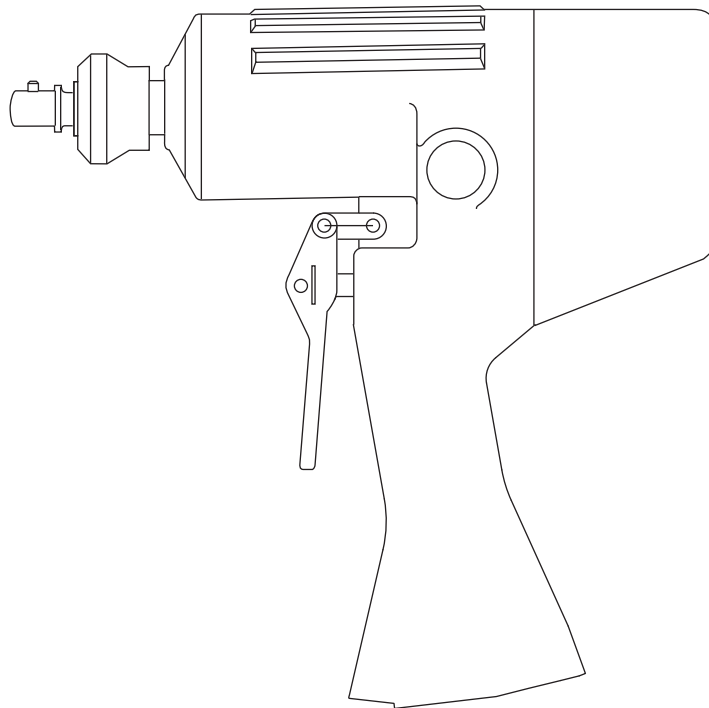


# SERVICE MANUAL



## H8508-3 Low Torque Impact Wrench

Serial Code AKW



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

Register this product at [www.greenlee.com](http://www.greenlee.com)

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## Safety

Safety is essential in the use and maintenance of Greenlee Utility tools and equipment. This 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.

## Purpose of this Manual

This manual is intended to familiarize all personnel with the safe service procedures for the following Greenlee Utility tool:

H8508-3                      Serial Code AKW

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge at [www.greenlee.com](http://www.greenlee.com).

## Other Publications

Operation Manual: Publication 52041907

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. Super Spool is a trademark of Textron Innovations Inc. Loctite is a registered trademark of Loctite Corporation. Mobilgrease is a registered trademark of Mobil Oil Corporation. Super Spool is protected by U.S. Patent No. 4548229.

# ***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.

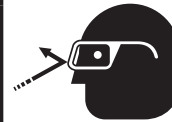


#### **⚠ WARNING**

Skin injection hazard:

- 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.

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



#### **⚠ WARNING**

Wear eye protection when operating or servicing this tool.

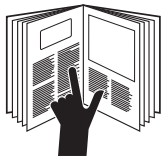
Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.



#### **⚠ WARNING**

Tool and accessory may be hot during and after operation.

Contact with hot surfaces could result in serious injury.



#### **⚠ WARNING**

Read and understand all of the instructions and safety information in this manual before operating or servicing this tool. Refer also to the Operation Manual listed under "Other Publications."

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

**IMPORTANT SAFETY INFORMATION****⚠ WARNING**

Do not exceed the following hydraulic power source maximums:

- Hydraulic flow: 38 l/min (10 gpm)
- Pressure relief: 138 bar (2000 psi)
- Back pressure: 13.8 bar (200 psi)

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

**⚠ WARNING**

Do not reverse hydraulic flow. Operation with hydraulic flow reversed can cause tool malfunction. Connect the supply (pressure) hose and return (tank) hose to the proper tool ports.

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

**⚠ WARNING**

Do not disconnect tool, hoses, or fittings while the power source is running or if the hydraulic fluid is hot. Hot hydraulic fluid could cause serious burns.

**⚠ WARNING**

Do not change accessories, inspect, or clean tool when it is connected to a power source. Accidental start-up can result in serious injury.

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

**IMPORTANT**

Procedure for connecting or disconnecting hydraulic hoses, fittings, or components:

1. Move the flow lever on the hydraulic power source to the OFF position.
2. Stop the hydraulic power source.
3. Follow the sequence under “Hose Connections” in the Operation Manual to prevent pressure buildup. In case some pressure has built up, loosen hoses, fittings, or components slowly.

