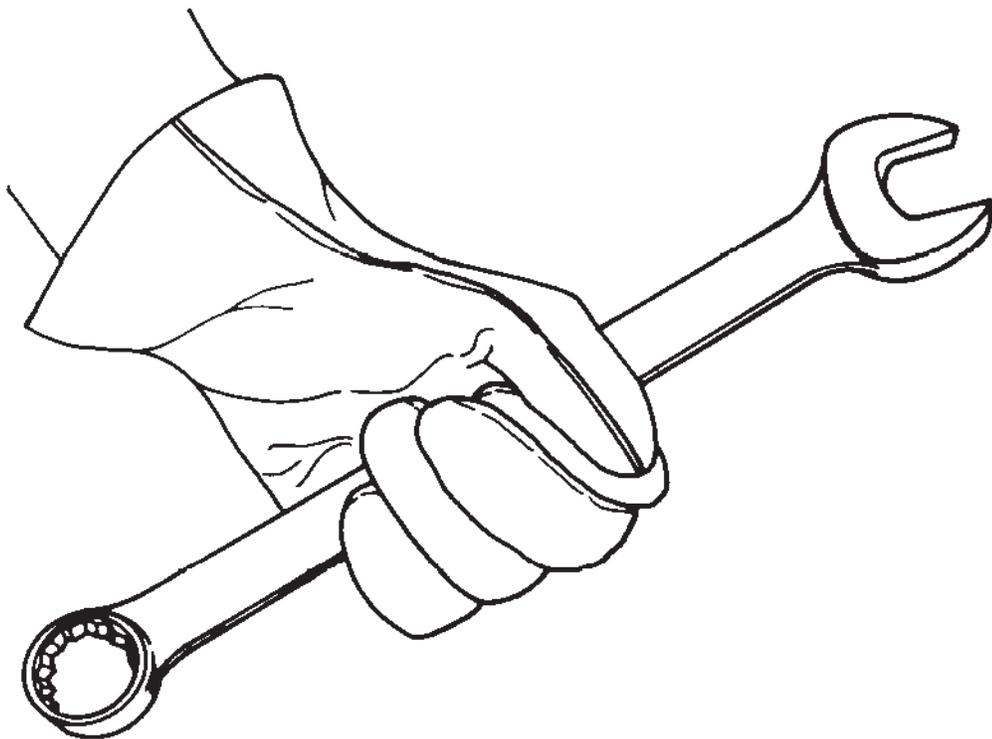


Product: Bobcat Hydrostatic Pump Service Repair Workshop Manual
Full Download: <https://www.aresairmanual.com/downloads/bobcat-hydrostatic-pump-service-repair-workshop-manual/>



HYDROSTATIC PUMP

COMPONENT REPAIR MANUAL



MELROE
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Sample of manual. Download All 190 pages at:
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6570269(3-86)

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Sample of manual. Download All 190 pages at:
<https://www.arepairmanual.com/downloads/bobcat-hydrostatic-pump-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 Pumps.

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

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

SAFETY INSTRUCTIONS

We Care About Your Safety.



! WARNING

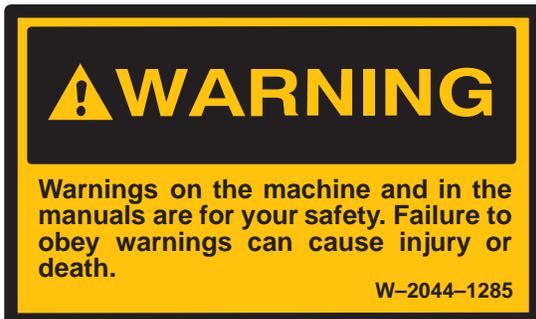
Wear safety glasses to prevent eye injury when any of the following conditions exist:

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

W-2019-1285

BEFORE YOU WORK ON THE HYDROSTATIC PUMP

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



! WARNING

Warnings on the machine and in the manuals are for your safety. Failure to obey warnings can cause injury or death.

W-2044-1285



IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

I-2019-0284



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INDEX

HYDROSTATIC PUMP MANUAL INDEX

MODELS	S/N	TAB	SECTION	MANUFACTURER
farmboy, 440, 440B, 443	All	1	A	Cessna
530, 533	All	2	A	Vickers
540, 543	11999 & Below	2	A	Vickers
540, 543	12001 & Above	1	A	Cessna
630, 631, 632	All	2	B	Vickers
641, 642, 642B, 643	All	2	B	Vickers
720, 721, 722	All	2	A	Vickers
730, 731, 732	All	2	B	Vickers
741, 742, 743	All	2	B	Vickers
750 Series	All	3	D	Sundstrad
* 825, T135 & T136	All	1	B	Cessna
843	All	1	C	Cessna
853	All	3	E	Sundstrand
943	All	3	A	Sundstrand
974, 975	ALL	3	B	Sundstrand
1213	All	1	C	Cessna
1600	11999 & Below	2	B	Vickers
1600	12001 & Above	3	C	Sundstrand
2000	All	2	B	Vickers
2400	All	3	C	Sundstrand
Glossary of Terms	TAB #4			

* T116 Only: Refer to the Hydraulic Pump Manual, TAB 1, Section F for repair procedure.



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CESSNA PUMP

Section A

PARTS IDENTIFICATION

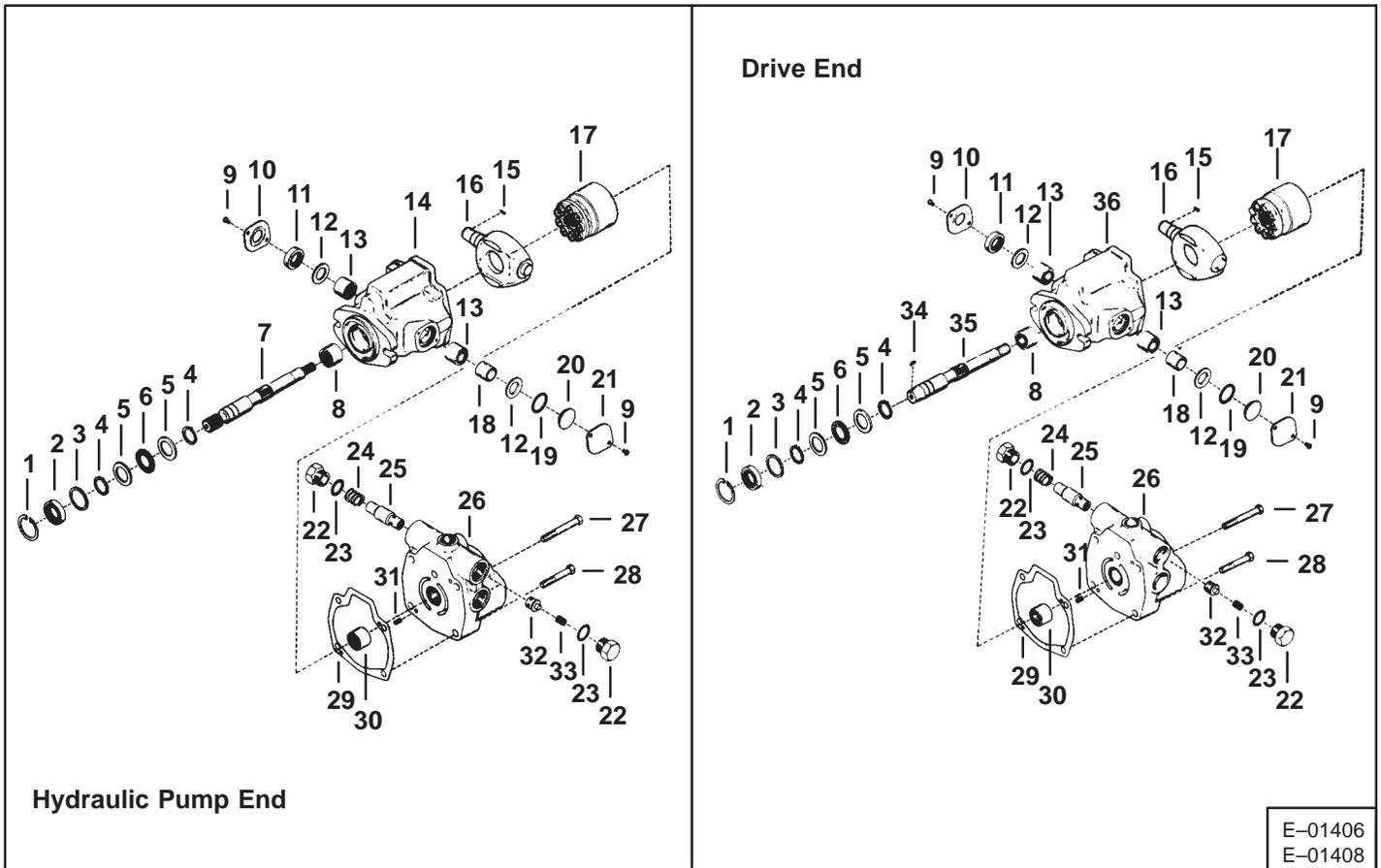
MODEL: farmboy, 440, 443	A-1
MODEL: 540, 543 (S/N 12001 & Above)	A-2

