

3-3 STEERING LEVERS

3-3.1 Removing Steering Levers

1. Stop the engine.
2. Raise the operator cab. (See Paragraph 5-1.1, Page 5-1).
3. Remove the front panel (Fig. 3-3).
4. Remove the bolts and remove the side shields (Fig. 3-4) on both sides.

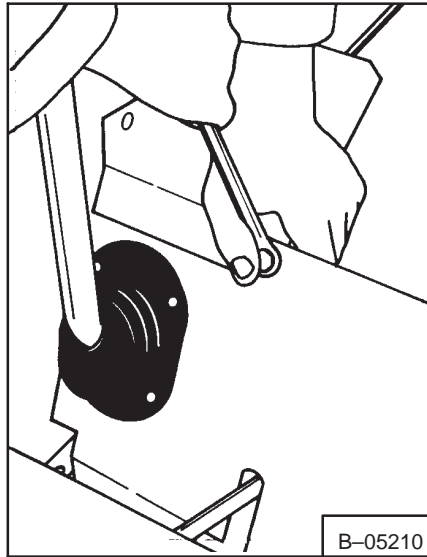


Fig. 3-3 Removing Front Panel

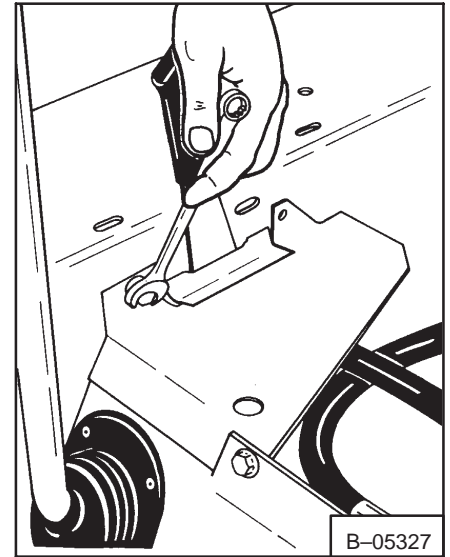


Fig. 3-4 Removing Side Shield

5. Remove the bolts from the steering lever shields (Fig. 3-5) on both sides. The shields can be removed with the steering levers.

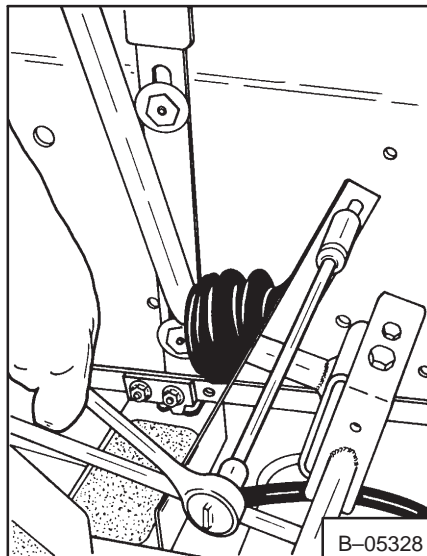


Fig. 3-5 Removing Steering Lever Shield

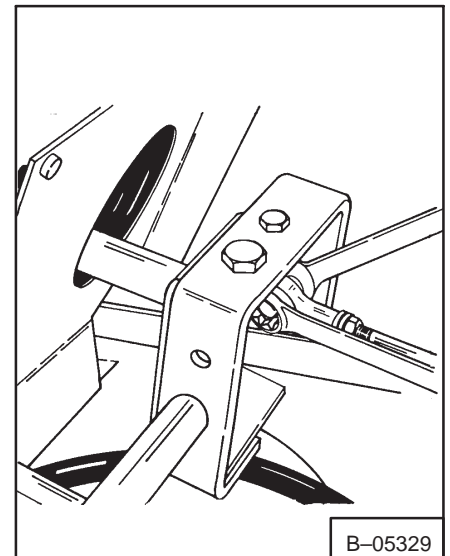


Fig. 3-6 Disconnect Auxiliary Linkage

6. Disconnect the steering linkage at the steering levers (Fig. 3-7).
7. Remove the bolts at the pivot bearings (Fig. 3-8) both sides of the steering levers.
8. Remove the steering lever assembly from the loader (Fig. 3-9).

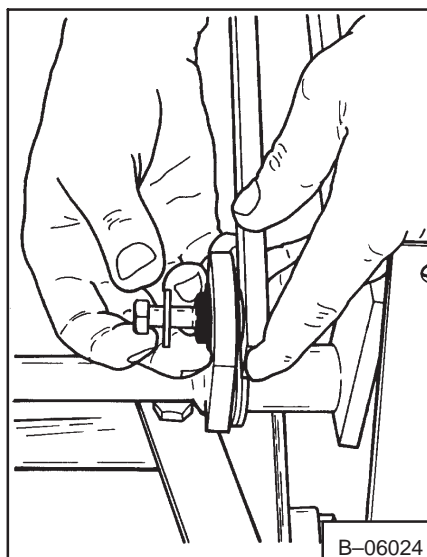


Fig. 3-7 Disconnect Steering Linkage

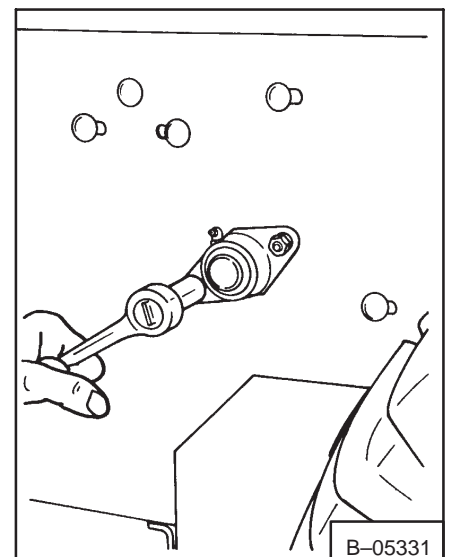


Fig. 3-8 Removing Pivot Bearings

3-3.2 Repairing The Steering Levers

1. Remove the rubber bushings and Teflon bushings from the steering levers.
2. Install new rubber bushings into the steering levers, using two sockets and a vise (Fig. 3-10).
3. Install new Teflon bushings on the steering levers (Fig. 3-11).
4. Install the two steering levers assemblies together (Fig. 3-12).
5. Check the pivot bearings. Replace as needed.

