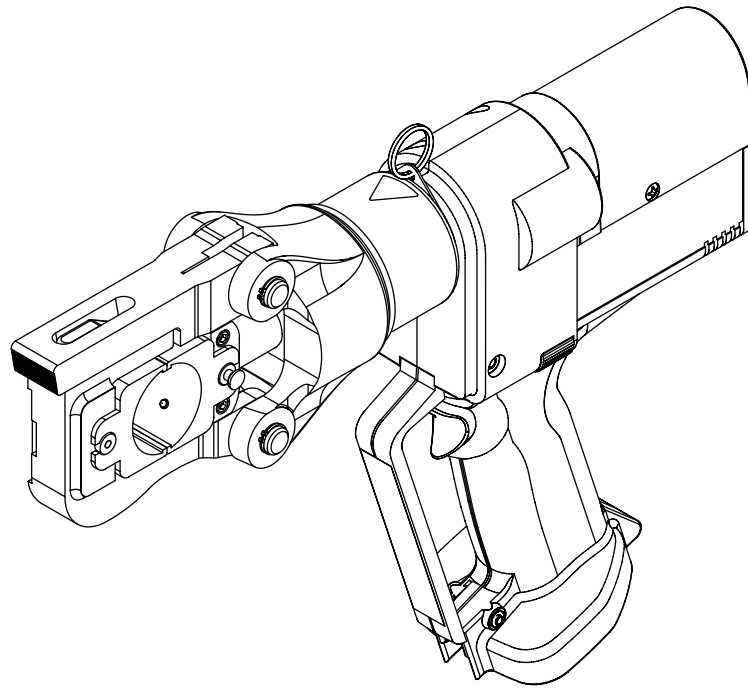


INSTRUCTION MANUAL



GREENLEE®
A Textron Company

Serialnummer



GATOR® PRO E12CCX **12-ton Battery-powered,** **High-speed Tool**



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

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Description

The E12CCX 12-ton Battery-powered, High-speed Tool is a hand-held, self-contained tool intended to crimp cable, cut cable and threaded rod, and punch holes with the proper adapters.

This tool is protected by U.S. Patent No. 6,206,663.

Safety

Safety is essential in the use and maintenance of Greenlee 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 operation and maintenance procedures for the following Greenlee tool:

E12CCX 12-ton Battery-powered,
High-speed Tool

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge at 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.

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Blackburn is a registered trademark of Thomas & Betts.

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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

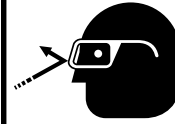
Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

⚠ 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

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

Skin injection hazard:

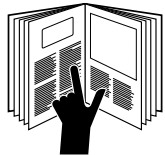
Do not use hands to check for oil leaks. Oil under pressure easily punctures skin. If injured, seek medical attention immediately to remove oil.

Failure to observe this warning could result in serious injury, gangrene, or death.



⚠ WARNING

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.



⚠ WARNING

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

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



⚠ WARNING

Electric shock hazard:

This tool is not insulated. When using this unit on or near energized electrical lines, use proper personal protective equipment.

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

⚠ WARNING

An incomplete crimp can cause a fire.

- Use proper die, connector, and cable combinations. Mismatched combinations can result in an incomplete crimp.
- The crimping tool automatically retracts when a complete crimp has been achieved. If you do not hear a "pop," the crimp is incomplete.

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



⚠ WARNING

Pinch points:

Keep hands away from the crimping tool head when crimping.

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



IMPORTANT SAFETY INFORMATION

⚠ WARNING

Do not dispose of the battery in a fire. The battery will vent fumes and it could explode.

Failure to observe this warning could result in severe injury from harmful fumes or burns from flying debris.

⚠ WARNING

Inspect tool, dies, and adapters before use. Replace any worn or damaged parts. A damaged or improperly assembled tool can break and strike nearby personnel.

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

⚠ CAUTION

- Do not use this tool for continuous use. After 30 to 40 cycles, allow the tool to cool for 15 minutes.
- Do not secure this tool in a vise. This tool is designed for hand-held operation.
- This tool may be used in damp or wet environments; however, we recommend air drying the tool before use if it becomes soaked. Damage may result when the tool is operated prior to drying out when electrical components are soaked.
- Use this tool for the manufacturer's intended purpose only.

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

⚠ CAUTION

Do not allow anything to contact the battery terminals.

- 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.
- 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.
- Do not place a battery on moist ground or grass. Moisture may create a short circuit and damage the battery.

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

⚠ CAUTION

- Do not store the battery at more than 60 °C (140 °F). Damage to the battery can result.
- Do not use another manufacturer's charger. Other manufacturers' chargers may overcharge and damage the battery.
- Do not attempt to open the battery. It contains no user-serviceable parts.

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

⚠ CAUTION

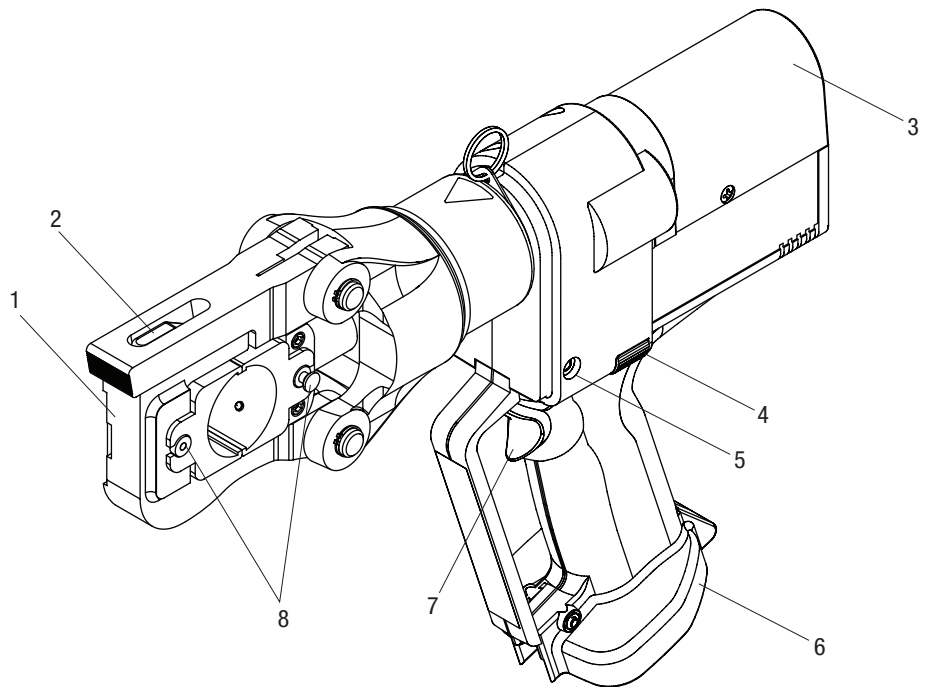
Do not perform any service or maintenance other than as described in this manual. Injury or damage to the tool may result.

Failure to observe this precaution may result in injury and property damage.

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

Identification

1. Head
2. Latch (for opening head)
3. Housing
4. Retract Button
5. Battery Load Display
6. Battery
7. Trigger
8. Adapter Release Buttons



Specifications

Tool

Overall Length	371 mm (14-5/8")
Width	95 mm (3-3/4")
Height	330 mm (13")
Mass/Weight (with battery)	6.5 kg (14.35 lb)
Maximum Force	106 kN (12 tons)
Sound Level	75 dB (A) at 1 meter
Vibration	< 2.5 m/s ²
Motor Type	DC permanent field motor
Motor Voltage	12 VDC
Hydraulic Oil	50 ml (0.1 pint) of Shell Tellus® T 15
Recommended Operating Temperature Range	-15 °C to 50 ° (5 °F to 120 °F)

Battery

Charging Voltage	12 VDC
Charging Time	1 hour

Crimping Capacities

Copper Color-Coded Lugs and Splices	750 kcmil
Aluminum Color-Coded Lugs and Splices ...	750 kcmil
5/8" Service Entrance Connectors	10–1/0 AWG
.840 Service Entrance Connectors	1/0–4/0 AWG
Aluminum Overhead "H" Taps	6 AWG–500 kcmil
One-Piece ACSR Tension Splices	4 AWG–556.5 kcmil
Two-Piece ACSR Tension Splices	2 AWG–556.5 kcmil


Cutting Capacities

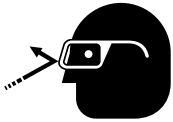
Copper and Aluminum Cable	40 mm (1-1/2")
ACSR	954 kcmil (Cardinal)
Standard Guy Strand	5/8"
EHS Guy Strand	1/2"
Ground Rod	13 mm (1/2")
Rebar (schedule 60)	13 mm (1/2")
Threaded Rod	1/4", 3/8", 1/2", 4 mm, 5 mm, 6 mm, 8 mm, 10 mm
DIN Rail	35 x 7.5, 32 x 15 x 9, 35 x 15


Punching Capacities

Round	144.1 mm (5-5/8") in 10 ga. mild steel
Rectangular ...	68.0 mm x 138.0 mm (2.677" x 5.433")
Square	138.0 mm x 138.0 mm (5.433" x 5.433")
Accessories required to punch 4-1/2" through 5-5/8": 12185 spacer, 04686 bushing, and 03170 sleeve	

Operation

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

	⚠ WARNING
	<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>

	⚠ WARNING
	<p>Pinch points:</p> <p>Keep hands away from the crimping tool head when crimping.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

⚠ CAUTION
<ul style="list-style-type: none"> • Do not use this tool for continuous use. After 30 to 40 cycles, allow the tool to cool for 15 minutes. • Do not secure this tool in a vise. This tool is designed for hand-held operation. • This tool may be used in damp or wet environments; however, we recommend air drying the tool before use if it becomes soaked. Damage may result when the tool is operated prior to drying out when electrical components are soaked. • Use this tool for the manufacturer's intended purpose only. <p>Failure to observe these precautions may result in injury or property damage.</p>

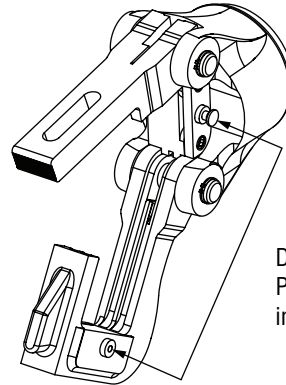
Crimping

Setup

1. Open the tool head.
2. Remove any accessories from the tool head.
3. Select the appropriate set of die adapters and dies.
4. Install the adapters and dies—one set in each groove. Lock the die adapters in place with the detents.

