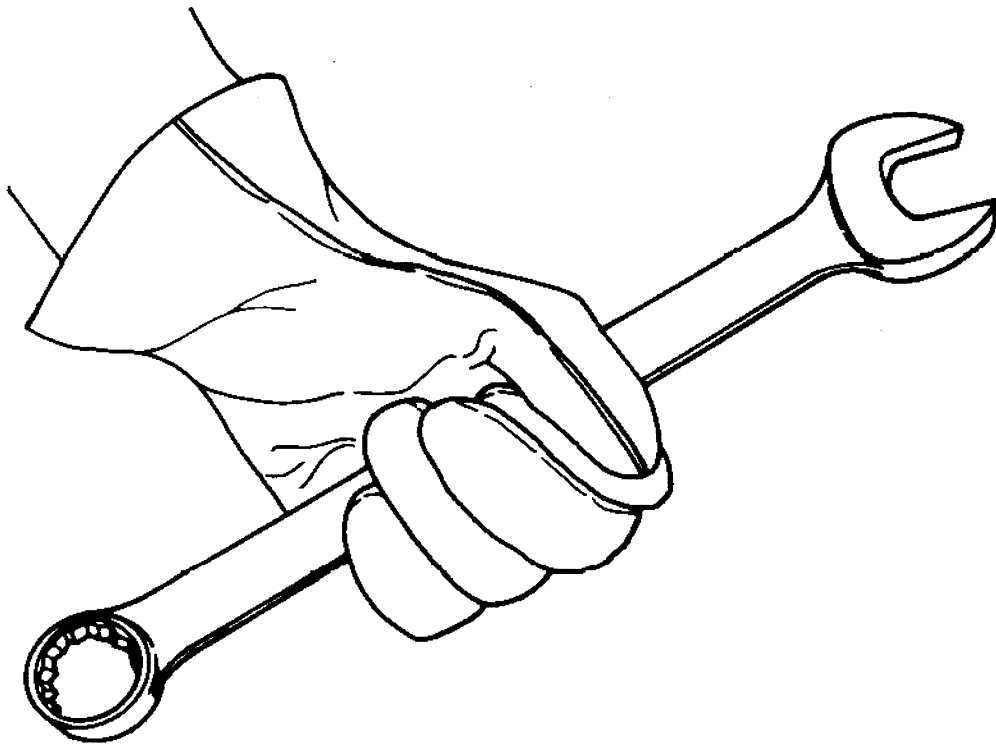




# HYDRAULIC MOTOR

## COMPONENT REPAIR MANUAL



**MELROE** COMPANY

Sample of manual. Download All 184 pages at:

<https://www.arepairmanual.com/downloads/bobcat-hydraulic-motor-service-repair-workshop-manual/>

Product: Bobcat Hydraulic Motor Service Repair Workshop Manual

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Sample of manual. Download All 184 pages at:

<https://www.arepairmanual.com/downloads/bobcat-hydraulic-motor-service-repair-workshop-manual/>

## INTRODUCTION

Melroe recommends that all service technicians attend either field or factory Bobcat Service Workshops for necessary information and education.

Workshops are held many times a year at various locations throughout the U.S. and Canada. Contact your District Service Manager or Melroe Service Office Gwinner, N.D. (701) 678-6165 for schedule.

This Component Repair Manual provides the Service Technician with information for servicing Hydrostatic Motors.

Make reference to the SERVICE MANUAL for your MODEL Loader to troubleshoot, test, remove and installation of the hydrostatic motor.

See the INDEX Page to find your MODEL Loader, S/N listing, Tab # and Manufacturer.

## SAFETY INSTRUCTIONS

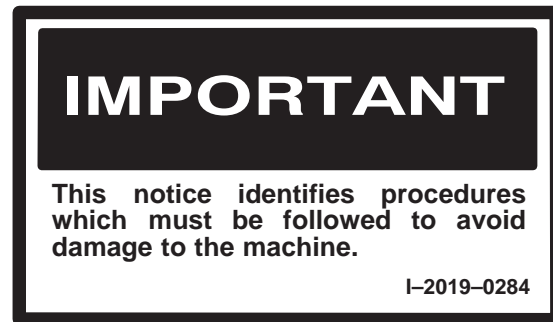
We Care About Your Safety.

The Bobcat loader is designed to give maximum operator safety; but no machine design can prevent operator error or carelessness.



## BEFORE YOU WORK ON THE HYDROSTATIC MOTOR

Read the complete sequence so you know the complete disassembly or assembly procedure before the work is actually started.





# INDEX

## HYDROSTATIC MOTOR MANUAL CONTENTS

MODELS	S/N	TAB	SECTION	MANUFACTURER
farmboy, 440, 443	All	1	A	Char-Lynn
540, 543	12001 & Above	1	B	Char-Lynn
630	15376 & Above	1	B	Char-Lynn
631	All	1	B	Char-Lynn
632	15320 & Above	1	B	Char-Lynn
641, 642, 642B, 643	All	1	B	Char-Lynn
720, 721, 722	All	2	A	Vickers
730, 731, 732	All	1	C	Char-Lynn
741, 742, 743	17999 & Above	1	C	Char-Lynn
742B, 743B	18000 & Above	1	D	Char-Lynn
750 Series	All	1	D	Char-Lynn
7753	Early Models	1	C	Char-Lynn
7753	Later Models	1	D	Char-Lynn
753L	All	1	D	Char-Lynn
825	All	3	A	Cessna
843	All	1	C	Char-Lynn
853	All	1	C	Char-Lynn
943	All	4	A	Sundstrand
974, 975	All	4	B	Sundstrand
1213	All	1	C	Char-Lynn
1600	11999 & Below	3	B	Cessna
1600	12001 thru 12312	4	C	Sundstrand
1600	12313 & Above	4	D	Sundstrand
2000	All	3	B	Cessna
2400 Series	12999 & Above	4	C	Sundstrand
2410	13000 & Above	4	D	Sundstrand
Glossary of Terms	TAB #5			



**bobcat<sup>®</sup>**

PARTS IDENTIFICATION

MODEL: farmboy, 440, 443 .....A-1

HYDROSTATIC MOTOR

Disassembly and Assembly .....A-2

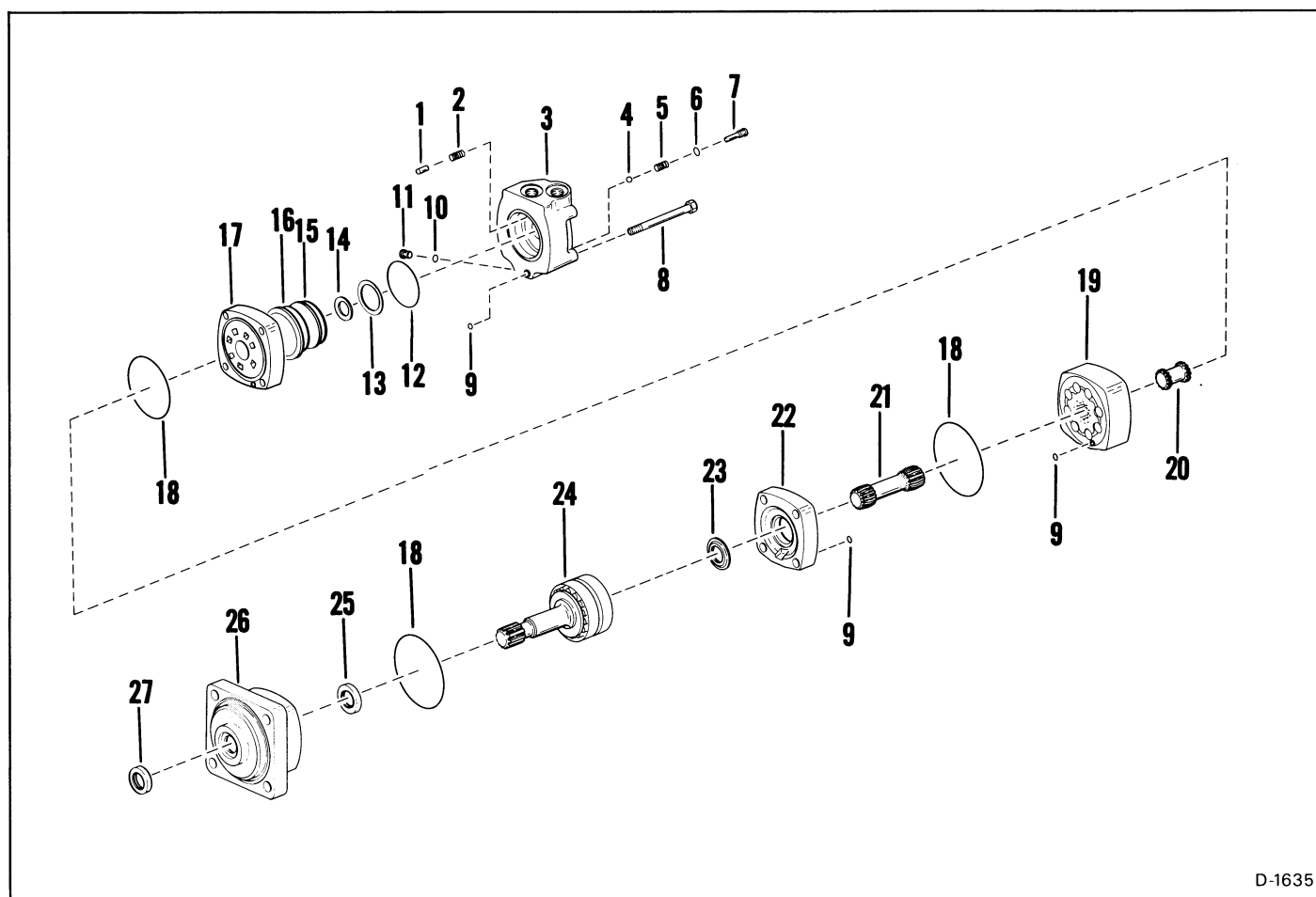
Inspection.....A-6

Timing the Hydrostatic Motor .....A-7





## PARTS IDENTIFICATION



D-1635

**MODEL: farmboy, 440, 443**

Ref.	Description	Ref.	Description
1.	PIN	15.	PLATE, balancing
2.	*SPRING	16.	VALVE
3.	HOUSING	17.	PLATE, valve
4.	*BALL	18.	O-RING
5.	*SPRING	19.	GEROLER
6.	O-RING	20.	SHAFT
7.	PLUG	21.	SHAFT
8.	BOLT	22.	PLATE, wear
9.	O-RING	23.	SEAL
10.	O-RING	24.	SHAFT & BEARING ASSY
11.	PLUG	25.	SEAL
12.	O-RING	26.	HOUSING
13.	SEAL, outer	27.	SEAL
14.	SEAL, inner		

\* These parts will not be found on serial number loaders listed below.

farmboy (S/N 13098 & Above)

443 (S/N 11973 & Above)

## HYDROSTATIC MOTOR

### Disassembly and Assembly

The tool listed will be needed to do the following procedure:

MEL-1015 — Seal Tool

# IMPORTANT

When making repairs on hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I-2003-0284

Remove the four bolts from the motor **A**.

Assembly: Tighten the bolts to 37 ft.lbs. (50 Nm) torque.

Lift the valve housing straight up. If done carefully, the springs and balance plate will stay on the valve **B**.

