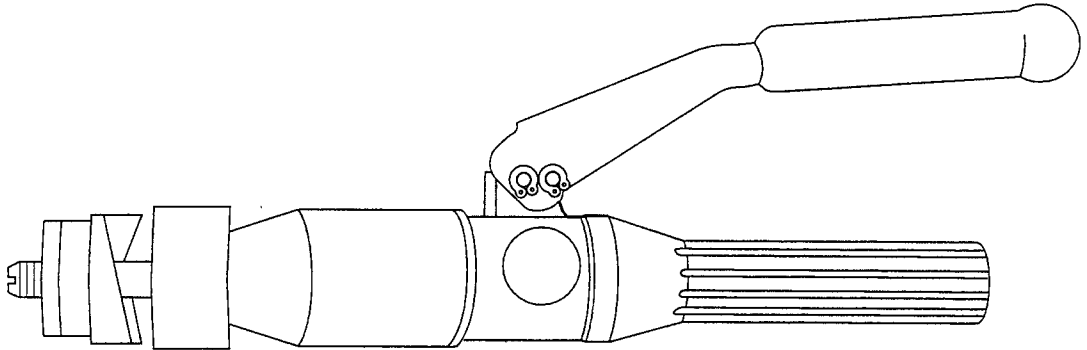


INSTRUCTION MANUAL



7804SB/7806SB QUICK DRAW™ HYDRAULIC PUNCH DRIVER

For units with serial code "YZ"



Read and understand this material before operating or servicing this equipment. Failure to understand how to safely operate this tool could result in an accident causing serious injury or death.

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Description

The Quick Draw™ is a self-contained hydraulic punch driver. The Quick Draw™ and Greenlee punches, dies, and draw studs form a complete system for punching holes of various shapes and sizes through mild steel, aluminum, fiberglass and plastic. Slug Splitter® punches, dies and studs are available for punching all of these materials and stainless steel.

Various Quick Draw™ kits are available:

- 7804SB Quick Draw™ Hydraulic Punch Driver, draw studs and step-saver adapter
- 7806SB Quick Draw™ Hydraulic Punch Driver, draw studs, conduit-size punches and dies
- 7804E Quick Draw™ Hydraulic Punch Driver and draw studs
- 7804ESB Quick Draw™ Hydraulic Punch Driver, draw studs, Pg size punches and dies
- 7804ISO Quick Draw™ Hydraulic Punch Driver, draw studs, ISO size punches and dies

IMPORTANT SAFETY INSTRUCTIONS



SAFETY ALERT SYMBOL

The symbol above is used to call your attention to instructions concerning your personal safety. Watch for this symbol. It points out important safety precautions. It means Read the message that follows and be alert to the possibility of personal injury or death.

⚠ DANGER

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

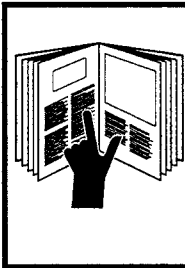
⚠ WARNING

Hazards or unsafe practices which, if not avoided, **COULD** result in severe personal injury or death.

⚠ CAUTION

Hazards or unsafe practices which, if not avoided, **COULD** result in minor personal injury or property damage.

Safety is a critical factor in the design of Greenlee equipment. The best program starts with a safety-conscious operator. The information highlighted in this bulletin describes operating practices for the benefit of the workers who will use our equipment in their daily jobs. Comments from users are appreciated.



⚠ WARNING

A person who has not read and does not understand all operating instructions is not qualified to operate this tool.

Failure to read and understand safety instructions may result in injury or death.

SAVE THESE INSTRUCTIONS

Additional copies of this manual are available upon request at no charge.

IMPORTANT SAFETY INSTRUCTIONS



⚠ WARNING

Electric shock hazard:
Do not use near live circuits.
Contact with live circuits can result in severe injury or death.

⚠ WARNING

Do not operate the pump lever after the ram motion stops. Continuing to operate the pump lever after the ram motion stops will damage the driver and could propel internal parts with great force, striking nearby personnel.

