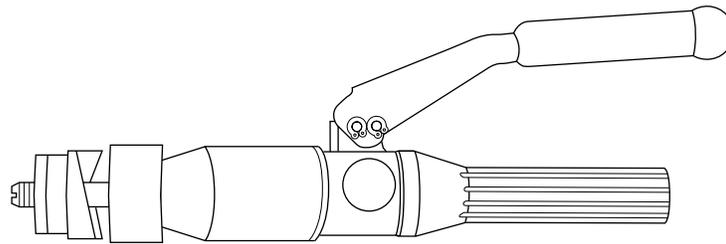
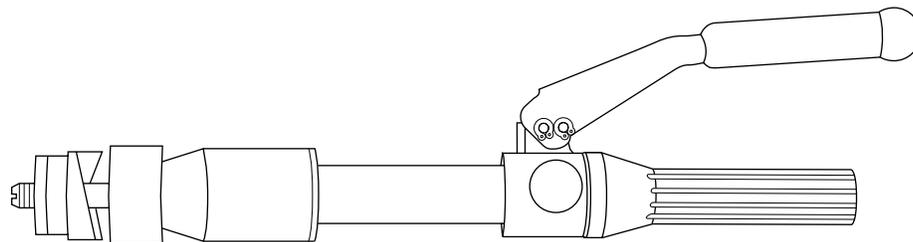


SERVICE MANUAL



7804SB / 7806SB
Quick Draw®



7704SB / 7706SB
Quick Draw Flex™

Quick Draw® Hydraulic Punch Drivers

Serial Codes AHJ and YZ



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

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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 service procedures for the following Greenlee tools:

7704SB / 7706SB Serial Code AHJ

7804SB / 7806SB Serial Code YZ

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge.

Other Publications

Instruction Manual: Publication 999 4730.7

All specifications are nominal and may change as design improvements occur. Greenlee Textron shall not be liable for damages resulting from misapplication or misuse of its products.

Quick Draw Flex is a trademark and Quick Draw is a registered trademark of Greenlee Textron.

Loctite and 242 are registered trademarks of Loctite Corporation.

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

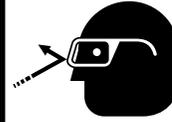
Immediate hazards which, if not avoided, **WILL** result in severe injury or death.

⚠ 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 can result in serious eye injury from flying debris.

⚠ 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.

⚠ WARNING

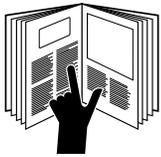
Do not exceed the rated capacity of this tool. Exceeding the rated capacity could cause a component failure, which could throw broken parts with great force.

Failure to observe this warning 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



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

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

⚠ WARNING



Electric shock hazard:
Do not use this tool near live circuits. This includes, but is not limited to, the following:

- Near circuit breaker panels or fuse boxes with energized circuits
- Near junction boxes with energized circuits

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

⚠ CAUTION

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

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

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 the ram and cylinder. Store with the lever down and hydraulic pressure released.

Adding Hydraulic Oil

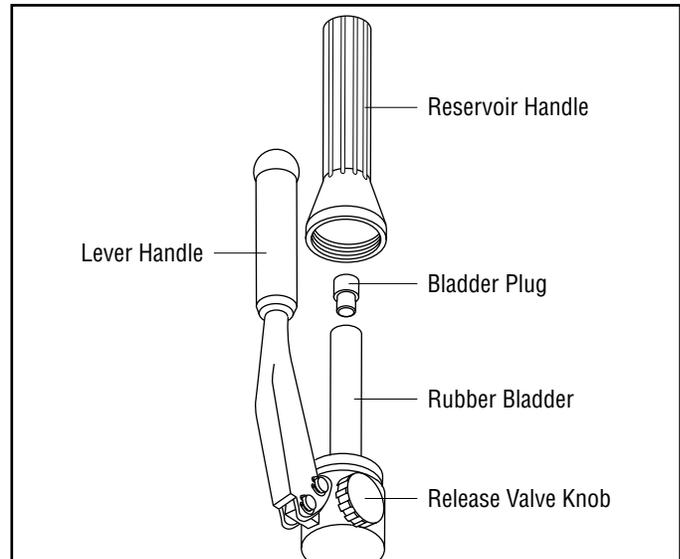
1. Place the driver in a vise in a vertical position with the handles up. Unscrew the reservoir handle and remove the bladder plug. Open the release valve knob to assure the ram is fully extended.
2. Fill the rubber bladder to the point of overflow with Greenlee hydraulic oil.
3. Purge air from the system:
Pump the lever handle several times to remove air from the pumping chamber. Close the release valve knob and pump the lever handle until the ram completes its full travel. Repeat as necessary.

