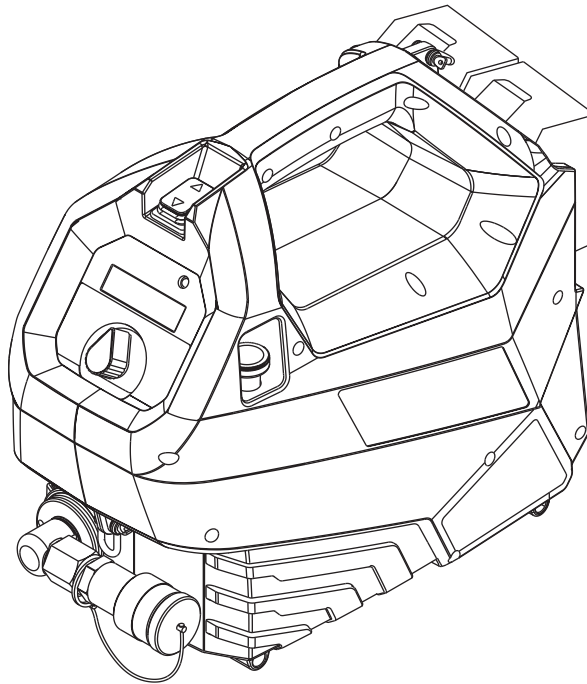


# INSTRUCTION MANUAL



## **EHP700L**

# **Battery-powered Pump**



**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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## Description

The Greenlee EHP700L Battery-powered Pump is a dual-stage pump that develops a maximum of 700 bar (10,000 psi). This pump is intended to provide hydraulic power for remote cutting, punching, and crimping tools.

This pump has a factory-set internal pressure relief valve.

	<b>⚠ CAUTION</b>
	<p>Fill unit with hydraulic oil before operating pump.</p> <p>Failure to fill unit with oil will result in damage to the pump.</p>

## Safety

Safety is essential in the use and maintenance of Greenlee tools and equipment. This instruction 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 operation and maintenance procedures for the Greenlee EHP700L Battery-powered Pump.

Keep this manual available to all personnel.

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


**Do not discard this product or throw away!**  
 For recycling information, go to [www.greenlee.com](http://www.greenlee.com).

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.

# 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**

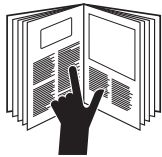
Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

#### **⚠ 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.



#### **⚠ DANGER**

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

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

#### **⚠ DANGER**

Do not connect the pump to any system or system component other than those supplied by Greenlee. Other manufacturers' components may not withstand the maximum pressure and may fail. Nearby personnel can be injured by flying components and hydraulic oil.

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

#### **⚠ DANGER**

Do not alter the internal high-pressure relief valve setting. Altering this setting will change the maximum pressure the pump can develop, which can cause a component failure. Nearby personnel can be injured by flying components and hydraulic oil.

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



#### **⚠ DANGER**

Do not use this pump in a hazardous environment. Hazards include flammable liquids, gases, or other materials. Using this pump in a hazardous environment can result in a fire or explosion.


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


#### **⚠ DANGER**

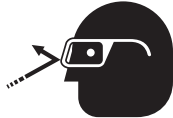
When punching thin sheet metals and soft materials such as plastics, the operator must stop the pump manually. Automatic shut off may not work.

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


## IMPORTANT SAFETY INFORMATION

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Electric shock hazard:</p> <ul style="list-style-type: none"> <li>• Do not expose power tools to rain.</li> <li>• Do not immerse the pendant switch in water or other liquid.</li> <li>• Do not crimp, cut, or punch live cables or conductors. Before starting to work, make sure there are no live lines in the work area.</li> </ul> <p>Failure to observe these warnings could result in severe injury or death.</p>
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	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Skin injection hazard:</p> <ul style="list-style-type: none"> <li>• Do not use hands to check for leaks.</li> <li>• Depressurize hydraulic system before servicing or disconnecting the hose.</li> </ul> <p>High pressure oil easily punctures skin, causing serious injury, gangrene, or death. If injured, seek medical help immediately to remove oil.</p>
------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Wear eye protection when using this tool.</p> <p>Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.</p>
-------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------


<p><b>⚠ WARNING</b></p>
<p>Inspect pump, hoses, couplers, and fittings for wear or damage. Replace worn, damaged, or missing components with Greenlee replacement parts. Worn or damaged components can fail, resulting in injury.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

	<p style="text-align: center;"><b>⚠ CAUTION</b></p> <p>Fill unit with hydraulic oil before operating pump.</p> <p>Failure to fill unit with oil will result in damage to the pump.</p>
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<p><b>⚠ CAUTION</b></p>
<ul style="list-style-type: none"> <li>• Do not use hose or cord to pull, lift, or carry the equipment. Misuse will damage the hose or cord.</li> <li>• To avoid accidental start-up, turn the program selection switch to position 7 before transporting the tool.</li> </ul> <p>Failure to observe these precautions may result in injury or property damage.</p>

<p><b>IMPORTANT</b></p>
<p>Make sure all hose fittings are properly seated before starting the pump. Incomplete connections may not allow the accessory's ram to retract after the hydraulic operation is finished.</p>

## IMPORTANT SAFETY INFORMATION

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p>Cutting hazard:</p> <ul style="list-style-type: none"> <li>• Remove battery before changing dies, adapters, or jaws.</li> <li>• Keep hands away from the head when in operation.</li> </ul> <p>Failure to observe these warnings could result in severe injury or death.</p>
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<b>⚠ WARNING</b>
<p>Do not dispose of batteries in a fire. They will vent fumes and may explode.</p> <p>Failure to observe this warning could result in severe injury from harmful fumes or burns from flying debris.</p>

<b>⚠ WARNING</b>
<p>Inspect tool and blades before use. Replace any worn or damaged parts. A damaged or improperly assembled tool can break and strike nearby personnel.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

<b>⚠ CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use this tool for continuous use. After 100 cycles, allow the tool to cool for 15 minutes.</li> <li>• Do not secure this tool in a vise.</li> <li>• This tool may be used in damp or wet environments; however, air-drying is recommended before use if the tool becomes soaked. Damage may result when the tool is operated prior to thorough drying when electrical components are soaked.</li> <li>• Use this tool for the manufacturer's intended purpose only.</li> </ul> <p>Failure to observe these precautions may result in injury or property damage.</p>