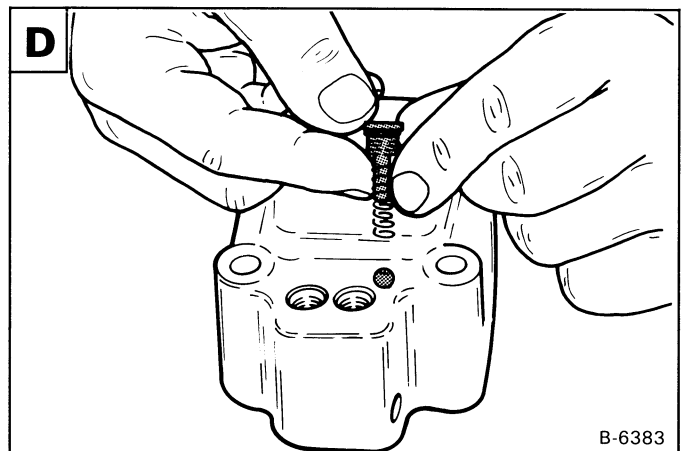
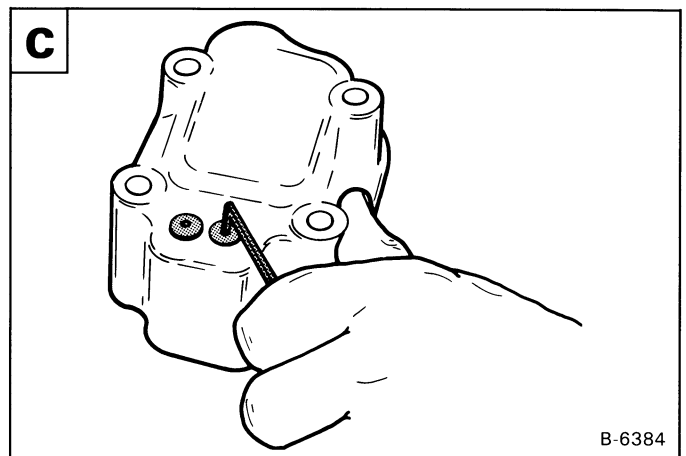
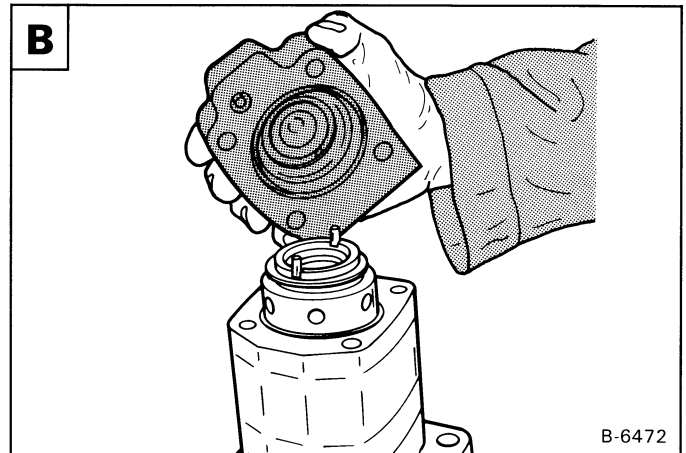
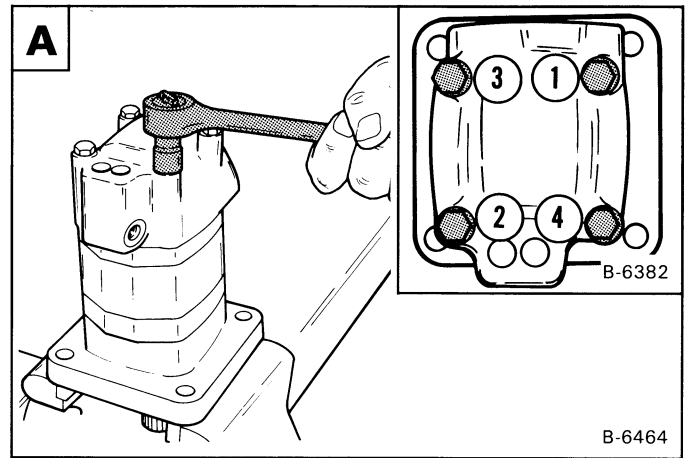
Remove the O-rings.

**NOTE:** See Page A—1 - Tab 1 for the serial number to see if your motor has the check balls installed.

Remove the two check plugs **C**.

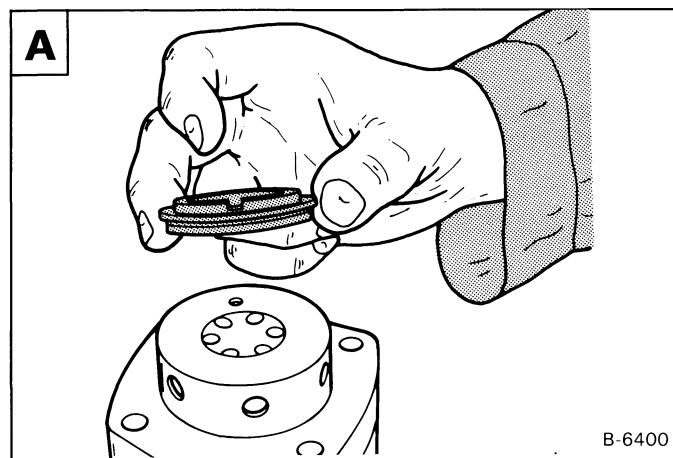
Remove the two springs and balls from the housing **D**.

Check the balls and spring and replace as needed.



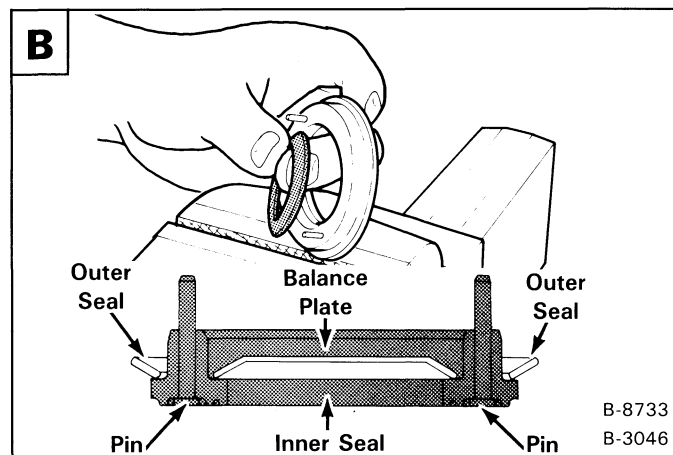
## HYDROSTATIC MOTOR (Cont'd)

Remove the balance plate **A**.



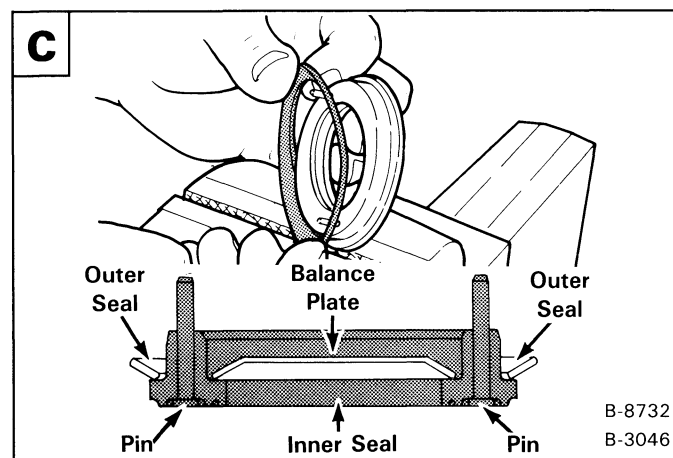
Remove the inner seal from the balance plate **B**.

Assembly: Put grease on the inner seal and install as shown **B**.

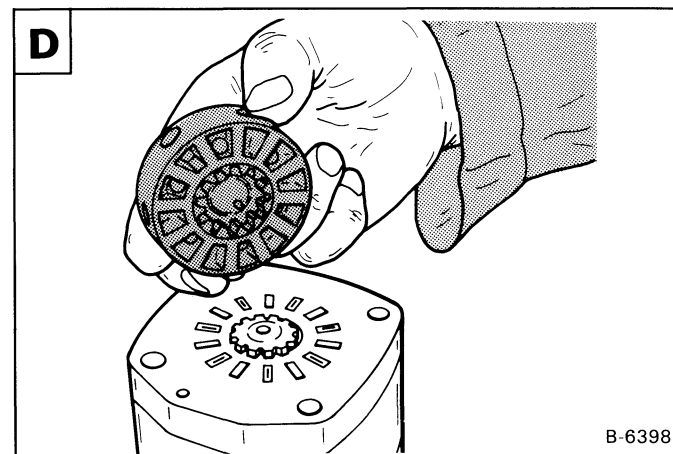


Remove the outer seal from the balance plate **C**.

Assembly: Put grease on the outer seal and install as shown **C**.



Remove the valve **D**.

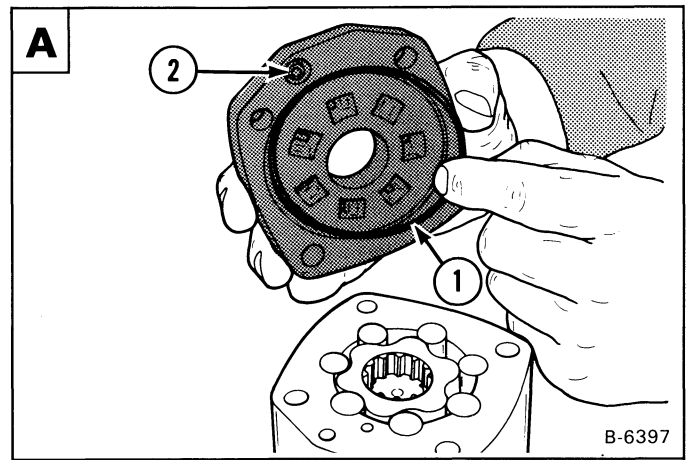


## HYDROSTATIC MOTOR (Cont'd)

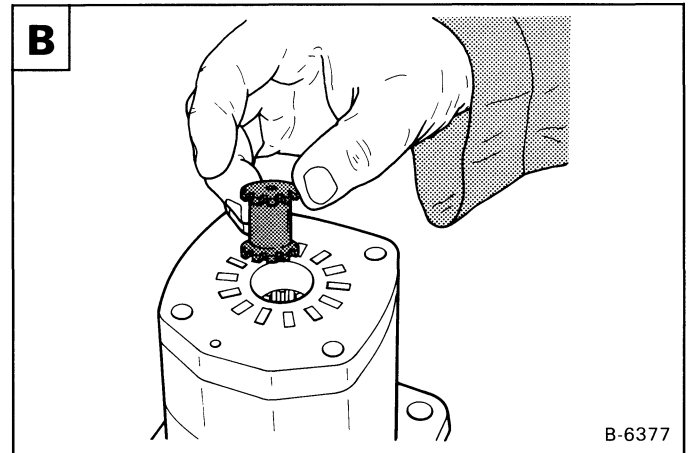
**NOTE:** See Page A—7 - TAB 1 for timing the motor when installing the valve, valve drive and geroller.

Remove the valve plate **A**.

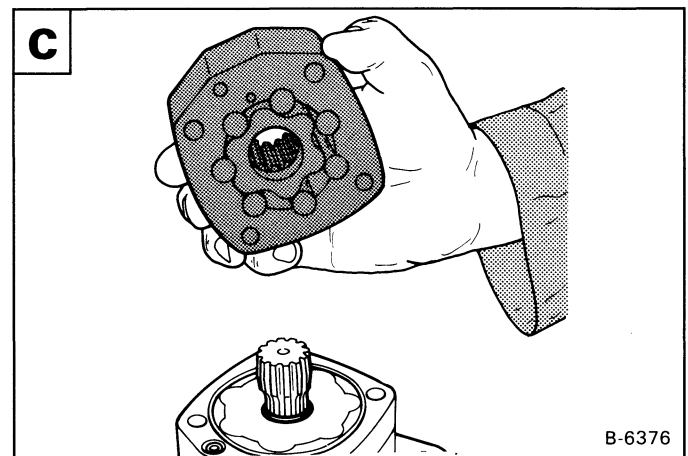
Remove the large O-ring (Item 1) and small O-ring (Item 2) **A**.