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

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

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

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



Oil Leaks

- Check for external oil leaks.
- Check that the release valve knob and stem are closed tightly and seating properly.
- Remove the reservoir handle and check for oil leaks around the rubber bladder and bladder plug.

Troubleshooting

Problem	Probable Cause	Probable Remedy
Does not punch hole.	Improper assembly or use of punch, die, or accessories.	Refer to “Operation” and “Capacity and Draw Stud Selection Guide.”
	Low oil level.	Refer to “Adding Hydraulic Oil” in the “Maintenance” section.
Requires excessive lever force.	Improper assembly or use of punch, die, or accessories.	Refer to “Operation” and “Capacity and Draw Stud Selection Guide.”
	Material being punched is too thick or too hard.	Refer to “Capacity and Draw Stud Selection Guide.”
Pump does not build pressure.	Air in system.	Refer to step 3 of “Adding Hydraulic Oil” in the “Maintenance” section.
Excessive number of strokes are required to punch hole.	Inoperative intake check valve.	Refer to “Intake Check Valve” inspection in the “Inspection and Adjustments” section.
	Inoperative discharge check valve.	Refer to “Discharge Check Valve” inspection in the “Inspection and Adjustments” section.
	Leaking release valve.	Refer to “Release Valve” inspection in the “Inspection and Adjustments” section.
	Damaged piston, piston extension, pump plunger seals, or mating surfaces.	Refer to “Maintenance,” cylinder and pump block sections.
	Clogged filter.	Clean or replace filter (31).
Does not return piston.	Weak or damaged return spring; excess oil in unit.	Refer to “Ram Travel Inspection” in the “Inspection and Adjustments” section.
External oil leaks.	Damaged piston, piston extension, pump plunger seals, or mating surfaces.	Refer to “Maintenance,” cylinder and pump block sections.
	Damaged release valve stem seal.	Refer to “Release Valve” inspection in the “Inspection and Adjustments” section.

Disassembly

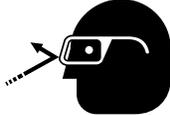
1. Remove reservoir handle (1), and bladder plug (20); drain oil from the rubber bladder (29).
2. Remove O-ring retainer (35) and the rubber bladder (29). Remove retaining rings (21) from one end of both handle pins (30) and disassemble handle pins and lever handle (2).
3. Grasp plunger (24) with pliers; 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 ram (6); push the ram 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.

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 operating or servicing this tool.</p> <p>Failure to wear eye protection can result in serious eye injury from flying debris.</p>

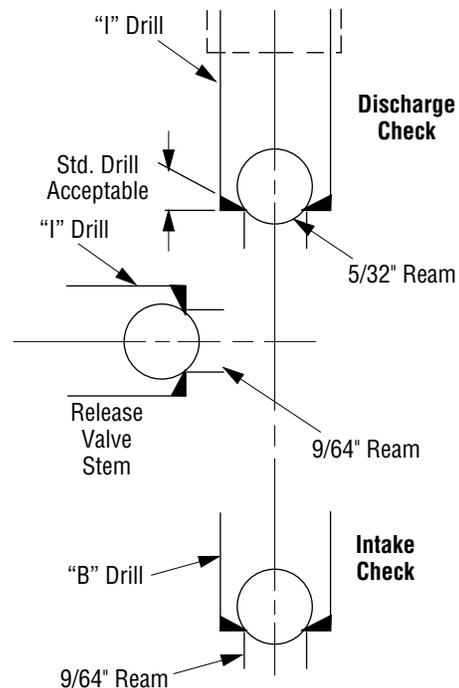
Re-drilling

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 one of the following repair kits to replace all O-ring seals, balls, and springs:
 - 7704SB / 7706SB: Repair kit 501 0477.2
 - 7804SB / 7806SB: Repair kit 503 7161.4
2. Inspect drilled oil passage in ram (6); be sure this passage is not blocked.
3. Before reinserting ram (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. Refer to "Adding Hydraulic Oil" in the "Maintenance" section of this manual.

