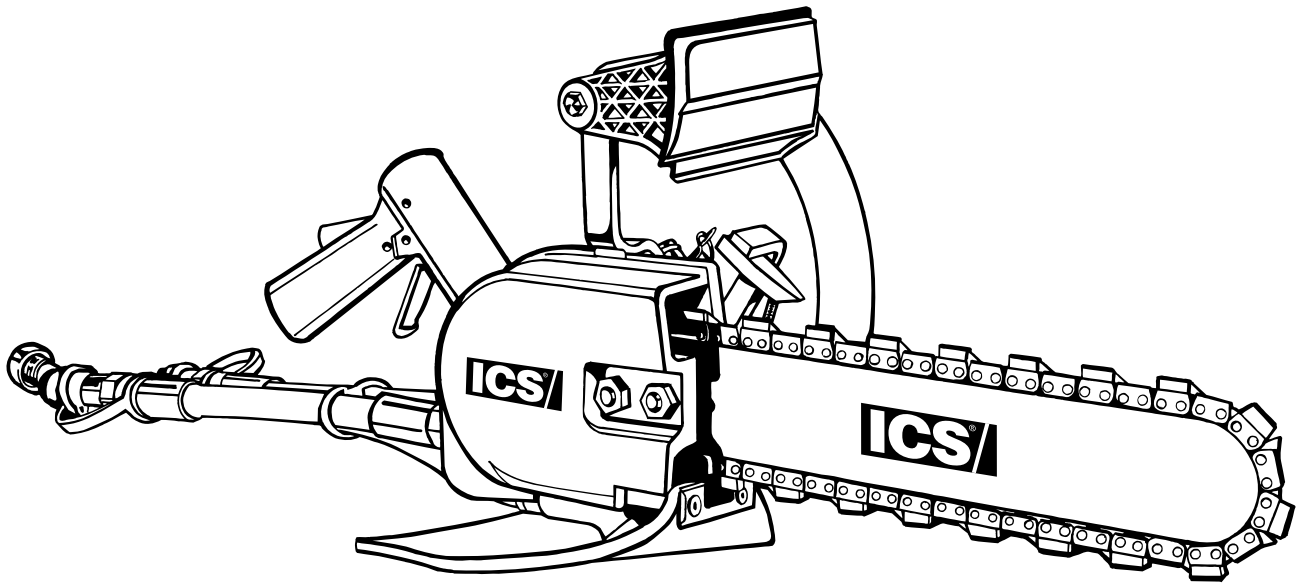




814PRO



SERVICE MANUAL

SECTION	SECTION TITLE	PAGE NUMBER
	SHOP MANUAL USE	2
1	TOOLS	3
2	SAW SPECIFICATIONS	4
3	SERIAL NUMBER LOCATION	5
4	SPARE PARTS DIAGRAM	6
5	MOTOR ASSEMBLY	8
6	WATER VALVE ASSEMBLY	24
7	TROUBLESHOOTING DIAGRAM	30

Shop Manual Use

This manual contains all the technical information necessary for carrying out repairs on the 814 hydraulic saw. For safe, efficient work, it is of prime importance that the values indicated be adhered to. Routine periodic maintenance is covered in the operator's manual included with each hydraulic saw.

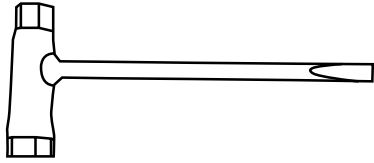
General Shop Rules

- Always use the right tools for the job, otherwise components may be damaged.
- Use a plastic dead blow mallet to separate parts attached solidly to each other.
- Mark mating parts as a reassembly reference.
- Keep component parts together as a group. Assemble screws and nuts into appropriate subgroups.
- When reassembling, clean all parts carefully, lubricate moving parts and replace all oil seals, o-rings, gaskets, washers and self-locking nuts.
- **For best results, use only original ICS® replacement parts.**

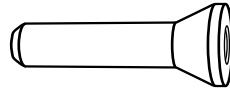
SERVICING THE ICS® HYDRAULIC SAW: Servicing of hydraulic tools, other than routine maintenance, must be performed by an authorized and certified dealer. For the nearest authorized and certified dealer, call ICS® at the number listed on the back of this manual and ask for a Customer Service Representative.

1 Tools available for the 814PRO Hydraulic Saw

1



2

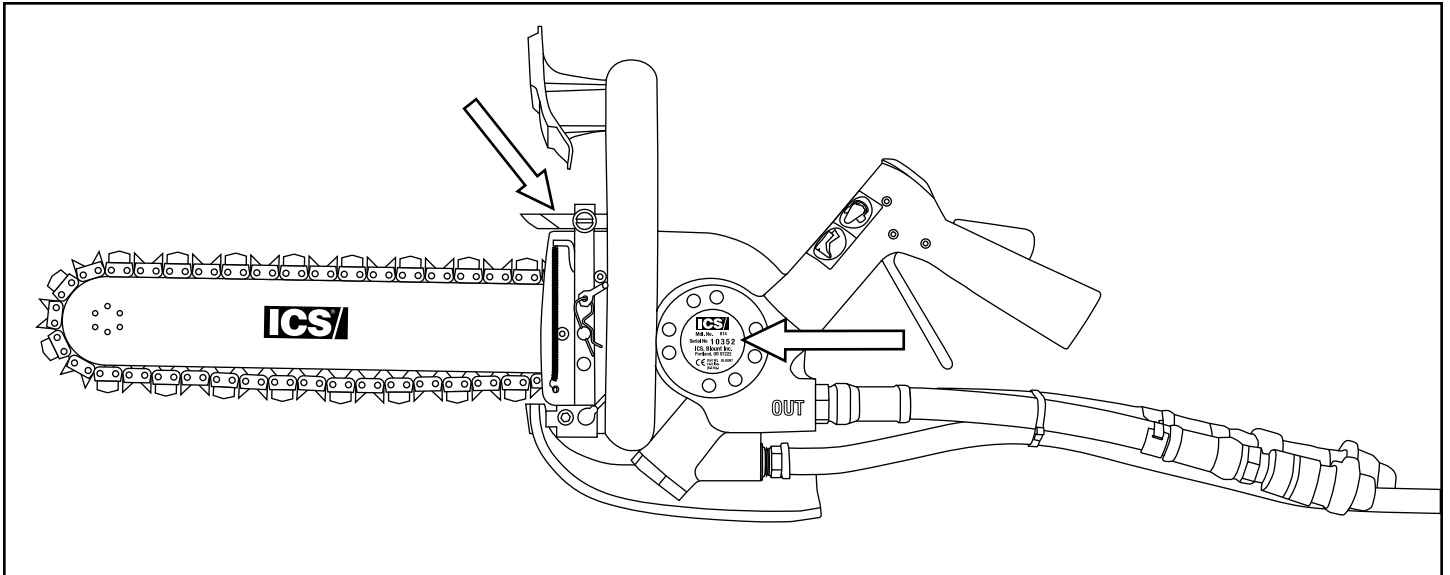


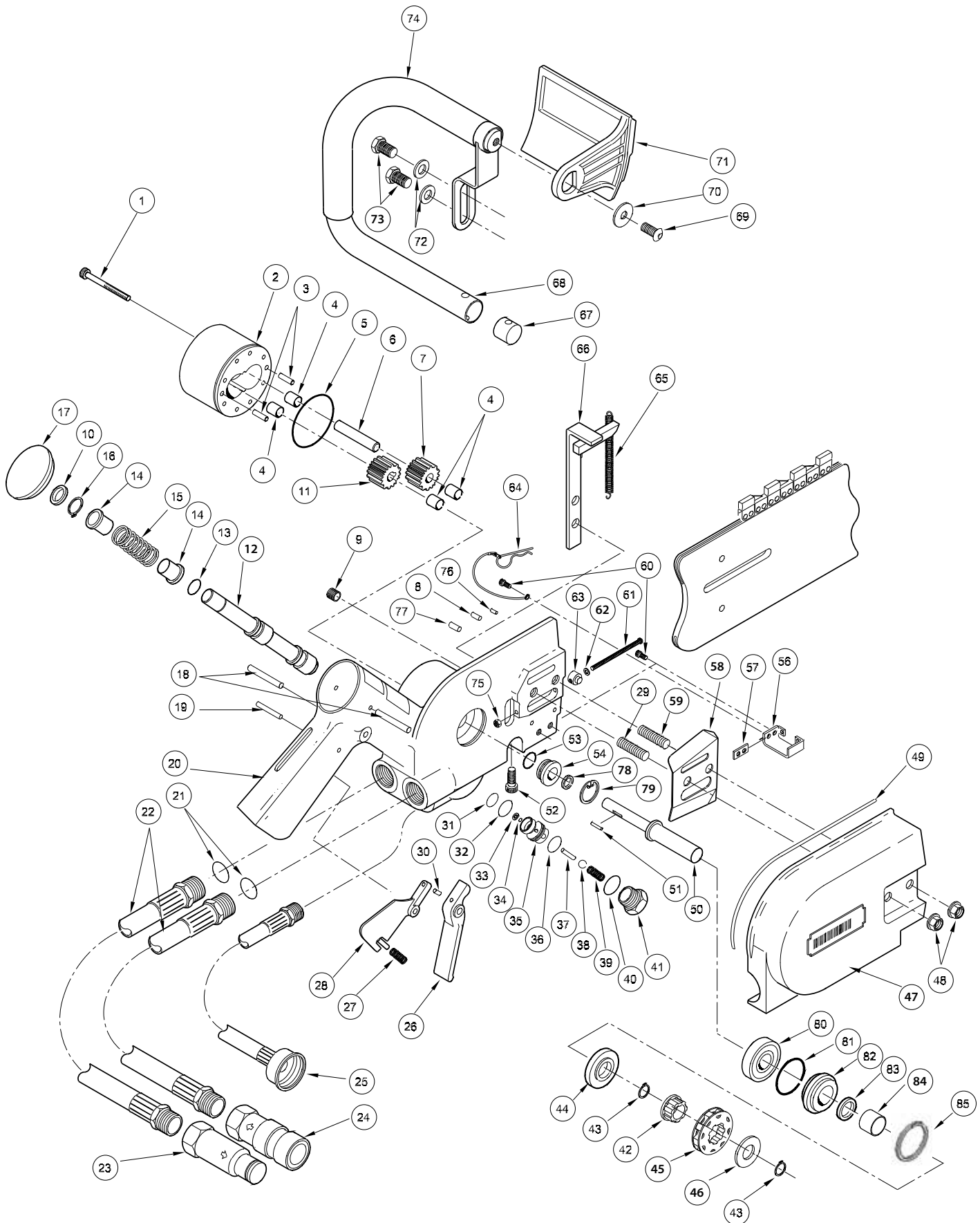
KEY	P/N	DESCRIPTION
SERVICE	71572	TOOL KIT
1	71152	SCRENCH, 17-19 mm
2	73462	MAIN BEARING DRIVER TOOL

SPECIFICATIONS

Weight w/out bar and chain	15 lbs (10.25 kg)
Length	14.3 Inches (36.3 cm)
Height	11.3 inches (28.7 cm)
Width	9.2 inches (23.4 cm)
Hydraulic Supply Requirements (Max)	8 gpm (l/min) @ 2,500 psi (172 bar)
Hydraulic Fluid Requirements (Type)	Mobil DTE 13M or Equivalent
Water Pressure Requirements	Minimum: 20 psi (1.4 bar) Recommended: 20 psi (1.4 bar) Maximum: 160 psi (11 bar)
Water Flow Requirements	1 gpm
Operating Speed	5,700 rpm (avg. free running) 4,900 sfm (avg. free running chain)
Noise Level	88 dB @ 1 M (3 ft)
Vibration	3.5 m/sec ² (front handle) Ref. ISO standard no. 7505
Torque	95 in-lbs
Horsepower	11 hp

3 814PRO Hydraulic Saw
serial number series.

