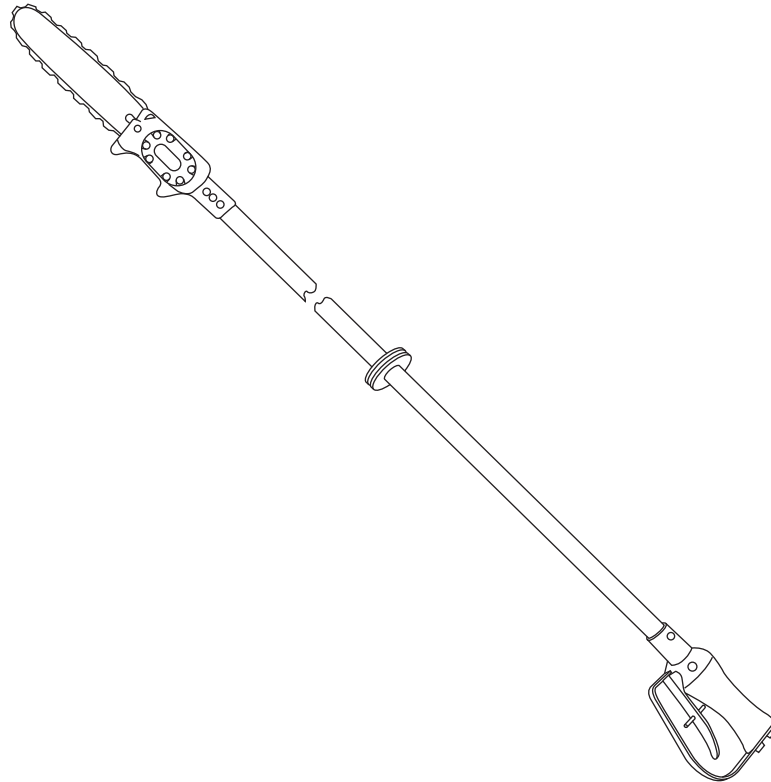


SERVICE MANUAL

Fairmont[®]



38568, 43177, and 43178 Long-Reach Chain Saws

Serial Codes FRM, FRP and FRR





Read and understand all of the instructions and safety information in this manual before operating or servicing this tool.

Table of Contents

Safety 2
 Purpose of this Manual 2
 Other Publications 2
 Important Safety Information 3
 Disassembly 4
 Inspection 4
 Assembly 5-6
 Illustrations and Parts List 7-11

Purpose of this Manual

This manual is intended to familiarize all personnel with the safe service procedures for the following Fairmont hydraulic tools:

38568	Serial Code FRM	
43177	Serial Code FRP	
43178	Serial Code FRR	

Keep this manual available to all personnel. Replacement manuals are available upon request at no charge at www.greenlee.com.

Safety

Safety is essential in the use and maintenance of Fairmont tools and equipment. This service manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

Other Publications

- Operation Manual: Publication 99930749
- Specifications and Parts: Publication 99930773
- SAE Standard J1273 (Hose and Hose Assemblies):
Publication 99930323

All specifications are nominal and may change as design improvements occur. Greenlee Textron Inc. shall not be liable for damages resulting from misapplication or misuse of its products. Loctite and 242 are registered trademarks of Loctite Corporation.

KEEP THIS MANUAL

IMPORTANT SAFETY INFORMATION



SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

⚠ DANGER

Immediate hazards which, if not avoided, WILL result in severe injury or death.

⚠ WARNING

Hazards which, if not avoided, COULD result in severe injury or death.

⚠ CAUTION

Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.



⚠ WARNING

Skin injection hazard:

Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.

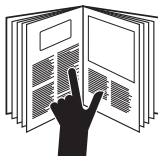
- Do not use hands to check for leaks.
- Do not hold hose or couplers while the hydraulic system is pressurized.
- Depressurize the hydraulic system before servicing.



⚠ WARNING

Wear eye protection when operating or servicing this tool.

Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.



⚠ WARNING

Read and understand all of the instructions and safety information in this manual before operating or servicing this tool. Refer also to the following manuals, which are listed under "Other Publications":

- Operation Manual
- Specifications and Parts

Failure to observe this warning could result in severe injury or death.

⚠ WARNING

Do not exceed the maximum hydraulic flow, pressure relief or back pressure listed in the Specifications and Parts manual.

Failure to observe this warning could result in severe injury or death.

Disassembly

Complete disassembly of the tool is not recommended. If a complete overhaul is necessary, return the tool to your nearest authorized Fairmont service center.

The disassembly procedure is divided into sections of the tool. Disassemble only the section(s) necessary to complete the repair.

Disassemble the tool on a flat, clean surface. Take care not to lose or damage any parts that may fall free during disassembly.

Inner and Outer Tubes

1. Remove hex head cap screw (10) and lock washer (11) which secure outer tube (4). Remove inner tubes (2 and 3) from ports of handle assembly (8). Remove handle assembly from outer tube. Plug (5) may fall free.
2. Remove three oval head machine screws (9) which secure outer tube to motor assembly (1). Remove outer tube from motor assembly. Nut carrier (7) may fall free. Remove inner tubes (2 and 3) from ports of motor assembly.
3. Remove outer tube (4) from inner tubes (2 and 3). Clean both outer and inner tubes. Inspect O-rings (22) for signs of cracks or wear. Remove, if necessary.

Handle Assembly

1. Remove two round head machine screws (39) and lock washers (40) from guard (38). Remove guard (38) from handle assembly (27).
2. Remove retaining ring (46) and trigger pivot (45) which secures trigger (41).
3. Remove internal retaining ring (30) from sleeve (28) which will allow spring (33) and washer (32) to be removed.
4. Remove internal retaining ring (50) and washer (37).
5. Remove spool (35) from sleeve (28).
6. Remove external retaining ring (49). Pull sleeve (28) out of handle (27).

Saw Blade and Chain

1. Remove hex head cap screws (15). Remove cover (14) with dog (21) and tension bolt (20). Dog and tension bolt may be removed from cover if necessary. Remove saw chain from bar and sprocket.
2. Remove saw bar (12) from motor assembly (1). Remove stop nut (19), sprocket adapter (26), rim sprocket (18), sprocket key (17), and sprocket washer (16) from drive shaft.

Motor Assembly

1. Scribe a line across motor cap (55) and saw head assembly (52) to help align parts correctly during reassembly. Remove socket head cap screws (66). Remove motor cap from saw head assembly.
2. Remove idler shaft (58). Remove gear (61) from idler shaft (58). Remove gear (61) and Woodruff key (59) from drive shaft (57). Remove gasket (62) from motor. Remove dowel pins (63), if necessary.
3. Remove retaining ring (65). Drive shaft may be driven out of saw head assembly, threaded end first, using a rubber mallet. Remove ball bearing (64) from drive shaft.
4. Bearings (53 and 56) should be removed from saw head assembly and motor cap only if they are damaged. Bearings are pressed in, and should be removed only if the necessary equipment to replace them is available.
5. Remove metering screw (68), which controls oil flow to automatic chain oiler. Remove O-ring (67).

Inspection

Clean all parts with solvent and dry them thoroughly. Inspect each component as described in this section. Replace any component that shows wear or damage.

1. **Saw Head Assembly and Motor Cap Assembly:** Inspect mating surfaces, gear cavities, oil passages, etc. for grooves or nicks. If any component shows wear or damage, replace the entire assembly with the bearings already pressed in.
2. Inspect all other disassembled components for cracks, grooves or nicks.

Assembly

Refer to the Illustration(s) in Parts List for correct orientation and placement of parts.

Replace any O-rings, V-rings, seals, and gaskets on parts that have been disassembled. Apply hydraulic fluid or O-ring lubricant to all O-rings and all metal surfaces which they must slide over. When installing an O-ring which must slide over sharp surfaces, use a rolling motion and be careful not to damage the O-ring.

