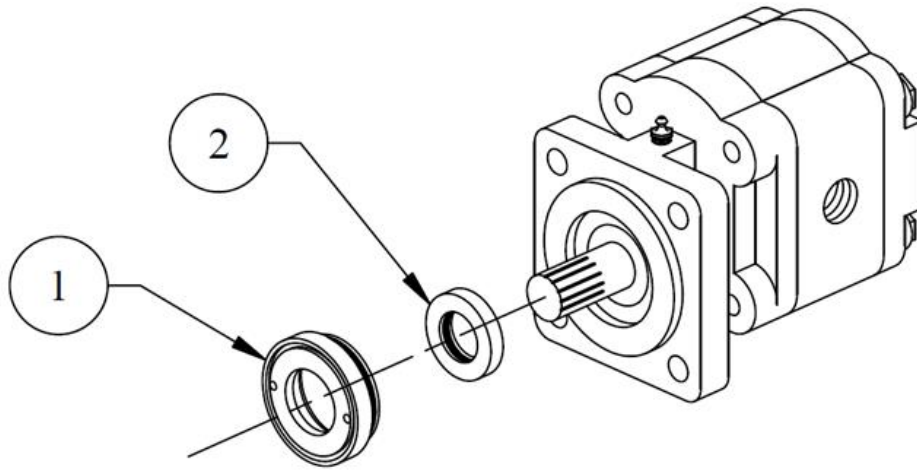
**4 ½" Gauge Assembly
For Models 5500/55700 Tongs
[PSI/FT-LBS Units]**

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