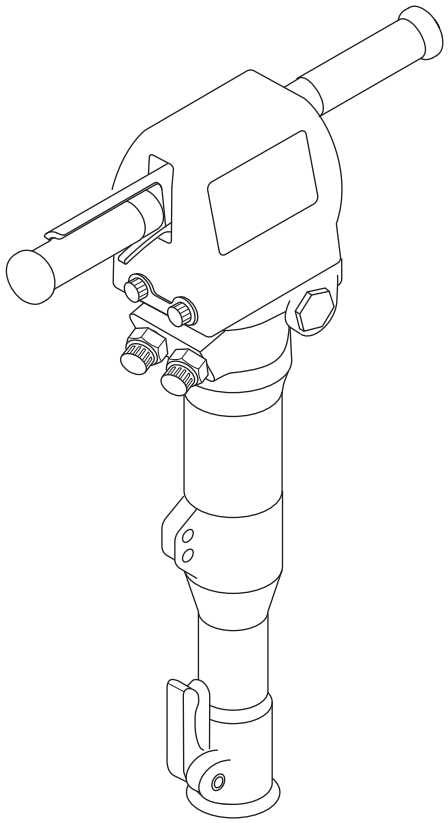
SERVICE MANUAL

GREENLEE®
UTILITY
A Textron Company



HPB45 and HPB55 Series Hydraulic Paving Breakers

Serial Codes GMN, GMP, GMR, and GMT

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

52042951 REV 3

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Safety

Safety is essential in the use and maintenance of Greenlee Utility 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 Utility tools:

HPB45-1AVS	Serial Code GMN
HPB45-2AVS	Serial Code GMP
HPB55-1AVS	Serial Code GMR
HPB55-2AVS	Serial Code GMT

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge at www.greenlee.com.

Other Publications

Instruction Manuals:
Publication 52033853 (HPB45)
Publication 52033854 (HPB55)

SAE Standard J1273 (Hose and Hose Assemblies):
Publication 99930323

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

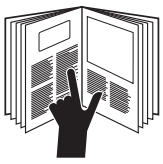
Immediate hazards which, if not avoided, WILL result in severe injury or death.

⚠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

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

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

⚠WARNING

Skin injection hazard:

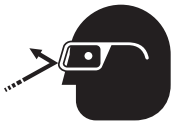
- Do not use hands to check for leaks.
- Do not hold hose or couplers while the hydraulic system is pressurized.
- Depressurize the hydraulic system before servicing.

Oil under pressure easily punctures skin causing serious injury, gangrene or death. If you are injured by escaping oil, seek medical attention immediately.

⚠WARNING

Do not exceed the maximum hydraulic flow, pressure relief, or back pressure listed in the instruction manuals.

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

Wear hearing protection when using this tool.

Failure to observe this warning could result in serious injury.

⚠WARNING

Wear foot protection when using this tool.

Failure to observe this warning could result in serious injury.

IMPORTANT SAFETY INFORMATION

⚠WARNING

Tool, bit, and other components may be hot during and after operation. Allow to cool before handling, or handle with heat-resistant gloves.

Failure to observe this warning could result in severe injury.

⚠WARNING

Do not disconnect tool, hoses or fittings while the power source is running or if the hydraulic fluid is hot. Hot hydraulic fluid can cause serious burns.

⚠WARNING

Do not reverse hydraulic flow. Operation with hydraulic flow reversed can cause tool malfunction. Connect the supply (pressure) hose and return (tank) hose to the proper ports.

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

⚠WARNING

Do not change accessories, inspect, adjust or clean tool when it is connected to a power source. Accidental start-up can result in serious injury.

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

⚠WARNING

Accumulator is charged with nitrogen under high pressure. This pressure must be unloaded before dismounting.

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

⚠CAUTION

Hydraulic oil can cause skin irritation.

- Handle the tool and hoses with care to prevent skin contact with hydraulic oil.
- In case of accidental skin contact with hydraulic oil, wash the affected area immediately to remove the oil.

Failure to observe these precautions may result in injury.

⚠CAUTION

Perform repairs in accordance with manufacturer's instructions only. Repairs other than as described in this manual may result in injury and property damage.

⚠CAUTION

All bolts on this tool are high tensile. Do not replace with bolts of lesser tensile specification.

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

IMPORTANT

Emergency stop procedure:

1. Release the trigger.
2. Shut off the hydraulic power source.

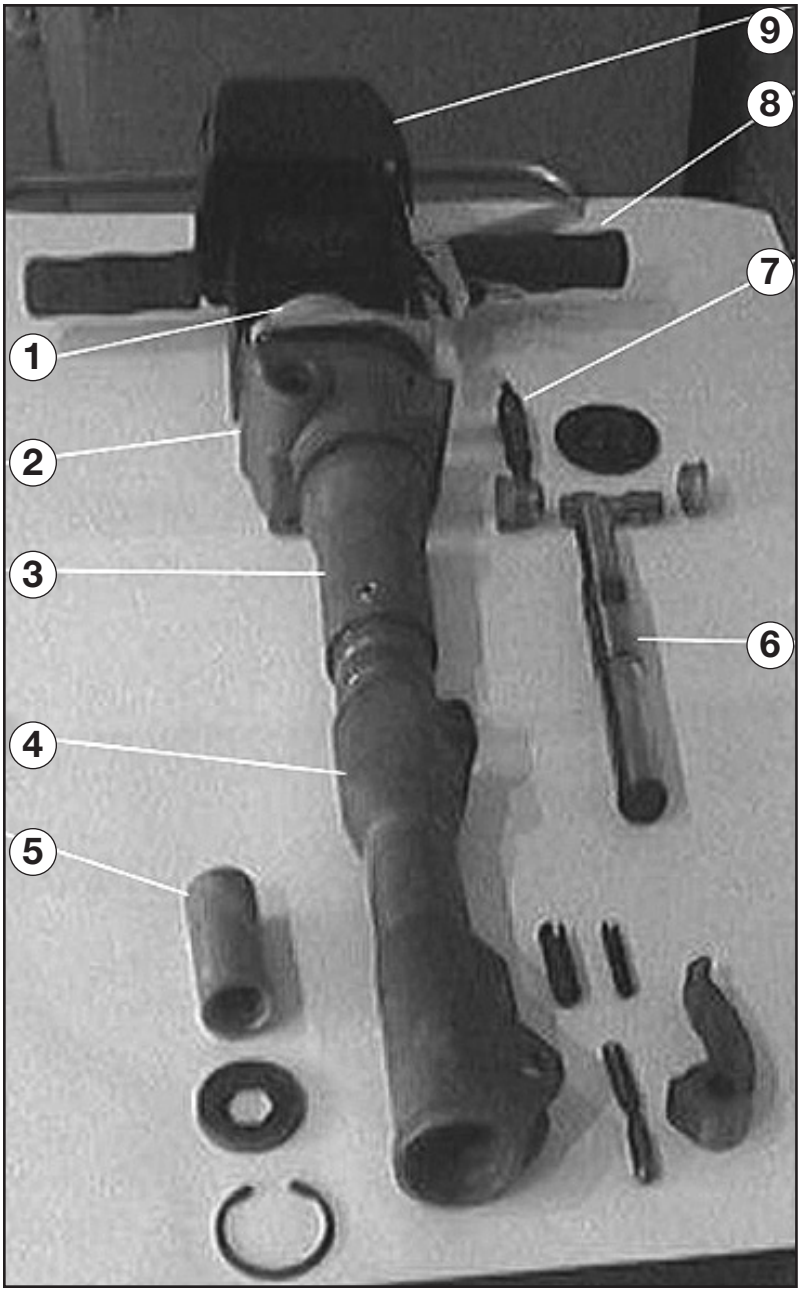
IMPORTANT

Procedure for connecting or disconnecting hydraulic hoses, fittings, or components:

1. Move the flow lever on the hydraulic power source to the off position.
2. Stop the hydraulic power source.
3. Follow the sequence under "Hose Connections" in the instruction manual to prevent pressure buildup. In case some pressure has built up, loosen hoses, fittings, or components slowly.

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

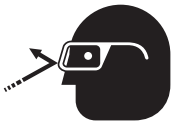
Identification of Main Components



1. Accumulator (complete)
2. Valve housing
3. Cylinder
4. Nose part
5. Chisel bushing
6. Striking piston
7. Trigger valve
8. Handle
9. Cover

Maintenance

Maintenance and repairs should be performed by qualified technicians.



⚠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

Do not change accessories, inspect, adjust or clean tool when it is connected to a power source. Accidental start-up can result in serious injury.

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

Note: Use only recommended lubricants and hydraulic fluids. Refer to the instruction manuals, which are listed under "Other Publications."

Maintenance Schedule

Use this maintenance schedule to maximize the tool's service life.

Note: Keep all decals clean and legible. Replace decals when necessary.

Daily

1. Wipe all tool surfaces clean.
2. Inspect the hydraulic hoses and fittings for signs of leaks, cracks, wear, or damage. Replace if necessary.
3. Install dust caps over the hydraulic ports when the tool is disconnected.

Monthly

Perform a thorough inspection of the hydraulic hoses and fittings as described in publication 99930323, SAE J1273 (Hose and Hose Assemblies).

Annually

If required by your organization, have the tool inspected by a Greenlee Utility Authorized Service Center.

Perform the following maintenance procedures annually or after 500 hours of operation:

- Check and recharge the accumulator. Replace the diaphragm if it shows signs of cracks.
- Check moving parts, chisel bellows, screws, etc. and replace if necessary.
- Replace all seals.
- Test the function of the breaker.

Storage

If the tool requires long-term storage, protect the striking piston against corrosion. Press the striking piston to its upper position (through the chisel bushing) by means of a tool placed upside down. As the quick-release couplings are blocked when disassembled, the striking piston must be pressed upward with the hoses mounted but the power source turned off.