<b>⚠ CAUTION</b>
<p>Do not allow anything to contact the battery terminals.</p> <ul style="list-style-type: none"> <li>• Do not immerse the batteries in liquid. Liquid may create a short circuit and damage the battery. If batteries are immersed, contact your service center for proper handling.</li> <li>• Do not place the battery into a pocket, tool pouch, or tool box with conductive objects. Conductive objects may create a short circuit and damage the battery.</li> <li>• Do not place a battery on moist ground or grass. Moisture may create a short circuit and damage the battery.</li> </ul> <p>Failure to observe these precautions may result in injury or property damage.</p>

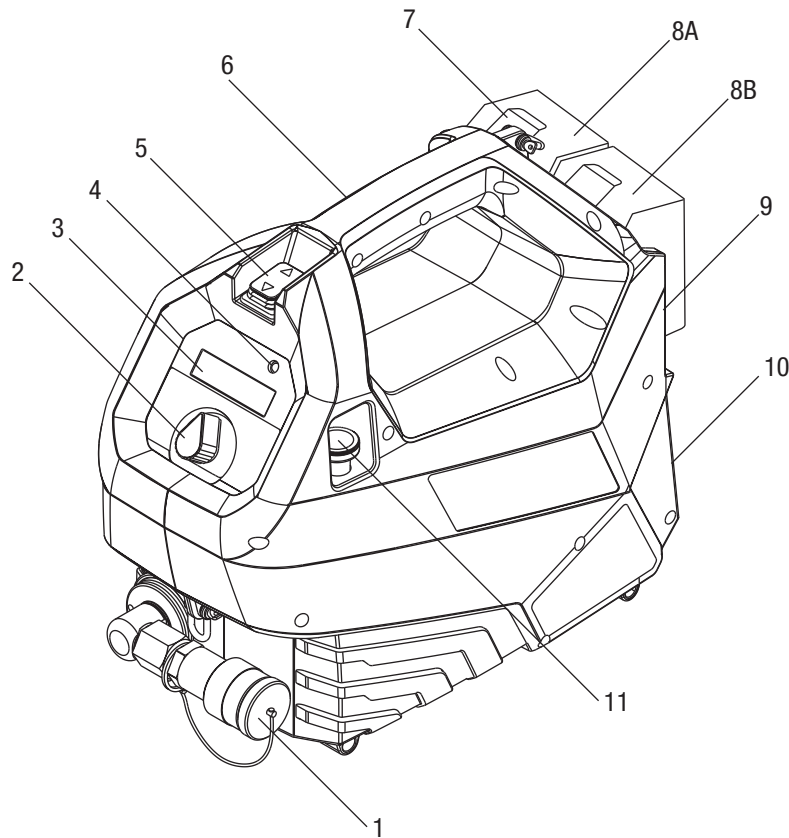
<b>⚠ CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not store the battery at more than 122 °F (50 °C) or less than -4 °F (-20 °C). Damage to the battery can result.</li> <li>• Do not use another manufacturer's charger. Other manufacturers' chargers may overcharge and damage the battery.</li> <li>• Do not attempt to open the battery. It contains no user-serviceable parts.</li> </ul> <p>Failure to observe these precautions may result in injury or property damage.</p>

<b>⚠ CAUTION</b>
<p>Use all appropriate and applicable personal safety equipment as required such as safety shoes, hard hat, and safety glasses. Follow all safety rules and regulations for the job.</p> <p>Failure to comply may result in personal injury or property damage.</p>

<b>⚠ CAUTION</b>
<p>Do not perform any service or maintenance other than as described in this manual. Injury or damage to the tool may result.</p> <p>Failure to observe this precaution may result in injury and property damage.</p>

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

**Identification**



- |                              |                           |
|------------------------------|---------------------------|
| 1. 3/8" Female Coupler       | 7. Battery Lock           |
| 2. Program Selection Switch  | 8A. Battery (active)      |
| 3. LED Display               | 8B. Battery (storage)     |
| 4. LED (red)                 | 9. Pendant Switch Socket  |
| 5. Forward and Return Switch | 10. Storage Compartment   |
| 6. Oil Plug (on back)        | 11. Emergency Stop Button |

**Specifications**

Dimensions

Length .....	14.0" (356 mm)
Width .....	6.5" (165 mm)
Height.....	11.5" (292 mm)
Weight.....	10.8 lb (4.9 kg)
Reservoir Capacity .....	0.80 qt (0.76 l)
Maximum Operating Pressure.....	10,000 psi (700 bar)
Operating Temperature Range .....	10 °F to 104 °F (-12°C to 40 °C)
<b>Dual-Stage Pumping Action</b>	
Rapid Advance.....	0.9 l/min
At Full Pressure .....	0.3 l/min

## Features of the Pump

- This pump is equipped with a brake, which stops the forward motion of the piston/dies when the trigger is released.
- The unit is equipped with a double piston pump, which is characterized by a rapid approach of the dies toward the connector and a slow crimping motion.
- All tool functions can be controlled by the rocker trigger, resulting in easy handling.
- The pump is equipped with a microprocessor, which indicates service intervals and low battery charges. It also performs internal checks, sending out acoustical and optical warning signals in case of a detected fault.
- The pump can be operated and transported in all positions without any oil leakages.
- This tool is equipped with a circuit board, incorporating several important features to inform the user about the current status of the unit.
- Before operating the pump, the charging level of the battery should be tested. A low charging level can be detected by the LCD display.
- The pressure units may be displayed in bar or psi. To change the units, set the selection switch to 7, depress the pendant toggle three times, and then hold the toggle switch to change the display.

## Setup

### Hydraulic Connection

1. Clean all couplers, threaded fittings, ports, and the area around all ports.
2. Remove any dust caps from couplers.
3. Hand-tighten all couplings firmly (until all threads are fully engaged). Do not use tools.