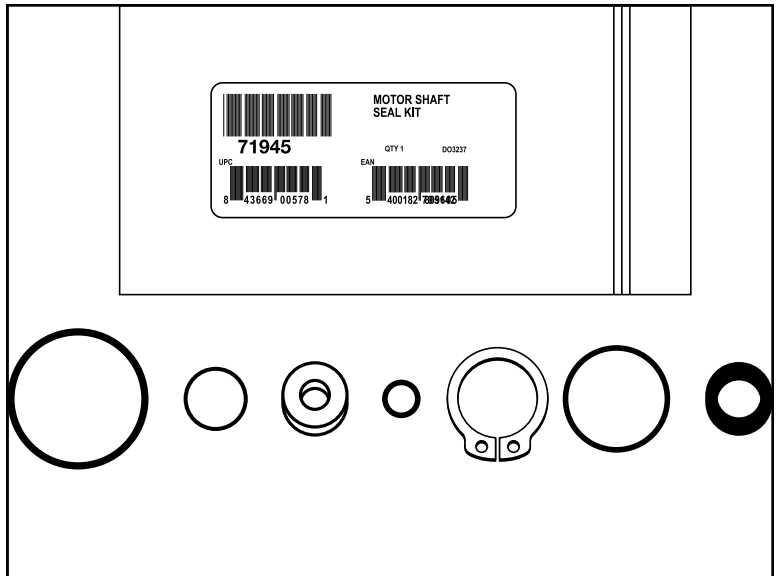
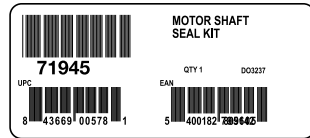




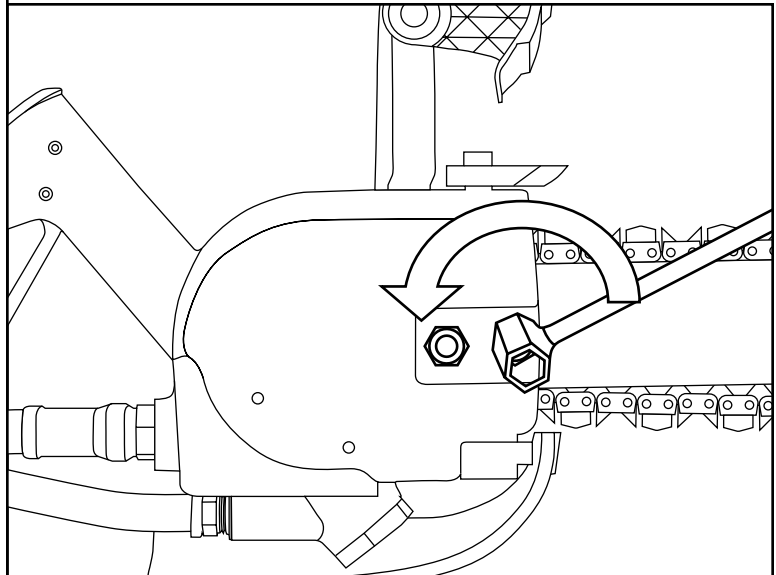
KEY	P/N	DESCRIPTION	KEY	P/N	DESCRIPTION
1	74514	HSH Cap Screw 10-24 x 1 1/4	46	71388	Tabbed Washer
2	74515	Rear Gear Housing Assembly	47	71940	Side Cover Replacement Kit
3	74516	Dowl Pin	48	74558	Flange Nut (M10)
4	74517	Bushing (4)	49	74559	Sprocket Side Cover Seal
5	74518	O-Ring	50	71383	814PRO Motor Shaft Replacement
6	74519	Idler Shaft	51	74561	Needle Roller
7	74520	Idler Gear	52	74562	HSH Cap Screw 5/15-18 x 3/4
8	74021	Wallwalker Pivot Pin	53	74563	Shaft Seal
9	74597	1/8 NPT Plug	54	74564	Seal Back Up Washer
10	74596	Wiper Seal	55	74591	Guard Flap Assembly (Not shown)
11	74522	Drive Gear (with Keyway)	56	74566	Guard Flap Mount
12	74523	On-Off Valve	57	74567	Spacer
13	74524	Hydraulic Valve Seal	58	74568	Bar Mount Cover Plate
14	74525	Spring Washer	59	74569	Front Stud
15	74526	Spring	60	74570	HSH Cap Screw 1/4-20 x 5/8
16	74527	Retaining Ring 1/2 External	61	74571	Machine Screw
17	74528	Plug Button	62	74572	Stat-O-Seal
18	74529	Roll Pin	63	74573	Bar Adjustment Nut
19	74530	Roll Pin	64	74019	Lanyard Assembly
20	74531	Valve Handle Assy (Includes: 31, 66)	65	74582	WallWalker Spring
21	74532	O-Ring	66	74583	WallWalker Arm (w/ Spring)
22	74533	Pigtail Hose Assembly	67	74574	Handle Bar Retainer
23	74534	1/2" Flush Face Coupler (M)	68	74575	Handle Bar
24	74535	1/2" Flush Face Coupler (F)	69	74584	Guard Mounting Bolt
25	74536	Water Hose Assembly	70	74585	Guard Mounting Washer
26	74537	Trigger	71	74586	Front Handguard
27	74538	Spring	72	74576	Washer
28	74539	Safety Catch (Trigger Lock-Out)	73	74577	HH Cap Screw 5/16-18 x 5/8, Zinc
29	74540	Rear Stud	74	74588	Handlebar Grip
30	74542	Roll Pin	75	74579	Nut 1/4-20 HHD LT SST
31	74543	O-Ring	76	74580	Spiral Pin
32	74544	O-Ring	77	74581	Spiral Pin
33	74545	Self Locking Retaining Ring	78	74493	Quad-Ring
34	74546	O-Ring	79	74565	Retaining Ring
35	74547	Water Valve Sleeve	80	74554	Shaft Bearing Race
36	74548	O-Ring	81	74498	O-Ring
37	74549	Pin	82	74495	Seal Washer
38	74550	Steel Ball	83	74494	V-Ring
39	74551	Spring	84	74496	Seal Ring
40	74552	O-Ring	85	74555	Retaining Ring
41	74553	Seal Cap		71152	Tensioning Screws, Hydraulic Saws (not shown)
42	71386	Splined Sprocket Adaptor		71944	Water Valve Seal Kit (Incl: 31,32,34,36) (not shown)
43	71384	External Shaft Retaining Ring		71945	Motor Shaft Seal Kit (Incl: 5,43,53,54,78,81,83) shown on p.8
44	74497	Seal Spacer		74061	Chain Tensioning Assembly (Incl: 61,62,63,75) (not shown)
45	71385	Rim Sprocket		75260	814 Rim Sprocket Upgrade Kit (not shown)

5.1 MOTOR SERVICING

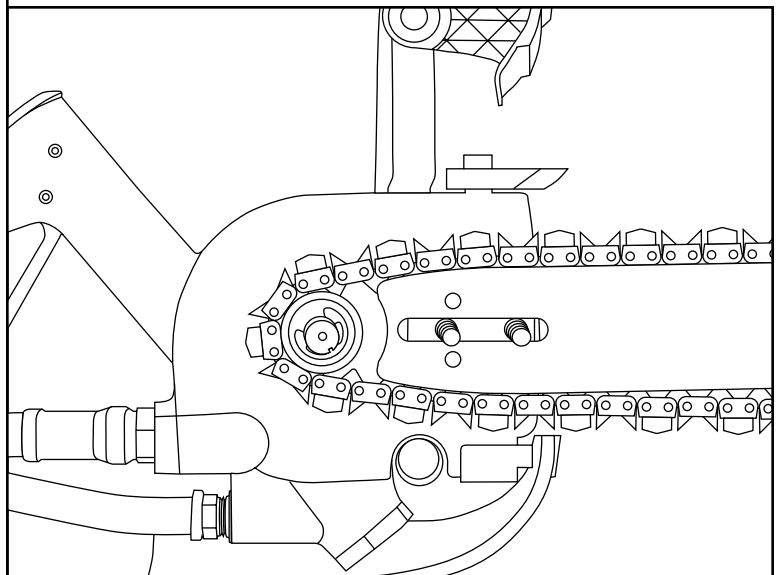
Obtain a Motor Shaft Seal Kit so that all seals exposed during disassembly can be replaced. P/N 71945



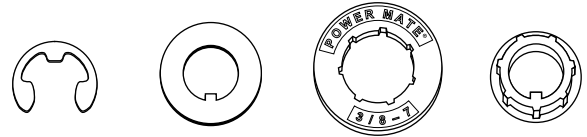
- A Remove the 2 nuts (51) and then lift off the side cover (50).



- B Lift off the bar (61) and chain (73). If it is necessary to take tension off the bar and chain, turn the screw (68) counter clockwise.



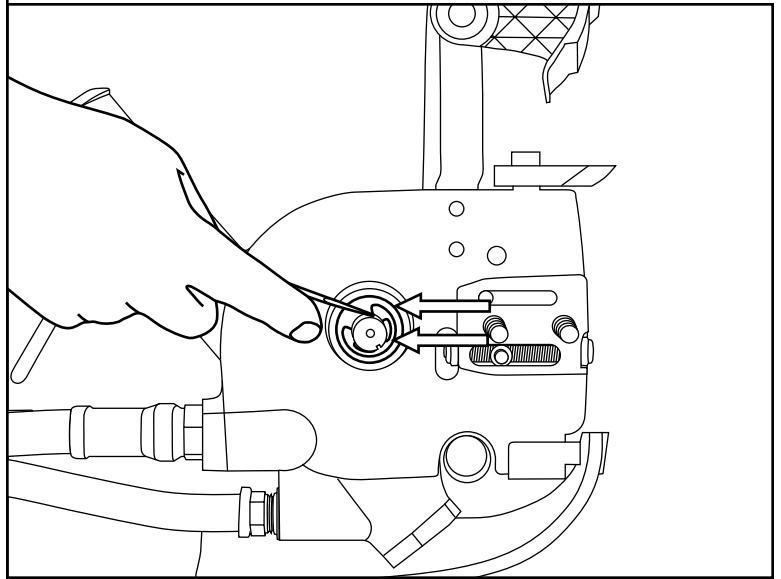
- C Remove the e-clip (no longer used), or retaining ring (43) on current models, and slide off items 43, 45 and 46.



Use retaining ring (43) for replacement. P/N 71384 (e clip)

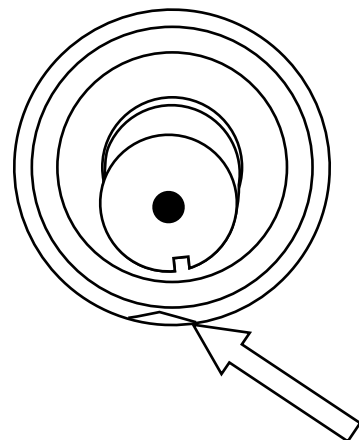


- D Remove the retaining ring (43) and then spacer (44).

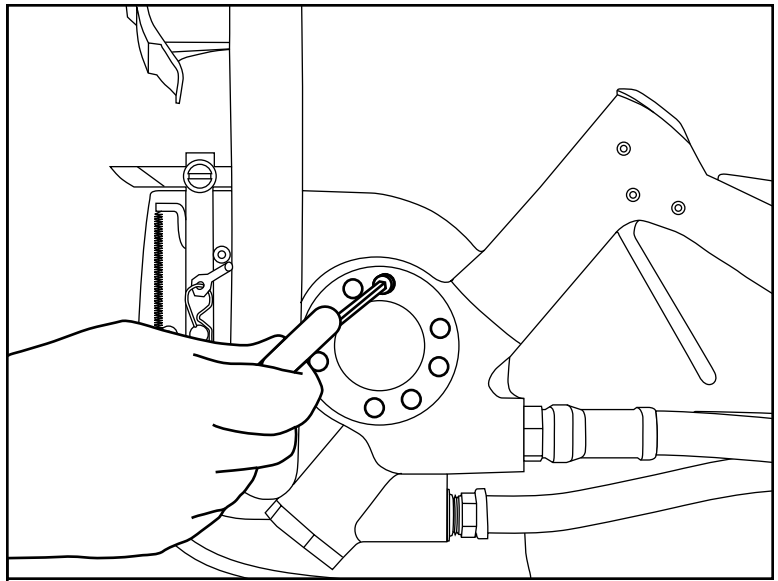


- E Remove the retaining ring (85) and then items 81 thru 84.

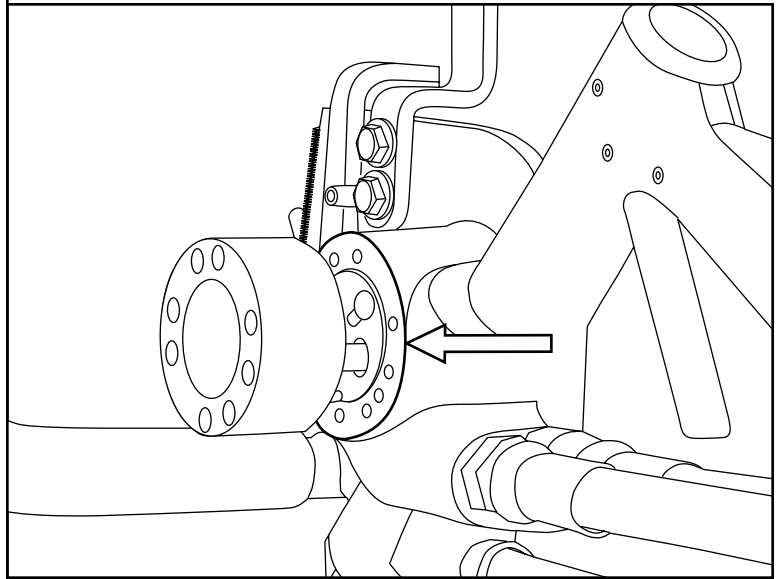
Use a flat blade screwdriver to pry the notched end out of recess. Lift up and unwind from recess.