Maintenance (cont'd)

Accumulator Recharging Procedure

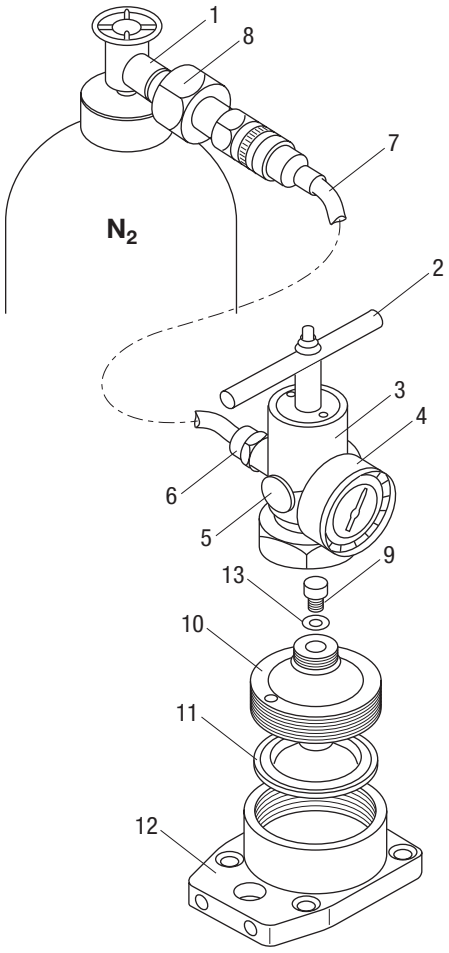
⚠WARNING

Accumulator is charged with nitrogen under high pressure. This pressure must be unloaded before dismounting.

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

1. Check that the oil inlet of the accumulator is depressurized.
2. Remove the protective cap over the charging screw (9) of the accumulator. The socket head screw must be perfectly clean.
3. Loosen the charging screw on top of the accumulator (maximum of two turns). Totally neutralize the pressure before dismounting the accumulator.
4. Unscrew the accumulator cover (10), take out the diaphragm (11), and check for leakage and damage.
5. Clean, check, and replace damaged or worn parts.
6. Grease the seal faces of the accumulator body (12) and the accumulator cover (10) with silicone.
7. Spray both sides of the diaphragm with silicone. Place the diaphragm with its bead pointing downward so that it fits in the groove of the accumulator body (12).
8. Unscrew the charging screw and replace the seal ring (13).
9. Grease the thread of the accumulator cover (10) with copper grease and tighten to approximately 200 Nm (148 ft-lb).
10. Fasten the charging screw lightly, and loosen it two turns afterward.
11. Mount the filling device on the filling socket of the accumulator cover and fasten it lightly while turning the handle (2) forward and backward, ensuring that the hexagon resiliently fits into the charging screw.
12. Close the bleeder valve (5) by turning it clockwise.
13. Connect the hose (7) to the check valve (6).
14. Connect the free end of the hose directly to the nitrogen bottle by using the reducing nipple.

    Note: Use only pure nitrogen.
15. Read the pressure on the gauge (4). Carefully open the valve of the nitrogen bottle (1) and charge with nitrogen until the pressure is approximately 20% higher than required charging pressure. Close the valve of the nitrogen bottle.
16. If the gauge (4) shows too high a nitrogen pressure, loosen the bleeder valve (5) until the required pressure of 50 bar (723 psi) is achieved.
17. Close the charging screw (9) of the accumulator by turning the handle (2) clockwise.
18. Unload the nitrogen hose by opening the bleeder valve (5).
19. Dismount the filling device and check the charging screw (9) for leakage with drops of oil.
20. Fit the protective cap over the accumulator.



50027182 Accumulator filling device (includes items 2–8)

50027174 Accumulator kit (fully charged) (includes items 9–14)

(1) Valve of nitrogen bottle
(2) Handle
(3) Filling adaptor
(4) Gauge
(5) Bleeder valve
(6) Check valve
(7) Hose, approximately 3 m (10 ft)
(8) Reducing nipple (24.32-14WFG)
(9) Charging screw
(10) Accumulator cover
(11) Diaphragm
(12) Accumulator body
(13) Seal ring
(14) Protective cap (not shown)

Troubleshooting

Before troubleshooting, determine whether the problem is in the tool, the hoses, or the power source. Substitute a tool, hoses, or power source known to be in good working order to eliminate the item that is not operating.

If the problem is in the tool, refer to the trouble-shooting table in this manual. If the problem is in the power source, refer to the troubleshooting section of the power source instruction manual.

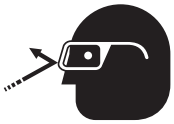
Problem	Probable Cause	Probable Remedy
Tool does not operate.	Improper power source.	Verify that the power source meets the specifications.
	Hydraulic fluid level low.	Check the fluid level. Check system for leaks.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity.
	No or incorrect flow/pressure.	Check flow/pressure by using test equipment.
	P and T hoses interchanged.	Check connection. With standard connection oil flows from male Q.R. coupling (i.e., tail-hose of tool's P connection is fitted with female coupling).
	Insufficient activation of trigger valve.	Adjust trigger lever (if adjustable) or replace defective parts.
	Defective seals in spool canal of valve housing.	Dismount, check, and replace seals.
	Back pressure too high.	Make direct tank connection. Max. back pressure 28 bar (405 psi) measured at tool.
	Defective Q.R. coupling in return line.	Locate and replace defective coupling.
	Striking piston sticks, possibly due to thickening of cylinder.	Push tool hard against chisel. Chamfer/polish slightly the edge at cylinder dashpot (where cylinder bore changes size). Check oil viscosity. Thin oil increases risk of thickening.
	Spool/reversing spool or auxiliary spools stick.	Dismount and check that all parts move easily. Polish slightly if necessary.

Troubleshooting (cont'd)

Problem	Probable Cause	Probable Remedy
Tool operates slowly or erratically.	Hydraulic fluid cold.	Allow fluid to warm to the operating temperature. Actuate the tool intermittently to reduce the warming time.
	Power source not adjusted correctly.	Refer to the power source operator's manual. Set the flow and pressure to correspond with the tool.
	Hydraulic fluid level low.	Check the fluid level. Check system for leaks.
	Air in the hydraulic system.	Refer to the power source manufacturer's instructions for removing air from the system.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity.
	Defective seals.	Dismount, check, and replace.
	Wear, internal leakage.	Dismantle, check, and replace defective or worn parts.
		Check impurity of oil and oil viscosity at working temperature. Thin oil increases the likelihood of internal leakage.
Strike rate is normal; blow energy is weak.	Low accumulator gas pressure.	Return tool to a Greenlee Utility Authorized Service Center.
	Broken accumulator diaphragm.	Return tool to a Greenlee Utility Authorized Service Center.
Tool feels hot.	Hydraulic fluid level low.	Check the fluid level. Check for leaks.
	Incorrect hydraulic fluid viscosity.	Use hydraulic fluid with the correct viscosity.
	Hydraulic fluid dirty.	Refer to the power source owner's manual for procedure to replace hydraulic oil and filter.
Hoses pulsate.	Defective accumulator.	Replace accumulator diaphragm and charge with nitrogen. Refer to "Accumulator Recharging Procedure" in the "Maintenance" section of this manual.
Oil leaks from breaker.	Defective seals.	Replace seals.
Chisel falls out.	Worn latch.	Replace latch and roll pins.
	Worn chisel bushing or chisels.	Replace bushing or chisel.

Repair

Maintenance and repairs should be performed by qualified technicians.



⚠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

Do not change accessories, inspect, adjust or clean tool when it is connected to a power source. Accidental start-up can result in serious injury.

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

⚠WARNING

Accumulator is charged with nitrogen under high pressure. This pressure must be unloaded before dismounting.

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

⚠CAUTION

Perform repairs in accordance with manufacturer's instructions only. Repairs other than as described in this manual may result in injury and property damage.

Torque Settings

Only use the torque settings indicated in this manual.

⚠CAUTION

All bolts on this tool are high tensile. Do not replace with bolts of lesser tensile specification.

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

Tools Required

- Hex wrench, 8 mm
- Hex wrench, 10 mm
- Hex socket, 41 mm
- Adjustable torque wrench, 45 Nm to 200 Nm (33 ft-lb to 148 ft-lb)
- Tool for accumulator, 50027964
- Punch, ø37 mm (scraper)
- Punch, ø14 mm (scraper)
- Punch, ø44 mm (scraper)
- Punch, ø49 mm (scraper)
- Loctite® 245
- Loctite 648
- Copper grease, anti-seize
- Accumulator filling device, 50027182
- Universal cleaner, OKS 2611

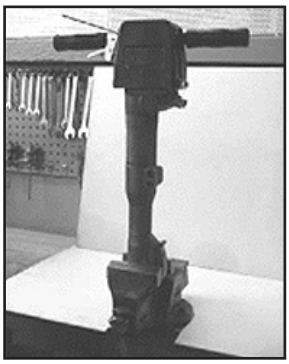
Disassembly

Complete disassembly of the tool is not recommended. If a complete overhaul is necessary, return the tool to your nearest Greenlee Utility Authorized Service Center.

The disassembly procedure is divided into sections of the tool. Disassemble only the section(s) necessary to complete the repair.

Disassemble the tool on a flat, clean surface. Take care not to lose or damage any parts that may fall free during disassembly.

Disassembly of Main Components



1. Mount the breaker in a vise.

2. Loosen the nose part with a drill or torque wrench.

3. Dismount the nose part.

4. Remount the breaker in the vise.

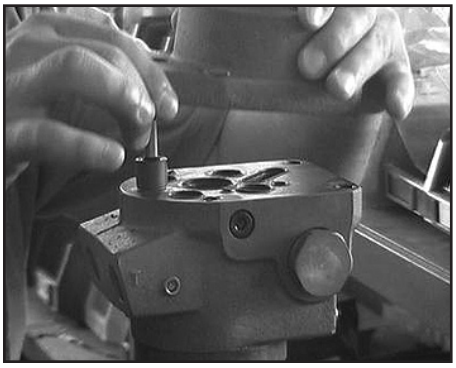
5. Hammer the nabs away from the screws, and loosen the screws.

6. Remove the screws.

7. Remove the cover.

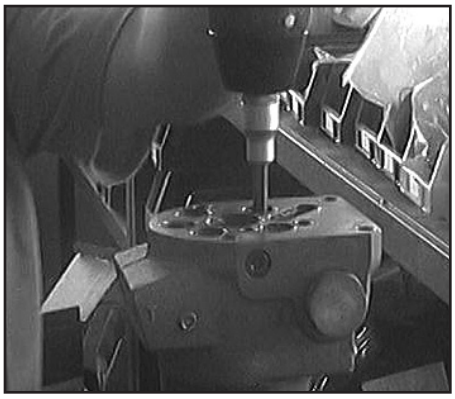
Disassembly of Main Components (cont'd)

8. Loosen the four screws on the accumulator.

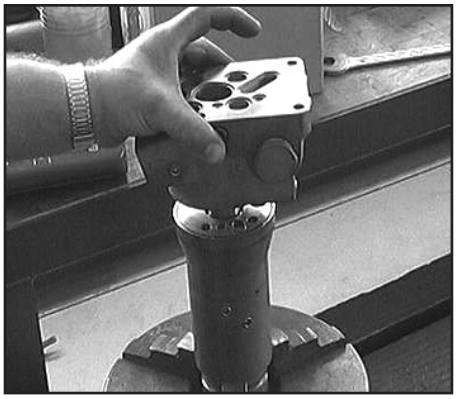


9. Remove the accumulator.

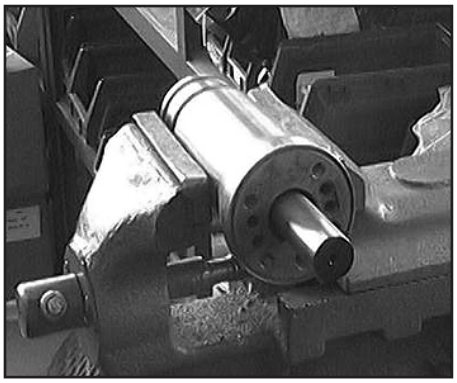
10. Remove the trigger valve.