## Operation

<b>⚠ WARNING</b>
<p>Inspect pump, hoses, couplers, and fittings for wear or damage. Replace worn, damaged, or missing components with Greenlee replacement parts. Worn or damaged components can fail, resulting in injury.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

	<b>⚠ WARNING</b>
	<p>Electric shock hazard:</p> <p>This tool is not insulated. When using this unit near energized electrical lines, use proper personal protective equipment.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

	<b>⚠ WARNING</b>
	<p>Wear eye protection when operating or servicing this tool.</p> <p>Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.</p>

	<b>⚠ WARNING</b>
	<p>Cutting hazard:</p> <ul style="list-style-type: none"> <li>• Remove battery before changing dies, adapters, or jaws.</li> <li>• Keep hands away from the head when in operation.</li> </ul> <p>Failure to observe these warnings could result in severe injury or death.</p>

	<b>⚠ WARNING</b>
	<p>Skin injection hazard:</p> <ul style="list-style-type: none"> <li>• Do not use hands to check for leaks.</li> <li>• Depressurize hydraulic system before servicing or disconnecting the hose.</li> </ul> <p>High pressure oil easily punctures skin, causing serious injury, gangrene, or death. If injured, seek medical help immediately to remove oil.</p>

<b>⚠ WARNING</b>
<p>Electric shock hazard: The owner of this tool must be certain that all users of this tool are trained in the applicable safety codes and standards as well as in the safe use of this tool and its accessories.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

<b>⚠ CAUTION</b>
<ul style="list-style-type: none"> <li>• Do not use this tool for continuous use. After 100 cycles, allow the tool to cool for 15 minutes.</li> <li>• Do not secure this tool in a vise. This tool is designed for hand-held operation.</li> <li>• Use this tool for the manufacturer's intended purpose only.</li> </ul> <p>Failure to observe these precautions may result in injury or property damage.</p>

<b>IMPORTANT</b>
<p>Procedure for depressurizing the hydraulic system:</p> <ol style="list-style-type: none"> <li>1. Disconnect the pump from the power source.</li> <li>2. Press down on the manual release shaft and allow the ram to retract fully.</li> <li>3. Disconnect the hose slowly to release any trapped pressure.</li> </ol>



## Operation (cont'd)

### Charging the Battery

Read the instructions supplied with the battery charger.

### LED Indicator (red)

This tool is equipped with a special circuit board incorporating several important features to inform the user about the current status of the unit. The LED signals in the following cases:

What happens	Signal	What it means
Flashing light for 2 seconds	●●	Battery is inserted in tool.
Constant light for 20 seconds at end of cycle	■	Battery charge is below 17 V at beginning of cycle.
Tool will <b>not</b> start, and constant light for 20 seconds when trigger is released	■	Battery charge is below 16 V at beginning of cycle.
Tool will stop, and constant light for 20 seconds after trigger is released	■	Battery voltage drops below 13 V during cycle.
Tool will stop, and flashing light for 20 seconds when trigger is released	●●●●	Motor current exceeds 20 A during cycle. Circuit has become too hot.
Flashing light and audible alert for 3 seconds after cycle	●●●	Serious error—Crimping pressure has not been reached while motor was running.
Flashing light and audible alert for 1 second after cycle	●	Error—Required crimping pressure has not been reached. Operator has interrupted crimping cycle manually while motor was not running.

### Operating Procedure

1. Connect the male coupling of the hydraulic hose to the female coupling of the pump.
2. Select the correct working unit for the intended application.
3. Connect the tool head to the pump via the hydraulic hose.

## ⚠ CAUTION

- Do not operate the pump without a working unit.
- Before operating the pump, check the oil level and adjust if necessary.


Failure to observe these precautions may result in injury or property damage.


4. Connect the pendant switch, which the pump recognizes through a special coding. The built-in trigger will be deactivated accordingly.
5. Plug the battery (and spare battery, if using) into the socket.
6. The pump is now ready to operate, and the LCD display is activated.
7. Select the program for the intended application by turning the selection knob or the data function.
8. Initiate the working cycle by activating the advance function of the forward and return switch.


*Note: The retraction button of the forward and return switch is always active and can be actuated at any time and in any program.*

## Maintenance

	<b>⚠ WARNING</b>
	<p>Wear eye protection when operating or servicing this tool.</p> <p>Failure to wear eye protection could result in serious eye injury from flying debris or hydraulic oil.</p>

	<b>⚠ WARNING</b>
	<p>Skin injection hazard:</p> <p>Do not use hands to check for oil leaks. Oil under pressure easily punctures skin. If injured, seek medical attention immediately to remove oil.</p> <p>Failure to observe this warning could result in serious injury, gangrene, or death.</p>

	<b>⚠ WARNING</b>
	<p>Do not use solvents or flammable liquids to clean the tool body. Solvents or flammable liquids could ignite and cause serious injury or property damage.</p>

	<b>⚠ WARNING</b>
	<p>Cutting hazard:</p> <ul style="list-style-type: none"> <li>• Remove battery before changing dies, adapters, or jaws.</li> <li>• Keep hands away from the head when in operation.</li> </ul> <p>Failure to observe these warnings could result in severe injury or death.</p>

<b>IMPORTANT</b>
Relief valve adjustments must be done by an authorized service center.

### Daily

*Before use:*

1. Inspect the tool for wear or damage, such as cracks, gouges, or chips.
2. Inspect the tool for damage or leaks.

*After use:*

1. Use a damp cloth and mild detergent to clean the housing. Allow the housing to dry.
2. Store the tool in a cool, dry place.
3. If necessary, recharge the batteries. Refer to the instructions supplied with the battery charger.

### Monthly

1. Thoroughly clean all surfaces.
2. Check the oil level.

### Annually or After 10,000 Cycles

1. Replace the hydraulic oil.
2. Send the tool to a Greenlee Authorized Service Center for inspection.

### Checking the Hydraulic Fluid Level

The pump has an oil plug with inspection glass, which can be used to determine the proper oil level. If the oil level is too low, the reservoir must be filled.

The following hydraulic oils are suitable for a temperature range of 10 °F to 104 °F (-12°C to 40 °C):

- Hydraulic oils based on Ester: Rivolta S.B.H. 11, Shell Naturell HF-E 15.
- Mineral oils: Shell Tellus T 15, AVIA HVI 15, Mobil DTE 11, NUTO H 15, Rando HD-Z15, Agip OSO 15, BP Energol HLP 15.
- Other equivalent oils.