HYDROSTATIC PUMP

Disassembly and Assembly	A-3
Inspection	A-8



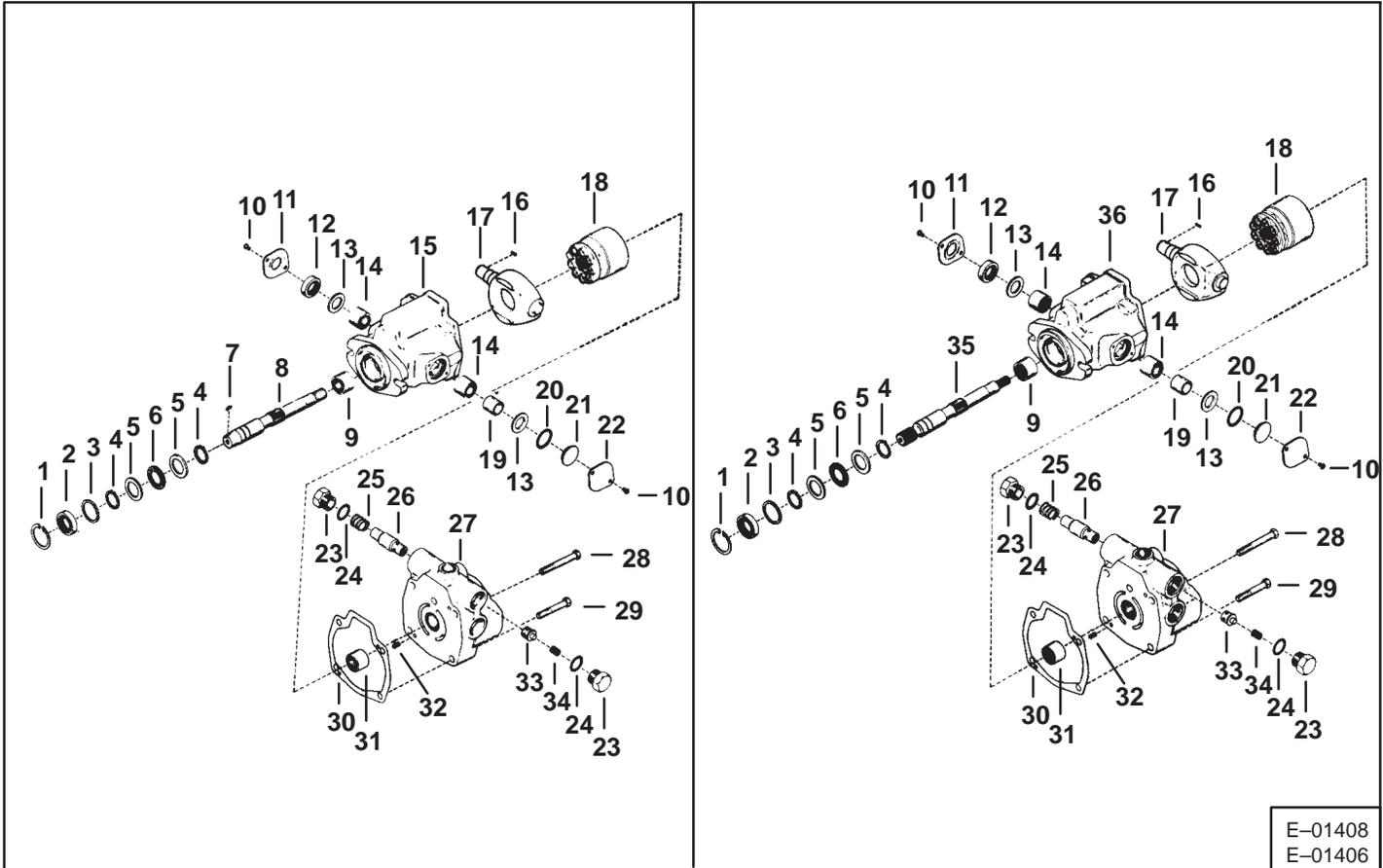
PARTS IDENTIFICATION



MODEL: farmboy, 440, 443

Ref.	Description	Ref.	Description
1.	RING, retaining	18.	BUSHING
2.	SEAL, shaft	19.	O-RING
3.	WASHER	20.	COVER
4.	RING, retaining	21.	COVER
5.	RACE	22.	PLUG
6.	BEARING, thrust	23.	O-RING
7.	SHAFT, drive	24.	SPRING
8.	BEARING	25.	VALVE, relief
9.	SCREW	26.	PLATE, back
10.	COVER	27.	BOLT
11.	SEAL	28.	BOLT
12.	WASHER	29.	GASKET
13.	BEARING	30.	BEARING
14.	HOUSING	31.	DOWEL
15.	KEY	32.	SEAT
16.	PLATE, yoke	33.	SPRING
17.	ROTATING GROUP	34.	KEY
		35.	SHAFT, drive
		36.	HOUSING

PARTS IDENTIFICATION



MODEL: 540, 543 (S/N 12001 & Above)

Ref.	Description
1.	RING, retaining
2.	SEAL
3.	WASHER
4.	RING, retaining
5.	RACE
6.	BEARING, thrust
7.	KEY
8.	SHAFT, drive
9.	BEARING
10.	SCREW
11.	COVER
12.	SEAL
13.	WASHER
14.	BEARING
15.	HOUSING
16.	KEY
17.	PLATE, yoke
18.	ROTATING GROUP

Ref.	Description
19.	BEARING
20.	O-RING
21.	COVER
22.	COVER
23.	PLUG
24.	O-RING
25.	SPRING
26.	VALVE, relief
27.	PLATE, back
28.	BOLT
29.	BOLT
30.	GASKET
31.	BEARING
32.	DOWEL
33.	SEAT
34.	SPRING
35.	SHAFT, drive
36.	HOUSING

HYDROSTATIC PUMP

THE ILLUSTRATIONS MAY NOT BE EXACTLY THE SAME AS THE HYDROSTATIC PUMP YOU ARE WORKING ON, BUT THE PROCEDURE IS THE SAME.

Disassembly and Assembly

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

MEL-1219-4 – Torx Socket

IMPORTANT

When repairing 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.

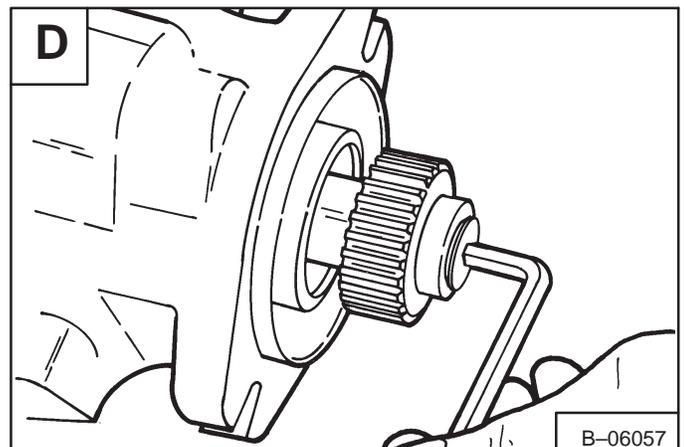
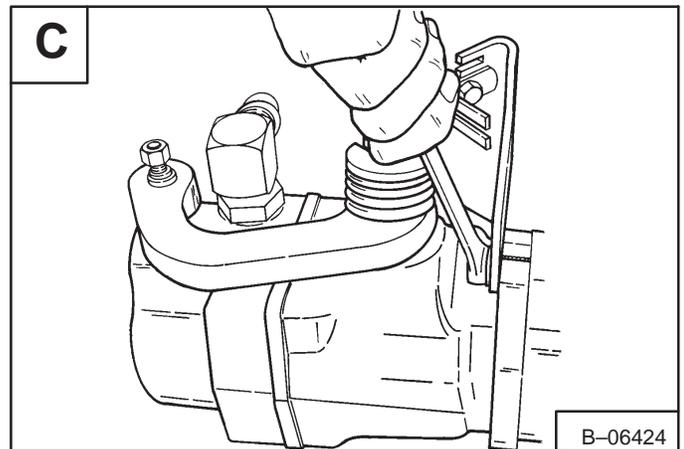
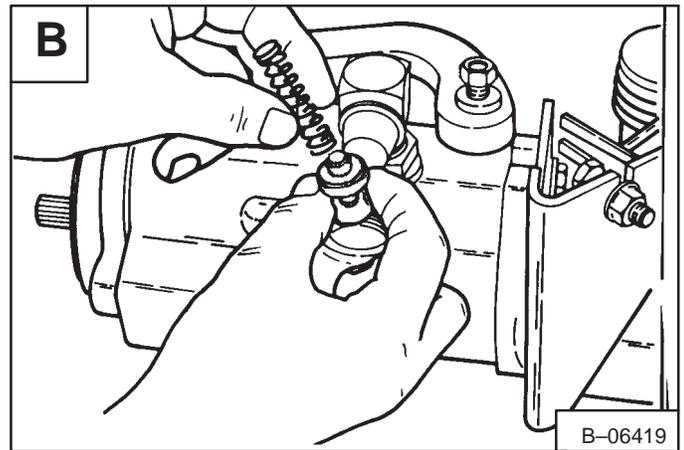
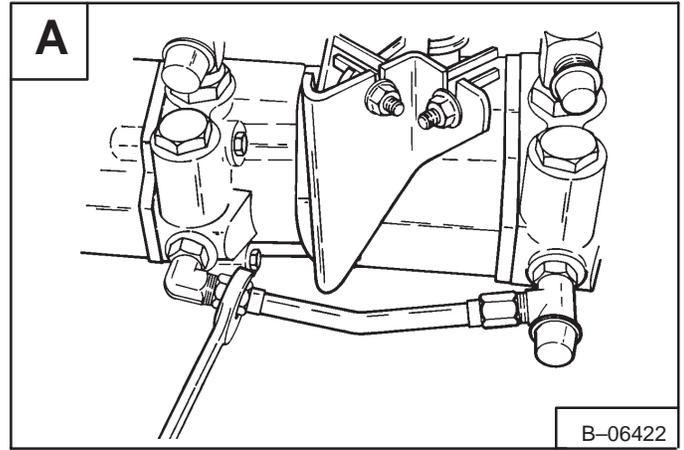
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NOTE: Before you begin to disassembly the hydrostatic pump, remove the hydraulic pump from the unit.

- ☆ Remove the charge tubeline [A].
- ☆ Remove the four replenishing valves from the pump [B].
- ☆ Remove the bolts and center bracket from the pumps [C].
- ☆ Assembly: Tighten the bolts to 27–31 ft.-lbs. (37–42 Nm) torque.
- ☆ Separate the pump housing from the center section.
- ☆ Remove the coupler from the center section.
- ☆ Remove the pintle levers from the pump.
- ★ Remove the bolt and splined gear from the pump shaft [D].
- ★ Assembly: Tighten the bolt to 25–28 ft.-lbs. (34–38 Nm) torque.