Important: Die adapters must be locked into place or the die detents will be damaged.

5. Visually check the dies to ensure that they are aligned correctly so that they will complete the crimping operation.
6. Close the tool head.



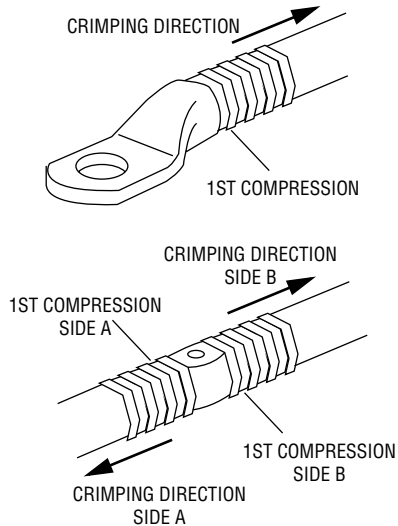
Die Adapter Detents:
Press and slide the adapter into place. Release to lock.

Operation (cont'd)

Crimping (cont'd)

Preparing the Cable

Follow the lug manufacturer's instructions for appropriate cable strip length.



Battery Condition

The battery indicator illuminates to show battery charge level as follows:

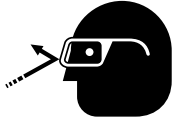
Normal: Illuminates momentarily at beginning of crimp.

Normal: Flickering at point of maximum crimping force.

Low charge: Flickering during entire crimping cycle.

Low charge: Illuminates continuously when operating without a load.

Crimping Procedure

	⚠ WARNING
	<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>

⚠ WARNING
<p>An incomplete crimp can cause a fire.</p> <ul style="list-style-type: none"> • Use proper die, connector, and cable combinations. Mismatched combinations can result in an incomplete crimp. • The crimping tool automatically retracts when a complete crimp has been achieved. If you do not hear a "pop," the crimp is incomplete. <p>Failure to observe this warning could result in severe injury or death.</p>


1. Press the latch and open the tool head.
2. Insert the properly assembled connector into the tool head.
3. Close the tool head.
4. Pull the trigger to make the crimp.
5. Hold the trigger down until the crimper achieves pressure relief.

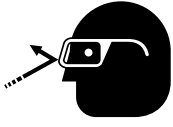
Notes: Pressure relief occurs at approximately 690 bar (10,000 psi). If you do not hear a "pop," the crimp is incomplete.

It is normal for the battery load display to light at both the beginning and near the end of the crimping cycle.

6. The ram returns automatically.
 7. Position the crimper for the next crimp. Repeat Steps 4 through 6 for the number of crimps as described in this manual.
 8. Open the crimping head and remove the connector.
- Notes: If it is necessary to retract the ram before a crimp cycle is completed, push the retract button. Pushing the retract button will result in complete retraction of the ram.*
- After completing the last crimp on an aluminum connector, wipe off the excess oxide inhibitor.*

Operation (cont'd)
Cutting

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

	⚠ WARNING
	<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>

Setup

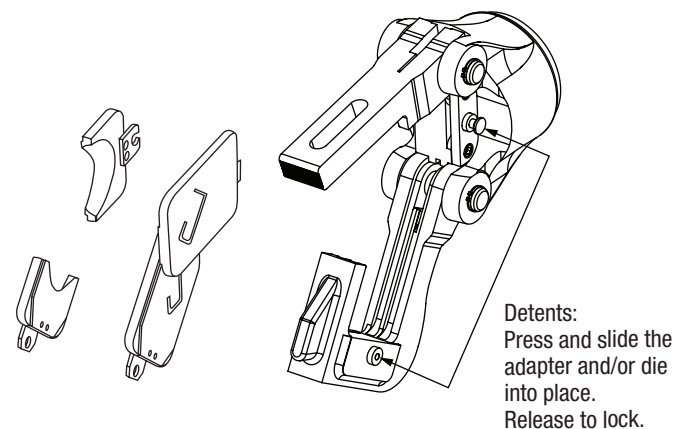
1. Open the tool head.
2. Remove any accessories from the tool head.
3. Select the appropriate set of blades, using the table provided on this page.
4. Install one blade in each groove. Slide the tab into the slots in the ram and head. Lock them in place with the W-type detents.
5. Visually check the blades to ensure that they are aligned correctly so that they will complete the butting operation.
6. Close the tool head.

Setup for Din Rail Cutters

1. Install both blades in the movable head.
2. Close the head.
3. Slide one blade over until it engages in the W-type detent in the ram slot. Slide the other blade over until it engages in the W-type detent in the head slot.


Accessory Table

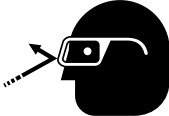
Task	Blade
Copper and aluminum 26 mm (1.00") max.	UC26
Copper and aluminum 40 mm (1.56") max.	UC40
ACSR Copperweld ACAR Guy strand EHS guy strand Ground rod Anchor rod Soft bolts Rebar	UCACSR
Threaded rod	Threaded rod
DIN rail	DIN rail

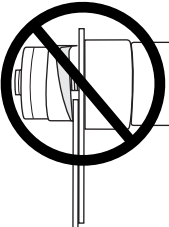

Cutting Procedure

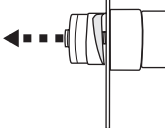
1. Press the latch and open the tool head.
2. Position the item to be cut in the tool head.
3. Close the tool head.
4. Pull the trigger to cut the item.
5. Release the trigger when the cut is complete.
6. The ram returns automatically.

Operation (cont'd)
Punching

	⚠ WARNING
	<p>Electric shock hazard:</p> <p>Do not use this tool as a punch driver on or near live circuits. This includes, but is not limited to, the following circumstances:</p> <ul style="list-style-type: none"> • Energized electrical lines • Energized circuit breaker panels and fuse boxes • Junction boxes with energized circuits <p>Failure to observe this warning could result in severe injury or death.</p>

	⚠ WARNING
	<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>

	⚠ WARNING
	<p>Do not attempt to punch a hole through two or more thicknesses of material. This will bend or break the draw stud, and could throw parts with great force.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

	⚠ WARNING
	<p>A component failure could throw broken parts.</p> <ul style="list-style-type: none"> • Do not allow anyone to stand in front of the punch. • Close access doors or covers on any equipment that is in line with the punch. <p>Failure to observe this warning could result in severe injury or death.</p>

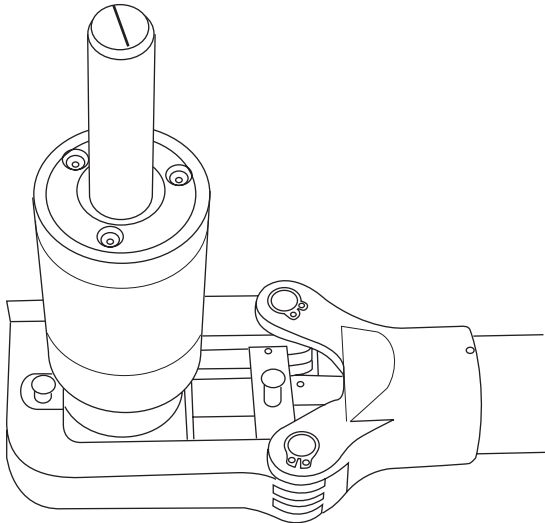
⚠ WARNING
<p>Set up the tool properly. An improper setup could cause a component to fail and strike nearby personnel with great force.</p> <ul style="list-style-type: none"> • Thread the punch completely onto the draw stud. All of the punch threads must be engaged by the draw stud threads. Incomplete assembly could cause a component failure. • Use only Greenlee punches, dies, and draw studs. Other manufacturers' components might not withstand the forces generated by this punch driver. <p>Failure to observe these warnings could result in severe injury or death.</p>

Operation (cont'd)

Punching (cont'd)

Setup and Punching Procedure

1. Open the tool head.
2. Remove any accessories from the tool head.
3. Install the punch driver so that the drive piston is toward the yoke, as shown.



4. Close the tool head.
5. Select the punch, die, and draw stud to make the appropriate size hole. Refer to the illustrations on the following pages.
6. Determine and mark the exact location for the hole. Use a Greenlee Kwik Stepper® drill bit to drill a hole that is slightly larger than the draw stud. This is the pilot hole.
7. Push the retract button and hold the button until the ram is completely retracted.

8. Thread the 3/4" draw stud or 3/4" adapter completely into the punch driver. Refer to the illustrations on the following pages.

