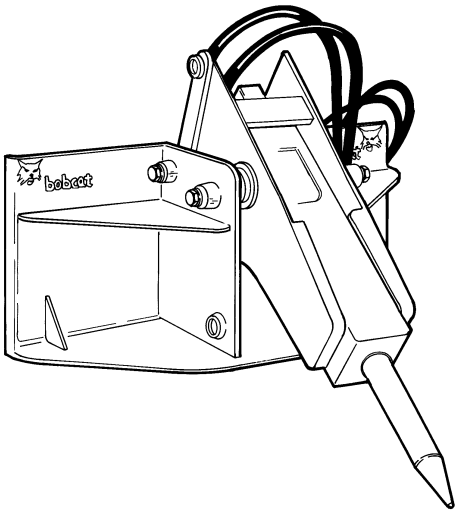
Hydraulic Breaker

Bobcat® Service Manual

1250 (S/N 157000101 AND ABOVE)
1250X (S/N 157800101 AND ABOVE)
1560 (S/N 702000101 AND ABOVE)
2500 (S/N 229800101 AND ABOVE,
S/N 693200101 AND ABOVE
S/N 705200101 AND ABOVE,
S/N 780900101 AND ABOVE,
S/N 896708001 AND ABOVE)
2560 (S/N 617900101 AND ABOVE)
2570 S/N 573306139 AND ABOVE)
3500 (S/N 006500101 AND ABOVE,
S/N 705400101 AND ABOVE,
S/N 897200101 AND ABOVE)
3560 (S/N 615800101 AND ABOVE)
3570 (S/N 573500878 AND ABOVE)
5060 (S/N 754400101 AND ABOVE)
(S/N 754600101 AND ABOVE)
5500 (S/N 154700101 AND ABOVE)
6560 (S/N 166500101 AND ABOVE,
S/N 472900101 AND ABOVE)



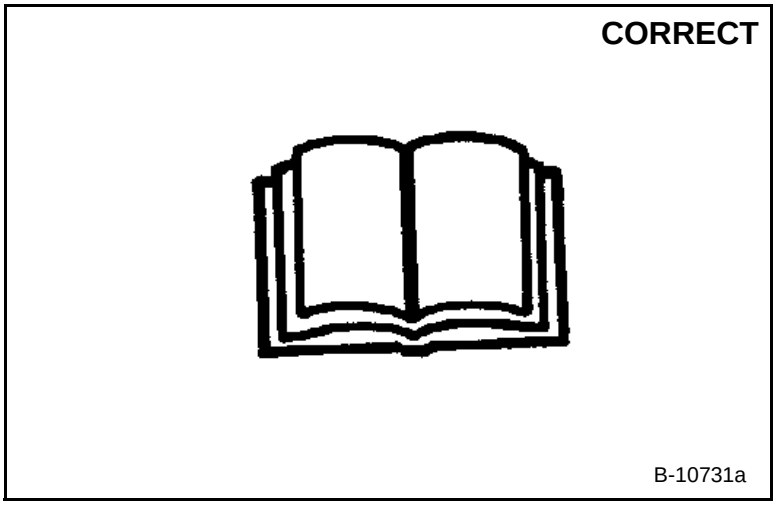
6720280 (2-06) Printed in U.S.A.

MAINTENANCE SAFETY

WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death. W-2003-0903

Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



Never service attachments without instructions. See Operation & Maintenance Manual and Attachment Service Manual.

Cleaning and maintenance are required daily.

Never service or adjust attachment with the engine running unless instructed to do so in manual.

Always lower the attachment to the ground before lubricating or servicing.

Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.

Stop, cool and clean engine of flammable materials before checking fluids.

Keep body, loose objects and clothing away from moving parts, electrical contacts, hot parts and exhaust.

Safety glasses are needed for eye protection from electrical arcs. battery acid, compressed springs, fluids under pressure and flying debris or when tools are used. Use eye protection approved for type of welding.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5060 HYDRAULIC BREAKER SERVICE

5500 HYDRAULIC BREAKER SERVICE

6560 HYDRAULIC BREAKER SERVICE

CALIFORNIA
PROPOSITION 65 WARNING

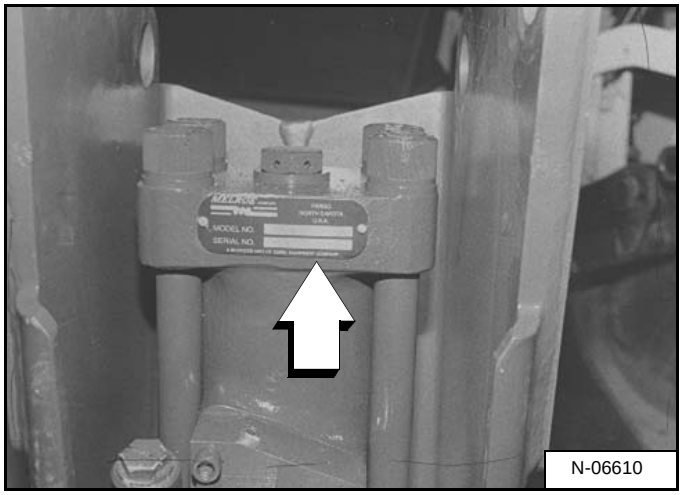
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.


Bobcat®

SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION

Serial Number Locations (1250, 1250X)

Figure 1

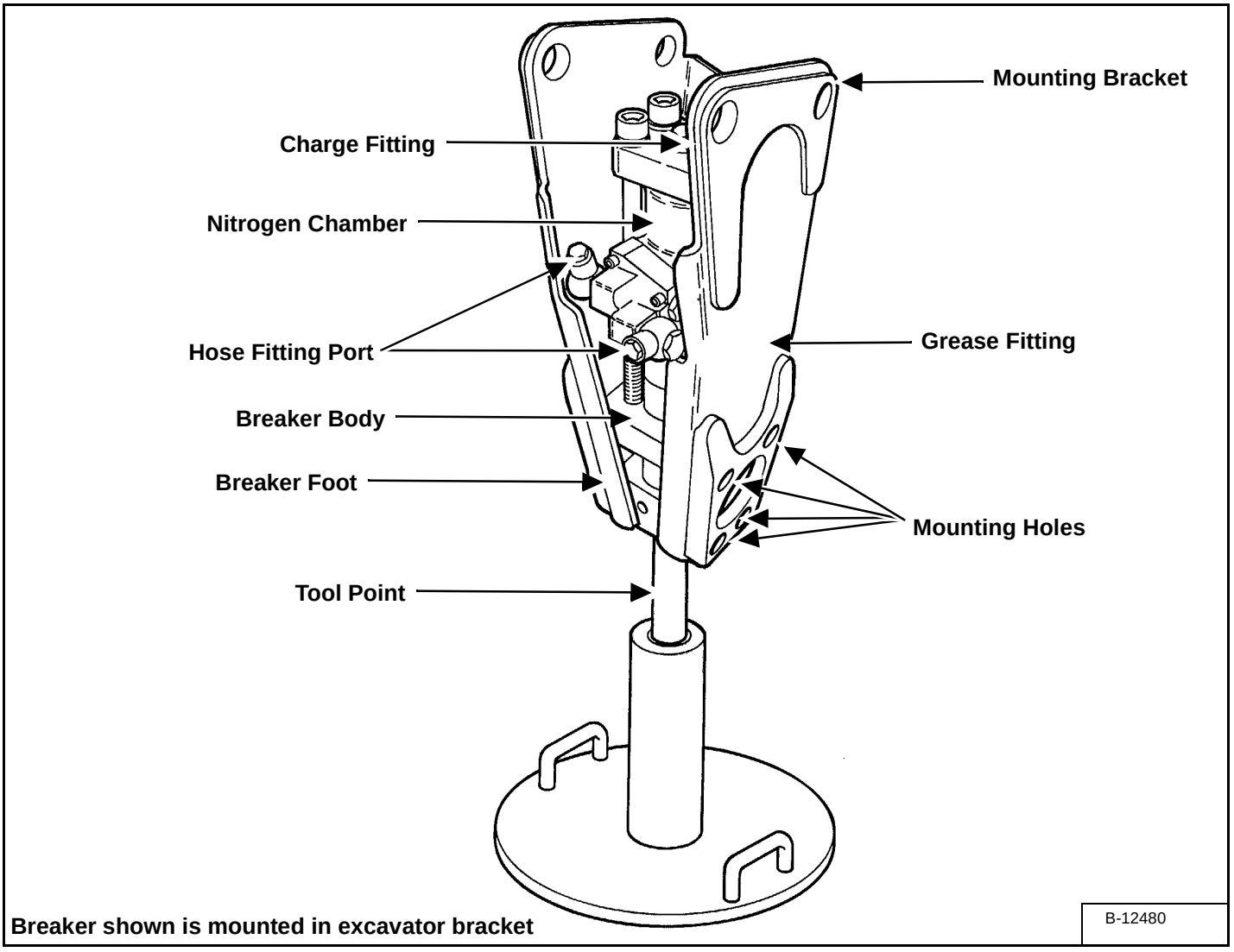


Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to us a different procedure in doing a specific service operation **[Figure 1]**.

The breaker serial number plate is on the front of the main body **[Figure 1]**.

There are 2 different breakers. Be sure to use the correct breaker on the correct machine. The 1250X Breaker is for excavators. The 1250 Breaker is for Bobcat Loaders and loader mounted backhoes.

Hydraulic Breaker Identification (1250, 1250X)

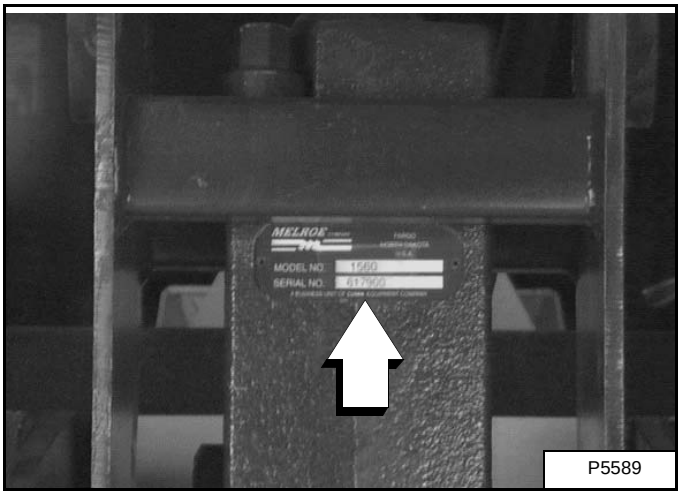


Breaker shown is mounted in excavator bracket

SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

Serial Number Locations (1560)

Figure 2



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to us a different procedure in doing a specific service operation **[Figure 2]**.