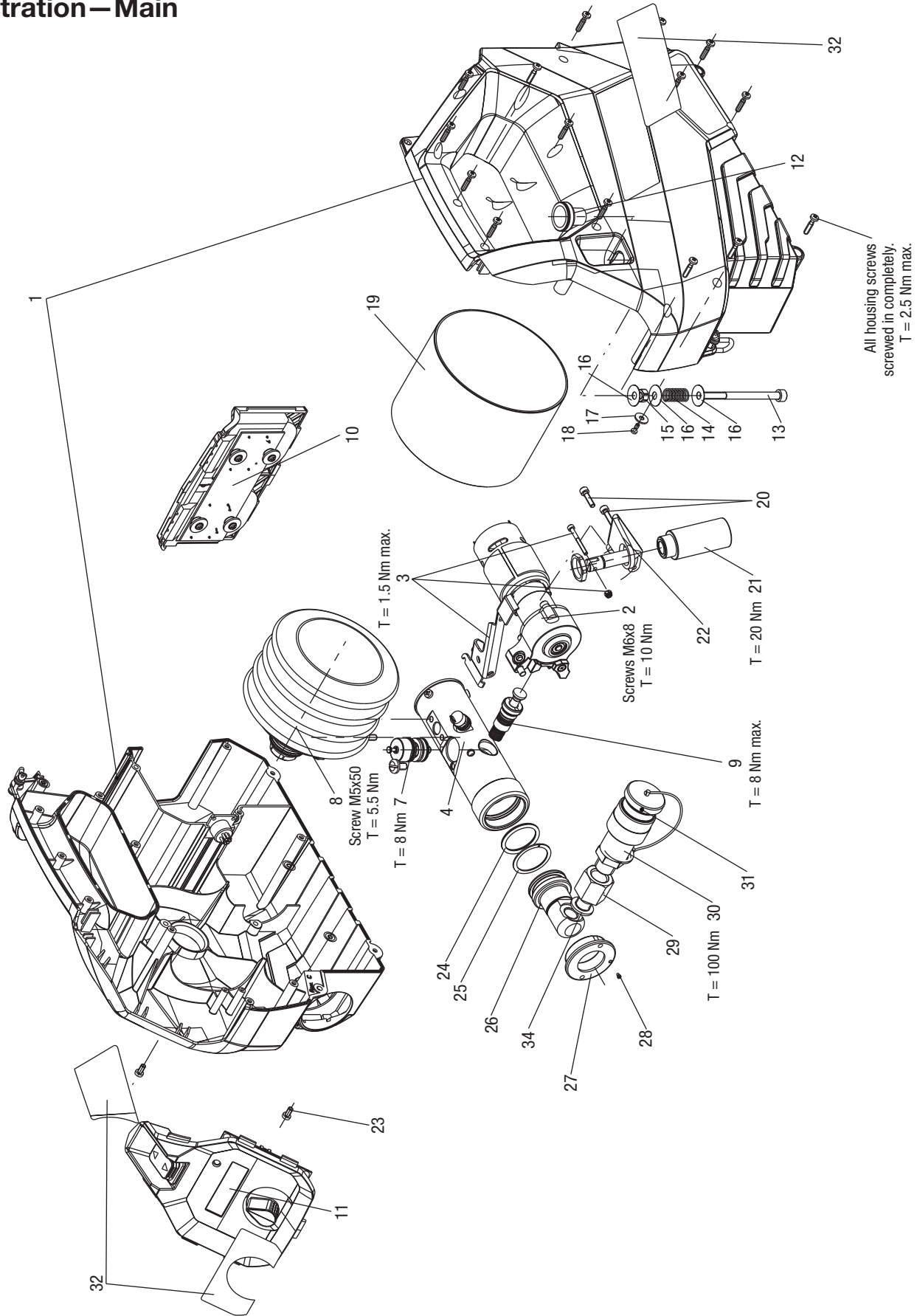
## Troubleshooting

### Before You Begin

1. Make sure that the battery is charged. Recheck the battery after several minutes to make sure the battery is holding its charge.
2. Use a **nonflammable** contact cleaner or pencil eraser to clean the electrical contacts on the battery and tool.
3. Reinstall the battery and check the tool again.