Inspection and Adjustments

After reassembly, check the following:

Ram Travel Inspection

Ram Extended

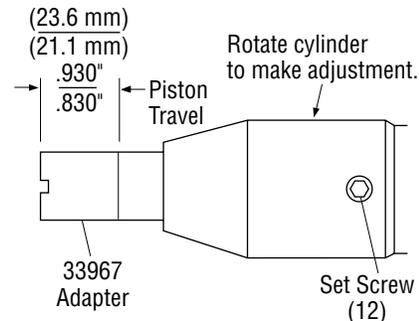
With the draw stud removed and release valve knob open, observe whether end of ram (6) is flush to 1/64" (0.396 mm) below the end of cylinder (4). If it is not, the rubber bladder (29) contains too much oil.

To remove excess oil:

1. Remove reservoir handle (1) and bladder plug (20).
2. Slowly open release valve knob (27); excess oil should come out of the rubber bladder and the ram should move to become flush to 1/64" (0.396 mm) below the end of cylinder (4).
3. If excess oil does not come out, replace the compression spring (7).

Ram Retracted

Measure ram travel distance (difference between ram completely extended and completely retracted). Adjust cylinder (4) so travel distance is 0.830" (21.1 mm) to 0.930" (23.6 mm). Tighten set screw (12).



Pump Section Inspection

Intake Check Valve

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

- If the ram 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.

