Model 58-93R Tubing Power Tong
Installation, Operation, Service and Parts Book Manual

WPI WELLKIN Inc.
8401 Industrial Dr.
Pearland, TX 77584
PH: (281) 992-2064
FX: (281) 992-2076
E-mail: sales@wpiwellkin.com
Web: www.wpiwellkin.com

INSTALLING WITH SPRING CUSHIONED HYDRAULIC LIFT

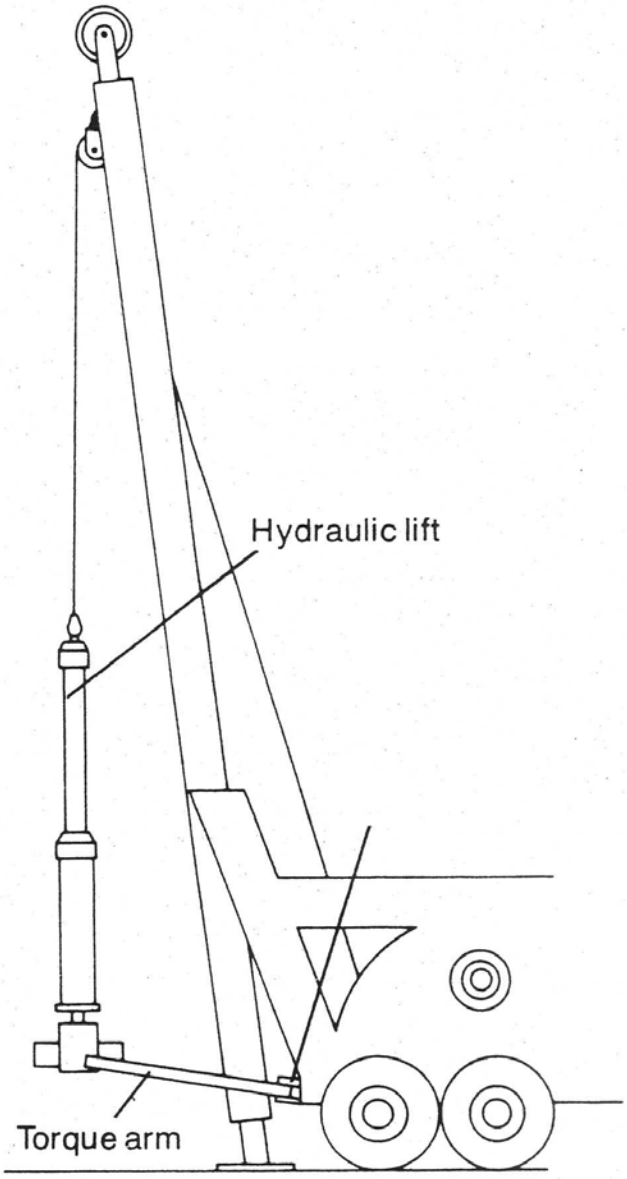
1. Move Tong to convenient position near well.
2. Lift hydraulic cylinder, set in position on tong, attach with pins, and connect hydraulic line from control valve to cylinder.
3. Lift tong with line approximately 3 feet above well head.(Cylinder has 6 foot travel). The hydraulic lift is ready to operate by means of controls mounted on same side of tong as tong controls. The line supporting the tong should be located so the tong will hang over the center of the well.
4. Well anchor bracket on right rear corner of rig approximately 4 feet from ground. Additional anchor brackets are available for use of tong on more than one rig.
5. Connect torque arm to rear of tong and to anchor bracket on rig. Then adjust so that tong will be at right angle to torque arm. Tong should then have about 4 feet of free vertical travel. Lower tong over tubing.
6. Attach hoses from hydraulic power source. Be sure all self-sealing couplings are tight before starting engine. Tighten firmly by hand. Failure to do this will cause engine to run at full speed when tong is not in use.
7. To level tong , use the leveling screws and compression spring nut. If tong is not level it will cause excessive wear to tong inserts. (Photo this page).

JAW ARRANGEMENT

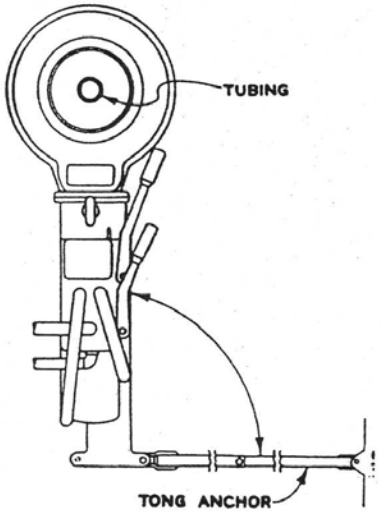
1. For breaking out joints, place jaws on pins with letter "B" up and long side of jaw against gear teeth.
2. For making up joints, place jaws on pins with letter "M" up and long side of jaws against gear teeth.
3. Inserts are reversible and should be turned around when they become worn or replaced if reversing failes to bring sharp teeth in contact with pipe.

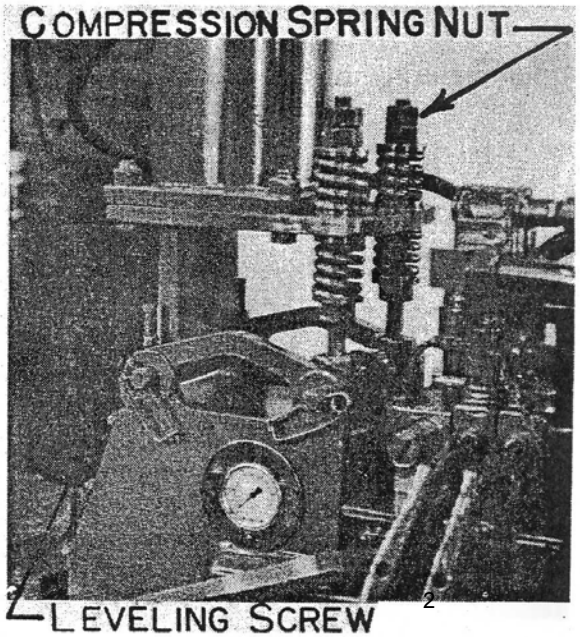
SETTING HYDRAULICS FOR PROPER OPERATION

1. With clutch disengaged and all hoses connected, start engine.
2. Engage engine clutch.
3. Adjust tong relief valve. The relief valve on the tong operates in make-up direction only.
   (a) Turn relief valve adjusting screw to left to reduce pressure until tong reduces speed.
   (b) Place tong on tubing to be made up and gradually increase the pressure to reach make-up required.
   (c) Lock relief valve adjusting screw and make-up second joint checking torque where tong stalls.
   (d) Make minor corrections as necessary until torque readings are satisfactory.
   NOTE: It Is NOT Necessary To Change MAKE-UP Torque To BREAK-OUT.
   Tong operations at system pressure for break-out
   System pressure is controlled by relief valve set at 2200 PSI in Power Unit Tank. PSI should not exceed 2500.lbs.
4. If pump fails to pick up oil after-hoses have been disconnected or tong runs in surges, screw out relief valve all the way and let pressure back to tank. Circulate to remove air. Screw in pressure screw until tong operates. Repeat if necessary.
5. In operating tong, stop operating lever in center position one second before reversing motor. This reduces fluid shock in motor.



HYDRAULIC LIFT





STEPS TO DISMANTLE

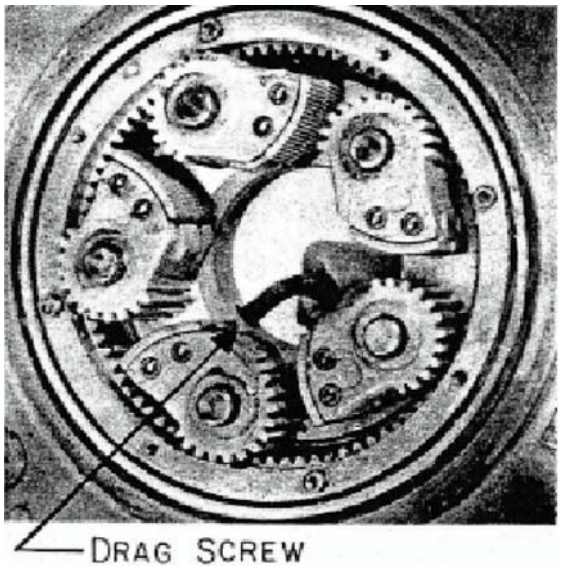
1. Raise tong to top of hydraulic lift travel.
2. Use line to lower tong and hydraulic lift to ground.
3. Shut off engine. Raise hydraulic lift lever to take hydraulic pressure off lift hose.
4. Disconnect hose and replace units for transporting.

MAINTENANCE AND LUBRICATION

1. Lubrication pressure fittings with soft gun lubricant daily.
2. Clean and grease tong head after every trip. (Sand will cause excessive wear on jaws, pins, and ring gear.) Use environmentally approved solution and a wire brush for cleaning.
3. After cleaning, apply heavy coat of cup grease to jaws, pins, and ring gear.
4. If tong grips and slips, increase pressure on drag plug by screwing in drag screws in drag gear. (Photo this page.)
5. Check transmission after every trip. If water or dirt is present, change oil.
6. Power tong gear oil should be drained and replaced when it becomes dirty or when water is present, not to exceed 100 hours.
7. Keep inside of case clean. Check gear oil level each day.
8. Use any API Service MS SAE 20w oil in TRANSMISSION. Fill until oil runs out of oil check valve on side of tong.
9. Steam cleaning tong head forces water by top seal in the tong head. Steam cleaning removes all the lubricant from the seal causing the seal to harden. If steam cleaning is used, the guide bell should be in place. After steam cleaning check transmission for presence of water. If water is present, drain and replace oil. (See Lubrication Instructions for proper oil.) Keep top seal well packed with cup grease.
10. Hydraulic system oil should be drained and replaced when it becomes dirty. (See Lubrication Instructions for proper oil.)
11. Keep filter screen and magnet CLEAN.

FOR ENGINE SEE INSTRUCTION BOOK – CAUTION

1. Factory specification for lubricants, adjustments, and safety precautions are set forth for the mutual protection of the owner and the company. Failure to adhere to these specifications can reduce the efficiency or life of the tong.