Wherever the assembly results in metal-to-metal contact, coat the surfaces with hydraulic fluid or O-ring lubricant.

Motor Assembly

1. If bearings (53 and 56) have been removed from the motor cap (55) and saw head (52), replace them. Install O-ring (54) in saw head.
2. Install ball bearing (64) over threaded end of drive shaft (57). Install non-threaded end of drive shaft (57) through front of cavity in saw head assembly (52). Secure with retaining ring (65). Install drive pin (60) into idler shaft (58) and install idler shaft into cavity on rear side of saw head assembly (52). Install Woodruff key (59) into drive shaft (57).
3. Install one gear (61) onto idler shaft (58), aligning notch in gear over drive pin (60). Install one gear (61) on drive shaft (57), aligning notch in gear over Woodruff key (59).
4. Install gasket (62) on saw head assembly (52). Install dowel pins (63) in saw head assembly. Install motor cap (55) on saw head assembly, using the line scribed during disassembly to align parts correctly. Secure motor cap (55) to saw head assembly with socket head cap screws (66). Torque to 9 newton-meters (80 in-lb).

5. If metering screw has been removed, install O-ring (67) on metering screw (68). Install metering screw, bottoming it out in the cavity, and backing it off about 1/2 turn.

Note: Metering screw is not adjusted at this point. After assembly is completed, adjust automatic oiler before using the tool.

6. If O-rings (69) have been removed, install a new O-ring inside each port of saw head assembly (52).

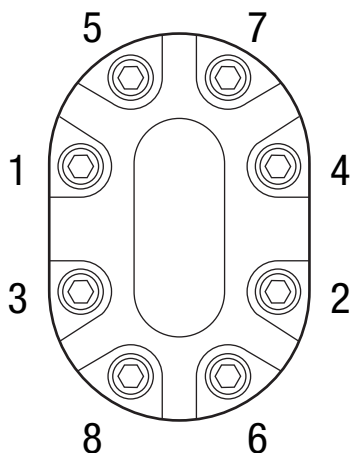
Saw Bar and Chain

1. Install sprocket key (17), sprocket washer (16), sprocket (18), sprocket adapter (26), and stop nut (19) on threaded end of drive shaft. Ensure that sprocket adapter is assembled onto shaft with 1.500 dia. face oriented toward stop nut.
2. Set cover (14) down on its flat side. Set dog (21), wide end down, into cover. Install tension bolt (20) into counterbore hole in cover, and through dog. Turn tension bolt in until dog is a little past the center of the bolt.
3. Install saw bar (12), aligning bolt holes in bar over threaded inserts in motor assembly (1).

Note: Lubricate the saw chain (13) well (especially a new chain) before installation. Oil all joints and work oil into rivet holes. The best way to oil a new chain is to soak it in oil before installation.

4. Install saw chain (13) over sprocket (18) and saw bar (12), carefully placing chain guides in the groove around the outer edge of the saw bar. Pull saw bar out to tighten chain. Install cover (14) over saw bar, positioning tip of dog (21) in the bar. Secure loosely with hex head cap screws (15).
5. Refer to "Adjusting Chain Tension" in the Operation Manual.

Torque Sequence



Assembly (cont'd)

Handle Assembly

1. Install O-rings (47) in the valve handle (27).
2. Install O-ring (48) in valve handle (27). Install O-rings (34 and 48) in sleeve (28). Install sleeve (28) in valve handle (27). Secure with external retaining ring (49).
3. Install O-ring (36) on spool (35). Install spool (35) through trigger end of valve handle.
4. Install spring (33), and O-ring (32) and secure with retaining ring (30).
5. Install washer (37) and secure with retaining ring (50).
6. Position trigger (41) onto handle assembly. Slide trigger pivot (45) through holes and secure with retaining rings (46).
7. Position guard (38) onto handle assembly. Secure with lock washer (40) and round head machine screws (39).