Notes: For a punch and die with a 3/8" center hole, thread the 3/8" draw stud into the end of the 3/4" adapter.

For 4" and larger punch and die, add the bushing to the die, slide the spacer over the 3/4" draw stud, and install the 1-1/8" sleeve.

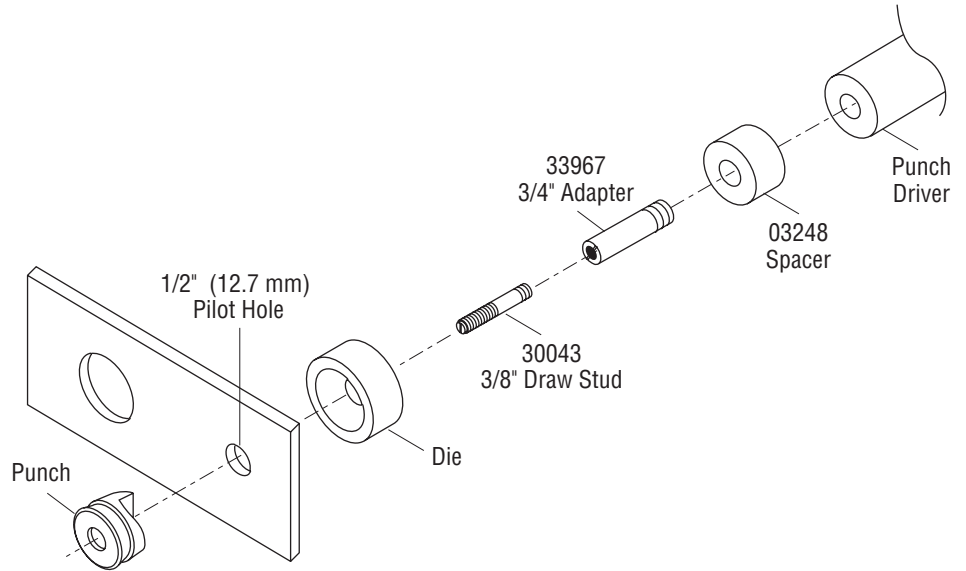
9. Install a spacer, if necessary. Refer to the illustrations on the following pages.
10. Slide the die over the draw stud with the open end of the die facing away from the punch driver.
11. Insert the draw stud through the pilot hole.
12. Thread the punch onto the draw stud with the cutting surfaces of the punch facing the material. Tighten the punch by hand until the spacer, die, material, and punch contact each other.
Note: All of the punch threads must be engaged by the draw stud threads. If any of the punch threads are not engaged, disassemble the setup, remove the spacer, and reassemble the setup.
Note: A "popping" sound indicates that the tool has reached relief pressure. This may indicate that the attempted operation is beyond the capacity of the tool.
13. Pull the trigger.
14. Release the trigger when the punch completes the hole. The ram returns automatically.
15. Unscrew the punch. Remove slugs from the die. Remove the spacer and unscrew the draw stud.

Operation (cont'd)

Punching (cont'd)

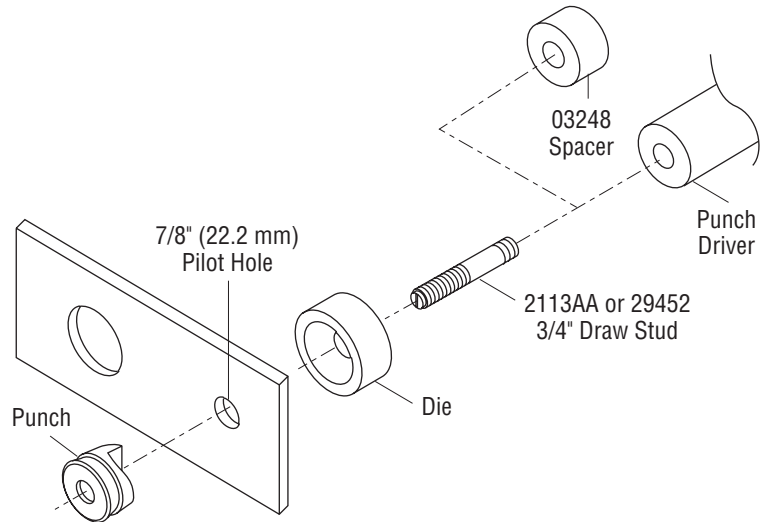
Round Punches

Metric: 22.5 mm (max.)
 Conduit Size: 1/2" (max.)
 Actual Size: 0.885" (max.)



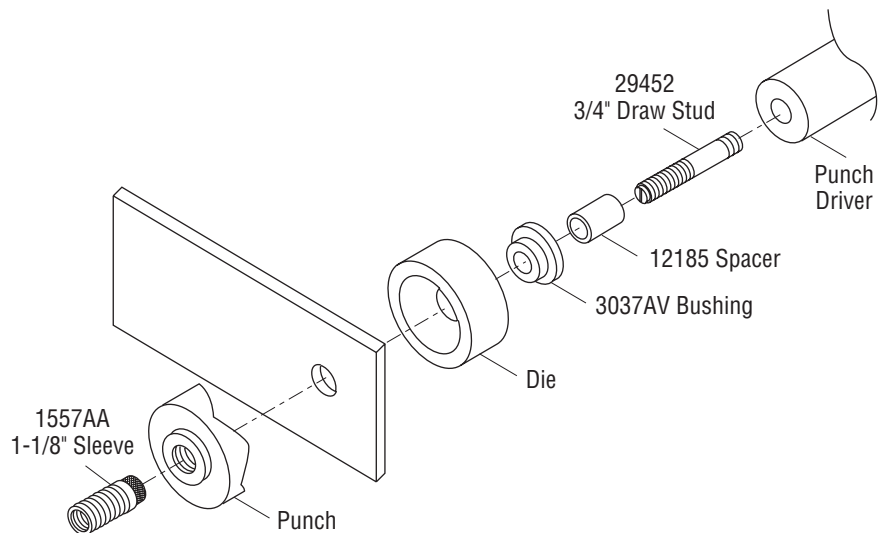
Round Punches

Metric: 28.3 mm to 95.2 mm
 Conduit Size: 3/4" to 3"
 Actual Size: 1.115" to 3.75"



Round Punches

Metric: 95.2 mm to 143 mm
 Conduit Size: 3-1/2" to 5"
 Actual Size: 4" to 5-5/8"



Operation (cont'd)

Punching (cont'd)