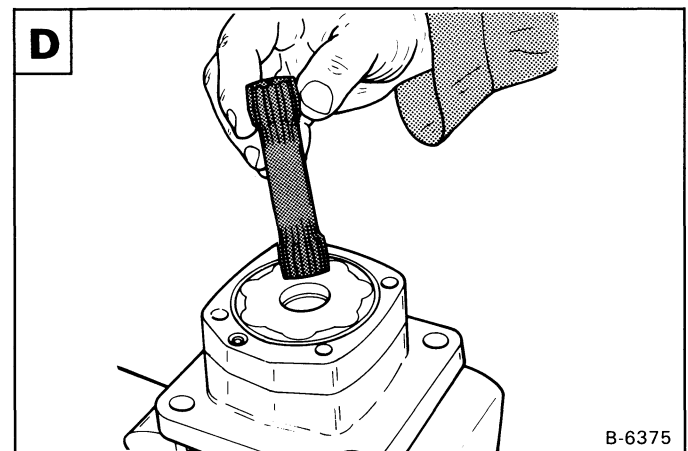
Remove the valve drive **B**.



Remove the geroller **C**.

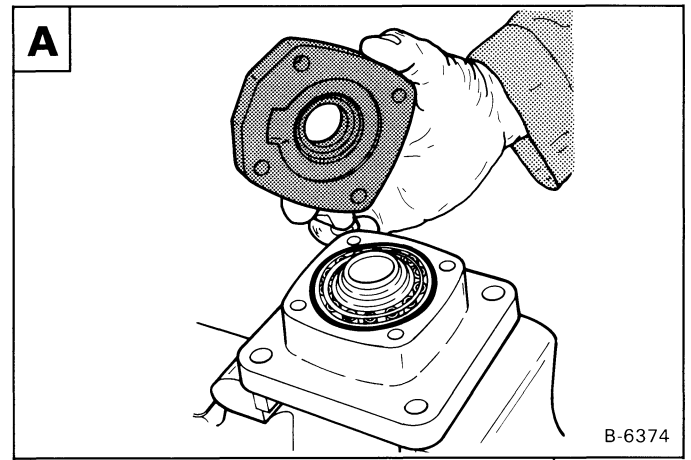


Remove the drive shaft **D**.

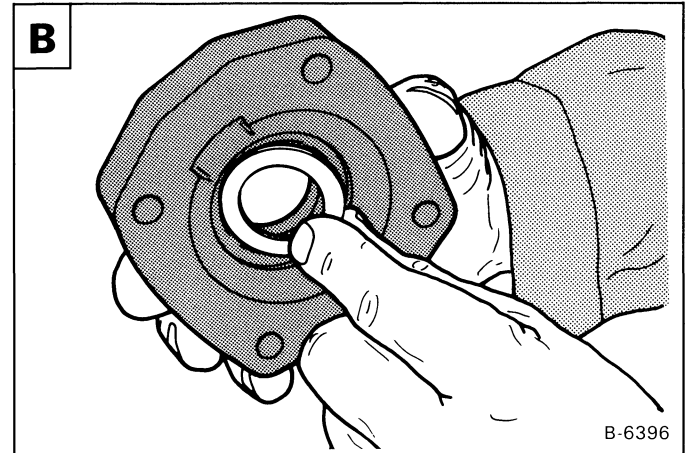


## HYDROSTATIC MOTOR (Cont'd)

Remove the wear plate **A**.

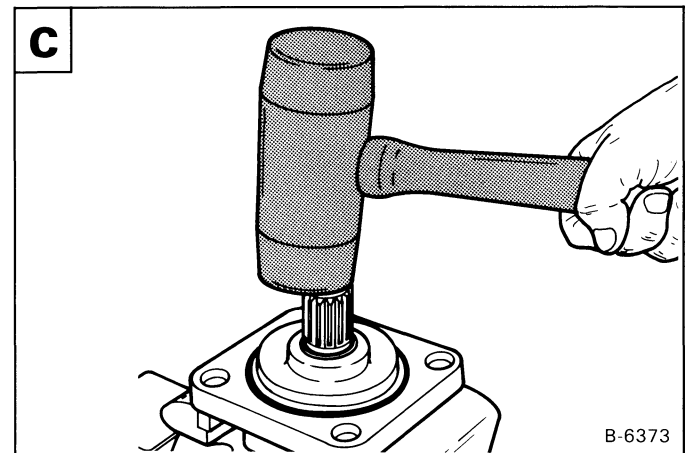


Remove the shaft face seal from the wear plate **B**.



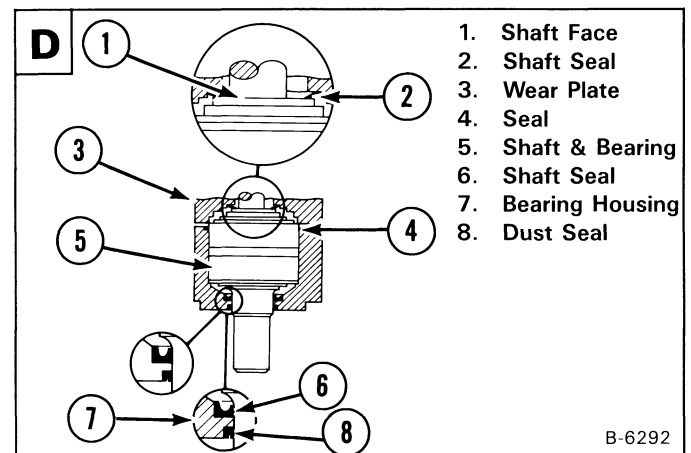
Remove the shaft and bearing assembly from the housing **C**.

**NOTE:** The shaft and bearing assembly are not sold as individual parts. Replace as a complete unit.



Remove the dust seal and shaft seal from the housing **D**.

Assembly: Install a new shaft seal and dust seal as shown **D**. Use a press to install the bearing and shaft assembly.



## HYDROSTATIC MOTOR (Cont'd)

Assembly: When installing the balance plate in the end housing, put your finger through the hole and hold it in position until the housing is in position **A**.

**NOTE:** Always use new O-rings, gaskets and seals when assembling the hydrostatic motor.

### Inspection

Clean all the parts in solvent and use air pressure to dry them. DO NOT use cloth or paper because small pieces of material can get into the system and cause damage.

Before the motor is assembled, check the following items:

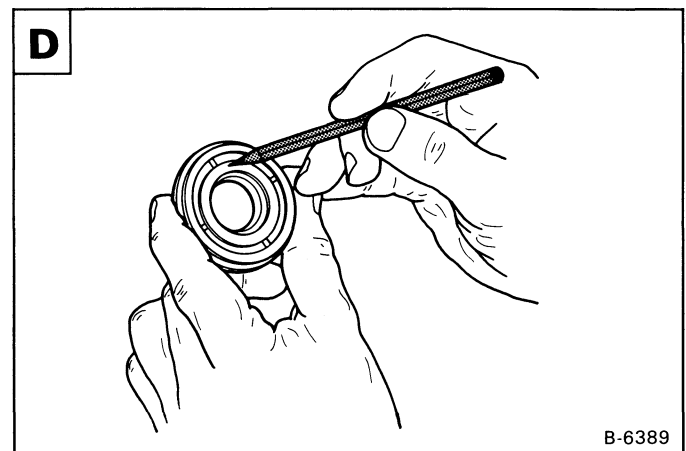
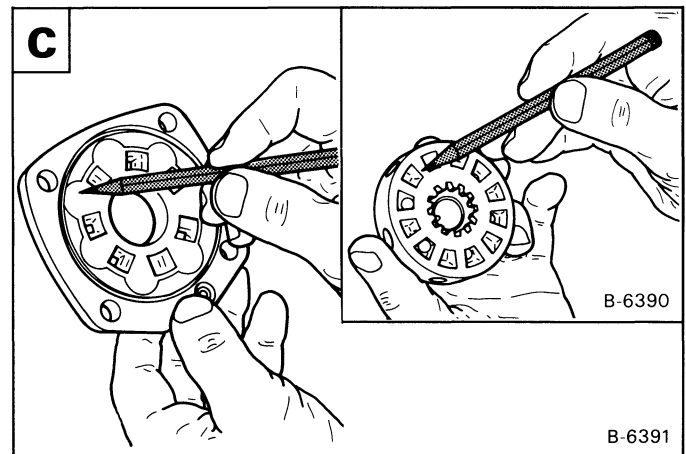
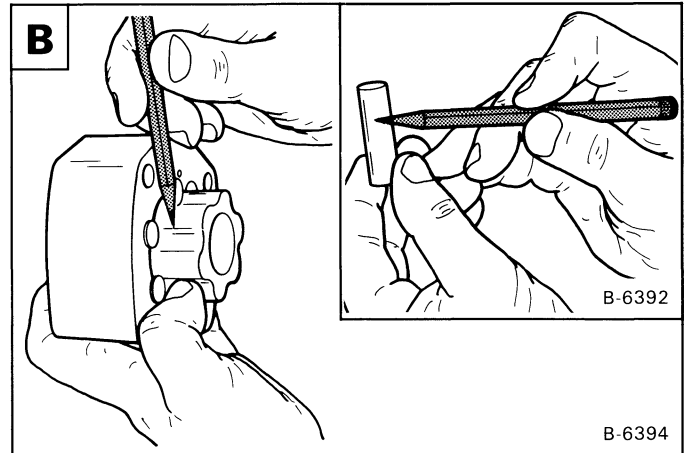
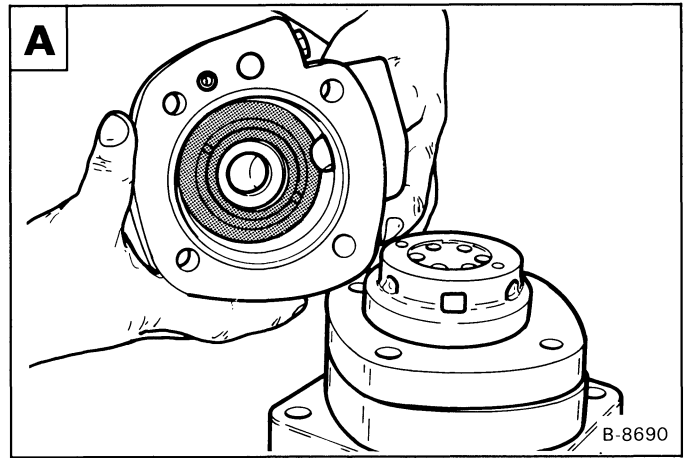
Check the geroler roller and rotor for wear and scratches **B**.

**NOTE:** Put all the rollers back in their original position.

Check the valve plate for scratches **C**.

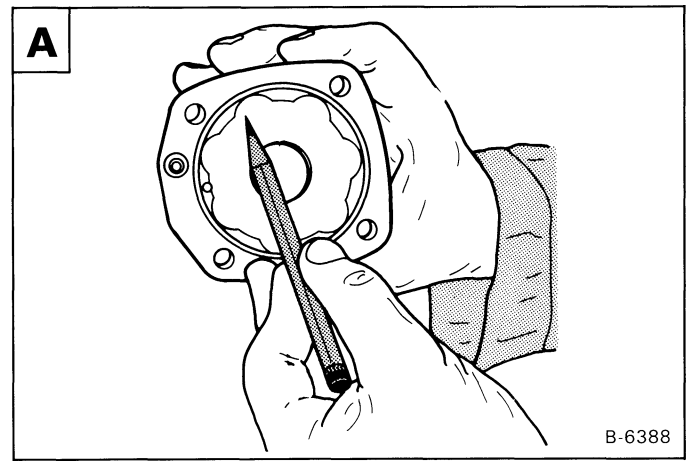
Check the balance plate for scratches **D**.