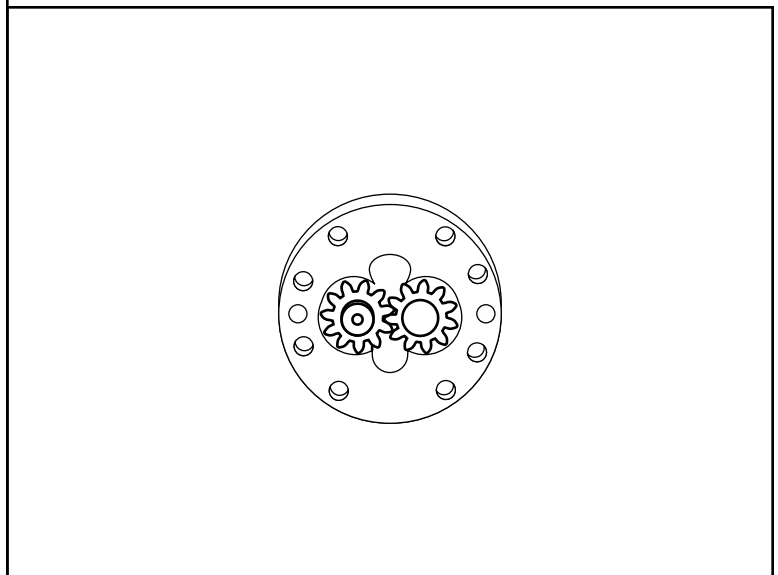
- F Remove the eight capscrews (1) from gear housing (2).



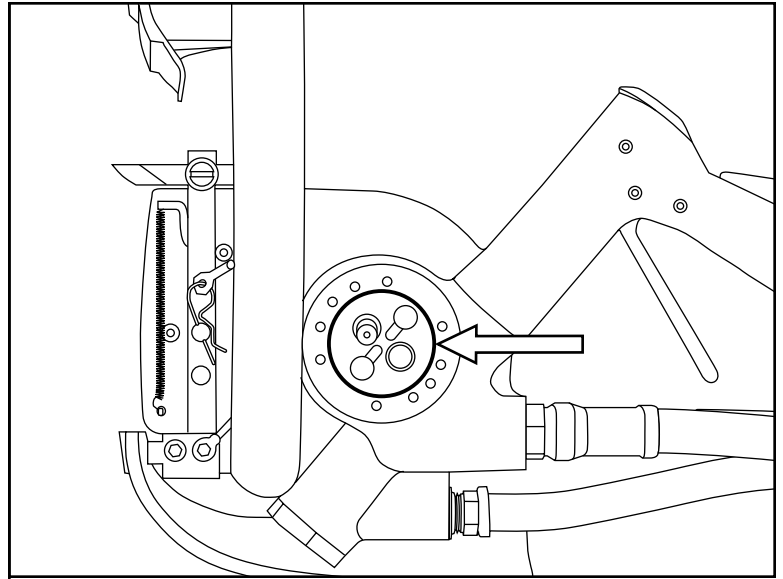
- G Using a flat-blade screwdriver or similar tool, gently pry the gear housing away from the valve handle. Lift the gear housing straight up. **DO NOT** tilt the housing or pry on the flat surface inside of the surrounding groove. For prying, only use the groove provided at the split between the parts to prevent scratches on the inner mating surfaces.



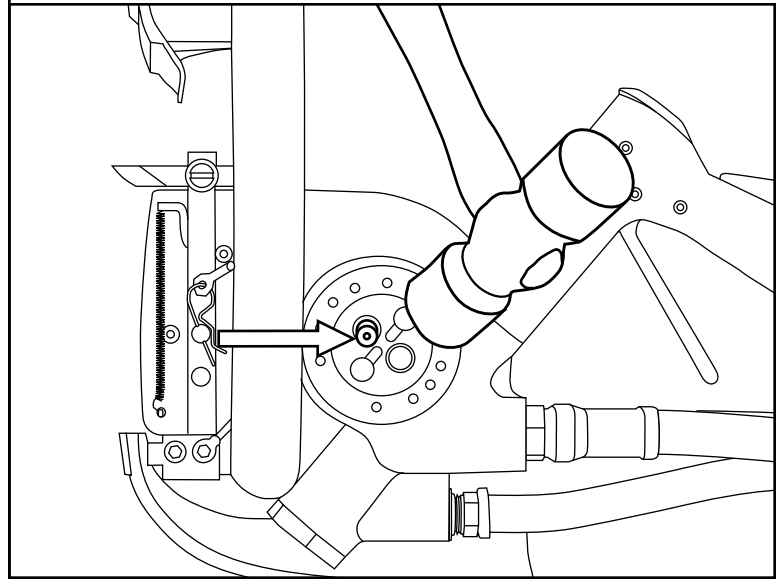
- H Remove the two gears (7 & 11), needle roller (51), and the idler shaft (6).



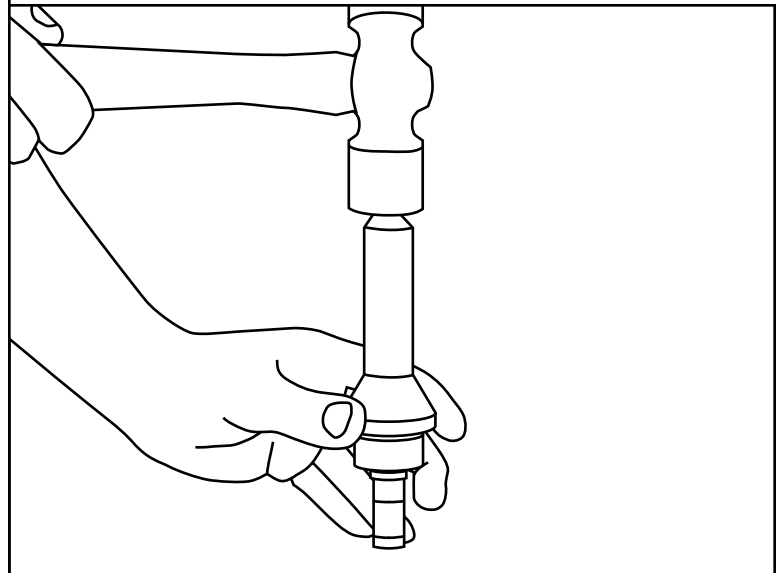
- I Remove the large face seal o-ring (5) while being careful not to damage the o-ring groove or surrounding surface.



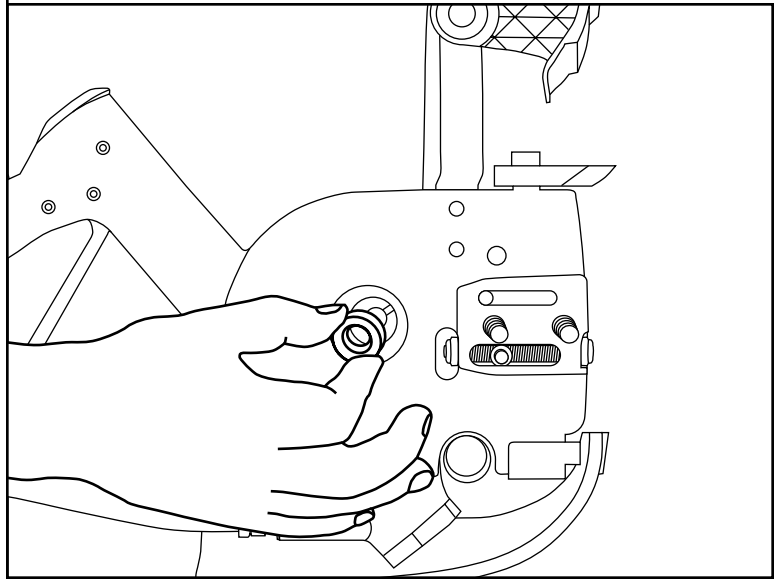
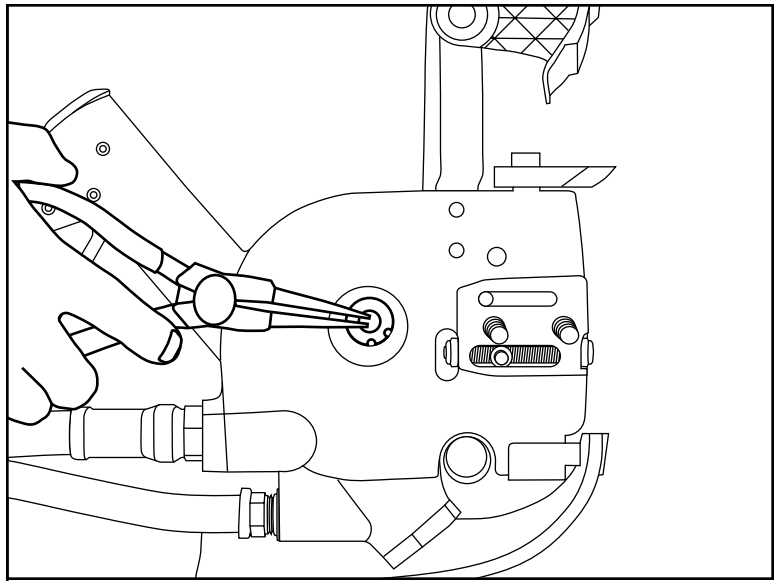
- J While protecting the motor surface of the valve handle from damage, tap lightly on the small diameter end (gear side) of the motor shaft (50) to remove it.



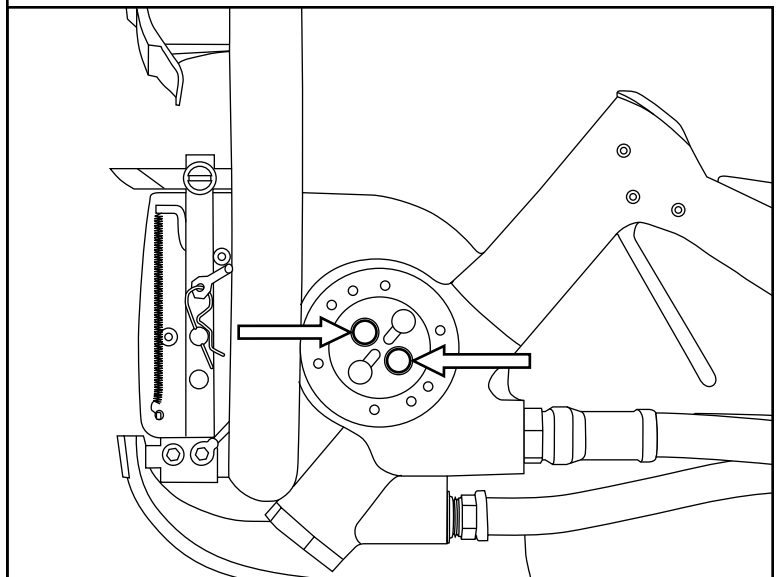
- K To remove the bearing from the shaft, press on the outside end (sprocket end) of the motor shaft while supporting the outer race of the bearing. Discard the old bearing.



- L Remove the retaining ring (79) at the bottom of the bearing bore. Remove the seal backup washer (54). Remove the quad ring (78) and o-ring (53) using the appropriate o-ring service tools. Discard the quad ring and o-ring.



- M The bushings (4) can be removed using the collet from the bearing puller kit.



5.2 MOTOR INSPECTION AND CLEANING

Inspect and clean all parts as follows:

A CLEANING

Clean all parts with a degreasing solvent. Blow dry with compressed air and wipe clean. Use only lint-free cloths.

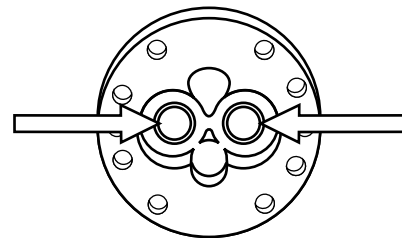
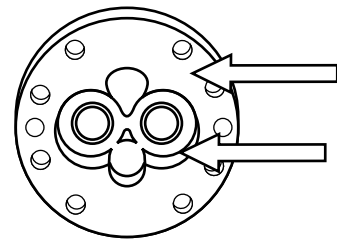
B GEAR HOUSING

The chamber bores and bottoms around the shaft bushings should be polished and not rough or grooved. If the bushing bores are yellow-bronze, replace them and investigate the cause of wear.

The flat surfaces around the chamber and bolt holes should be flat and free of nicks or burrs that could cause misalignment or leaks.

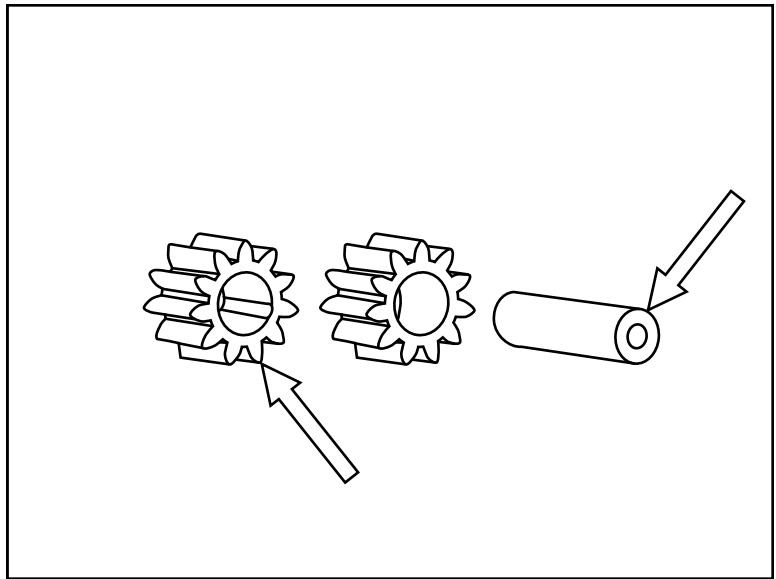
C BUSHINGS

The inside of the bushings should be gray with some bronze showing through. If significant yellow-bronze shows, replace the bushings.