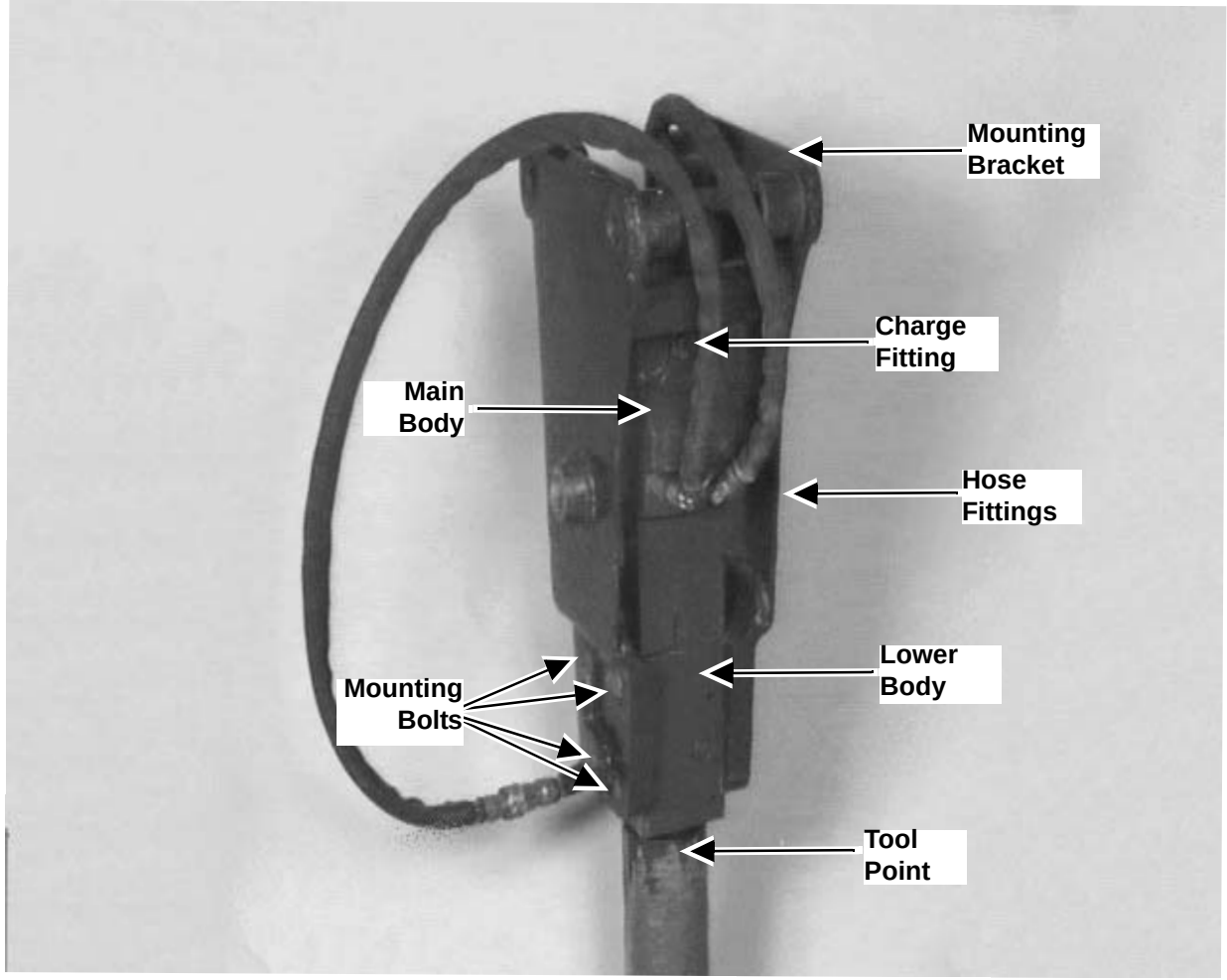
The 1560 Hydraulic Breaker is approved for the following machines:

Oil cooler equipped 400 Series and 500 Series loaders

Oil cooler equipped 220 & 225 excavators

All 453 & 553 Bobcat Loaders and 320 & 325 excavators

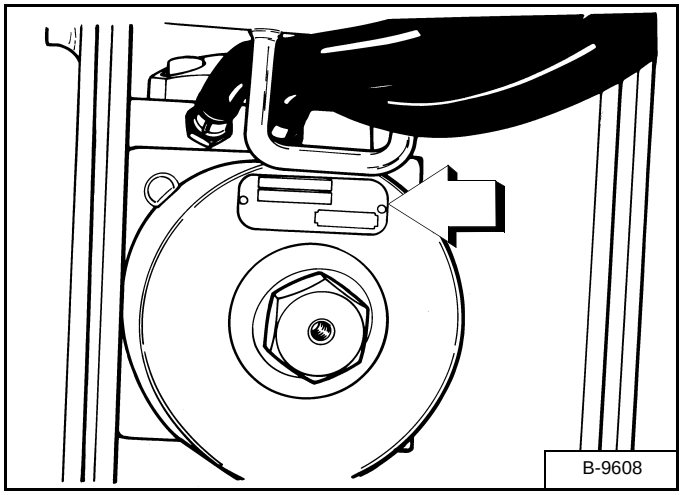
Hydraulic Breaker Identification (1560)



SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

Serial Number Locations (2500/3500 & 5500)

Figure 3



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to us a different procedure in doing a specific service operation **[Figure 3]**.

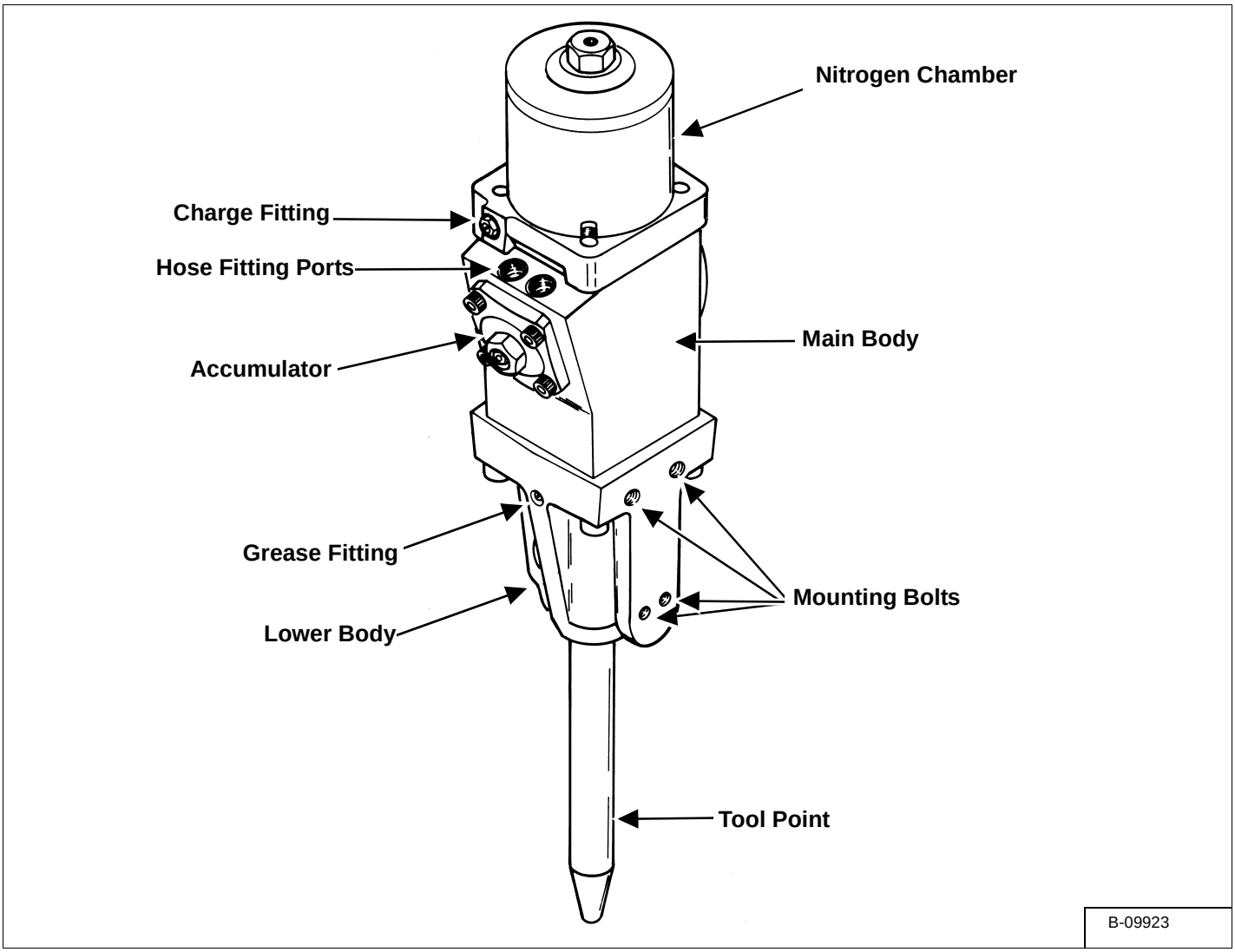
The 1560 Hydraulic Breaker is approved for the following machines:

Oil cooler equipped 400 Series and 500 Series loaders

Oil cooler equipped 220 & 225 excavators

All 453 & 553 Bobcat Loaders and 320 & 325 excavators

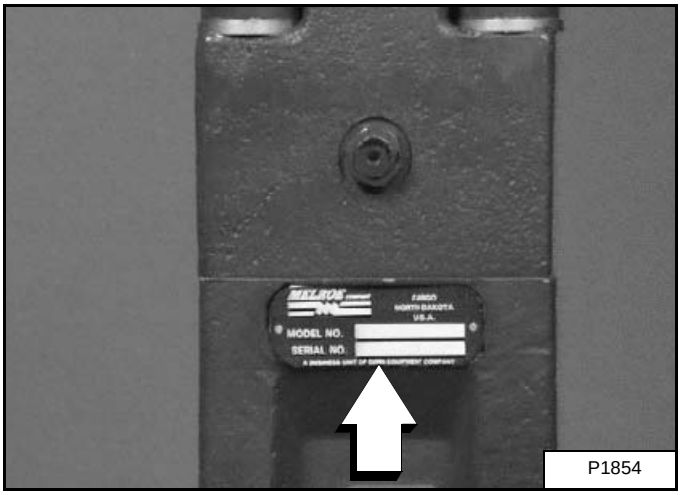
Hydraulic Breaker Identification (2500/3500 & 5500)



SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

Serial Number Locations (2560/3560)

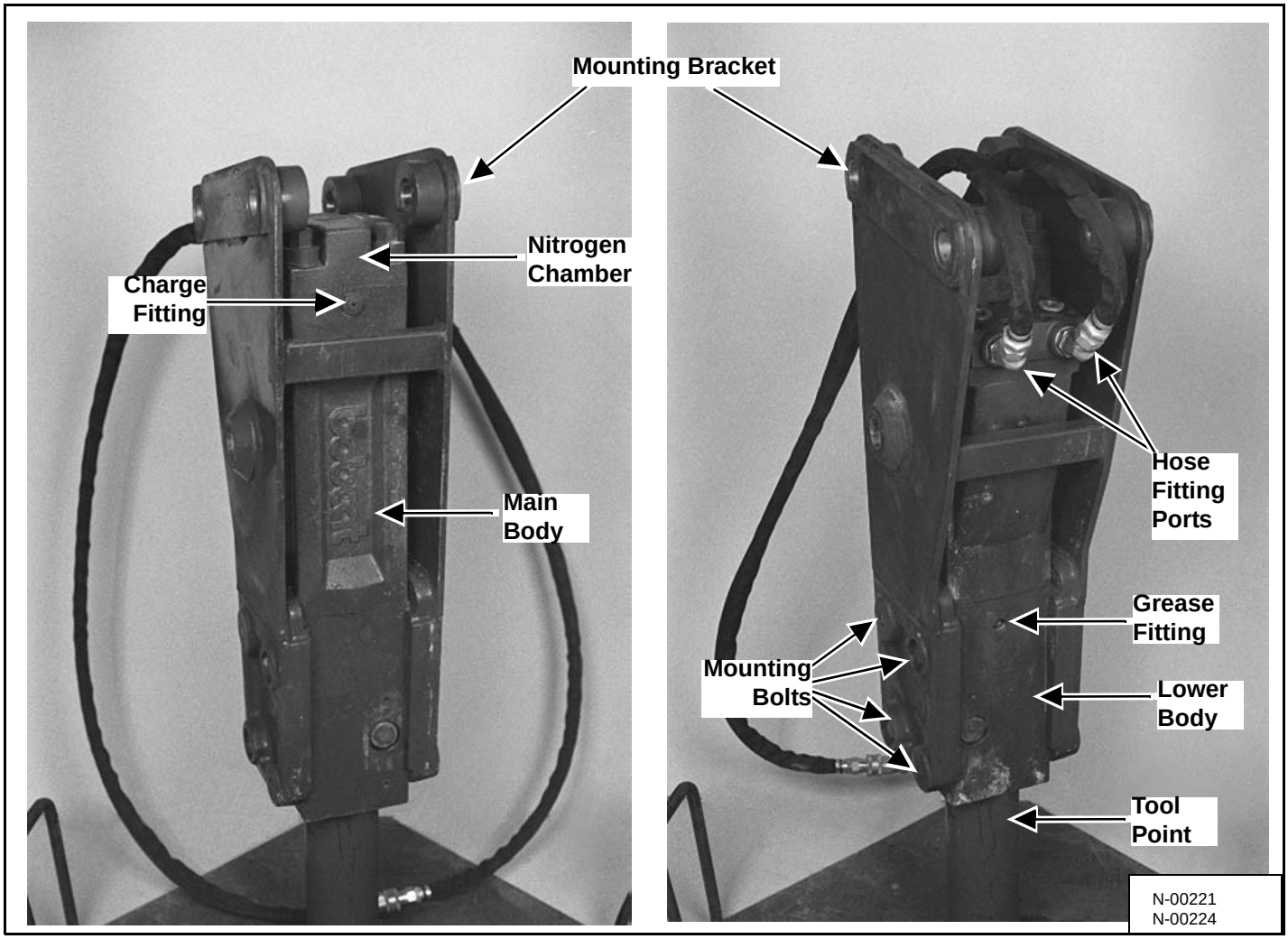
Figure 4



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 4]**.

The breaker serial number plate is located on the front of the nitrogen chamber **[Figure 4]**.

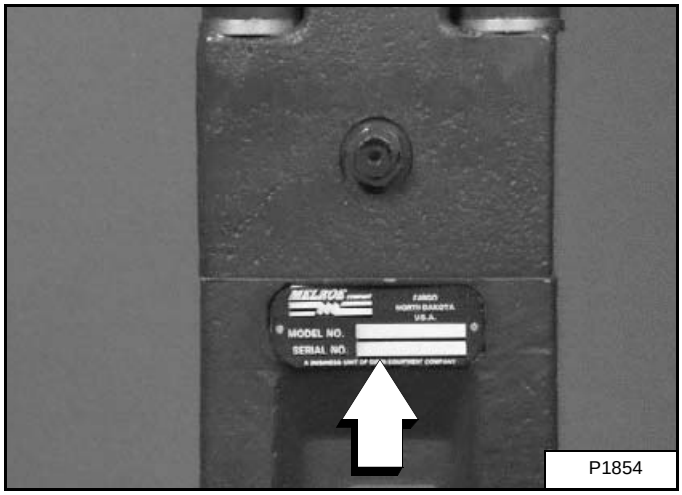
Hydraulic Breaker Identification (2560/3560)



SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

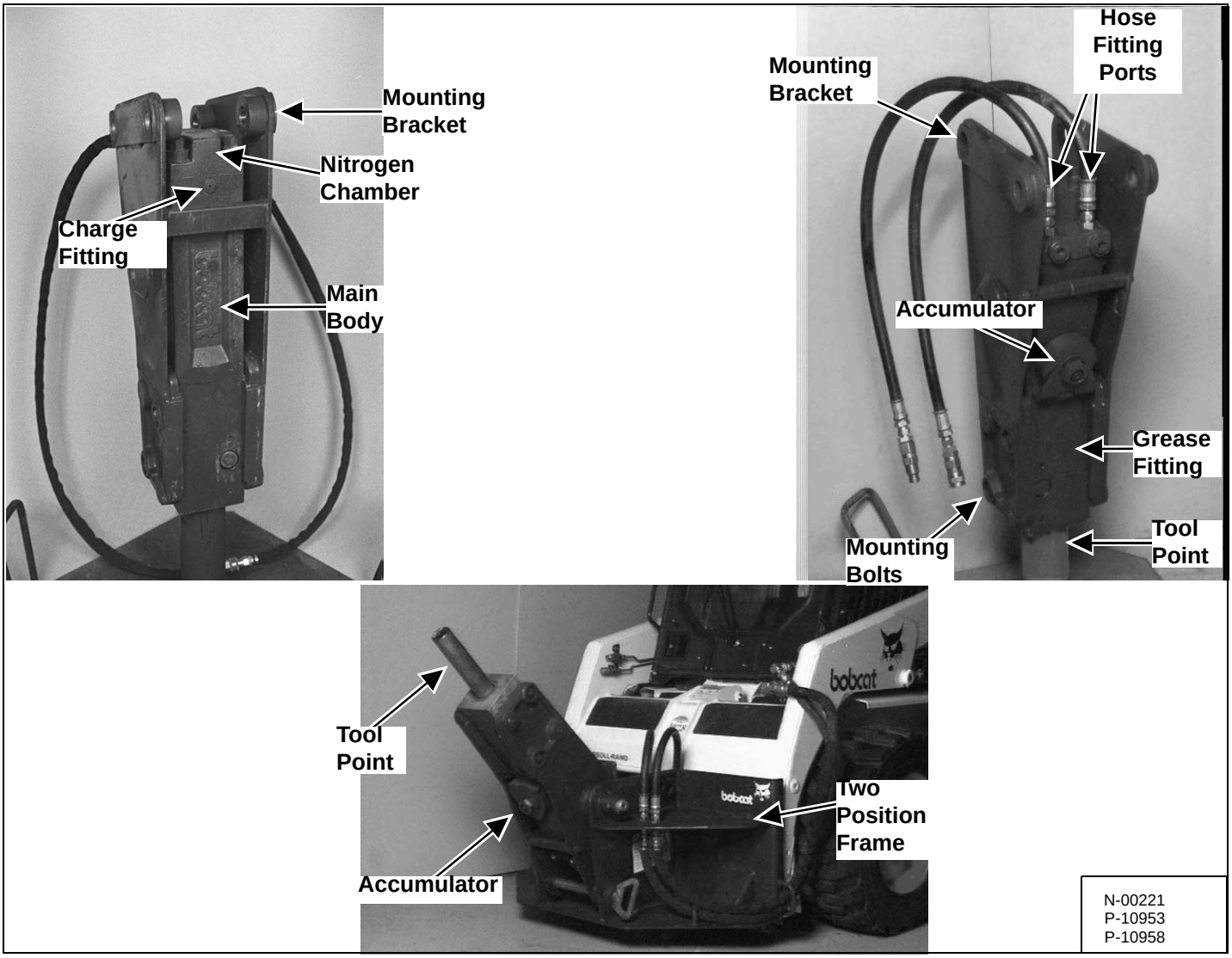
Serial Number Locations (2570/3570)

Figure 5



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 5]**.