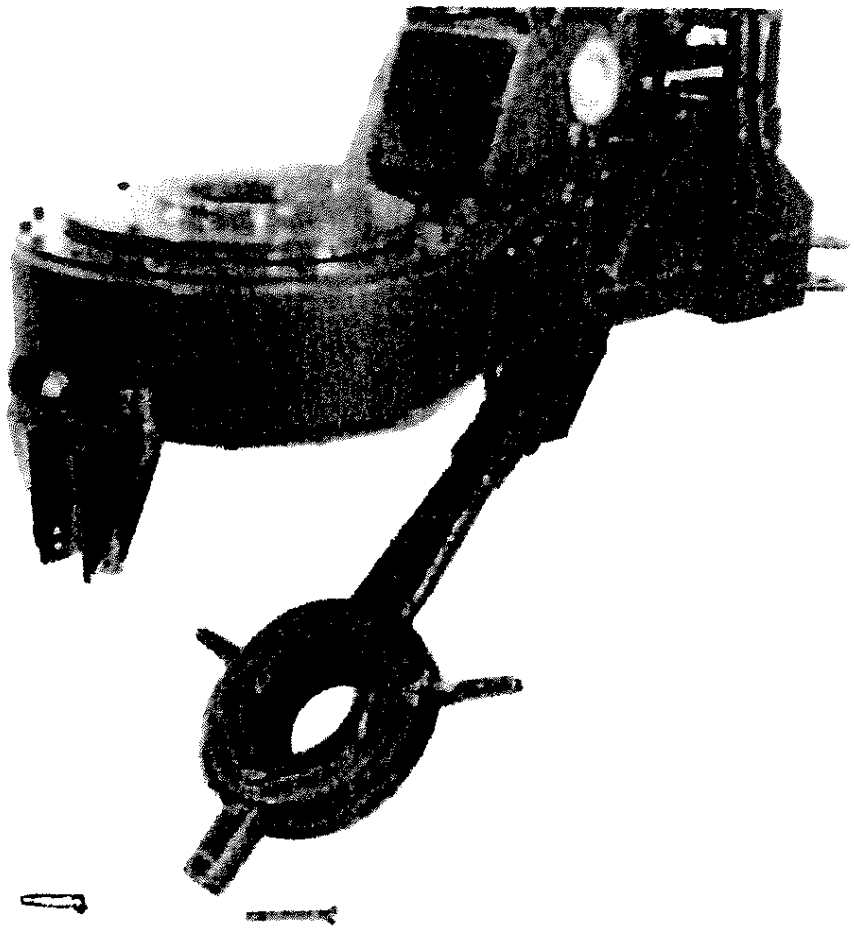


INSTRUCTIONS FOR REVERSING BACKUP TOOL

1. To reverse Backup from Breakout to Make-up, pull pin and let Backup tool drop down, as shown in picture.

2. Handle will swivel to turn Backup Tool over.

3. Lift Backup Tool back into position and replace pin.



LUBRICATION INSTRUCTIONS

Oil Used When Shipped From Factory:

Transmission: 10 Quarts Schaeffer #112 HTC Oil ISO 150

Oil Tank: _____ Gallons Gulf Harmony 54 AW or
Texaco Texamatic Fluid 6673

Power Tongs Hydraulic System

Hydraulic Operated

0 Degrees to 180 Degrees	MS SAE 10
150 Degrees to 210 Degrees	MS SAE 20
32 Degrees to 230 Degrees	MS SAE 30
0 Degrees to 210 Degrees	MS SAE 10W-30

NOTE:
Above oils require preheating for temperatures below 20°F. For sub-zero start up conditions, use Red Hydraulic Oil (Mil. Spec. 5606). This oil is satisfactory from minus 40° to plus 100° and requires no preheat in very low temperatures. This oil is available from several major oil companies.

Transmission: Oil Meeting API Classification MS (SAE 20)

Grease Fittings: Any Soft Gun Lubricant

IMPORTANT:

1. Check transmission after every trip. If water or dirt is present, change oil.

2. Power tong gear oil should be drained and replaced when it becomes dirty or when water is present, not to exceed 100 hours.

3. Keep inside of case clean. Check gear oil level each day. Use any API Service MS SAE 20W oil in transmission.

4. Steam cleaning tong head forces water by top seal in the tong head. Steam cleaning removes all of the lubricant from the seal causing the seal to harden. If steam cleaning is used, the guide bell should be bolted in place. After steam cleaning, check transmission for presence of water. If water is present, drain and replace oil. (See Lubrication Instructions for proper oil.) Keep top seal well packed with cup grease.

5. Hydraulic system oil should be drained and replaced when it becomes dirty. (See Lubrication Instructions for proper oil.) Keep Filter Screen and Magnet CLEAN.

VICKERS INCORPORATED

DIVISION OF SPERRY RAND CORPORATION
MOBILE HYDRAULICS DIVISION
ADMINISTRATIVE AND ENGINEERING CENTER
DETROIT 32, MICHIGAN, U.S.A.

HYDRAULIC FLUID RECOMMENDATIONS

for

AGRICULTURAL, CONSTRUCTION,
EARTHMOVING, MATERIAL HANDLING AND OTHER MOBILE MACHINERY

OIL-TYPE

Oils used in hydraulic systems perform the dual function of lubrication and transmission of power. Oil must be selected with care and with the assistance of a reputable supplier.

Crankcase oils meeting or exceeding the "Five Engine Test Sequence" for evaluating oils for API (American Petroleum Institute) service MS (Maximum Severity) best serve the needs of mobile hydraulic systems. These engine sequence tests were adopted by the Society of Automotive Engineers, American Society for Testing Materials, and automotive engine builders. The MS classification is the key to selection of oils containing the type of compounding that will extend the operating life of the hydraulic system. Oils meeting Diesel engine requirements, DG through DS classifications, may or may not have the type of compounding desired for high performance hydraulic systems.

The following table summarizes the oil types (viscosity and service classification) that are recommended for use with Vickers equipment. This selection is most important and should be made with considerable care.

Hydraulic System Operating Range (Min. to Max.)	SAE Viscosity	API Service Classification
0° F. to 180° F.	10W	MS
15° F. to 210° F	20 – 20W	MS
32° F. to 230° F.	30	MS
0° F. to 210° F.	10W – 30	MS

Automatic Transmission Fluid, Type "A" is usually satisfactory for power steering systems or those systems operating under moderate hydraulic service.

OPERATING TEMPERATURES

These temperature ranges for each grade of oil are satisfactory if suitable procedures are followed for low temperature start-up conditions and if sustained operation is avoided at the upper temperature limits. Operation in excess of these temperatures results in increased wear of the system components and causes more rapid deterioration of the oil. For optimum operation, a maximum oil viscosity of 4000 SSU at the low temperature start-up condition and a minimum oil viscosity of 60 SSU for the sustained high temperature operating condition are recommended.

Good oils are the most economical. Specifications can be set up which will indicate, to a limited degree, the characteristics essential in a good hydraulic oil. These are listed herein and should be checked with the oil manufacturer prior to the use of his product.

VISCOSITY

Viscosity is the measure of fluidity. The oil must have sufficient body to provide adequate sealing effect between working parts of pumps, valving, cylinders, etc., but not enough to cause pump intake cavitation or sluggish valve action. Viscosity recommendations must at best be a compromise, which takes into consideration the working temperature range, the type of hydraulic equipment used, and the class of service. Refer to table of oil viscosity recommendations.

VISCOSITY INDEX

The viscosity index is a measure of the rate at which temperature changes cause a change in oil viscosity. It is very desirable that the oil viscosity remain as nearly constant as possible under the wide range of temperature conditions encountered in operating mobile and construction machinery. The viscosity index (V.I.) of hydraulic oil should not be less than 90 for this type of service.

ADDITIVES

Research has developed a number of additive agents which materially improve various characteristics of oils for hydraulic systems. They may be selected for compounding with a view toward reducing wear, increasing chemical stability, inhibiting corrosion, depressing pour point and improving the anti-foam characteristics. Proper use of additive agents requires specialized knowledge, and they should be incorporated by the oil manufacturer only, as serious trouble may otherwise result.

Most oil companies have several brands of crankcase oils of somewhat varying formulation that will meet the API service classification of MS. The more desirable of these oils for hydraulic service will contain higher amounts of the type of compounding that avoids scuffing and wear of cam lobes and valve lifters. These oils will also be formulated to be stable under oxidative conditions and when in contact with small amounts of moisture. There should also be reasonable protection against rust to any ferrous materials submerged in the oil or covered by the oil's film.

CLEANLINESS

Thorough precautions should be taken to filter the oil in the entire hydraulic system prior to its initial use to remove paint, metal chips, welding shot, lint, etc. If this is not done, damage to the hydraulic system will probably result. In addition, continuing filtration is required to remove sludge and products of wear and corrosion, throughout the life of the system.

Precautions should be taken in the design of hydraulic circuits to assure that a means is provided to keep the oil clean. This can best be accomplished by the use of a 25 micron full-flow filter or a 10 micron by-pass filter plus a micronic filter type air breather or sealed reservoir.

MISCELLANEOUS

The performance of hydraulic valves and cylinders is less affected by the lubricating quality of the oil and, therefore, selection of the oil is less critical than for pumps and motors. It is always good practice, however, to use the best quality oil available for all components.

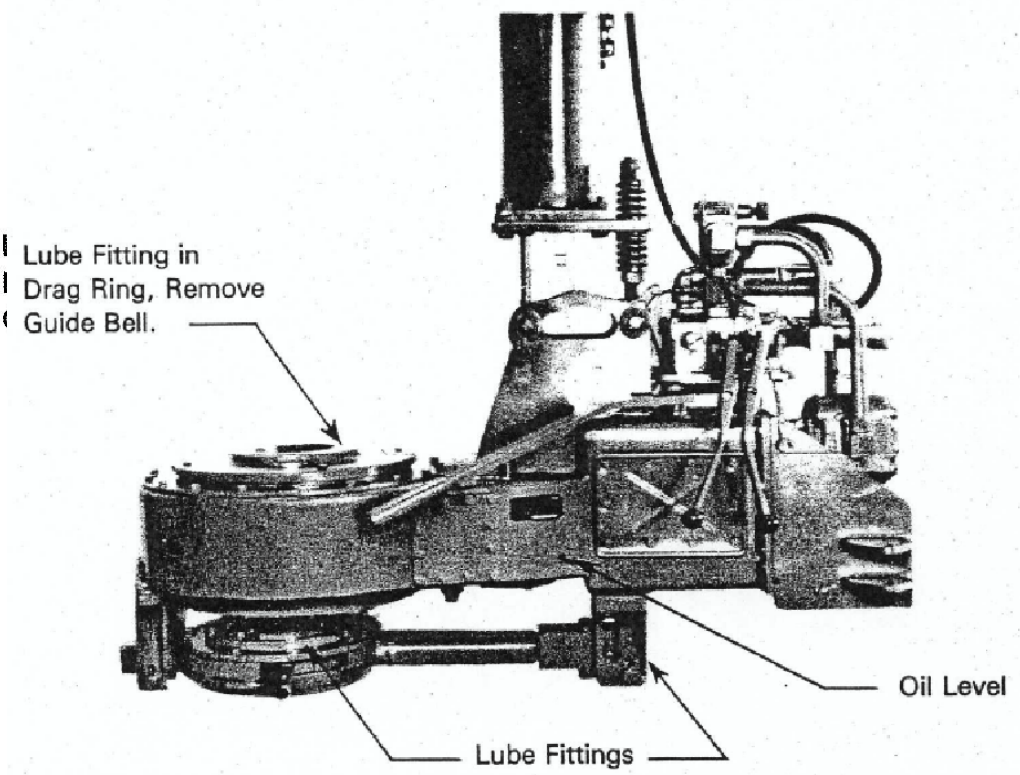
SUPERSEDES M-417-S

RELEASED 5-1-62 R. W. S.

MAINTENANCE CHECKLIST	Model 58-93R

LUBRICATION

Grease Fittings	Transmission
Any soft gun lubricant	Oil meeting API class MS Temp. above 32° F. SAE 20W Temp. below 32° F. SAE 10W (Capacity - 10 Quarts)



OPERATIONAL MAINTENANCE

Note 1. Lube fittings should be greased weekly.

Note 2. Transmission should be checked after every trip, and if water or dirt is found in transmission, change oil. Under normal conditions oil should be changed every 100 work hours.

Note 3. Clean and grease Tong Head and Backup Tool after every trip, use kerosene or solvent and a wire brush for cleaning. After cleaning, apply cup grease to jaws, pins, ring gear and top seal.

Note 4. Hazards of steam cleaning Tong Head are: Water will be forced by top seal into transmission, also removing all lubricants from top seal and causing it to harden. If steam cleaning is used, Guide Bell should be bolted in place and after cleaning, the transmission should be checked for the presence of water.