⚠ WARNING

- Do not exceed the rated capacity of the tool. Exceeding the capacity of the tool could cause tool or component to break and strike nearby personnel.
- Do not add extensions or cheaters to the handles. Using cheaters or applying more than 80 pounds (356 N) of handle force will damage the driver and could propel internal parts with great force, striking nearby personnel.
- Do not allow anyone to stand directly in front of the punch. A component failure could propel the punch and draw stud with great force, and could strike nearby personnel.
- Use only Greenlee punches, dies, and draw studs. Other punches, dies, and draw studs may not withstand the force capacity of the driver and could break, striking nearby personnel.

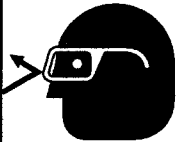
⚠ WARNING

- Inspect tool for wear or damage. Replace any worn, damaged, or missing components with Greenlee replacement parts. A damaged or improperly assembled tool can break and strike nearby personnel with sufficient force to cause severe injury or death.
- Inspect the punch, die, draw stud and spacers for wear or damage. Replace any worn or damaged items with Greenlee replacement parts. Replace any punches that have dull cutting surfaces.

⚠ CAUTION

Use this tool for manufacturer's intended use only. Use other than that which is described in this manual can result in injury or property damage.

⚠ WARNING



Wear eye protection when using this tool.
Failure to wear eye protection can result in serious eye injury from flying debris or hydraulic oil.

SAVE THESE INSTRUCTIONS

Additional copies of this manual are available upon request at no charge.

Specifications

Application Information

See Capacity and Draw Stud Selection Guide

Dimensions

Length:

Without Draw Stud: 321 mm (12.625")

With 3/4" Draw Stud: 397 mm (15.625")

Width (with handle extended): 260 mm (10.25")

Mass/Weight: 2.49 kg (5.5 lbs)

Mechanical Data

Stroke (Maximum): 22 mm (.850") Minimum Draw Stud Travel

Handle Force (Maximum): 356 N (80 lbs)

Draw Stud Force (Maximum): 71,168 N (16,000 lbs)

Punch Diameter (Maximum): See Capacity and Draw Stud Selection Guide

Material Thickness (Maximum): See Capacity and Draw Stud Selection Guide

Hydraulic Data

Circuit Type: Closed

Operating Pressure (Maximum) 44,480 N (10,000 lbs)

Volume:

Stroke:034 cm³ per mm (.053 inch³ per inch)

Useable: 33.9 mm³ (2.07 inch³)

Reservoir: 38.0 mm³ (2.32 inch³)

Total: 57.4 mm³ (3.50 inch³)

Seals: Nitrile, Fluorocarbon and Teflon Backup Rings

Fluid Compatibility: Compatible with hydraulic oils, water, oil emulsions, synthetic oils rated for use with nitrile (Buna N) and fluorocarbon (Viton) seal material.

Recommended Fluid: Greenlee Hydraulic Oil


Miscellaneous


Operating Temperature: -12° to 43°C (10° to 110°F)


Operating Position: No restrictions


Capacity and Draw Stud Selection Guide

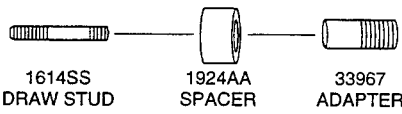

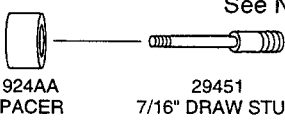

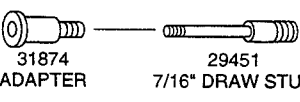
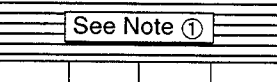
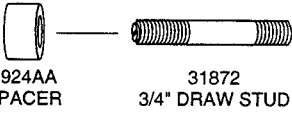
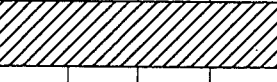