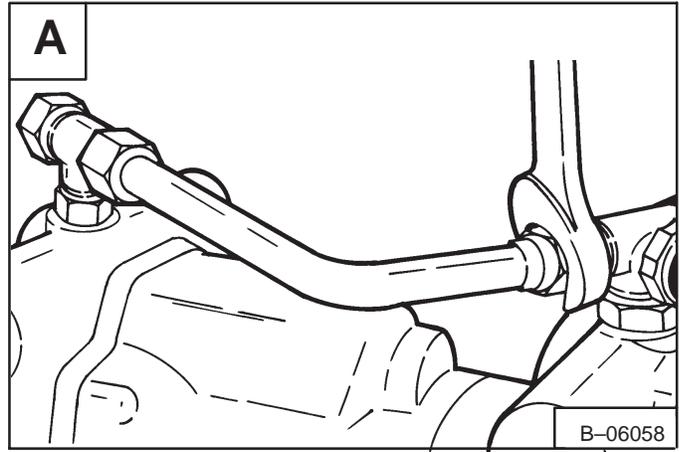
☆ farmboy, 440, 443 Procedure Only

★ 540, 543 Procedure Only



HYDROSTATIC PUMP (Cont'd)

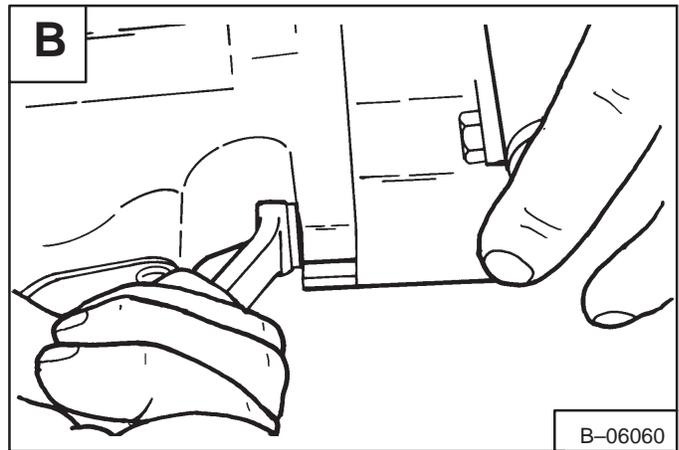
★ Remove the charge tubeline between the two pumps [A].



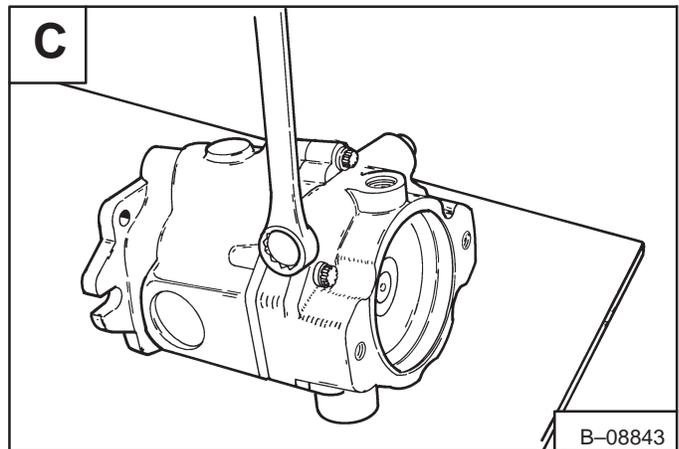
★ Remove the two bolts which fasten the two pumps together [B].

★ Assembly: Tighten the bolts to 25–28 ft.-lbs. (34–38 Nm) torque.

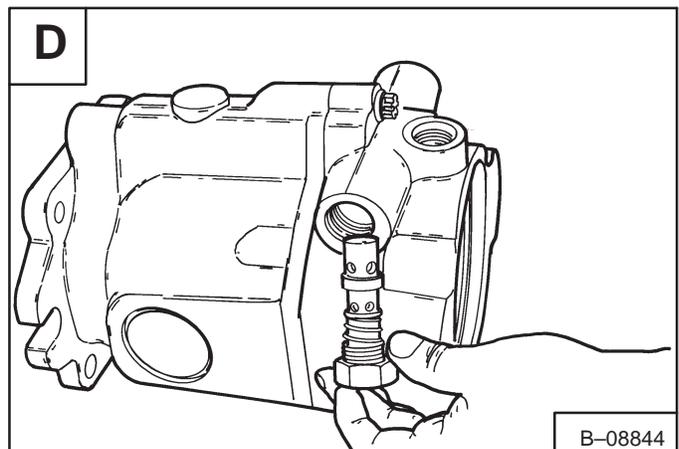
★ Separate the pumps and remove the coupler.



★ Remove the plugs at the high pressure replenishing valves [C].



★ Remove the high pressure replenishing valves [D].



☆ farmboy, 440, 443 Procedure Only

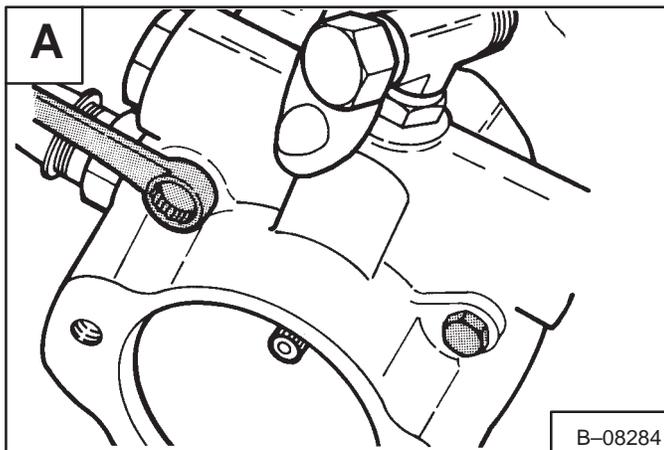
★ 540, 543 Procedure Only

HYDROSTATIC PUMP (Cont'd)

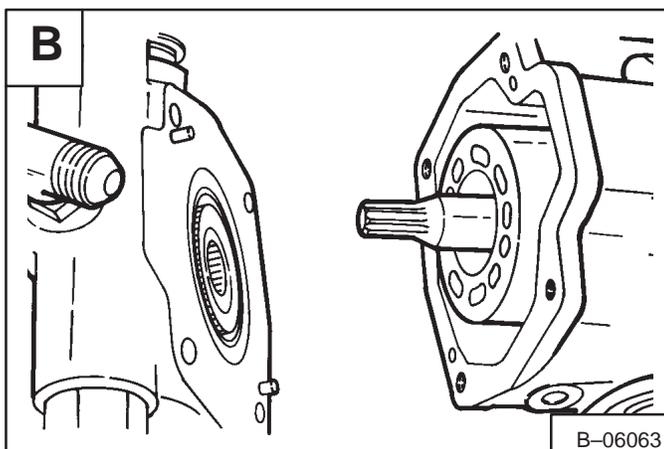
NOTE: The hydrostatic pump front and rear internal parts are the same. Keep all the parts for one pump separated from the parts for the other pump.

Remove the four bolts from the center section [A].

Assemble: Tighten the bolts to 17–21 ft.-lbs. (23–28 Nm) torque.

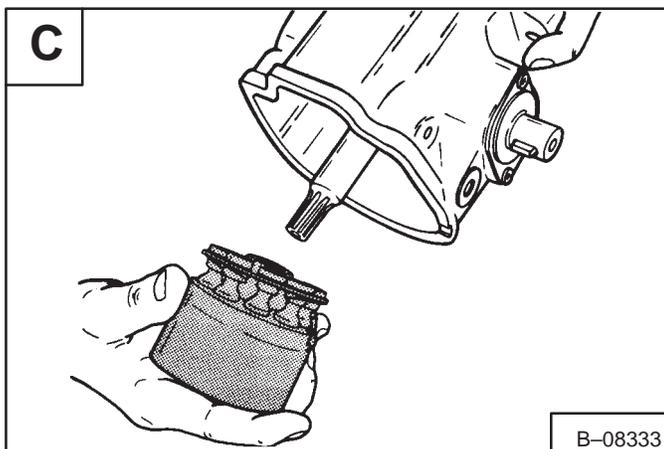


Remove the center section [B].



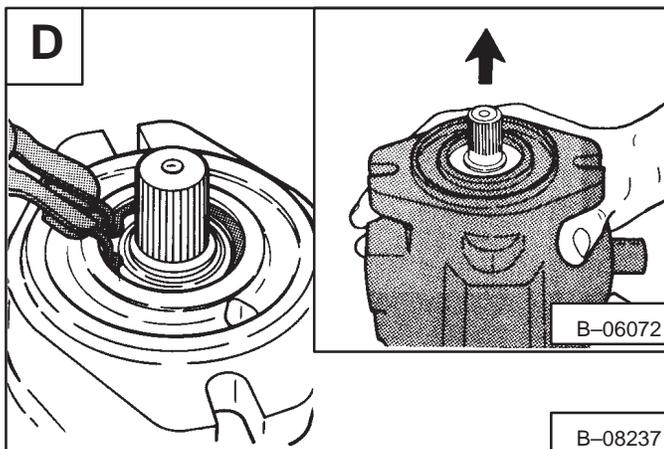
Remove the rotating group [C].

Put your hand under the rotating group and turn the pump housing around so the rotating group will slide into your hand.



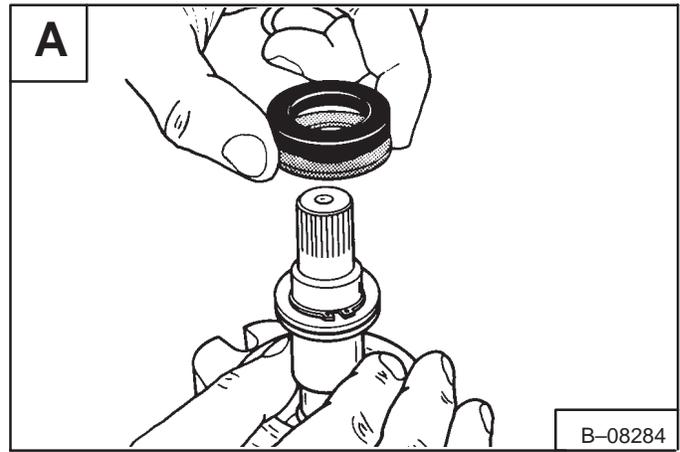
Remove the snap ring from the rear housing [D].

Hit the shaft on a block of wood to remove the bearing and shaft [D].



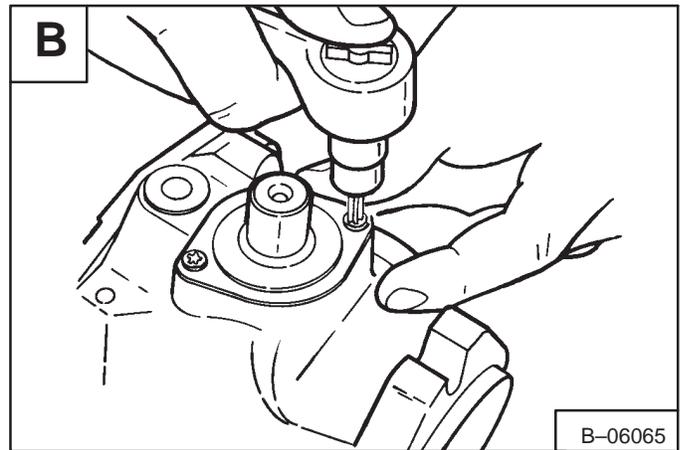
HYDROSTATIC PUMP (Cont'd)

Remove the seal and back-up washer from the shaft [A].