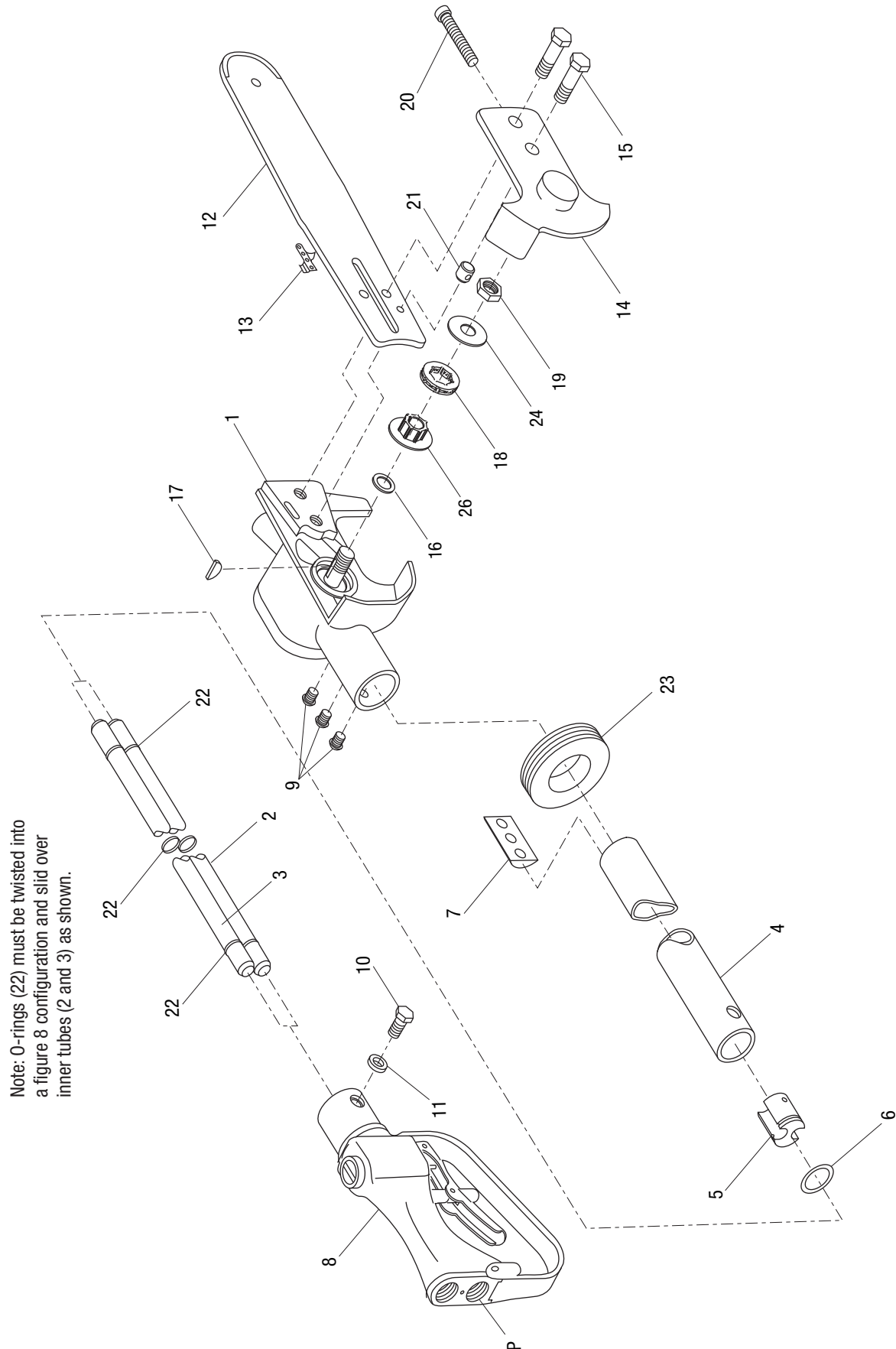
Inner and Outer Tubes

1. Hold the two inner tubes (2 and 3) together, and slide one O-ring (22) over the tubes, halfway down the length of the tubes. Turn one of the tubes end for end, so that the O-ring forms a figure 8 around the tubes. Slide one O-ring (22) in a figure 8 over each end of the tubes, pushing the O-ring down approximately 15.9 cm (6-1/4") from the end of the inner tubes.