Check the valve drive and main drive for wear.



## HYDROSTATIC MOTOR (Cont'd)

Check the end plate surface for scratches **A**.



### Timing the Hydrostatic Motor

The timing of the motor controls the direction of rotation of the drive shaft of the motor. The timing parts are as follows:

1. Geroller (Item 1) **B**.
2. Valve Drive (Item 2) **B**.
3. Valve Plate (Item 3) **B**.
4. Valve (Item 4) **B**.

Find the largest opening between the geroller star and the geroller ring. Mark the outside of the geroller ring at that point **B**.

Align the two drain holes and the three pressure holes in the geroller ring with the same holes in the mounting flange. Then install the geroller assembly.

Install new O-rings.

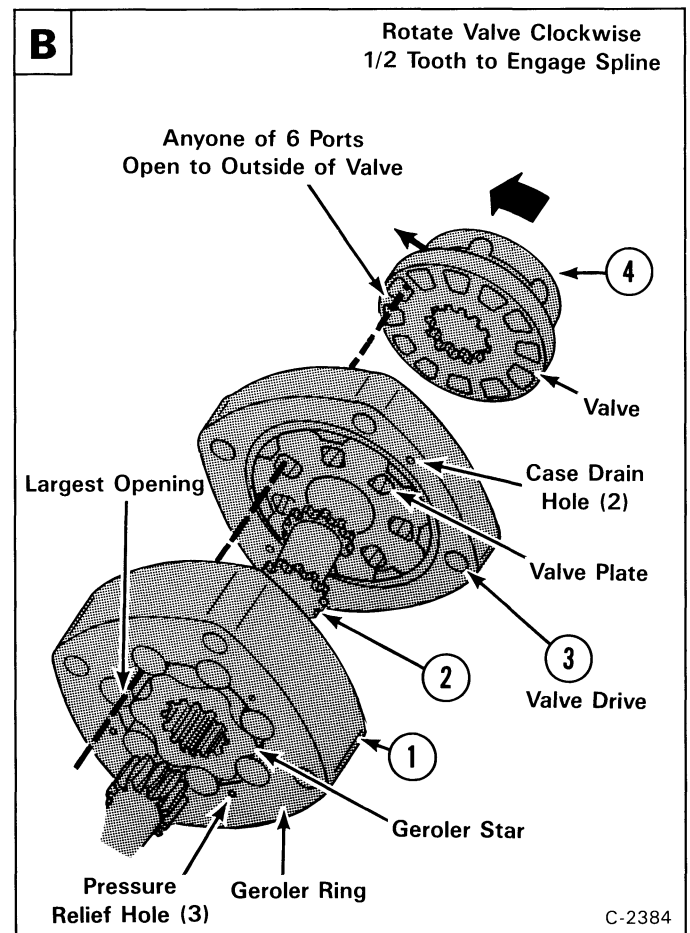
Install the valve drive **B**.

Align the drain hole in the valve plate with the drain hole in the geroller. Install valve plate with the O-ring toward the geroller. Make sure the slot opening of the valve plate is in alignment with the largest opening of the geroller.

Install the valve plate.

Install the valve on the valve plate. Make alignment with one of the side openings with the mark on the geroller. Turn the valve **clockwise** a small amount until the teeth on the valve drive engage.

Continue with the rest of the assembly procedure.







## CHAR-LYNN MOTOR

### PARTS IDENTIFICATION

MODEL: 109-1052-004

109-1052-005

540, 543 (S/N 12001 & Above)

630 (S/N 15376 & Above)

631 (S/N All)

632 (S/N 15320 & Above)

641, 642, 643 .....B—1

MODEL: 109-1052-006

540, 543 (S/N 12001 & Above)

630 (S/N 15376 & Above)

631 (S/N All)

632 (S/N 15320 & Above)

641, 642, 643 .....B—2

### SPLINED SHAFT

540 (S/N 13072 & Above)

543 (S/N 13082 & Above)

641 (S/N 13346 & Above)

642 (S/N 13941 & Above)

643 (S/N 13620 & Above) .....B—3

### HYDROSTATIC MOTOR

Disassembly and Assembly .....B—4

Inspection .....B—11

Timing the Hydrostatic Motor .....B—12

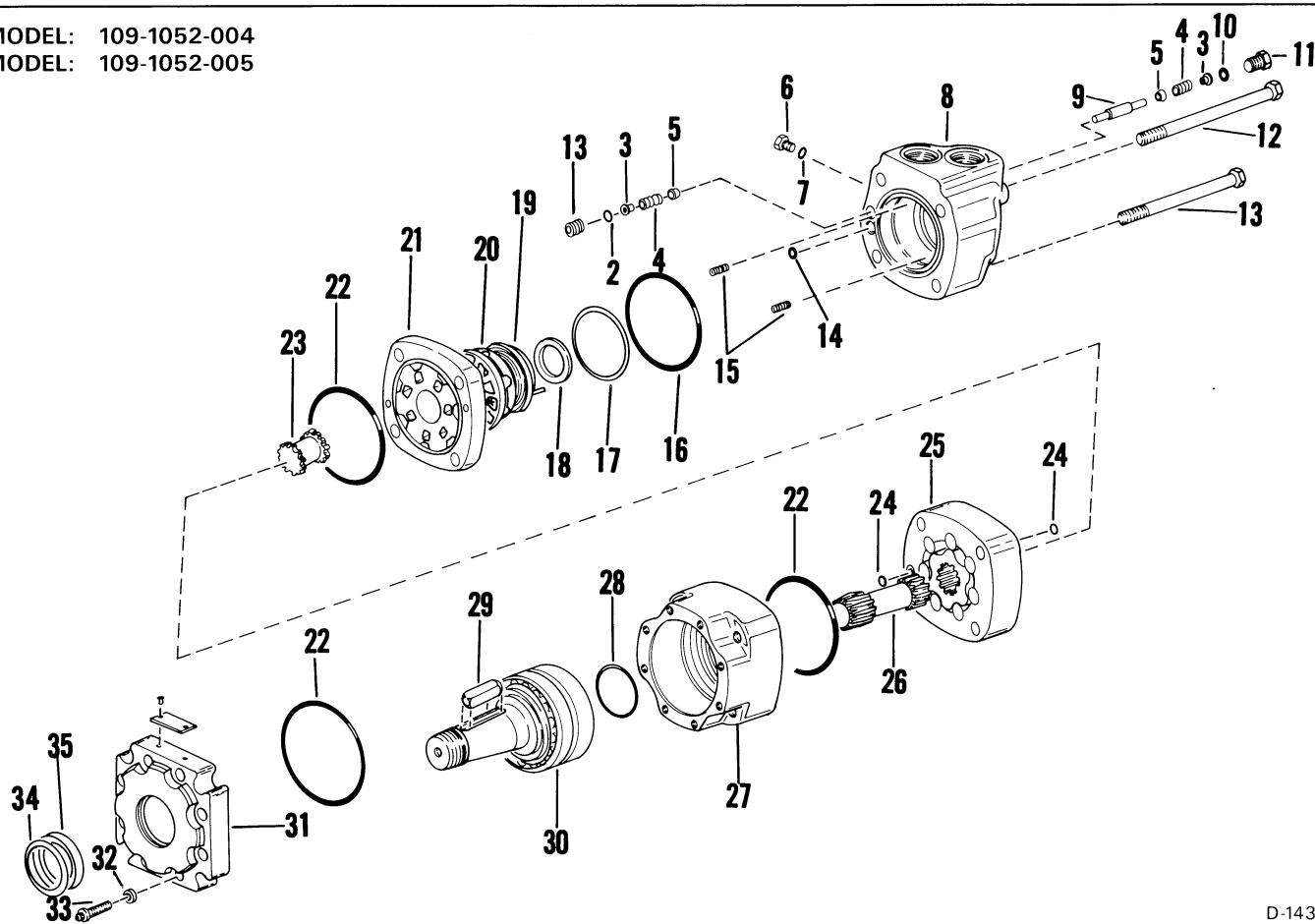
## Section B



**bobcat**

## PARTS IDENTIFICATION

MODEL: 109-1052-004  
MODEL: 109-1052-005



D-1439

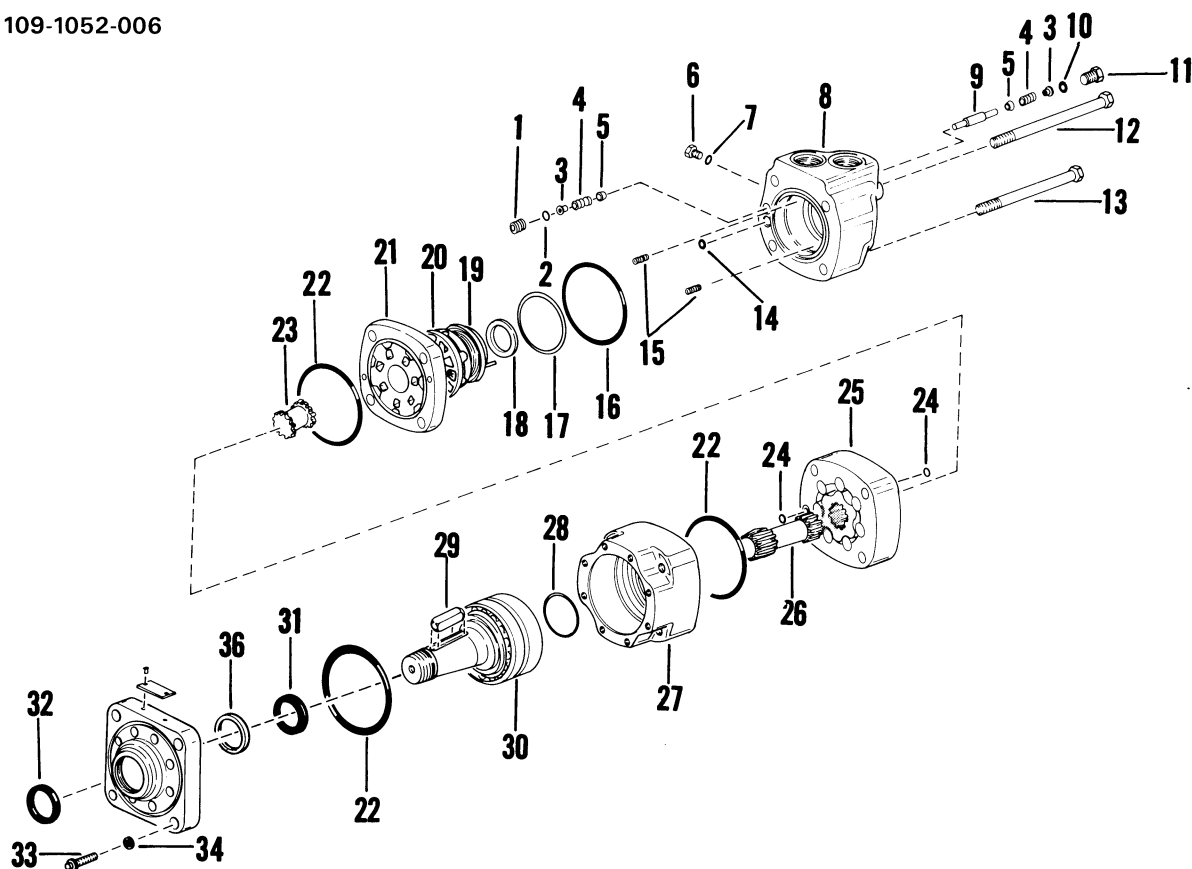
MODEL:  
540, 543 (S/N 12001 & Above)  
630 (S/N 15376 & Above)  
631 (S/N All)  
632 (S/N 15320 & Above)  
641, 642, 643