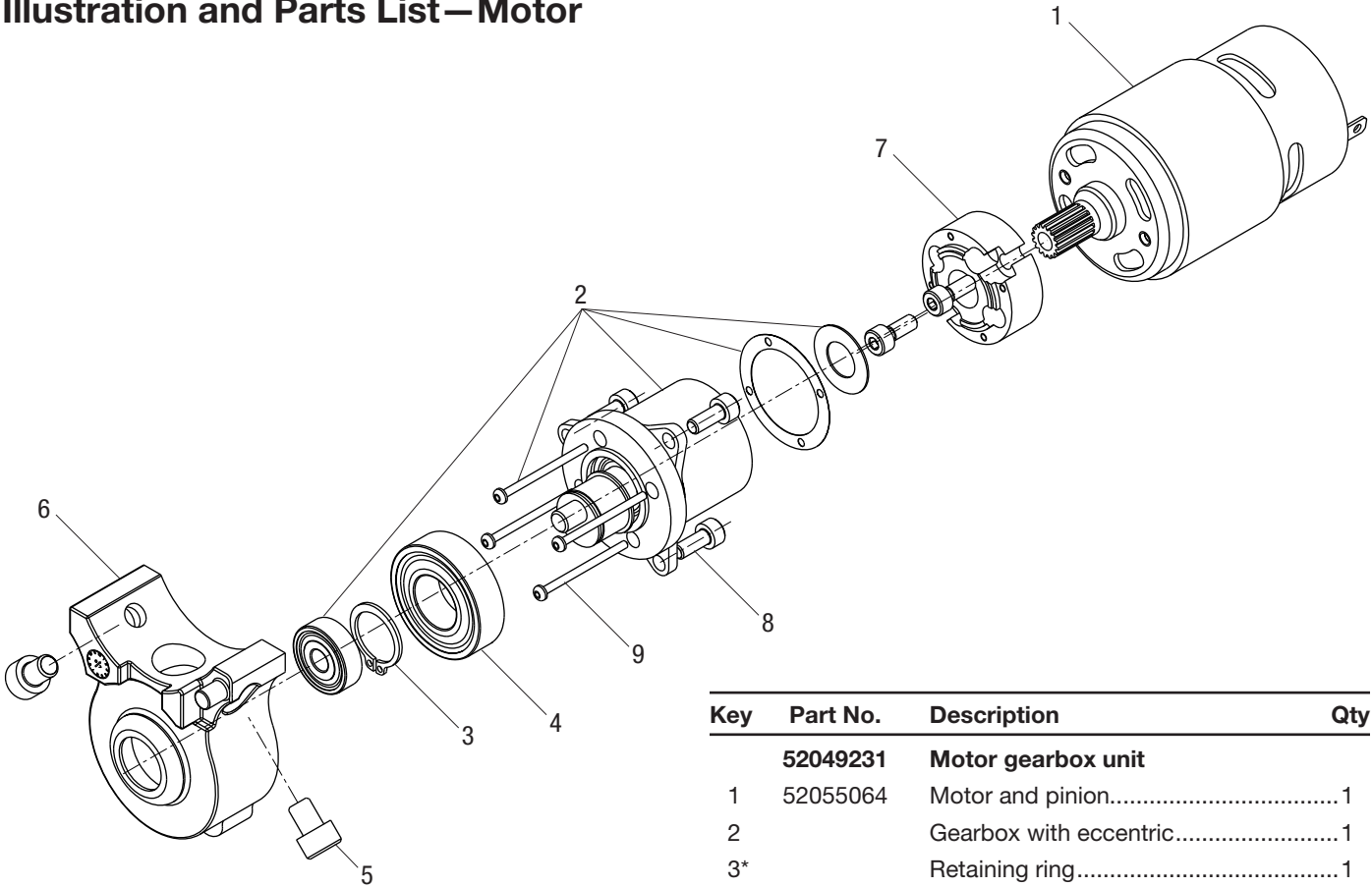
Problem	Possible Cause	Probable Remedy
Tool is inoperative.	Dirt, contaminants, etc., in tool.	Clean tool.
	Tool battery contacts damaged.	Reform contacts.
	Tool components worn or damaged.	Return tool to a Greenlee Authorized Service Center.
Motor is inoperative.	Low or uncharged battery.	Try known charged battery. Inoperative battery may be discharged or may have reached life expectancy.
	Broken switch components.	Return tool to a Greenlee Authorized Service Center.
Motor runs but tool will not complete a cycle.	Oil level low.	Return tool to a Greenlee Authorized Service Center.
	Air in hydraulic system.	Start pump and hold retract button simultaneously. Run for approximately 10 seconds, and then attempt to cut. If unsuccessful, return tool to a Greenlee Authorized Service Center.
	Cold oil.	Start pump and hold retract button simultaneously to warm oil. Store tool in warm area.
Dies stop during operation.	Oil level low.	Return tool to a Greenlee Authorized Service Center.
	Air in hydraulic system.	Start pump and hold retract button simultaneously. Hold for approximately 10 seconds.
LED glows for 20 seconds.	Battery charge low.	Charge or replace battery.
Tool loses oil.	Damaged internal seal.	Return tool to a Greenlee Authorized Service Center.

**Illustration—Main**

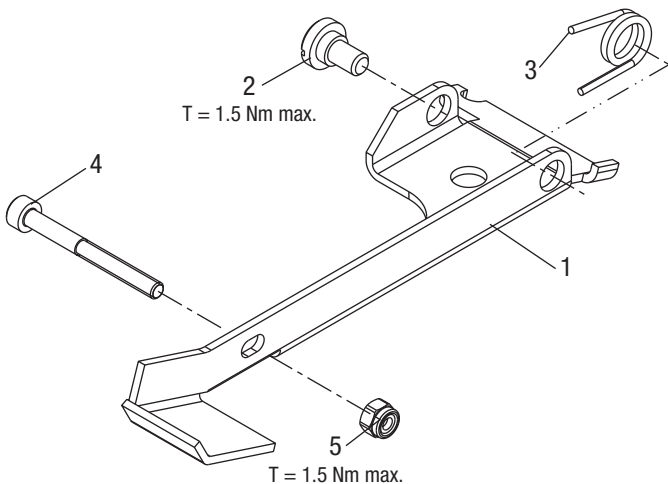


**Parts List—Main**

Key	Part No.	Description	Qty	Key	Part No.	Description	Qty
	<b>52061920</b>	<b>Pump, battery-powered</b>		29	52062228	Adapter .....	1
1	52062197	Housing assembly, green.....	1	30	52062194	Coupler, 3/8 female.....	1
2	52049231	Motor and gearbox .....	1	31	52062241	Coupler cap .....	1
3	52062196	Relief lever assembly .....	1	32	52062237	Decal kit .....	1
4	52062195	Pump housing unit.....	1	33	52062243	Remote control .....	1
5	52060714	Pump housing cap unit.....	1	34		Seal .....	1
6	52062231	Pump housing cap.....	1		52062236	Circuit board	
7	52066578	Relief valve assembly .....	1		52062242	Wire harness	
8	52062180	Reservoir assembly.....	1		52062240	Carrying strap	
9	52024191	Piston pump.....	1		52063309	Foot switch	
	52064015	Control assembly (includes 10, 11)			52047087	120 VAC corded adapter	
10		Battery plate .....	1		52047088	230 VAC corded adapter	
11		Control unit .....	1		52049189	18 V, 3 Ah lithium-ion battery	
	52064485	Relief button kit (includes 12–18)			52049201	120 VAC, 18 V charger	
12		Relief button.....	1		52049202	230 VAC, 18 V charger	
13		Screw, M6-1.0 socket head cap.....	1		52049204	12 VDC, 18 V charger	
14		Spring .....	1		52054992	Li (18 V) to NiCd, NiMH (12 V) charger adapter	
15		Nut .....	1		52057878	Biodegradable hydraulic fluid (1 qt)	
16		Washer .....	3		50177079	Hydraulic hose, 10' x 1/4" with 3/8" and 1/4" male couplers	
17		Washer .....	1		50058509	Hydraulic hose, 10' x 1/4" with 3/8" male and 3/8" female couplers	
18*		Screw .....	1		52063307	Hydraulic hose, 6' x 1/4" with 3/8" and 1/4" male couplers	
19	52062199	Reservoir cover.....	1		52063308	Hydraulic hose, 6' x 1/4" with 3/8" male and 3/8" female couplers	
20*		Screw .....	1	†	52062238	Seal kit (includes items marked with †)	
21	52062203	Electromagnet.....	1	*	52062239	Fastener kit (includes items marked with *)	
22	52062202	Mounting plate.....	1				
23*		Screw .....	2				
24†		O-ring, 28.17 x 3.53 NB70.....	1				
25†		Ring, backup-piston .....	1				
26	52062193	Fitting, 90°.....	1				
27	52060735	Cover .....	1				
28*		Screw .....	1				