D GEARS

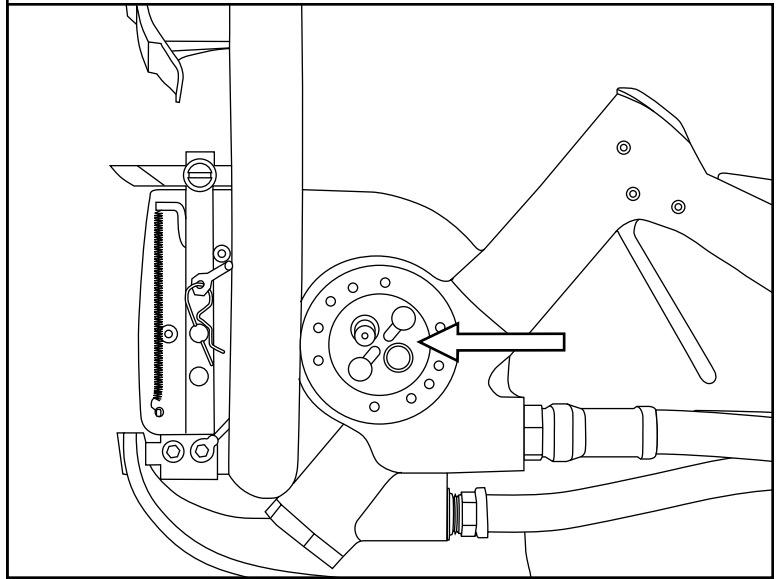
The drive and idler gears should have straight tips without nicks, square tooth ends and a smooth even polish on the teeth and end faces. Check for cracks between the drive gear keyway and gear tooth root. Replace the gear if cracks are present.



E VALVE HANDLE MOTOR SURFACE

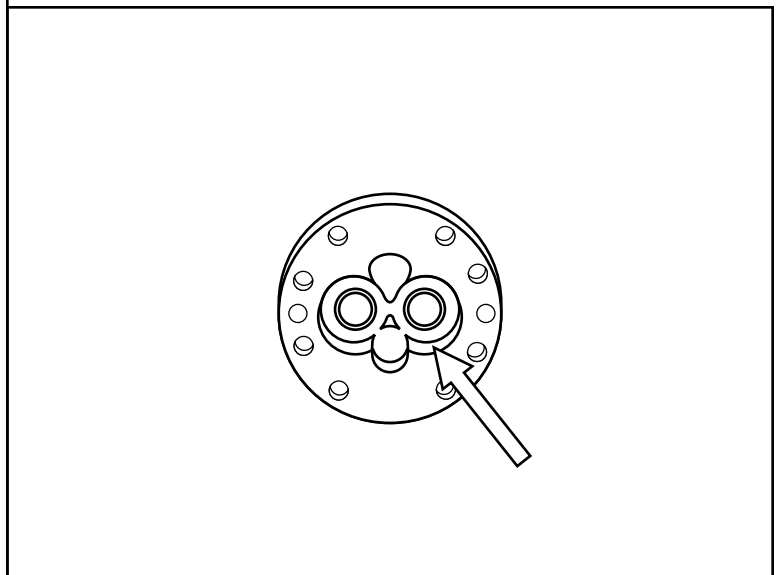
The surface near the gears should show two interconnecting polished circles without a step. The bottom of the o-ring groove should be smooth as should the rest of the flat surface.

The bore for the shaft seal should be smooth or oil leakage may occur.



F GEAR HOUSING

The gear housing should be clean and free of scratches.

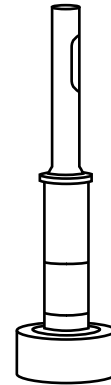


G SHAFTS

The shaft diameter at the bearing and seal locations must be smooth. Grooves, roughness or a reduced diameter indicate fluid contamination or damaged bushings. Grit particles may have been imbedded in the bushings grinding into the hardened shaft. If abnormal shaft wear as above occurs (more than normal polishing), replace both the shaft and associated bushings.

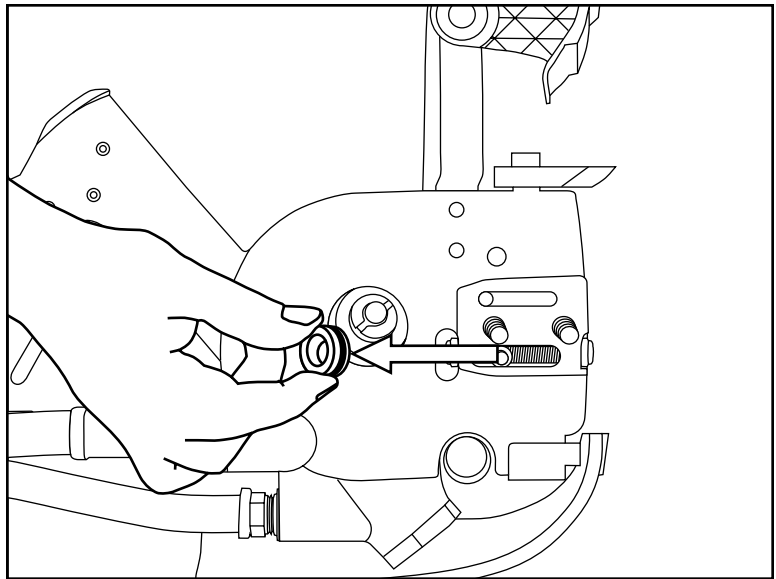
Also check the hydraulic system for excess contamination in the fluid and for filter condition. Operating conditions may require changing from a 25-micron filter to an oversized 10-micron filter.

See power pack manual for instructions.

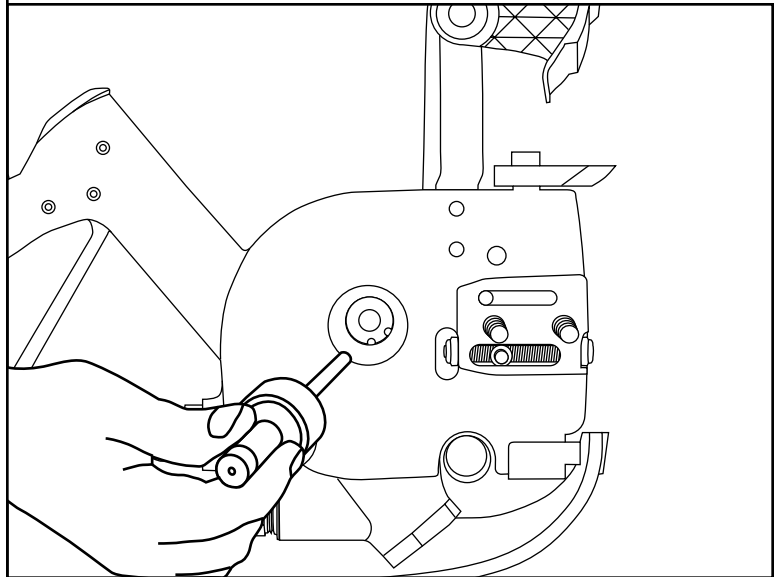


5.3 MOTOR REASSEMBLY

- A Grease and carefully install a new quad ring (78) into the seal liner (54). Grease and install a new o-ring (53) onto the seal liner. Install the seal liner into the valve handle assembly. Replace the retaining ring (79).

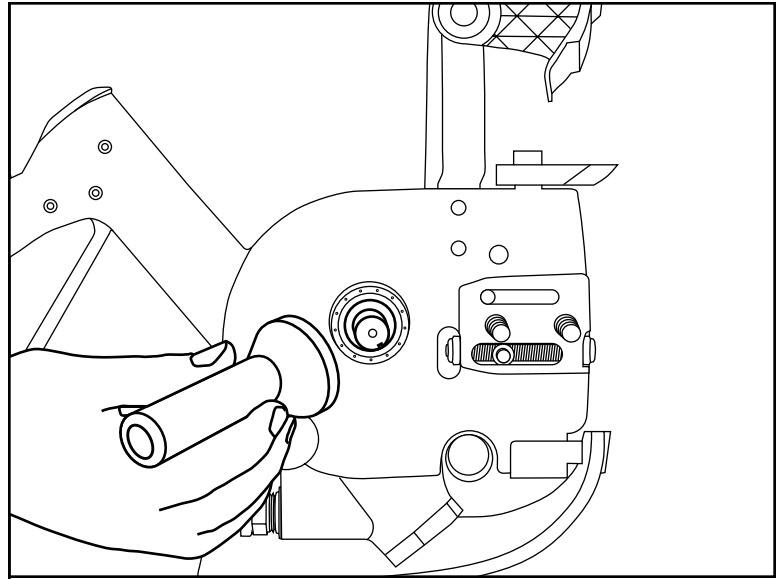


- B To replace the bearing (80) onto the motor shaft (50), support the bearing inner race and press the motor shaft through the bearing inner race.

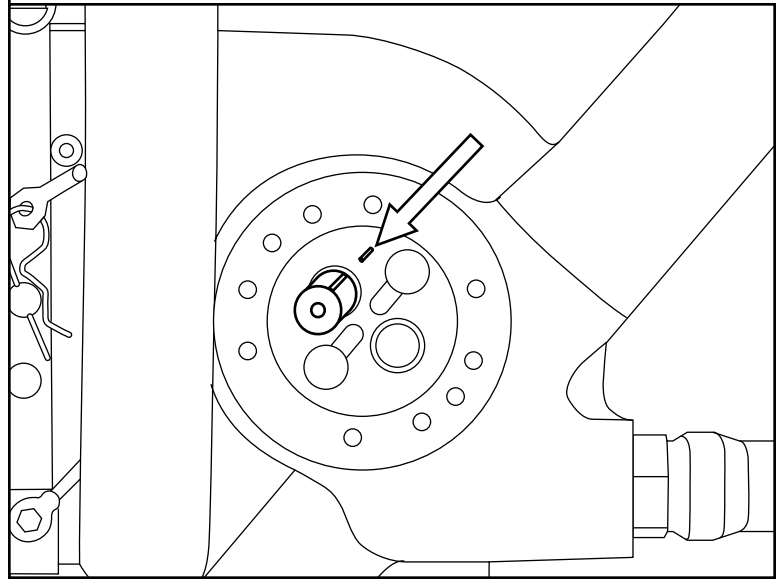


- C Place the valve handle assembly on a smooth clean arbor press surface (protected from damage) with the large bearing bore facing up. Position the valve handle so a clearance hole exists for the insertion of the motor shaft.

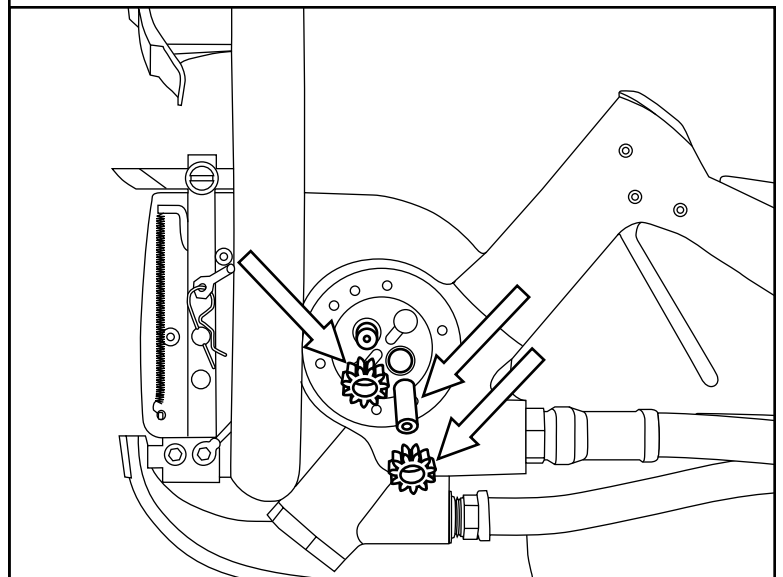
- D Apply grease to the motor shaft, keyway and bushing and then insert the motor shaft through the shaft seal. Using a socket with a diameter equal to the bearing O.D., press the bearing and motor shaft into place. Press only on the outer race.