11. Loosen the screws in the valve housing.

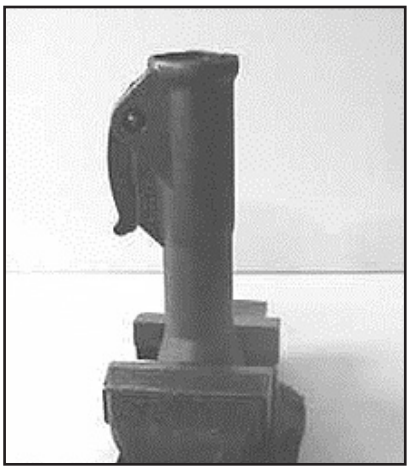


12. Remove the valve housing from the cylinder.



13. Remove the striking piston from the cylinder.

Disassembly of Nose Part

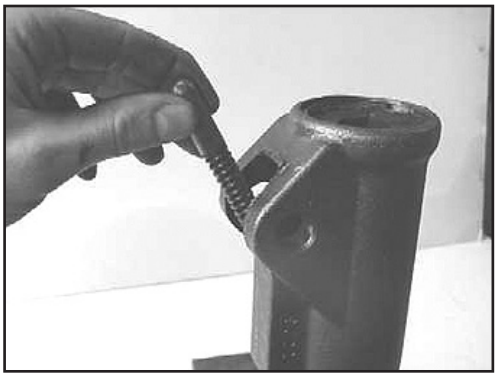


1. Mount the nose part in a vise.

4. Remove the locking ring.

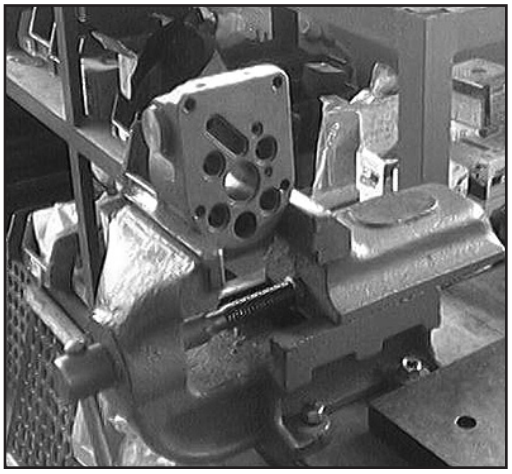
2. Hammer out the two roll pins and remove the latch.

5. Remove the chisel bellows.

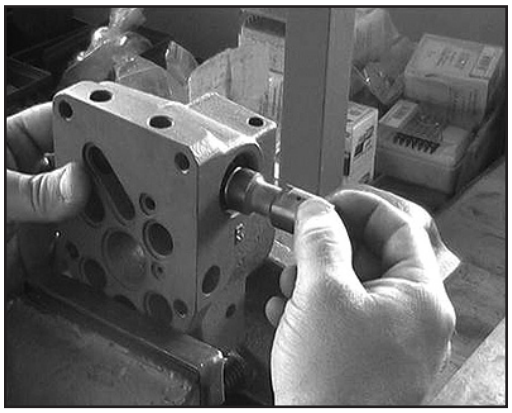


3. Remove the screw.

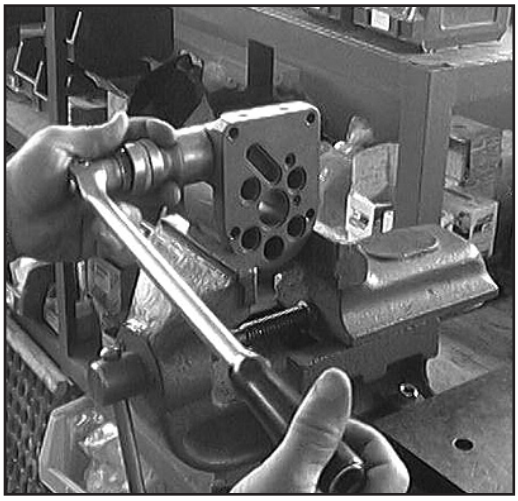
Disassembly of Valve Housing



1. Mount the valve housing in a vise.

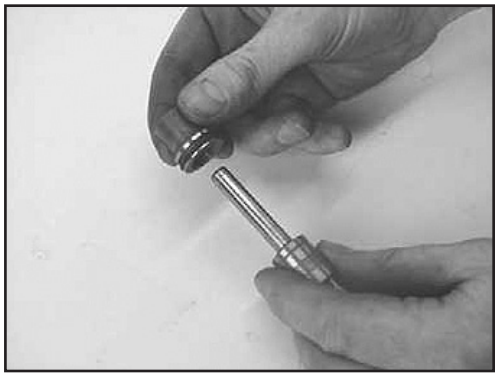


3. Remove the spool.

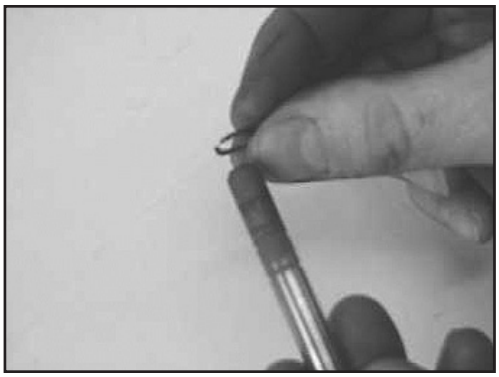


2. Loosen and remove the P and T guide sockets.

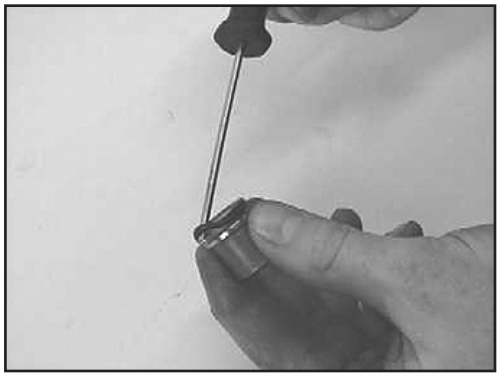
Disassembly of Trigger Valve



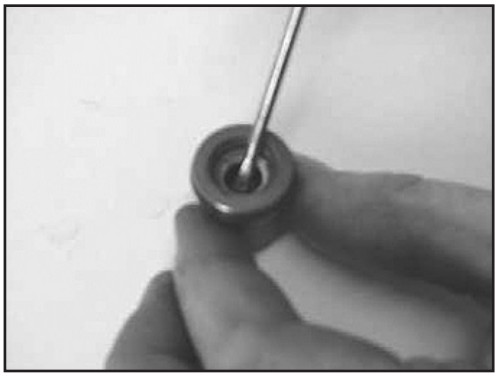
1. Remove the packing gland from the trigger.



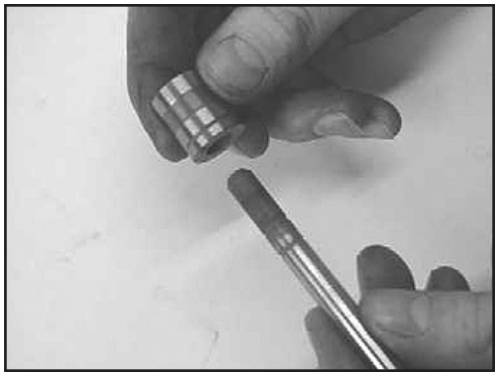
4. Remove the Seeger spring ring.



2. Remove the O-ring and seal from the packing gland.



5. Remove the O-ring, backup ring, and Seeger spring ring from the trigger spool.



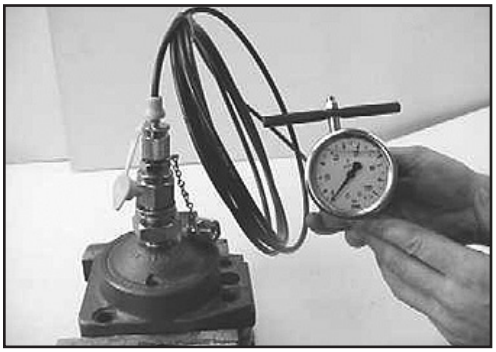
3. Remove the trigger spool from the trigger rod.

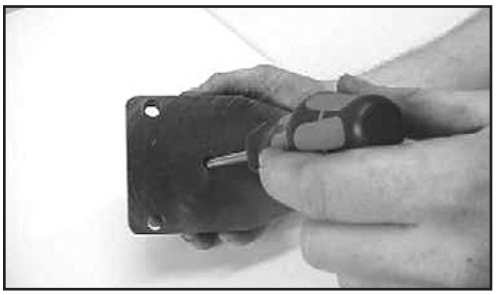
Disassembly of Accumulator

⚠WARNING

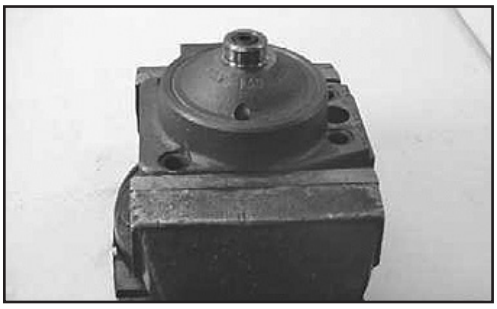
Accumulator is charged with nitrogen under high pressure. This pressure must be unloaded before dismounting.

