DRIVE SYSTEM

TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION SPEC-01) UNLESS OTHERWISE SPECIFIED.

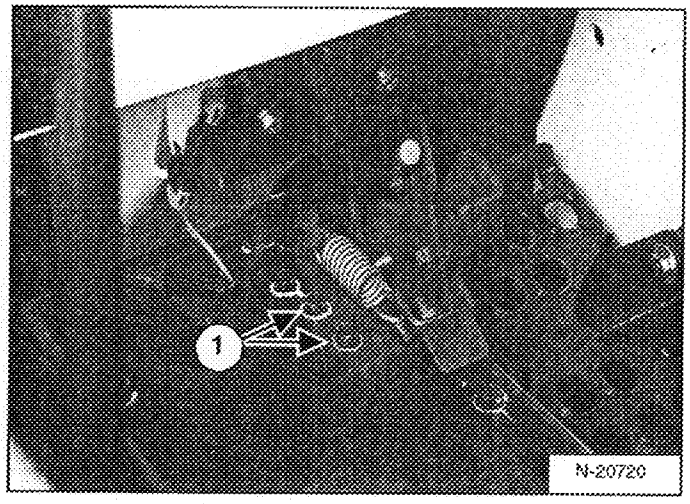
Bobcat®

BRAKE

Pedal Removal And Installation

S/N 512257999 & Below
S/N 512450999 & Below

Figure 1

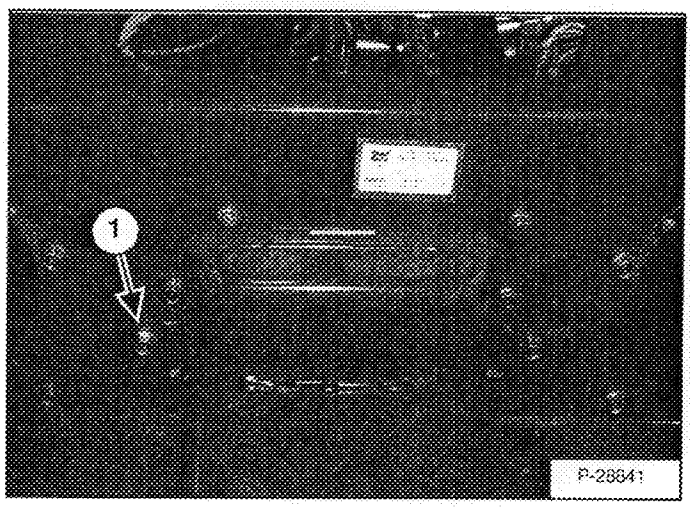


Raise the loader operator cab. (See Contents, Page 10-01.)

Remove the two mounting bolts (Item 1) **[Figure 1]** from the brake pedal mounting bracket.

Installation: Tighten the mounting bolts to 25-28 ft.-lbs. (34-38 Nm) torque.

Figure 40-10-2



Remove the fuse mount bracket (Item 1)**[Figure 40-10-2]** from the front of the control panel.

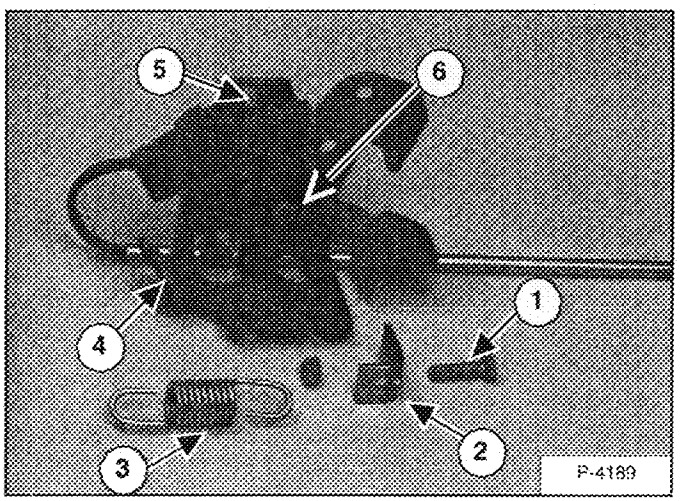
Disconnect the electrical connector from the parking brake pedal sensor. The connector is located behind the control panel.