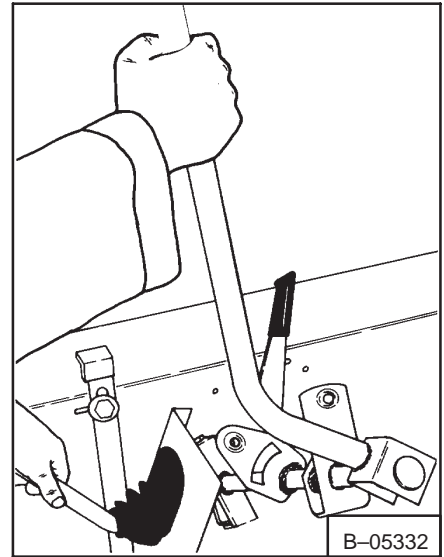


Fig. 3-9 Steering Lever Assembly

3-3.3 Installing The Steering Levers

1. Install the steering levers assembly into the loader (Fig. 3-9).
2. Install the bolts and nuts in the pivot bearings (both sides) and tighten to 25-28 ft.-lbs. (34-38 Nm) torque (Fig. 3-8).
3. Install the steering linkage (Fig. 3-7) do not tighten the nuts.
4. Connect the auxiliary linkage at the right steering lever (Fig. 3-6). Adjust the linkage so when the steering lever is moved, for loader travel, the linkage does not move in or out.
5. Install the bolts in the steering lever shields and tighten (Fig. 3-5).
6. Install the side shields (both sides) and tighten the bolts (Fig. 3-4).
7. Install the front panel (Fig. 3-3).
8. Make adjustment of the steering linkage (See Paragraph 3-4.1).
9. Lower the operator cab (See Paragraph 5-1.2, Page 5-1).

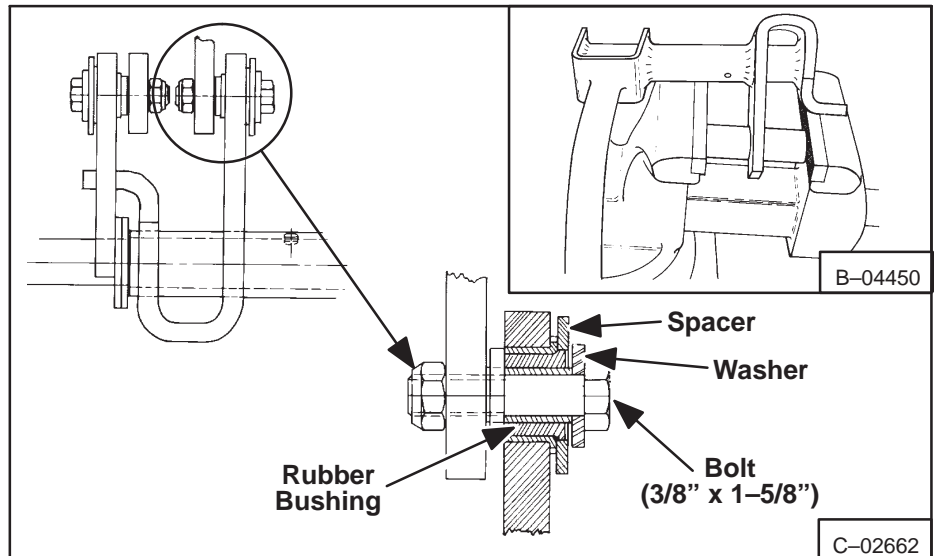


Fig. 3-10 Installing Bushings

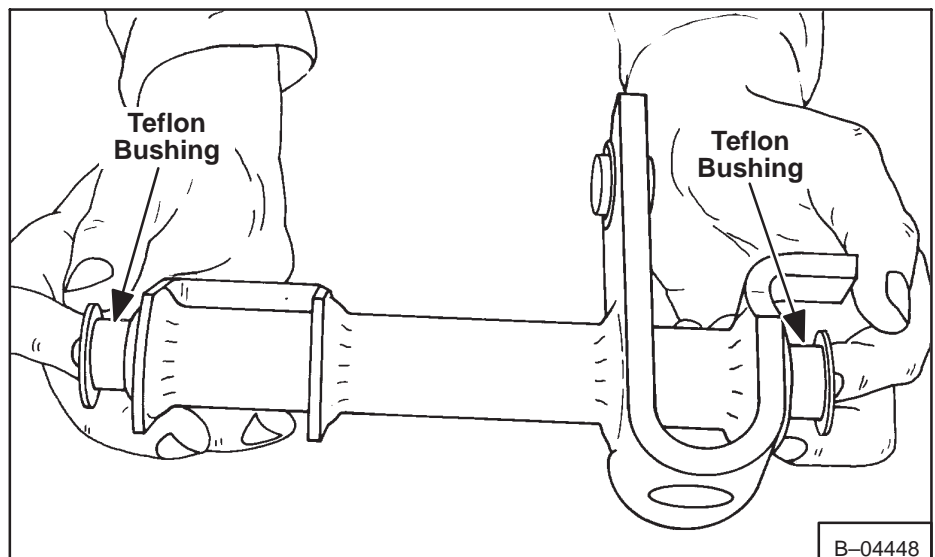


Fig. 3-11 Installing Teflon Bushings

3-4 STEERING LINKAGE

3-4.1 Adjustment Of The Steering Linkage

1. Raise the operator cab (See Paragraph 5-1.1, Page 5-1).
2. Loosen the nuts and bolts at the steering levers (Fig. 3-13).
3. Loosen the nuts and bolts at the pintle levers (Fig. 3-14).

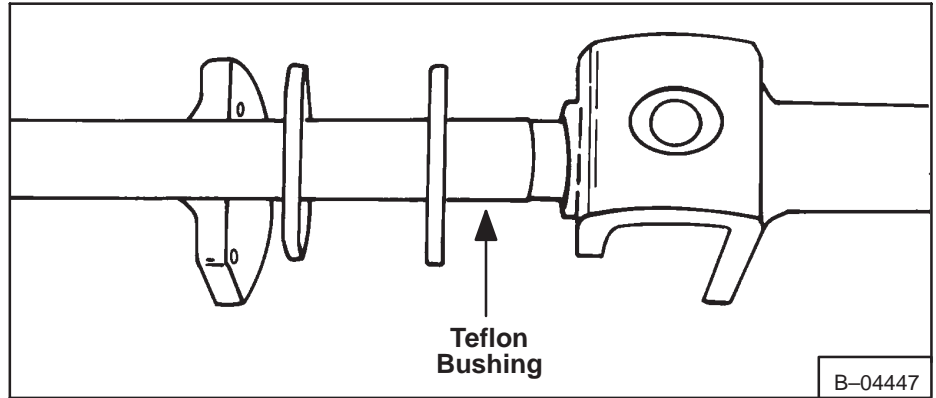


Fig. 3-12 Installing The Steering Levers Together

WARNING

Lift the loader and put jackstands under the loader frame so there is no danger of the loader falling and causing personal injury.