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





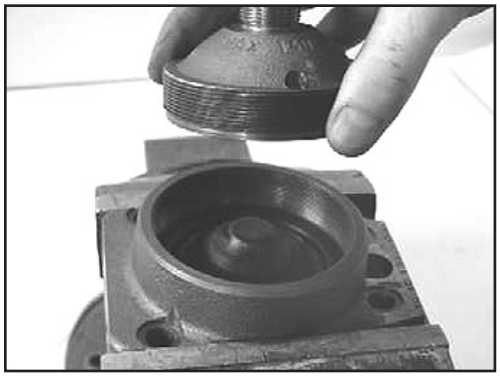
1. Check for gas by using the filling device or a screwdriver.



2. Mount the accumulator in a vise.

3. Loosen the charging screw on the cover.

4. Loosen the cover.

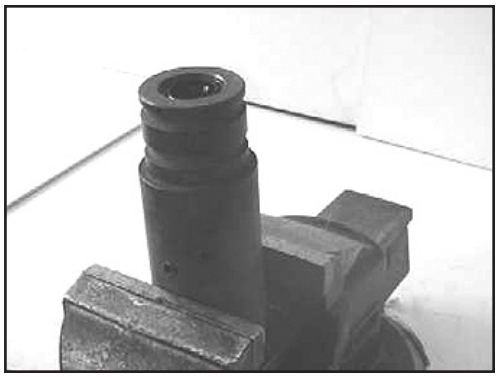


5. Remove the cover.

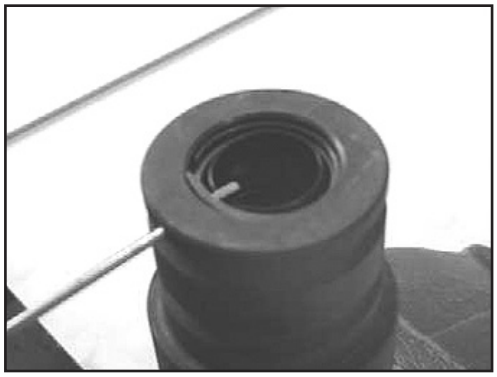
6. Remove the diaphragm.

7. Check the diaphragm for defects.

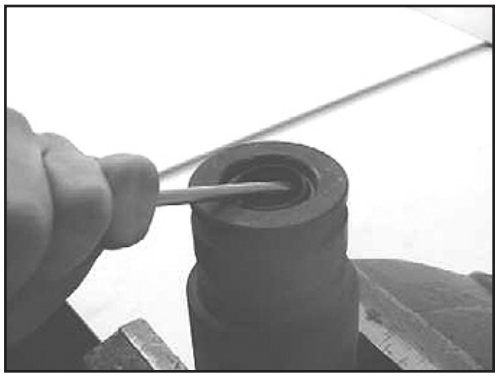
Disassembly of Cylinder



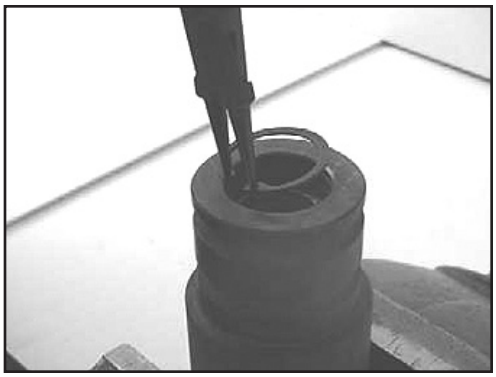
1. Mount the cylinder in a vise.



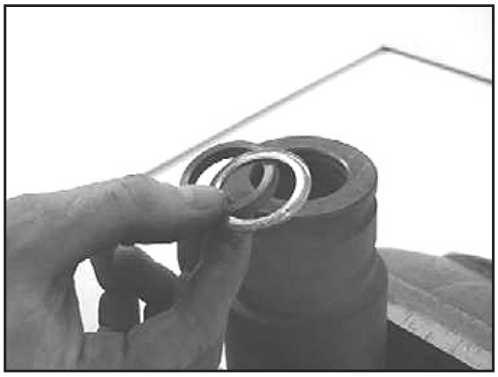
2. Remove the locking ring.



3. Remove the seal.



4. Remove the locking ring.

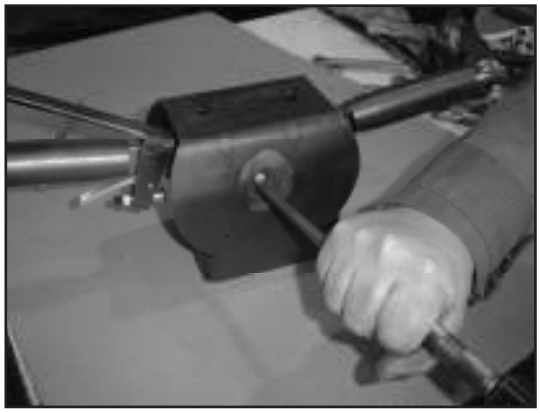


5. Remove the seal and backup washer.

Disassembly of Handle

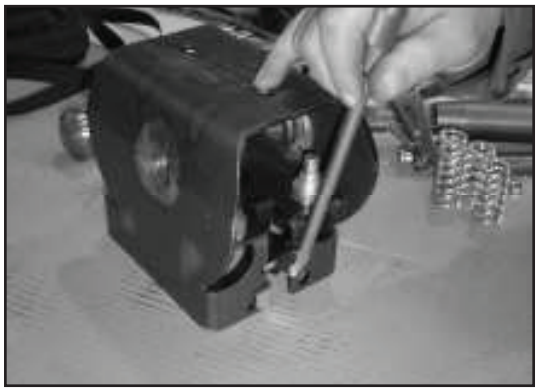
1. Loosen the screws to remove the top cover.

2. Remove the nut on the central bolt.

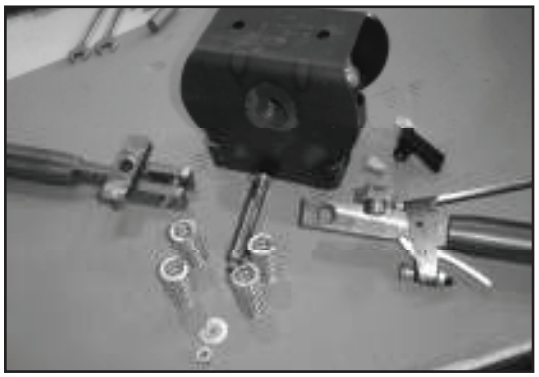


3. Hammer out the bolt.

4. Take out the handles and then remove the springs.



5. Slide the two holders down to remove the trigger pawl.



Components

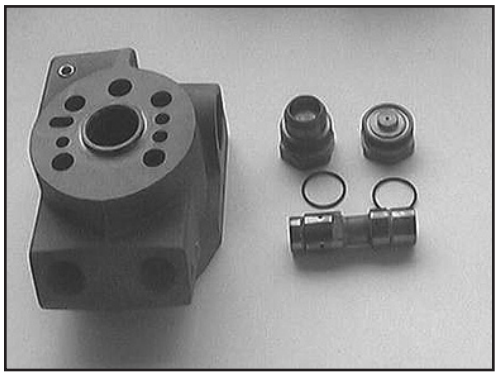
Assembly

Refer to the illustrations and parts lists for the correct orientation and placement of parts.

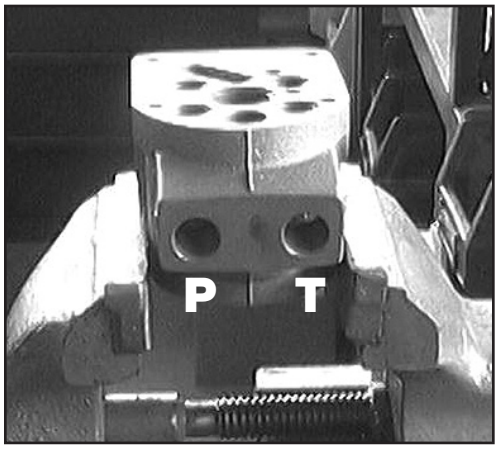
Replace any O-rings, V-rings, seals, and gaskets on parts that have been disassembled. Apply hydraulic fluid or O-ring lubricant to all O-rings and all metal surfaces which they must slide over. When installing an O-ring which must slide over sharp surfaces, use a rolling motion and be careful not to damage the O-ring.

Wherever the assembly results in metal-to-metal contact, coat the surfaces with hydraulic fluid or O-ring lubricant.

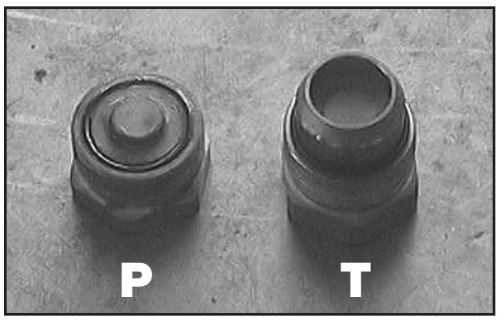
Assembly of Valve Housing



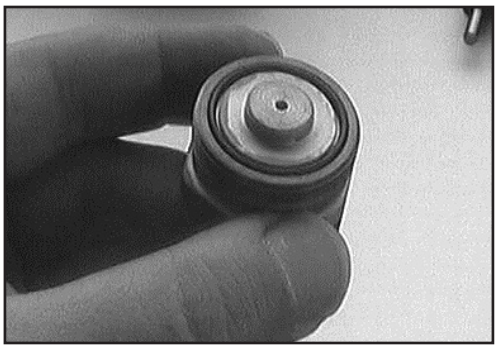
1. Use these parts.



2. Locate P and T (marked on housing).

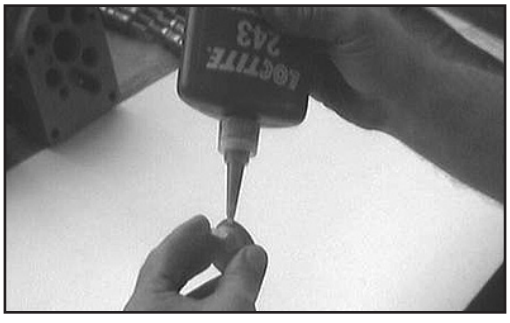


3. Identify the P and T guide sockets.



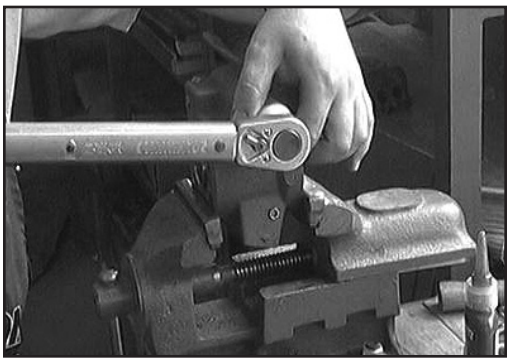
4. Grease and mount the O-ring on the P guide socket.