Remove the parking brake assembly from the loader.

Reverse the removal procedure to install the parking brake assembly in the loader.

Pedal Disassembly And Assembly

Figure 40-10-3

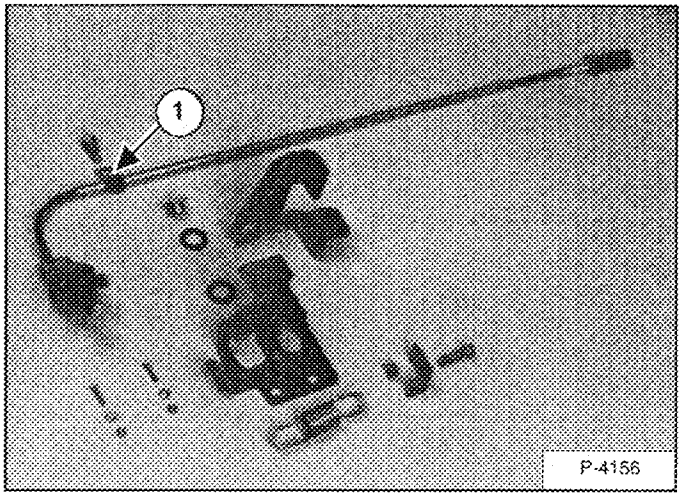


Loosen and remove the mounting bolt (Item 1) and nut from the spring mounting bracket (Item 2) **[Figure 40-10-3]**.

Remove the brake pedal spring (Item 3) from the tension spring mounting bracket (Item 2) and from the brake pedal mounting bracket (Item 4) **[Figure 40-10-3]**.

Remove the two mounting bolts, washers and nuts (Item 5) **[Figure 40-10-3]** from the brake pedal sensor.

Figure 40-10-4



Remove the harness mounting clamp (Item 1) **[Figure 40-10-4]** from the pedal mounting bracket (Item 4) **[Figure 40-10-3]**.

Remove the sensor harness from the pedal mounting bracket.

Remove the pedal mounting bolt (Item 6) **[Figure 40-10-3]**, plastic spacers and bushing nut from the brake pedal.

Remove the pedal from the pedal mounting bracket.

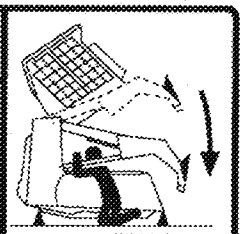
Photo **[Figure 40-10-4]** shows the parking brake disassembled to identify the existing parts in the brake assembly.

Disk Removal And Installation

DANGER

AVOID DEATH

- Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop.
- Keep out of this area when lift arms are raised unless supported by an approved lift arm support. Replace if damaged. 57081



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WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

Raise the loader lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Raise the loader operator cab. (See Contents Page 10-01.)

Disconnect and remove the engine speed control. (See Contents Page 70-01.)

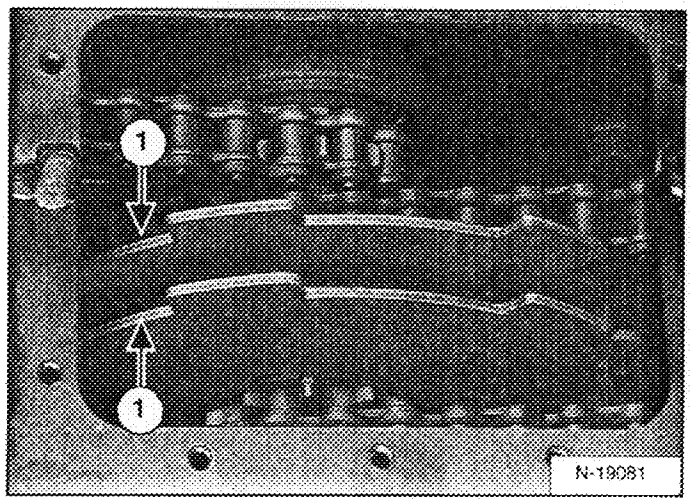
Remove the control panel from the loader. (See Contents Page 50-01.)