*Note: Keep all decals clean and legible, and replace when necessary.*

## Disassembly

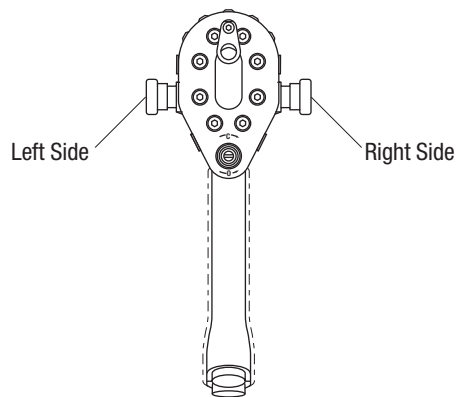
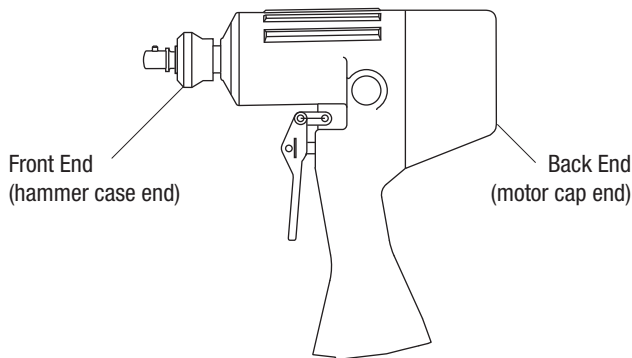
Complete disassembly of the tool is not recommended. If a complete overhaul is necessary, return the tool to your nearest Greenlee Utility Authorized Service Center.

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.

In order to simplify the disassembly and assembly instructions, refer to "Tool Orientation" below to identify the sides and ends of the tool.

## Tool Orientation



## Quick-Change Chuck

1. Remove adapter (61) from retaining sleeve (50).  
*Note: To prevent the loss of any steel balls, perform the next step over a clean, empty container.*
2. Slide the thrust ring (52) back to expose thrust ring lock (51). Remove thrust ring lock, thrust ring, and spring (53). Slide the retaining sleeve off of the anvil (49) and remove two steel balls (54).

## Hammer Case Components

1. Using a wrench on the flats of the hammer case cap (55), unscrew and remove the cap.
2. Remove the anvil (49), hammer frame (46), hammer (47), and hammer pin (48).
3. Remove spacer (45), thrust bearing (43), and thrust washers (44) from hammer case cavity.

## Motor

1. Remove cap screws (16) and remove motor cap (6) from handle (1). Remove gasket (15). Remove dowel pins (14).
2. Pull idler shaft (13) with gear (10) from handle. Remove gear from idler shaft. Remove the drive key (12) and retaining clip (11) from idler shaft.
3. Remove retaining ring (11), gear (10), and Woodruff keys (9) from drive shaft (8). Push drive shaft toward hammer case end and remove it from the handle.

## Trigger and Super Spool™

1. Remove roll pin (42) from trigger spool (29) by pressing or tapping it out with a hammer and punch.  
*Note: Support trigger (41) to prevent bending the trigger spool (29).*
2. Remove washer (39), spring (38), retaining ring (37), and washer (36). Push the trigger spool (29) out of the handle (toward the front of the tool).
3. Remove the retaining ring (33).  
*Note: Perform Step 4 over an empty container to catch the steel ball (32) when it falls free.*
4. Remove Super Spool (31) and O-ring (34).

## Reversing Spool

1. Loosen and remove cap (24) on left side of tool and pull the reversing spool (19) out the right side of tool.  
*Note: Attempting to push the reversing spool the opposite way through the bore will damage the O-rings and could allow particles of O-ring to get into the motor.*
2. Remove plug (22), spring (21), and poppet (20).
3. Repeat Step 2 for the right side of reversing spool (19).

## 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. Bearings: Insert shaft into bearing. Spin shaft. If shaft does not spin smoothly, replace the entire assembly with the bearings already pressed in.
2. Motor cap and handle: Inspect mating surfaces, gear cavities, oil passageways, etc. for grooves or nicks. If any component shows wear or damage, replace the entire assembly with the bearings already pressed in.
3. Thrust rings: Replace any thrust ring that is out-of-round or has been sprung.
4. Bearing (inside hammer case cap): Slide the anvil into the bearing. Spin the anvil. If the anvil does not turn smoothly, inspect the bearing surface. If the bearing surface shows uneven wear, replace hammer case cap as an assembly with the bearing already pressed in.
5. Thrust bearing and thrust washers: Spin the bearing against the washers. If bearing does not spin smoothly, replace the bearing and washers.
6. Inspect all other disassembled components for cracks, grooves, or nicks.