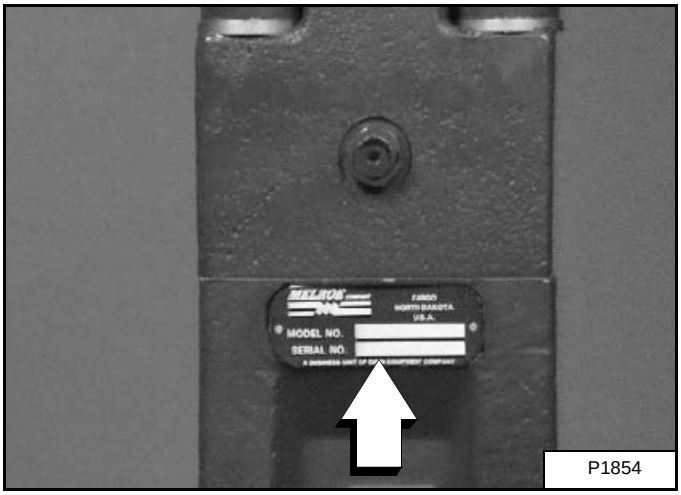
Hydraulic Breaker Identification (2570/3570)



SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

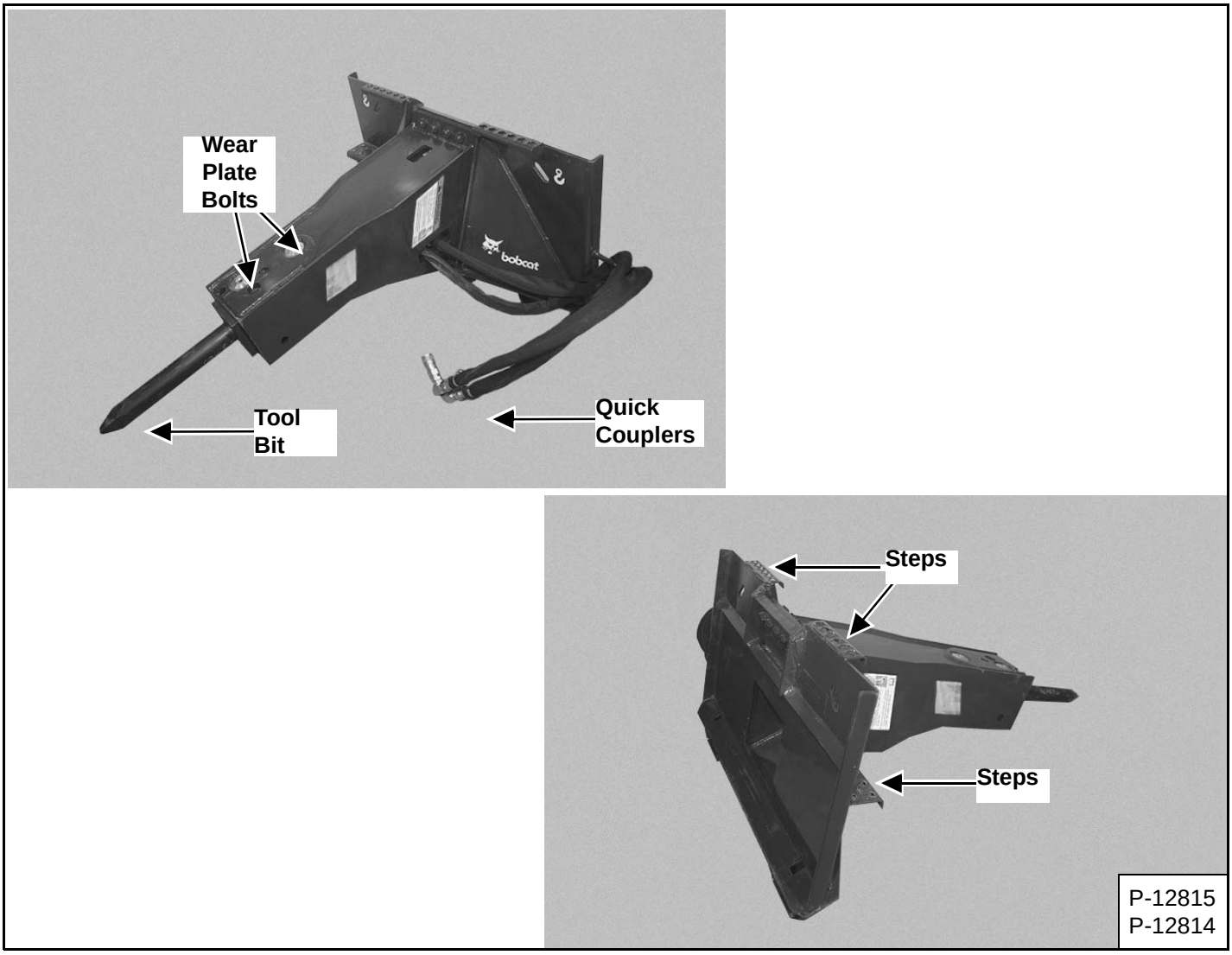
Serial Number Locations (5060)

Figure 6



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 6]**.

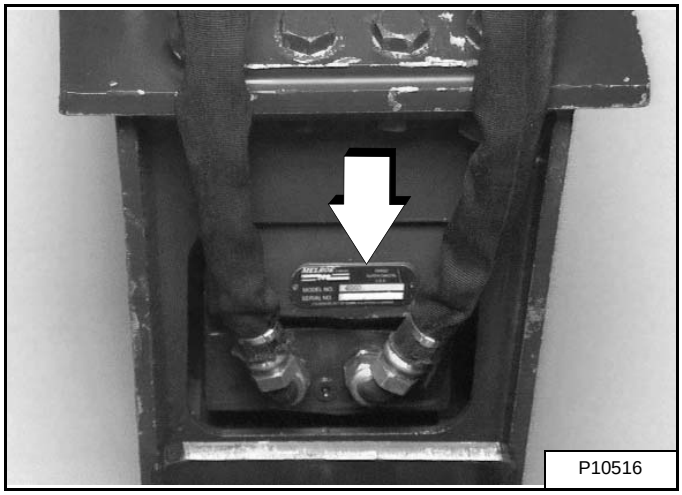
Hydraulic Breaker Identification (5060)



SERIAL NUMBER LOCATIONS & HYDRAULIC BREAKER IDENTIFICATION (CONT'D)

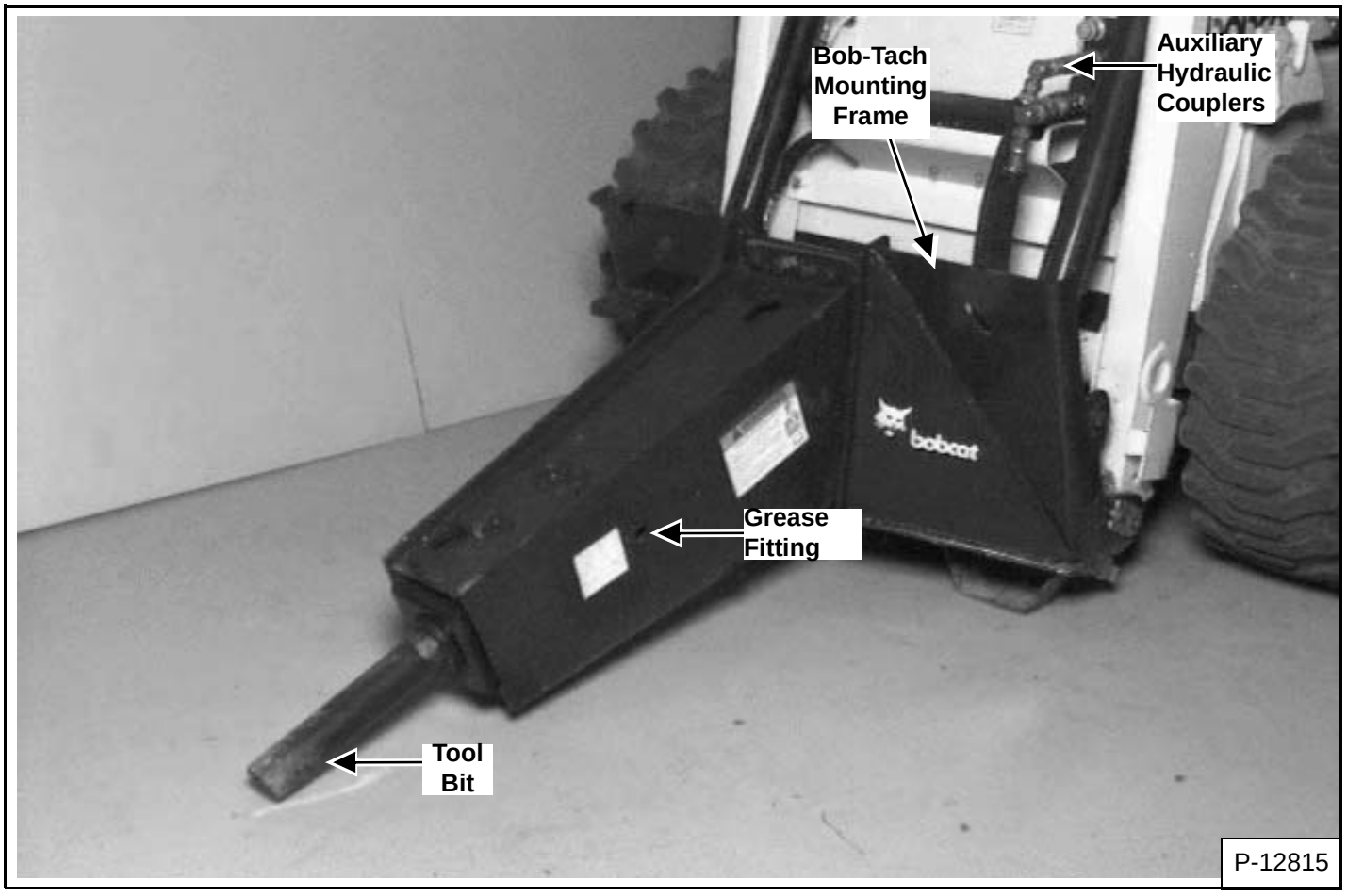
Serial Number Locations (6560)

Figure 7



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 7]**.

Hydraulic Breaker Identification (6560)




Bobcat®

1250, 1250X HYDRAULIC BREAKER SERVICE

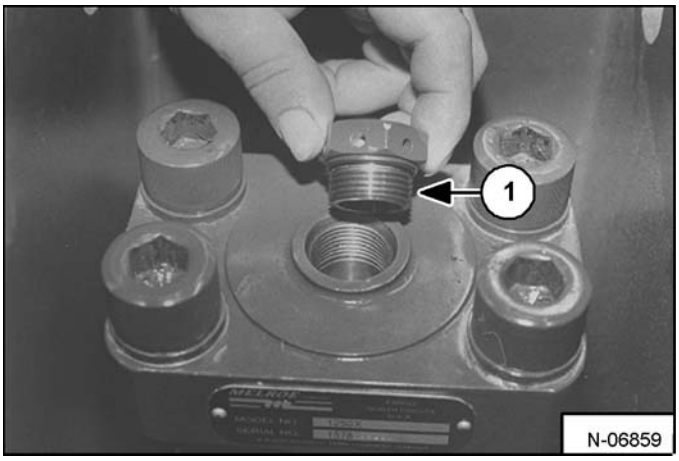

Bobcat®

ACCUMULATOR

Use charging kit (P/N 6568037) to charge the accumulator.