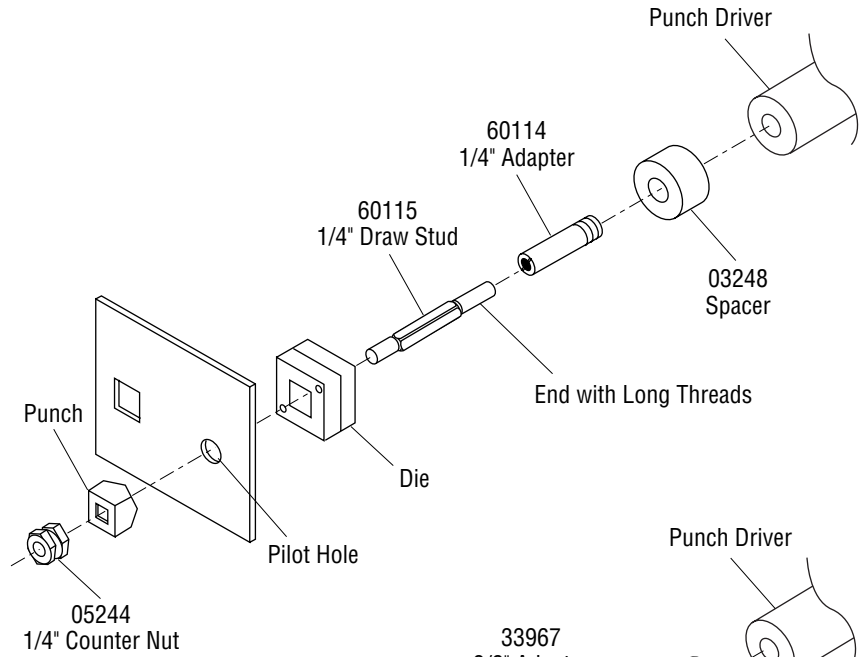
Square and Rectangular Punches

Metric: 12.7 mm square

Inches: 1/2" square

Metric: 11.1 mm x 22.2 mm rectangular

Inches: 7/16" x 7/8" rectangular



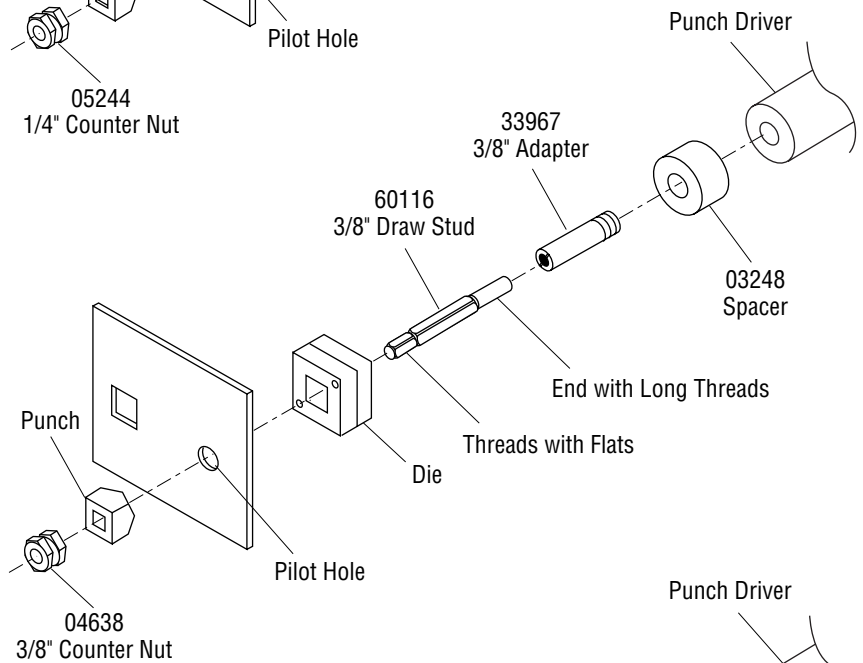
Square and Rectangular Punches

Metric: 15.9 mm to 24.0 mm square

Inches: 5/8" to 0.945" square

Metric: 17.0 mm x 19.0 mm rectangular

Inches: 0.670" x 0.749" rectangular



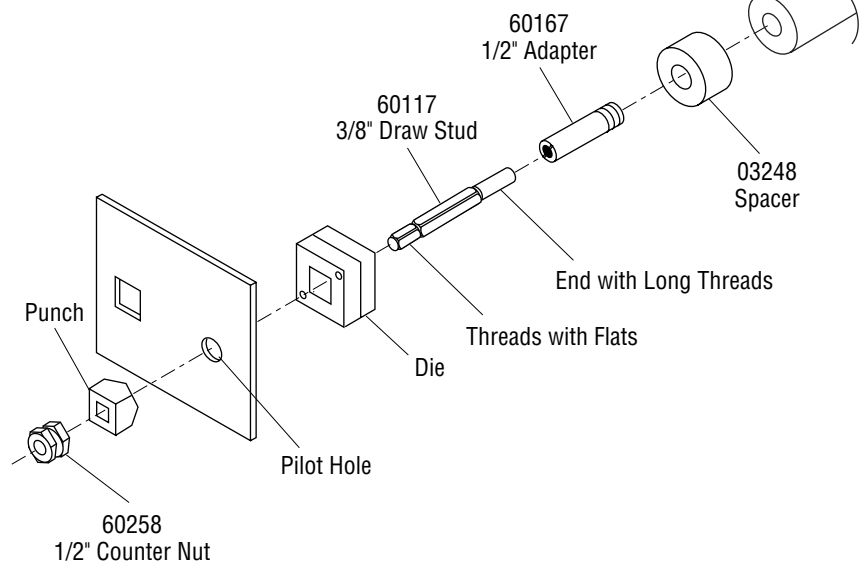
Square and Rectangular Punches

Metric: 25.4 mm square

Inches: 1" square

Metric: 19.1 mm x 29.0 mm to 31.8 mm x 35.1 mm rectangular

Inches: 0.750" x 1.140" to 1.250" x 1.380" rectangular

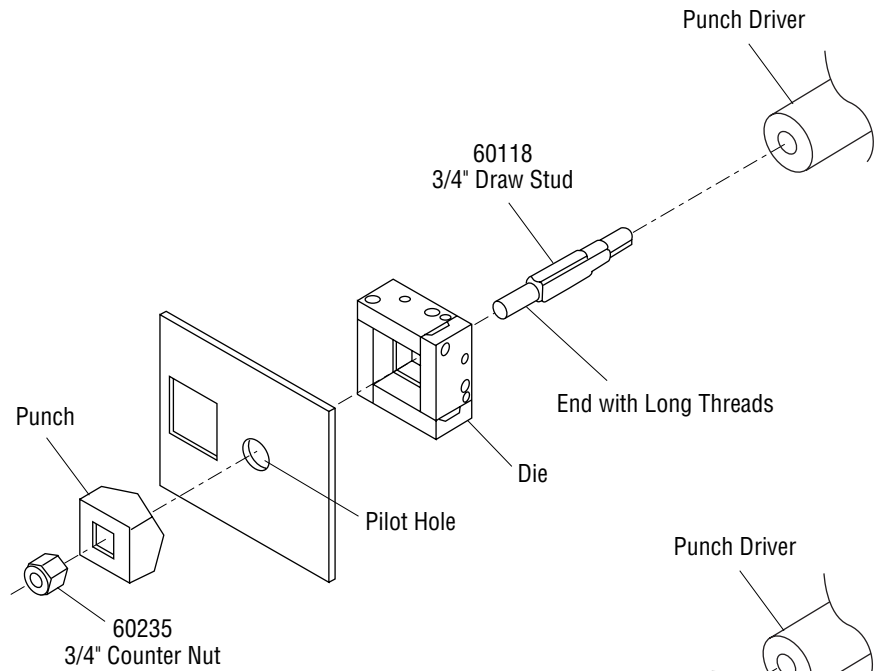


Operation (cont'd)

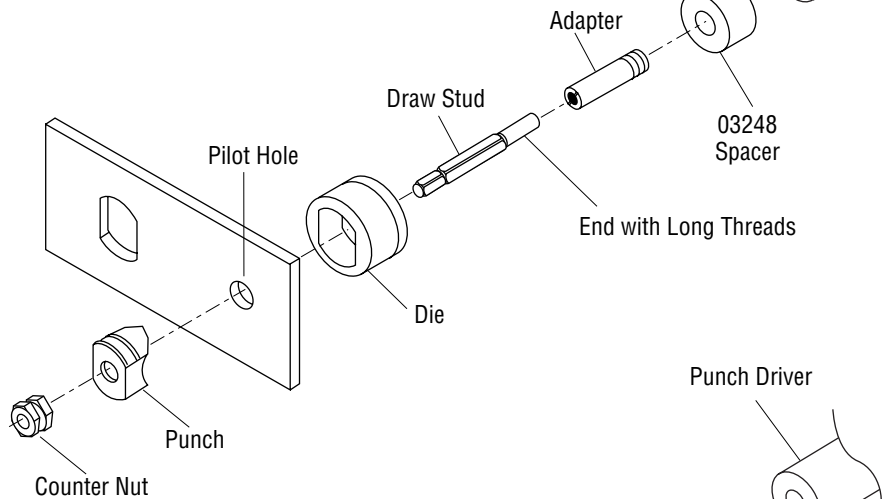
Punching (cont'd)

Square and Rectangular Punches

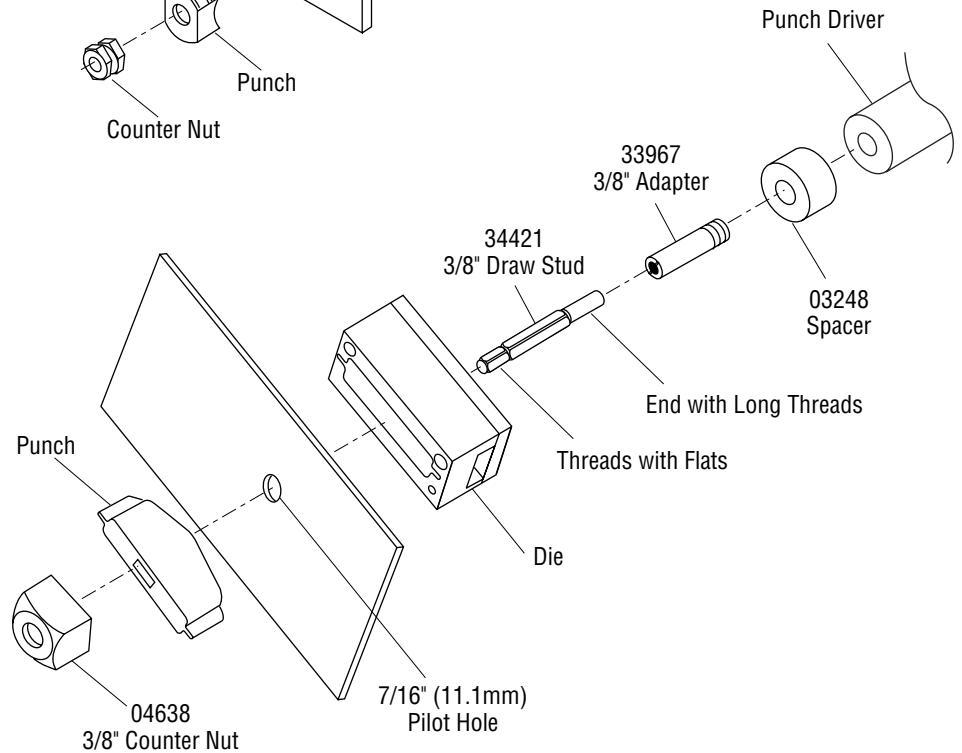
Metric: 46.0 mm to 68.0 square
 Inches: 1.811" to 2.677" square
 Metric: 33.3 mm x 66.7 mm to
 35.0 mm x 65.0 mm rectangular
 Inches: 1.312" x 2.625" to
 1.378" x 2.559" rectangular



"D", Double "D", and Key Punches



Electronic Connector Panel Punches



Die Selection

Refer to “Connector Selection” for brand names and model numbers of appropriate lugs as well as crimping instructions.

Crimps made with this tool and KC12-type or KA12-type dies are cUL and UL classified when used with the appropriate conductor and connectors listed below.