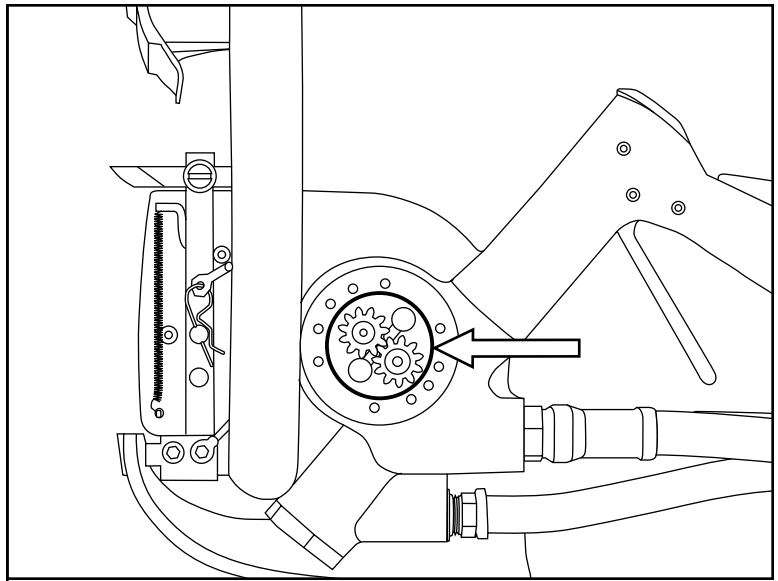
- E Install the needle roller (51) in the keyway of the motor shaft. Use grease to keep the needle roller in place.



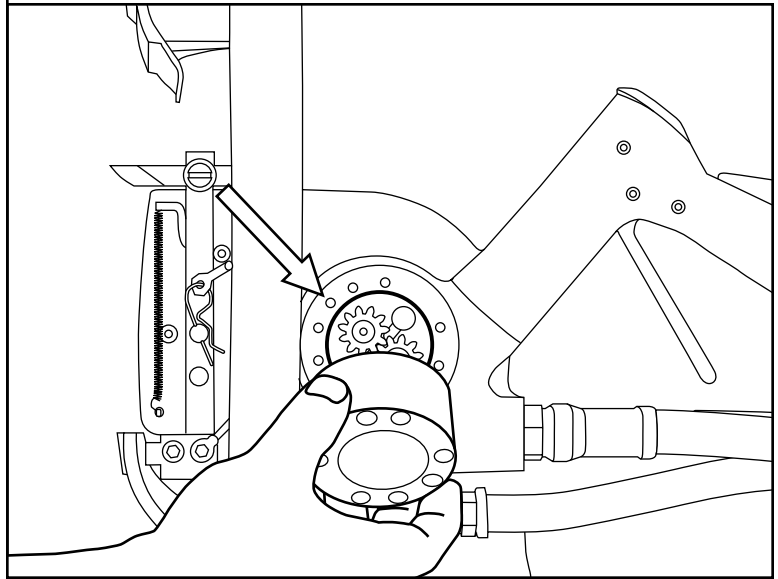
- F Slide the drive gear (11) over the needle roller and shaft. Install the idler shaft (6) and gear (7).



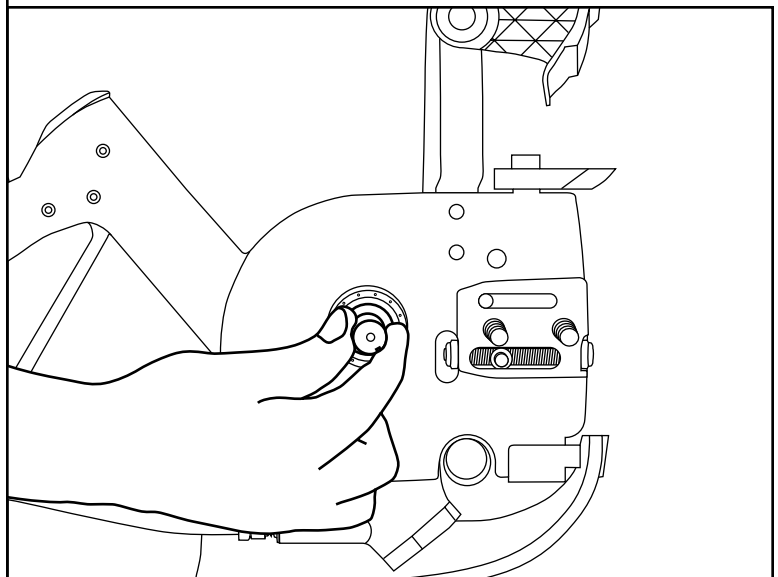
- G Apply grease to the face seal o-ring groove; then install the o-ring (5).



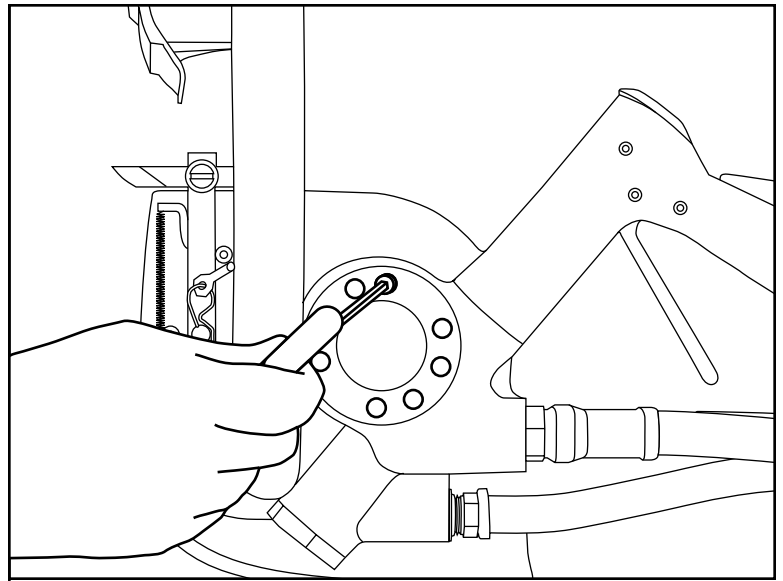
- H Note the screw hole pattern on the rear gear housing and the valve handle. They will only assemble one way. With all parts aligned, carefully slide the gear housing assembly over the gears until it contacts the valve handle. Do not force parts together.



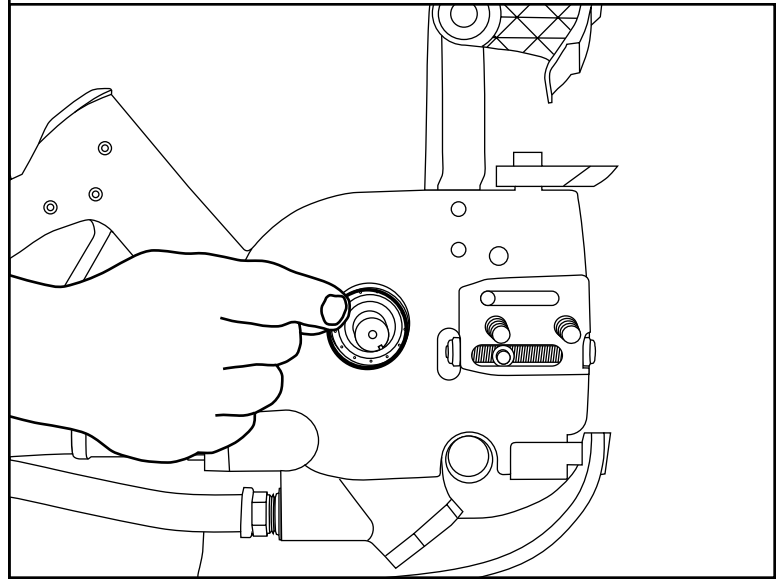
- I Turn the motor shaft manually to check for free rotation.



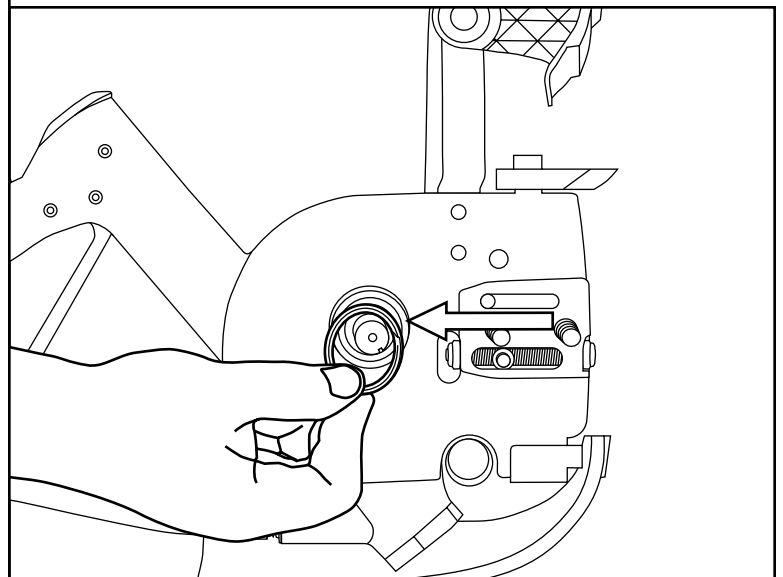
- J Install the eight capscrews (1) and then recheck rotation. Snug screws and check shaft rotation again. For final torque, turn 1/4 rotation past snug and recheck rotation.



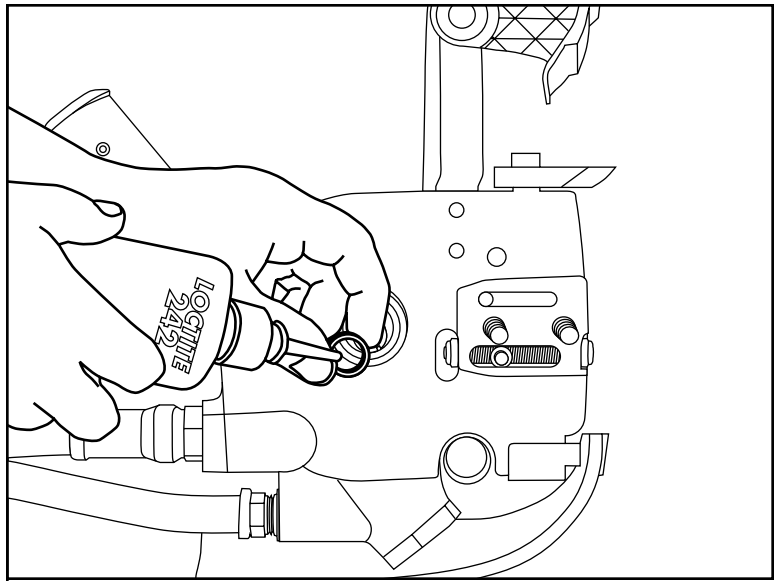
- K Install the o-ring (81). Push in until it contacts the bearing face.



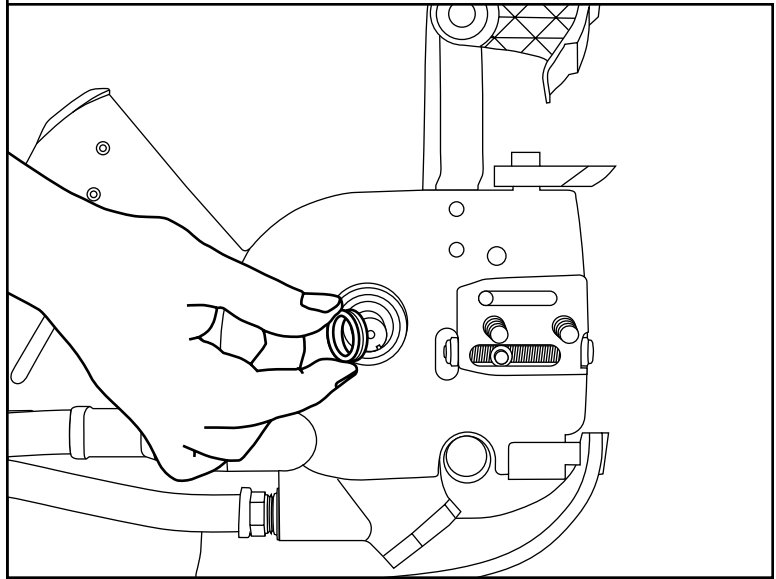
- L Install seal washer (82) and the retainer ring (85).