SAFETY POINTS AND WARNINGS

Note 5. CAUTION, keep hands clear of Tong Head while Tongs are in operation. Caution should be taken while operating this equipment, as parts inside the Tong Head rotate.

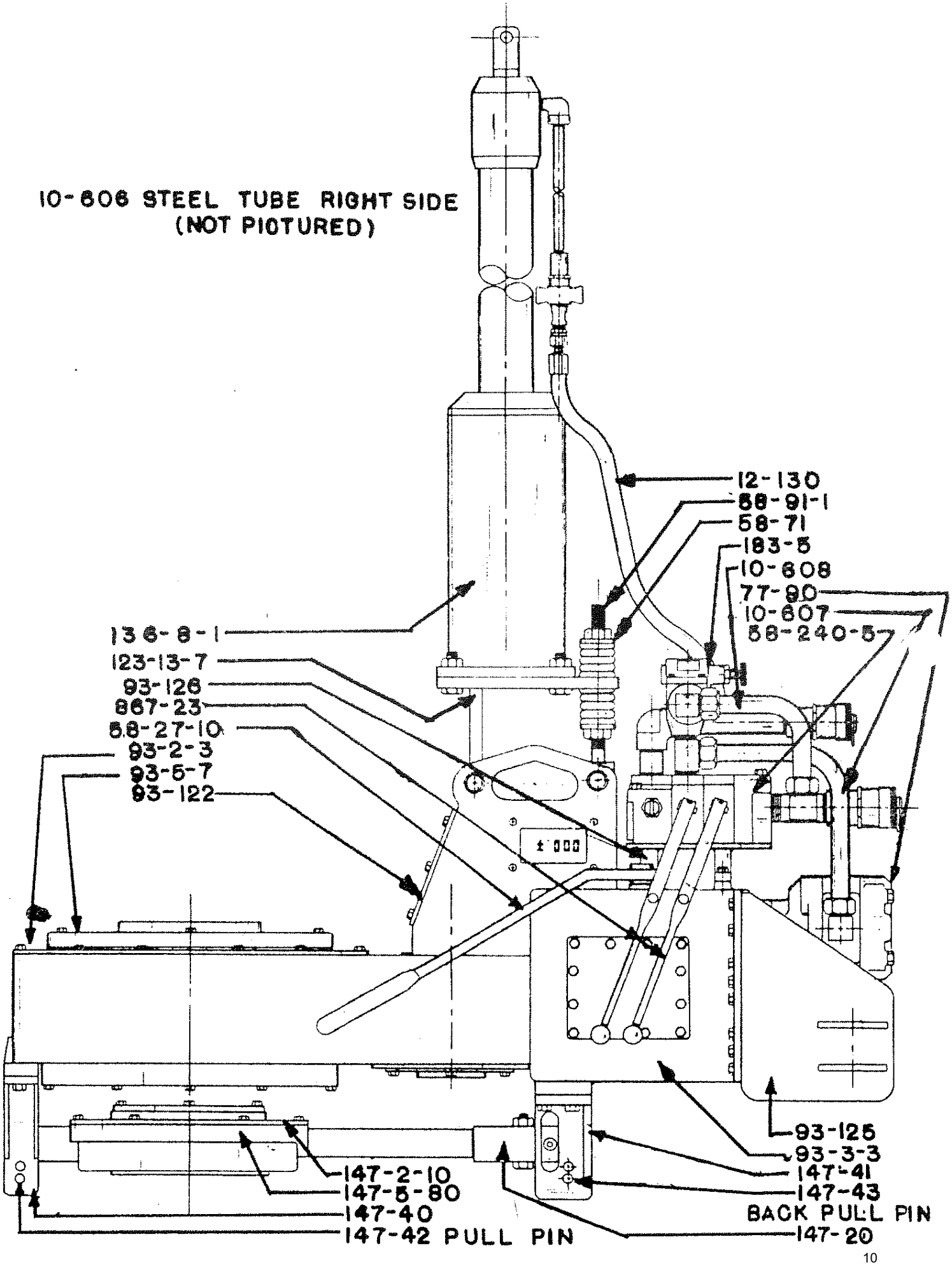
Note 6. Do not crawl or stand under Tongs as hydraulic line could be cut or broken and Tongs will fall.

Note 7. Do not operate Power Tongs until the Anchor Arm is attached to the Tong and Anchor Post.

Note 8. Power should be off before any size equipment change, maintenance, or any other work is done to this equipment.

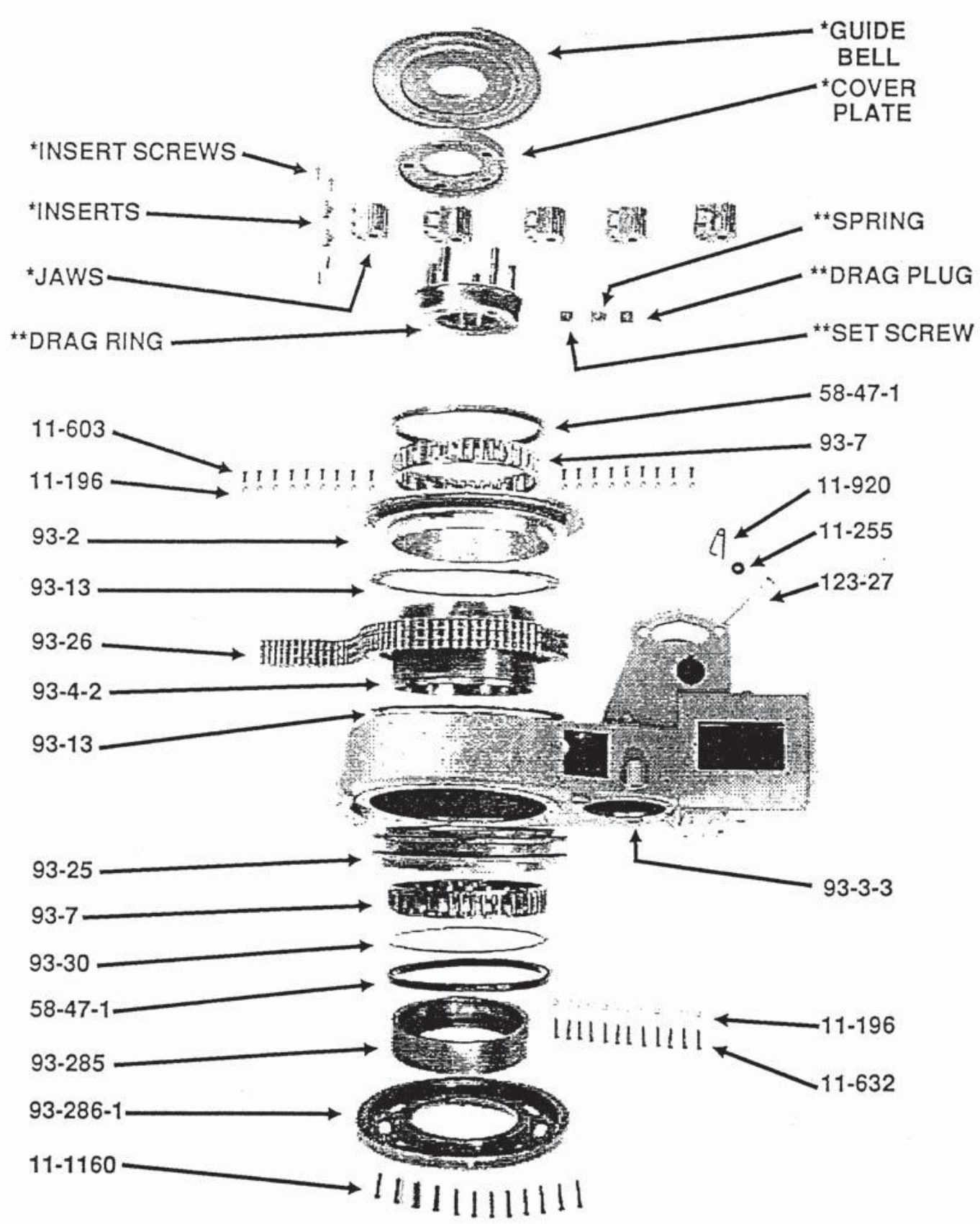
Grease Fittings	Date Checked _____
1. Backup Tool Jaws	
2. Backup Tool Swivel	
3. Tong Drag Ring	
4. Transmission Case	
Oil checked and/or changed	
5. Cleaning and	
Greasing Tong Head	

58-93 R
POWER TONG


10-606 STEEL TUBE RIGHT SIDE
(NOT PICTURED)
12-130
58-91-1
58-71
183-5
10-608
77-80
10-607
58-240-5
136-8-1
123-13-7
93-126
867-23
58-27-10
93-2-3
93-5-7
93-122
93-125
93-3-3
147-41
147-43
BACK PULL PIN
147-20
147-2-10
147-5-80
147-40
147-42 PULL PIN

Part Number	Qty.	Part Description
10-606	1	Steel tubing (right side)
10-607	1	Steel tubing (left side)
10-608	1	Steel tubing (relief valve)
12-130	1	Hose (lift)
58-71	4	Compression spring
58-91-1	2	Bolt-compression spring
58-27-10	1	Handle (clutch lever)
28-240-5	1	Valve (commercial)
77-90	1	Motor (commercial)
93-3-3	1	Transmission case
93-2-3	1	Top bearing cap
93-5-7	1	Guide bell, 5” hole
93-122	1	Cover
93-125	1	Counter balance
93-126	1	Valve plate
123-13-7	1	Bottom end (lift)
136-8-1	1	Spring retainer
147-2-10	1	Top cap
147-5-80	1	Gear housing
147-20	1	Swivel
147-40	1	Positioner (front)
147-41	1	Positioner (back)
147-42	1	Pull pin (front)
147-43	1	Pull pin (back)
183-5	1	Relief valve
867-23	2	Lever

Final Drive Assembly
Power Tong Type 58-93R


*GUIDE BELL
*COVER PLATE
*INSERT SCREWS
*INSERTS
*JAWS
**DRAG RING
**SPRING
**DRAG PLUG
**SET SCREW
58-47-1
11-603
93-7
11-196
11-920
93-2
11-255
93-13
123-27
93-26
93-4-2
93-13
93-25
93-3-3
93-7
93-30
58-47-1
11-196
93-285
11-632
93-286-1
11-1160

Part Number	Qty.	Part Description
11-196	18	Washer 3/8” lock
11-255	1	Washer ¾” flat
11-603	18	Cap screw 3/8” x 1” hex. hd.
11-662	5	Cap screw 5/16” x ½” N.C. hex. hd. ht.
11-920	1	Safety pin 3-1/2”
11-1160	12	Cap screw 3/8” x 2-1/4” hex. hd.
58-47	2	Oil seal, 9594 L.P.D.
74-9	5	Latch bolt 3/8” N.C. thread
74-10	5	Latch
3-2-3	1	Top bearing cap
93-3-3	1	Transmission case
93-4-2	1	Final drive gear
93-5-7	1	Guide bell 5” bore w/gear teeth
93-7	2	Roller bearing
93-13	2	Base ring
93-25	1	Bearing race
93-26	1	Roller chain
93-30	1	Seal protector
93-161	1	Drag ring cover plate
93-287-3	1	Bottom bearing cap assembly
	12	11-632 cap screw 3/8” x 1-1/2” hex.
	1	93-285 drag ring sleeve
	1	93-286-1 bottom cap
123-27	2	Pull pin, ¾” x 8-1/2”