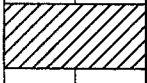


Includes optional step-saver adapter

 14 Ga. (0.0747" [1.9 mm])
Mild Steel

 10 Ga. (0.1345" [3.4 mm])
Stainless Steel

 10 Ga. (0.1345" [3.4 mm])
Mild Steel

 16 Ga. (0.0598" [1.5 mm])
Mild Steel & 1/18" Soft Aluminum

Stud and Accessories	Standard & Slug-Buster® Punches							Slug-Splitters®				
	1/2" con. ø 0.885" 15.2 mm	3/4" con. ø 1.115" 28.3 mm	1-7/32"	1" con. ø 1.362" 34.6 mm	1-1/4" con. ø 1.701" 43.2 mm	1-1/2" con. ø 1.951" 49.6 mm	2" con. ø 2.416" 61.5 mm	1/2" con. ø 0.885" 15.2 mm	3/4" con. ø 1.115" 28.3 mm	1-7/32"	1" con. ø 1.362" 34.6 mm	1-1/4" con. ø 1.701" 43.2 mm
 <p>1614SS DRAW STUD 1924AA SPACER 33967 ADAPTER</p>												
 <p>1924AA SPACER 29451 7/16" DRAW STUD</p> <p>See Note ②</p>												
 <p>31874 ADAPTER 29451 7/16" DRAW STUD</p> <p>See Note ②</p>			 See Note ①									
 <p>1924AA SPACER 31872 3/4" DRAW STUD</p>												
 <p>31872 3/4" DRAW STUD</p>												
 <p>33967 ADAPTER</p>												

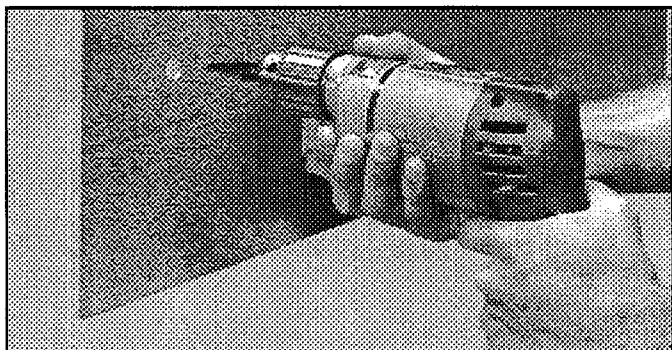
Electronic Connector Punches
RS-232, 229, 231, 234, 238.

① The Slug-Buster® punches may not split the slug when used with this adapter, because of the smaller pilot hole.

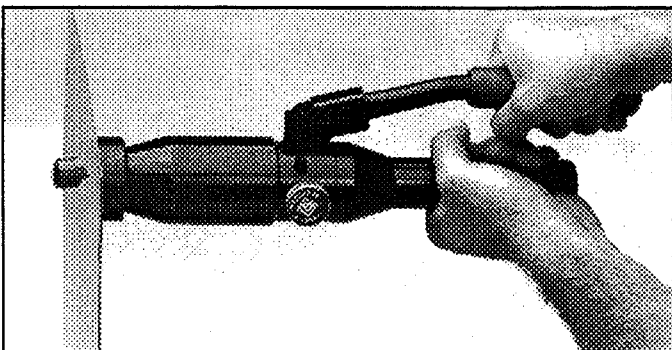
② The 31874 step-saver adapter and 29451 draw stud are included with the 7804SB only. They may be purchased separately and used with any Quick-Draw™ hydraulic punch driver kit.

Operation

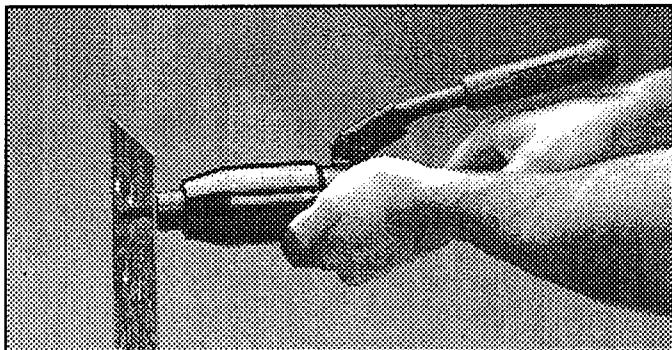
The 1/2" conduit-size punch is often used to increase the size of the pilot hole; this is called "step-up punching". After enlarging the pilot hole, the 3/4" draw stud is used to punch the final hole. See steps 1-6.