Remove the center chaincase cover. (See Contents Page 40-01.)

Remove the front chaincase cover. (See Contents Page 40-01.)

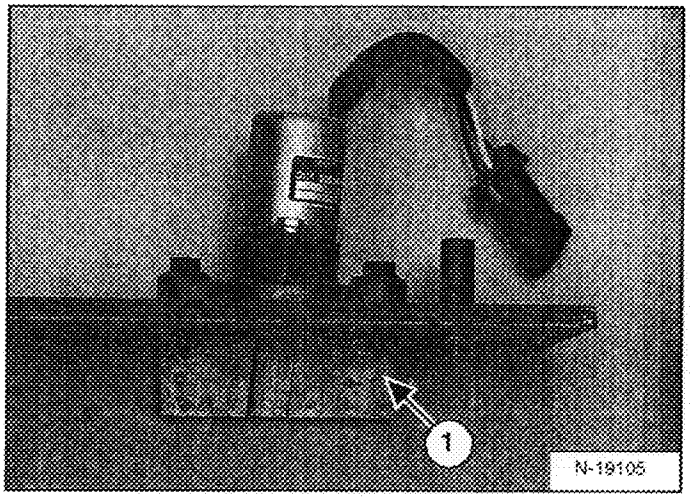
Remove the traction lock assembly. (See Contents Page 60-01.)

Figure 40-10-5



The parking brake discs (Item 1) **[Figure 40-10-5]** are located beneath the center chaincase cover.

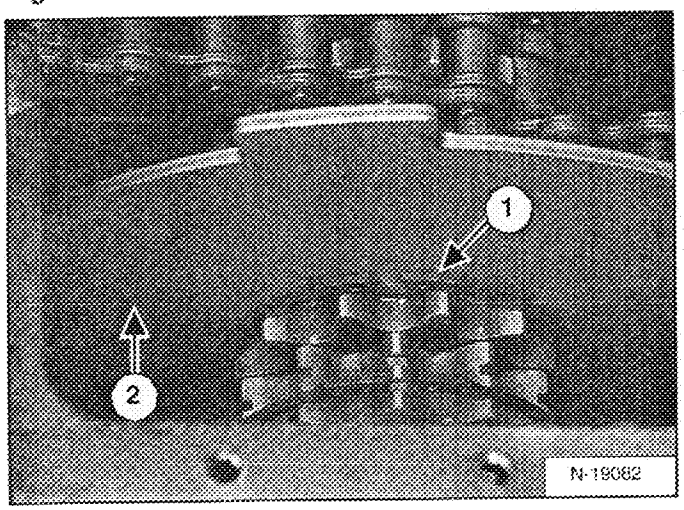
Figure 40-10-6



Inspect the traction lock guides (Item 1) **[Figure 40-10-6]** and the brake disc for damage or wear and replace as necessary.

Disk Removal And Installation (Cont'd)

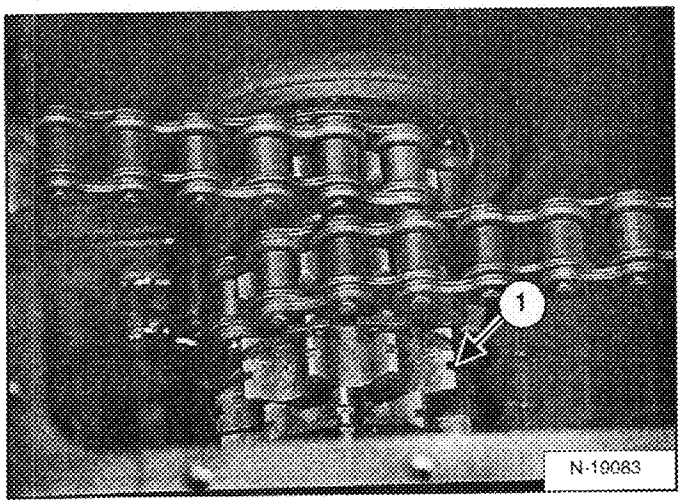
Figure 40-10-7



A snap ring pliers with 90° tips are necessary for removing the parking brake disc.