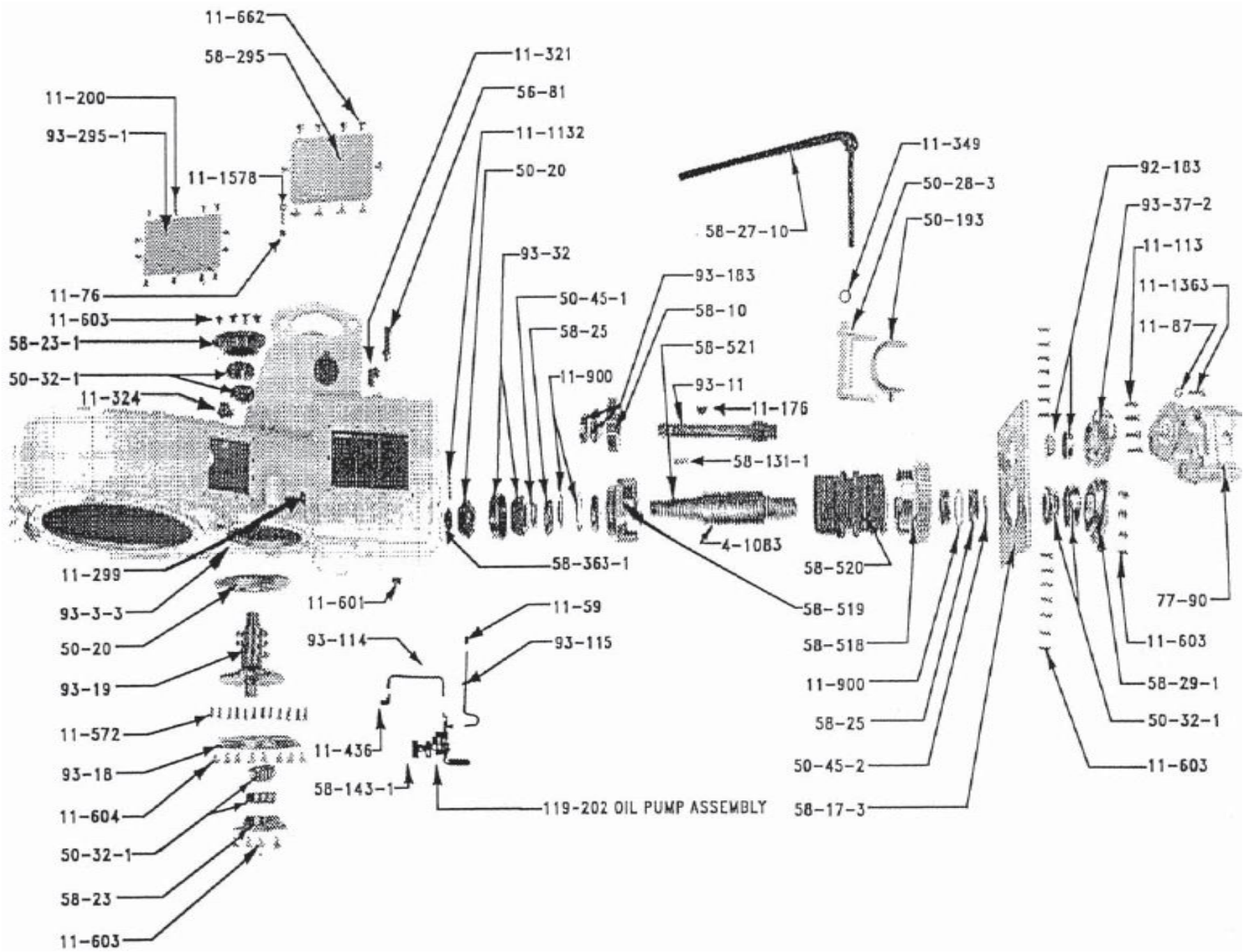
JAW LIST		
Part Number	**Qty.**	**Part Description**
50-149-6-100	5	1-5/16” OD thru 1.9” OD Tubing Jaw with Insert **Includes:
**	5	50-149-6 Jaw
**	10	50-48-5 Insert
**	10	50-49-2 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-10 Guide Bell (3-1/2” bore)
	1	93-161 Cover Plate (5” bore)
58-330-100	5	1-7/8” OD thru 2-3/8” OD Tubing Jaw with Insert **Includes:
**	5	58-330 Jaw
**	10	58-328 Insert
**	20	50-49-2 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)
50-22-7-100	5	2-3/8” OD thru 2-7/8” OD Tubing Jaw with Insert **Includes:
**	5	50-22-7 Jaw
**	10	50-48-1 Insert
**	20	50-49-2 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” Straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)
J505-2	5	2-7/8" to 5" (73.0 to 127.0 mm) Universal Jaw, less Inserts **Includes:
**	5	N507 Insert Screw
		Inserts:
	5	J505-4 Insert, 2-7/8” to 3-1/2”
	5	J505 Insert, 3-1/2” to 4-1/2”
	5	J505-1 Insert, 4” to 5”
50-22-8-100	5	2-7/8” OD thru 3-1/2” OD Tubing Jaw with Insert **Includes:
**	5	50-22-8 Jaw
**	10	50-48-1 Insert
**	20	50-49-2 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” Straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)

Part Number	Qty.	Part Description
50-22-11	5	3-1/2" OD thru 4-1/2" OD Tubing Jaw (solid)
		Use in conjunction with:
	1	58-160-2 Drag Ring (1" straight pin, 6-1/4" bore)
	1	93-5-11 Guide Bell (6-1/4" bore)
	1	93-161-3 Cover Plate (6-1/4" bore)
50-22-12	5	4" OD thru 5" OD Tubing Jaw (solid)
		Use in conjunction with:
	1	58-160-2 Drag Ring (1" straight pin, 6-1/4" bore)
	1	93-5-11 Guide Bell (6-1/4" bore)
	1	93-161-3 Cover Plate (6-1/4" bore)
50-314	5	5" OD thru 6-1/16" OD Tubing Jaw (solid)
		Use in conjunction with:
	1	58-160-2 Drag Ring (1" straight pin, 6-1/4" bore)
	1	93-5-11 Guide Bell (6-1/4" bore)
	1	93-161-3 Cover Plate (6-1/4" bore)
		Casing Jaws
58-154-2	5	4" OD thru 4-1/2" OD Casing Jaw (solid)
		Use in conjunction with:
	1	58-160-1 Drag Ring 3/4" straight pin, 7-1/4" bore)
	1	93-5-12 Guide Bell (7-1/4" bore)
	1	93-161-1 Cover Plate (7-1/4" bore)
58-158-2	5	5" OD thru 5-1/2" OD Casing Jaw (solid)
		Use in conjunction with:
	1	58-160-1 Drag Ring (3/4" straight pin, 7-1/4" bore)
	1	93-5-12 Guide Bell (7-1/4" bore)
	1	93-161-1 Cover Plate (7-1/4" bore)
58-336	10	6-5/8" OD Casing Jaw (solid)
		Use in conjunction with:
	1	58-332-2 Drag Ring (5/8" straight pin, 7-7/8 bore)
	1	93-5-14 Guide Bell (7-7/8" bore)
	1	93-161-1 Cover Plate (7-7/8" bore)
58-331	10	7" OD Casing Jaw (solid)
		Use in conjunction with:
	1	58-332-2 Drag Ring (5/8" straight pin, 7-7/8" bore)
	1	93-5-14 Guide Bell (7-7/8" bore)
	1	93-161-8 Cover Plate (7-7/8" bore)
		Double Action Jaws

Part Number	Qty.	Part Description
58-305-100	3	1” OD thru 1-5/16” OD Tubing Jaw with Insert **Includes:
**	3	58-305 Jaw
**	3	58-306 Insert
**	3	11-683 Insert Screw
		Use in conjunction with:
	1	50-15-5 Drag Ring (1” straight pin, 3-1/2” bore)
	1	93-5-10 Guide Bell (3-1/2” bore)
	1	93-161-9 Cover Plate (3-1/2” bore)
58-307-100	5	2” Tubing Jaw with Insert **Includes:
**	5	58-307 Jaw
**	5	58-308 Insert
**	5	11-683 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)
58-303-100	5	2-3/8” OD thru 3-1/16” OD Tubing Jaw with Insert **Includes:
**	5	58-303 Jaw
**	5	58-304 Insert
**	5	11-683 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)
58-303-100	5	3-1/2” OD Tubing Jaw with Insert **Includes:
**	5	58-303 Jaw
**	5	58-304-1 Insert
**	5	11-683 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)
58-303-100	5	3-11/16” OD Tubing Jaw with Insert **Includes:
**	5	58-303 Jaw
**	5	58-304-2 Insert
**	5	11-683 Insert Screw
		Use in conjunction with:
	1	50-15-2 Drag Ring (1” straight pin, 5” bore)
	1	93-5-7 Guide Bell (5” bore)
	1	93-161 Cover Plate (5” bore)

Part Number	Qty.	Part Description
		Drag Ring Assembly
50-15-2	1	Drag Ring Assembly 1-5/16” OD thru 3-1/2” OD **Includes:
**	5	50-8-2 Jaw Pin
**	5	50-58 Drag Plug
**	5	50-57 Spring
**	5	11-147 Set Screw
**	1	11-131 Grease Fitting
58-160-1	1	Drag Ring Assembly 4” OD thru 5-1/4” OD **Includes:
**	5	58-8-1 Jaw Pin 3/4”
**	5	58-57 Drag Plug
**	5	50-57-1 Spring
**	5	11-583 Set Screw
**	1	11-131 Grease Fitting
58-160-2	1	Drag Ring Assembly 3-1/2” OD thru 5” OD **Includes:
**	5	50-8-2 Jaw Pin
**	5	50-58-1 Drag Plug
**	5	50-57 Spring
**	5	11-583 Set Screw
**	1	11-131 Grease Fitting
58-332-2	1	Drag Ring Assembly 6-5/8” OD thru 7” OD **Includes:
**	10	59-8 Jaw Pin 5/8”
**	5	59-64 Drag Plug
**	5	59-53 Spring
**	5	11-583 Set Screw
**	1	11-131 Grease Fitting
50-15-6	1	Drag Ring Assembly 2-3/8” OD thru 5” OD **Includes:
**	5	54-8-5 Jaw Pin 1-1/4”
**	5	50-58-1 Drag Plug
**	5	50-57 Spring
**	5	11-583 Set Screw
**	1	11-131 Grease Fitting