WARNING

DO NOT work on the loader with the lift arms in a raised position without support by a lift arm support device.

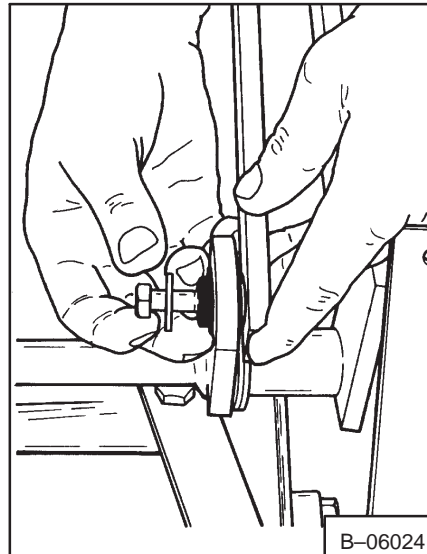


Fig. 3-13 Steering Linkage Bolts

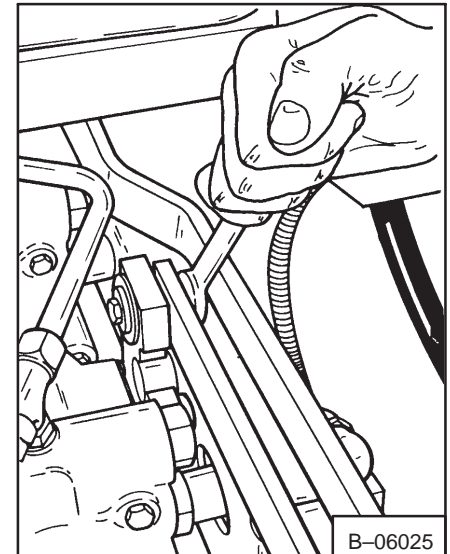


Fig. 3-14 Pintle Lever Bolts

4. Start the engine and run at a slow RPM (See Paragraph 5-1.3, Page 5-2).
5. Move the left steering lever until the tires do not turn (neutral).
6. Adjust the rear pintle bar (Fig. 3-15) so that the bar is tight against both lobes of the pintle lever and the transmission is still in the neutral position. Tighten the bolts on the bar to 28 ft.-lbs. (38 Nm) torque.
7. Move the left steering lever forward and backward and let the transmission return to the neutral position. If the transmission does not return to the neutral position, make the adjustment again.

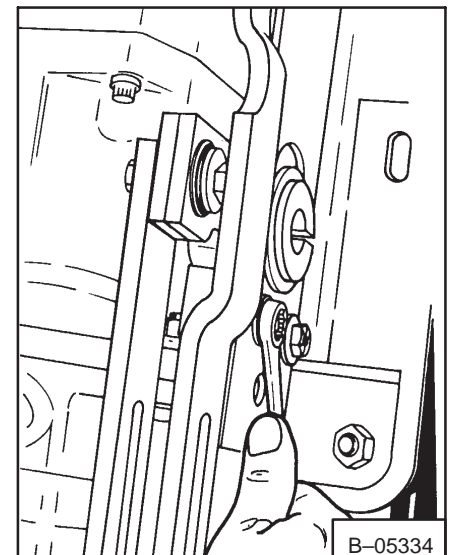


Fig. 3-15 Pintle Bar Bolts

8. Move the right steering lever until the tires do not turn (neutral).
9. Adjust the front pintle bar so that the bar is tight against the lobes of the pintle lever and the transmission is still in the neutral position (Fig. 3-16). Tighten the bolts on the bar to 28 ft.-lbs. (38 Nm) torque.

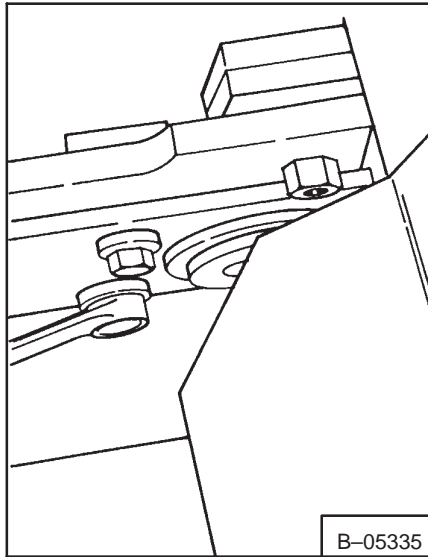


Fig. 3-16 Pintle Bar Bolts

10. Move both steering levers forward and backward and let them return to neutral position, make the adjustment if the transmission does not return to neutral.

11. Install new locknuts on each bolt that holds the steering linkage to the pintle levers and tighten to 23 ft.-lbs. (31 Nm) torque.

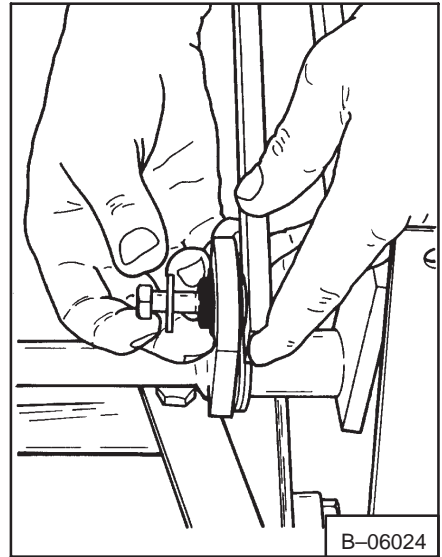


Fig. 3-17 Steering Linkage Bolts

12. Install new locknuts on the bolts at the front end of the steering linkage and tighten to 23 ft.-lbs. (31 Nm) torque.

13. Lower the operator cab (See Paragraph 5-1.2, Page 5-1a).

14. Remove the jackstands from under the loader frame.

3-4.2 Removing The Steering Linkage

1. Raise the operator cab (See Paragraph 5-1.1, Page 5-1).
2. Remove the nuts and bolts at the steering levers (Fig. 3-17).
3. Remove the nuts and bolts at the pintle levers (Fig. 3-18).
4. Remove the bolt and nut from the centering spring (Fig. 3-19).

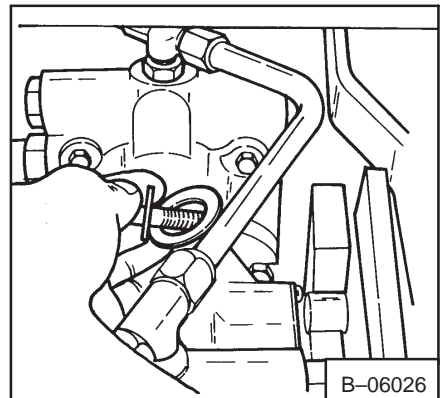


Fig. 3-18 Pintle Lever Bolts

Installation: Compress centering spring to 2.400 inch (51 mm).