## Assembly

Refer to the Illustrations and 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.

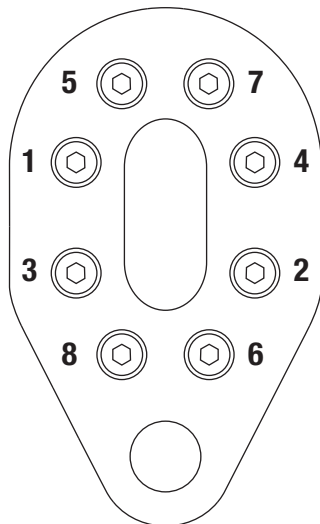
Wherever the assembly results in metal-to-metal contact, coat the surfaces with hydraulic fluid or O-ring lubricant.

## Assembly (cont'd)

### Motor

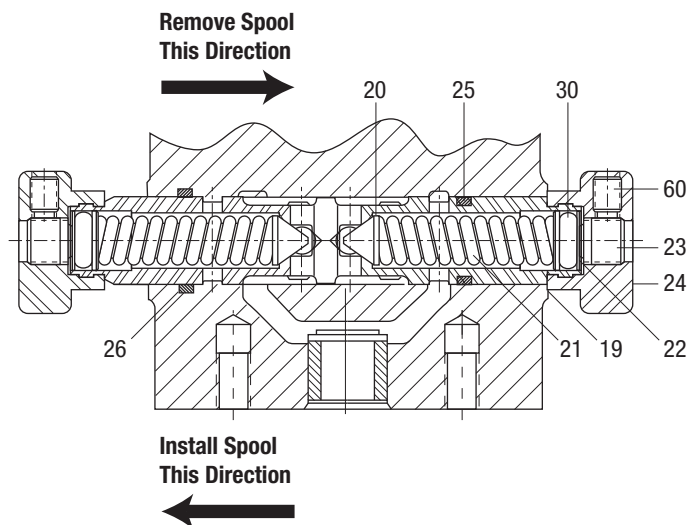
1. Use an O-ring tool to install a new O-ring (4) from the back end of the tool (1).
2. Lubricate drive shaft (8) and slide it into the tool from the hammer case end.
3. Install Woodruff keys (9) onto the drive shaft. Align the keyway in the gear (10) with the Woodruff keys on the drive shaft and install the gear onto the drive shaft. Secure the gear with the retaining ring (11).
4. Install the drive key (12) into the idler shaft (13). Align the keyway in the remaining gear (10) with the drive key and install the gear onto the idler shaft. Install the idler shaft with gear into the handle, meshing the four gears together. Install retaining ring (11).
5. Install dowel pins (14) into handle. Install new gasket (15).
6. Install motor cap (6) onto handle. Secure motor cap with cap screws (16) and washers (63). Torque cap screws to 10 to 11 Nm (95 to 100 in-lb). Refer to "Torque Sequence" below.

### Torque Sequence



### Reversing Spool

1. Install a new O-ring (25) onto reversing spool (19). Install a new O-ring (26) into the handle. Install new O-rings (30) on both plugs (22).
2. Install one poppet (20), spring (21), and plug (22) on the left end (the end closest to the O-ring installed on the spool in Step 1) of the spool. Secure assembly with cap (24).
3. Slide the reversing spool assembly into the handle from the right side.
4. Install poppet (20), spring (21), and plug (22) into opposite end of spool. Secure with cap (24). Use one wrench on each cap and tighten to 31 Nm (23 ft-lb).
5. Use the Relief Pressure Check Kit shown in the "Accessories" section to check the relief pressure.