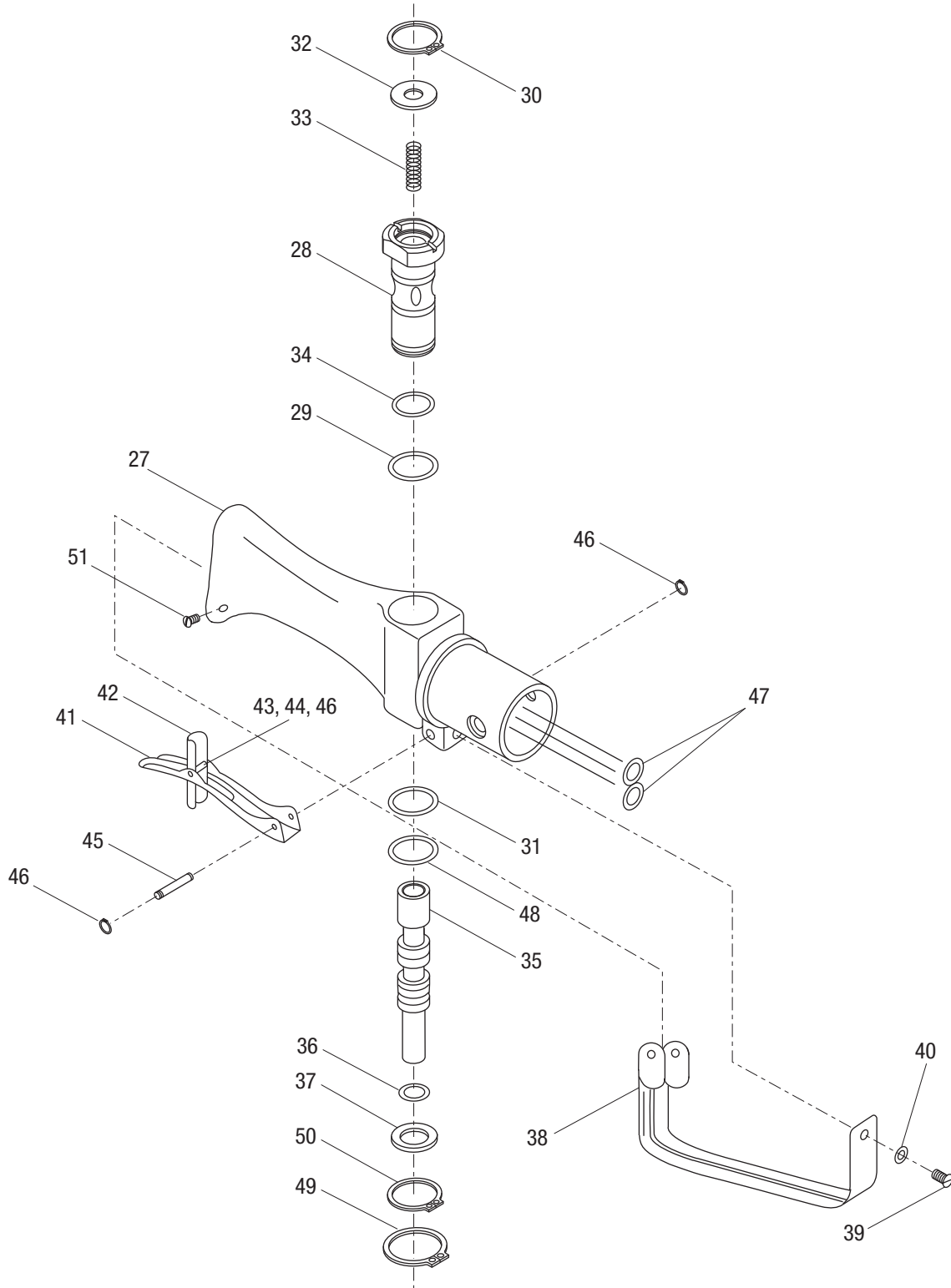
Note: Inner tube (2) is the pressure tube, and should be marked either with marking tape or with dye on both ends. Be careful to install the marked tube in P port of both the motor assembly and the valve assembly. Improper installation of the inner tubes will cause the saw to run backwards.