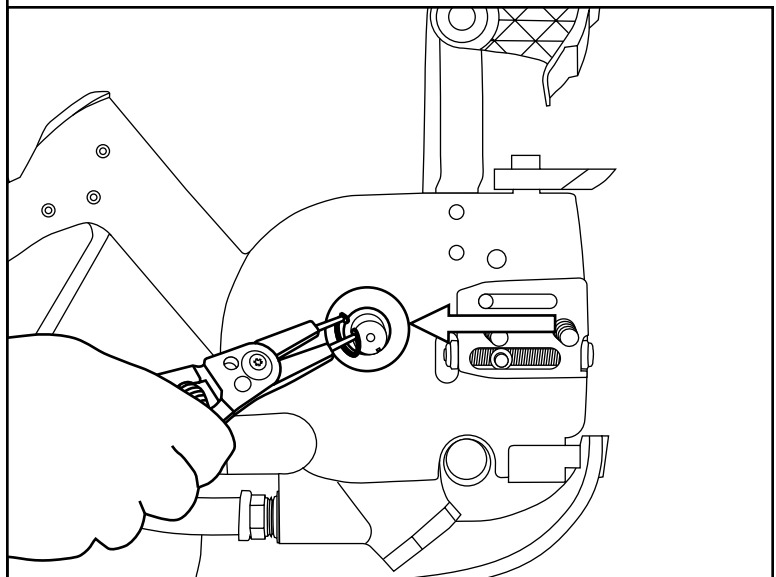
- M Install v-ring (83) onto seal ring (84) then with both in hand, apply a small amount of 242 Loctite™ to the bore of the seal ring



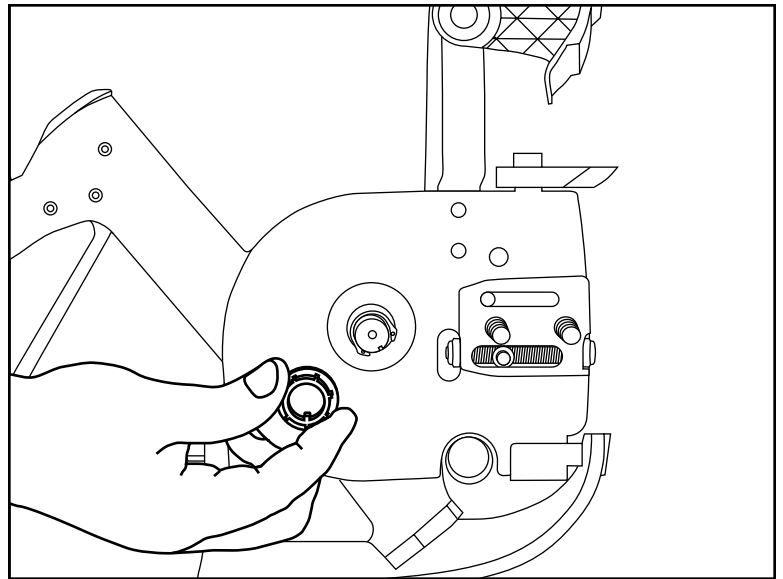
- N Make sure it is applied around the entire bore of the seal ring, then slide both parts onto the motor shaft.



- O Install the seal spacer (44) and then the retainer ring (43).

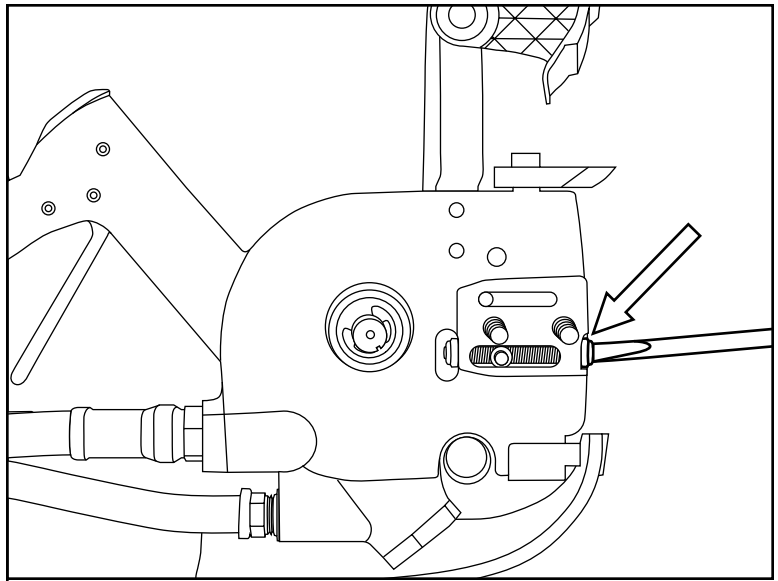


- P Install items 42.45 and. Retainer clip (43).

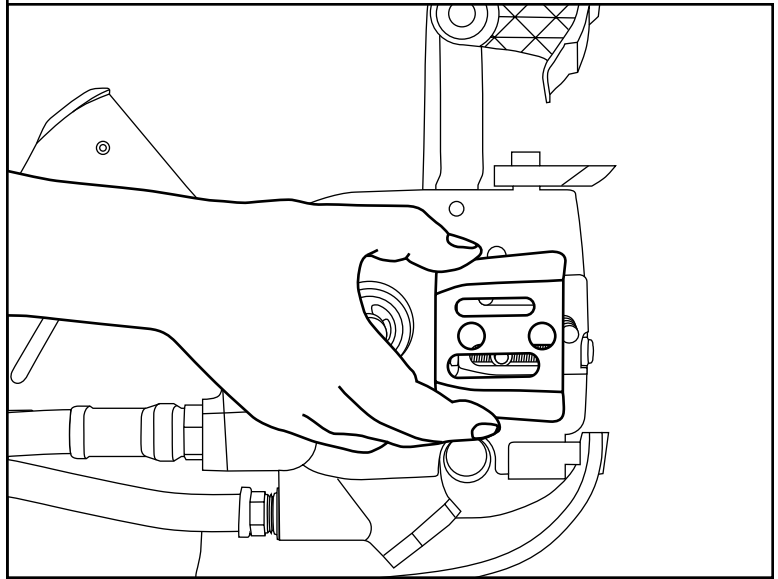


5.4 BAR & CHAIN AND CHAIN GUARD ASSEMBLY

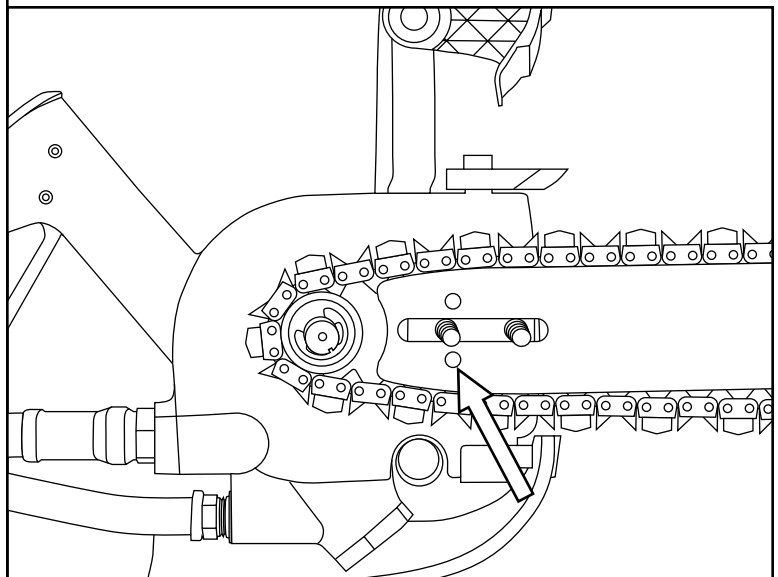
- A Back the bar adjustment nut (63) off by turning the adjustment screw (61) counter clockwise.



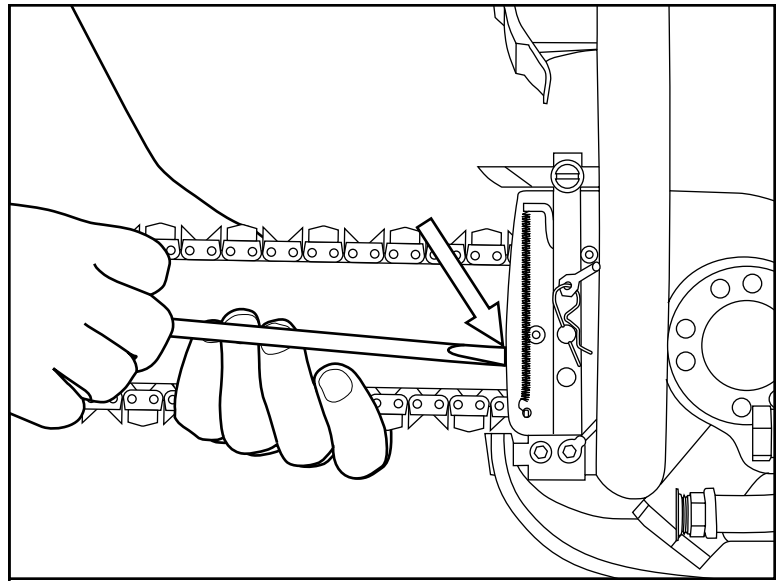
- B Install the chain guide plate (58) over the studs (29, 59).



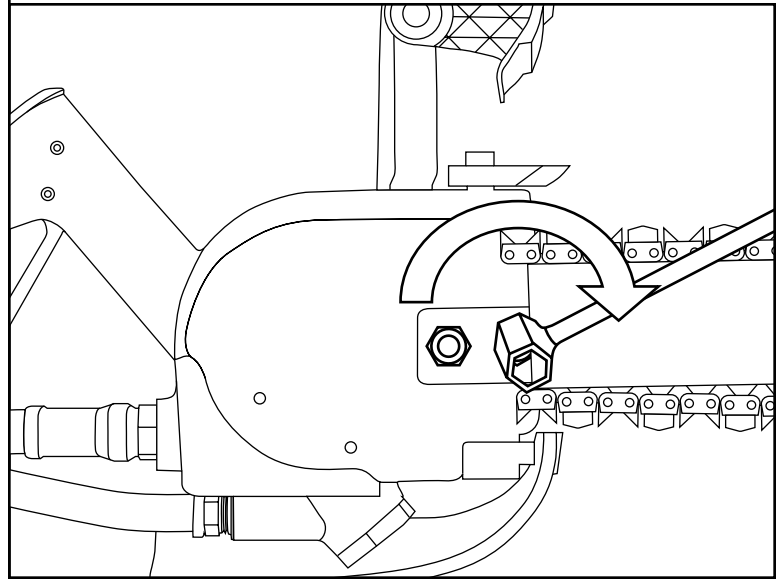
- C Install the chain onto the bar. Place the bar (with chain) over the studs making sure the chain is looped around the sprocket and the bar adjustment nut is seated in the hole on the bar.



- D While pulling up on the bar and chain, turn the adjustment screw (61) clockwise to take the slack out of the chain.



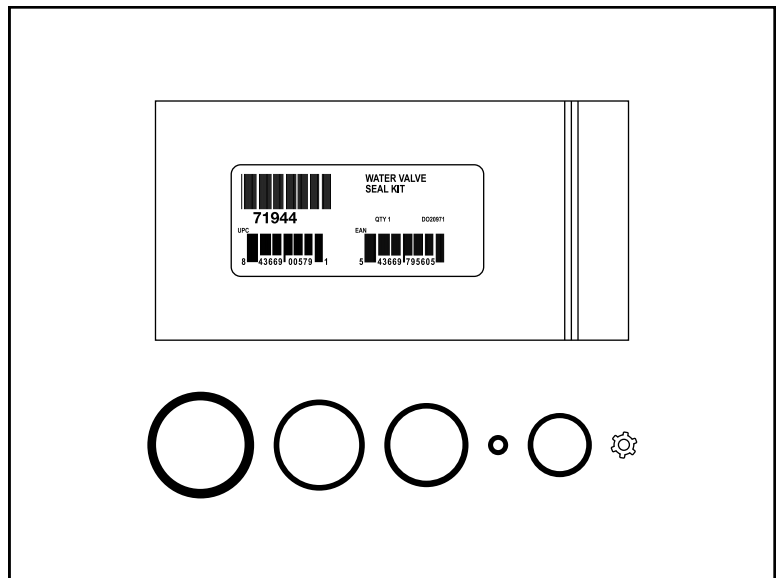
- E Install the side cover (47) and the 2 nuts (48). Hand tighten the 2 nuts and then back them off 1/4 turn.
- F When adjustments are completed, be sure to tighten the nuts.



6 This section covers the service instructions for the water and hydraulic valve assembly

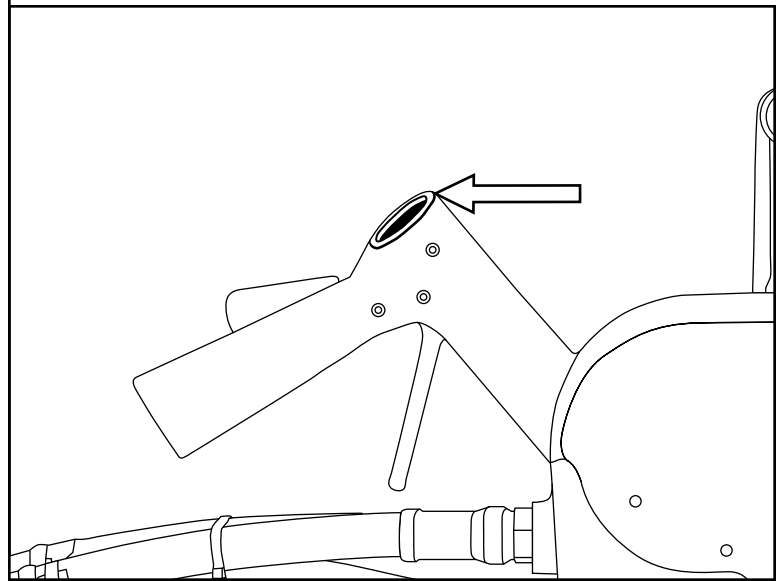
6.1 PRIOR TO DISASSEMBLY

- A Clean exterior of the tool.
- B Obtain a Water Valve Seal Kit so that all seals exposed during disassembly can be replaced. P/N 71944



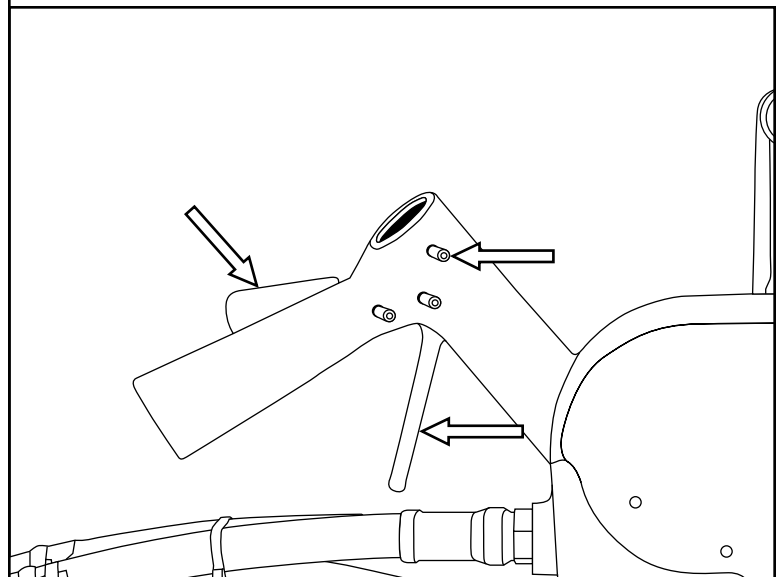
**6.2 ON-OFF VALVE SERVICING
TRIGGER AND SAFETY CATCH
REMOVAL & INSTALLATION**

A Remove the plug button (19) from the top of the handle by prying under the edge and then pulling it from the handle.