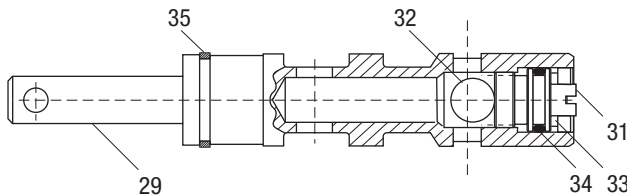
## Assembly (cont'd)

### Trigger, Trigger Spool, and Super Spool

1. Install O-ring (34) on the Super Spool (31). Install ball (32) in trigger spool cavity. Install Super Spool (31) into the trigger spool (29). Secure it with the retaining ring (33).
2. Install O-ring (35) onto trigger spool assembly. Install O-ring (27) and backup ring (28) in handle.
3. Slide trigger spool into handle from front end of the tool. Slide washer (36) onto trigger spool and secure with the retaining ring (37).
4. Slide spring (38) and washer (39) onto trigger spool (29). Secure trigger (41) to trigger spool (29) with spring pin (42).
5. Secure link (40) to handle and trigger with spring pins (42).

*Note: Support trigger (41) so pressing or tapping on spring pins (42) does not bend trigger spool (29).*

### Super Spool (shown in open-center position)



### Hammer Case Components

1. Apply Mobilgrease® HP to thrust bearing (43) and work the grease into needle rollers. Apply a light film of grease to the thrust washers (44). Stack the thrust washers and thrust bearing properly and place the stack onto the drive shaft.
2. Place spacer (45) over the drive shaft with the flange upward.

### Impact Mechanism

1. Apply Mobilgrease HP to the surfaces of the hammer frame (46), hammers (47), hammer pin (48), and anvil (49).
2. Install the two hammers, 180° from each other, into hammer frame. Install pins into hammer frame and through the hammers, then slide the assembly onto the spline of drive shaft.
3. Pack hammer frame center space with Mobilgrease Special #53030-3. Install anvil into hammer frame and through hammers.
4. Install O-ring (62) over threads on hammer case cap (55).
5. Apply Loctite® primer to threads of cap. Apply Loctite primer to threads of handle at cap interface, ensuring threads are free of grease and other contaminants prior to application.
6. Slide the hammer case cap assembly (55, 56) over the anvil and, using a wrench on the flats of the cap, screw the assembly into the handle. Torque to 108 to 115 Nm (80 to 85 ft-lb).