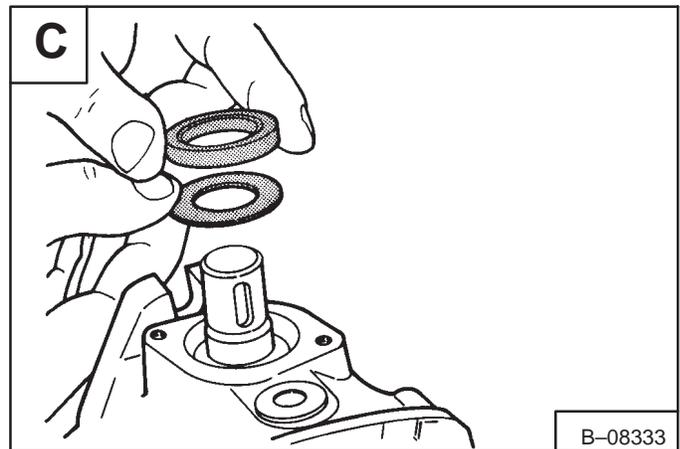


Remove the bolts at the cover of the long pintle shaft [B].

Remove the pintle cover.

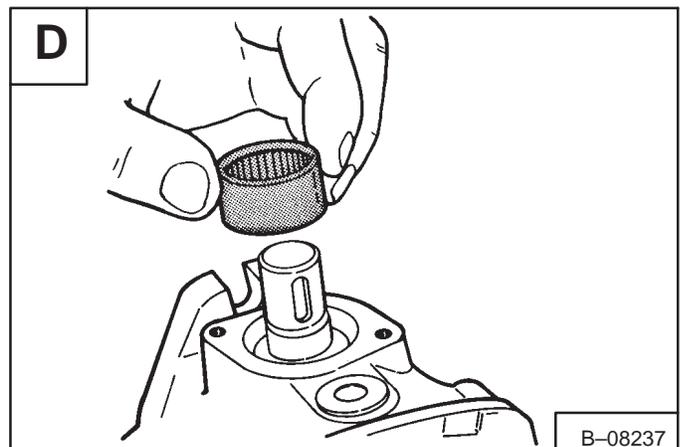


Remove the seal and washer [C].



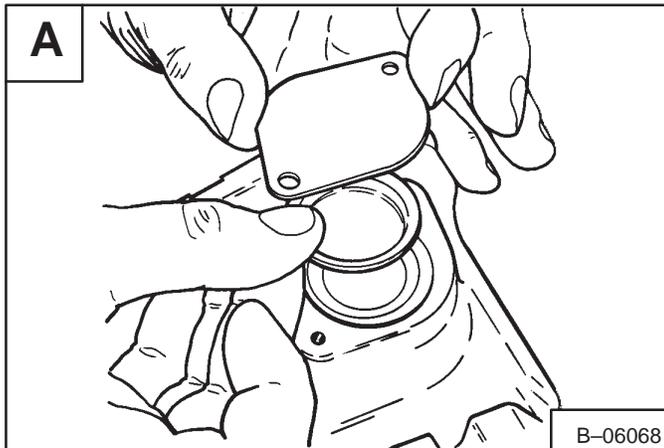
Remove the pintle shaft bearing [D].

Assembly: When installing the bearing, make sure the numbered side of the bearing is toward the outside.

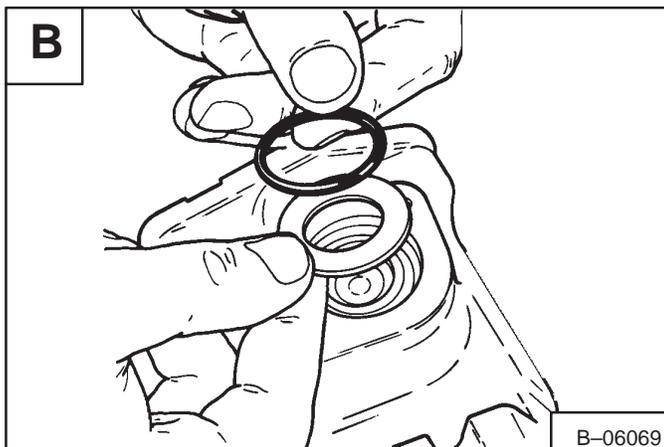


HYDROSTATIC PUMP (Cont'd)

Remove the screws and cover from the short pintle shaft [A].

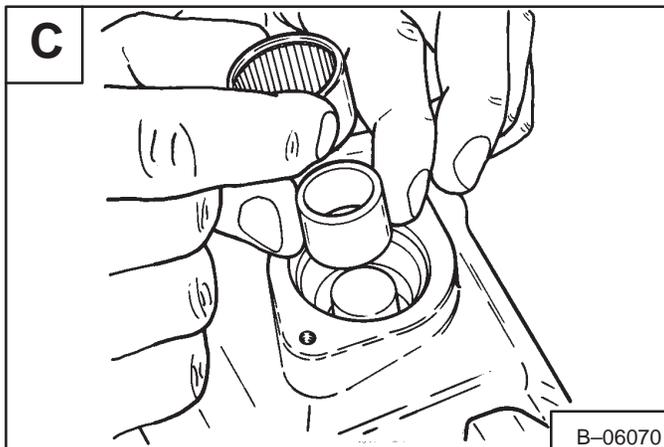


Remove the washer and O-ring from the shaft [B].

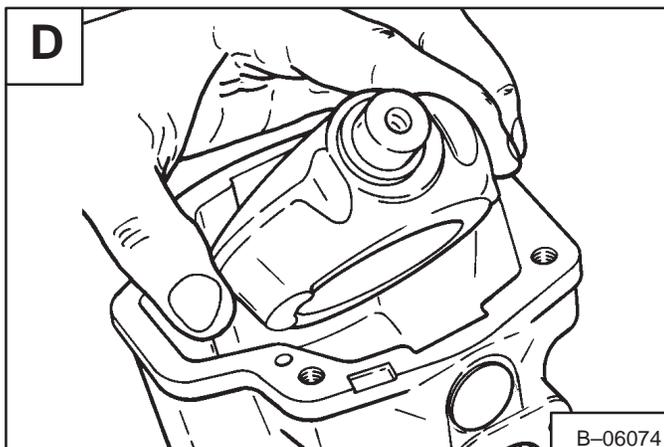


Remove the bearing and bearing race from the shaft [C].

Assembly: When installing the race, make sure that the chamfer side of the race is toward the cam plate.



Remove the cam plate from the housing [D].



HYDROSTATIC PUMP (Cont'd)

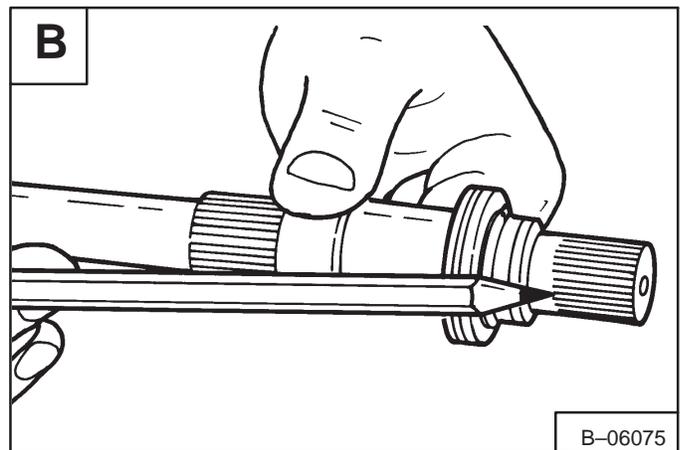
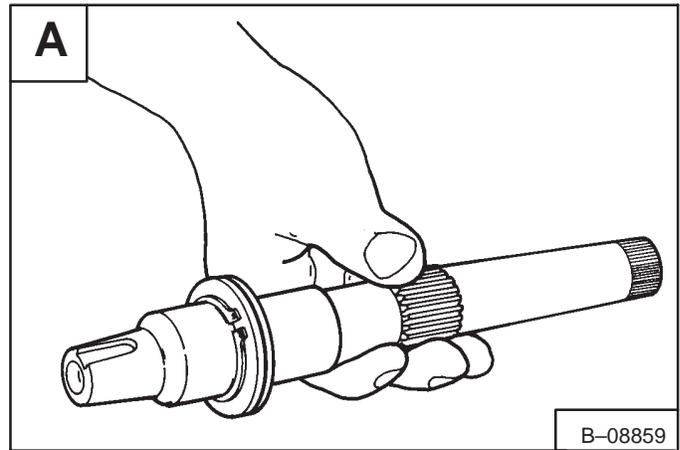
Inspection

NOTE: Keep all the parts for one pump separated from the parts for the other pump.

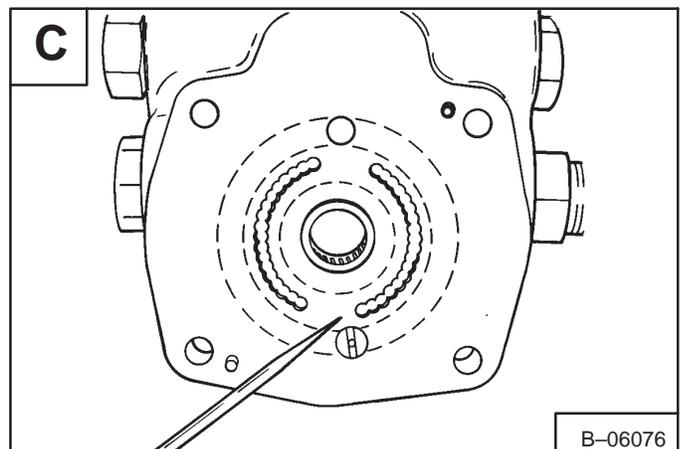
Clean all parts in solvent and use air pressure to dry them. **DO NOT** use cloth or paper because small pieces of material can get into the system and cause damage.

Inspect the input drive shafts, bearings and races for wear and damage to the shaft splines **[A]** & **[B]**.