Transmission Assembly Power Tong Type 58-93R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58-295
11-200
93-295-1
11-1578
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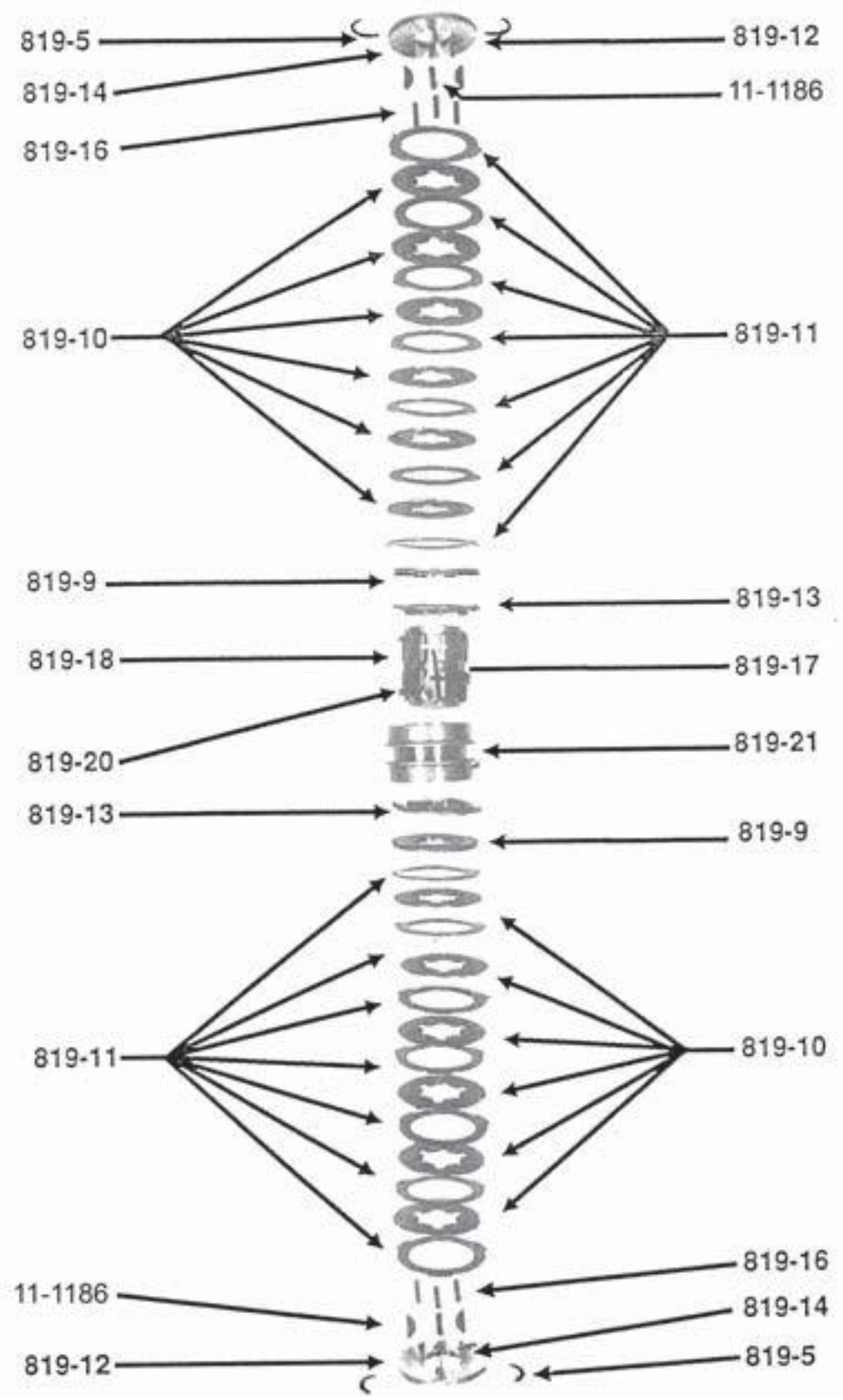
11-603
58-23-1
50-32-1
11-324
11-299
93-3-3
50-20
93-19
11-572
93-18
11-604
50-32-1
58-23
11-603
11-321
56-81
11-1132
50-20
93-32
50-45-1
58-25
11-900
93-183
58-10
58-521
93-11
11-176
58-131-1
4-1083
58-363-1
58-519
11-601
93-114
11-59
93-115
11-436
58-143-1
119-202 OIL PUMP ASSEMBLY
58-27-10
11-349
50-28-3
50-193
58-520
58-518
11-900
58-25
50-45-2
58-17-3
92-183
93-37-2
11-113
11-1363
11-87
77-90
11-603
58-29-1
50-32-1
11-603

Part Number	Qty.	Part Description
11-14	2	Nut 1/2" NC
11-59	1	Str. Fit, 1/4" ferrule to 1/4" pipe (brass)
11-87	2	Washer, 1/2" lock
11-113	4	Cap screw 3/8" x 1" skt. head NC
11-176	3	Hy-pro key no. 18 (NOT PICTURED)
11-255	2	Washer, 3/4" flat
11-299	1	Drain cock
11-324	2	Pipe plug 1-1/4" square head
11-349	1	"O" ring
11-436	1	Ell 1/8" pipe to 5/16" ferrule 90 degree brass
11-572	12	Cap screw 5/16" x 3/4" skt. head NF
11-595	1	Set screw 5/16" x 5/16" NC
11-601	2	Pipe plug 1/2" skt. Head
11-603	4	Cap screw 3/8" x 1" head hex NC
11-604	12	Cap screw 3/8" x 3/4" hex head NC
11-662	52	Cap screw 5/16" x 1/2" hex head NC
11-859	2	Set screw 1/2" x 1-1/2" square head
11-900	3	Spirolox ring
11-920	1	Safety pin
11-1132	1	Cotter pin 1/8" x 1-3/4"
11-1492	2	Cap screw 1/2" x 2" hex head NC
50-9-1	1	High clutch gear
50-12-2	1	Low clutch gear
50-13-1	1	Clutch
50-20	1	Ring gear & pinion
50-28-3	1	Shifting fork
50-32-1	3	Bearing
50-45-1	2	Bearing spacer
50-193	1	Shifting yoke
58-61	1	Oil sight gauge
58-14-2	1	Clutch shaft
58-143-1	1	Oil pump gear
58-17-3	1	End plate
58-23	1	Bearing cap
58-23-1	1	Bearing cap with hole for RPM counter
58-25	4	Bearing SKF
58-27-10	1	Clutch lever

Part Number	Qty.	Part Description
58-29-1	1	Bearing cap
58-137-1	1	Pinion spacer
58-295	2	Side plate
58-363-1	1	Nut
77-90	1	Commercial motor
92-183	1	Bearing
93-3-3	1	Transmission case
93-11	1	Drive shaft
93-18	1	Ring gear cover
93-19	1	Ring gear hub & sprocket
93-32	1	Bearing
93-37-2	1	Motor adaptor
93-114	1	Oil pump discharge line
93-115	1	Oil line
93-166	14	Cap screw 3/8” x 1” hex with drilled head
93-183	1	Bearing
93-295-1	1	Side plate
119-202	1	Oil pump assembly
123-27	2	Pull pin, 3/4” x 8-1/2”

50-13-1
Clutch
Assembly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819-14
819-16
819-10
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819-18
819-20
819-13
819-11
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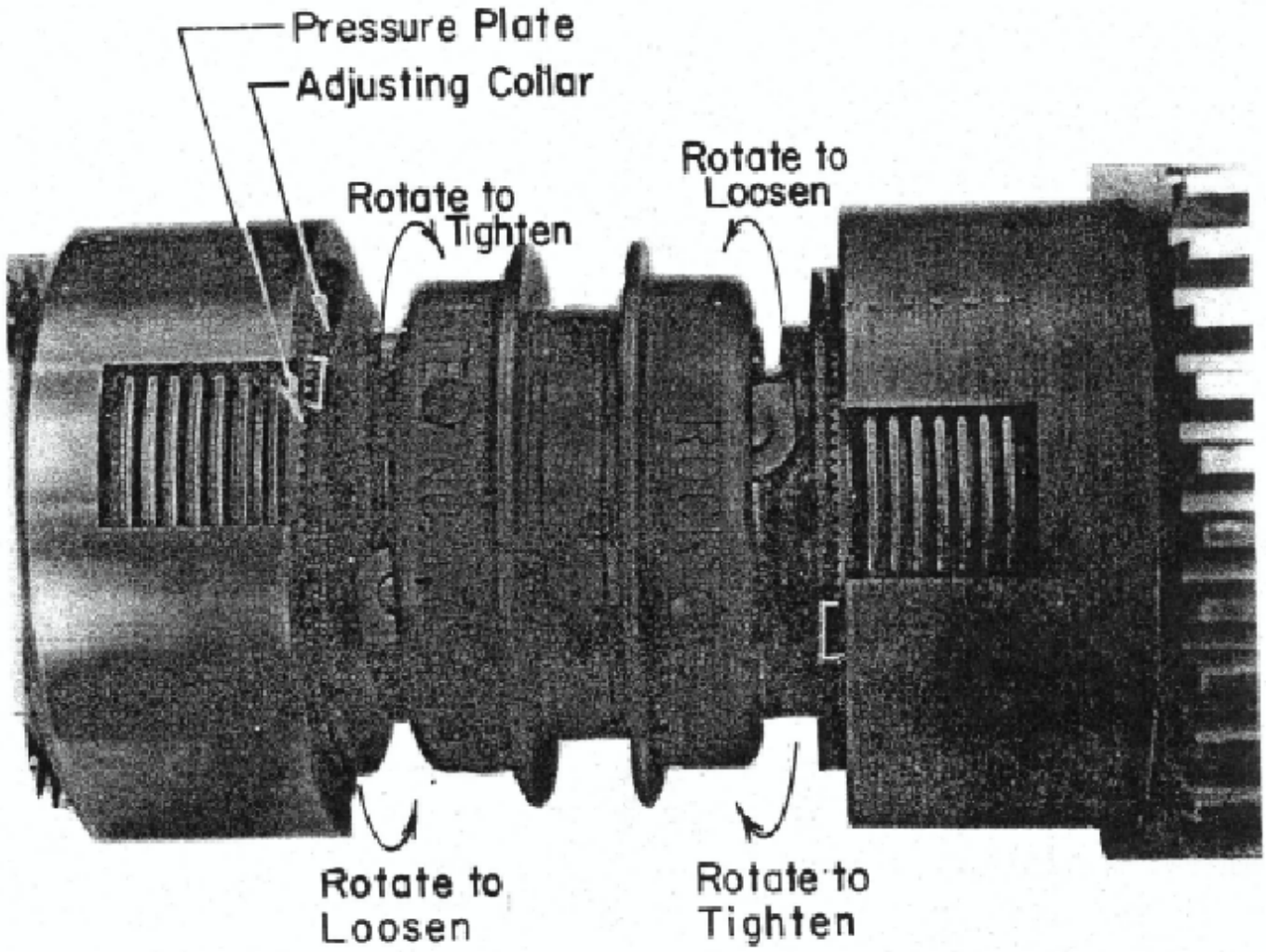
819-12
11-1186
819-16
819-11
819-13
819-17
819-21
819-9
819-10
819-16
819-14
819-5

Part Number	Qty.	Part Description
50-13-1	1	Clutch assembly, complete
		Parts:
819-1	1	Anchor pin
819-5	4	Split ring
819-9	2	Pressure plate
819-10	12	Inner disc
819-11	14	Outer disc
819-12	2	Thrust plate
819-13	2	Adjustment collar
819-14	6	Spring pin
819-16	6	Separating spring
819-17	6	Dog
819-18	6	Dog pivot
819-20	1	Body
819-21	1	Shipper Sleeve
50-135	6	No. C Hy-Pro key