Ref.	Description
1.	PLUG
2.	O-RING
3.	SHUTTLE
4.	SPRING
5.	POPPET
6.	PLUG
7.	O-RING
8.	HOUSING
9.	PISTON
10.	O-RING
11.	PLUG
12.	BOLT
13.	BOLT
14.	O-RING
15.	SPRING
16.	O-RING
17.	SEAL, outer
18.	SEAL, inner

Ref.	Description
19.	PLATE, balancing
20.	VALVE
21.	PLATE, valve
22.	O-RING
23.	SHAFT
24.	O-RING
25.	GEROLER
26.	SHAFT
27.	HOUSING, bearing
28.	SEAL
29.	KEY
30.	SHAFT & BEARING
31.	COVER, front
32.	WASHER
33.	BOLT
34.	WASHER
35.	RING, quad

## PARTS IDENTIFICATION

MODEL: 109-1052-006



D-1650

MODEL:  
540, 543 (S/N 12001 & Above)  
630 (S/N 15376 & Above)  
631 (S/N All)  
632 (S/N 15320 & Above)  
641, 642, 643

### Ref. Description

1. PLUG
2. O-RING
3. SHUTTLE
4. SPRING
5. POPPET
6. PLUG
7. O-RING
8. HOUSING
9. PISTON
10. O-RING
11. PLUG
12. BOLT
13. BOLT
14. O-RING
15. SPRING
16. O-RING
17. SEAL, outer
18. SEAL, inner

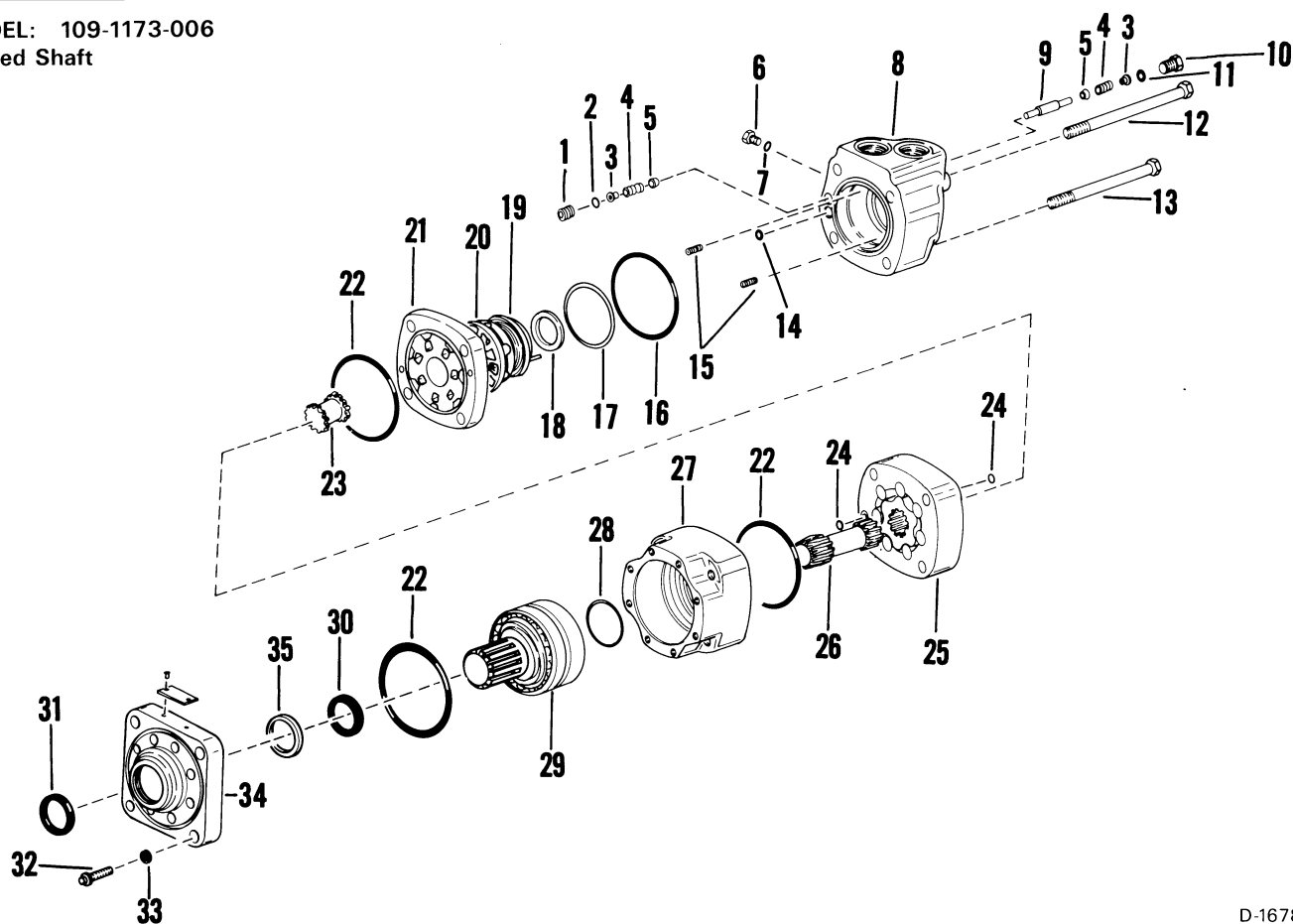
### Ref. Description

19. PLATE, balancing
20. VALVE
21. PLATE, valve
22. O-RING
23. SHAFT
24. O-RING
25. GEROLER
26. SHAFT
27. HOUSING, bearing
28. SEAL
29. KEY
30. SHAFT & BEARING
31. SEAL, shaft
32. SEAL, dust
33. BOLT
34. WASHER
35. COVER, front
36. RING, brass

## PARTS IDENTIFICATION

MODEL: 109-1173-006

Splined Shaft



D-1678

### MODEL:

540 (S/N 13072 & Above)

543 (S/N 13082 & Above)

641 (S/N 13346 & Above)

642 (S/N 13941 & Above)

643 (S/N 13620 & Above)

### Ref. Description

- 1. PLUG
- 2. O-RING
- 3. SHUTTLE
- 4. SPRING
- 5. POPPET
- 6. PLUG
- 7. O-RING
- 8. HOUSING
- 9. PISTON
- 10. PLUG
- 11. O-RING
- 12. BOLT
- 13. BOLT
- 14. O-RING
- 15. SPRING
- 16. O-RING
- 17. SEAL, outer
- 18. SEAL, inner

### Ref. Description

- 19. PLATE, balancing
- 20. VALVE
- 21. PLATE, valve
- 22. O-RING
- 23. SHAFT
- 24. O-RING
- 25. GEROLER
- 26. SHAFT
- 27. HOUSING, bearing
- 28. SEAL
- 29. SHAFT & BEARING
- 30. SEAL, shaft
- 31. SEAL, dust
- 32. BOLT
- 33. WASHER
- 34. COVER, front
- 35. RING, brass

## HYDROSTATIC MOTOR

THE ILLUSTRATIONS MAY NOT SHOW EXACTLY THE SAME MOTOR THAT YOU ARE WORKING ON, BUT THE PROCEDURE IS THE SAME.

### Disassembly and Assembly

The tools listed will be needed to do the following procedure:

MEL-1187 — Socket  
MEL-1015 — Seal Tool

## IMPORTANT

When making repairs on hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I-2003-0284

**NOTE:** Before you begin to disassembly the motor, use a puller and remove the sprocket from the tapered shaft.

Put a mark across the motor sections for correct assembly **A**.

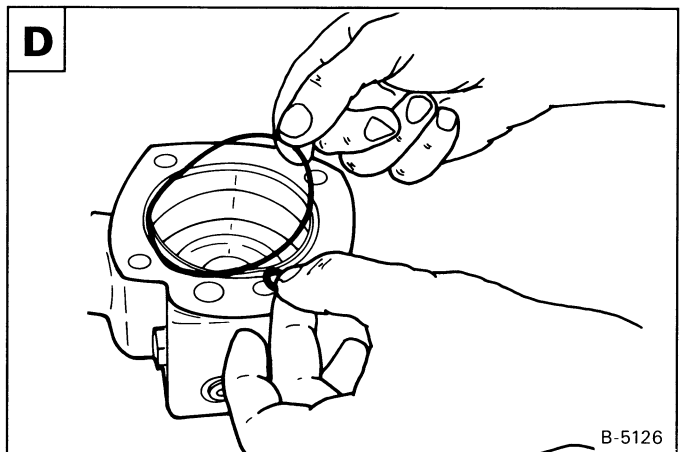
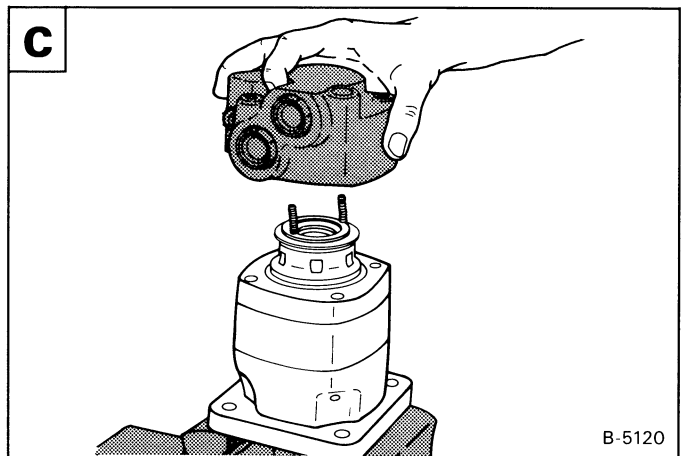
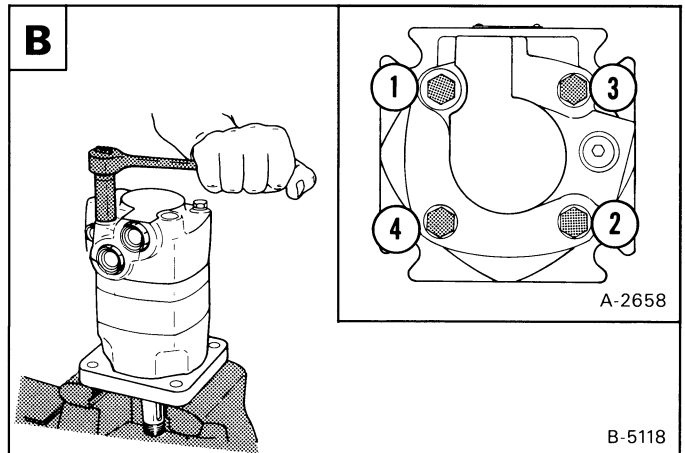
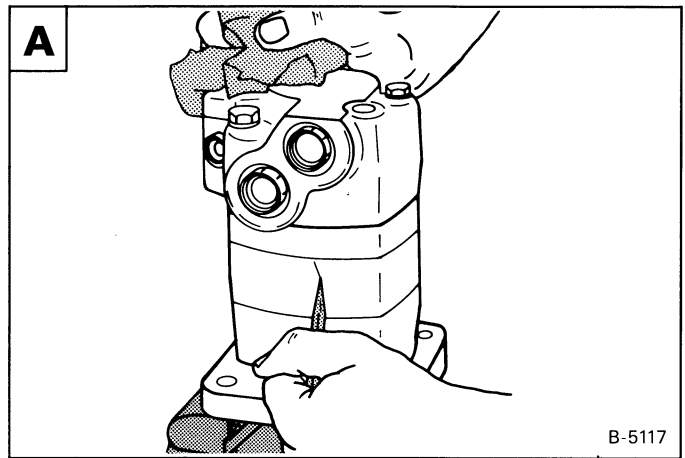
Remove the four bolts from the motor **B**.

