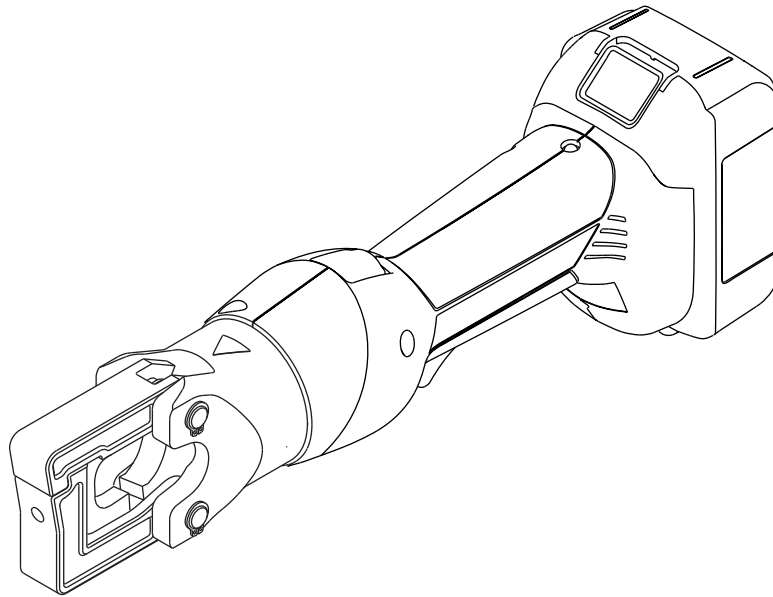


# OPERATION MANUAL



**GREENLEE®**  
A Textron Company

Serial Number



## **GATOR® EK410L Battery-powered Crimping Tool**



**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 EK410L Battery-powered Crimping Tool is a hand-held, self-contained crimping tool intended to crimp copper and aluminum cable with KC4-type dies.

This tool is protected by U.S. Patent No. 6,276,186, 6,401,515, 6,718,870, 7,086,979, and 7,254,982.

## 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:

EK410L Battery-powered Crimping Tool

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.

GATOR is a registered trademark of Greenlee Textron Inc.

Blackburn is a registered trademark of Thomas & Betts.

## ***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**

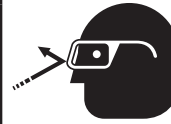
Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

#### ⚠ **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. Improper combinations can result in an incomplete crimp.
- The relief valve sounds and the ram automatically retracts to indicate a completed crimp. If you do not hear the sound of the relieve valve or the ram does not automatically retract, the crimp is not complete.

Failure to observe these warnings could result in severe injury or death.

## IMPORTANT SAFETY INFORMATION

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

|   |
|---|
| <b>⚠ WARNING</b>  |
| Do not dispose of batteries in a fire. They will vent fumes and may explode.<br>Failure to observe this warning could result in severe injury from harmful fumes or burns from flying debris. |

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

|   |
|---|
| <b>⚠ CAUTION</b>  |
| <ul style="list-style-type: none"><li>• Do not use this tool for continuous use. After 30 to 40 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>• 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> Failure to observe these precautions may result in injury or property damage. |

|   |
|---|
| <b>⚠ CAUTION</b>  |
| Do not allow anything to contact the battery terminals. <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> Failure to observe these precautions may result in injury or property damage. |