5. Remove the fluid from the reservoir (See Paragraph 1.6-3, Page 1-14).
6. Remove the high pressure hoses from the hydrostatic pumps.
7. Remove the hose fittings (Front and rear) (Fig. 3-20).

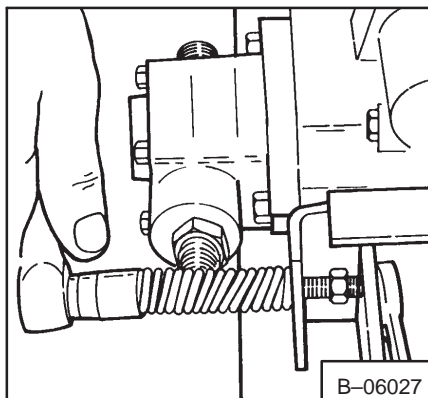


Fig. 3-19 Centering Spring Bolt

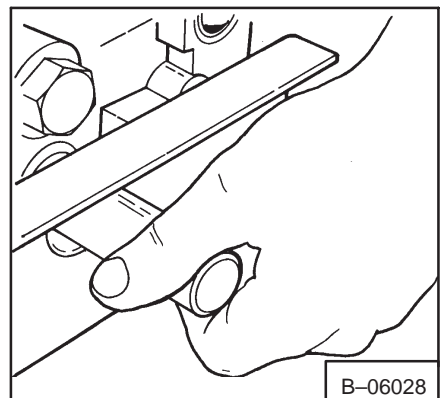


Fig. 3-20 Hose Fittings

8. Remove the bolts from the front pintle bar and remove the bar (Fig. 3-21).
9. Slide the centering bar forward and remove it from the pump (Fig. 3-22).
10. Remove the pintle levers (Fig. 3-23) and guides from the pump shafts.

3-4.3 Repairing The Pintle Lever

1. Remove the lobes from the pintle lever (Fig. 3-24).
2. Remove the rubber bushings from the pintle levers.
3. Install the new runner bushings, using two sockets and a vise (Fig. 3-25) in the pintle lever.
4. Install the new lobes on the pintle lever and tighten the bolts to 25-28 ft.-lbs. (34-38 Nm) torque.

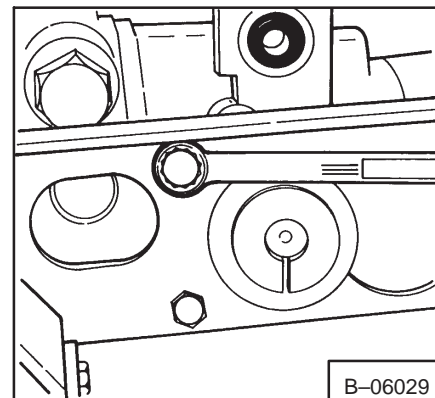


Fig. 3-21 Pintle Bar Bolt

3-4.4 Installing The Steering Linkage

NOTE: Put LOCTITE on the shaft before assembly.

1. Install the bushing and guide in the pintle lever.
2. Install the key on the shaft of the hydrostatic pump.
3. Tighten the bolt on the pintle lever to 40-50 ft.-lbs. (54-68 Nm) torque (Fig. 3-23, Item 1).
4. Install the centering bar into the Teflon guides on the front and rear pintle levers.
5. Install the front pintle bar (Fig. 3-21). Do not tighten the bolts.
6. Install the hose fittings (Fig. 3-20) and the high pressure hoses.
7. Install the centering spring, bolt and nut (Fig. 3-19).
8. Install the steering linkage at the pintle levers and the steering levers. Do not tighten the nuts.

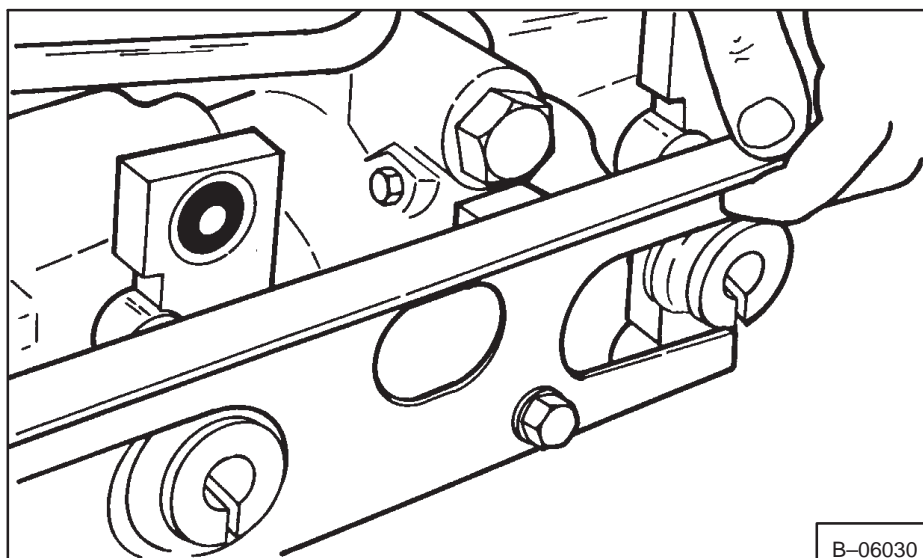


Fig. 3-22 Removing The Centering Bar

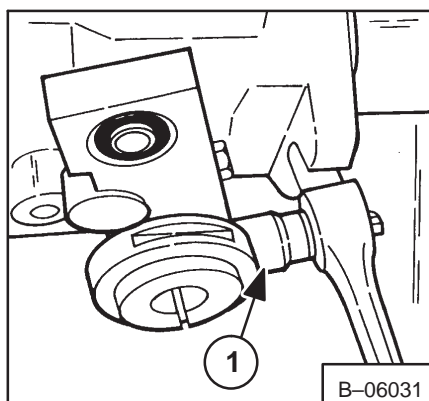


Fig. 3-23 Pintle Lever

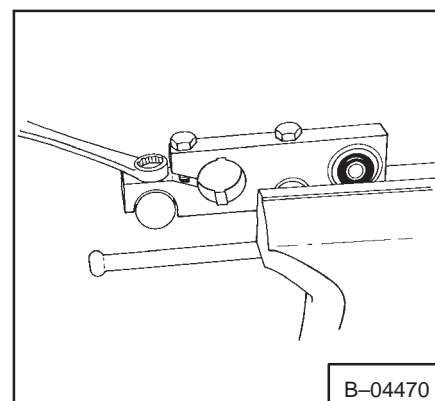


Fig. 3-24 Pintle Lever Cam

10. Add fluid to the hydraulic/hydrostatic reservoir (See Section 8 for the correct fluid).
11. Make the adjustment to the steering linkage (See Paragraph 3-4.1).