5. Grease and mount the O-ring on the T guide socket.

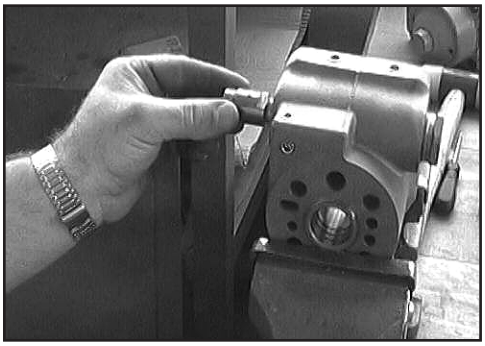


6. Apply Loctite 243 (245) to the P socket thread.

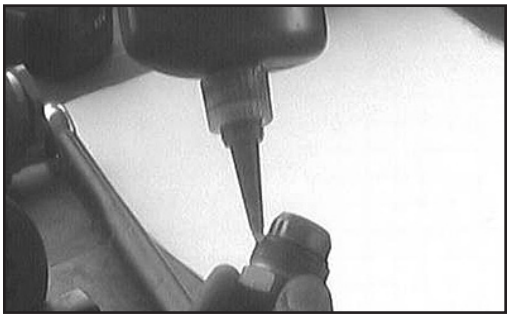
Assembly of Valve Housing (cont'd)



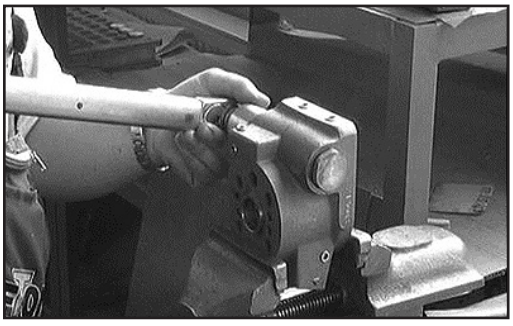
7. Mount the P socket at the P side and torque to 100 Nm (74 ft-lb).



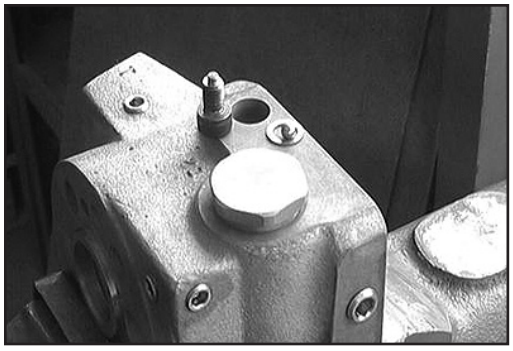
8. Mount the spool at the T side (note the milling).



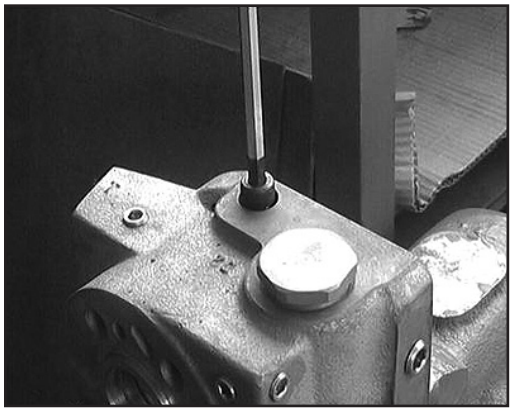
9. Apply Loctite 243 (245) to the T socket thread.



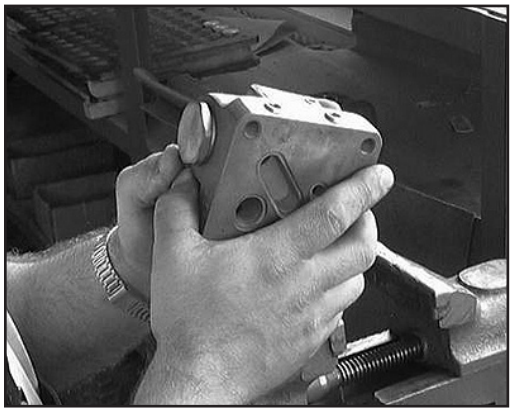
10. Mount the T socket at the T side and torque to 100 Nm (74 ft-lb).



11. Mount the ball, seal ring, and screw.



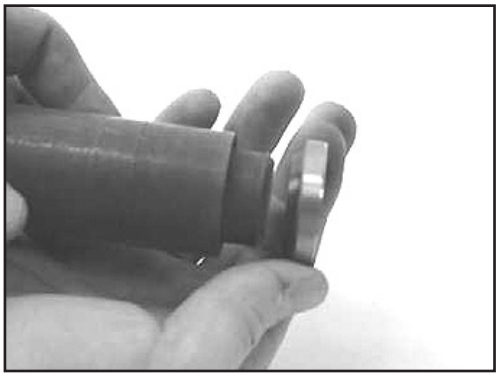
12. Tighten the screw with a hex socket wrench.



13. Check the movement of the spool by shaking it from side to side.

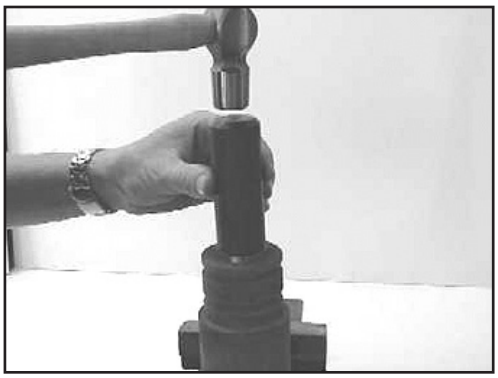
Assembly of Cylinder

1. Use these parts.

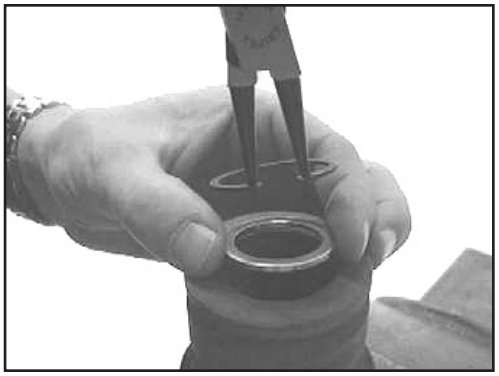


4. Mount the seal on a punch (ø37 mm).

2. Mount the seal (green).



5. Mount the seal with an engineer's hammer.



3. Mount the backup washer and locking ring.

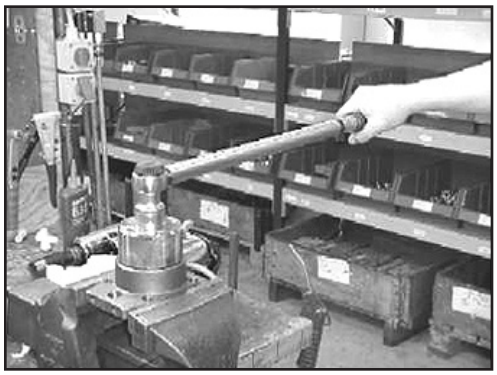
6. Mount the locking ring.

Assembly of Accumulator

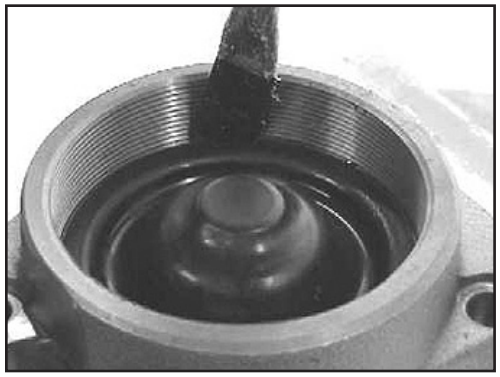
1. Use these parts.

5. Mount the cover in the body.

2. Mount the diaphragm.

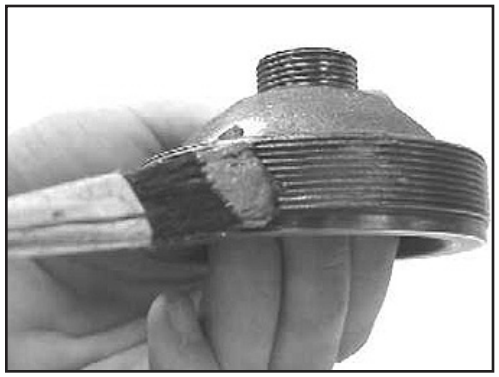


6. Tighten the cover with a hook wrench to 200 Nm (148 ft-lb).



3. Oil the diaphragm.

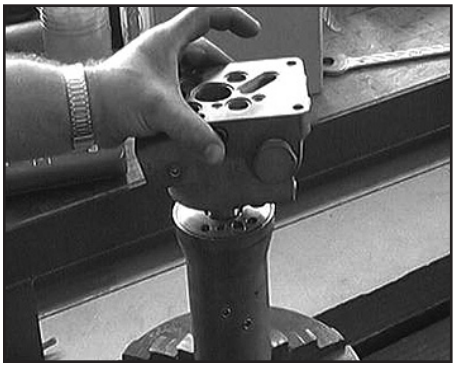
7. Mount the charging screw and seal ring.



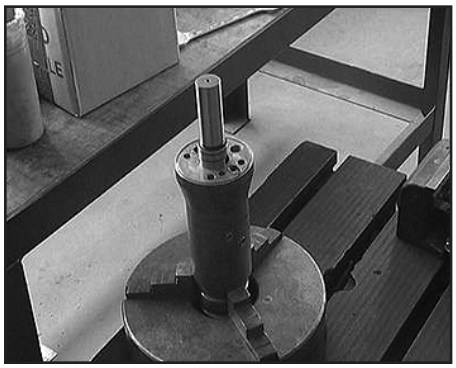
4. Grease the cover with copper grease.

Assembly of Main Components

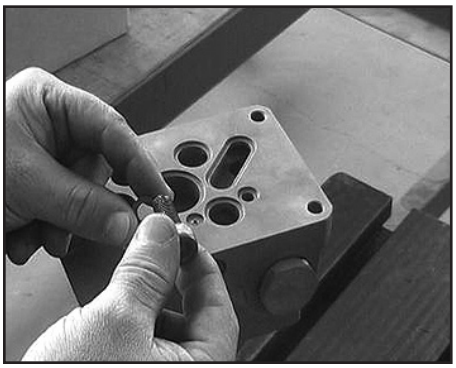
1. Oil the seals in the cylinder.