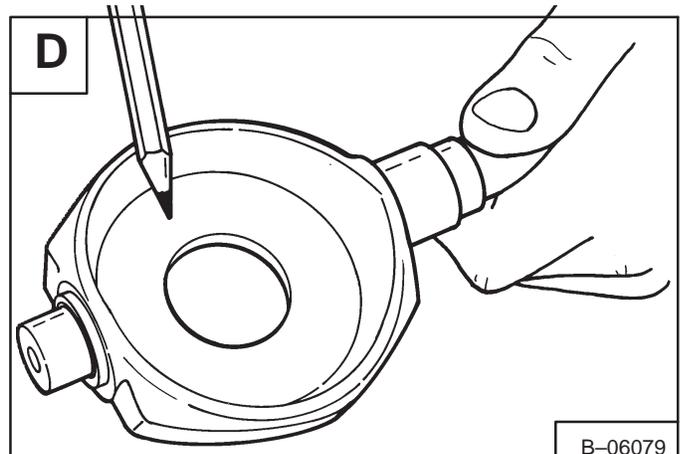
The bearings in the center section and housing, only have to be removed if they are loose and show wear. Use a press to remove and replace the bearings.



Inspect the flat surface of the sections. The finish must be smooth and free of grooves. If the grooves can be felt on the finished surface with a fingernail, replace the part **[C]**.



Inspect the camplate for wear. The finish must be smooth and free of grooves. If the grooves can be felt with a fingernail, replace the camplate **[D]**.



HYDROSTATIC PUMP (Cont'd)

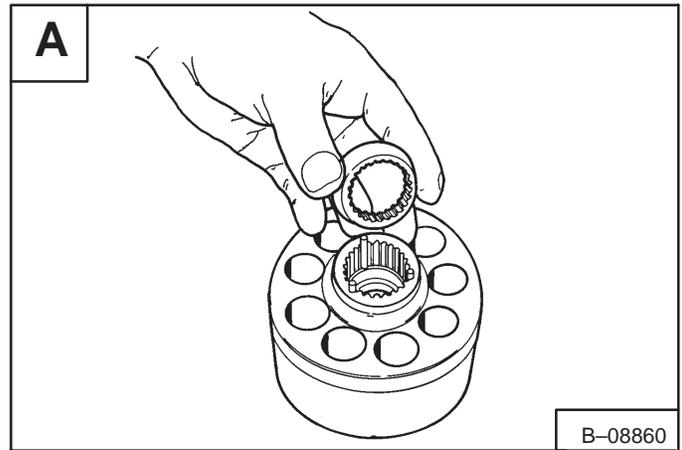
Inspect the rotating group as follows:

Check each piston in its bore. The piston must move freely.

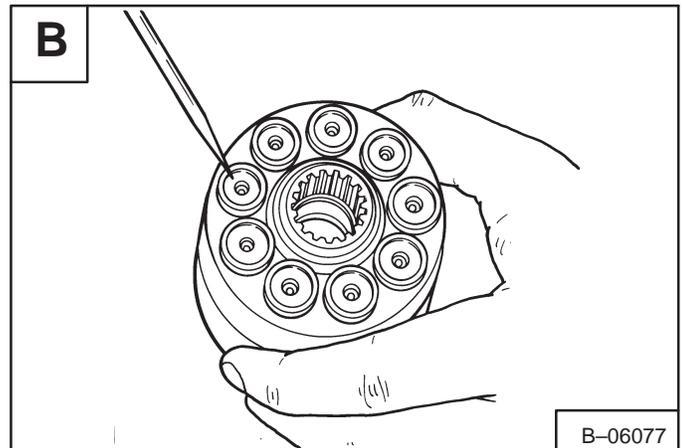
Check the pins for wear or damage [A].

All the pins must be the same length and must not be bend.

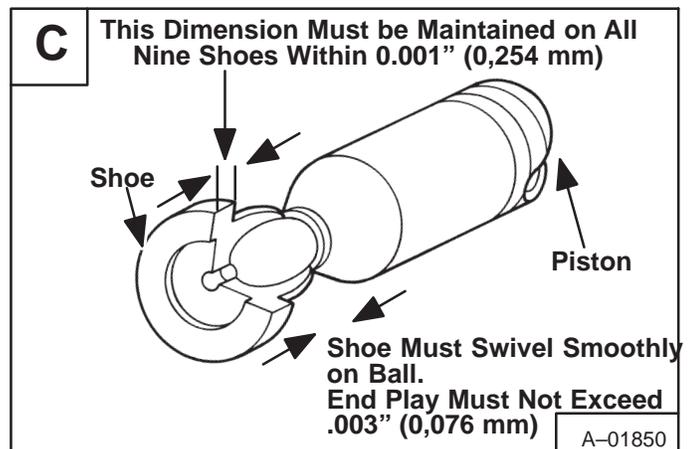
Check the spherical washer for sharp edges, wear or scratches [A].



Check the piston shoe for scratches [B].



Check the end play of each piston assembly [C]. Measure the thickness of each shoe. All shoes must be within 0.001" (0.025 mm) of each other [C].

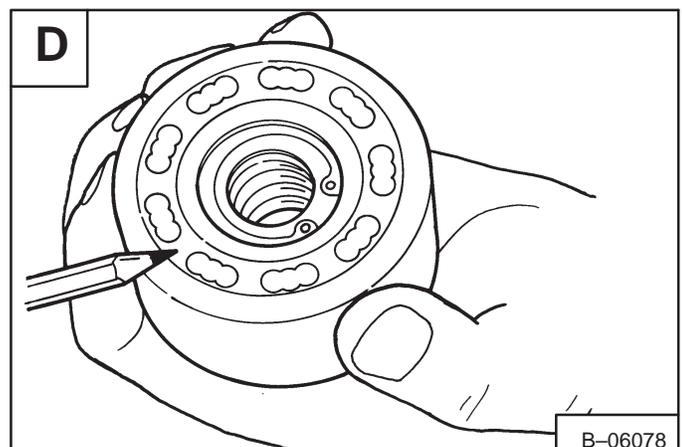


Check the flat surface of the piston block for being smooth and free of scratches [D].

Inspect the shoe plate for wear or cracks. If there is any defect in the rotating group, the complete unit must be replaced.

DO NOT use sandpaper or a file to remove scratches.

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





CESSNA PUMP

PARTS IDENTIFICATION

MODEL: 825 B-1, B-2

HYDROSTATIC PUMP

Disassembly and Assembly B-3

Inspection B-10

Section B



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PARTS IDENTIFICATION (Cont'd)

MODEL: 825

Ref.	Description
1.	SNAP RING
2.	SEAL, shaft
3.	WASHER
4.	SNAP RING
5.	RACE, thrust
6.	BEARING, thrust
7.	SHAFT
8.	BEARING
9.	KEY
10.	BUSHING
11.	COVER
12.	SNAP RING
13.	O-RING
14.	BEARING
15.	COVER
16.	O-RING
17.	CAMPLATE
18.	LOADING PINS
19.	ROTATING GROUP
20.	BOLT
21.	BEARING
22.	BOLT
23.	BRACKET
24.	ADAPTER
25.	CHARGE RELIEF
26.	O-RING
27.	GEROLER
28.	CHECK VALVES
29.	O-RING
30.	BACK-UP WASHER
31.	PLUG
32.	O-RING
33.	RELIEF VALVE
34.	COVER
35.	ROLL PIN
36.	GASKET
37.	BEARING
38.	HOUSING
39.	SHAFT
40.	COVER
41.	HOUSING
42.	CAMPLATE
43.	COVER
44.	BEARING (early models)
45.	CONNECTOR
46.	RING
47.	BOLT
48.	ADAPTER
49.	O-RING
50.	COVER

HYDROSTATIC PUMP

Disassembly and Assembly

IMPORTANT

When repairing 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.

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NOTE: Before you begin to disassemble the hydrostatic pumps, remove the steering linkage and the hydraulic pump.

Loosen the high pressure relief valve plugs (both sides) [A].

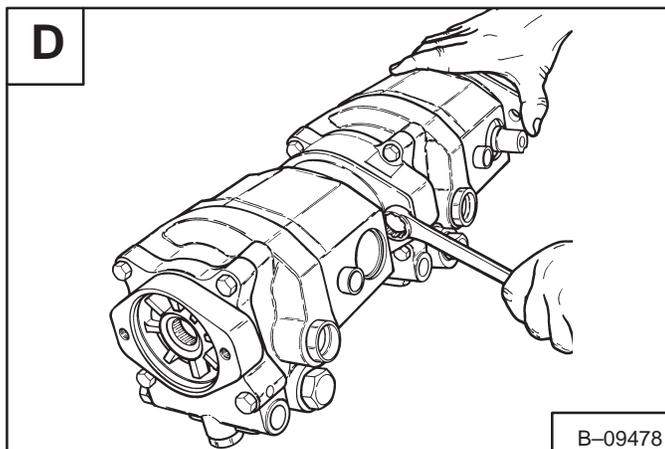
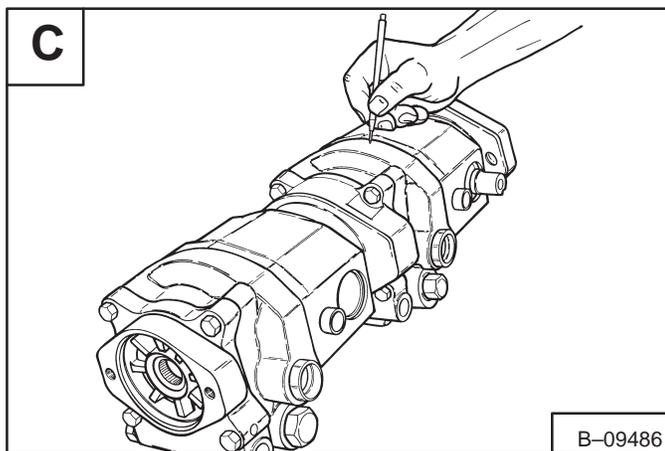
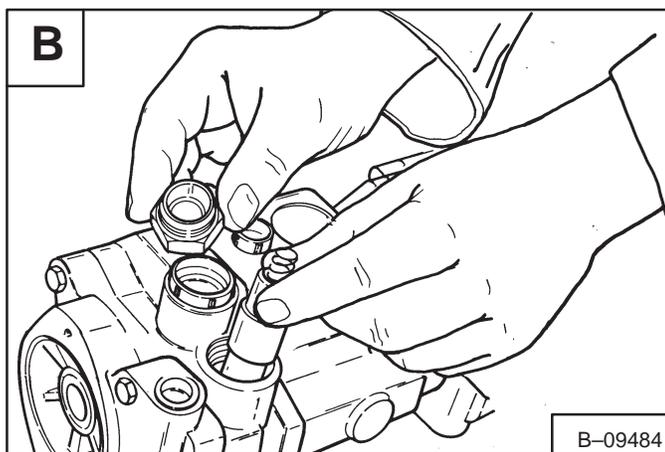
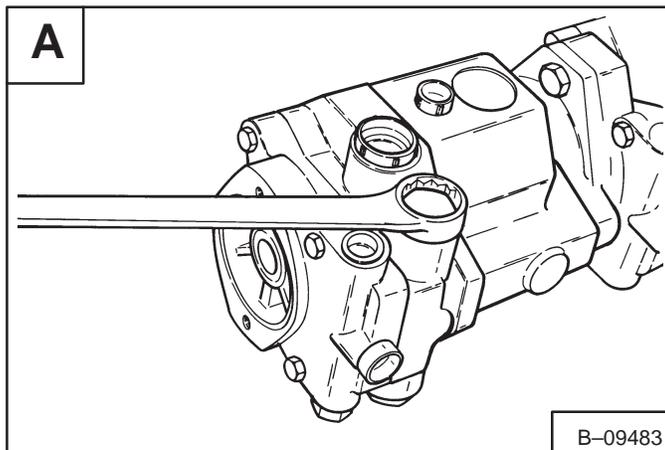
Remove the plug, spring and relief valve (both sides) [B].