Charging The Accumulator

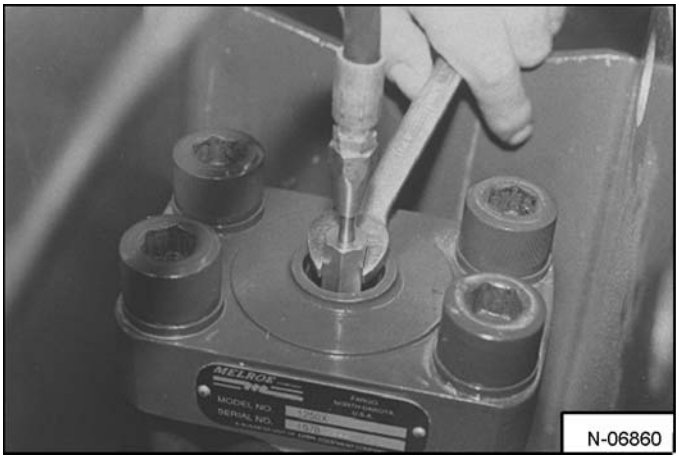
Figure 10-10-1



Remove the valve cap assembly (Item 1) **[Figure 10-10-1]** from the breaker.

Remove the protective cap from the charging valve and loosen the hex locknut 2 to 3 turns.

Figure 10-10-2



Thread the charge hose fitting onto the charging valve on the breaker **[Figure 10-10-2]**.

Adjust the regulator to the charging pressure of 600 PSI (4137 bar).

NOTE: It may be necessary to set the regulator at 600 to 700 PSI (41,38 to 41,28 bar) to overcome any pressure drop through the charging system.

When the accumulator is fully charged close the valve on the charging assembly hose.

Remove the charging tool.

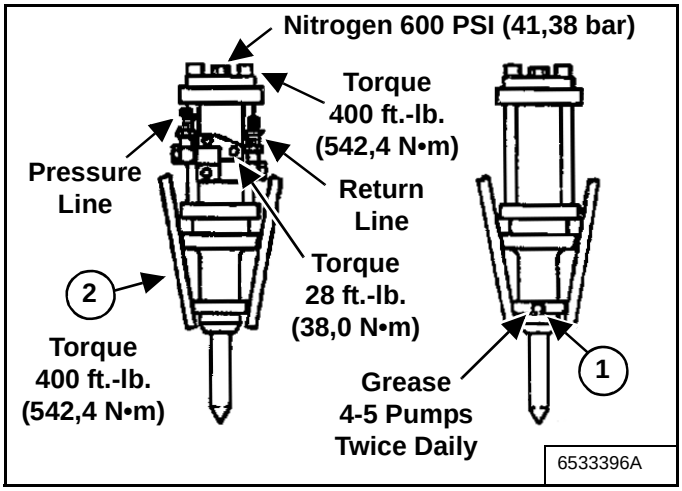
Tighten the hex locknut on the charge valve.

Install the breaker charging valve cap on the protective valve cap.

Hydraulic Breaker Lubrication

Put the breaker in the vertical position so the point is on the ground and the point is pushed up inside the breaker as far as possible.

Figure 10-10-3



Stop the engine and have a second person add grease to the fitting (Item 1) **[Figure 10-10-3]**.

Apply grease (4 to 5 pumps) to the upper end of the tool at the grease fitting (Item 1) **[Figure 10-10-3]** every 4 to 8 hours of operation, or when the tool bit looks dry.

Always apply grease to the top 8 in. (203 mm) of the tool point before reinstalling it in the breaker bore.

IMPORTANT

Underwater use of the breaker will cause internal damage. No portion of the breaker may be submerged.

I-2053-0589

ACCUMULATOR (CONT'D)

Checking Mounting Bolt Torque

Check the mounting bolts (Item 2) **[Figure 10-10-3 on Page 10-10-1]** daily.

Tighten the bolts to 375 to 425 ft.-lb. (508 to 675 N•m) torque.

TROUBLESHOOTING THE HYDRAULIC BREAKER

WARNING

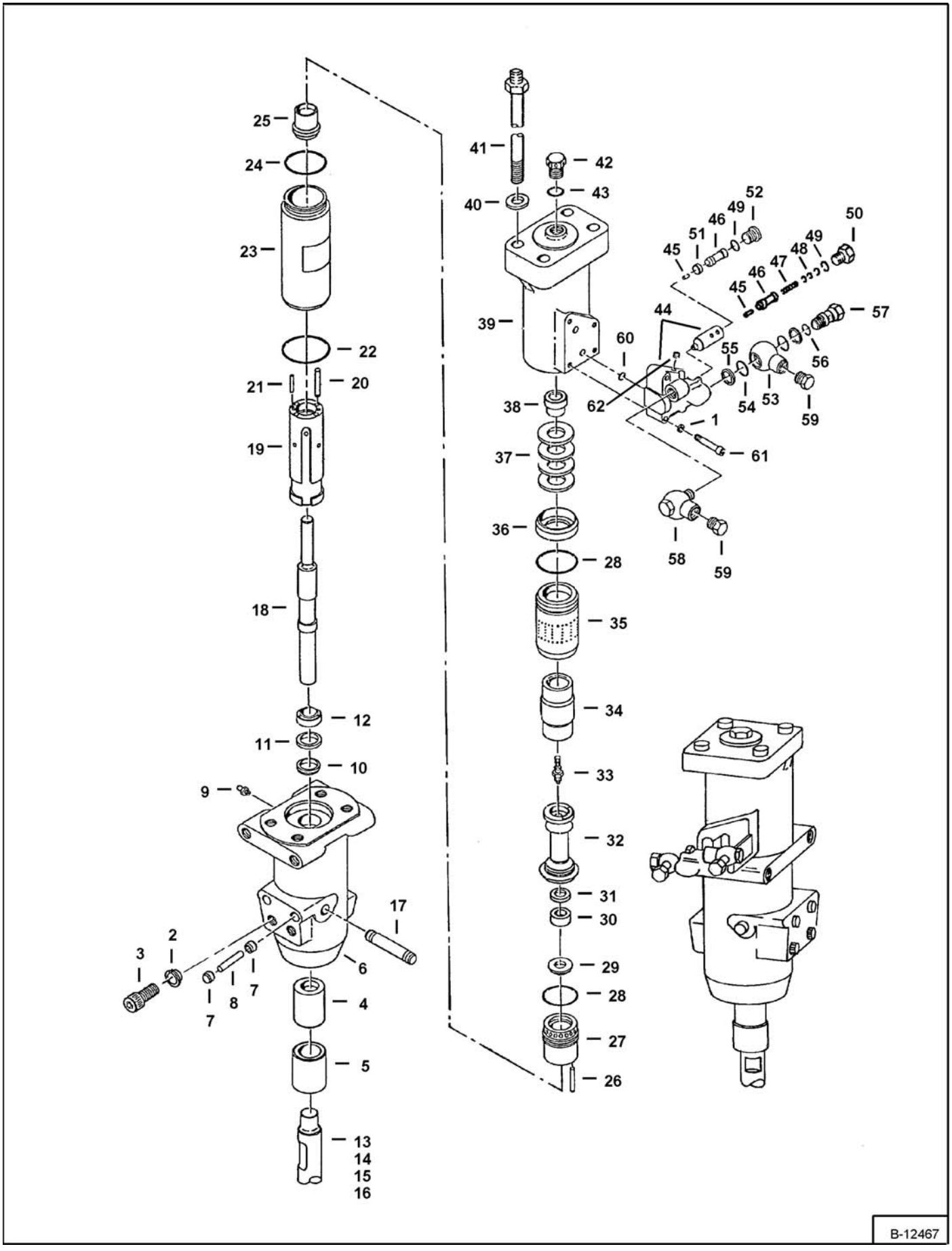
Instructions are necessary before operating or servicing machine. Read Operation & Maintenance Manuals, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Failure to follow instructions can cause injury or death.

W-2003-1289

If the Hydraulic Breaker is not working correctly, check the hydraulic system of the Bobcat Loader or excavator thoroughly before making any repairs on the breaker. Hydraulic Breaker performance can be affected by a hydraulic system that is not operating to specifications or such problems as a plugged fuel filter or hydraulic filter in the loader or excavator. Connect a flow meter to the loader or excavator to check the hydraulic pump output, relief valve setting and tubelines to check flow and pressure. (See the loader/excavator Service Manual for the correct procedure to connect the flow meter.)

If the loader or excavator operation is found to be correct, use the following troubleshooting chart to locate and correct problems with the Hydraulic Breaker which most often occur.