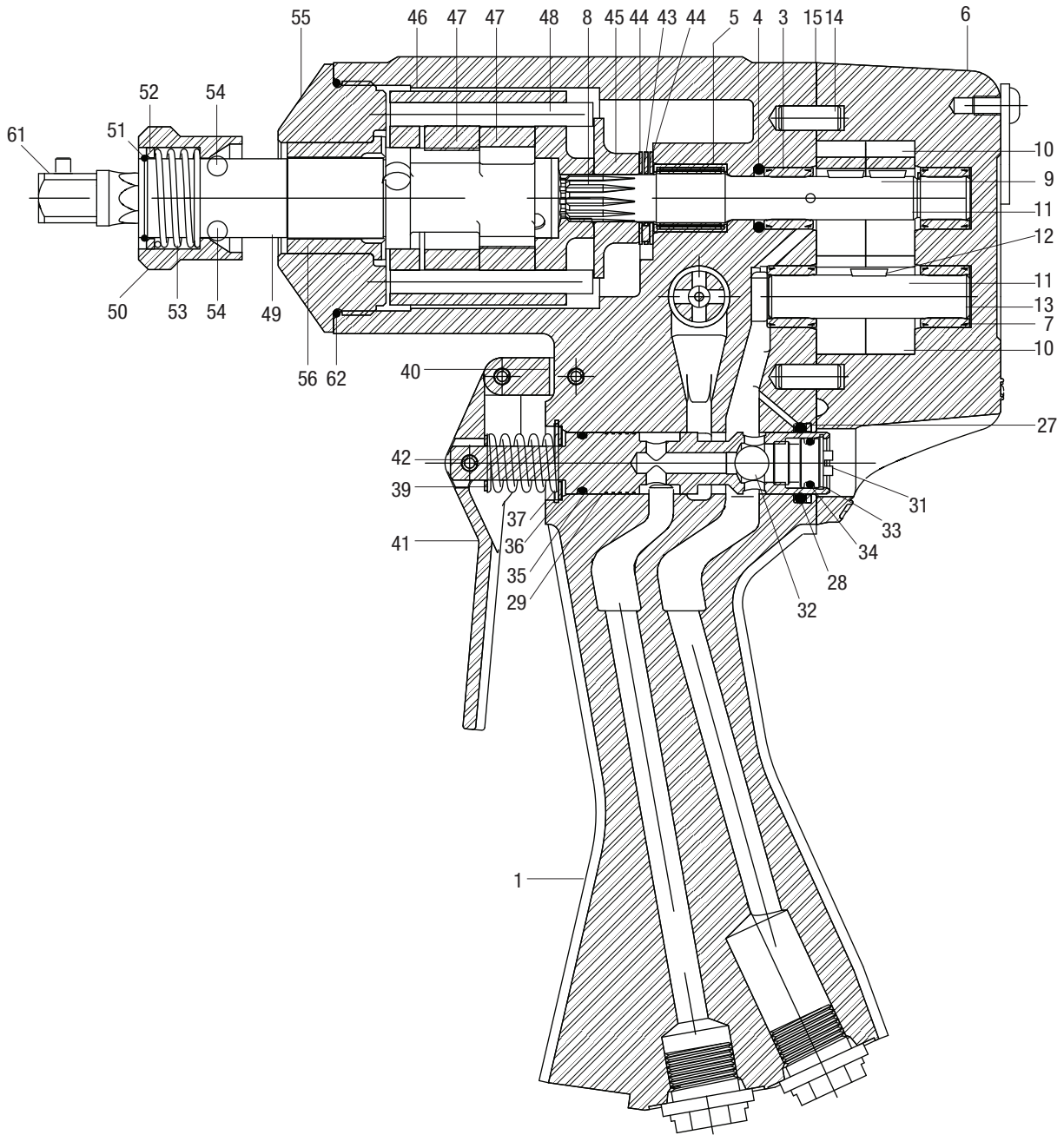
### Quick-Change Chuck

1. Slide thrust ring lock (51) over anvil to the groove closest to hammer case cap.
2. Insert three balls (54) into the holes in the anvil. Slide the retaining sleeve (50) onto anvil with the flanged end upward. Insert spring (53) and thrust ring (52) into retaining sleeve. Slide the thrust ring back and install thrust ring lock (51) onto the anvil. Insert the drive shank (61) into the chuck.