2. Lubricate tips of inner tubes with hydraulic oil to ease assembly. Press inner tube (3) into the top (return) port of motor assembly (1). Press inner tube (2) into the lower (pressure) port of motor assembly, which is marked P.
3. Press one nut carrier (7) into corresponding holes in end of outer tube (4). Nut carrier may be glued to outer tube to hold it in place during assembly. Slide the outer tube over the inner tubes, with the end of the outer tube which has small holes for securing to the handle assembly (8) away from the motor assembly (1). Place the outer tube into the motor assembly, aligning the nut carrier under the holes in the motor assembly. Apply one drop of thread-locking compound (Loctite 242 or equivalent) to three oval head machine screws (9). Install screws, securing outer tube to motor assembly.
4. For proper tool operation, the same inner tube (2) that was installed in the pressure port of the motor assembly (1) **must** be installed in the pressure port of the handle assembly (8). Lubricate tips of inner tubes with hydraulic oil to ease assembly. Press inner tube (3) into the top (return) port of handle assembly (8). Press inner tube (2) into the lower (pressure) port, which is marked P.
5. Insert plug (5) and O-ring (6) in outer tube (4) and install in valve handle (8). Secure with cap screw (10) and washer (11).

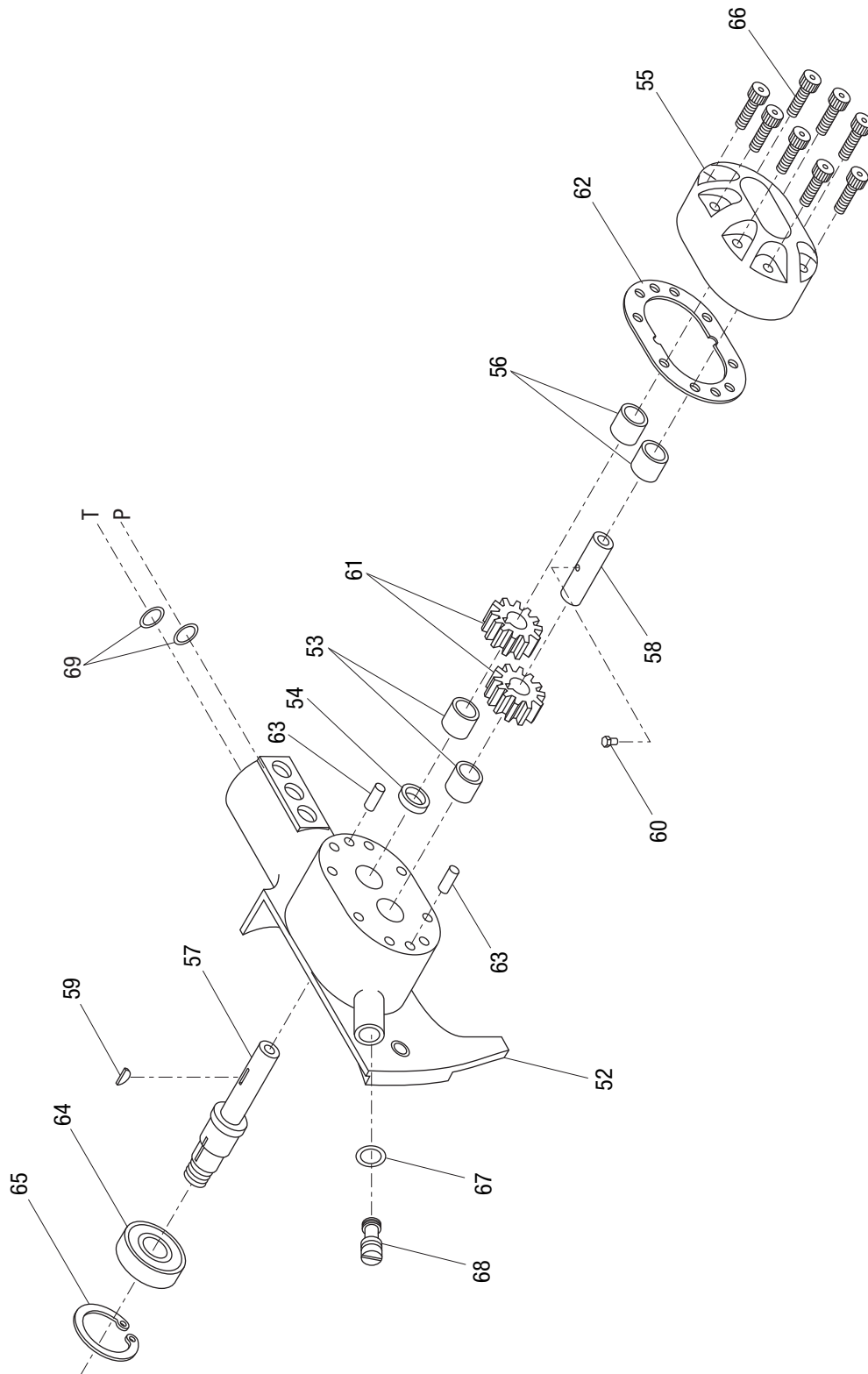
Illustration—Main



Illustration—Handle Assembly



Illustration—Motor Assembly



Parts List

Key	UPC No. 78-3310-	Part No.	Description	Qty
1	43558	170100	Motor assembly (includes items 52–69).....	1
2	42491	L055400	Pressure tube (model 38568)	1
	43386	170143	Pressure tube (model 43177)	1