3-5 PORT BLOCK

3-5.1 Removing The Port Block

IMPORTANT

Always use caps or plugs in openings or ports to keep debris out of the hydrostatic system.

1. Stop the engine. Remove the hydraulic/hydrostatic fluid from the reservoir (See Paragraph 1-6.3, Page 1-14).
2. Raise the operator cab (See Paragraph 5-1.1, Page 5-1).
3. Remove the side shield which is over the port block.
4. Remove the tubeline (Fig. 3-26, Item 1).
5. Remove reservoir hose (Fig. 3-26, Item 2).
6. Remove the charge pressure hose (Fig. 3-26, Item 3).
7. Remove the case drain hoses (Fig. 3-26, Item 4).
8. Disconnect the wire from the temperature switch (Fig. 3-27).
9. Remove the two bolts from the port block and remove the port block from the loader.

3-5.2 Installing The Port Block

1. Make sure the port block is clean before installation.
2. Install the port block in the loader. Install the bolts and tighten them.
3. Install the case drain hoses (Fig. 3-26, Item 4).

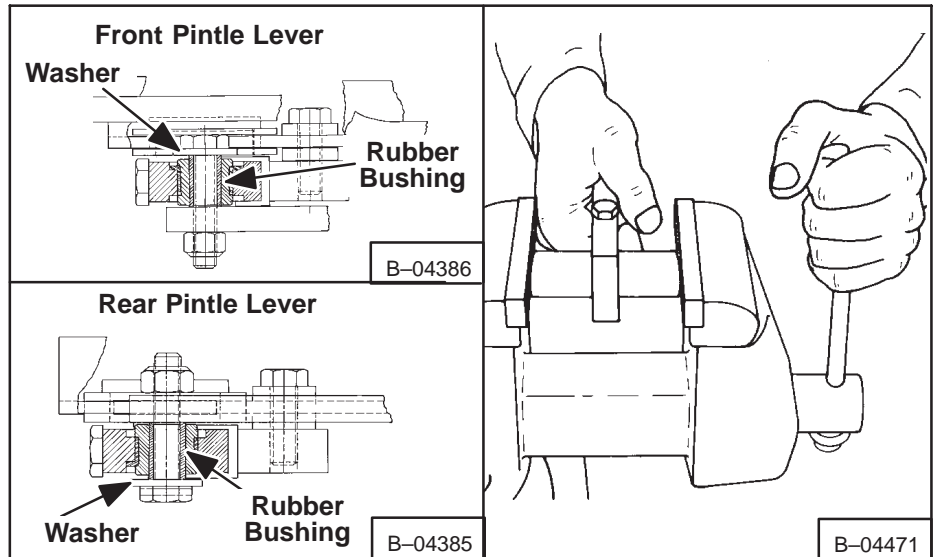


Fig. 3-25 Installing Bushings

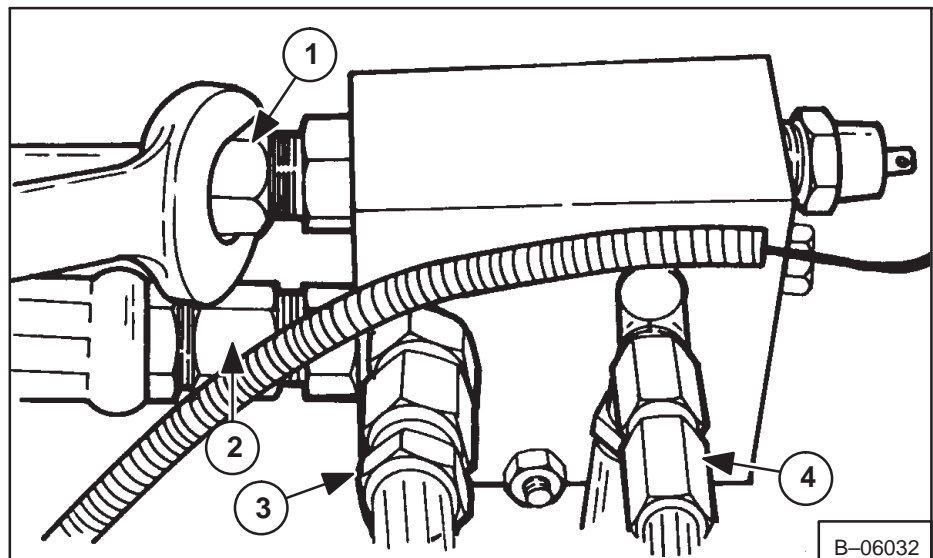


Fig. 3-26 Port Block Assembly

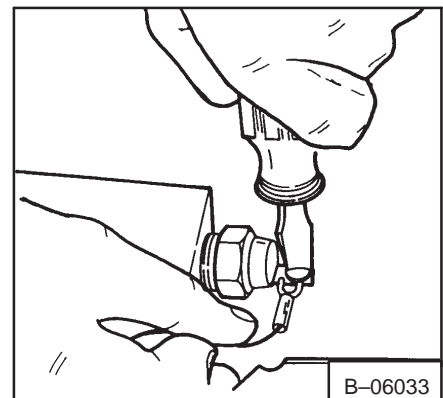


Fig. 3-27 Temperature Switch Wire

4. Install the charge pressure hose (Fig. 3–26, Item 3).
5. Connect the reservoir hose (Fig. 3–26, Item 2).
6. Install the tubeline (Fig. 3–26, Item 1).
7. Connect the wire to the temperature switch (Fig. 3–27).
8. Put the correct fluid in the hydraulic/hydrostatic reservoir (See Section 8 for the correct fluid).
9. Lower the operator cab (See Paragraph 5–1.2, Page 5–1).

3–5.3 By–Pass Valve

1. Stop the engine. Remove the hydraulic/hydrostatic fluid from the reservoir (See Paragraph 1–6.3, Page 1–14).
2. Remove the tubeline from the port block (Fig. 3–26, Item 1).
3. Remove the fitting from the port block.
4. Remove the poppet and spring (Fig. 3–28).
5. Clean and inspect the parts. Replace as needed.
6. Install new O–ring, install the spring, poppet and fitting and tighten the fitting.
7. Install the tubeline.