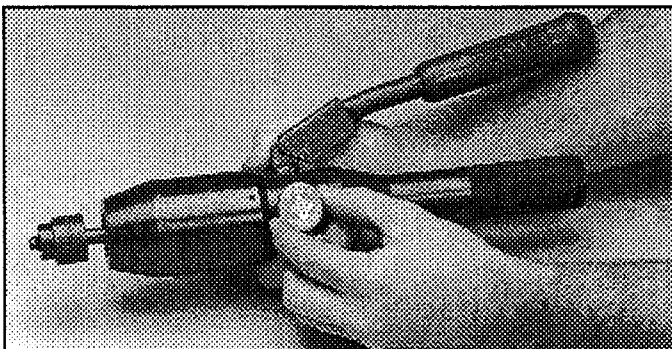
1. Drill 1/2" pilot hole using Greenlee Kwik-Stepper® step bit.



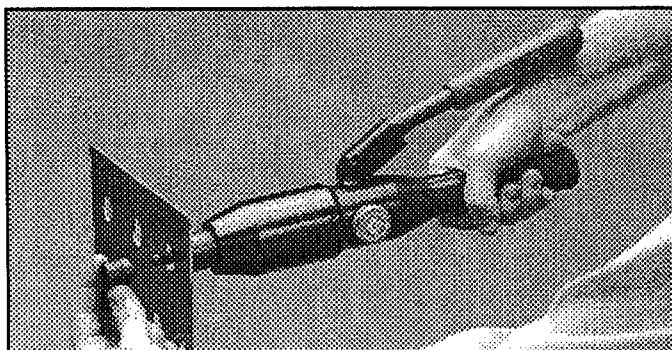
4. Close the release valve knob by turning clockwise. Rotate driver to best operating position, and then pump lever handle until the punch is completely through the material.



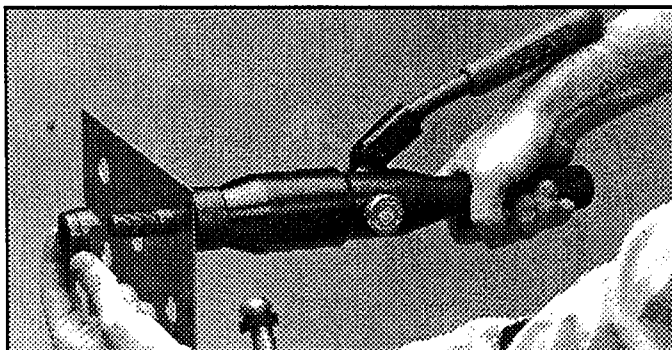
2. Turn the release valve counterclockwise to make sure the ram is fully extended. Install 3/4" x 3/8" adapter, 3/8" draw stud, spacer and 1/2" conduit die and insert into pilot hole.



5. Release by turning release valve knob counterclockwise and remove the punch, die, draw stud and adapter.



3. Thread 1/2" conduit punch on draw stud until tight. Make sure draw stud threads are fully engaged in the punch.



6. Install 3/4" draw stud and select proper size punch and die for desired size hole and repeat steps 4 and 5.

Maintenance

Maintenance and repairs should be performed in a dust free area by qualified technicians.

This unit requires minimum maintenance because it has a closed hydraulic system and all internal parts are lubricated by the hydraulic fluid. Lubricate lever pins lightly. Keep contaminants away from ram and housing. Store with lever down and hydraulic pressure released.

Adding Hydraulic Oil

1. Place driver in vise in vertical position with handles up. Unscrew bladder handle (1) and remove bladder plug (20). Open release valve knob (27) to assure the piston is fully extended.
2. Fill rubber bladder to point of overflow with Greenlee hydraulic oil.
3. Purge air from system:

Pump lever handle several times to remove air from the pumping chamber. Close release valve knob and pump lever handle until piston (6) completes its full travel. Repeat as necessary.

Note: Open release valve knob slowly so piston extends slowly. Rapid return of oil and air may cause oil to overflow the rubber bladder.

If this procedure fails to remove air, remove bladder plug and open release valve knob. Place thumb over plug hole in bladder and squeeze bladder while pumping lever handle several times. Close the release valve knob and pump the lever handle until the piston completes its full travel. Repeat as necessary.

If this procedure does not remove air, remove plunger (24) and fill plunger cavity with clean oil as outlined in Reassembly in the maintenance section of this manual.