PROBLEM	CAUSE	CORRECTION
Breaker will not fire.	Hydraulic flow is reserved.	Check hose for correct connection.
	Supply has high restriction to return fluid flow.	Warm up hydraulic fluid to 75° F/24º C to reduce viscosity.
	Hoses or couplings are restricting flow.	Check hoses and couplings. Repair or replace.
	Failure of breaker piston or automatic valve.	If circuit test is within limts, dissassemble and inspect for damaged parts.
Breaker does not hit effectively.	Supply pressure, return pressure or flow rate are incorrect.	Test circuit for 4 to 9 gpm/15 to 34 lpm flow and pressure is within 1600 to 2250 psi/113 to 158 bar.
	Hoses or couplings are restricting flow.	Check hoses and couplings for damage. Repair or replace.
	Accumulator not properly charged.	Test and recharge. Replace diaphragm if recharge was inneffective.
	Hydraulic fluid too hot.	Install a cooler.
	Tool bit is binding in breaker foot bushings.	Add grease to fitting on breaker foot more often (at least twice daily). Do not pry with control. Damaged tool bit or bushing. Remove and inspect.
Breaker hits slowly.	Low circuit flow	Test valve loading near relief setting. If flow reduces with pressure rising, pump and/or valve worn. Repair or replace. Fluid contaminated. Flush and replace with clean fluid. Check for proper filtration.
	Relief pops during operation.	Test supply circuit. Make sure the flow rate and pressure ratings are within manufacturer's specifications.
	Trigger switch or solenoid valve not operating (if used).	Check wiring and valve operation.Repair as required.
	Inadequate down force.	Refer to operating instructions.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B-12467

1. Lock washer
2. Cone Washer
3. Bolt 7/8-9 x 1-1/2 HSH GR8
4. Upper Bushing
5. Lower Bushing
6. Breaker Foot
7. Retaining Pin Rubber Spring
8. Dowel Retainer Pin
9. Grease Fitting
10. Rod Wiper
11. Washer
12. Cup Seal
13. Conical Tool Bit
14. Tamping Pad Assembly
15. Line Cut Chisel Tool
16. Cross Cut Chisel Tool
17. Tool Retainer Pin
18. Piston
19. Flow Sleeve
20. Push Pin 5/16 x 2
21. Roll Pin 3/16 x 1/2
22. O-ring 3-3/4 x 3-7/8 x 1/16
23. Flow Sleeve Cover
24. O-ring 3-1/8 x 3-3/8 x 1/8
25. Automatic Valve
26. Push Pin 3/16 x 1-1/4
27. Automatic Valve Body
28. O-ring 2-7/8 x 3-1/8
29. Washer
30. Cup Seal
31. Back-Up Washer
32. Accumulator Chamber
33. Nitrogen Charge Valve
34. Accumulator Diaphragm
35. Accumulator Cylinder
    Accumulator Assembly
    (Includes Items 28, 30 thru 35)
36. Keeper, Spring
37. Disc Spring
38. Spring Pilot
39. Breaker Body
40. Washer
41. Bolt 1-BUNC x 18 HSH GR8
42. Valve Cap Assembly
43. O-ring 1.047 x 1.279 x .116
44. Valve Body and Insert Assembly
45. Spool Shift Pin
46. Return Relief Spool
47. Valve Spring
48. Adjust Shim
49. O-ring Cap Seal
50. O-ring Boss Plug
51. Valve Deactivate Spacer
52. Plug #16 SAE
53. Eye Pivot
54. O-ring AS-568-122 R24
55. Back-Up Ring
56. O-ring #10 SAE
57. Stud
58. Swivel Fitting Assembly
    (Includes Items 53 thru 57)
    Valve Body Assembly
    (Includes Items 44 thru 50 and two of Item 58)
    Valve Body Assembly
    (Deactivate) (Includes Items 44, 45, 46, 49, 51, 52
    and two of Item 58
59. O-ring Plug 7/8-14
60. O-ring 11/16 x 7/8 x 3/32
61. Bolt 3/8-6 x 2-1/4 HSH
62. Pipe Plug


Bobcat®

DISASSEMBLY

Breaker Frame Removal and Installation

WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W-2019-1285

The tool listed will be needed to service the hydraulic breaker:

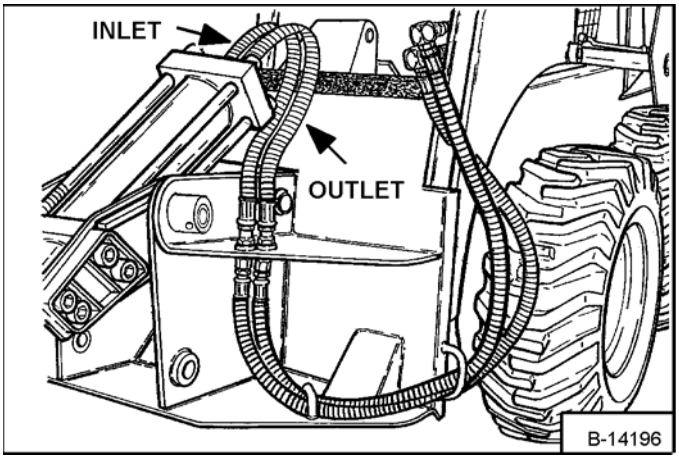
6652471 - Charging Kit

Read and understand the complete disassembly and assembly procedure before beginning the operation.

NOTE: Always replace O-rings and seals when servicing the breaker.

Before removing the breaker from the Bob-Tach, loosen the 4 main bolts. Loosen the 8 bolts from the cradle.

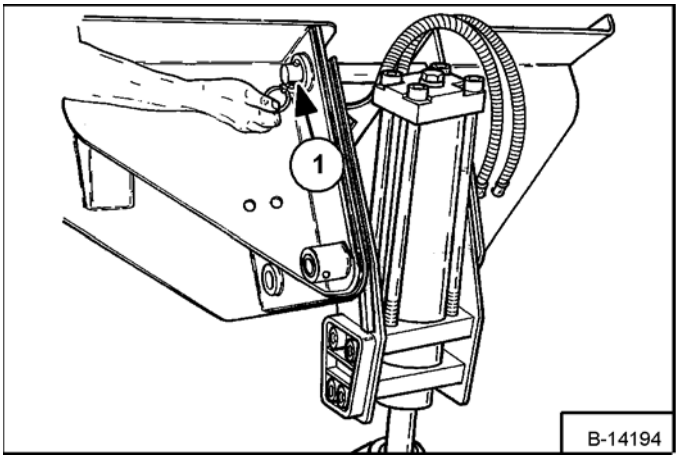
Figure 10-20-1



Remove the hoses from the breaker **[Figure 10-20-1]**.

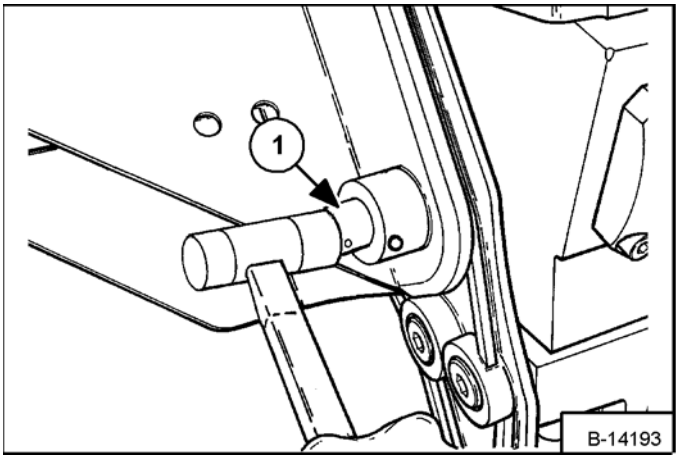
Put the breaker in a stand.

Figure 10-20-2



Have a second person remove the mounting pin clip (Item 1) **[Figure 10-20-2]** and pin.

Figure 10-20-3



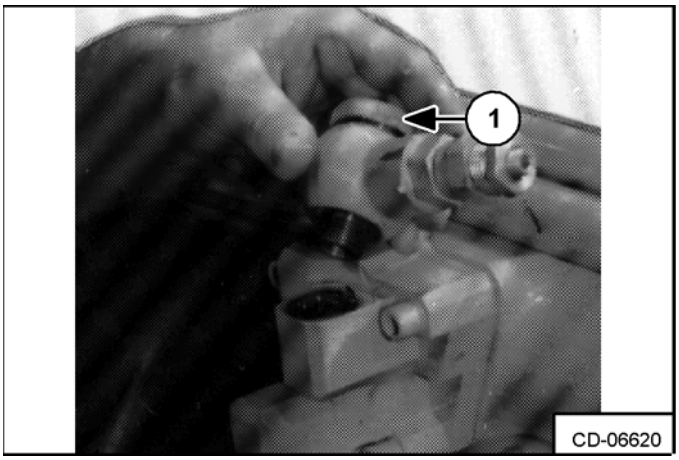
Have a second person remove the pivot pin bolt and pivot pin **[Figure 10-20-3]**.

DISASSEMBLY (CONT'D)

Return Pressure Compensating (RPC) Valve Removal and Installation

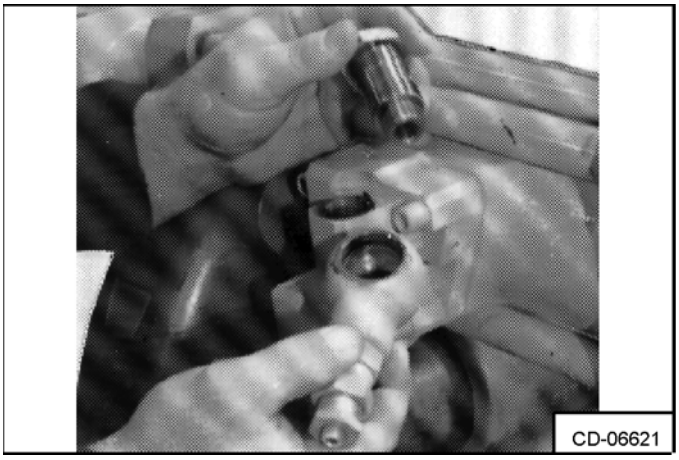
Put the breaker in a vise.

Figure 10-20-4



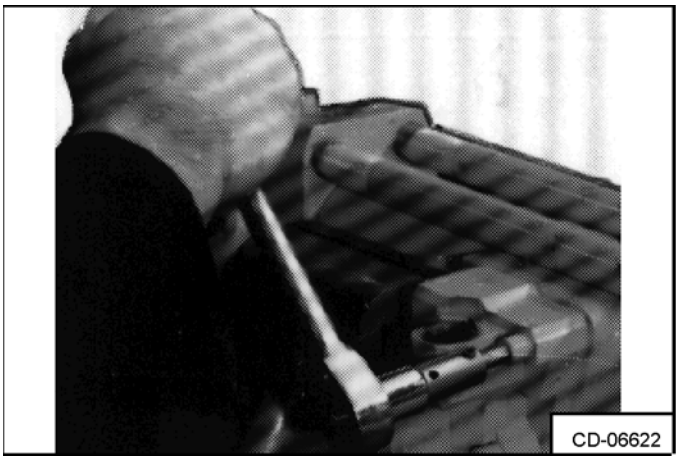
Loosen the swivel fittings bolt (Item 1) **[Figure 10-20-4]**.

Figure 10-20-5



Remove the O-rings and split back-up rings from the swivel fitting **[Figure 10-20-5]**.