**Illustration and Parts List—Motor**


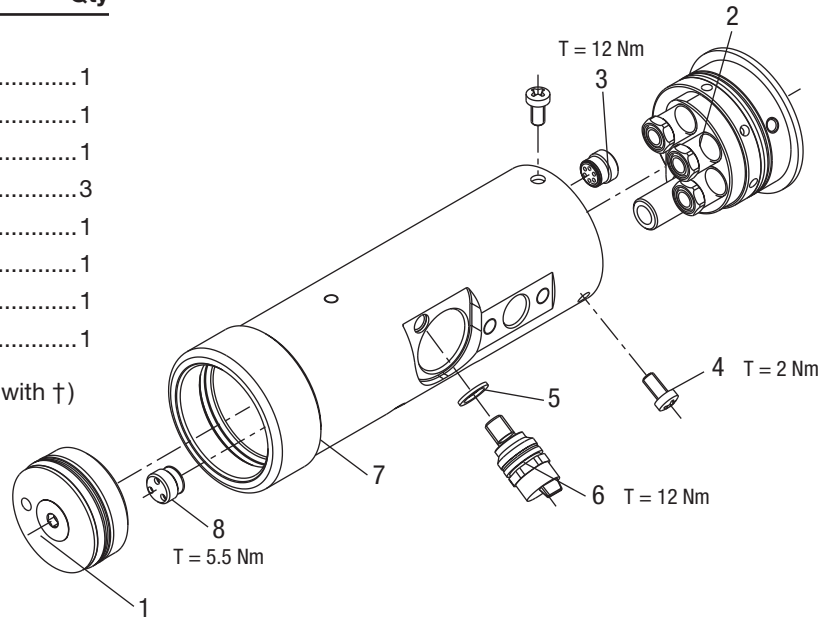
Key	Part No.	Description	Qty
	<b>52049231</b>	<b>Motor gearbox unit</b>	
1	52055064	Motor and pinion.....	1
2		Gearbox with eccentric.....	1
3*		Retaining ring.....	1
4		Grooved ball bearing .....	1
5*		Screw .....	2
6		Eccentric case .....	1
7		Flange .....	1
8*		Screw .....	5
9*		Gear box screw.....	4
*	52062239	Fastener kit (includes items marked with *)	

**Illustration and Parts List—Release Lever**


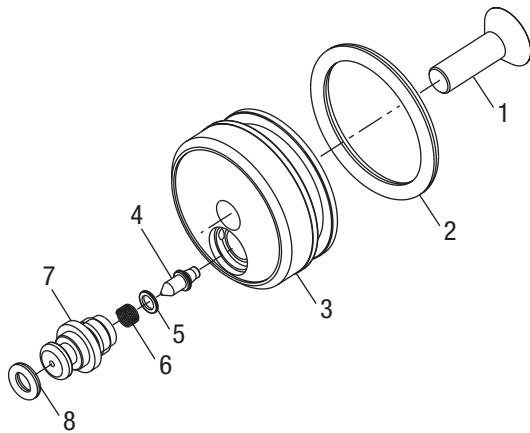
Key	Part No.	Description	Qty
	<b>52062196</b>	<b>Release lever unit</b>	
1		Release lever.....	1
2		Screw .....	1
3		Compression spring.....	1
4		Bolt.....	1
5		Nut .....	1

## Illustration and Parts List—Pump Housing Unit

Key	Part No.	Description	Qty
	<b>52062195</b>	<b>Pump housing unit</b>	
1	52060714	Pump housing cap unit.....	1
2	52062231	Pump housing cap.....	1
3	50109162	Bushing, threaded.....	1
4*		Screw.....	3
5†		Seal.....	1
6	52049205	Sensor.....	1
7		Pump housing.....	1
8	50109308	Bushing, threaded.....	1
†	52062238	Seal kit (includes items marked with †)	
*	52062239	Fastener kit (includes items marked with *)	