Dies for Copper Connectors

Catalog Number	UPC Number	Cable Size	Color Code	No. of Crimps
KC12-8	10996	8 AWG	Red	1
KC12-6	10997	6 AWG	Blue	1
KC12-4	10998	4 AWG	Gray	1
KC12-2	10999	2 AWG	Brown	1
KC12-1	11003	1 AWG	Green	1
KC12-1/0	11004	1/0 AWG	Pink	1
KC12-2/0	11007	2/0 AWG	Black	1
KC12-3/0	11010	3/0 AWG	Orange	1
KC12-4/0	11011	4/0 AWG	Purple	1
KC12-250	11012	250 kcmil	Yellow	1
KC12-300	11013	300 kcmil	White	2
KC12-350	11014	350 kcmil	Red	2
KC12-400	11015	400 kcmil	Blue	2
KC12-500	11016	500 kcmil	Brown	2
KC12-600	11018	600 kcmil	Green	2
KC12-750	11020	750 kcmil	Black	2

Dies for Aluminum Connectors

Catalog Number	UPC Number	Cable Size	Color Code	No. of Crimps
KA12-8	22084	8 AWG	Blue	1
KA12-6	22085	6 AWG	Gray	1
KA12-4	22086	4 AWG	Green	1
KA12-2	22087	2 AWG	Pink	1
KA12-1	22088	1 AWG	Gold	1
KA12-1/0	22089	1/0 AWG	Tan	1
KA12-2/0	22090	2/0 AWG	Olive	2
KA12-3/0	22121	3/0 AWG	Ruby	2
KA12-4/0	22122	4/0 AWG	White	2
KA12-250	22123	250 kcmil	Red	2
KA12-300	22124	300 kcmil	Blue	2
KA12-350	22125	350 kcmil	Brown	2
KA12-400	22126	400 kcmil	Green	3
KA12-500	22127	500 kcmil	Pink	3
KA12-600	22128	600 kcmil	Black	3
KA12-750	22129	750 kcmil	Yellow	3

Connector Selection

Tool Range: 8 AWG to 750 kcmil

When used with KC12-type dies, this tool is cUL and UL classified for use with the following connector brands:

Connector Type	Barrel Type	Anderson	Blackburn®	FCI Burndy	IlSCO	Panduit	T&B	Penn-Union	Number of Crimps*
Copper Splice	Short	VHSS	CSP	YS-L	CT	SCSS SCS	54504 to 54523-TB	BCU	8 AWG to 250 kcmil: 1 crimp
	Long	VHS	CU	YS	CTL	SCL SCH	54804 to 54823	BBCU	
Copper Lugs	Short	VHCS	CTL-2/CTL	YA-2LN/ YA-L/YA-2L; YA/YA-L-TC/ YA-L-2TC	CRA/CRB CRC	LCAS LCA LCD LCAN	54104 to 54123-TB; 54204 to 54223	BLU	300 to 750 kcmil: 2 crimps
	Long	VHCL	CTL-L/LCN	YA/YAZ YA-2N/YA-2TC YAZ-2N/YAZ-2TC	CRA-L/CRB-L CRA-2/CRB-2L CRC-2L	LCB LCC	54930BE to 54923BE; 54850BE to 54880BE	BBLU	

When used with KA12-type dies, this tool is cUL and UL classified for use with the following connector brands:

Connector Type	Anderson	Blackburn®	FCI Burndy	IlSCO	Panduit	T&B	Penn-Union	Number of Crimps*
Dual-Rated Aluminum Splice	VACS	ASP	YS-A	AS	SA	60501 to 60578	PIK	8 to 1/0 AWG: 1 crimp
Dual-Rated Aluminum Lugs	VACL	ATL	YA-A YA-ATN	ACL/ACN 2ACL/2ACN	LAA LAB	60101 to 60176; 60230 to 60278	BLUA	2/0 AWG to 350 kcmil: 2 crimps 400 to 750 kcmil: 3 crimps



* Use the number of crimps listed in this column instead of the number provided with the connector.

Additional U-type Dies

Greenlee Catalog No.	Greenlee UPC No.	FCI Burndy No.
KD12-10	10188	U-BG
KD12-11	10189	U-0
KD12-12	10190	U-C
KD12-14	10192	U-161
KD12-15	10193	U-162
KD12-16	10194	U-163
KD12-17	10195	U-165
KD12-18	10196	U-166
KD12-19	10197	U-243
KD12-20	10198	U-247
KD12-21	10199	U-249
KD12-30	10200	U-D3
KD12-31	10201	U-E
KD12-32	10202	U-F
KD12-33	10203	U-997
KD12-35	10205	U-238
KD12-36	10206	U-654
KD12-37	10207	U-655
KD12-38	10208	U-658
KD12-39	10209	U-659
KD12-40	10210	U-998

Available Accessories

Adapter	Greenlee Part No.	Description
UC26	50067141	Cutter blades for copper and aluminum 26 mm (1") max.
UC40	50070363	Cutter blades for copper and aluminum 40 mm (1-1/2") max.
UCACSR	50070371	Cutter blades for ACSR, ACAR, standard guy wire, EHS guy wire, copperweld, ground rod, anchor rod, soft bolts, rebar
UCUNC14	50070380	Cutter blades for 1/4" threaded rod
UCUNC38	50070398	Cutter blades for 3/8" threaded rod
UCUNC12	50072749	Cutter blades for 1/2" threaded rod
UCM5	50070533	Cutter blades for M5 threaded rod
UCM6	50070509	Cutter blades for M6 threaded rod
UCM8	50070517	Cutter blades for M8 threaded rod
UCM10	50070525	Cutter blades for M10 threaded rod
UCD3575	50070410	DIN rail cutter blades—35 x 7.5
UCD3215	50070428	DIN rail cutter blades—32 x 15
UCD3515	50070436	DIN rail cutter blades—35 x 15
UA12P	50118900	Punch driver adapter
04686	50046861	Die bushing*
12185	50121855	Spacer*
03170	50031708	Punch sleeve, 1-1/8"**


* Required for knockout punches larger than 4" actual diameter.

Maintenance

Each Operating Day


Before use:

1. Inspect dies and adapters for wear or damage such as cracks, gouges, or chips.
2. Inspect the tool for damage or leaks. If damage is detected, return the tool to an authorized Greenlee service center for inspection.

	⚠ WARNING
	<p>High pressure hazard:</p> <p>Do not use fingers or hands to check for oil leaks. High pressure oil easily punctures skin causing serious injury, gangrene, or death. If injured, seek medical help immediately to remove oil.</p>

After use:

1. Wipe all tool surfaces clean with a damp cloth and mild detergent.

	⚠ WARNING
	<p>Do not use solvents or flammable cleaners to clean the tool body. Solvents could ignite, causing serious injury or property damage.</p>

2. Place tool in the carrying case. Store in a cool, dry place.
3. Charge the battery.

Monthly

1. Thoroughly clean all surfaces.
2. Check the oil level.
3. Oil the bolt joints.

Annually or After 10,000 Cycles

1. Change the hydraulic oil.
2. Return the tool to an authorized Greenlee service center for inspection.


Checking the Oil Level

1. Remove the two screws holding the tank housing cover.
2. Remove the tank housing cover.
3. Point the cutting head towards the ground and remove the oil plug. Add oil if necessary.
4. Replace the oil plug and the tank housing cover. Secure with screws.

Recommended Hydraulic Oils

AVIA® HVI 15
 Shell Tellus T 15
 Mobil® DTE 11M
 NUTO® H 15

Periodic Pressure Relief Valve Check

	⚠ WARNING
	<p>Pinch points:</p> <p>Keep hands away from the crimping tool head when crimping.</p> <p>Failure to observe this warning could result in severe injury or death.</p>

The crimping tool's relief valve may require occasional adjustment. To determine whether this adjustment is necessary, periodically test the crimping tool with a Greenlee model 35887 Load Cell (purchased separately).

1. Insert the test die into the tool (refer to steps 3 and 4 under "Operation" in this manual). Position the load cell so that the load cell piston is centered between the two test dies.
2. Press the trigger until the crimping tool achieves pressure relief and note the position of the needle when the pressure relief is achieved. The needle should indicate the "12T" range; if the needle is outside of this range, send the crimping tool to an authorized service center for adjustment.

Note: If some other type of load cell is used, the ratio between the area of the tool and the area of the load cell may be different. The appropriate corresponding pressure range depends upon this ratio.

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

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	Probable Cause	Probable Remedy
Tool is inoperative.	Dirt, contaminants, etc., in ram area of tool. Crimping tool battery contacts damaged. Tool components worn or damaged. Dead battery.	Clean tool. Reform contacts. Return tool to an authorized Greenlee service center. Charge or replace.
Dies and adapters stop during operation.	Oil level is low. Air in hydraulic system.	Check oil level. Refill reservoir. Pull trigger and hold retract button simultaneously. Hold for approximately 10 seconds.
Battery load display flashes constantly.	Battery charge low.	Charge or replace battery.
Tool loses oil.	Damaged internal seal. Oil plug not installed properly.	Return tool to an authorized Greenlee service center. Refill reservoir and replace plug.

Disassembly

Main Components

1. Remove the battery.
2. Remove the screw (17) and stop (18).
3. Unscrew and remove the universal head assembly.
4. Remove the piston (16). Replace the piston O-ring (14) and piston backup ring (15).
5. Unscrew two tank cover screws (53) and remove the tank cover (58).
6. Remove the hydraulic reservoir plug (76) and drain the hydraulic fluid.
7. Reinstall the plug.
8. Remove the remaining housing screws (51 and 53).
9. Remove the right housing half (59).
10. Remove the switch cover (56).
11. Lift the pump/motor assembly and circuit card from the left housing half (60). Lift the LED from its housing (8).
12. Slide a plastic bag over the circuit card and electronic subassemblies. Tape the bag shut to protect the subassemblies from hydraulic oil and other contamination.
13. Unscrew the shoulder bolt (99) and remove the release lever (107).
14. Remove screws (108) and separate the gear housing/motor subassembly from the pump housing.