Figure 10-20-6



Remove the 4 bolts and lock washers **[Figure 10-20-6]**.

***Installation**:* Tighten the bolts to 27 to 30 ft.-lb. (36 to 40 N•m) torque.

Figure 10-20-7

Remove the return pressure compensating (RPC) valve **[Figure 10-20-7]**.

Remove the RPC valve O-rings.

IMPORTANT

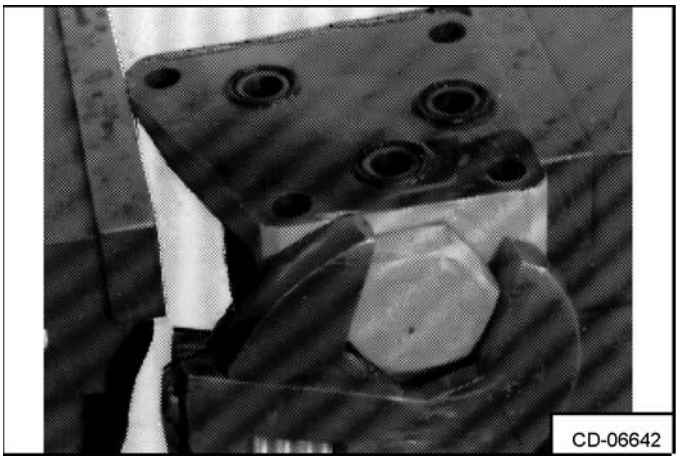
Do not completely discharge the accumulator at this time.

I-2037-0788

Return Pressure Compensating (RPC) Valve Removal and Installation (Cont'd)

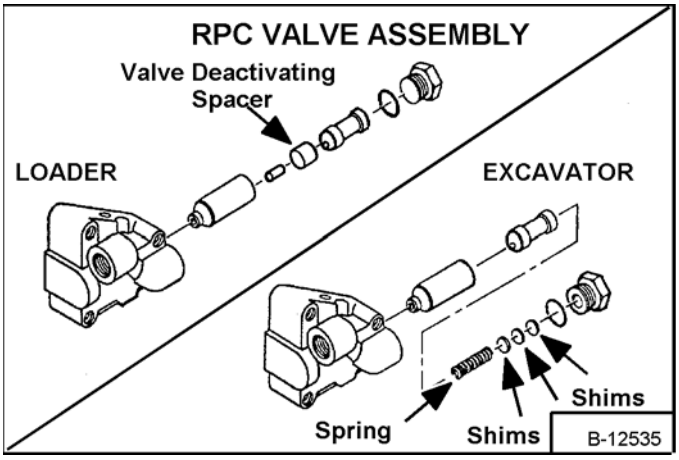
Place the RPC valve in a soft jaw vise.

Figure 10-20-8



Remove the O-ring boss plug **[Figure 10-20-8]**.

Figure 10-20-9



Remove the valve assembly internal parts **[Figure 10-20-9]**.

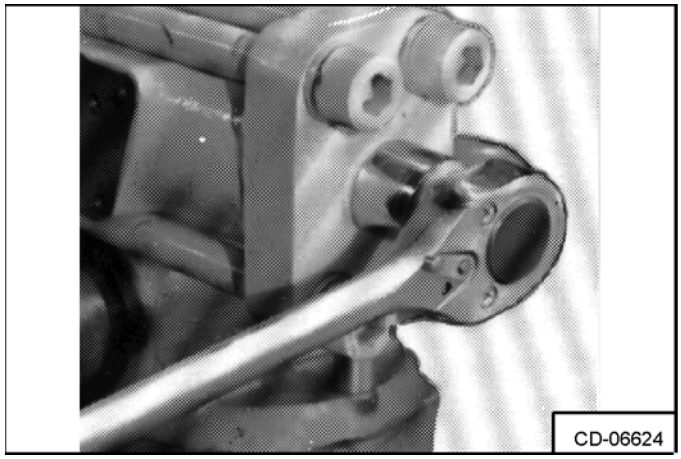
NOTE: Do not lose the parts in the RPC valve.

The RPC valve is blocked open and not used in the loader mounted 1250 Breaker **[Figure 10-20-9]**.

The RPC valve is used when 1250X Breaker is mounted on the excavator **[Figure 10-20-9]**.

Upper Body Removal and Installation

Figure 10-20-10

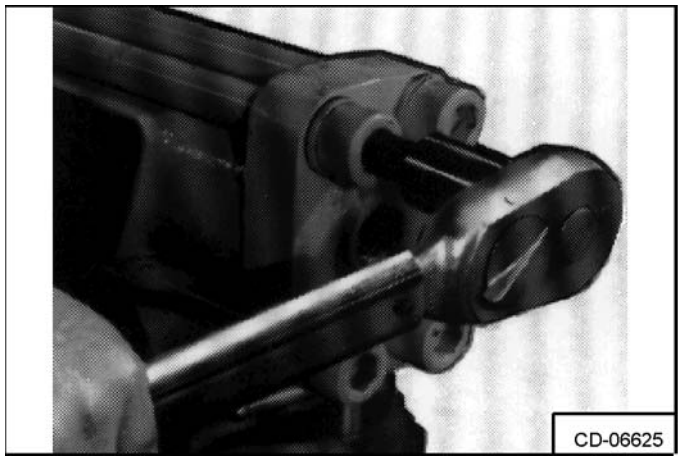


Remove the valve cap **[Figure 10-20-10]**.

Loosen the locknut on the charging valve 1-1/2 turns.

Discharge the accumulator down to 20 PSI (137,9 bar).

Figure 10-20-11



Loosen the 4 breaker body bolts **[Figure 10-20-11]**.

Loosen each bolt 1 turn and move to the next bolt. This will insure no binding of the breaker body.

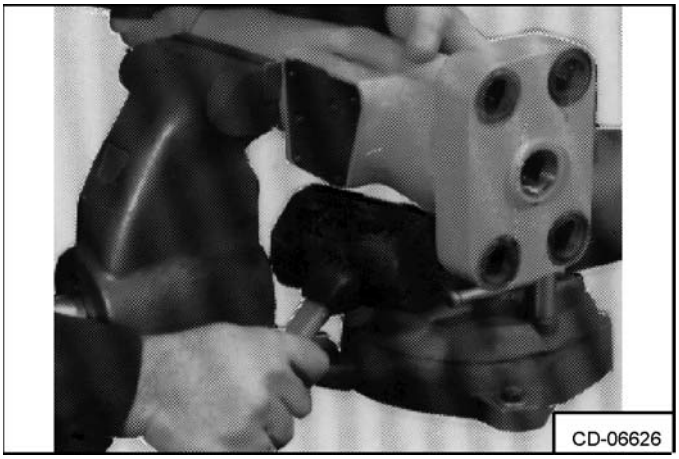
Remove the bolts.

Installation: Put anti-sieze compound on the bolt threads and tighten the bolts equally working up to 400 ft.-lb. (542 N•m) torque.

DISASSEMBLY (CONT'D)

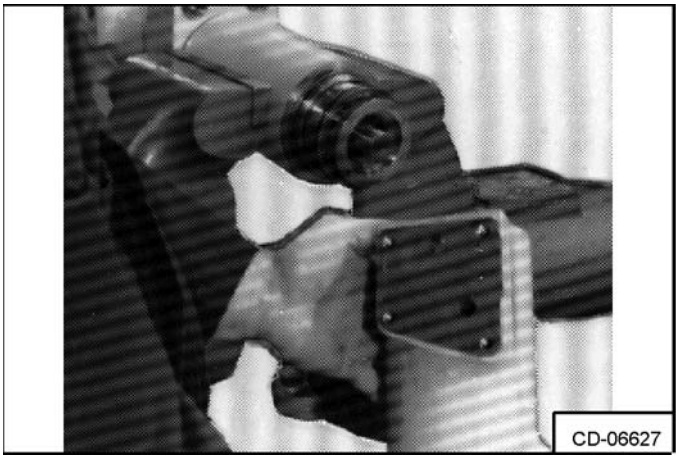
Upper Body Removal and Installation (Cont'd)

Figure 10-20-12



Tap around the top flange with a rubber hammer to separate the breaker body **[Figure 10-20-12]**.

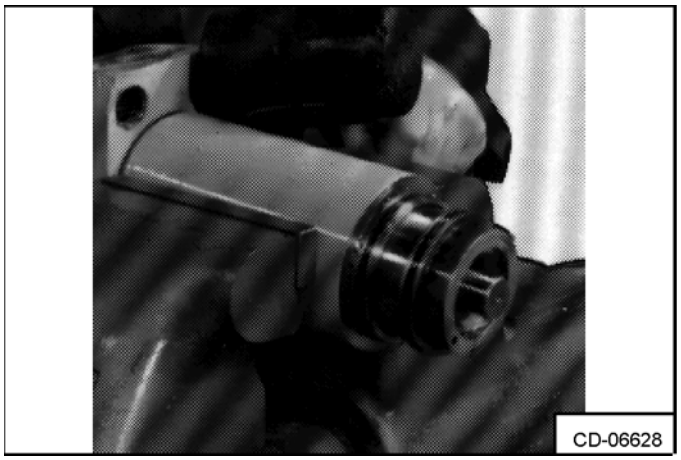
Figure 10-20-13



Separate the body halves **[Figure 10-20-13]**.

Do not drop any internal parts.

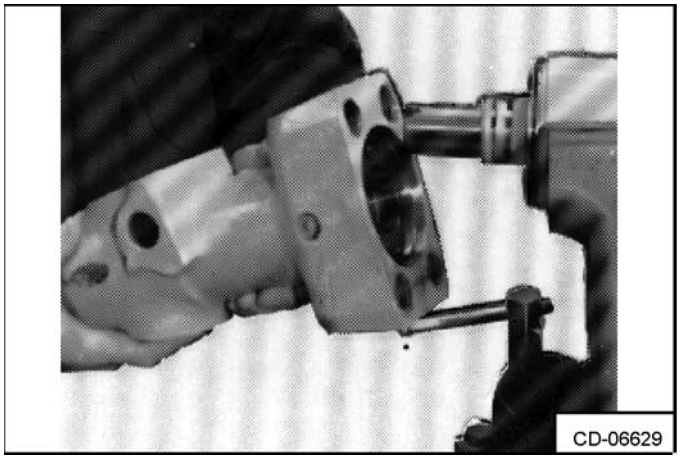
Figure 10-20-14



Remove the rod wiper, washer and cup seal from the piston **[Figure 10-20-14]**.