4. Fill rubber bladder to the point of overflow and replace bladder plug. Wipe bladder clean of excess oil and reassemble bladder handle.

Troubleshooting And Repair

To function properly, the punch driver must be free of oil leaks and build oil pressure.

Oil Leaks

Check for external oil leaks.

Check that release valve knob and stem are closed tightly and seating properly.

Remove bladder handle (1) and check for oil leaks around rubber bladder (29) and bladder plug (20).

Failure to Build Pressure

Fill with oil and purge air from the system. See Adding Hydraulic Oil.

Rebuilding

If no leaks are visible and the unit will not build oil pressure, disassemble and rebuild the punch driver.

Disassembly

1. Remove bladder handle (1), and bladder plug (20); drain oil from the rubber bladder (29).
2. Remove O-ring retainer (35) and the rubber bladder (29). Remove retaining rings (21) from one end of both handle pins (30) and disassemble handle pins and lever handle (2).
3. Grasp plunger (24) with pliers; pull and twist to remove. Loosen set screw (12) from release valve knob (27); remove knob. Unscrew release valve stem (28) to remove from pump block (5). Ball (32) is also accessible.
4. Loosen set screw (12) from cylinder (4) and unscrew cylinder from pump block (5).
5. Remove compression spring (7), retaining plate (22) and ram coupler (26). Spring (23) and ball (37) can also be removed.
6. Screw a draw stud into end of piston (6); push the piston out of the cylinder (4).
7. Remove retaining ring (25) and filter (31). Remove seat (3) and ball (32). Retaining ring (13) will also be accessible.

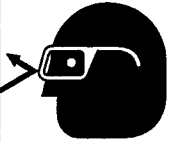
You have now disassembled the punch driver. Thoroughly clean all parts and inspect the three ball seats (intake, discharge and release valve stem) for nicks, scratches, or other damage.

Maintenance (cont'd)

Ball Seat Repair

Re-seating:

Minor seat imperfections may be corrected by re-seating. Use a soft brass rod and hammer to tap the ball against its seat.

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

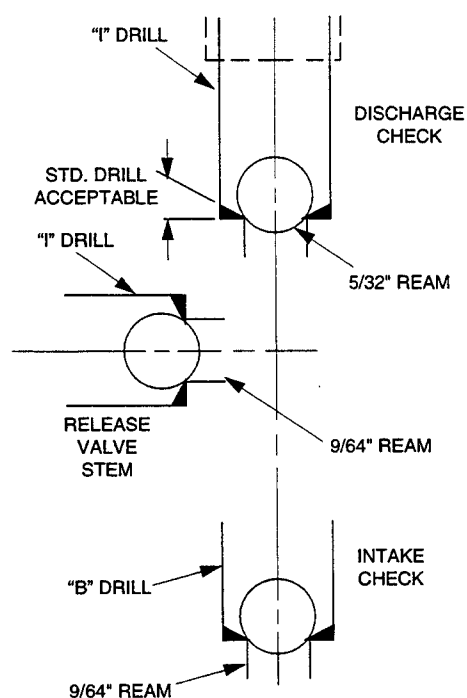
Re-drilling:

Badly worn or damaged seats may be reworked by re-drilling and then re-seating.

The pump block is manufactured with seats of 118°, the standard drill point angle; use standard drills for re-drilling.

- To re-drill the 3/16" ball seat for release valve stem (28): Use an "I" drill and a 9/64" diameter reamer.
- To re-drill the 7/32" ball seat for the discharge check: Use an "I" drill and a 5/32" diameter reamer.
- To re-drill the 3/16" ball seat for the intake check: Use a 1/4" drill and a 1/8" diameter reamer.

When drilling; remove a minimum of material to obtain maximum seat life. Re-seat the balls before reassembly.



Reassembly

Reassembly is done in reverse sequence of disassembly.

1. Use repair kit 503 7161.4 to replace all O-ring seals, balls and springs.
2. Inspect drilled oil passage in piston (6); be sure this passage is not blocked.
3. Before reinserting piston (6) in cylinder (4), lightly coat O-ring seals and bores of the cylinder with clean hydraulic oil.
4. Coat discharge check spring (23) with petroleum gel and insert it into the counter bore of the ram coupler (26).
5. Fill plunger bore in pump block (5) with clean oil. Then coat plunger O-ring seals with clean oil, and reinsert in the pump block with release valve knob (27) closed.
6. Fill unit with clean oil and purge air per Adding Hydraulic Oil in the Maintenance section of this manual.