Pump

1. Use a hooked tool to remove the reservoir O-ring (80). Gently tug it over the reservoir.
2. Remove the reservoir (74).
3. Remove the pump piston (152).
4. Remove the screw plug (151), washer (153), pump piston (150), valve stem (156), and spring (155). Replace the sealing washer (154).
5. Use a piece of tape to mark the side of the relief that is facing up. (This is a reference point for reassembly.) Remove the unloading valve by unscrewing the plug (126).
6. Remove the feeder tube subassembly by unscrewing the feeder tube (78). Replace the oil filter (77). Remove metal chips from the magnet (82).
7. Remove the threaded bushing (72) and replace the O-ring (73).

Motor, Gearbox, and Bearing

1. Remove the tamper-proof paper seal (96).
2. Remove two screws (92). Remove the end cap (102).
3. Apply pressure evenly at three points around the ball bearing (91) and gently pry the bearing up to remove it.
4. Remove the eccentric (103), grooved ball bearing (101), and snap ring (100) subassembly from the shaft.
5. Remove four screws (93). Remove the mounting block (109) from the gear housing (94).
6. Use a snap-ring removal tool to remove the snap ring (100).
7. Unscrew four bolts (not numbered) from the gear housing (94). Separate the gear housing from the spacer (not numbered). Unscrew two Fillister head screws (112) to separate the spacer from the motor (90).

Assembly

Motor, Gearbox, and Bearing

1. Install two Fillister head screws (112) into the spacer (not numbered) and motor (90). Tighten the screws.
2. Install four screws (not numbered) into the gear housing (94). Tighten the screws.
3. Install four screws (93) into the mounting block (109) and gear housing (94). Tighten the screws.
4. Replace the grooved ball bearing (101) and snap ring (100) subassembly.
5. Replace the eccentric (103). Use a fiber mallet to tap the eccentric onto the shaft. Replace the ball bearing (91).
6. Align the end cap (102). Use a fiber mallet to tap the cover until it is flush on the mounting block (109). Install two screws (92).
7. Align the gear housing/motor subassembly so that the pump piston (152) extends through the mounting block (109) and makes contact with the grooved bearing (101). Locate and start the screws (108) through the mounting block and into the pump housing. Tighten the screws.

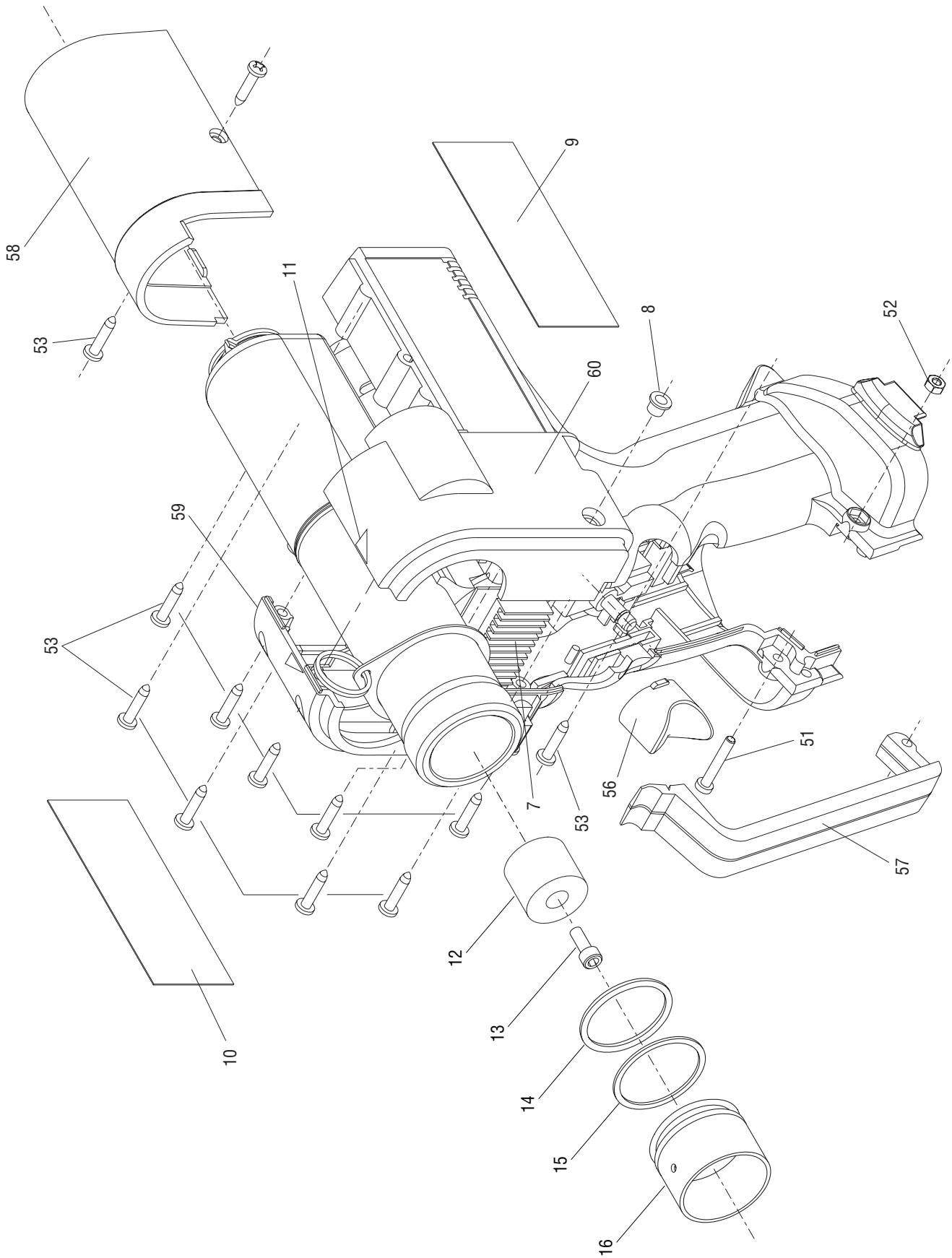
Pump

1. Insert the pump piston (152) into the pump housing.
2. Insert the seal (122) and unloading valve assembly into the pump housing. Grasp the needle valve subassembly by the pressure relief (126) and twist it several turns clockwise. Stop when the piece of tape is facing up.
3. Assemble the pump piston (150), valve stem (156), washer (153), spring (155), and screw plug (151). Be sure to replace the sealing washer (154). Torque the screw plug (151) to 102 Nm (75 ft-lb).
4. Install the release lever (107) so that the forked end engages the unloading valve subassembly between the pressure relief (126) and the support ring (127). Install the screw (99) and washer (104).
5. Insert the threaded bushing (79) and feed tube subassembly (77, 78, 82). Screw in until snug.
6. Install the reservoir (74). Slip the O-ring (80) over the reservoir. Using a hooked tool, carefully slip the O-ring over the lip of the pump housing.
7. Insert the plug (76) into the reservoir.