Remove the snap ring (Item 1) **[Figure 40-10-7]** from the end of the sprocket on the hydrostatic motor carrier.

Figure 40-10-8



Slide the disc (Item 2) **[Figure 40-10-7]** off the sprocket (Item 1) **[Figure 40-10-8]** and remove the disc through the front chaincase cover.

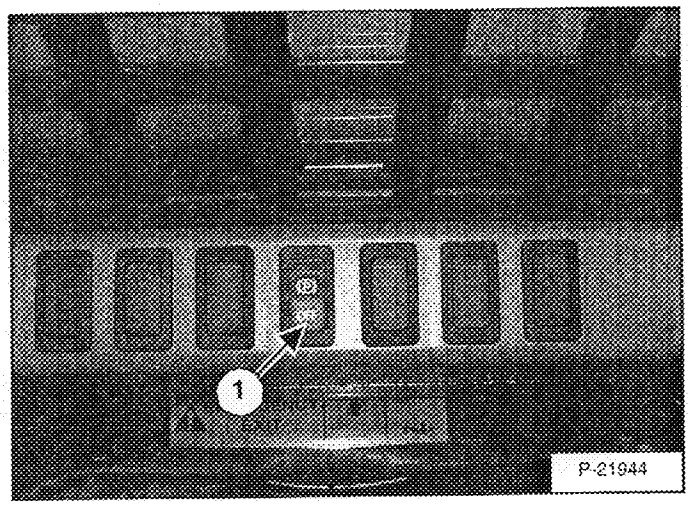
Reverse the removal procedure to install the disc in the loader.

See the traction lock inspection procedure, Contents Page 60-01

Switch Operated Parking Brake

S/N 512258000 & Above
S/N 512451000 & Above

Figure 40-10-9

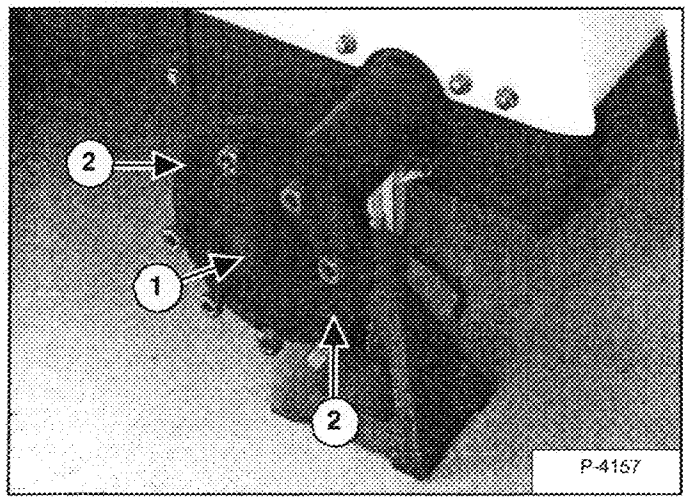


The parking brake switch in the front panel (Item 1) **[Figure 40-10-9]** replaced the pedal parking brake. (See Contents, Page 60-01 Instrument Panel For Front Accessory Panel Removal.)

DRIVE COMPONENTS

Axle Seal Removal And Installation

Figure 40-20-1



The tools listed are needed for the following procedure:

Axle Hub Puller Tool
MEL1399 - Seal Driver Tool
MEL1242 - Power Ram (may be used if desired)

To loosen the axle hub mounting bolt (Item 1) **[Figure 40-20-1]**, use the following procedure:

Before lifting and blocking the loader, loosen the hub mounting bolt (Item 1) **[Figure 40-20-1]**.