NOTE: Later build models use a high pressure replenishing valve in forward drive of travel pump only.

Mark the hydrostatic pump housings for correct assembly [C].

Remove the two bolts from the center section [D].

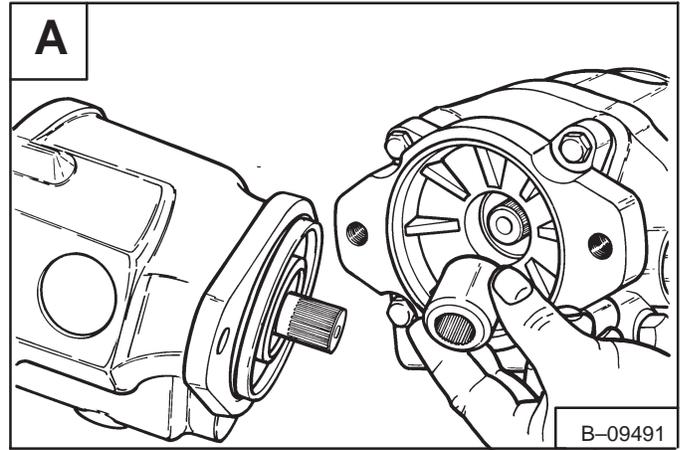
Assembly: Tighten the bolts to 90–100 ft.-lbs. (122–136 Nm) torque.



HYDROSTATIC PUMP

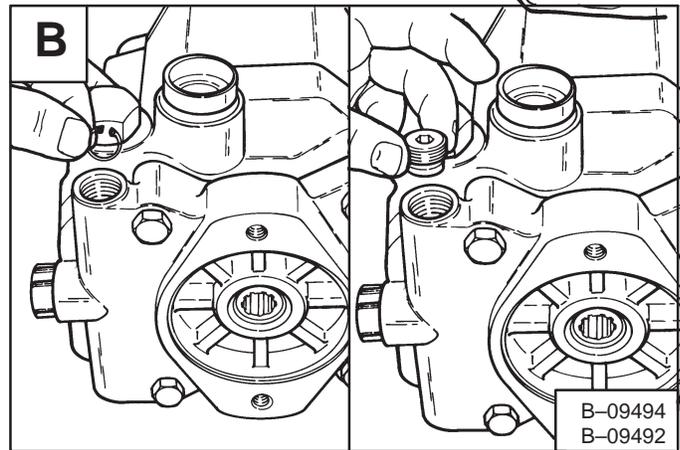
Pull the front and rear pump apart [A].

Remove the O-ring and the coupler [A].

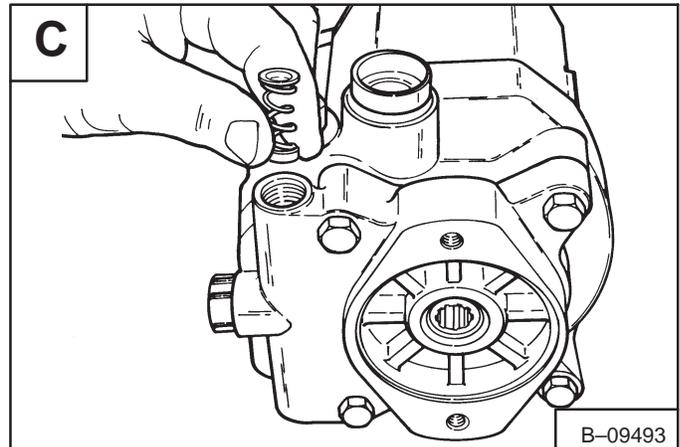


Front Pump

Remove the plug using an allen wrench or remove the snap ring using a snap ring pliers from the relief valve for the charge pump [B].



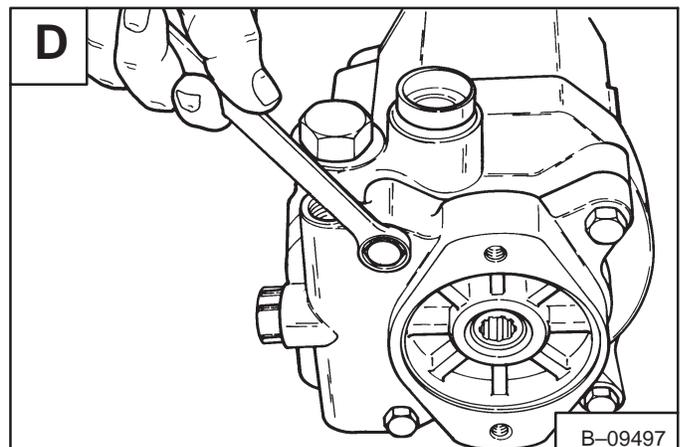
Remove the spring and poppet for the charge relief valve [C].



Remove the four bolts from the charge pump adapter plate [D].

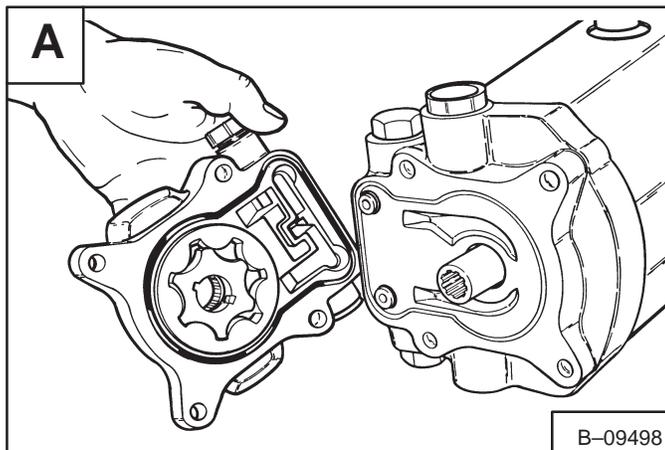
Assembly: Tighten the bolts to 27–31 ft.-lbs. (37–42 Nm) torque.

NOTE: There are two different length bolts, make sure to put them back in their correct location when assembling the pump.

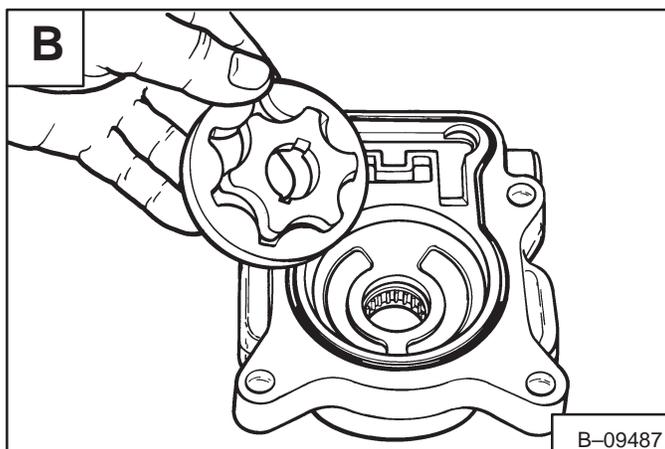


HYDROSTATIC PUMP (Cont'd)

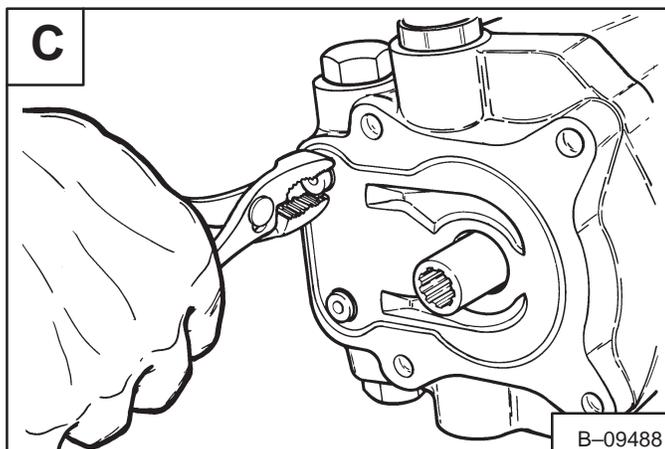
Remove the charge pump adapter plate [A].



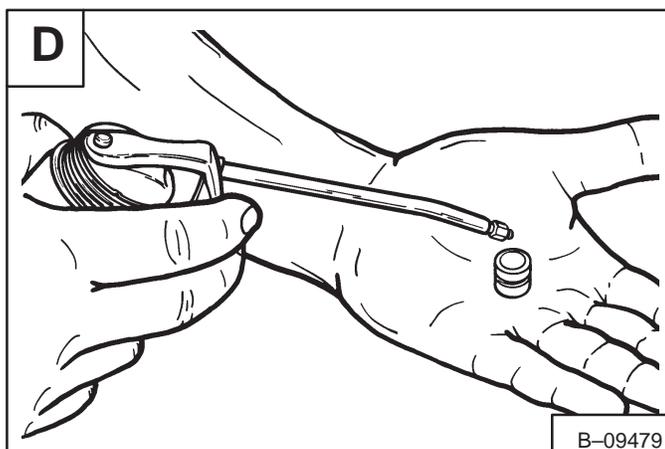
Remove the geroler ring and star [B].



Remove the check ball and seat [C].