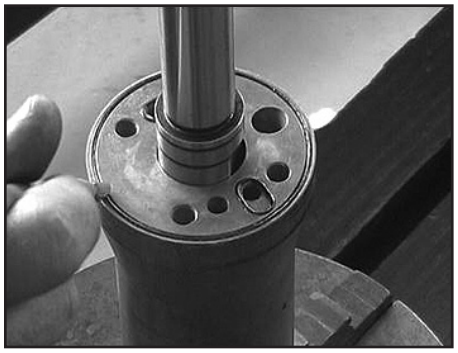
5. Mount the valve housing.



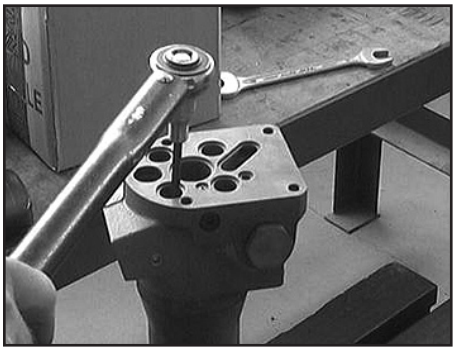
2. Mount the striking piston in the cylinder.



6. Mount the screws in the valve housing.

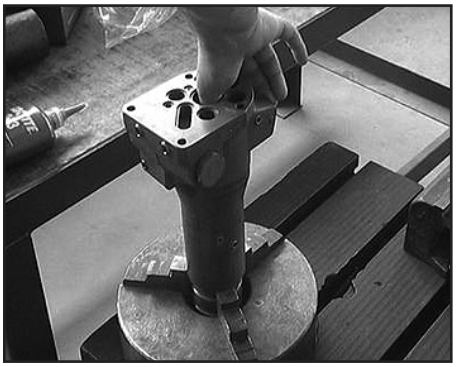


3. Grease the O-ring grooves on the cylinder and mount the O-rings.



7. Tighten the screws in the valve housing and torque to 80 Nm (59 ft-lb).

4. Apply Loctite 243 (245) to the cylinder thread.

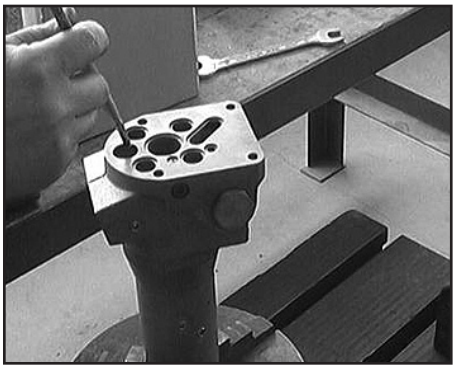


8. Check the movement of the piston in the valve housing.

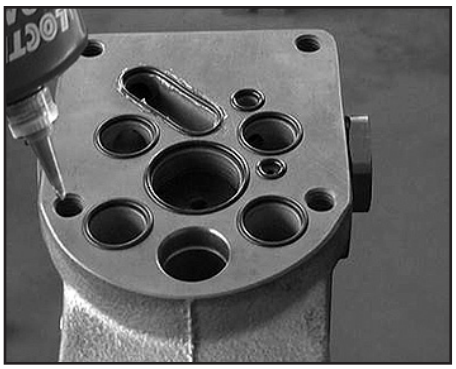
Assembly of Main Components (cont'd)

9. Check the movement of the striking piston.

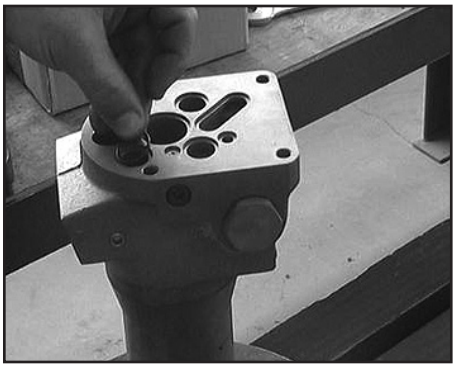
13. Mount the trigger valve.



10. Grease the O-ring grooves in the valve housing.

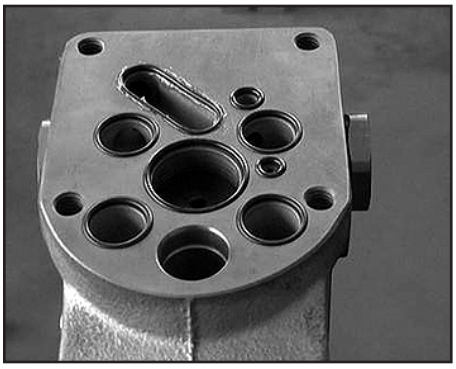


14. Apply Loctite 245 to the valve housing.

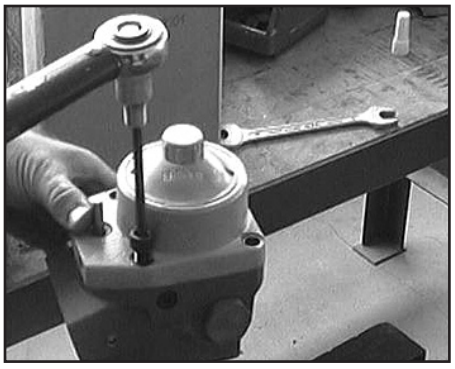


11. Mount the O-rings.

15. Mount the accumulator.

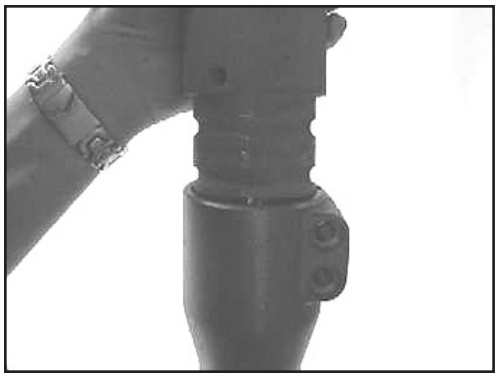


12. O-rings mounted.

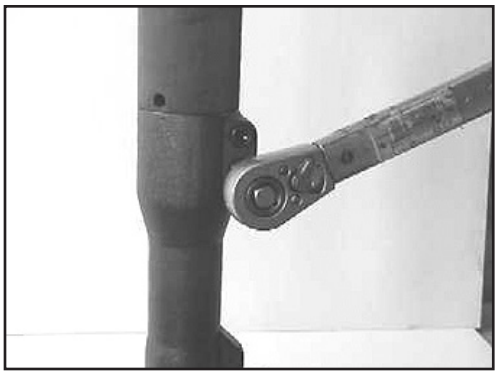


16. Tighten the screws on the accumulator and torque to 70 Nm (52 ft-lb).

Assembly of Main Components (cont'd)



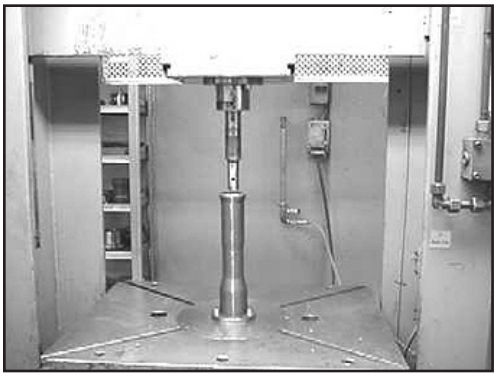
17. Mount the nose part.



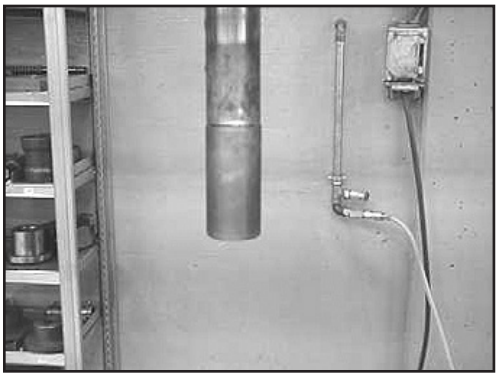
19. Mount the screws on the nose part and torque to:
    60 Nm (45 ft-lb) for HPB45 and HPB55