Assembly: Tighten the bolts to 50 ft.lbs. (68 Nm) torque.

Lift the valve housing straight up **C**. If done carefully, the springs and balance plate will stay on the valve.

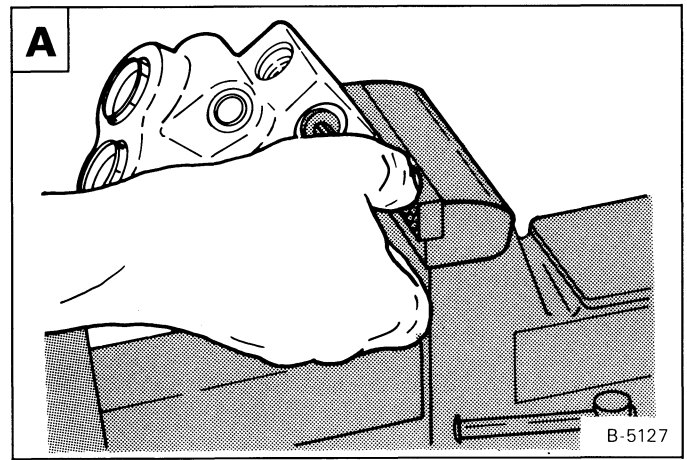
**NOTE:** See Page B—12 - TAB 1 for the correct installation of the housing and the balance plate.

Remove the large and small O-rings **D**.

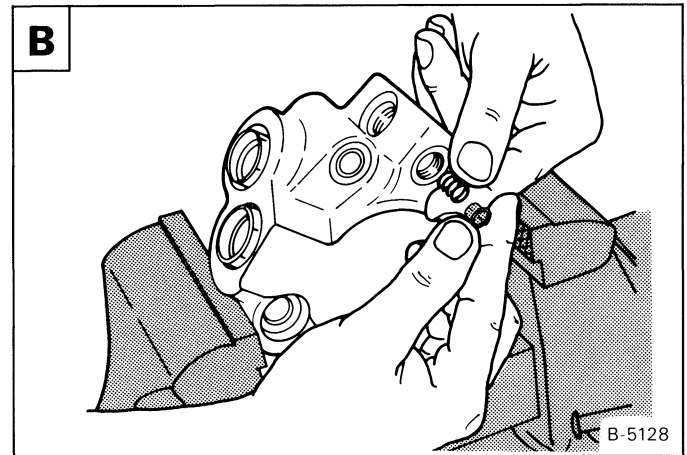


## HYDROSTATIC MOTOR (Cont'd)

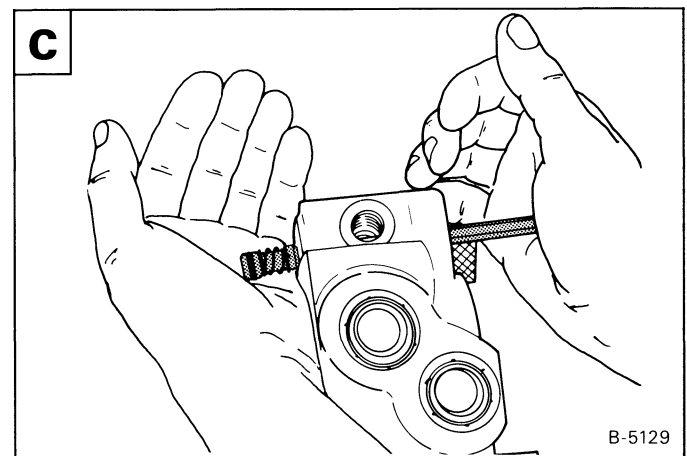
Remove the plug at the valve housing **A**.



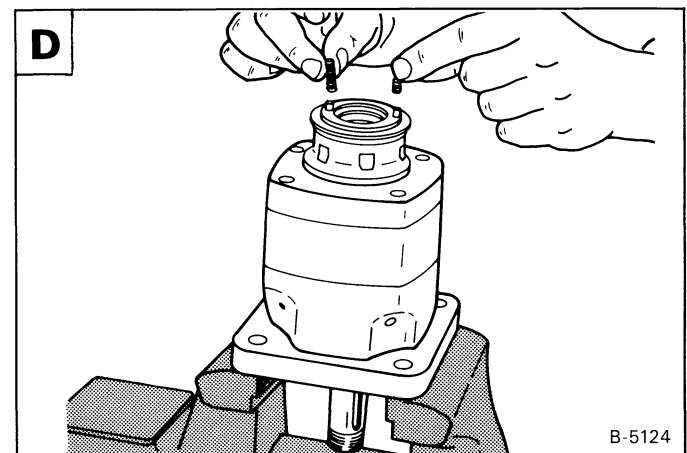
Remove the spring, shuttle and poppet **B**.



Use a punch, remove the poppet, spring, O-ring, shuttle and plug **C**.



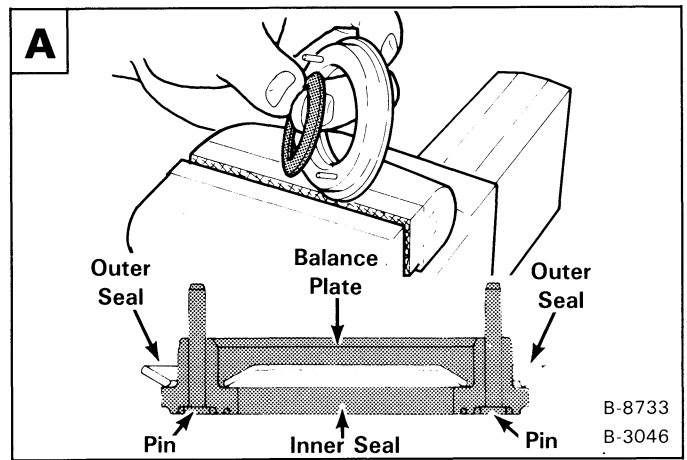
Remove the two springs from the balance plate **D**.



## HYDROSTATIC MOTOR (Cont'd)

Remove the inner seal from the balance plate **A**.

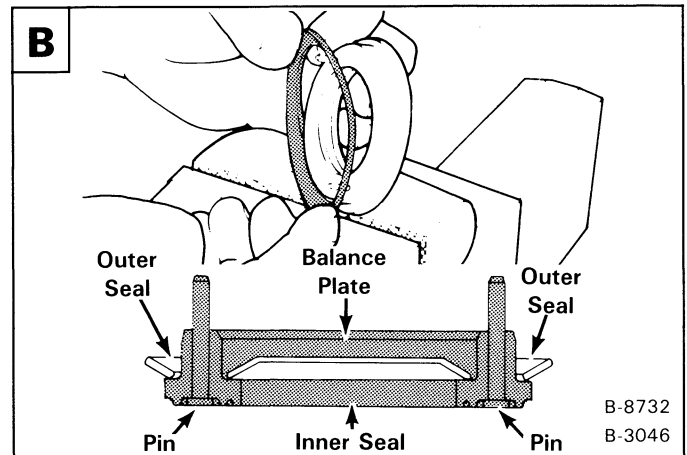
Assembly: Put grease on the inner seal and install as shown **A**.



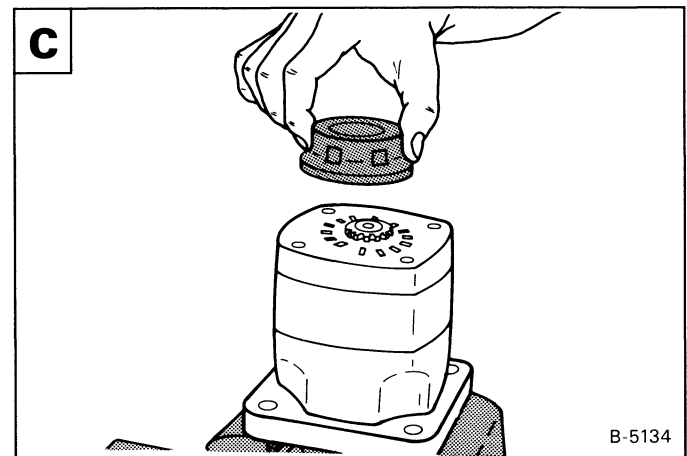
Remove the outer seal from the balance plate **B**.

Assembly: Put grease on the outer seal and install as shown **B**.

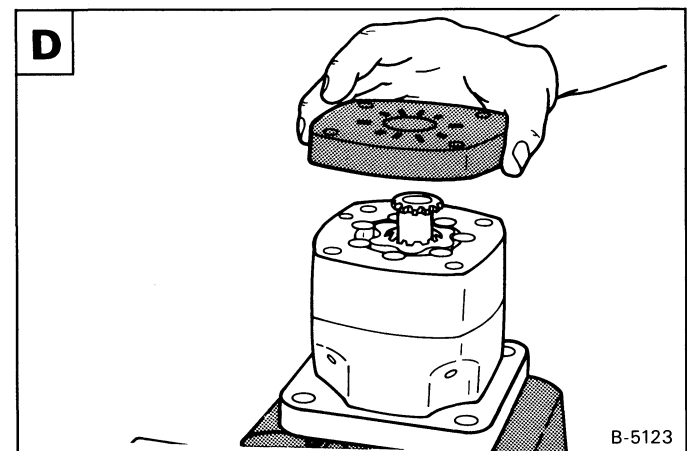
**NOTE:** See Page B-12 - TAB 1 for timing the motor when installing the valve, valve drive and geroler.



Remove the valve **C**.



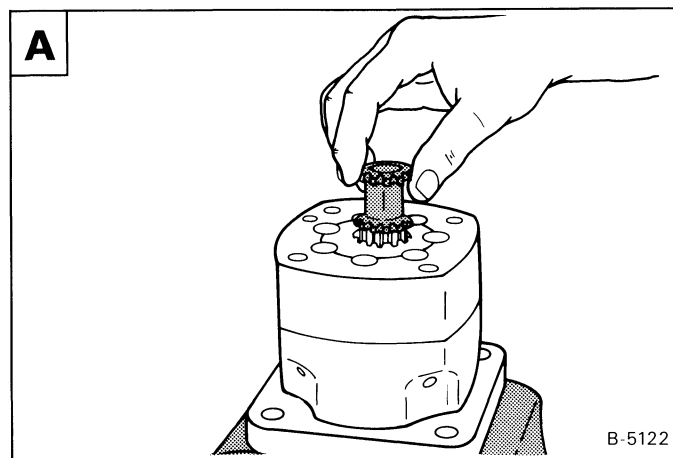
Remove the valve plate **D**.





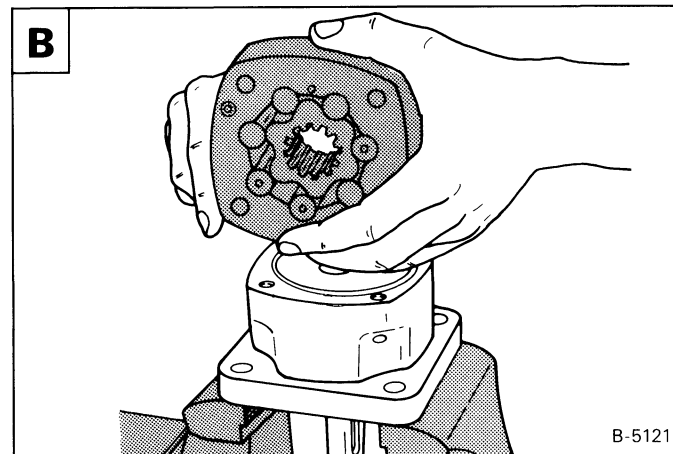
## HYDROSTATIC MOTOR (Cont'd)

Remove the valve drive **A**.