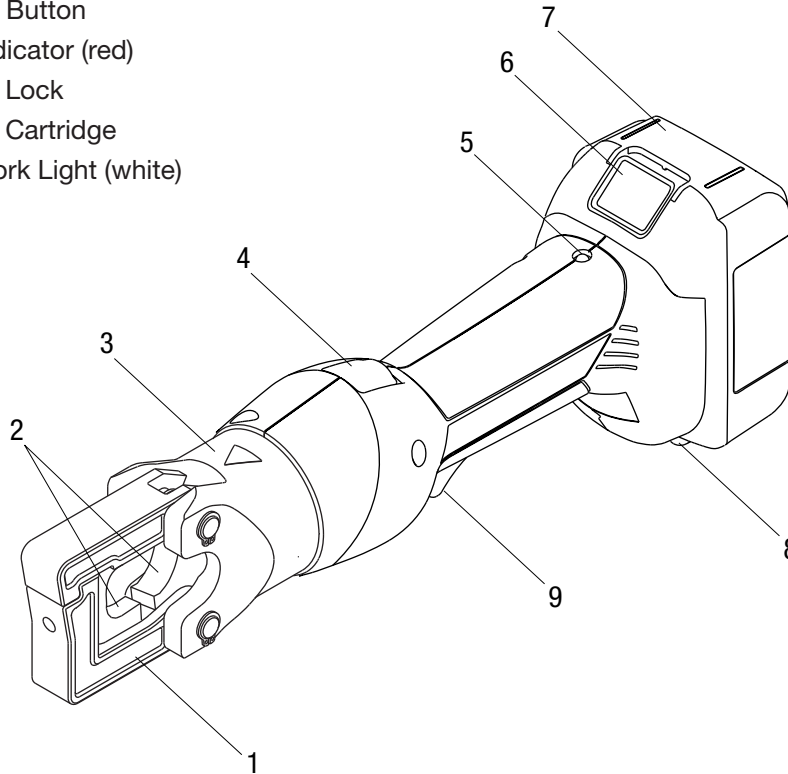
|  |
|--|
| <b>⚠ CAUTION</b>   |
| <ul style="list-style-type: none"><li>• Do not store the battery at more than 122 °F (50 °C) or less than -4 °F (-20 °C). Damage to the battery can result.</li><li>• Do not use another manufacturer's charger. Other manufacturers' chargers may overcharge and damage the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

|  |
|--|
| <b>⚠ CAUTION</b>   |
| Do not perform any service or maintenance other than as described in this manual. Injury or damage to the tool may result.<br>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. Latch
2. Crimping Dies
3. Crimping Head
4. Retract Button
5. LED Indicator (red)
6. Battery Lock
7. Battery Cartridge
8. LED Work Light (white)
9. Trigger



## Specifications

### Crimping Tool

|  |   |
|--|---|
| Length.....                                  | 13.25" (336.5 mm)                                       |
| Width .....                                  | 2.87" (72.9 mm)   |
| Depth.....                                   | 4.5" (114 mm)   |
| Weight.....                                  | 4.0 lb (1.8 kg)   |
| Crimping Force.....                          | 4 tons (35 kN)  |
| Hydraulic Oil .....                          | 52057878 biodegradable hydraulic fluid                  |
| Recommended Operating Temperature Range..... | 5 °F to 122 °F (-15 °C to 50°C)                         |
| Battery Charger.....                         | Read the instructions supplied with the battery charger |

|          |                                  |          |  |
|----------|----------------------------------|----------|--|
| 52047087 | 120 VAC corded adapter           | 52054992 | Li (18 V) to NiCd, NiMH (12 V) charger adapter |
| 52047088 | 230 VAC corded adapter           | 52049201 | 120 VAC, 18 V charger                          |
| 52049190 | 18 V, 1.5 Ah lithium-ion battery | 52049202 | 230 VAC, 18 V charger                          |
| 52049189 | 18 V, 3.0 Ah lithium-ion battery | 52049204 | 12 VDC, 18 V charger                           |

## Operation

### ⚠ WARNING

Inspect tool and dies 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.

### ⚠ WARNING

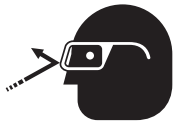


Electric shock hazard:

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



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



Pinch points:

- Remove battery before changing dies, adapters, or jaws
- Keep hands away from the crimping tool head when crimping.

Failure to observe these warnings 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, 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.
- Use this tool for the manufacturer's intended purpose only.

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

### Charging the Battery

Read the instructions supplied with the battery charger.

### LED Work Light (white)

This LED automatically turns on when the trigger is pulled. It remains on for 10 seconds after the trigger is released.

### 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<br>Circuit has become too hot |

### Pressure Sensor

This tool is equipped with a pressure sensor that alerts the user of an incomplete crimp.

- If the tool is manually retracted before completion of a crimp, the red LED and an audible beep will be active for 2 seconds.
- If the tool is unable to reach the required crimp force, the red LED, work light, and an audible beep will pulse until after the trigger is released.