To Adjust Tong Clutch

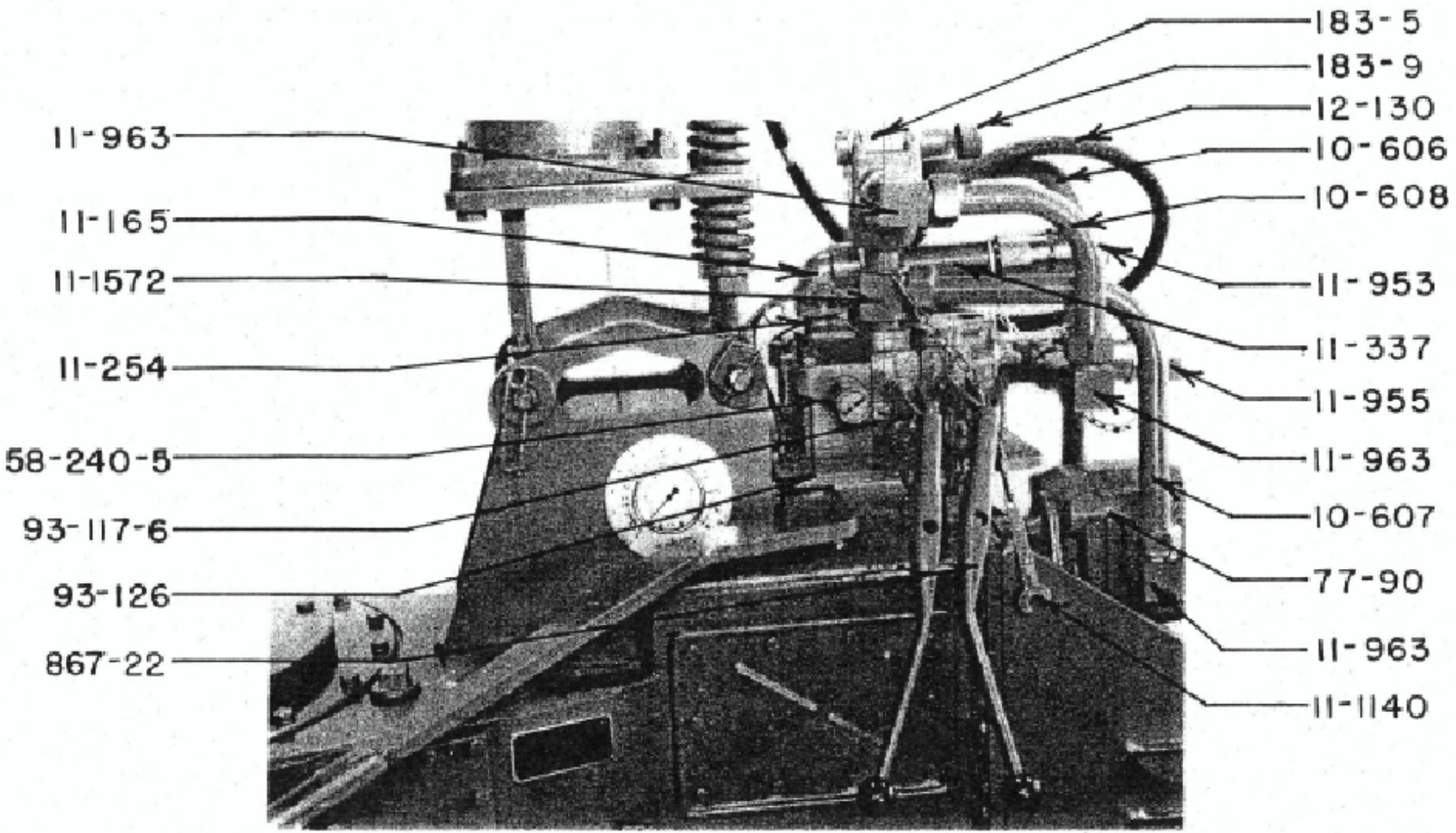
1. Remove side panel from operator's side of Tong.
2. Be sure tong is in neutral position.
3. Rotate clutch with hand until slot in adjusting collar is facing toward the opening in tong.
4. Insert screwdriver or similar object in slot in the adjusting collar.
5. Pry the adjusting collar away from pressure plate so that the teeth are free from each other.
6. Rotate adjusting collar in the direction shown to adjust clutch.

Follow the above procedure for both ends of the clutch.
Adjust left end of clutch for high gear.
Adjust right end of clutch for low gear.

If the clutch slips or the disc stack heats up, adjustment is required.

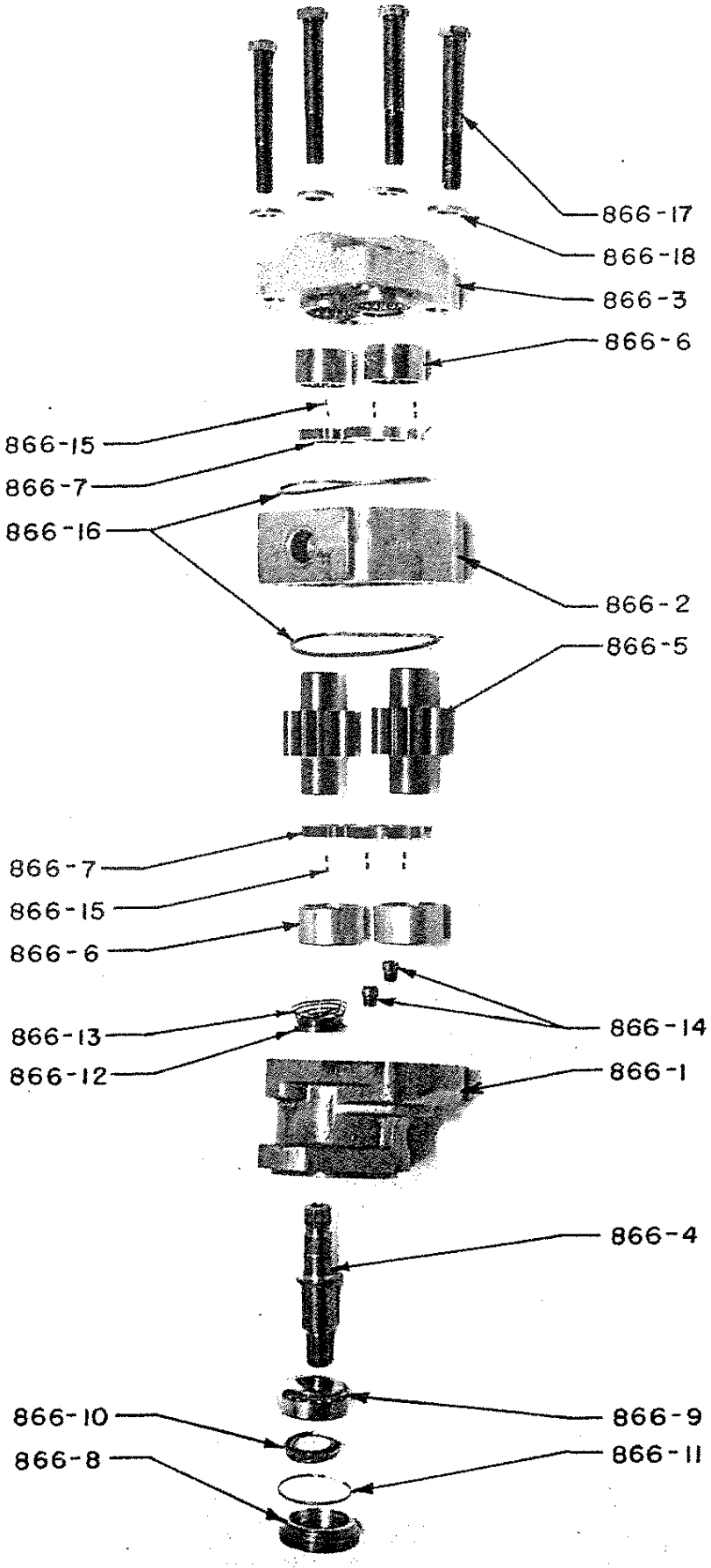
Commercial Hydraulics

Power Tong Type 58-93R


183-5
183-9
12-130
10-606
10-608
11-953
11-337
11-955
11-963
10-607
77-90
11-963
11-1140
11-963
11-165
11-1572
11-254
58-240-5
93-117-6
93-126
867-22

Part Number	Qty.	Part Description
10-606	1	Steel tubing
10-607	1	Steel tubing
10-608	1	Steel tubing
11-87	5	Lock washer 1/2"
11-90	1	Str. Fitting 3/8" flare to 3/8" pipe
11-165	1	Ell, 1" x 90 degrees H.P.
11-254	1	Nipple, 1" x close H.P.
11-265	1	Collar, 1" H.P.
11-333	1	Nipple, 1" x 2-1/2" H.P.
11-337	1	Nipple, 1" x 6" H.P.
11-427	1	Ell, 1/4" flare to 1/4" pipe 45 degree
11-560	1	Dust cap 5100-S7-16
11-566	1	Dust cap 5100-S7-20
11-606	2	Pipe plug 1", skt.
11-641	3	Cap screw 1/2" x 1" hex
11-809	2	Cotter pin 3/32" x 7/8"
11-850	1	Dust plug 5100-S9-8
11-946	1	Coupling half 5100-S5-8B
11-953	1	Coupling half 5100-S2-16B
11-955	1	Coupling half 5100-S2-20B
11-963	4	Ell, 1" x 90 degree Bax 200-16
11-966	1	Straight fitting 1" x 3/4", 1000-16-12 Bax
11-979	6	Sleeve, 1" Bax 1900-16
11-980	6	Nut 1", Bax 1800-16
11-1140	1	Wrench, 1/2" Bonny
11-1286	3	Cap screw, 3/8" x 4"
11-1401	4	Yoke pin, 3/8" x 1"
11-1492	2	Cap screw, 1/2" x 2-1/4" hex drilled head
11-1563	1	Ell, 3/8" flare to 3/8" pipe, 45 degree
11-1572	1	Tee, 3/4" x 3/4" x 1" Bax w/ 1/4 NPT
12-130	1	Hose assembly 211-323-323-6-66"
58-240-5	1	Commercial valve A20-AA440-MA-3-SA-3
76-166	1	Nipple 1-1/4" x 4" w/1" collar
77-90	1	Commercial motor, M25X, 997-BEIL-15-25
93-117-6	4	Linkage
93-126	1	Valve plate
181-24-1	1	Check valve assembly (not pictured)
183-5	1	Denison relief valve R2V122 10-A1-146
183-9	1	Knob
867-22	2	Handle, Commercial 341-9100-002

77-90
Commercial Motor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866-18
866-3
866-6
866-15
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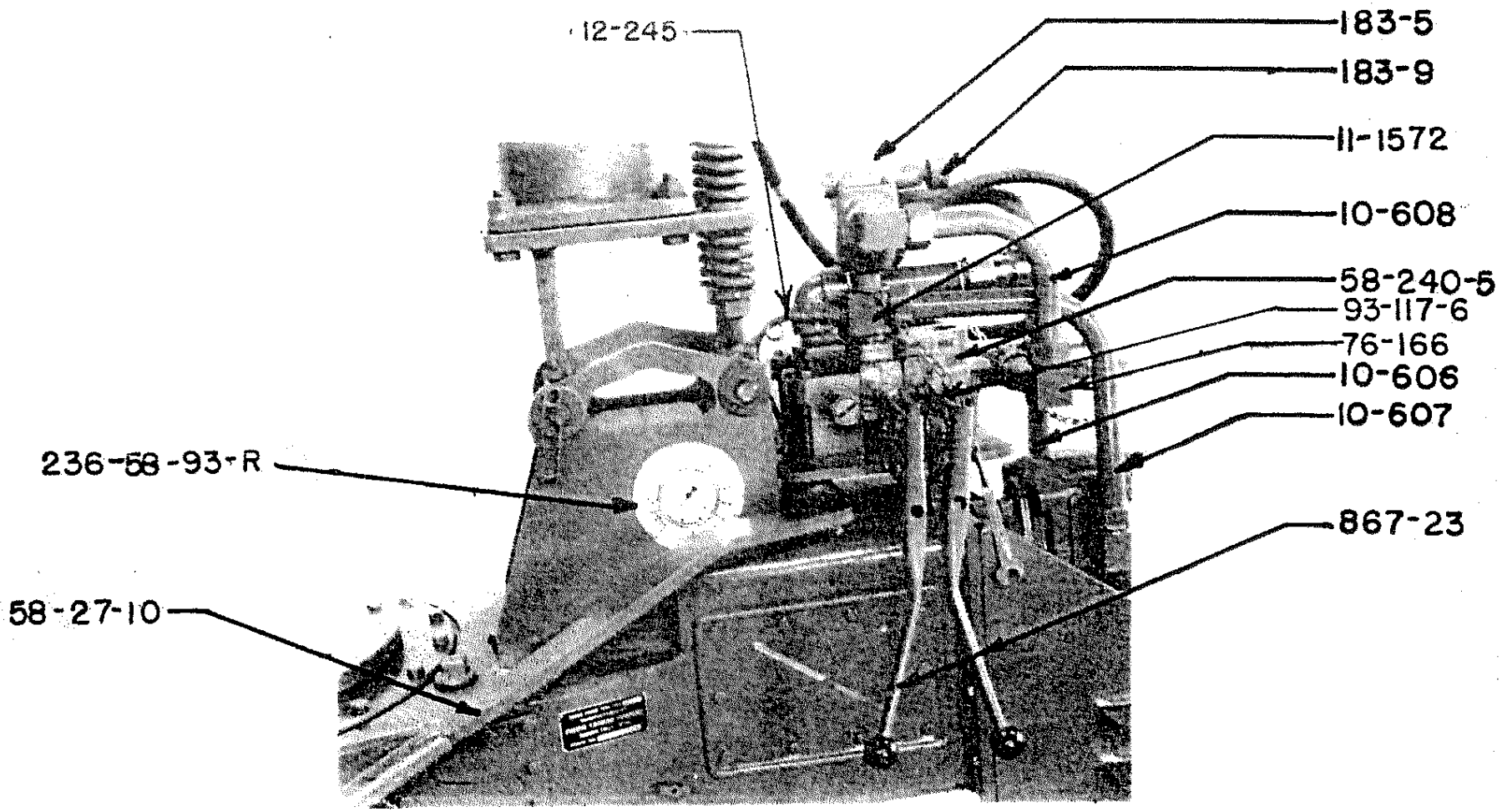
866-2
866-5
866-7
866-15
866-6
866-14
866-13
866-12
866-1
866-4
866-10
866-9
866-8
866-11