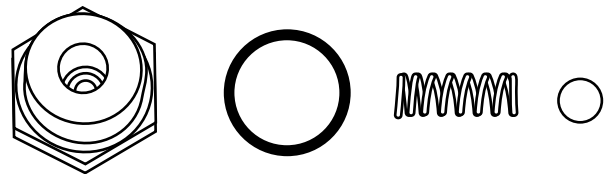
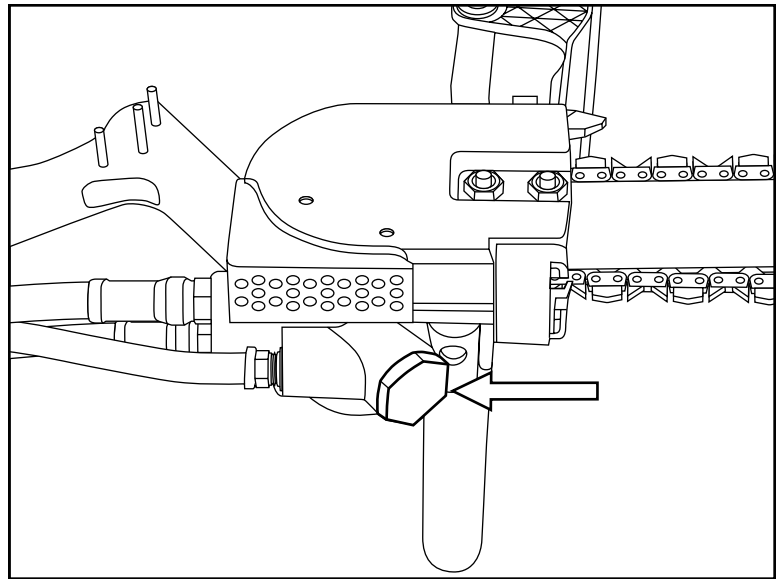
B Drive the roll pins (18) out of the handle assembly using a 3/16 in./4 mm diameter punch. Press the safety catch (28) and remove the trigger (26).

C The safety catch (28) can be removed at this time by driving out the 3/16 inch roll pin (19).

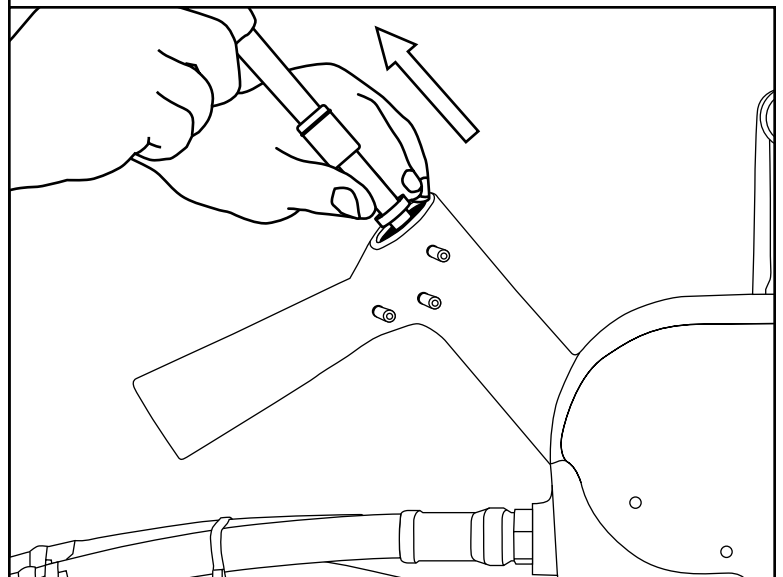


6.3 VALVE SPOOL REMOVAL & INSTALLATION

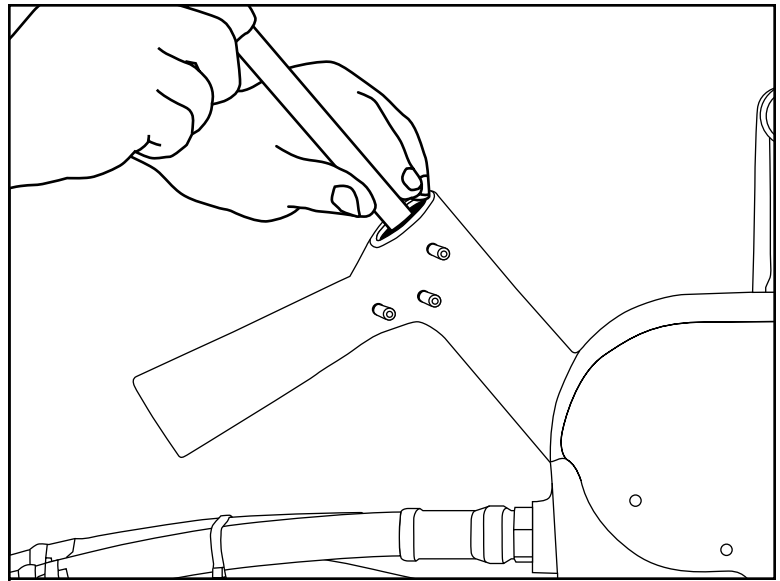
- A Unscrew the seal cap (41) and remove it, the o-ring (40), the spring (39), and the steel ball (38).



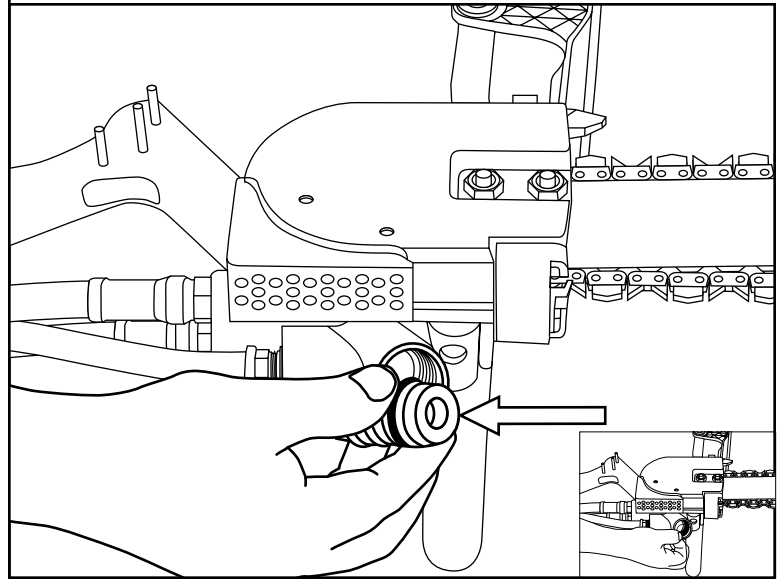
- B Remove the plug button (17), wiper seal (10) and the retaining ring (16) from handle. The wiper seal must be replaced.
- Lift out the valve spool assembly (12-15).



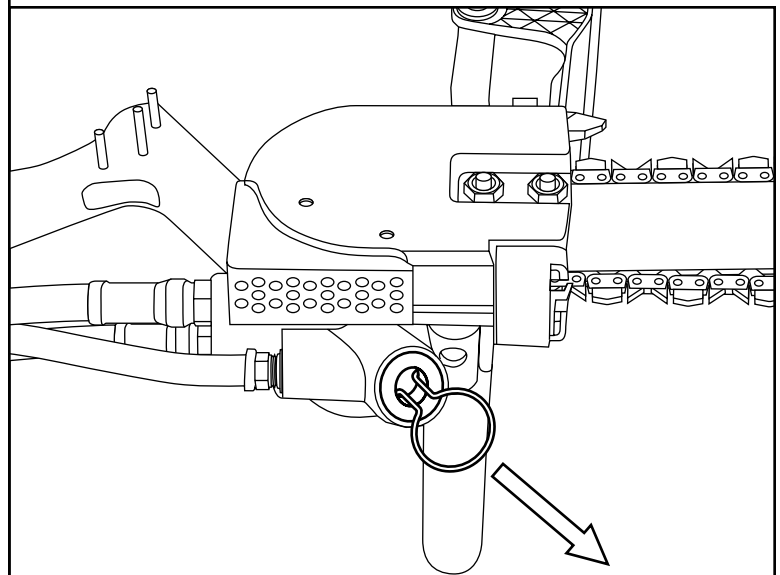
- C Using a 1/2 in./12.7 mm diameter wood dowel, place the dowel into the valve spool bore from the plug button end of the handle.



- D Push the dowel against the water valve sleeve (32-37) to push the water sleeve out. Remove o-ring(31) from the spool bore of the handle

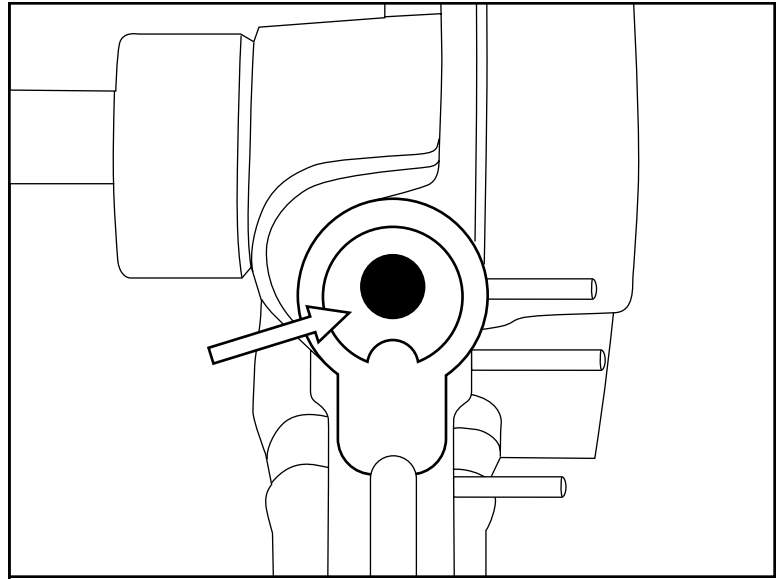


If only the water valve seal needs replacing, use a heavy gauge wire to insert into the bottom of the valve to extract.