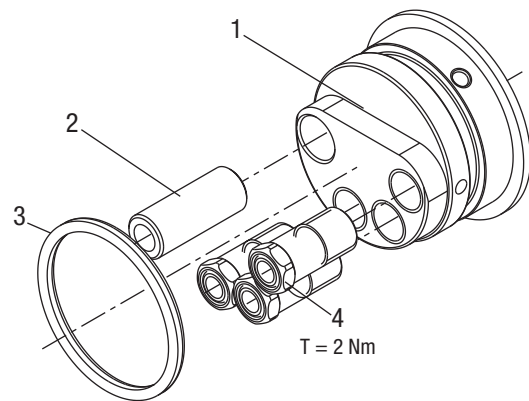


## Illustration and Parts List—Pump Housing Cap Unit



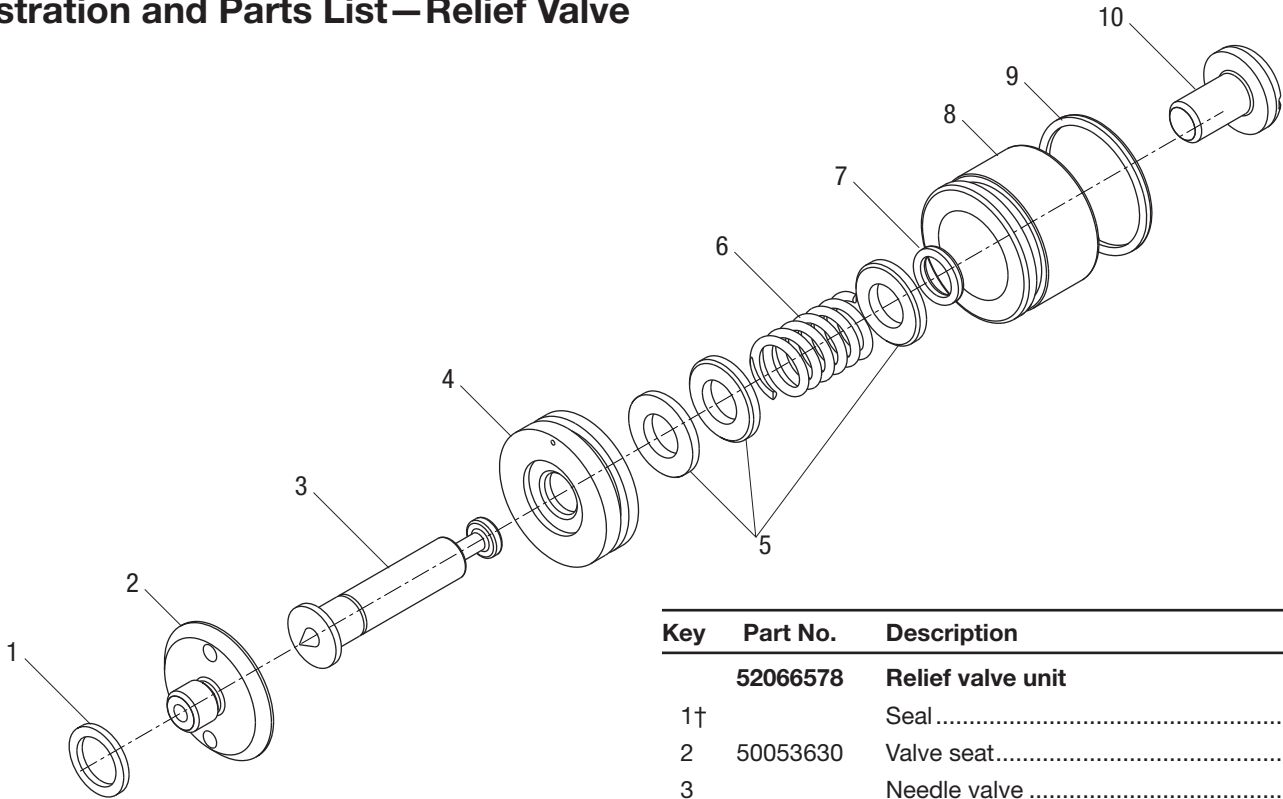
Key	Part No.	Description	Qty
	<b>52060714</b>	<b>Pump housing cap unit</b>	
1*		Screw.....	1
2†		O-ring, 28.17 x 3.53 NB70.....	1
3		Valve housing.....	1
4		Needle valve.....	1
5*		Washer.....	1
6*		Spring.....	1
7		Valve seat.....	1
8†		O-ring.....	1
†	52062238	Seal kit (includes items marked with †)	
*	52062239	Fastener kit (includes items marked with *)	

## Illustration and Parts List—Pump Housing Cap



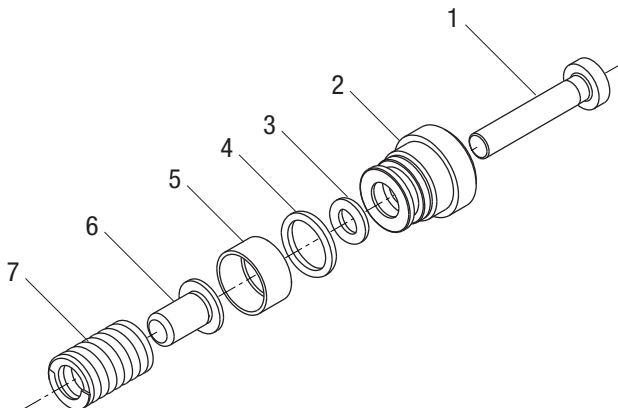
Key	Part No.	Description	Qty
	<b>52062231</b>	<b>Pump housing cap</b>	
1		Cap.....	1
2	52062234	Sleeve.....	1
3†		Seal ring.....	1
4	52046666	Filter.....	3
†	52062238	Seal kit (includes items marked with †)	

## Illustration and Parts List—Relief Valve



Key	Part No.	Description	Qty
	<b>52066578</b>	<b>Relief valve unit</b>	
1†		Seal.....	1
2	50053630	Valve seat.....	1
3		Needle valve.....	1
4		Plunger.....	1
5		Washer.....	3
6		Compression spring.....	1
7†		O-ring.....	1
8		Pressure relief valve.....	1
9†		O-ring.....	1
10		Screw.....	1
†	52062238	Seal kit (includes items marked with †)	

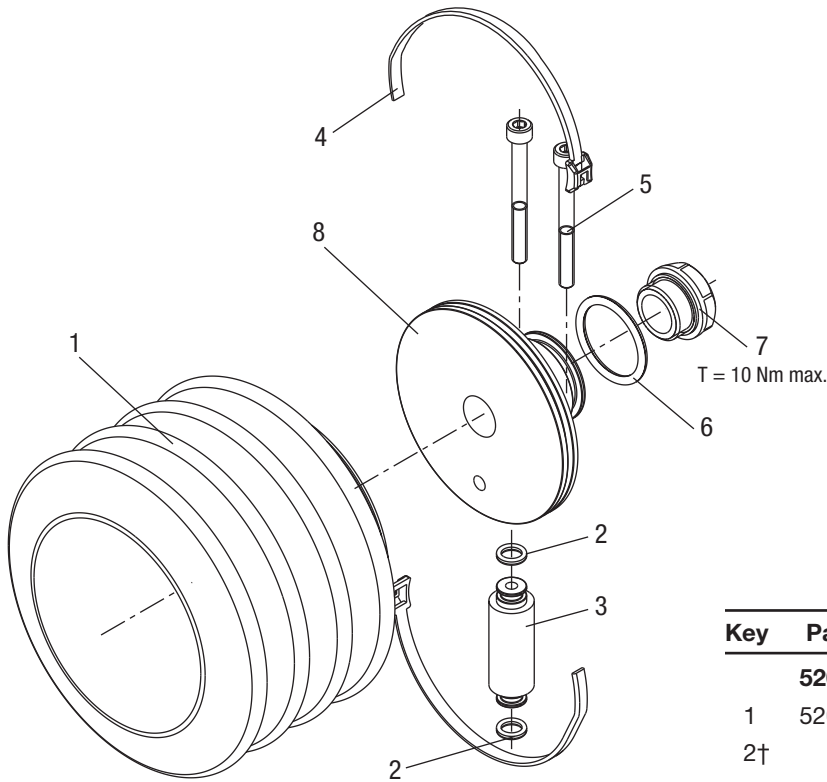
## Illustration and Parts List—Piston Pump