Part Number	Qty.	Part Description
77-90	1	Hydraulic motor, complete
		Parts:
866-1	1	Shaft end cover
866-2	1	Gear housing
866-3	1	Port end cover
866-4	1	Shaft
866-5	2	Gears 1.5”
866-6	4	Roller bearing
866-7	2	Thrust plate
866-8	1	Retaining ring
866-9	1	Bearing tapered
866-10	1	Hi-pressure seal
866-11	1	“O” ring
866-12	1	Shaft bearing
866-13	1	Spring
866-14	2	Check assembly
866-15	12	Pocket seal
866-16	2	Gasket
866-17	4	Bolt
866-18	4	Washer
		Note: When repairing No. 77-90 motor, tighten the four cap screws Part No. 866-17 alternately to 200 ft. lbs. torque, rotate shaft with a 6” wrench, (protect the spline). The shaft should rotate easily.

236-58-93R Gauge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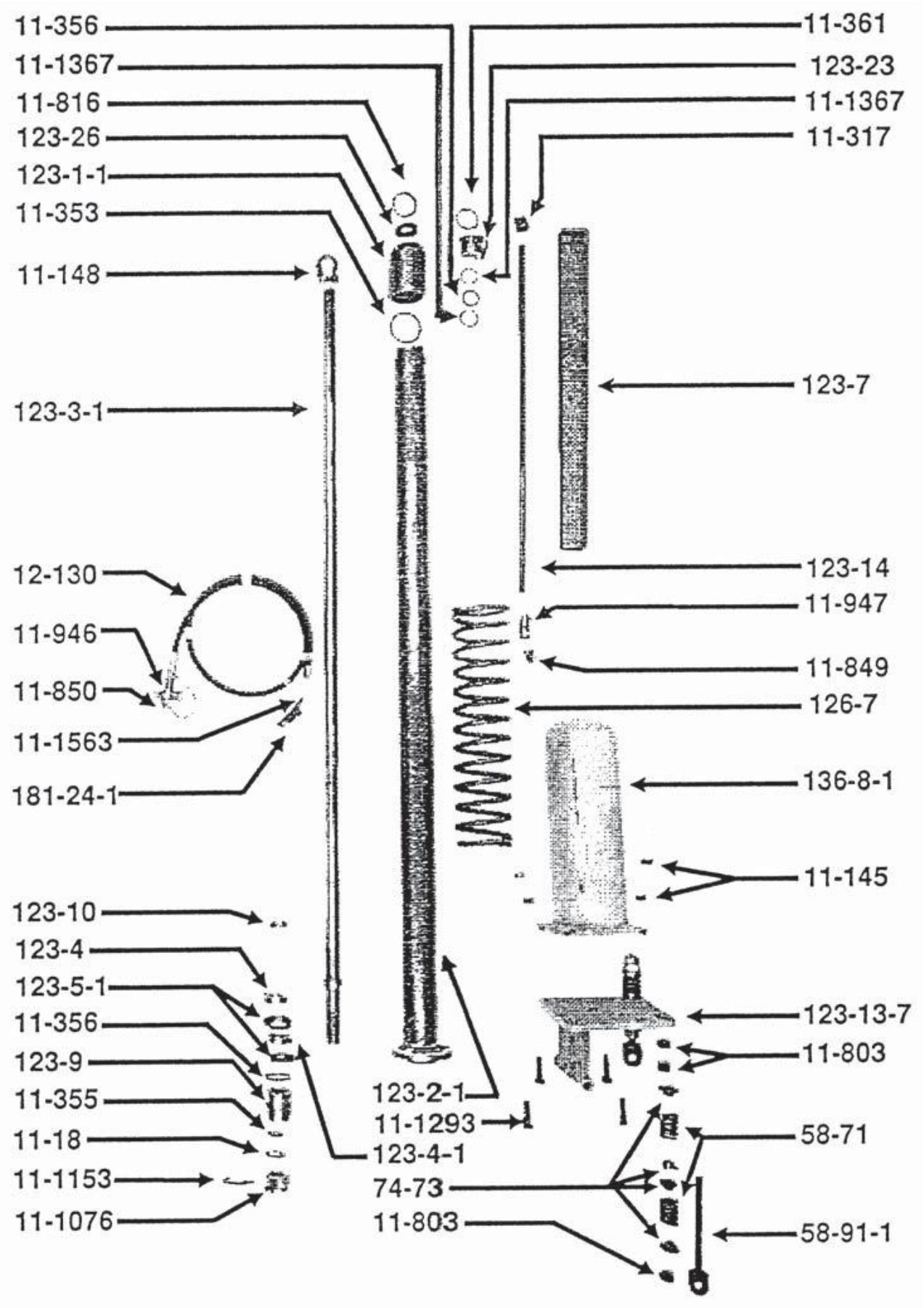
183-5
183-9
11-1572
10-608
58-240-5
93-117-6
76-166
10-606
10-607
236-58-93-R
867-23
58-27-10

Part Number	Qty.	Part Description
10-606	1	Steel tube 1" x 23-1/4"
10-607	1	Steel tube 1" x 15-5/8"
10-608	1	Steel tube 1" x 9-1/4"
11-1082	1	Tee 3/4 pipe to 3/4 pipe to 1 tube
58-240-5	1	Valve A20-AA128-MA53-SA53-PF1030
58-27-10	1	Clutch lever
76-166	1	Nipple 1-1/4" x 4
93-117-6	4	Linkage
183-5	1	Denison relief valve R2V-12-313-10-A1
183-9	1	Knob 1-1/4" OD
236-5893R	1	Hydraulic Pressure vs ft. lbs. torque gauge assembly
	1	236-2 Pressure Gauge 2-1/2" – 2000#
	1	236-4 Gauge mount
	1	236-8 Engraved dial face
	1	12-245 Hose
	1	11-323 Collar 1/4" std. blk.
	1	11-162 Ell 1/4 flare to 1/4 pipe
	1	11-161 Str fit 1/4 flare to 1/4 pipe
867-23	2	Handle

123 Hydraulic Lift Assembly Power Tong Type 58-93R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123-5-1
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123-9
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11-18
11-1153
11-1076
123-2-1
11-1293
123-4-1
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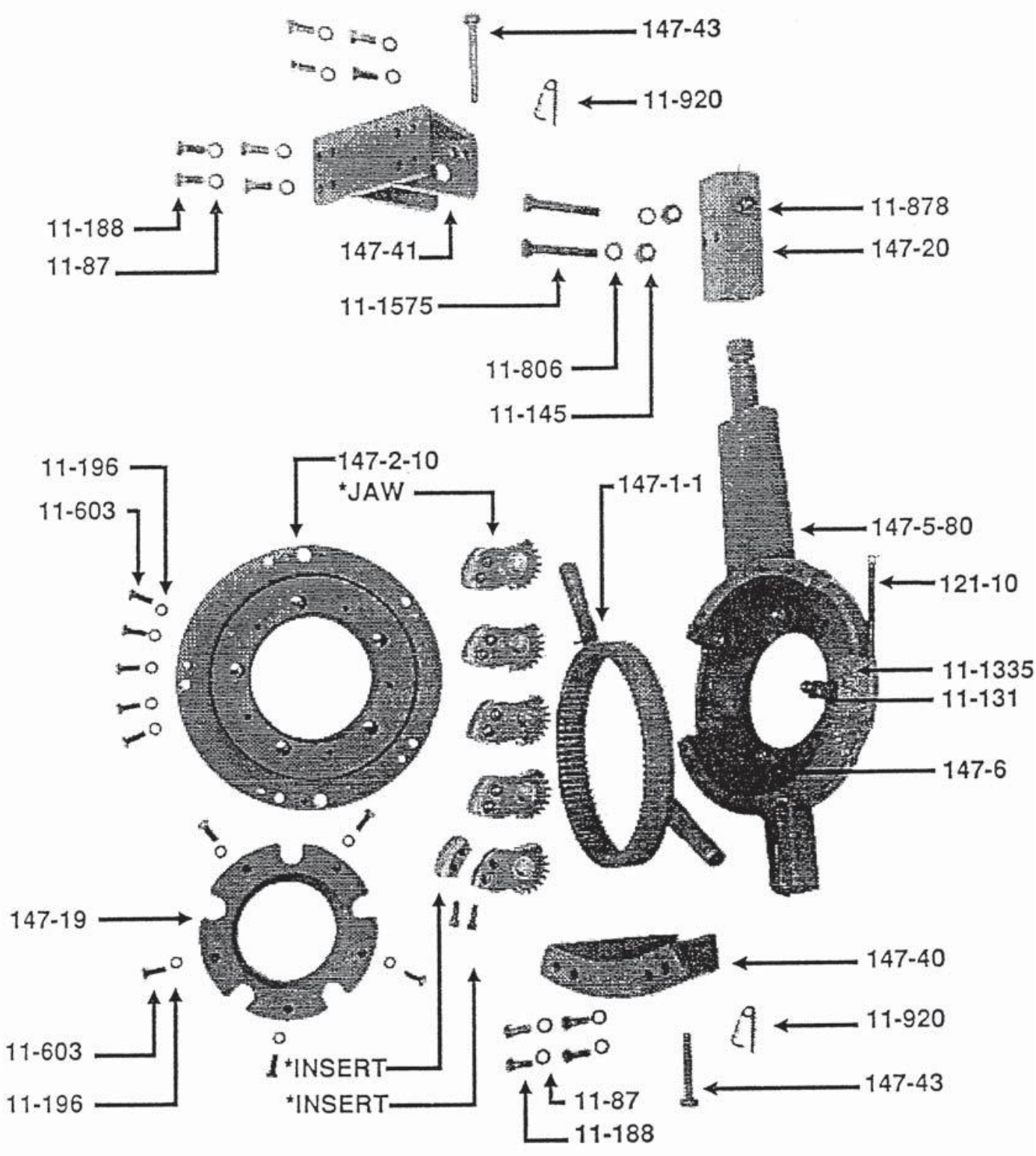
11-803
11-361
123-23
11-1367
11-317
123-7
123-14
11-947
11-849
126-7
136-8-1
11-145
123-13-7
11-803
58-71
58-91-1