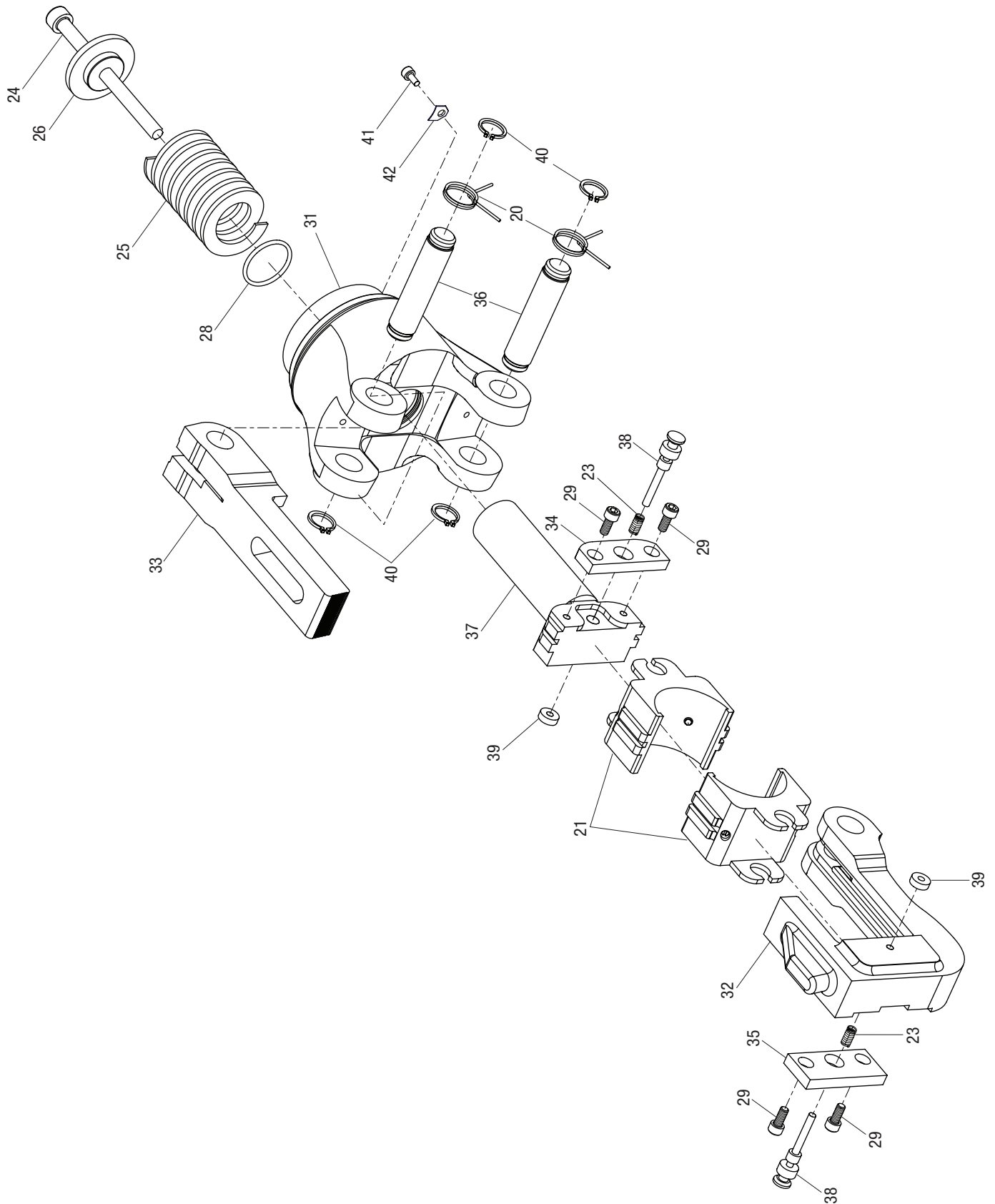
Main Components

1. Remove the protective plastic bag from the electronics subassembly. Insert the LED into the LED bushing (8).
2. Lay the gear housing/motor subassembly into the left half of the housing. Insert the circuit board into the circuit board slot so that the wires and chip face in the direction of the trigger.
3. Lay the wires into the case. Be sure that the wires will not be pinched.
4. Guide the wires for the battery clip so that the battery wires lay on top of the electronics box; install the battery clip so the red wire is upward.
5. Install the trigger cover (56). Press and release the trigger to be sure that it operates freely.
6. Locate the right housing half (59) on top of the left housing half (60). Check for pinched wires.
7. Install the housing screws (51 and 53).
Note: The handle screw (51) must engage the nut (52).
8. Install the spacer (12) and screw (13).
9. Install the piston (16).
10. Replace the front head assembly. Twist the cutting head base (31) until it stops; back off 3/4 of a turn. Install the stop (18) and screw (17). Be sure that the crimping head assembly rotates freely approximately 350°.
11. Clamp the head assembly into a vise with the reservoir plug facing upward. Remove the fill plug (76) and fill the reservoir with hydraulic oil.
12. Install the battery.
13. Squeeze the trigger while pressing the release lever for 45 to 60 seconds. Fill the reservoir with hydraulic oil. Replace the fill plug (76).
14. Replace the tank cover (58) and tank cover screws (53).