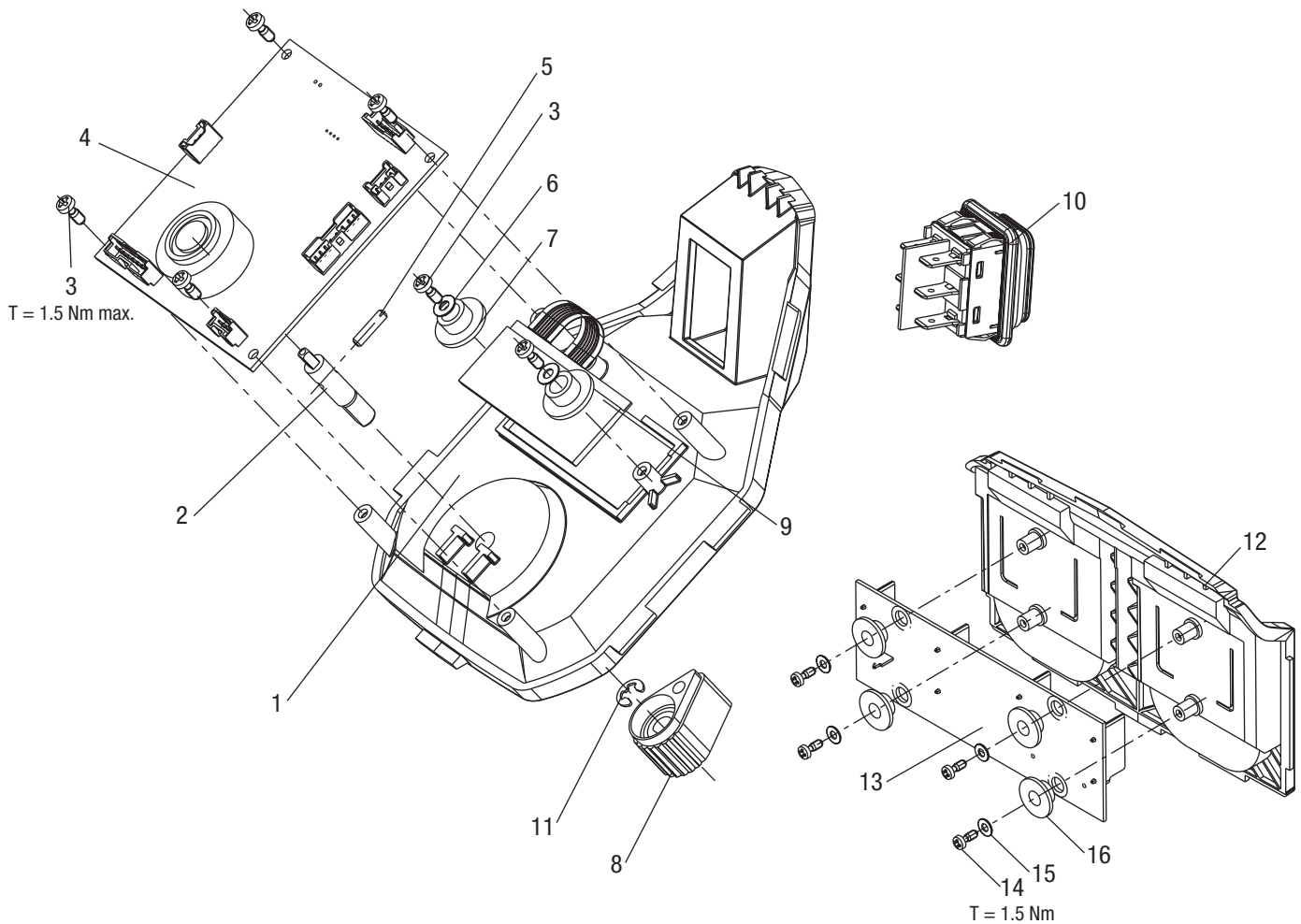
Key	Part No.	Description	Qty
	<b>52024191</b>	<b>Piston pump unit</b>	
1		Pump piston.....	1
2		Screw plug.....	1
3†		Piston seal.....	1
4†		Washer.....	1
5		Pump piston.....	1
6		Valve stem.....	1
7		Spring.....	1
†	52062238	Seal kit (includes items marked with †)	



## Illustration and Parts List—Reservoir Assembly



Key	Part No.	Description	Qty
	<b>52062180</b>	<b>Reservoir assembly</b>	
1	52062217	Reservoir.....	1
2†		Seal.....	2
3		Reservoir shaft.....	1
4	52055861	Clamp (10 pack).....	2
5*		Bolt, shoulder.....	2
6†		O-ring.....	1
7		Adapter.....	1
8		Reservoir plate.....	1
†	52062238	Seal kit (includes items marked with †)	
*	52062239	Fastener kit (includes items marked with *)	

**Illustration and Parts List—Control Assembly**


Key	Part No.	Description	Qty
	<b>52064015</b>	<b>Control assembly</b>	
1		Front panel.....	1
2		Control shaft .....	1
3*		Screw .....	6
4		Board .....	1
5*		Pin.....	1
6*		Washer.....	2
7*		Standoff .....	2
8		Knob .....	1
9		LCD display .....	1

Key	Part No.	Description	Qty
10		Switch.....	1
11*		Retaining ring.....	1
12		Contact cover .....	1
13		Contact board.....	1
14*		Screw .....	4
15*		Washer.....	4
16*		Standoff .....	4
*	52062239	Fastener kit (includes items marked with *)	





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