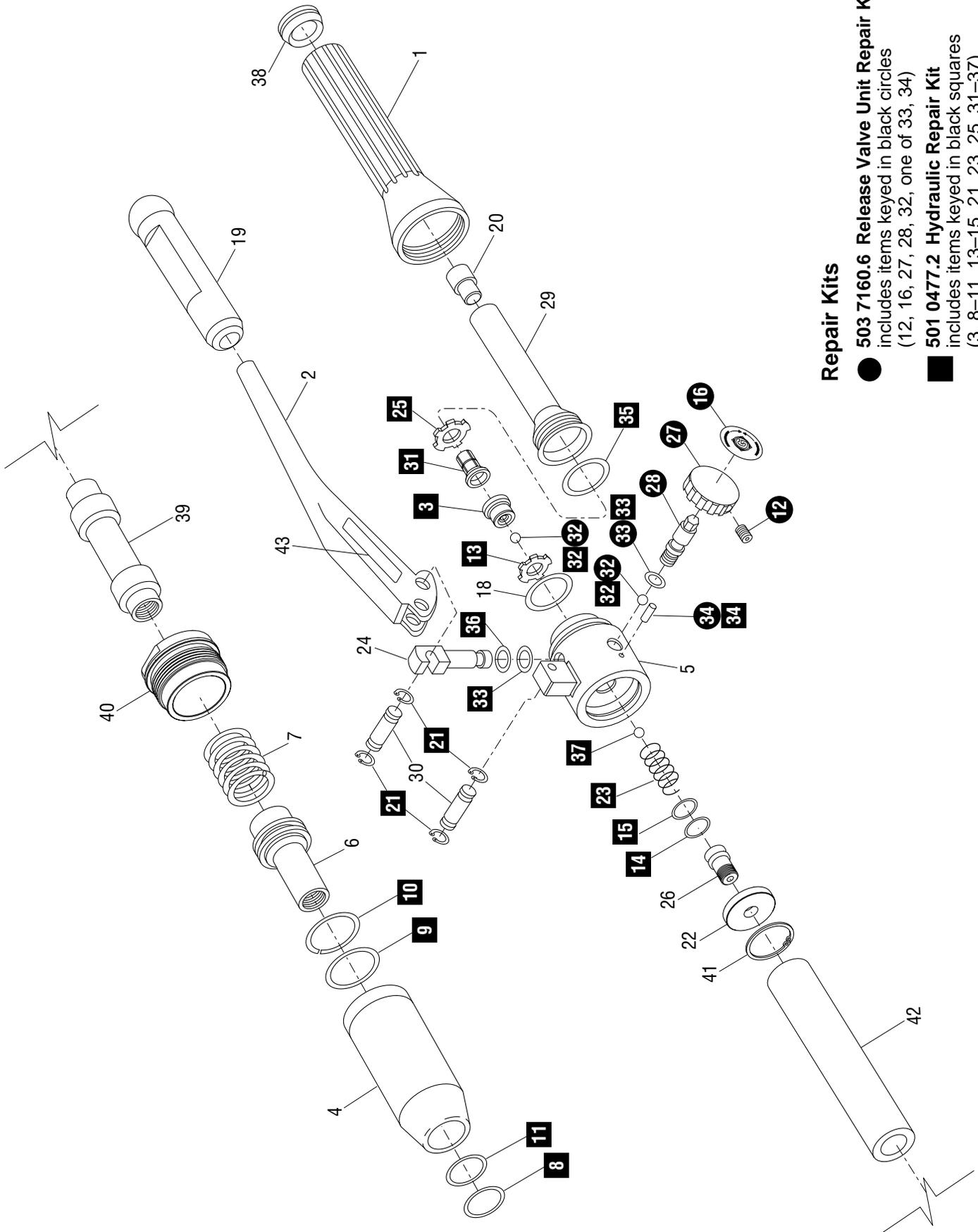
Discharge Check Valve

If the lever handle (2) returns to the raised position by itself, the discharge check valve is leaking. Re-seat or re-drill the discharge check seat and replace the discharge compression spring (23).

Release Valve

Pump the handle until the ram 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, the release valve is leaking. Re-seat or re-drill the release valve stem seat and replace O-ring (33).

Illustration—7704SB / 7706SB



Repair Kits

● **503 7160.6 Release Valve Unit Repair Kit**

includes items keyed in black circles
(12, 16, 27, 28, 32, one of 33, 34)