18. Apply Loctite 245 to the screws.

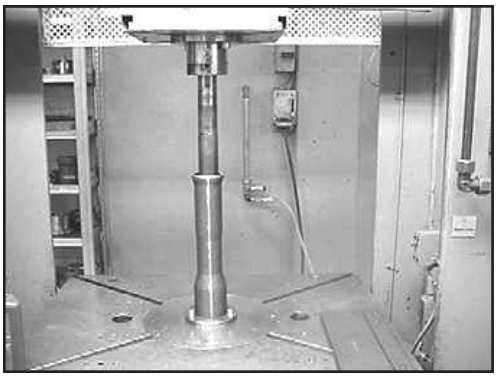
Mounting of Bushing in Nose Part



1. Mount the nose part in a hydraulic press designed for min. 10 t.

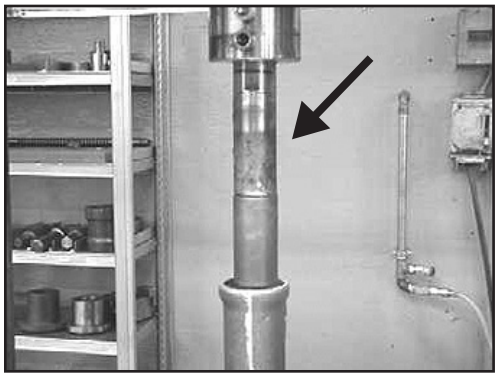


2. Mount the bushing in a suitable pin.

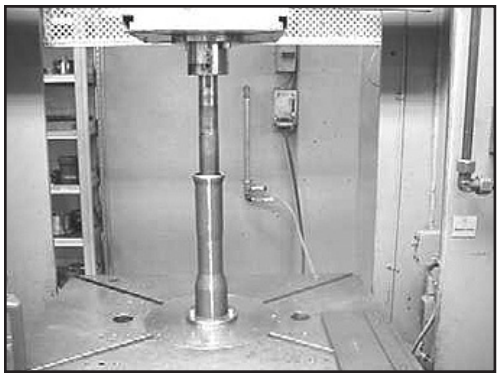


3. Place the nose part.

4. Apply Loctite 648 to the bushing.

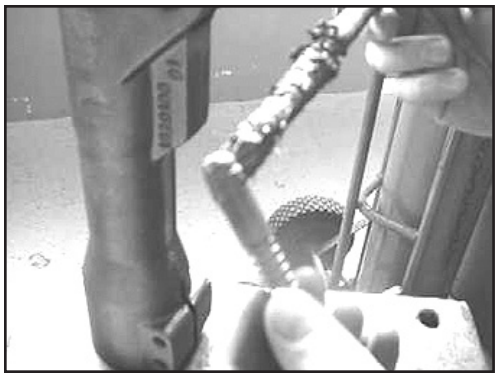


5. Check the length of the bushing and mark it.

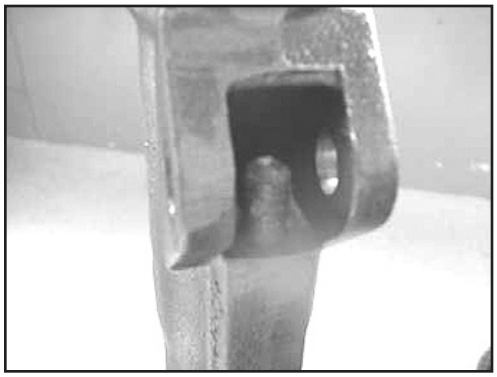


6. Press the bushing into the nose part with a pressure of 10 t.

Mounting of Latch in Nose Part

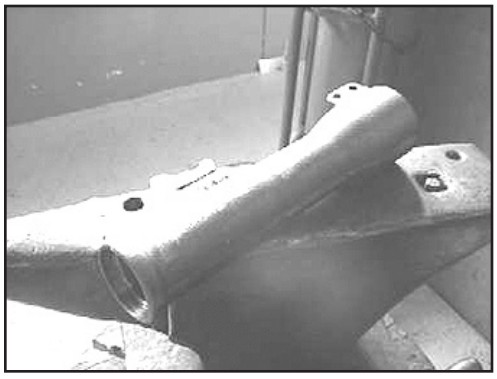


1. Grease the lock pin and spring with copper grease.

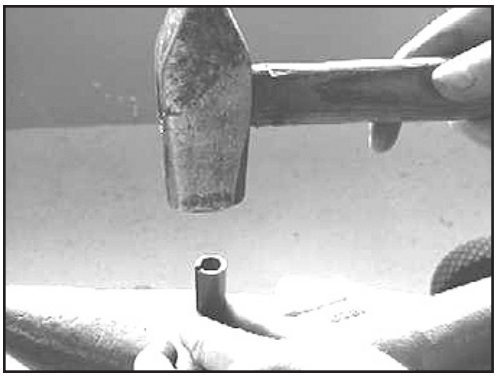


2. Mount the lock pin and spring in the nose part.

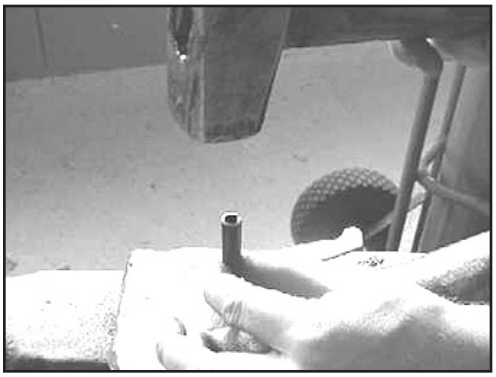
3. Place the latch.



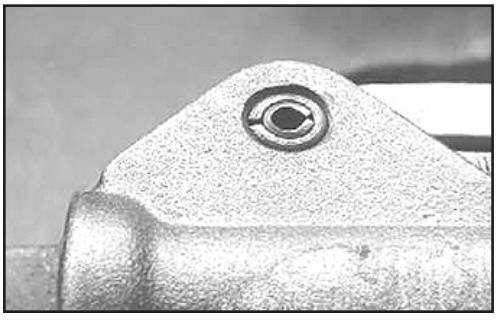
4. Place the nose part on an anvil.



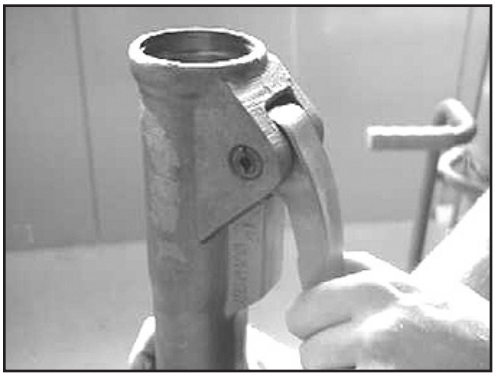
5. Hammer the bigger roll pin with the opening against the bottom of the nose part.



6. Mount the smaller roll pin opposite the bigger one.

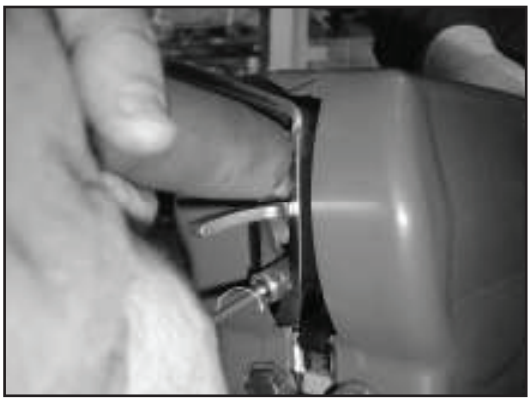


7. Check that it looks like this.

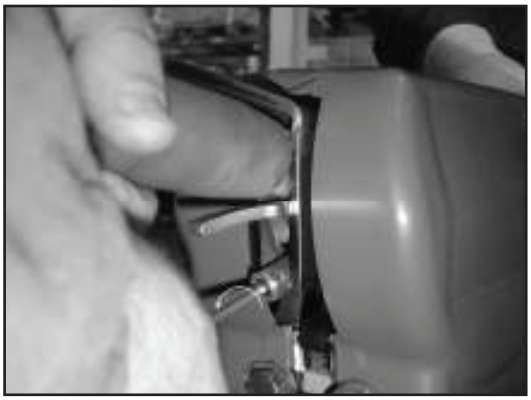


8. Check the latch to make sure it moves.

Adjustment of E-Handle



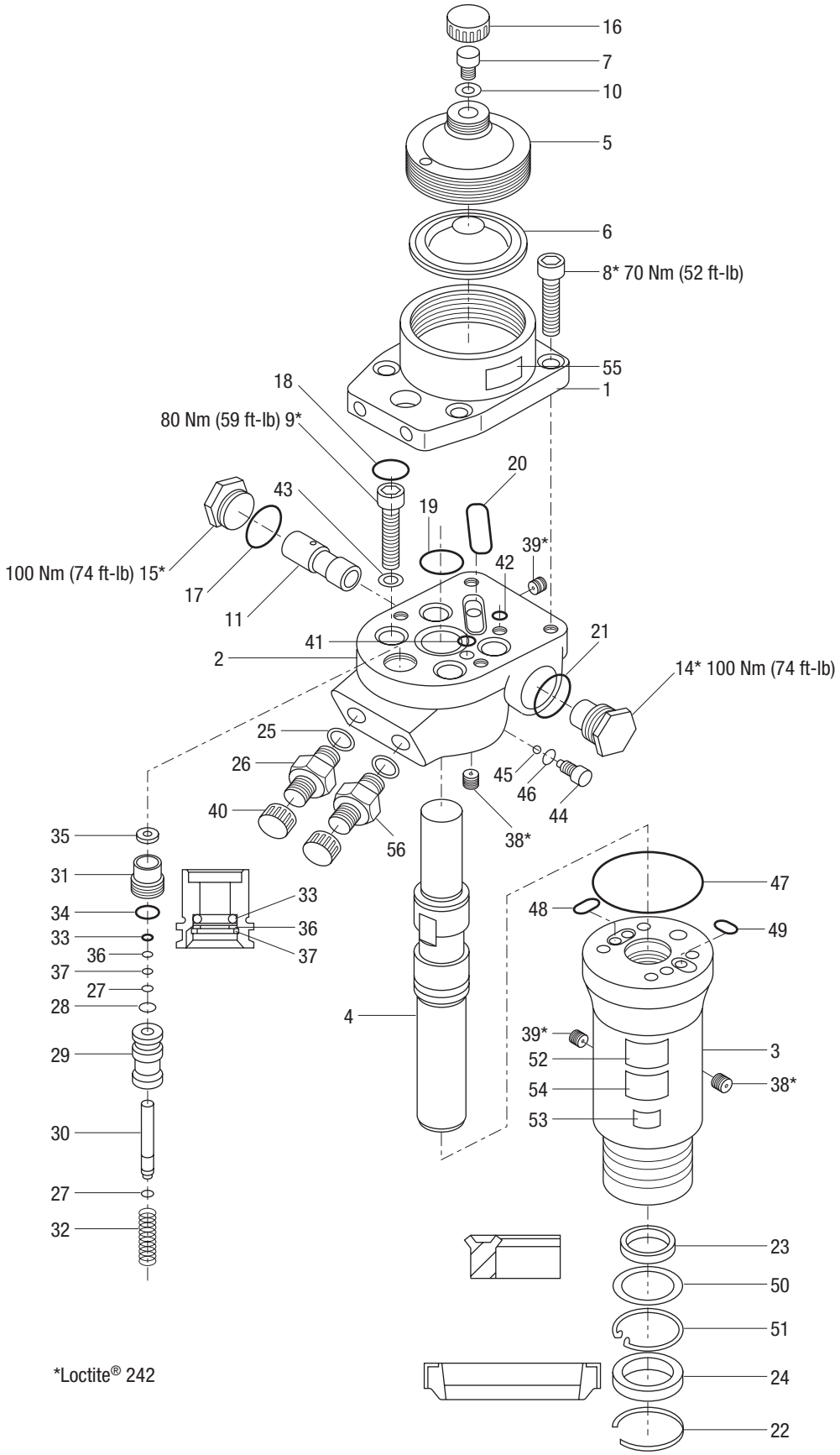
1. Press the trigger lever fully down. Tighten the screw until it pushes the lever up.