3–5.4 Charge By–Pass Valve

1. Disconnect the wire from the temperature switch (Fig. 3–27).
2. Remove the temperature switch (Fig. 3–29).
3. Remove the plug from the port block (Fig. 3–30).
4. Remove the spring and poppet (Fig. 3–31).
5. Clean and inspect the parts. Replace as needed.
6. Install a new O–ring, install the poppet, spring and the plug and tighten the plug.
7. Install the temperature switch (Fig. 3–29).
8. Connect the wire to the temperature switch.
9. Add the correct fluid to the hydraulic/hydrostatic reservoir (See Section 8 for the correct type fluid).
10. Lower the operator cab (See Paragraph 5–1.2, Page 5–1).

3–6 HYDROSTATIC MOTOR

IMPORTANT

When making repairs on hydrostatic or hydraulic system, keep loader and parts clean. Remove dirt and debris from the work area. Use caps and plugs to keep dirt out of the tubelines, hoses or ports.

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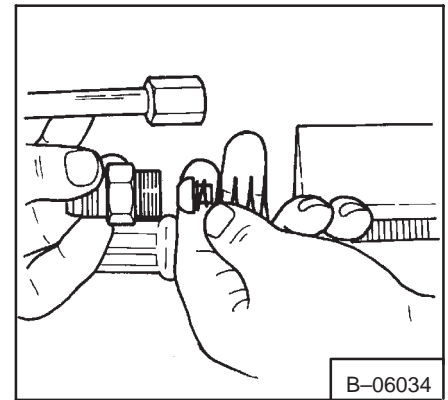


Fig. 3–28 By–Pass Valve

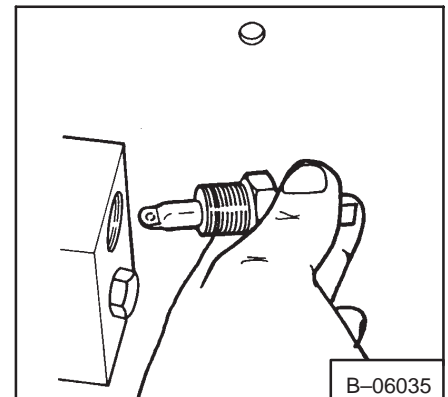


Fig. 3–29 Temperature Switch

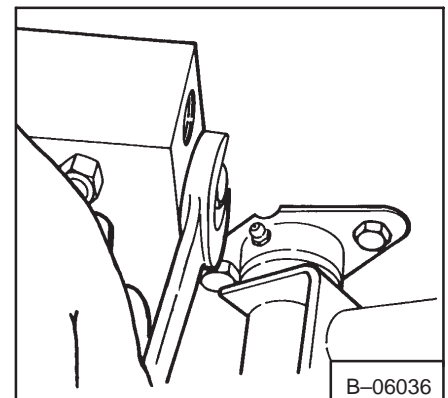


Fig. 3–30 Removing The Plug

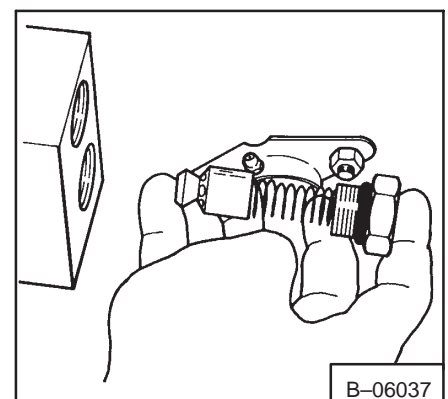


Fig. 3–31 Charge By–Pass Valve

3-6.1 Removing The Hydrostatic Motor

WARNING

Loader must be restrained for some service and repair. When balance of loader is changed by removal of lift arms or engine, or when it is necessary to rotate axles, jackstands should be put under both front axles and both rear corners of frame. Blocks by wheels can be climbed and do not stop loader. W-2312-0498

Never work on loader with lift arms up unless lift arms are held by a lift arm support device. W-1019

Motors With Keyed-Shaft:

1. Remove the tires and wheels from the side of the loader where the motor is going to be removed.
2. Raise the operator cab (See Paragraph 5-1.1, Page 5-1).
3. Remove the hydrostatic pumps (See Paragraph 3-7.3).
4. Remove the cover/brake assembly (See Paragraph 4-1.2, Page 4-1).
5. Only the front drive chain has to be removed so that the motor can be removed (See Paragraph 4-2.1, Page 4-5).
6. Remove the motor cover bolts (Fig. 3-32).
7. Remove the motor cover (Fig. 3-33).

NOTE: Mark the hoses so they will be installed correctly.

8. Disconnect the case drain hose.
9. Disconnect the high pressure hoses.
10. Remove the bolts from the hydrostatic motor.
11. Position the hydrostatic motor so that the rear drive chain can be removed from the motor sprocket. Remove the motor from the loader.

Motors With Splined-Shaft:

1. Remove the tires and wheels from the side of the loader that the motor is going to be removed from.
2. Raise the operator cab (See Paragraph 5-1.1, Page 5-1).
3. Remove the motor cover bolts (Fig. 3-32).
4. Remove the motor cover (Fig. 3-33).

NOTE: Mark the hoses so they can be installed correctly.

5. Disconnect the case drain hose from the motor.
6. Disconnect the high pressure hoses from the motor.
7. Remove the brake cover.
8. Remove the nut at the end of the brake linkage rod and remove the brake cover from the linkage.
9. Install the brake linkage rod and nut.
10. Put the parking brake in the locked position.
11. Remove the nuts from the motor flange.
12. Remove the hydrostatic motor from the chaincase.

NOTE: When the motor is removed from the chaincase the chain sprocket may pull out of the brake disc and fall into the chaincase. When the motor is installed in the chaincase the chain sprocket will have to be aligned in the brake disc (See Paragraph 3-6.5).