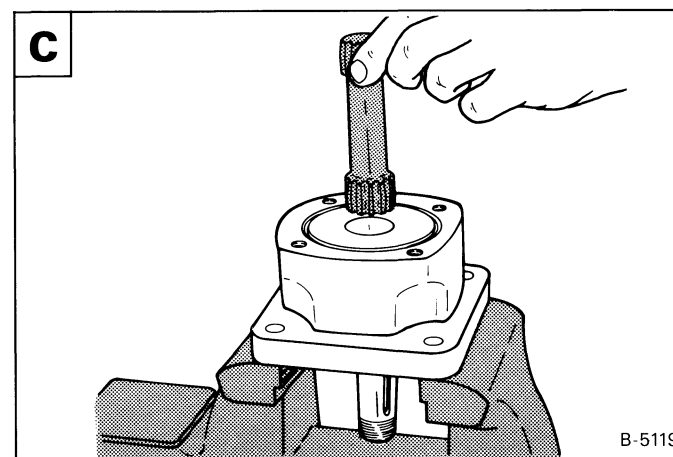


Remove the geroler **B**.

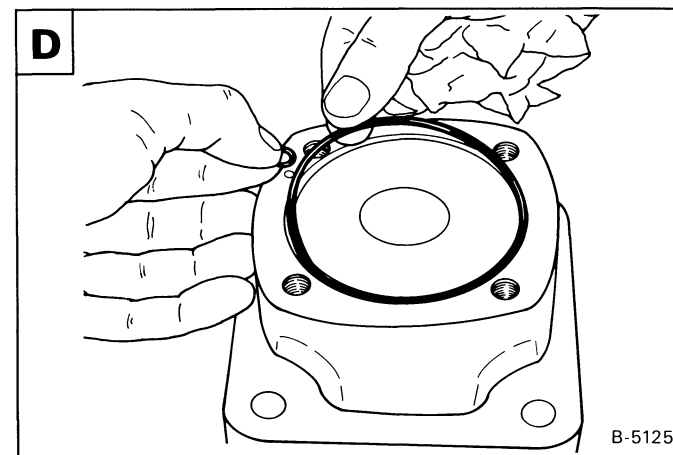
Make sure the rollers are kept in the geroler.



Remove the drive shaft **C**.



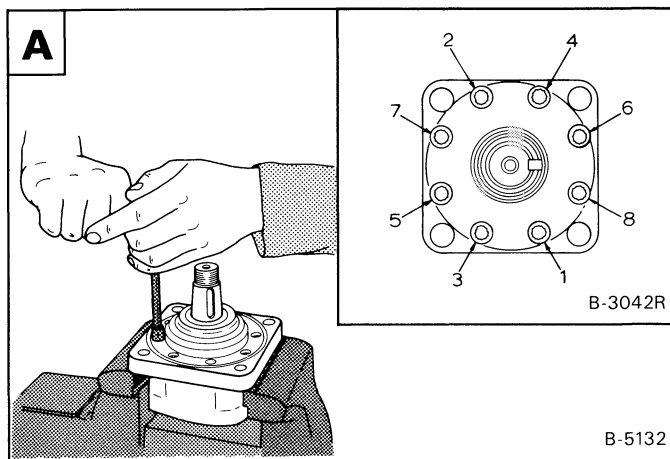
Remove the O-rings (large and small) from the bearing housing **D**.



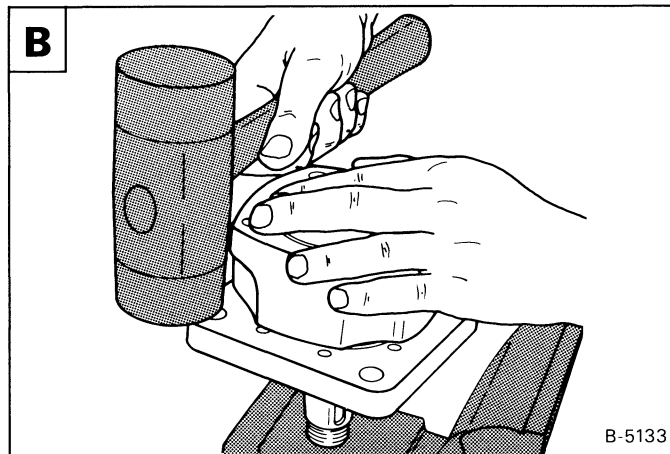
## HYDROSTATIC MOTOR (Cont'd)

Remove the eight bolts at the bearing housing **A**.

Assembly: Tighten the bolts to 20 ft.lbs. (27 Nm) torque.

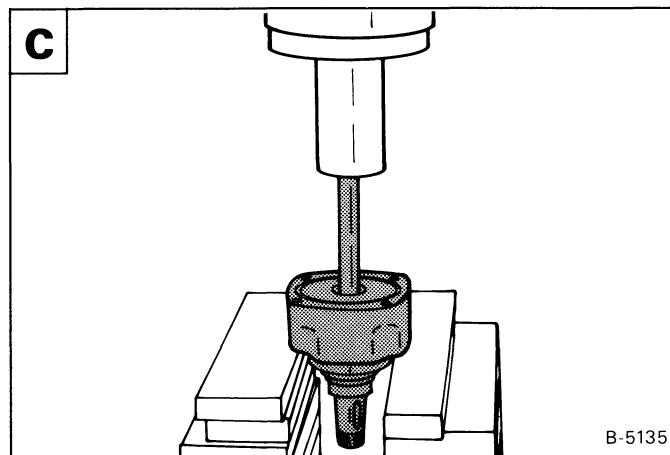


Remove the mounting flange from the housing **B**.

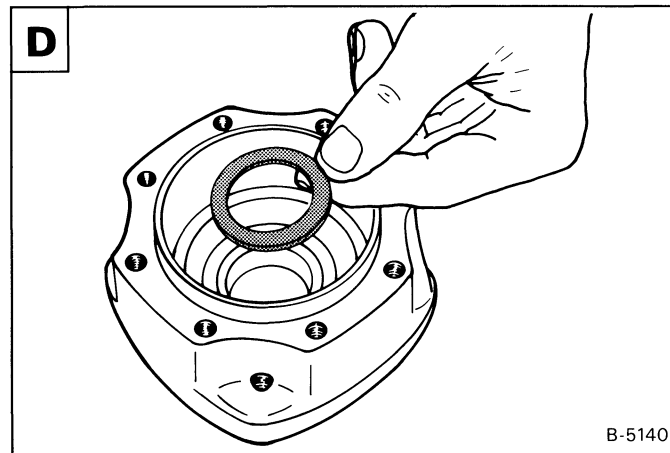


Use a press, remove the shaft and bearing assembly **C**.

**NOTE:** If there is any wear or damage to the shaft or bearing assembly, you must replace the complete unit.



Remove the seal from the bearing housing **D**.



## HYDROSTATIC MOTOR (Cont'd)

Assembly: Put the bearing housing on a smooth surface with the largest opening up **A**. Take the largest diameter half of the seal tool and lubricate the inside.

Install the seal tool into the bearing housing **A**.

Install the shaft face seal (with the inside edge up) into the seal tool.

Install the small diameter of the seal tool and push the seal into position **B**.

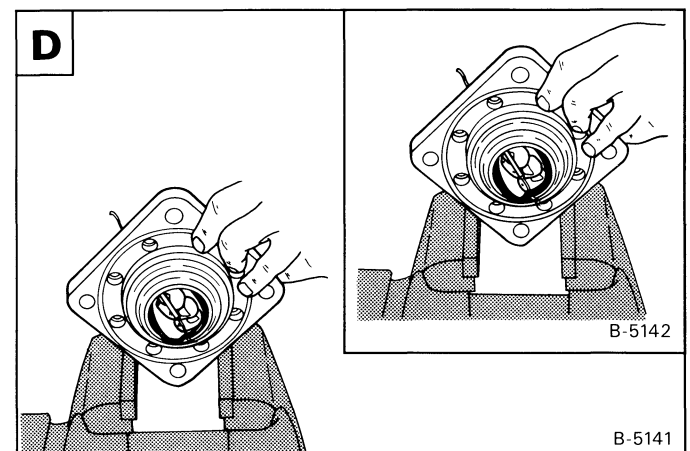
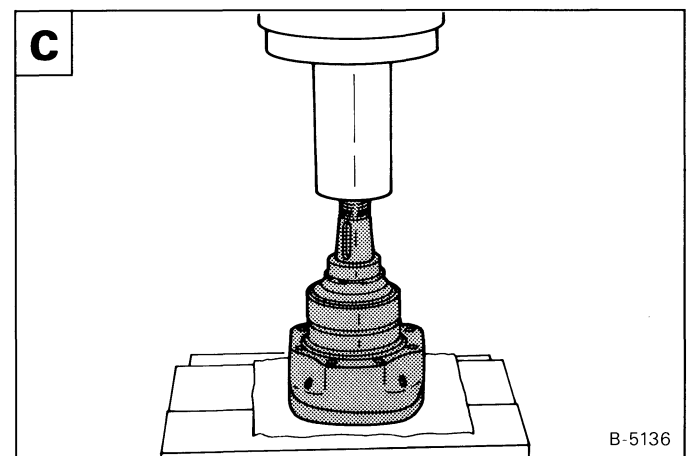
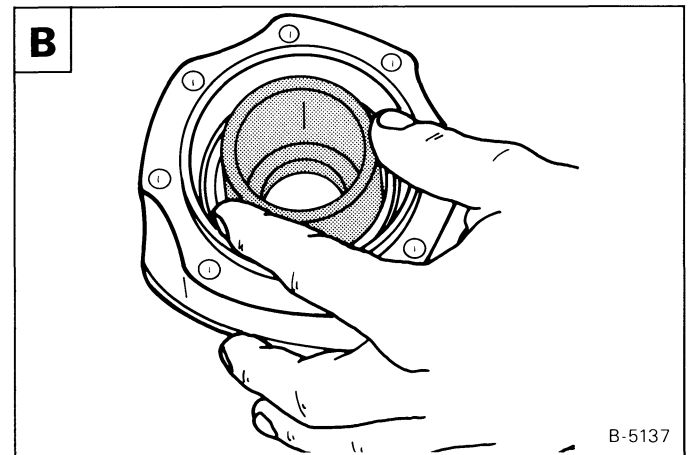
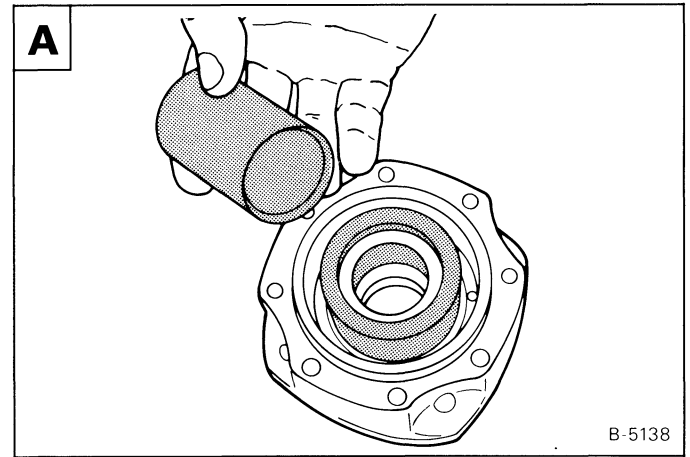
Press the shaft and bearing assembly into the bearing housing **C**.

Be careful not to damage the shaft seal. Turn the shaft several times to make sure that the shaft turns freely.

### MODEL: 109-1052-005

Remove the back-up washer and seal from the mounting flange **D**.