2. Unscrew two complete turns.

3. Tighten the counter nut to secure the screw.

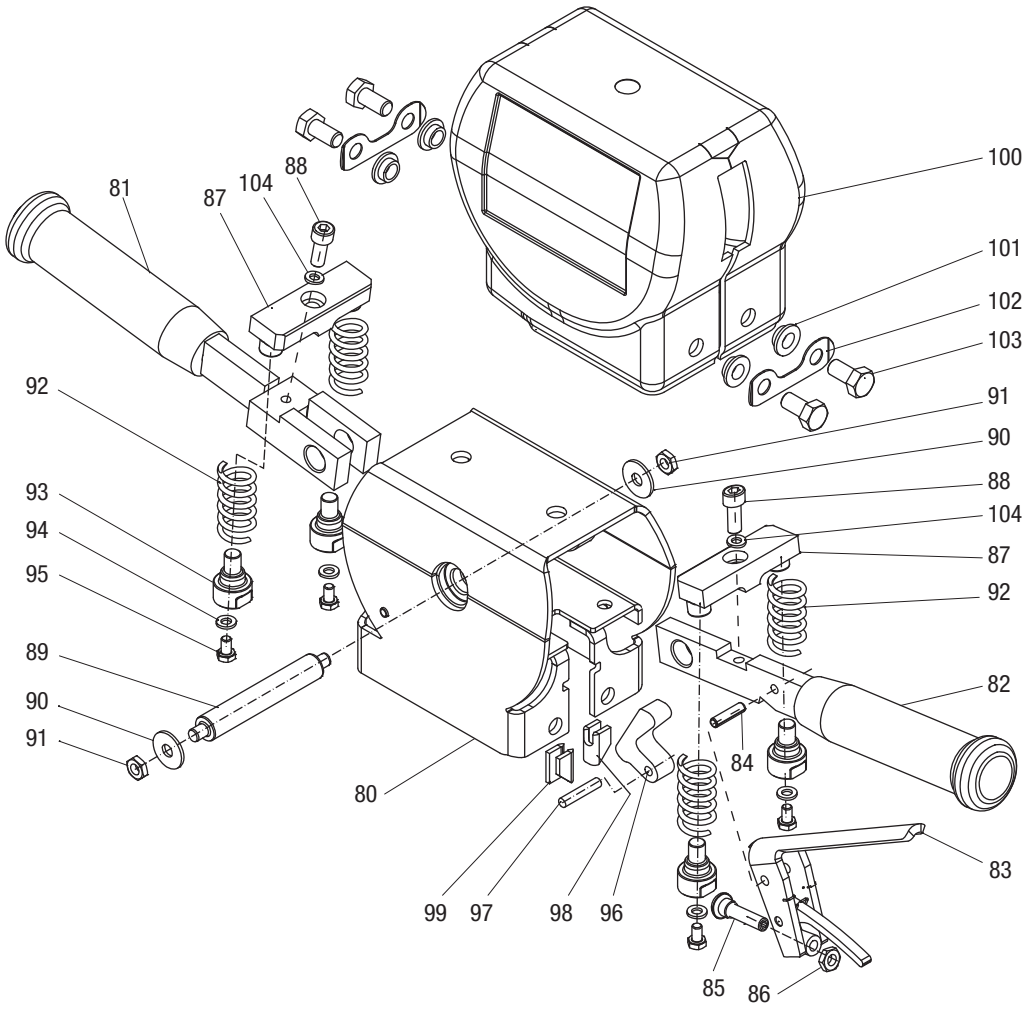
Main Illustration—All Models



Main Parts List—All Models

Key	Part No.	Description	Qty
1	50022083	Accumulator body	1
2	52033754	Valve housing	1
3	52033755	Cylinder (HPB45)	1
	52033762	Cylinder (HPB55)	1
4	52033756	Striking piston (HPB45)	1
	52033761	Striking piston (HPB55)	1
5	50022164	Accumulator cover	1
6	50022172	Diaphragm	1
7	50022180	Charging screw	1
8	50022199	Screw, M10x30	4
9	50022202	Screw, M10x35	4
10*		Seal ring, Ø8.7/Ø13x1	1
11	52033757	Spool	1
14	52033758	Guide socket	1
15	50022261	Spool socket	1
16*		Protective cap, M24x1.5	1
17*		O-ring, Ø24x1.5	1
18*		O-ring, Ø18x2	4
19*		O-ring, Ø30x2	1
20*		O-ring, Ø32x2	1
21*		O-ring, Ø25x1.5	1
22*		Locking ring	1
23*		Seal, Ø32/Ø40x6	1
24*		Seal, Ø32/Ø45x7/10	1
25*		Seal ring, 1/2"	2
26	50022377	Connector, 1/2" BSP	2
27*		Seeger spring ring	2
28*		Shim PS, 8x14x0.5	1
29	50022415	Trigger spool	1
30	50022431	Trigger rod	1
31	50022458	Packing gland	1
32	50022474	Spring	1
33*		O-ring, Ø8.3x2.4	1
34*		O-ring, Ø16.3x2.4	1
35*		Seal, Ø8/Ø14x3.5/5	1
36*		Backup ring	1
37*		Seeger spring ring	1
38	50022555	Fitting, 02 KRG	6
39	50022563	Fitting, 04 KRG	3
40	50022741	Protective cap, 1/2" BSP	2
41*		O-ring, Ø6x2	1
42*		O-ring, Ø8x2	1
43	50022814	Backup washer	4
44	50022822	Screw	1
45	50022830	Check valve ball	1
46*		Seal ring, Ø9/Ø14x1	1
47*		O-ring, Ø82x1.5	1
48*		O-ring, Ø16x1.5	1
49*		O-ring, Ø13x1.5	1
50*		Backup washer, Ø32.7/45x2.5	1
51*		Locking ring	1
52	50109499	Plate, identification	1
53	50109529	Decal, sound level 110 dB (HPB45-1AVS)	1
	50027204	Decal, sound level 109 dB (HPB45-2AVS)	1
	50109537	Decal, sound level 112 dB (HPB55 Series)	1
54	50110292	Decal, weight (HPB45-1AVS)	1
	50110284	Decal, weight (HPB45-2AVS)	1
	50110306	Decal, weight (HPB55 Series)	1
55	50110764	Decal, accumulator	1
*	50023101	Seal kit (includes 10, 16–25, 27, 28, 33–37, 41, 42, 46–51, and 91)	
	50023152	Trigger valve kit (includes 27–37)	
	52061099	Whip hose	2

Ergo Handle with Cover
Illustration and Parts List—All Models



Key	Part No.	Description	Qty
	52061077	E-handle, complete	1
80		Frame	1
81		Handle	1
82		Handle	1
83		Trigger lever	1
84		Roll pin, Ø6x24	1
85		Thrust pad with M8 screw	1
86		Nut, M8	1
87		Stopper	2
88		Screw, M5x20	2
89		Pin	1
90		Washer, Ø8	2
91		Nut, M8	2
92		Spring	4
93		Spring guide	4
94		Washer, Ø6	4
95		Screw, M6x10	4
96		Trigger pawl	1

Key	Part No.	Description	Qty
97		Pin, Ø6x30	1
98		Pin latch, right	1
99		Pin latch, left	1
100		Top cover	1
101		Spacer	4
102		Nab	2
103		Screw, M10x25	4
104		Lock washer, M5	2
105	50463268	Decal, Greenlee Utility	2
106	50490095	Decal, warning	1
	52061094	Ergo handle mounting kit (includes 101–103)	
	52061095	Handle repair kit (includes 87, 88, 92–95, and 104)	
	52061096	Trigger pawl repair kit (includes 96–99)	
	52061097	Handle pivot repair kit (includes 89–91)	
	52061098	Trigger repair kit (includes 83–86)	

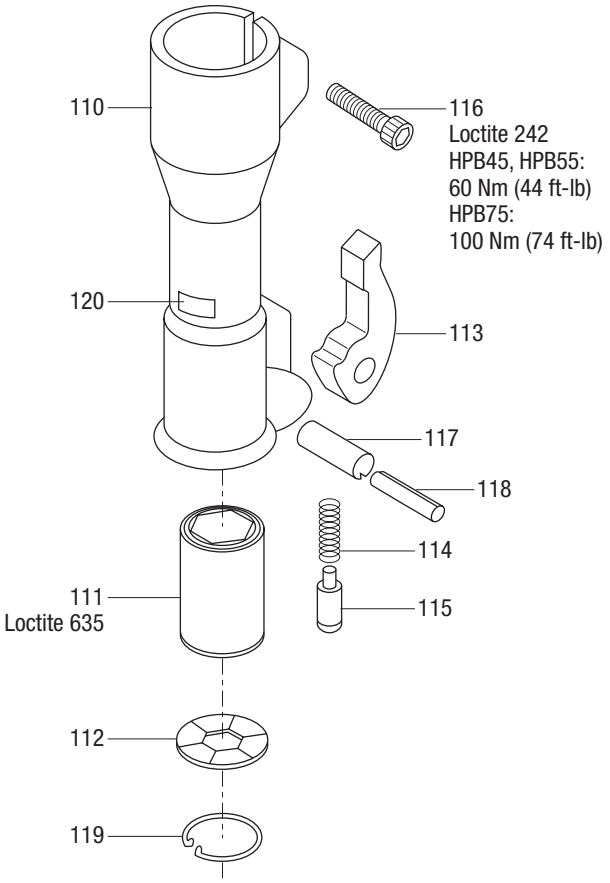
Nose Part Illustration and Parts Lists

HPB45

Key	Part No.	Description	Qty
110	50023624	Nose part, hex 1"	1
	50023837	Nose part, hex 1-1/8", 1-1/4"	1
111	50023632	Bushing, hex 1" x 4-1/4"	1
	50023918	Bushing, hex 1-1/8" x 6"	1
112	50023675	Chisel bellows, hex 1"	1
	50023926	Chisel bellows, hex 1-1/8"	1
113	50023705	Latch	1
114	50023730	Spring	1
115	50023748	Lock pin	1
116	50023756	Screw, M10x55	2
117	50023764	Roll pin, Ø16x50	1
118	50023802	Roll pin, Ø10x50	1
119	50023829	Locking ring, 57x2	1
120	50109570	Decal, hex shank size 1" x 4-1/4"	1
	50109561	Decal, hex shank size 1-1/8" x 6"	1

HPB55

Key	Part No.	Description	Qty
110	50023837	Nose part, hex	1
111	50023918	Bushing, hex 1-1/8" x 6"	1
	50023942	Bushing, hex 1-1/4" x 6"	1
112	50023926	Chisel bellows, hex 1-1/8"	1
	50023969	Chisel bellows, hex 1-1/4"	1
113	50023705	Latch	1
114	50023730	Spring	1
115	50023748	Lock pin	1
116	50023756	Screw, M10x55	2
117	50023764	Roll pin, Ø16x50	1
118	50023802	Roll pin, Ø10x50	1
119	50023829	Locking ring, 64x2	1
120	50109561	Decal, hex shank size 1-1/8" x 6"	1
	50109553	Decal, hex shank size 1-1/4" x 6"	1



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