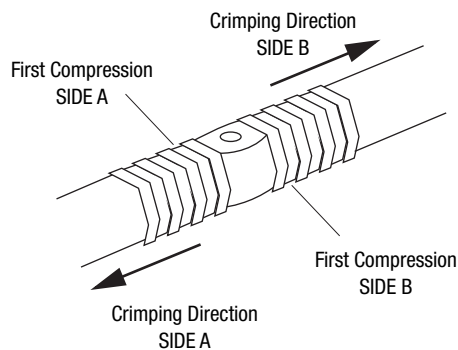
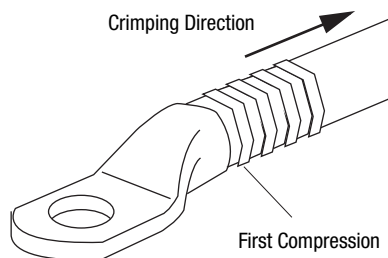
## Operation (cont'd)

### Installing Dies

1. Select the proper dies for the intended crimp.
2. Slide the die into the crimping head until it “snaps” into place.
3. Properly position the second die. Repeat Step 2.

### Preparing Cable

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



### Crimping Cable

1. Press the locking flange and open the crimping head.
2. Insert the properly assembled connector into the crimping head.
3. Close the crimping head.
4. Pull the trigger to make the crimp.
5. Hold the trigger down until the crimping tool achieves pressure relief, which is accompanied by an audible “pop”.
6. The ram retracts automatically.
7. Position the crimping tool for 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.

*Note: If it is necessary to retract the ram before a crimping cycle is completed, push the retract button. Pushing the retract button will result in the complete retraction of the ram.*

## **WARNING**

An incomplete crimp can cause a fire.

- Use proper die, connector, and cable combinations. Improper combinations can result in an incomplete crimp.
- The relief valve sounds and the ram automatically retracts to indicate a completed crimp. If you do not hear the sound of the relieve valve or the ram does not automatically retract, the crimp is not complete.

Failure to observe these warnings could result in severe injury or death.

## Die Selection

Crimps made on copper cable with Greenlee KC4-type dies and the copper connectors listed here are cUL and UL classified.

Crimps made on copper or aluminum cable with Greenlee KA4-type dies and the aluminum connectors listed here are cUL and UL classified.

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

### Dies for Copper Connectors

| Catalog No. | UPC No. | Cable Size | Color Code |
|-------------|---------|------------|------------|
| KC4-8       | 02075   | 8 AWG      | Red        |
| KC4-6       | 02076   | 6 AWG      | Blue       |
| KC4-4       | 02077   | 4 AWG      | Gray       |
| KC4-2       | 02078   | 2 AWG      | Brown      |
| KC4-1       | 02079   | 1 AWG      | Green      |
| KC4-1/0     | 02080   | 1/0 AWG    | Pink       |
| KC4-2/0     | 02081   | 2/0 AWG    | Black      |
| KC4-3/0     | 02082   | 3/0 AWG    | Orange     |
| KC4-4/0     | 02083   | 4/0 AWG    | Purple     |
| KC4-250     | 02084   | 250 kcmil  | Yellow     |
| KC4-300     | 10988   | 300 kcmil  | White      |

### Dies for Aluminum Connectors

| Catalog No. | UPC No. | Cable Size | Color Code |
|-------------|---------|------------|------------|
| KA4-8       | 12222   | 8 AWG      | Blue       |
| KA4-6       | 12223   | 6 AWG      | Gray       |
| KA4-4       | 12225   | 4 AWG      | Green      |
| KA4-2       | 12226   | 2 AWG      | Pink       |
| KA4-1       | 12227   | 1 AWG      | Gold       |
| KA4-1/0     | 12228   | 1/0 AWG    | Tan        |
| KA4-2/0     | 12229   | 2/0 AWG    | Olive      |

### Dies for Service Entrance Connectors

| Catalog No. | UPC No. | Usage                 |
|-------------|---------|-----------------------|
| KD4-10      | 02021   | 5/8" Service Entrance |
| KD4-840     | 02022   | 840 Service Entrance  |