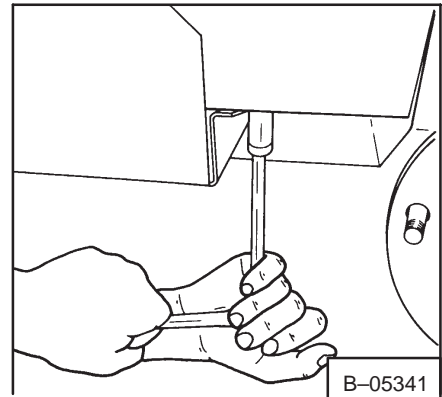


Fig. 3-32 Removing Cover Bolts

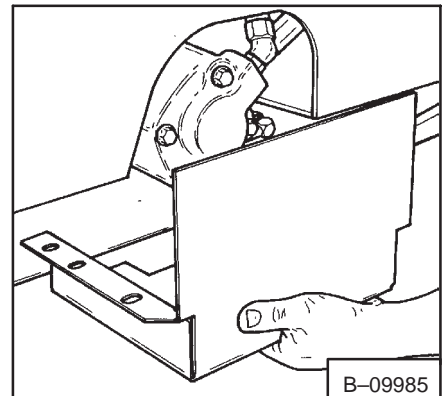


Fig. 3-33 Removing Motor Cover

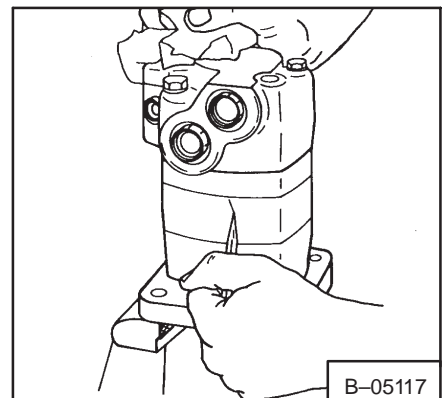


Fig. 3-34 Marking The Motor

3-6.2 Disassembly of the Hydrostatic Motor

NOTE: Clean the outside of the motor before disassembly. Keep all the parts of the motor clean.

1. Put the motor in a vise, holding it by the mounting flange with the shaft in the down position. Put a mark across the motor for correct assembly (Fig. 3-34).
2. Remove the four bolts from the motor (Fig. 3-35).
3. Lift the valve housing (Fig. 3-36) straight up. If done carefully, the springs and balance plate will stay on the valve.
4. Put the valve housing on the bench with the open end up.
5. Remove the two O-rings (small and large) (Fig. 3-37) from the valve housing.

NOTE: Put the machined surface of the motor on a soft cloth.

6. Remove the plug from the valve housing (Fig. 3-38).
7. Remove the spring, dash pot and poppet (Fig. 3-39).
8. Use a punch, remove the poppet, spring, O-ring dash pot and the plug and the shuttle (Fig. 3-40).

9. Remove the two springs from the balance plate (Fig. 3-41).
10. Remove the balance plate.
11. Remove the seals from the balance plate (Fig. 3-42).