Maintenance (cont'd)

Inspection and Adjustments

After reassembly, check the following:

Piston Travel Inspection

Piston Extended

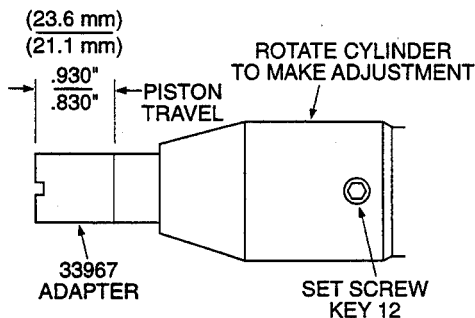
With the draw stud removed and release valve knob open, observe whether end of piston (6) is flush to 1/64" (.396 mm) below the end of cylinder (4). If it is not, the rubber bladder (29) contains too much oil.

To remove excess oil:

- Remove bladder handle (1) and bladder plug (20).
- Slowly open release valve knob (27); excess oil should come out of the rubber bladder and piston move to become flush to 1/64" (.396 mm) below the end of cylinder (4).
- If excess oil does not come out, replace the compression spring (7).

Piston Retracted

Measure piston travel distance (difference between piston completely extended and completely retracted). Adjust cylinder (4) so travel distance is .830" (21.1 mm) to .930" (23.6 mm). Tighten set screw (12).



Pump Section Inspection

Intake Check Valve

Close the release valve knob and operate lever handle (2) until piston (6) bottoms and handle resistance increases.

If the piston bottoms in 30 strokes or less, the intake check valve is operating properly.

More than 30 strokes indicates an intake check leak. Re-seat, re-drill or replace the intake check seat.

Discharge Check Valve

If the lever handle (2) returns to the raised position by itself, this indicates a discharge check valve leak.

Re-seat or re-drill the discharge check seat and replace the discharge compression spring (23).

Release Valve

Pump the lever until the piston bottoms. Gently apply and maintain additional force on lever handle (2). If the lever handle remains solid, the release valve ball (32) is operating properly. If the lever handle (2) goes down slowly, this indicates leakage at the release valve. Re-seat or re-drill the release valve stem seat and replace O-ring (33).

Troubleshooting

PROBLEM	PROBABLE CAUSE	POSSIBLE REMEDY
Will not punch hole.	Improper assembly or use of punch, die or accessories.	<p>See Operating Instructions and Capacity Chart.</p> <p>Low oil level. See Adding Hydraulic Oil in Maintenance Section.</p>
Requires excessive lever force.	Improper assembly or use of punch, die or accessories.	<p>See Operating Instructions and Capacity Chart.</p> <p>Material being punched is too thick or too hard. See Capacity Chart.</p>
Pump will not build pressure.	Air in system.	See step 3, Adding Hydraulic Oil.
Excessive number of strokes strokes are required to punch hole.	<p>Inoperative intake check valve.</p> <p>Inoperative discharge check valve.</p> <p>Leaking Release Valve.</p> <p>Damaged piston, piston extension, pump plunger seals or mating surfaces.</p>	<p>See Inspection and Adjustments, Intake Check Valve Inspection.</p> <p>See Inspection and Adjustments, Discharge Check Valve Inspection.</p> <p>See Inspection and Adjustment, Release Valve Inspection.</p> <p>See Maintenance and Repairs, Cylinder and Pump Block sections.</p> <p>Clogged filter screen. Clean or replace filter screen (39).</p>

Troubleshooting (cont'd)

PROBLEM	PROBABLE CAUSE	POSSIBLE REMEDY
Will not return piston.	Weak or damaged return spring, excess oil in unit.	See Piston Travel Inspection.
External oil leaks.	Damaged seals or surfaces.	<p>Damaged piston, piston extension, pump plunger seals or mating surfaces. See Maintenance and Repairs, Cylinder and Pump Block sections.</p> <p>Damaged Release Valve Stem seal. See Inspection and Adjustment, Release Valve Inspection.</p>