Use a rubber hammer to tap around the lower body flange **[Figure 10-20-14]**.

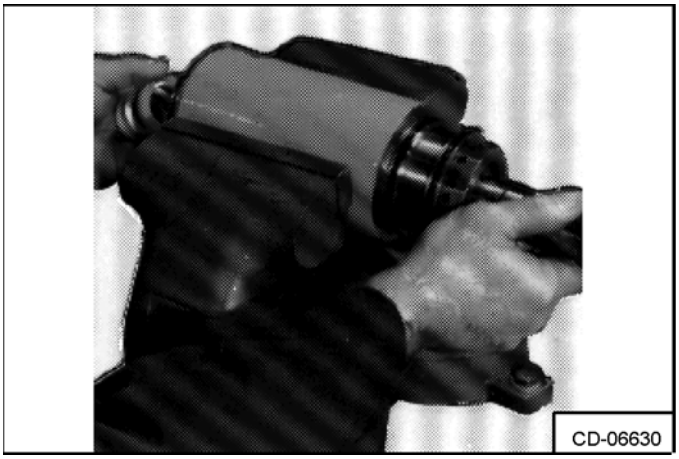
Figure 10-20-15



Remove the lower body from the piston **[Figure 10-20-15]**.

Lower Body Removal and Installation

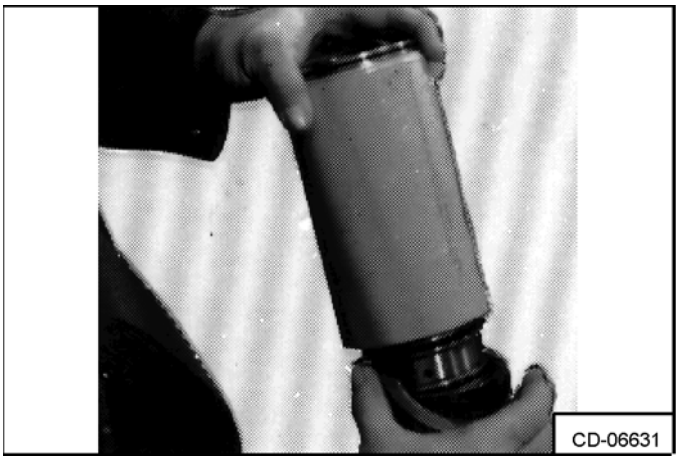
Figure 10-20-16



Remove the piston from the flow sleeve **[Figure 10-20-16]**.

If the automatic valve body remains in the flow sleeve assembly, remove it as follows:

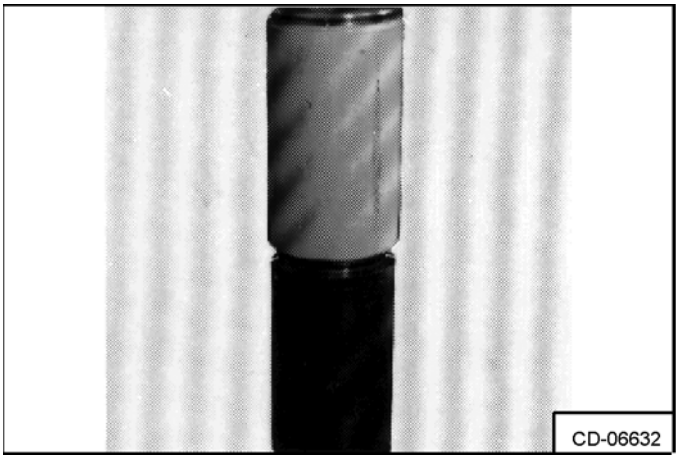
Figure 10-20-17



Place the split ring (from the kit) between the automatic valve body and flow sleeve assembly **[Figure 10-20-17]**.

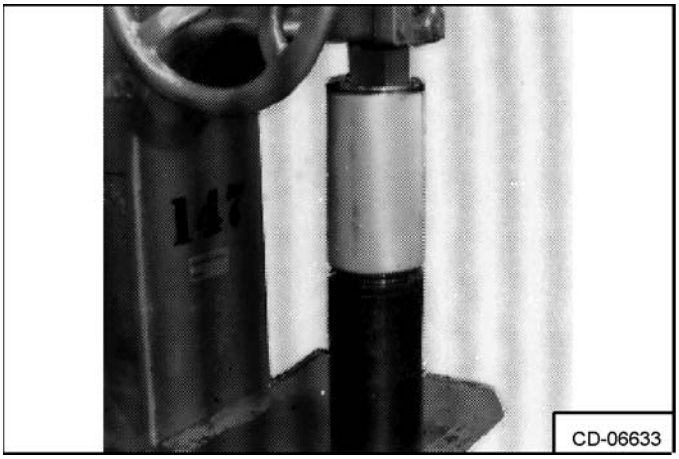
Flow Sleeve Removal and Installation

Figure 10-20-18



Put the assembly on the Flow Sleeve Removal Tube with the automatic valve body facing down **[Figure 10-20-18]**.

Figure 10-20-19



Use a press to remove the flow sleeve from the automatic valve body **[Figure 10-20-19]**.

IMPORTANT

Put a rag in the bottom of the removal tube to protect the automatic valve body when it drops out.

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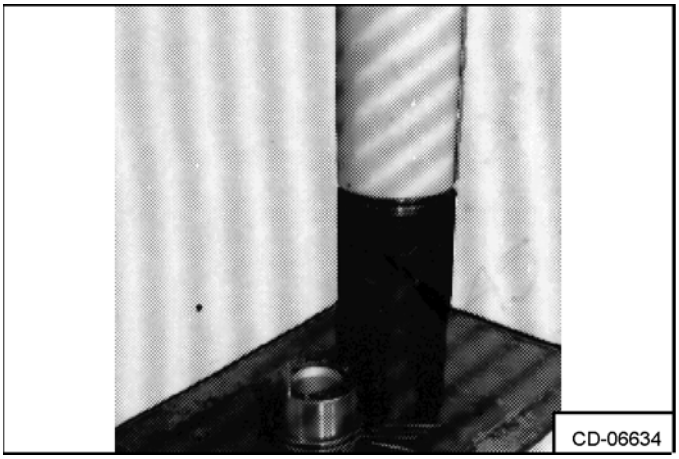
Flow Sleeve Removal and Installation (Cont'd)

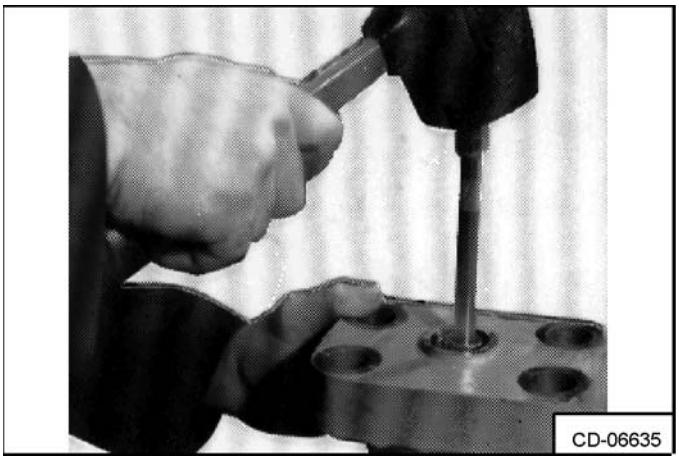
Figure 10-20-20



The automatic valve, flow sleeve, 4 long push pins from the flow sleeve and 2 long push pins from the automatic valve body will drop out **[Figure 10-20-20]**.

Accumulator Removal and Installation

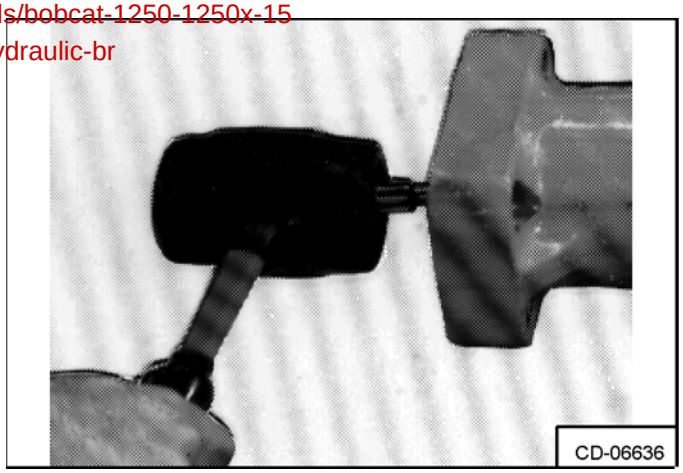
Figure 10-20-21



Put a 3/4 inch deep socket over the charging valve and tap it with a soft hammer to remove the accumulator assembly **[Figure 10-20-21]**.

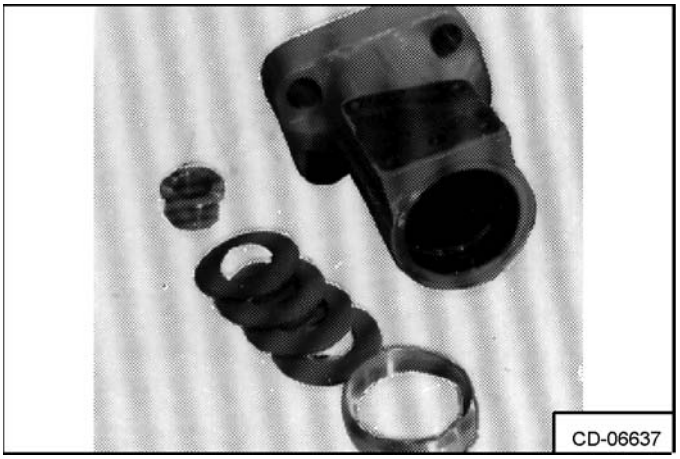
Remove the accumulator cylinder using the puller (from the kit).

Figure 10-20-22



Drive out the cylinder by tapping on a rod that extends through the charge valve hole in the breaker body **[Figure 10-20-22]**.

Figure 10-20-23



Lift the breaker body to remove the outer keeper, disc and pilot springs to fall out **[Figure 10-20-23]**.