	43385	170149	Pressure tube (model 43178)	1
3	42492	L055401	Return tube (model 38568).....	1
	43388	170142	Return tube (model (43177).....	1
	43387	170148	Return tube (model 43178).....	1
4	43389	170102	Outer tube (model 38568).....	1
	48262	48262	Outer tube (model 43177).....	1
	48263	48263	Outer tube (model 43178).....	1
5	41121	139021	Plug	1
6*	41557	F015676	O-ring, .937 x 1.062 x .062–90.....	1
7	40118	101390K	Carrier, nut.....	1
8	48818	48818	Handle assembly (includes items 27–51)	1
9	41632	F017341	Screw, machine, 1/4–20 x .500 oval head.....	3
10	42790	L083038	Screw, cap, 1/4–20 x .750 hex head, grade 5.....	2
11	42808	L084005	Lock washer, 1/4"	2
12	43369	170074	Saw bar	1
13	43370	F030030	Saw chain, .325" pitch	1
14	40846	134134	Cover	1
15	50524	90505247	Screw, cap, 5/16–18 x 1.500 hex head	2
16 ♦		52028587	Spacer	1
17 ♦	41813	F020915	Woodruff key, #2.....	1
18	55101	90551010	Rim sprocket, .325" pitch.....	1
19 ♦	41493	F015264	Nut, hex, 1/2–20	1
20	41662	F017907	Screw, machine, 1/4–20 x 2.00 fillister head	1
21	40197	105378	Dog.....	1
22*	41559	F015679	O-ring, .875 x 1.00 x .062–70.....	2
23	42015	F022910	Rubber grommet	1
24 ♦	43309	50433091	Washer, flat, .530 x 1.50 x .050	1
26 ♦	55102	90551028	Adapter, sprocket	1
27	48815	48815	Handle	1
28	43420	170251	Sleeve.....	1
29*	41534	F015403	O-ring, .750 x .875 x .062–90.....	1
30	41712	F018511	Retaining ring, .750"	1
31*	42089	F024419	O-ring, .787 x .889 x .051–70.....	1
32	41095	138312	Cap	1
33	42865	L089019	Spring.....	1
34*	41371	F011762	O-ring, .437 x .625 x .093–90.....	1
35	43421	170088	Spool	1
36*	41585	F016327	O-ring, .312 x .437 x .062–70.....	1
37	41096	138313	Washer, .355 x .615 x .030	1
38	48817	48817	Trigger guard	1