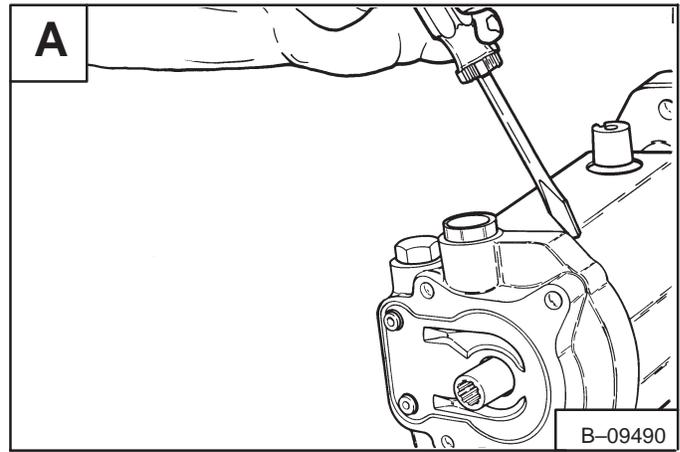


Assembly: Before installing the check ball and seat, put oil into the check valve, if there is no leakage, use the check valve again [D].

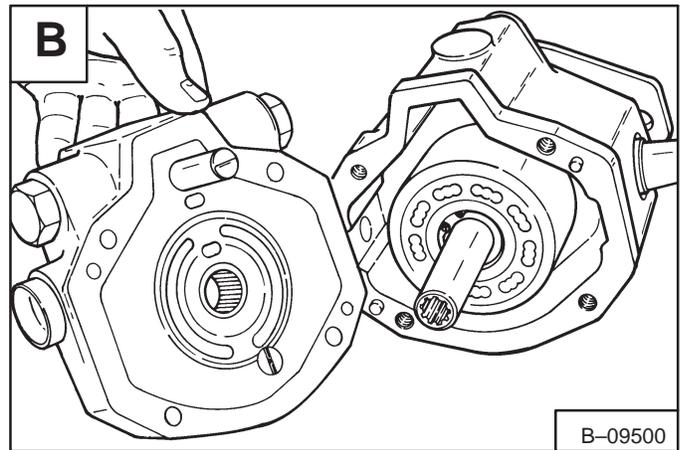


HYDROSTATIC PUMP (Cont'd)

Loosen the back plate by prying the back plate from the pump housing using a screwdriver [A].

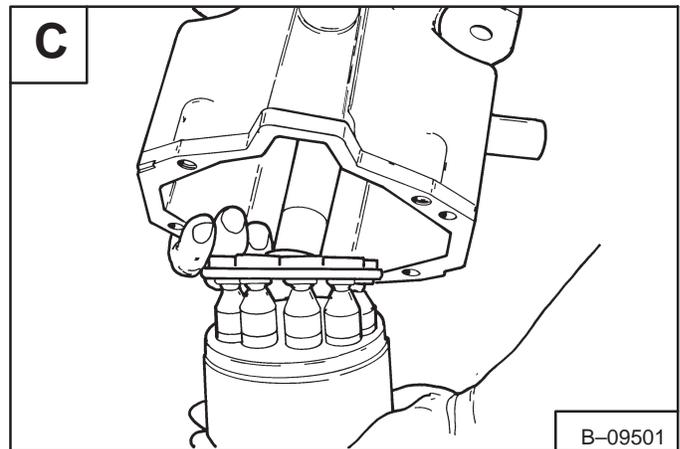


Remove the back plate from the housing [B].



Remove the rotating group [C].

Put your hand under the rotating group and turn the pump housing around so the rotating group will slide into your hand.

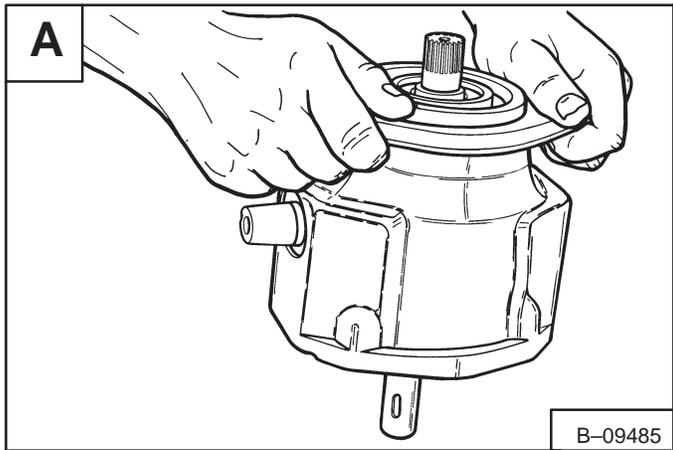


Remove the snap ring at the drive shaft [D].

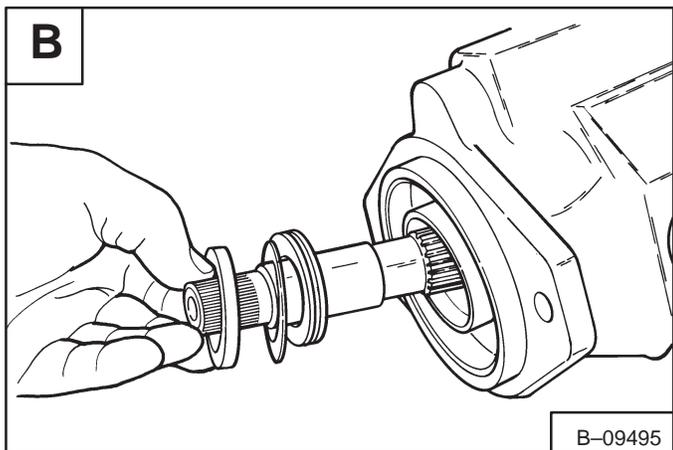


HYDROSTATIC PUMP (Cont'd)

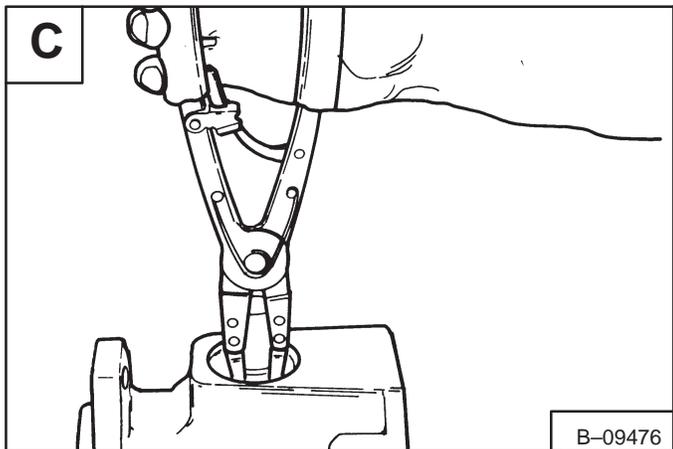
Hit the pump shaft on a block of wood to remove the shaft from the housing [A].



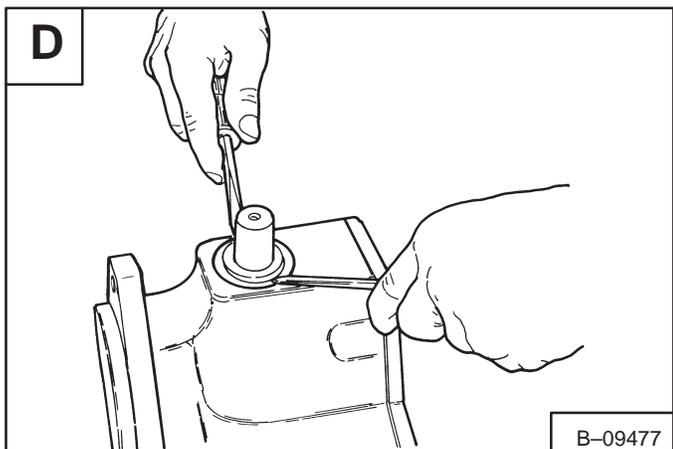
Remove the seal, back-up washer, bearing and shaft assembly [B].



Remove the snap ring at the pintle shaft cover [C].

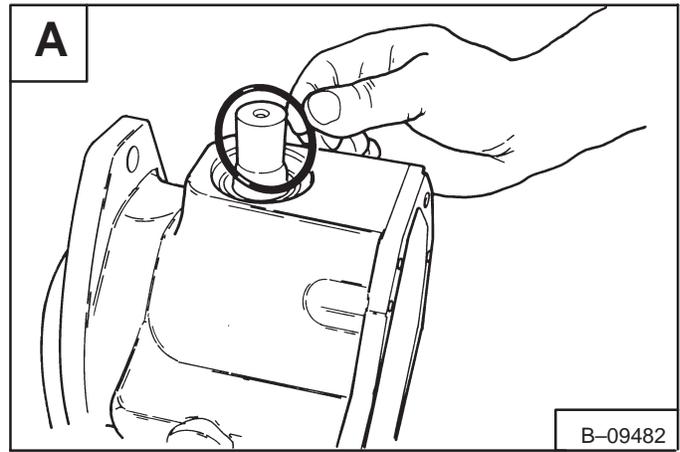


Remove the pintle shaft cover [D].



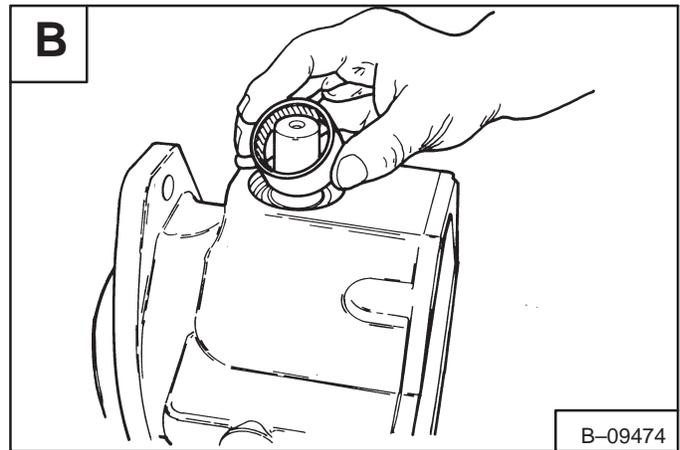
HYDROSTATIC PUMP (Cont'd)

Remove the O-ring [A].



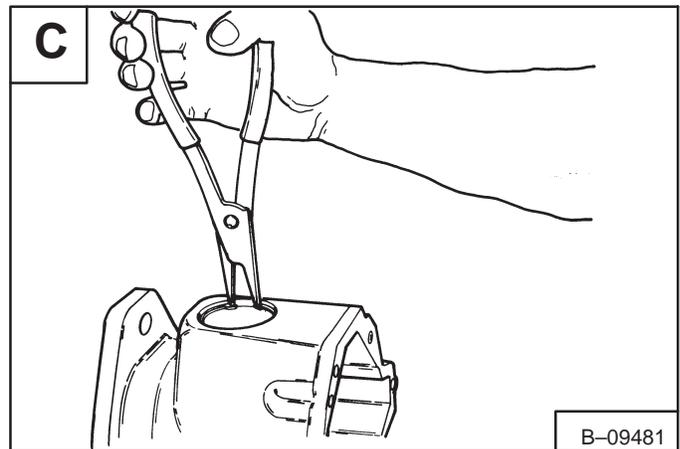
Remove the bearing from the pintle shaft [B].