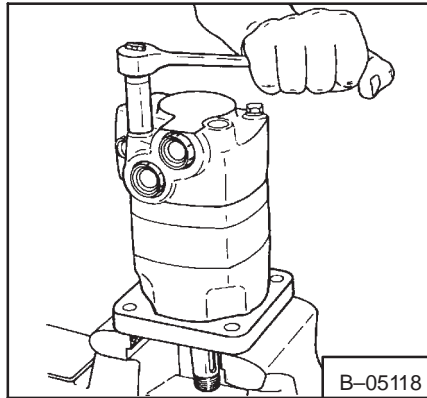


Fig. 3-35 Removing Motor Bolts

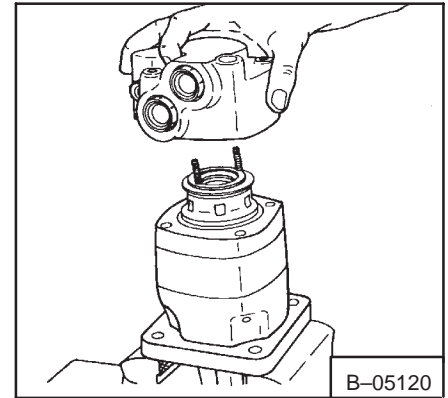


Fig. 3-36 Removing The Valve Housing

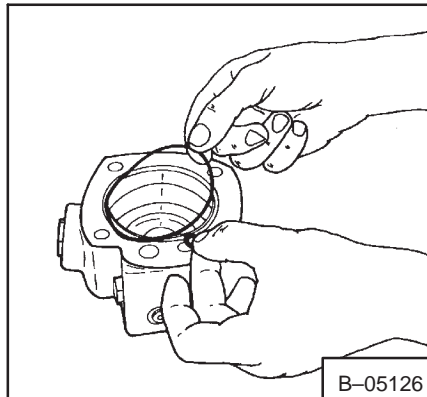


Fig. 3-37 Removing O-rings

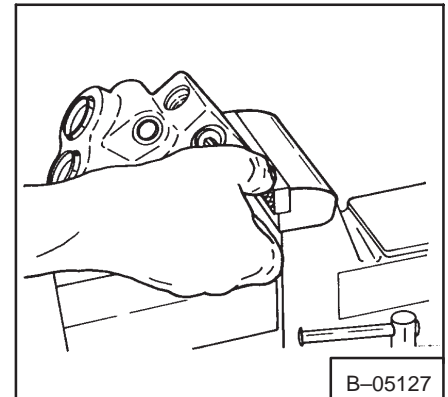


Fig. 3-38 Removing The Plug

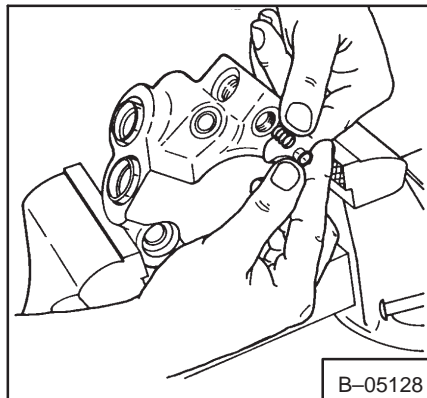


Fig. 3-39 Removing The Springs

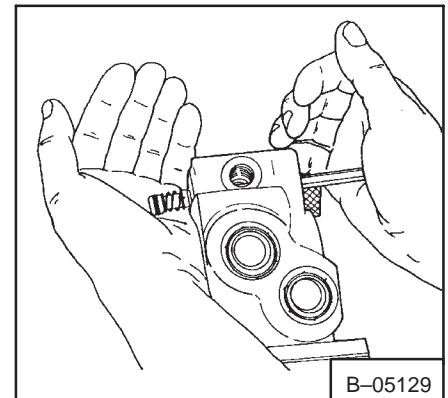


Fig. 3-40 Removing Shuttle Valve

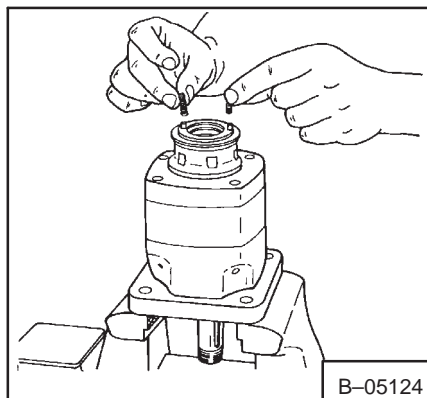


Fig. 3-41 Removing The Springs

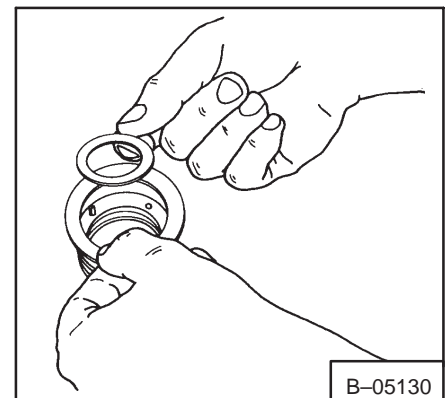


Fig. 3-42 Balance Plate Seals

12. Remove the valve (Fig. 3-43).

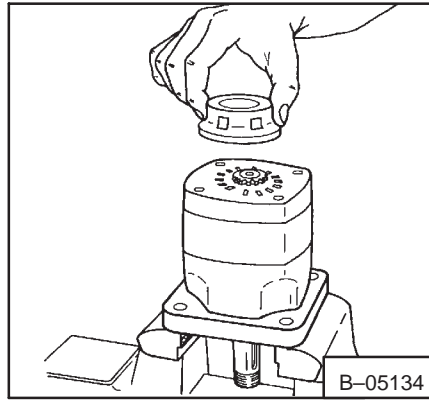


Fig. 3-43 Removing The Valve

13. Remove the valve plate (Fig. 3-44).

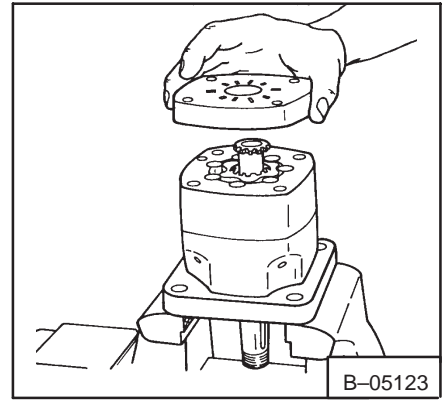


Fig. 3-44 Removing The Valve Plate

14. Remove the valve drive (Fig. 3-45).

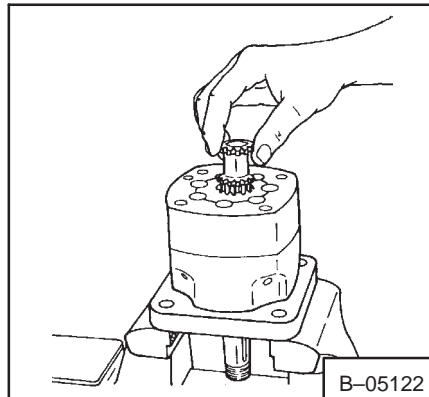


Fig. 3-45 Removing Valve Drive

15. Remove the geroler (Fig. 3-46). Make sure the rollers are kept in the geroler.

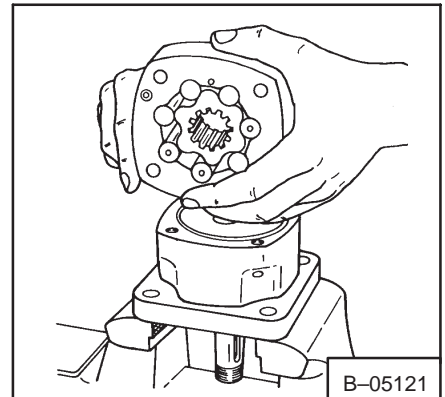


Fig. 3-46 Removing The Geroler

16. Remove the two O-rings from the geroler.

17. Remove the drive shaft (Fig. 3-47).

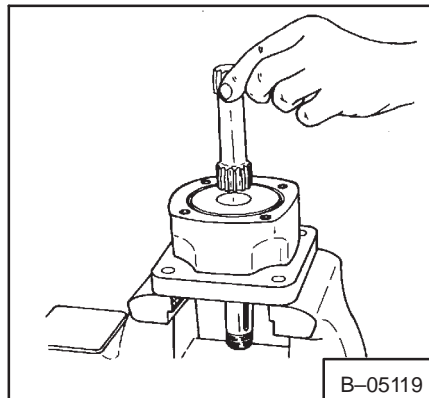


Fig. 3-47 Removing The Drive Shaft

18. Remove the O-rings (large and small) from the bearing housing (Fig. 3-48).

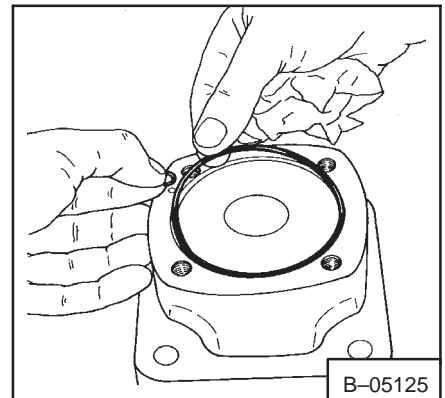


Fig. 3-48 Removing The O-rings

19. Turn the bearing housing over in the vise and remove the eight bolts (Fig. 3-49).

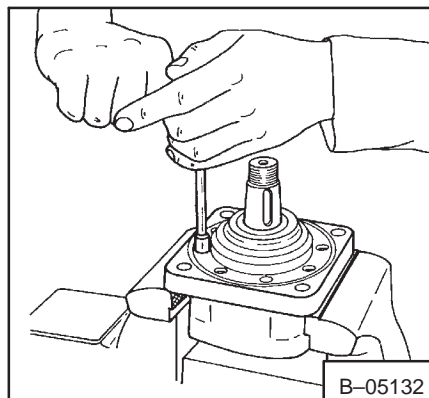


Fig. 3-49 Removing The Bolts

20. Using a plastic hammer, tap the mounting flange from the housing (Fig. 3-50).

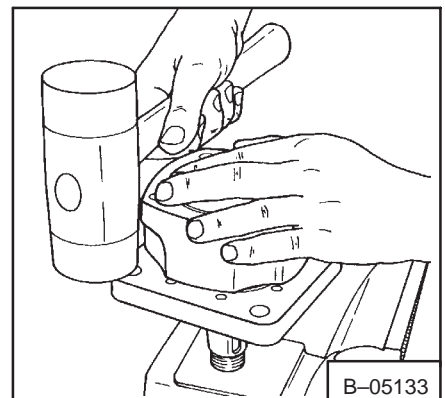


Fig. 3-50 Removing The Housing