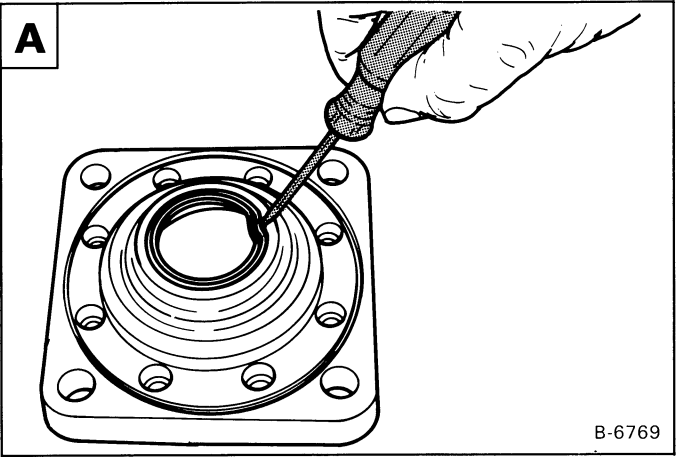
Assembly: Use the correct size seal driver tool and install the back-up washer and seal.



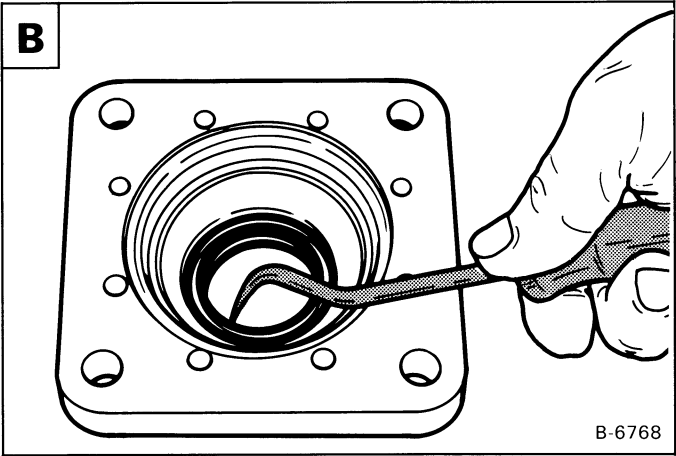
**HYDROSTATIC MOTOR (Cont'd)**

**MODEL: 109-1052-006 & Above**

Remove the dust seal from the mounting flange **A** .

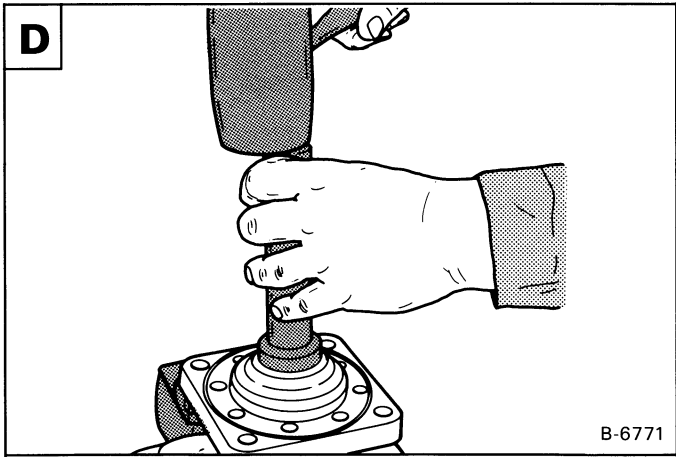
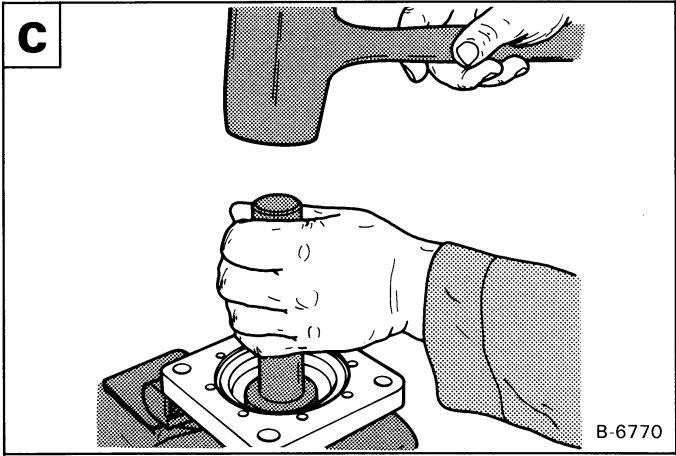


Remove the shaft seal and brass back-up ring **B** .



Assembly: Use the correct size seal driver tool and install the shaft seal and the dust seal **C** **D** .

**NOTE:** Always use new O-rings, gaskets and seals when assembling the hydrostatic motor.



## HYDROSTATIC MOTOR (Cont'd)

### Inspection

Clean all the parts in solvent and use air pressure to dry them. DO NOT use cloth or paper because small pieces of material can get into the system and cause damage.

Before the motor is assembled, check the following items:

Check the geroler roller and rotor for wear and scratches **A**.

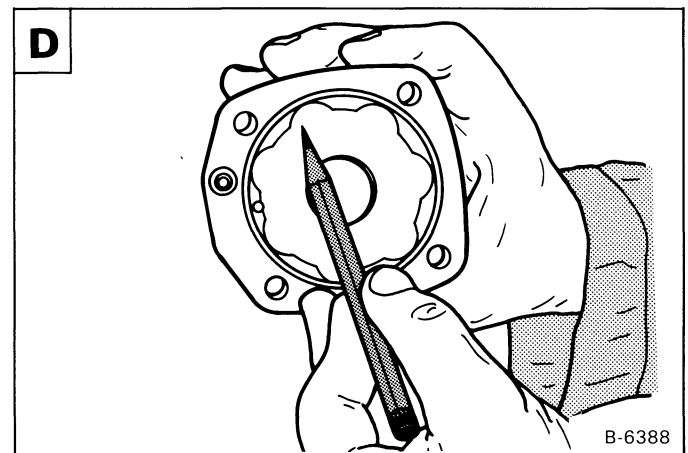
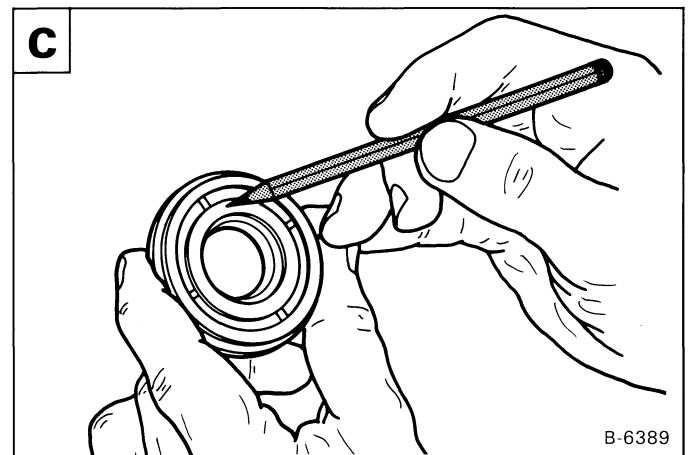
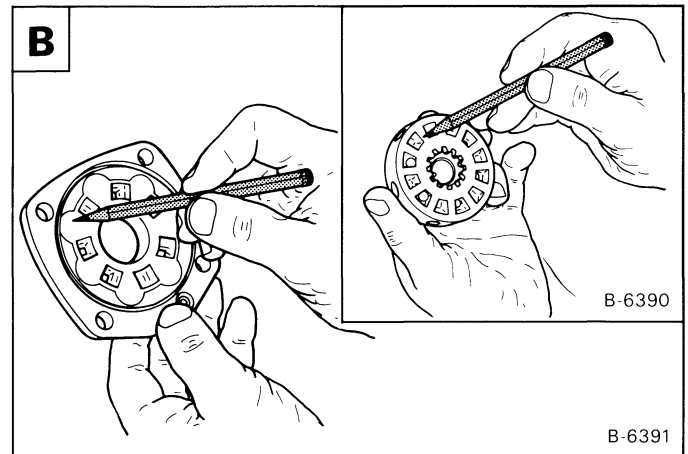
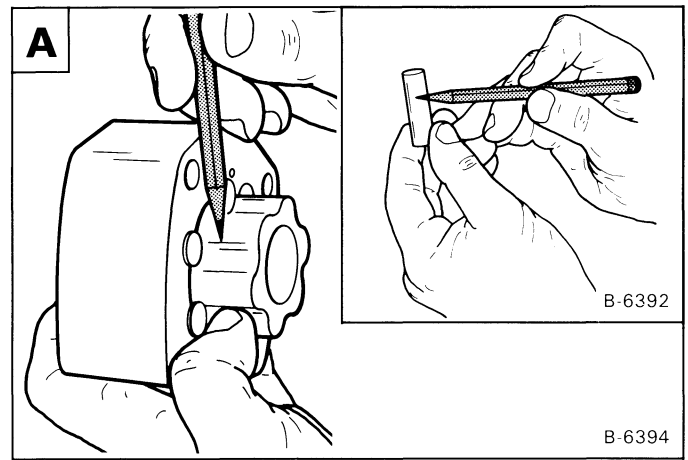
**NOTE:** Put all the rollers back in their position.

Check the valve plate for scratches **B**.

Check the balance plate for scratches **C**.

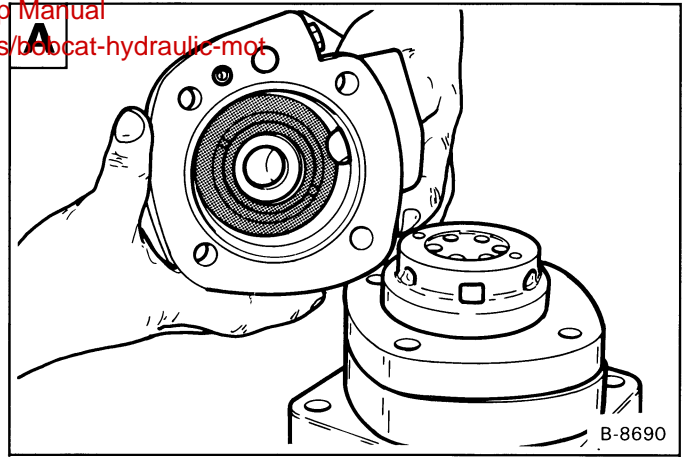
Check the valve drive and main drive for wear.

Check the end plate surface for scratches **D**.



## HYDROSTATIC MOTOR (Cont'd)

Assembly: When installing the balance plate in the end housing, put your finger through the hole and hold it in position until the housing is in position **A**.



### Timing the Hydrostatic Motor

The timing of the motor controls the direction of rotation of the drive shaft of the motor. The timing parts are as follows:

1. Geroler (Item 1) **B**.
2. Valve Drive (Item 2) **B**.
3. Valve Plate (Item 3) **B**.
4. Valve (Item 4) **B**.

Find the largest opening between the geroler star and the geroler ring. Mark the outside of the geroler ring at that point **B**.

Align the two drain holes and the three pressure holes in the geroler ring with the same holes in the mounting flange. Then install the geroler assembly.

Install all the new O-rings.

Install the valve drive **B**.

Align the drain hole in the valve plate with the drain hole in the geroler. Install the valve plate with the O-ring toward the geroler. Make sure the slot opening of the valve plate is in alignment with the largest opening of the geroler.

Install the valve plate **B**.

Install the valve on the valve plate. Make alignment with one of the side openings with the mark on the geroler. Turn the valve **clockwise** a small amount until the teeth on the valve drive engage.

Sample of manual. Download All 184 pages at:

<https://www.arespairmanual.com/downloads/bobcat-hydraulic-motor-service-repair-workshop-manual/>