## Connector Selection

**Tool Range:** Copper — 8 AWG to 300 kcmil copper wire;  
Dual-rated Aluminum — 8 AWG to 2/0 AWG copper or aluminum wire

When used with KC4-type dies, this tool is cUL and UL classified for use with the following connector brands:

| Connector Type | Barrel Type | Anderson | Blackburn® | Burndy                                   | ILSCO                                   | Panduit         | T&B                                | Penn-Union | No. of Crimps* |
|----------------|-------------|----------|------------|--|---|-----------------|------------------------------------|------------|----------------|
| Copper Splice  | Short       | VHSS**   | CSP        | YS-L                                     | CT                                      | SCSS/SCS        | 54504–54520                        | BCU        | A              |
|                | Long        | VHS**    | CU         | YS                                       | CTL                                     | SCL/SCH         | 54804–54820                        | BBCU       |                |
| Copper Lugs    | Short       | VHCS**   | CTL-2/CTL  | YA-2LN/YA-L/YA-2L<br>YA/YA-L-TC/YA-L-2TC | CSW<br>CRA/CRB                          | LCAS/LCA<br>LCD | 54104–54120<br>54204–54218         | BLU        | A              |
|                | Long        | VHCL**   | CTL-L/LCN  | YA-2N                                    | CLN/CLW<br>CRA-L/CRB-L<br>CRA-2L/CRB-2L | LCB/LCC         | 54930BE–54920BE<br>54850BE–54878BE | BBLU       |                |

When used with KA4-type dies, this tool is cUL and UL classified for use with the following connector brands:

| Connector Type             | Barrel Type | Anderson | Blackburn® | Burndy         | ILSCO                                  | Panduit        | T&B                        | Penn-Union | No. of Crimps* |
|----------------------------|-------------|----------|------------|----------------|--|----------------|----------------------------|------------|----------------|
| Dual-rated Aluminum Splice | —           | VACS     | ASP        | YS-A           | AS<br>ASN                              | SA<br>***      | 60501–60536                | PIK        | B              |
| Dual-rated Aluminum Lugs   | —           | VACL     | ATL        | YA-A<br>YA-ATN | ACL/ACN<br>2ACL/2ACN<br>ALNS/ALNN/ALND | LAA/LAB<br>*** | 60101–60138<br>60230–60238 | BLUA       | B              |



\* Use the number of crimps listed in the last column instead of the number provided with the connector:

A — 8 to 1/0 AWG: 1 crimp  
2/0 AWG to 300 kcmil: 2 crimps

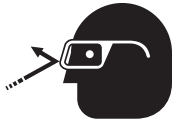
B — 8 to 2 AWG: 2 crimps  
1 to 2/0 AWG: 3 crimps


\*\* 6 AWG to 300 kcmil


\*\*\* 6 AWG to 2/0 AWG




## 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>Pinch points:</p> <ul style="list-style-type: none"> <li>• Remove battery before changing dies, adapters, or jaws</li> <li>• Keep hands away from the crimping tool head when crimping.</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.
3. Inspect the rotation of the head assembly. Fully retract the ram. The head should rotate no more than 360°. If damage is detected, send the tool to a Greenlee Authorized Service Center for inspection.

#### After use:

1. Use a damp cloth and mild detergent to clean the housing. Allow the housing to dry.
2. Fully retract the ram. Place the tool in the carrying case and store 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 Crimps

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

### Checking the Oil Level

1. Remove the screws holding the housing cover together.
2. Point the crimping head downward and remove the oil reservoir plug. Fill reservoir if necessary.
3. Replace the oil plug and housing cover.

## 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 ram area of 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.                       | Pull trigger and hold retract button simultaneously. Run for approximately 10 seconds, and then attempt to crimp. If unsuccessful, return tool to a Greenlee Authorized Service Center. |
|  | Cold oil.                                      | Pull trigger 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.                       | Pull trigger 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.  |





4455 Boeing Drive • Rockford, IL 61109-2988 • USA • 815-397-7070  
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[www.greenlee.com](http://www.greenlee.com)

**USA** Tel: 800-435-0786  
Fax: 800-451-2632

**Canada** Tel: 800-435-0786  
Fax: 800-524-2853

**International** Tel: +1-815-397-7070  
Fax: +1-815-397-9247