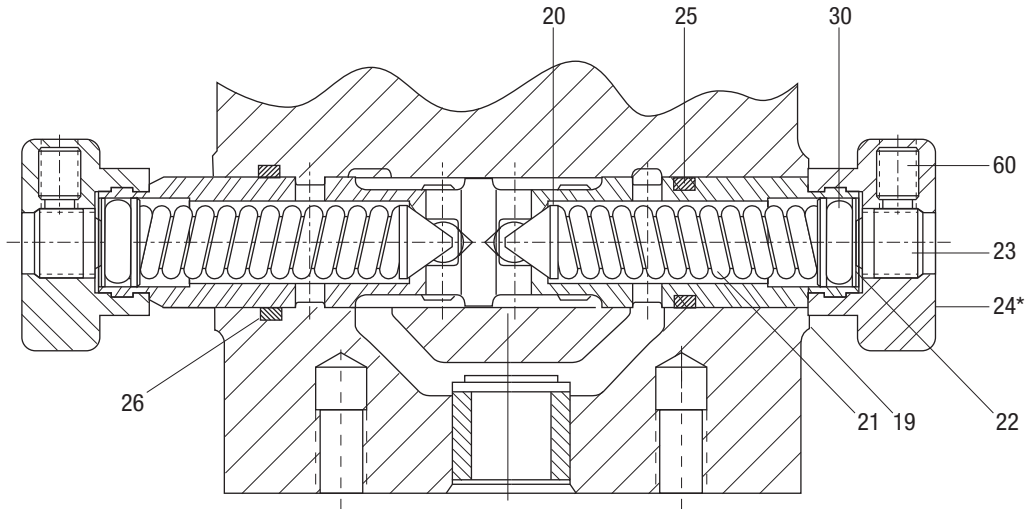
## Illustrations

H8508-3 Impact Wrench, Side View



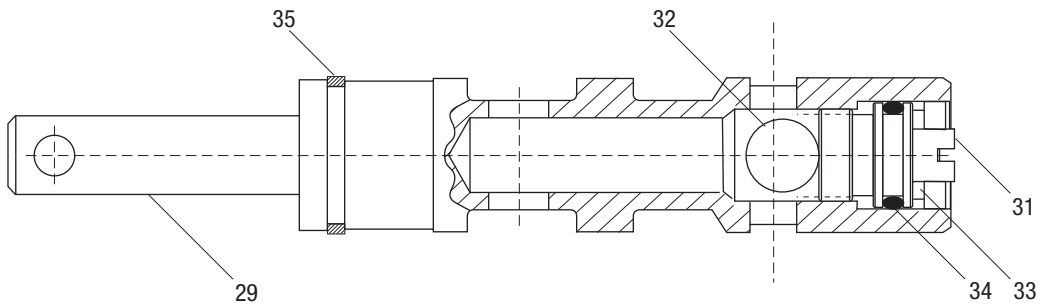
## Illustrations

### Reversing Spool



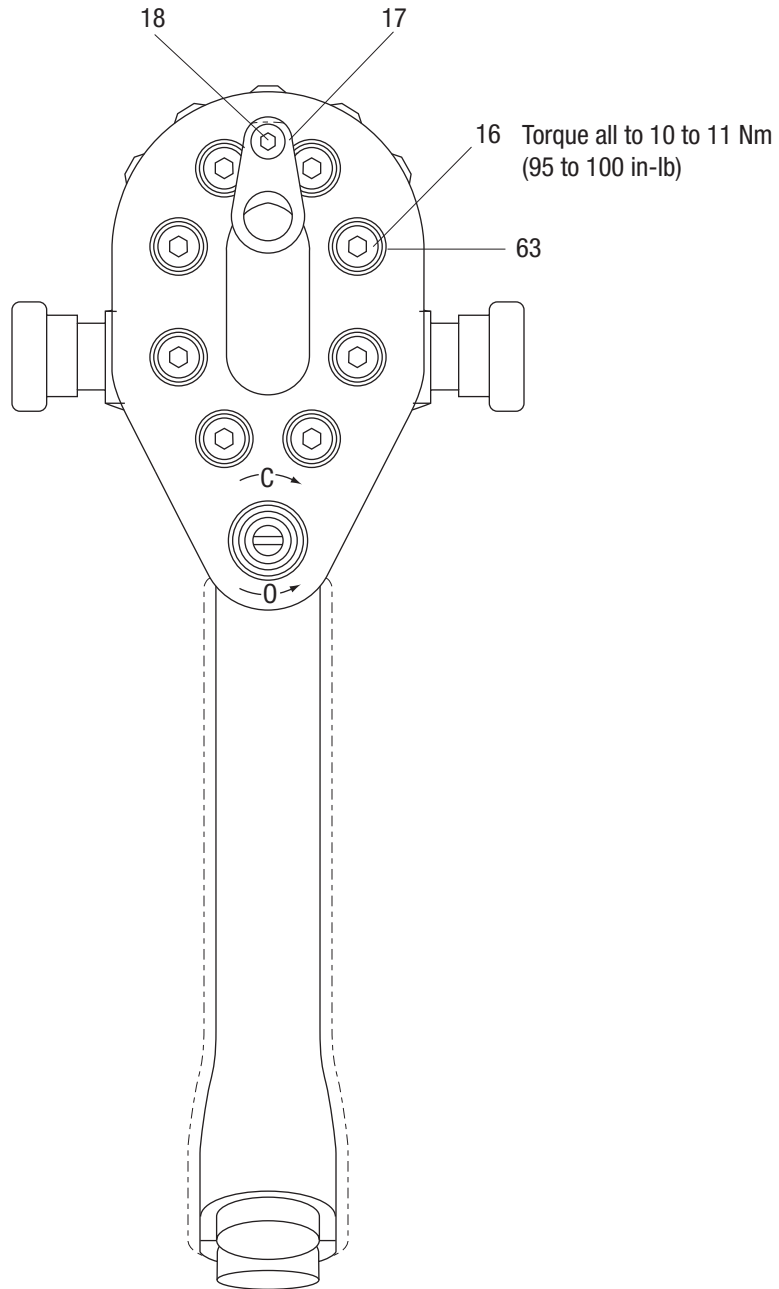
\* Torque item (24) to 31 Nm (23 ft-lb)