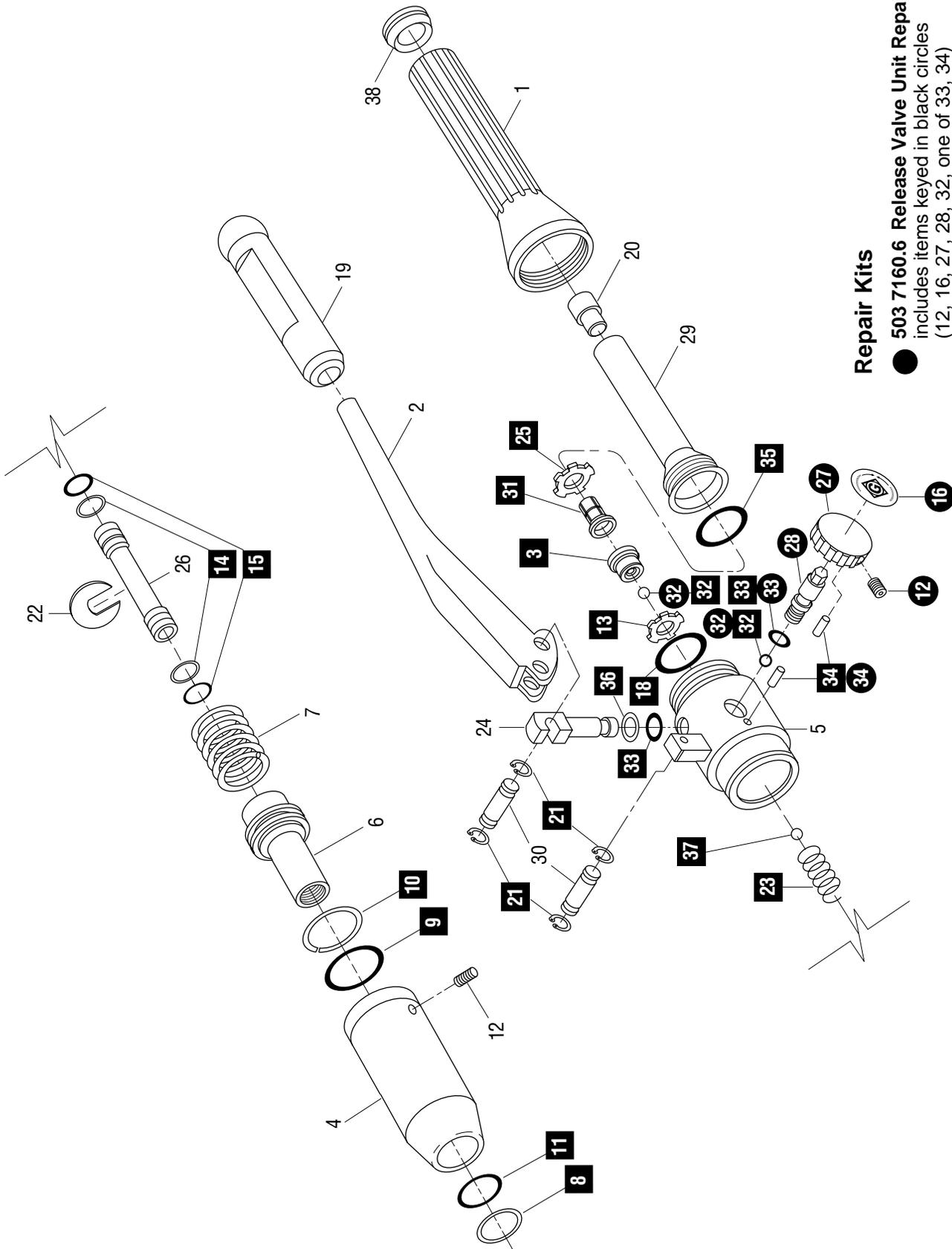
■ **501 0477.2 Hydraulic Repair Kit**

includes items keyed in black squares
(3, 8-11, 13-15, 21, 23, 25, 31-37)

Parts List—7704SB / 7706SB

Key	Part No.	Description	Qty
1	503 6889.3	Handle, reservoir	1
2	503 6887.7	Handle, pump	1
3	503 6890.7	Seat, inlet check	1
4	503 4271.1	Cylinder, hydraulic	1
5	501 0390.3	Block weld assembly, pump	1
6	501 0384.9	Ram	1
7	503 4272.0	Spring, compression, 1.07 x 1.37 x 3.18	1
8	905 3847.1	Backup ring, spiral, 1.00 x 1.24 x .027	1
9	905 1316.9	O-ring, 1.50 x 1.75 x .125 nitrile	1
10	905 3849.8	Backup ring, spiral, 1.50 x 1.74 x .027	1
11	905 1330.4	O-ring, 1.00 x 1.25 x .125 nitrile	1
12	905 5281.4	Screw, set #8-32 x .312 cup point	1
13	905 3761.0	Retaining ring, .125 Truarc	1
14	905 5121.4	Backup ring, spiral, .373 x .479 x .056	1
15	905 0168.3	O-ring, .364 x .500 x .068 nitrile	1
16	503 1878.0	Decal, punch release	1
18	905 1130.1	O-ring, 1.50 x 1.62 x .062 nitrile	1
19	502 3258.4	Grip, rubber	1
20	503 2488.8	Plug, bladder	1
21	905 4186.3	Retaining ring, .217 Truarc	4
22	501 0388.1	Retainer, coupler	1
23	905 3845.5	Spring, compression, .152 x .180 x .380	1
24	503 7715.9	Plunger	1
25	905 3503.0	Retaining ring, .562 Truarc	1
26	501 0386.5	Coupler, ram	1
27	503 6886.9	Knob, release valve	1
28	503 6893.1	Stem, release valve	1
29	503 4269.0	Bladder, rubber	1
30	503 7714.0	Pin, handle	2
31	503 6899.0	Filter, oil	1
32	905 0678.2	Ball, steel, .187 diameter	2
33	905 3854.4	O-ring, .250 x .375 x .062	2
34	905 0458.5	Pin, roll, .125 x .375	1
35	905 0376.7	O-ring, 1.125 x 1.375 x .12 nitrile	1
36	905 4230.4	Backup ring, spiral, .265 x .318 x .050	1
37	905 0452.6	Ball, steel, .218 diameter	1
38	503 6894.0	Cap, reservoir handle	1
39	501 0392.0	Hose	1
40	501 0387.3	Retainer, spring	1
41	905 4142.1	Ring, retaining	1
42	501 0393.8	Cover, hose	1
43	500 1592.3	Decal, identification	1