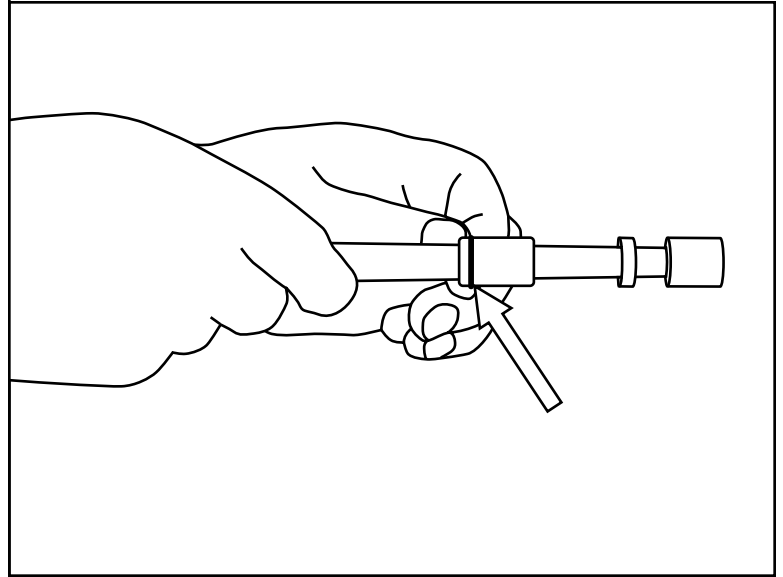


6.4 REASSEMBLY

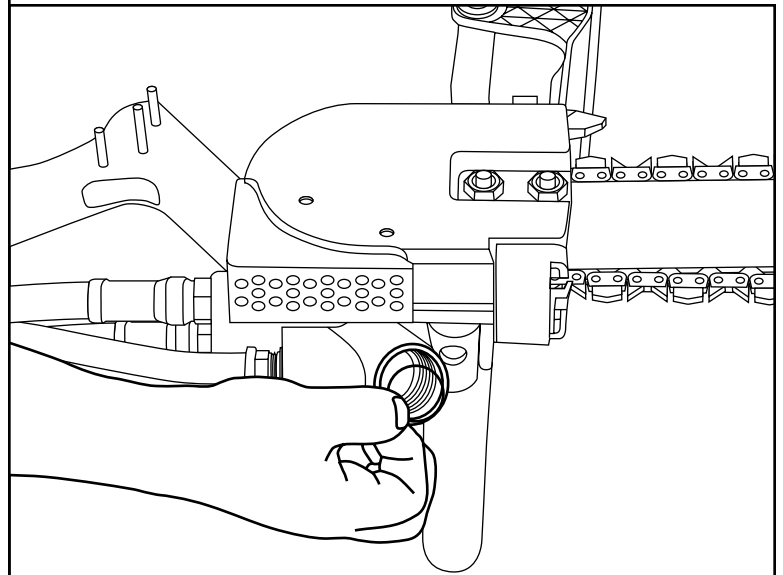
- A Inspect the spool bore of the handle and the outer surfaces of the spool for damage. Some light surface scratches will be noticeable. Grooves, roughness or a reduced diameter indicate fluid contamination. If abnormal wear is present (more than normal polishing), replace both the spool and the handle.



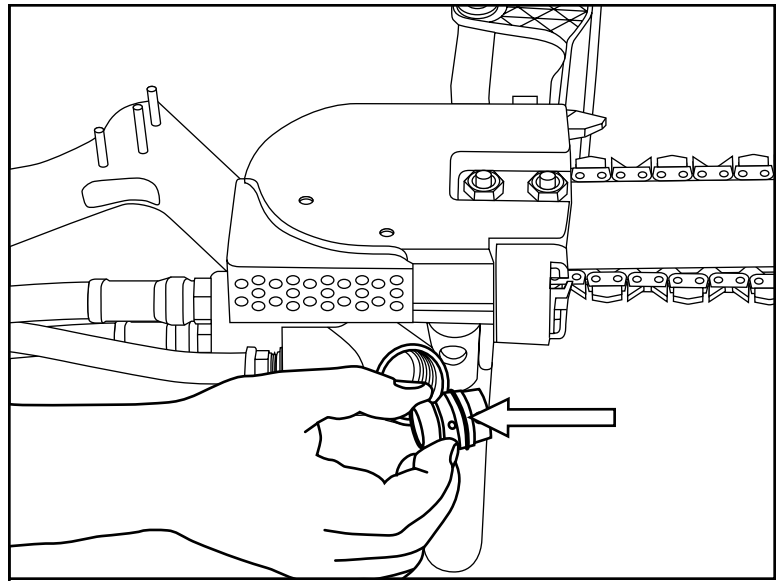
- B Apply grease and install a new o-ring (13) onto the ON/ OFF valve (12).



- C Apply grease and install new o-ring (31) into the spool bore of the handle.

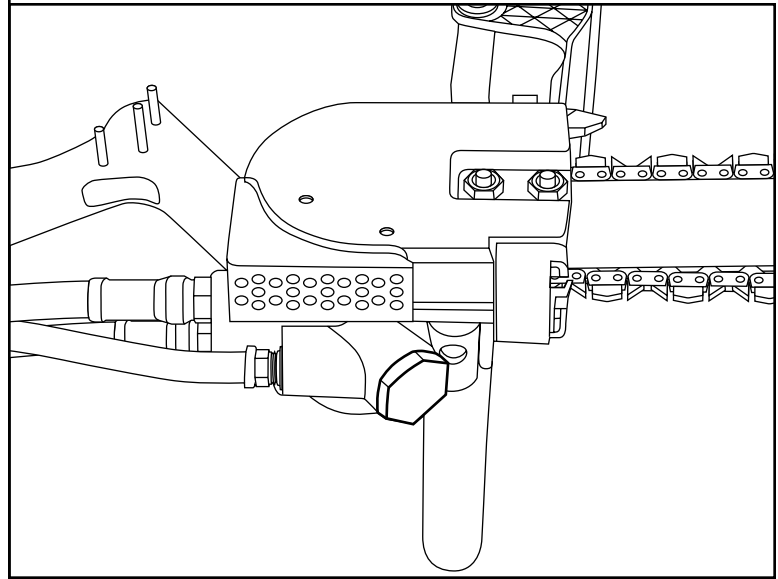


- D Apply grease and install new o-rings (32, 34, 36) onto the water valve sleeve (35). Insert pin (37) and self locking retaining ring (33).



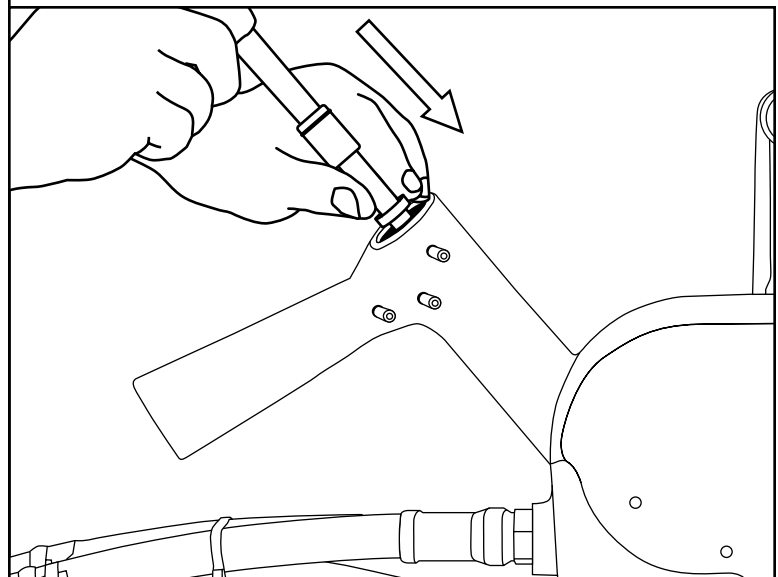
- E Install the water valve sleeve (35) into the valve handle.

- F Install the steel ball (38), spring (39), and seal cap (41). Make sure a new o-ring (40) is installed onto the seal cap.

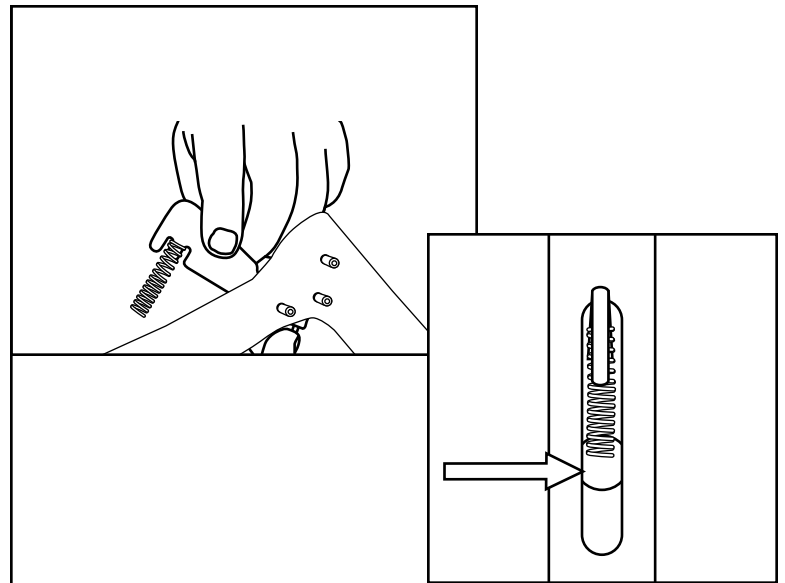


- G If the spring washer (14) and spring (15) were removed from the ON/OFF valve, reinstall them. Lubricate the ON/ OFF valve with hydraulic fluid and install it into the valve handle. Secure it in place with the roll pin (18).

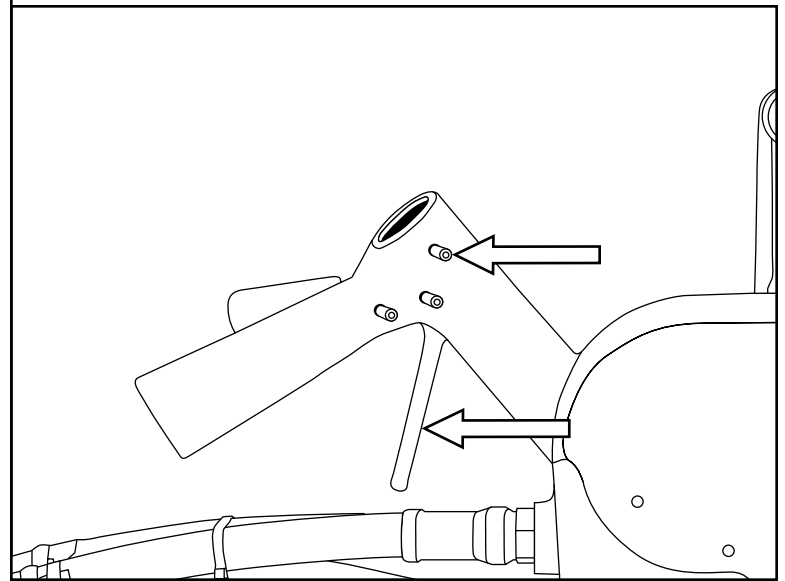
Install new wiper seal (10).



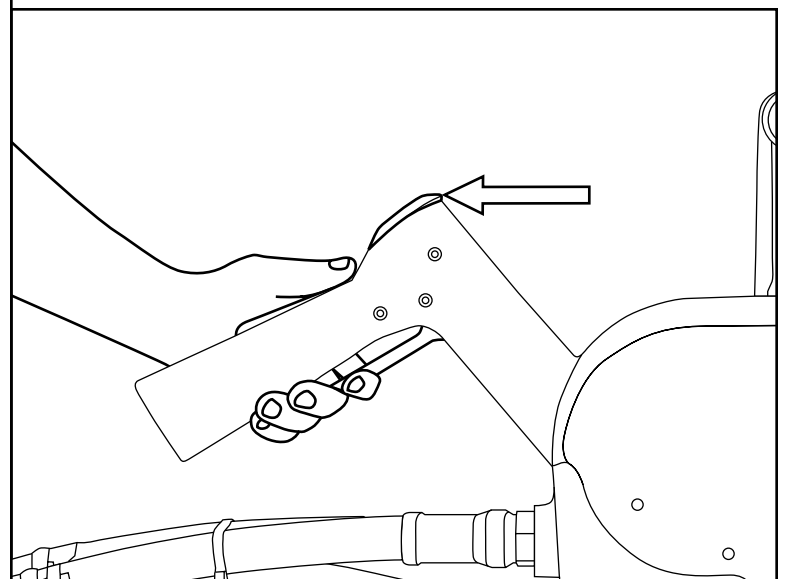
- H Install the safety catch (28) making sure the spring (27) is positioned properly. Make sure the pin (30) is in place. Secure the safety catch with the roll pin (19).



- I Install the trigger (26) and secure with the roll pins (18).



- J Replace the plug button (17) and test the action of the safety catch and trigger.



- 7 If symptoms of poor performance develop, the following chart can be used as a guide to correct the problem. When diagnosing faults in operation of the tool, always check that the hydraulic power source is supplying the correct hydraulic flow and pressure to the tool as listed in the table. Use a flowmeter known to be accurate. Check the flow with the hydraulic oil temperature at least 80°F/27°C.

SYMPTOM	CAUSE	REMEDY
Tool does not run.	Hydraulic power source not functioning correctly.	Check power source for proper flow and pressure (7-9 gpm 26-34 lpm at 2000 psi/140 bar.
	Coupler or hoses blocked.	Remove obstruction.
	Mechanical failure.	Have tool serviced by authorized dealer.
Tool runs backwards.	Pressure and return lines incorrectly connected.	Correct hose connections. Motor shaft rotates counterclockwise as viewed from the end of the motor shaft.
Trigger hard to press.	Pressure & return hose reversed.	Connect for proper flow direction. Motor shaft must rotate clockwise.
	Back-pressure too high.	Should not exceed 250 psi/17 bar @ 9gpm/34 lpm measured at the end of the tool's operating hoses.
Leakage around drive sprocket.	Motor shaft seal failure.	Have unit serviced.
No water discharge at bar.	Blocked port(s) in bar.	Turn off hydraulic supply. Remove bar and chain and clean bar thoroughly. Blow ports with compressed air.
	Blocked inlet or outlet.	Turn off hydraulic supply. Remove bar and chain. Make sure water supply is on. Press trigger to see if water exits near bar adjustment nut area (a small port). If no water exits, have unit serviced.

814PRO SERVICE MANUAL

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