Assembly: When installing the bearing, make sure the number side of the bearing is toward the outside.

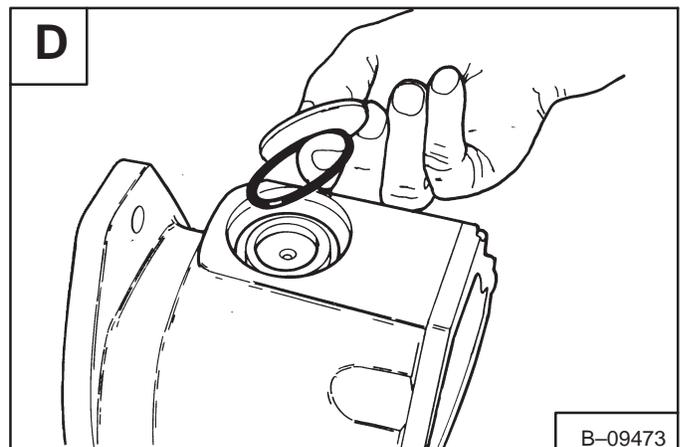


Remove the snap ring at the cover for the camplate shaft cover on the other side of the housing [C].

Remove the cover.



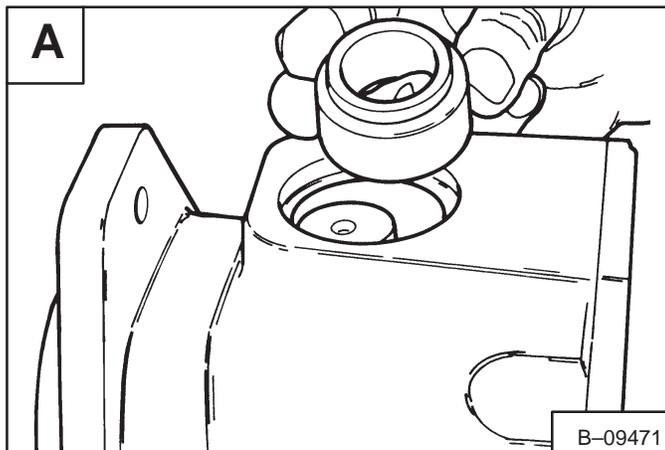
Remove the O-ring [D].



HYDROSTATIC PUMP (Cont'd)

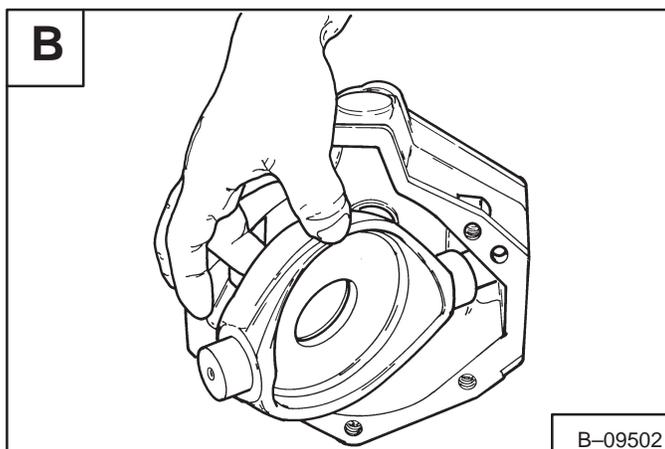
Remove the bearing and race [A].

Assembly: When installing the race make sure the chamfer side is toward the camplate.



Remove the camplate from the housing [B].

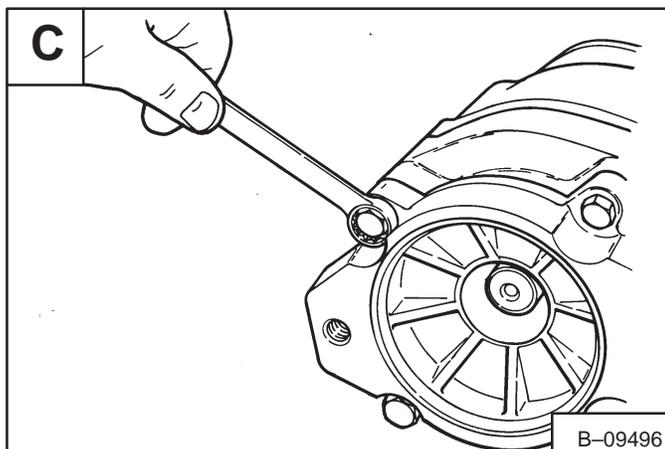
NOTE: Always use new O-rings, gaskets and seals when assembling the hydrostatic pumps.



REAR PUMP:

Remove the four bolts from the adapter plate [C].

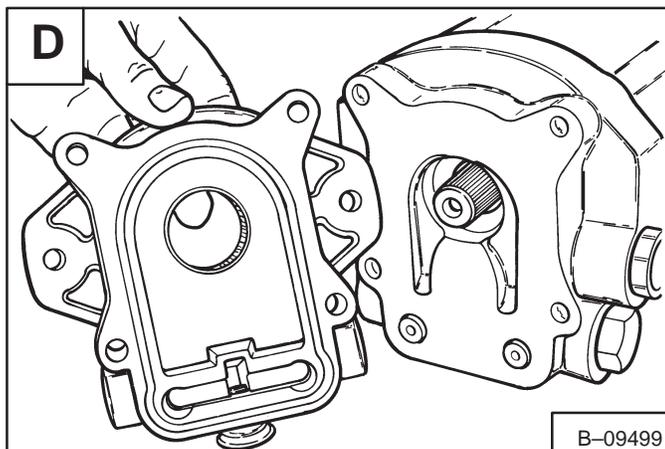
Assembly: Tighten the bolts to 27–31 ft.-lbs. (37–42 Nm) torque.



Remove the adapter plate from the pump housing [D].

Continue disassembly and assembly procedure the same as the front pump.

NOTE: There may be a center bearing in the adapter plate. See B.T.I. Bulletin #162 for more information on the center bearing if so equipped.



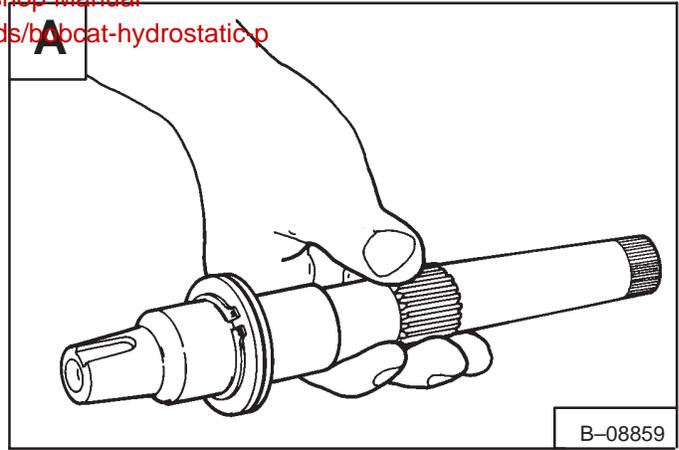
HYDROSTATIC PUMP (Cont'd)

Inspection

NOTE: Keep all the parts for one pump separated from the parts for the other pump.

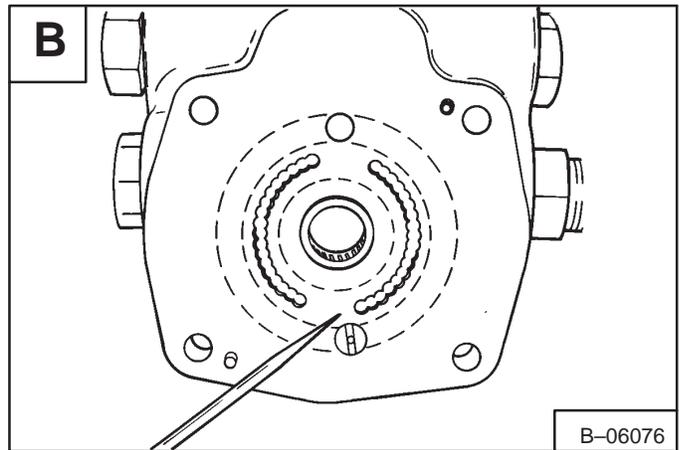
Clean all the parts in solvent and use air pressure to dry them. DO NOT use cloth or paper because small pieces of material can get into the system and cause damage.

Inspect the input shafts, bearings and races for wear or damage to the shaft splines [A].



The bearings in the back plate only have to be removed if they are loose and show wear [B]. Use a press to remove and replace the bearing.

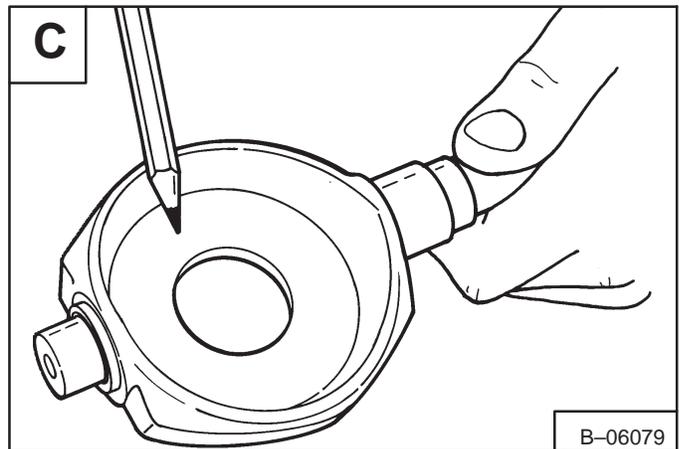
Inspect the flat surface of the back plate. The finish must be smooth and free of grooves. If grooves can be felt on the finished surface with a fingernail, replace the back plate [B].



Inspect the camplate for wear. The finish must be smooth and free of grooves. If grooves can be felt with a fingernail, replace the camplate [C].

Inspect the rotating group for the following:

Check each piston in its bore. The piston must move freely.



Check the pins for wear or damage [D]. All the pins must be the same length and must not be bend.

Check the spherical washer for sharp edges, wear or scratches [D].