### Trigger Spool



## Illustrations

### Motor Cap View



## Parts List

### H8508-3 Impact Wrench

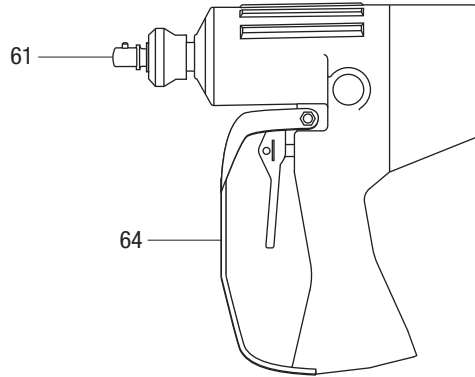
Key	UPC No. 78-3310-	Part No.	Description	Qty
1	50020	52044404	Handle kit (includes items 3, 4, and 5) .....	1
3			Bearing, needle, .439 x .625 x .500 .....	2
4*			O-ring, .500 x .687 x .093-80 .....	1
5			Bearing .....	1
6	26339	52044406	Motor cap kit (includes item 7) .....	1
7	41591	50415911	Bearing, needle, .439 x .625 x .500 .....	2
8	26340	52033477	Shaft, drive .....	1
9	41592	50415921	Key, Woodruff, .125 x .375 .....	3
10	41630	50416302	Gear, 11-tooth .....	4
11	41621	50416212	Retaining ring, .437 .....	2
12	41593	50415930	Pin, drive, .123 x .209 .....	1
13	40168	50456962	Shaft, idler .....	1
14	41624	50416242	Pin, dowel, .250 x .625 .....	2
15*			Gasket .....	1
16			Screw, cap, 1/4-20 x 2.00 socket hd .....	8
17	48328	50483285	Eye .....	1
18	43701	50437011	Screw, cap, #10-32 x .375 btn skt hd .....	3
19			Reversing spool .....	1
20			Poppet .....	2
21			Spring, comp., .177 x .329 x 1.09 .....	2
22			Plug .....	2
23			Screw, set, 5/16-24 x .250 socket .....	2
24			Cap .....	2
25*			O-ring, .500 x .625 x .062-70 .....	1
26*			O-ring, .625 x .750 x .062 .....	1
27*			O-ring, .612 x .818 x .103 .....	1
28*			Backup ring, .640 x .812 x .048 .....	1
29	48696	50486969	Spool, trigger .....	1
30*			O-ring, .250 x .375 x .062-90 .....	2
31	48697	50486977	Super Spool .....	1
32	43829	50438298	Ball, .344, steel .....	1
33	48540	50485407	Retaining ring, .500 .....	1
34*			O-ring, .375 x .500 x .062-70 .....	1
35*			O-ring, .500 x .625 x .062-70 .....	1
36	48310	50483102	Washer, flat, .376 x .734 x .030 .....	1
37	41648	50416480	Retaining ring, .750 .....	1
38	48311	50483110	Spring .....	1
39	48312	50483129	Washer, flat, .359 x .562 x .030 .....	1
40	48313	50483137	Link .....	1
41	48360	50483609	Trigger .....	1
42	48542	50485423	Pin, roll, .156 x .875 .....	3
43	48318	50483188	Bearing, thrust, .500 x .937 x .078 .....	1
44	48319	50483196	Washer, thrust, .500 x .937 x .030 .....	2
45	48364	50483641	Spacer .....	1

## Parts List (cont'd)

### H8508-3 Impact Wrench (cont'd)

Key	UPC No. 78-3310-	Part No.	Description	Qty
46			Hammer frame.....	1
47			Hammer.....	2
48			Hammer pin.....	2
49			Anvil, quick change.....	1
50			Retaining sleeve.....	1
51			Thrust ring lock.....	1
52			Thrust ring.....	1
53			Sleeve spring.....	1
54			Ball.....	3
55	49283	50492837	Cap, hammer case assembly (includes Item 56).....	1
56	49284	50492845	Bearing.....	1
60	48622	50486225	Screw, set, #8-32 x .250 socket.....	2
61	49314	50493140	Adapter, heavy-duty, 7/16" quick change hex to 1/2" square drive.....	1
62*	41803	50418032	O-ring, 2.125 x 2.250 x .062-70.....	1
63			Washer, 6 mm, hard.....	8
<b>Decals</b>				
	48781	50487817	Decal, Greenlee Utility.....	2
	46292	50462920	Decal, impact wrench.....	1
<b>Repair Kits</b>				
	48382	50483820	Reversing spool assembly (includes items 19-26 and 30)	
*	48538	50485385	Seal kit (includes all items marked with an *)	
	49270	50492705	Impact mechanism (includes items 46-54)	

## Accessories



Key	UPC No. 78-3310-	Part No.	Description	Qty
61	49314	50493140	Adapter, heavy-duty, 7/16" quick change hex to 1/2" square drive.....	1
64	12688	52043010	Trigger guard assembly, H8508 Series.....	1
	49004	50490044	Kit, relief pressure check .....	1