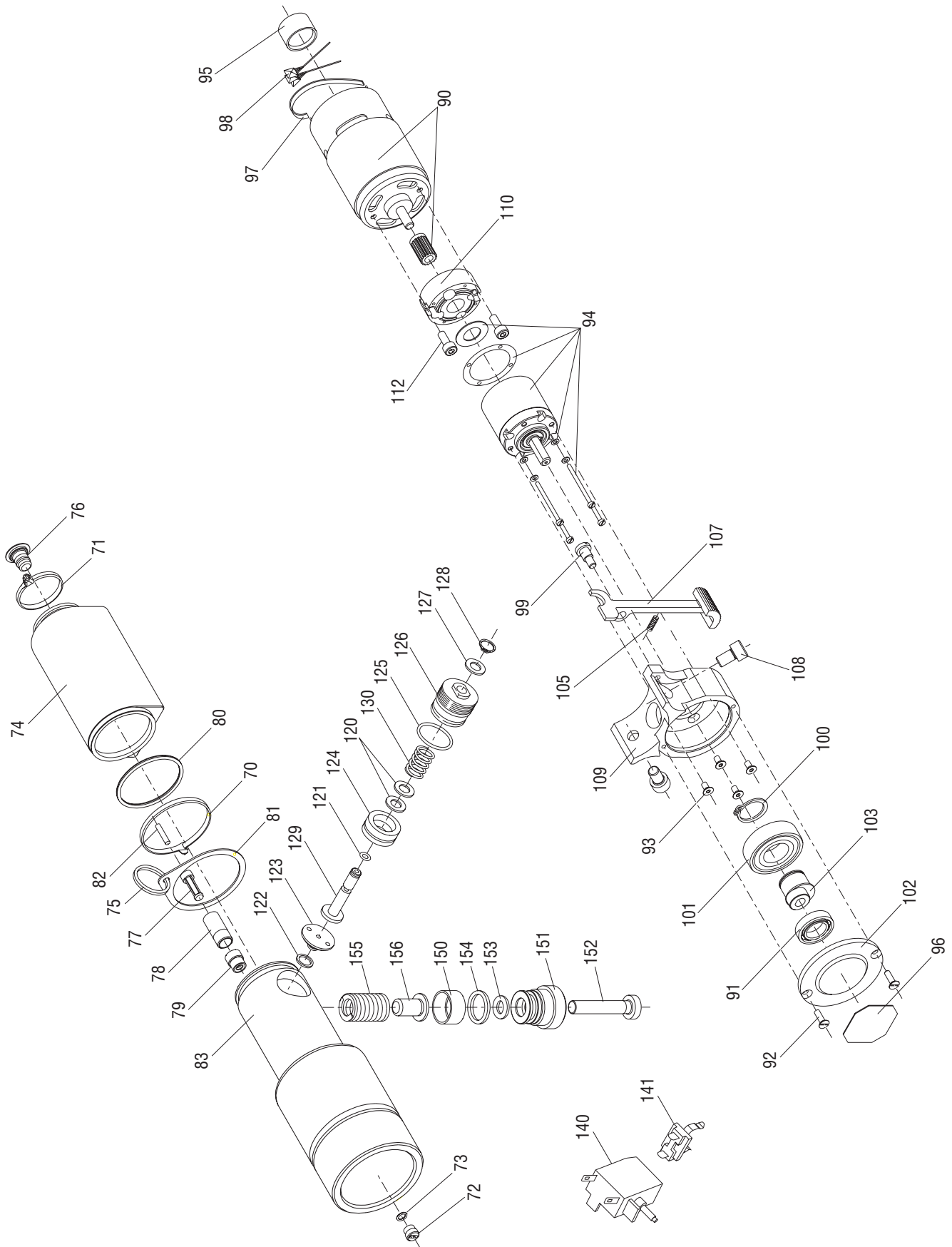
Illustration—Housing Unit



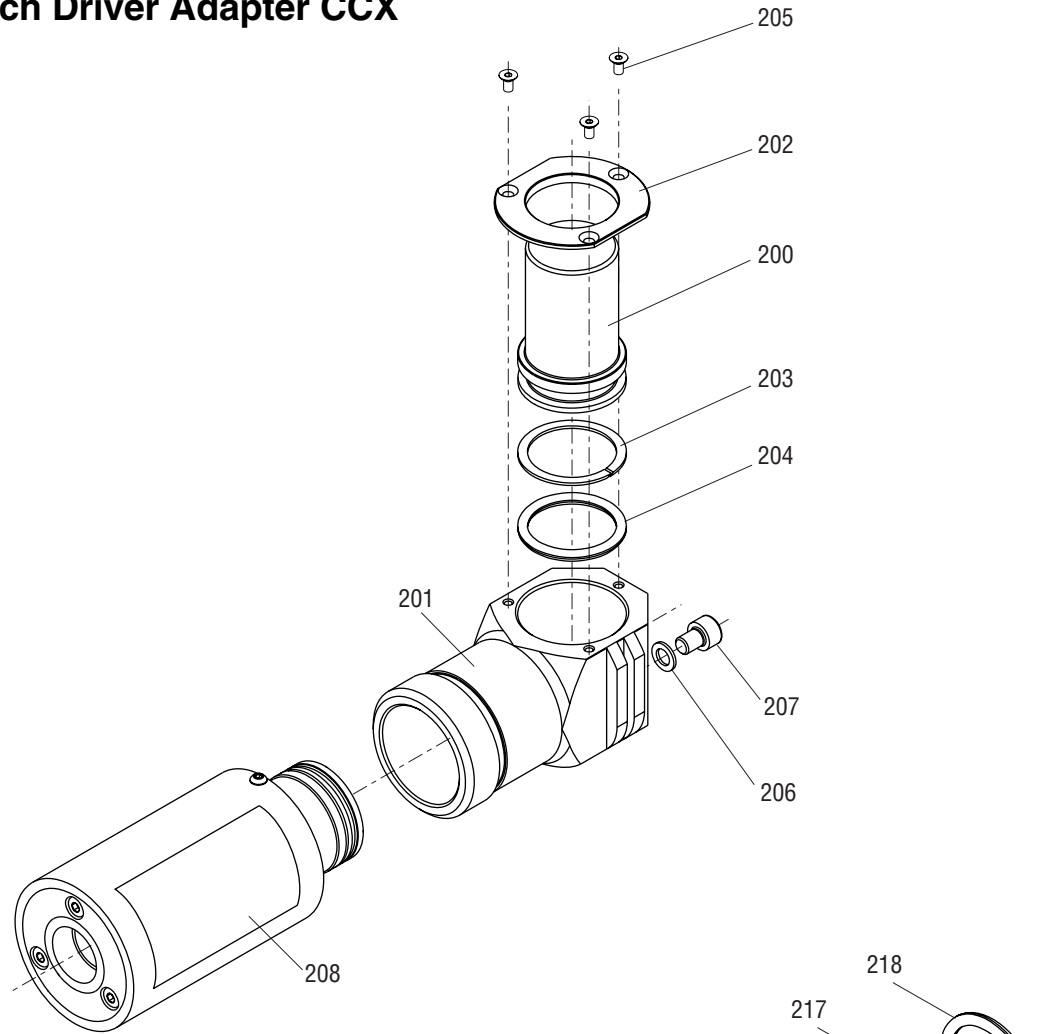
Illustration—Head and Ram Unit



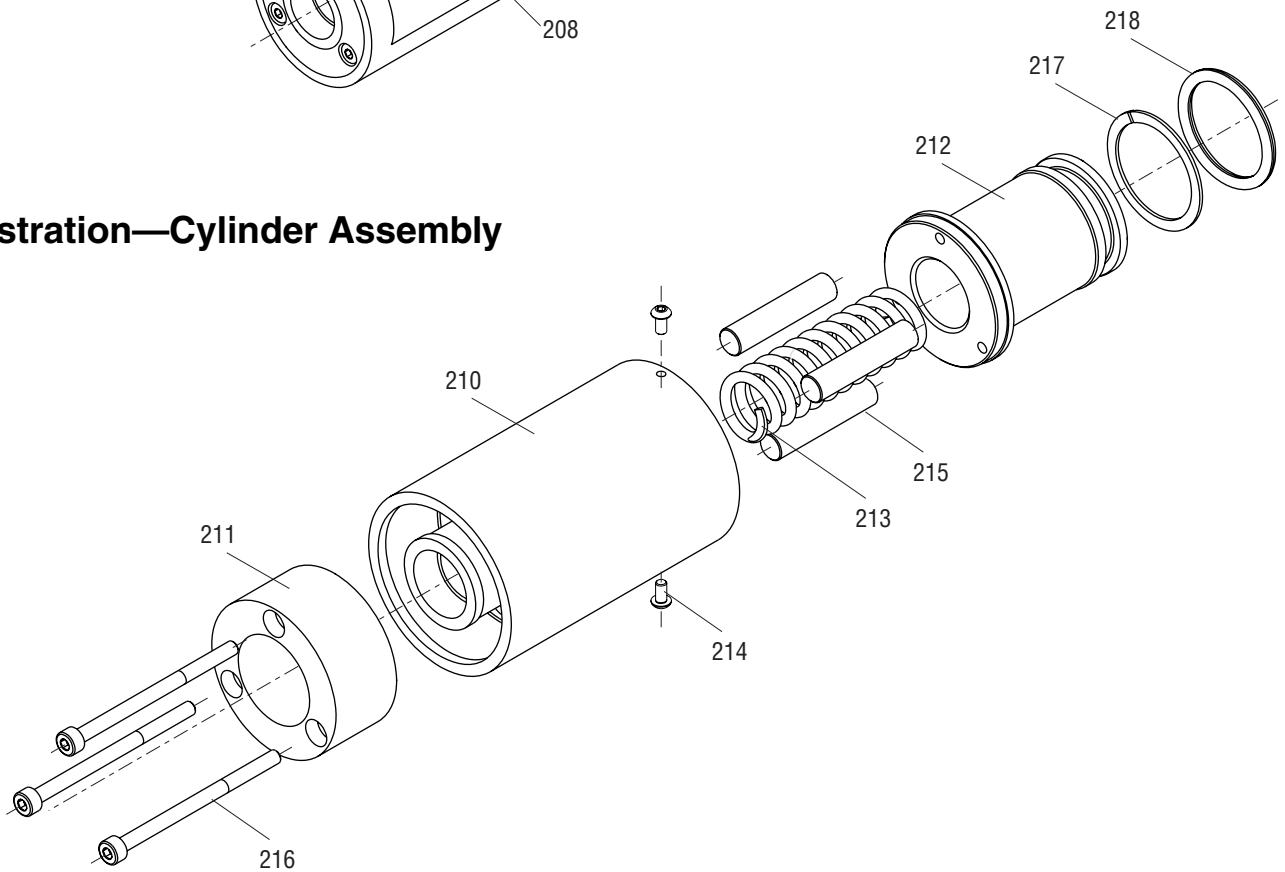
Illustration—Pump Housing, Reservoir Assembly, and Motor Assembly



Illustration—Punch Driver Adapter CCX



Illustration—Cylinder Assembly



Parts List

Key	Part No.	Description	Qty
7	50067753	Circuit board, programmed.....	1
8	50042416	Bushing LED	1
9	50111132	Decal, identification	1
10	50111140	Decal, warning.....	1
11	50062140	Decal, pinch hazard.....	1
12	50067737	Adapter	1
13	50067745	Screw	1
14*		O-ring	1
15*		Backup ring	1
16	50067796	Piston	1
17	50043676	Screw, M5 x 10.....	1
18	50066943	Stop	1
20	50111230	Spring, torsion	2
21		UA12T, U-type die adapter set.....	1
23	F021776	Compression spring	2
24	50066951	Screw	2
25	50066919	Compression spring	1
26	50066900	Disk	1
27	50111124	Spring stop	1
28*		O-ring	1
29	90502507	Screw, cap.....	4
31	50111035	Fixed head.....	1
32	50111051	Movable head.....	1
33	50111060	Latch.....	1
34	50111205	Plate	1
35	50112244	Plate	1
36	50111086	Pin, pivot.....	2
37	50111221	Piston	1
38	50111183	Pin, adapter lock.....	2
39	50111159	Bushing	2
40	90513533	Retaining ring	4
	50013459	Housing unit (includes 51–60)	
51	50042203	Screw	1
52	50042211	Nut.....	1
53	50042076	Screw	12
56	50042165	Switch cover (black)	1
57		Trigger guard.....	1
58		Reservoir cover	1
59		Housing, right side.....	1
60		Housing, left side.....	1
	50014200	Pump housing, reservoir assembly (includes 70–83)	
70	50103407	Ring tie	1
71	50103393	Cable tie	1
72	50041444	Threaded bushing	1
73*		O-ring	1
74	50058738	Hydraulic reservoir	1
75	50041983	Ring	1
76	50058789	Reservoir plug	1
77	50058800	Filter	1
78	50058827	Filter adapter	1
79	50058851	Threaded bushing	1

Parts List (cont'd)

Key	Part No.	Description	Qty
80*		O-ring	1
81	50058290	Attachment ring	1
82	50058983	Magnet	1
83	50014218	Pump housing	1
	50121758	Motor assembly (includes 90–98, 100–103, and 108–112)	
90	52024659	Motor and gear	1
91	50041380	Ball bearing	1
92	50041550	Screw	2
93	50041576	Screw	4
94	50015729	Gearbox	1
95**		Spacer	1
96*		Seal	1
97**		Ground strap	1
98**		Capacitor	3
99†		Screw, socket head	1
100	50041517	Retaining ring	1
101	50041398	Grooved ball bearing	1
102	50041088	End cap	1
103	50041231	Eccentric	1
105†		Spring	1
107†		Release lever	1
108	50121839	Screw	2
109	50084020	Eccentric case	1
110	50013513	Flange	1
112	50103385	Screw	2
	50059033	Relief valve assembly (includes 120–130)	
120	50058606	Washer	2
121*		O-ring	1
122*		Seal	1
123	50053630	Valve seat	1
124	50058649	Plunger	1
125*		O-ring	1
126	50058711	Pressure relief	1
127	50058754	Support ring	1
128*		Retaining ring	1
129	50058770	Needle valve	1
130	50019015	Spring	1
	50013475	Electrical assembly (includes 140–144)	
140	50041266	Switch	1
141	50041274	Battery contacts	1
	50063383	Circuit board, unprogrammed (not shown)	1
	50058991	Wire (not shown)	1
	50059009	Wire (not shown)	1

Parts List (cont'd)

Key	Part No.	Description	Qty
	50013483	Piston pump assembly (includes 150–156)	
150	50058916	Pump piston	1
151	50103652	Screw plug	1
152	50103709	Pump piston	1
153*		Washer	1
154*		Sealing washer	1
155	50103679	Spring	1
156	50103687	Valve stem	1
	50118900	Punch driver adapter CCX (includes 200–208)	
200	50112074	Piston	1
201	50112031	Housing	1
202	50112058	Piston stop ring	1
203	50041940	Backup ring, piston	2
204	50041924	O-ring	2
205	50041576	Screw	3
206	50118919	Lock washer	1
207	50070169	Cap screw, M6x8	1
208	50120085	Decal, identification	1
210	50112040	Ram housing	1
211	50112066	Ram	1
212	50112082	Piston	1
213	50070193	Compression spring	1
214	50041681	Screw	2
215	50112090	Spacer	3
216	50118897	Cap screw, M4x60	3
217	50041940	Backup ring, piston	1
218	50041924	O-ring	1
	50118374	Adapter lock kit (includes items 23, 38, and 39)	
	50017420	Seal kit, punch adapter (includes items 203, 204, and 206)	
*	50118366	Seal kit (includes items marked with *)	
**	91871417	Capacitor assembly (includes items marked with **)	
†	50118927	Release lever assembly (includes items marked with †)	
	50112171	Decal, connector compatibility	
	50118358	Case with inserts	
	50070630	12 V battery NimH	
	50030469	12 V charger 110 VAC	
	50030477	12 V charger 220 VAC	
	50030485	12 V charger 12 VDC	



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