Parts List (cont'd)

Key	UPC No. 78-3310-	Part No.	Description	Qty
39	41677	F018077	Screw, machine, #10-32 x .375 round head	1
40	42812	L084015	Lock washer, #10	1
41	04797	50047973	Trigger.....	1
42	04798	50047981	Latch, trigger interlock	1
43	04799	50047990	Spring, torsion	1
44	04800	50048007	Pin	1
45	42547	L060058	Trigger pivot.....	1
46	42827	L085019	Retaining ring	4
47*	41998	F022714	O-ring, .437 x .562 x .062-90.....	2
48*	41559	F015679	O-ring, .875 x 1.00 x .062-70.....	2
49	54819	90548191	Retaining ring, .875"	1
50	41297	F008797	Retaining ring, .625"	1
51	43701	F021676	Screw, cap, #10-32 x .375 button socket head	2
52	40595	128688	Saw head assembly (includes items 53, 54 and 69)	1
53	41591	F016728	Needle bearing, .439 x .625 x .500	2
54*	41503	F015305	O-ring, .500 x .687 x .093-80.....	1
55	40405	118059	Motor cap assembly with bearings (includes item 56)	1
56	41591	F016728	Needle bearing, .439 x .625 x .500	2
57	43839	170070	Shaft	1
58	40114	101381K	Idler shaft.....	1
59	40115	101382	Woodruff key	1
60	41593	F016730	Pin, drive, .123 x .209 square head.....	1
61	41594	F016731	Gear, 11-tooth	2
62*	41595	F016732	Gasket, 2.09 x 3.09 x .0015	1
63	41596	F016733	Pin, dowel, .250 x .500.....	2
64	41598	F016735	Ball bearing.....	1
65	41482	F014990	Retaining ring, 1.375".....	1
66	43454	F025026	Screw, cap, 1/4-20 x .875 socket head	8
67*	41331	F010777	O-ring, .375 x .500 x .062-70.....	1
68	40189	105368	Screw, metering, 1/8 NPTF	1
69*	41998	F022714	O-ring, .437 x .562 x .062-90.....	2
Kits				
*	48254	48254	Packing kit (includes items marked with an asterisk)	
	43558	170100	Motor assembly (includes items 52-69)	
	48818	48818	Handle assembly (includes items 27-51)	
	40595	128688	Saw head assembly (includes items 53, 54 and 69)	
	40405	118059	Motor cap assembly (includes item 56)	
	04796	50047965	Safety trigger assembly (includes items 41-46)	
◆		52028588	Drive repair kit (includes items marked with ◆)	
Decal				
	46293	50462938	Decal	1



GREENLEE®

A Textron Company

USA	800-435-0786	Fax:	800-451-2632
	815-397-7070	Fax:	815-397-1865
Canada	800-435-0786	Fax:	800-524-2853
International	+1-815-397-7070	Fax:	+1-815-397-9247

4455 Boeing Drive • Rockford, IL 61109-2988 • USA • 815-397-7070
An ISO 9001 Company • Greenlee Textron Inc. is a subsidiary of Textron Inc.

www.greenlee.com

Printed in USA