Illustration—7804SB / 7806SB



Repair Kits

● **503 7160.6 Release Valve Unit Repair Kit**
 includes items keyed in black circles
 (12, 16, 27, 28, 32, one of 33, 34)

■ **503 7161.4 Hydraulic Repair Kit**
 includes items keyed in black squares
 (3, 8-11, 13-15, 18, 21, 23, 25, 31-37)

Parts List—7804SB / 7806SB

Key	Part No.	Description	Qty
1	503 6889.3	Handle, reservoir	1
2	503 6887.7	Handle, pump	1
3	503 6890.7	Seat, inlet check	1
4	503 4271.1	Cylinder, hydraulic	1
5	503 6900.8	Block, pump	1
6	503 6896.6	Ram	1
7	503 4272.0	Spring, compression, 1.07 x 1.37 x 3.18	1
8	905 3847.1	Backup ring, spiral, 1.00 x 1.24 x .027	1
9	905 1316.9	O-ring, 1.50 x 1.75 x .125 nitrile	1
10	905 3849.8	Backup ring, spiral, 1.50 x 1.74 x .027	1
11	905 1330.4	O-ring, 1.00 x 1.25 x .125 nitrile	1
12	905 1032.1	Screw, set, #8-32 x .187 socket cup	2
13	905 3761.0	Retaining ring, .125 Truarc	1
14	905 5121.4	Backup ring, spiral, .373 x .479 x .056	2
15	905 0168.3	O-ring, .364 x .500 x .068 nitrile	2
16	503 1878.0	Decal, punch release	1
18	905 1130.1	O-ring, 1.50 x 1.62 x .062 nitrile	1
19	502 3258.4	Grip, rubber	1
20	503 2488.8	Plug, bladder	1
21	905 4186.3	Retaining ring, .217 Truarc	4
22	503 6892.3	Plate, retaining	1
23	905 3845.5	Spring, compression, .152 x .180 x .380	1
24	503 7715.9	Plunger	1
25	905 3503.0	Retaining ring, .562 Truarc	1
26	503 6891.5	Coupler, ram	1
27	503 6886.9	Knob, release valve	1
28	503 6893.1	Stem, release valve	1
29	503 4269.0	Bladder, rubber	1
30	503 7714.0	Pin, handle	2
31	503 6899.0	Filter, oil	1
32	905 0678.2	Ball, steel, .187 diameter	2
33	905 3854.4	O-ring, .250 x .375 x .062	2
34	905 0458.5	Pin, roll, .125 x .375	1
35	905 1741.5	O-ring, 1.31 x 1.56 x .125 nitrile	1
36	905 4230.4	Backup ring, spiral, .265 x .318 x .050	1
37	905 0452.6	Ball, steel, .218 diameter	1
38	503 6894.0	Cap, reservoir handle	1
	503 7622.5	Decal, identification (not shown)	1

Draw Studs and Accessories

Cat. No.	Part No.	Description	Qty
29451	502 9451.2	Draw stud, 7/16" stainless steel (optional)	1
31872	503 1872.1	Draw stud, 3/4-16 x 4.12	1
1924AA	503 3248.8	Spacer, .767 x 1.37 x .875	1
1614SS	503 0043.1	Screw, 3/8" short adapter	1
33967	503 3967.2	Adapter, stud, 3/8-24 x 3/4-16	1

GREENLEE 

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