Part Number	Qty.	Part Description
123-5893R-100	1	Hydraulic lift assembly, complete
		Parts:
11-18	1	Machine repair bushing #20
11-131	1	Grease fitting
11-145	4	Nut
11-148	1	Clevis
11-317	1	Ell 3/8" HP street
11-353*	1	"O" ring 3/16 x 3 x 3-3/8 NATIONAL 622740
11-355*	1	"O" ring 3/16 x 2-3/8 x 2-3/4 NATIONAL 622735
11-356*	1	"O" ring 3/16 x 1-1/2 x 1-7/8 NATIONAL 622728
11-361*	1	"O" ring 1/8 x 2-1/8 x 2-3/8 NATIONAL 623005
11-803	6	Nut
11-816*	1	Snap ring 2-7/16" 5000-244
11-849	1	Dust cap 1/2" 5100-32-8S
11-850	1	Dust plug 1/2"
11-946	1	Coupling half 1/2"
11-947	1	Coupling half (male end) 5100-S2-88
11-1076	1	Nut 1-1/2" NF castle cad plate
11-1153	1	Cotter pin
11-1293	4	Cap screw 5/8 x 2-1/4 hex
11-1367*	2	Backup ring 2101-28 1-1/2
11-1563	1	Ell 3/8" flare to 3/8" pipe
12-130	1	Hose assembly
58-71	4	Compression spring
58-91-1	2	Compression spring bolt
74-73	8	Spring guide
123-1-1	1	Top cap
123-2-1	1	Working barrel
123-3-1	1	Operating rod
123-4	1	Cup retainer
123-4-1	1	Cup retainer
123-5-1*	2	Cup
123-9	1	Piston
123-10	1	Bumper washer
123-13-7	1	Bottom end
123-14	1	Hydraulic pipe 3/8" x 29" long
123-17	1	Hydraulic line cover
123-26*	1	Oil seal, NATIONAL 108145
126-7	1	Cushion spring
136-8-1	1	Spring housing
181-24-1	1	Check valve assembly
123-20		Repair kit
		*PARTS INCLUDED IN 123-20 REPAIR KIT

147 Backup Tool
Power Tong Type 58-93R

The backup must have a 6-1/4" hole through the head to use the 4-1/2" OD to 5-9/16" OD and the 5" OD to 6-1/16" OD jaw equipment. The 147-19 housing adapter is used on the other size equipment to reduce the hole from 6-1/4" OD to 5" OD.



Part Number	Qty.	Part Description
147-5893R	1	Pneumatic backup assembly
		Parts:
11-87	12	Washer
11-131	8	Grease fitting
11-145	2	Nut
11-196	10	Washer 3/8 lock
11-603	10	Cap screw 3/8 x 1 hex
11-806	2	Washer 5/8 lock
11-878	2	Cap screw 1/2 x 3/4 skt.
11-920	2	Pin 3-1/4 safety
11-995	12	Cap screw 1/2" x 1-1/4" hex
11-1335	5	Pin 1/2" x 1-1/2" dowel
11-1575	2	Cap screw 5/8" x 3-1/2" hex
147-1-1	1	Ring gear
147-2-10	1	Top cap 6-1/4" bore
147-5-80	1	Gear housing 6-1/4" bore
147-6	5	Jaw pin
147-19	1	Housing adapter
147-20	1	Swivel
147-40	1	Front positioner
147-41	1	Back positioner
147-42	1	Front pull pin
147-43	1	Back pull pin
121-10	1	Return spring
		Back-up Jaws (Sizes listed are the actual OD the jaws will catch.)
50-149-5-100	5	1-5/16" OD thru 2-1/16" OD Jaw with Insert **Includes:
**	5	50-149-5 Jaw
**	5	50-48-5 Insert
**	5	50-49-2 Insert Screw
147-7-100	5	2-3/8" OD thru 3-3/4" OD Jaw with Insert **Includes:
**	5	147-7 Jaw
**	5	50-48-1 Insert
**	10	50-49-2 Insert Screw
147-14-100	5	3-1/16" OD thru 4-1/2" OD Jaw with Insert **Includes:
	5	147-14 Jaw
	5	50-48-1 Insert
	10	50-49-2 Insert Screw
147-10	5	4-1/2" OD thru 5-9/16" OD Jaw (solid)
147-8	5	5" OD thru 6-1/16" OD Jaw (solid)

Ft. Lbs. Torque vs PSI

Power Tong Type 58-93 & 58-93R

The torques given in this table are Theoretical, Calculated on the Theoretical Torque of a new Commercial M25X–997–Beil–15–25 Motor, with normal oil temperature and normal Viscosity. Assuming 100% Efficiency.

Ft. Lbs. Torque	Low Gear PSI 33.0 PSI = 100' #	High Gear PSI 156.8 PSI = 100' #
300	99	470
400	132	627
500	165	784
600	198	940
700	231	1098
800	264	1254
900	297	1411
1000	330	1568
1100	363	1725
1200	396	1816
1300	429	2038
1400	462	
1500	495	
1600	528	
1700	561	
1800	594	
1900	627	
2000	660	
2100	693	
2200	726	
2300	759	
2400	792	
2500	825	
3000	990	
3500	1155	
4000	1320	
4500	1485	
5000	1650	
5500	1815	
6000	1980	

8401 Industrial Drive, Pearland, TX 77584
Phone: (281) 992-2064, Fax: (281) 992-2076
E-Mail: sales@wpiwellkin.com
Web: www.wpiwellkin.com

WPI WELLKIN Inc. (WPI WELLKIN) Terms and Conditions

1. All WPI WELLKIN packing slips and invoices must show Buyer's purchase order number.

2. All shipments MUST contain packing slips.

3. CONTRACT: This order will become a binding contract upon receipt by WPI WELLKIN of Buyer's PO, receipt by Buyer of a written acknowledgement by WPI WELLKIN and receipt by WPI WELLKIN of a down payment in the amount specified in the contract.

4. This contract may be modified as mutually agreed by the Buyer and WPI WELLKIN.

5. PAYMENT TERMS: The payment terms are specified on the commercial offer from WPI WELLKIN. The Buyer agrees to the payment terms by acceptance of the bid.

6. DELIVERY: Time is of the essence. WPI WELLKIN will attempt to deliver the material early if possible. WPI WELLKIN will make best efforts to supply all material on a timely basis. If the delivery will run over the contract delivery date, WPI WELLKIN will notify the Buyer giving reason for delay. The current delivery estimate is specified on the commercial offer. The Buyer agrees to the delivery terms by acceptance of the bid.

When necessary, WPI WELLKIN will notify the Buyer in advance of completion of the order and Buyer will appoint an authorized representative or employee to inspect the material on a date and site as designated by WPI WELLKIN. Transportation, lodging and all other expenses portal to portal for Buyer representative or employee to witness and accept the material is the expense of the Buyer.

All costs associated with preparation, crating, insurance and ocean freight of the goods to the final destination to be at Buyer's expense.

7. CANCELLATION: This contract is considered to be special order and not subject to cancellation. Both parties hereto shall be given consideration in case of delays in delivery caused by fire, strike, riot, war, act of God, delay of carriers, governmental order or regulation, complete or partial shutdown of plant by reason of inability to obtain sufficient raw materials or power or any other similar or different contingency beyond the reasonable control of the respective parties.

8. WARRANTIES AND REMEDIES: WPI WELLKIN expressly warrants that all supplies, materials and parts covered by this contract will conform to the specifications in the contract as applicable and will meet or exceed industry standards for such equipment. WPI WELLKIN will supply Buyer with operations manuals and parts books for the material where applicable. Certificates of Compliance are available upon request.

MANUFACTURED ITEMS: WPI WELLKIN manufactured items must be free of material and workmanship defects for a period of 6 months from the date of delivery. If any items fail because of a manufacturing defect within that period of time, then that item will be replaced by WPI WELLKIN. Expendable / wear items are not covered under warranty. Examples of such items include, but are not limited to, the following - dies, inserts, brake bands, rollers, gears, chains, filters, belts, flexible couplings, slip bodies, spider bowls.

8401 Industrial Drive, Pearland, TX 77584
Phone: (281) 992-2064, Fax: (281) 992-2076
E-Mail: sales@wpiwellkin.com
Web: www.wpiwellkin.com

Replacement of parts will be accomplished at WPI WELLKIN's facility or at a designated service point. WPI WELLKIN's liability is limited to replacement of defective parts only and does not include the cost of labor, communications, transportation or handling connected to the replacement of these parts. WPI WELLKIN will in no event be liable for consequential damages or contingent liabilities arising out of the failure of any parts to operate properly. No expressed, implied or statutory guarantee other than herein set forth is made or authorized to be made by WPI WELLKIN.

DISTRIBUTED ITEMS: Items distributed by WPI WELLKIN are subject to the warranty provided by the Original Equipment Manufacturer (OEM). Upon request, WPI WELLKIN will furnish Buyer with a warranty statement from the OEM for the applicable material. The OEM warranty will start on the items' delivery date.

9. COMMISSIONING: On request, WPI WELLKIN can supply a representative for material commissioning. The Buyer is responsible for portal to portal transportation costs and the current WPI WELLKIN day rate.

10. BUYER'S PROPERTY: All equipment or material furnished by WPI WELLKIN shall be the property of the Buyer after the WPI WELLKIN invoice is paid in full.

11. PATENTS: WPI WELLKIN holds the Buyer harmless from all claims, for infringement or alleged infringement of any patents arising out of the sale or use of the goods furnished pursuant to this contract.

12. INDEPENDENT CONTRACT: In the event that any goods ordered hereunder require in connection with the installation thereof, the services of a contractor engaged by WPI WELLKIN or a supervisor, engineer, or other employee connected with or employed by WPI WELLKIN, and WPI WELLKIN agrees to furnish same, either with or without charge, such contractor, supervisor, engineer, or other employee in performing such services shall not be deemed to be the agent or employee of the Buyer.

13. INSURANCE: WPI WELLKIN agrees to carry General Operations and Liability Insurance and other coverage as required in accordance with applicable state and federal laws of the U.S.A.

14. COMPLIANCE WITH LAWS: WPI WELLKIN warrants that in its performance of this contract it will comply with all applicable Federal, State and Local laws, regulations, rulings and orders of the U.S.A.

15. ASSIGNMENT: This contract may not be assigned without the written consent of the Buyer and any attempted assignment thereof shall be void.

16. PROPRIETARY INFORMATION: All plans, drawings, specification and the subject matter contained therein and all other information given to WPI WELLKIN in connection with performance on this Purchase Order involve valuable property rights of the Buyer and shall be held confidential by WPI WELLKIN, shall remain the property of the Buyer and shall not be used by WPI WELLKIN for any purpose other than those for which they have been prepared or supplied. WPI WELLKIN agrees that, as far as possible, it will keep confidential the making of this order and the terms hereof. WPI WELLKIN agrees not to use for publicity purposes any information as to notice of receipt of order, photographs, drawings and/or materials in connection with performance of the Order without obtaining the prior written consent of the Buyer.