NOTE: If the axle and bearings are being replaced, also loosen the sprocket mounting bolt inside the chaincase before lifting and blocking the loader. See Axle Sprocket And Bearings Removal And Installation on page 40-20-3.

Lift and block the loader. (See Contents, Page 10-01.)

Remove the front tire/wheel assembly.

Installation: Tighten the wheel mounting nuts to 105-115 ft.-lbs. (142-156 Nm) torque.

Remove the hub mounting bolt (Item 1) **[Figure 40-20-1]** and washer from the axle.

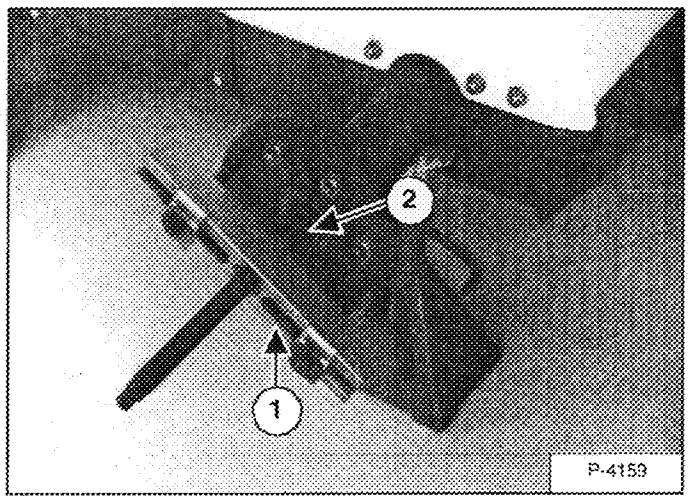
Installation: Tighten the hub mounting bolt to 575-625 ft.-lbs. (780-848 Nm) torque.

Remove two of the wheel mounting studs (Item 2) **[Figure 40-20-1]**.

Use a wheel mounting nut on each stud and remove the two studs with a hammer.

Installation: Support the flange of the axle hub and install the two studs with a hammer. A hydraulic press can also be used to install the studs.

Figure 40-20-2



Install the puller tool (Item 1) **[Figure 40-20-2]** on the axle hub.

A driver tool (Item 2) **[Figure 40-20-2]** can be used for centering the threaded rod of the puller.

⚠ WARNING

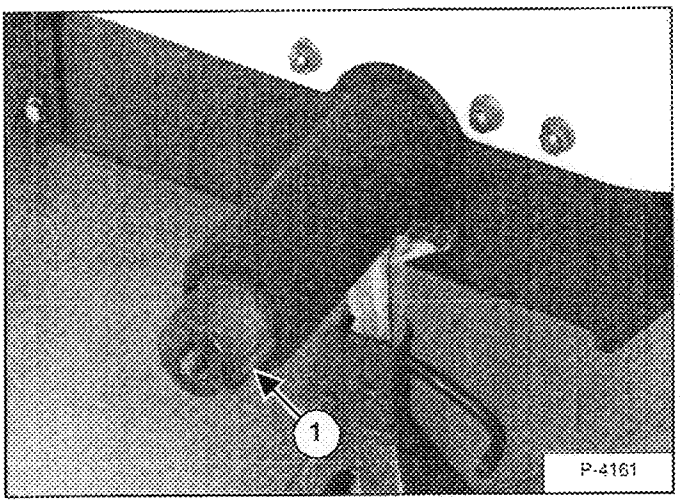
NEVER STAND IN-LINE OF THE HUB WHEN REMOVING A HUB FROM AN AXLE. The hub has a tapered fit on the axle end and can come off the axle with great force and cause serious injury.

W-2186-0395

Use a wrench with the puller and remove the axle hub from the axle tube. A spacer and a power ram can be used between the axle and the tool if available, instead of the wrench, threaded rod and driver tool.

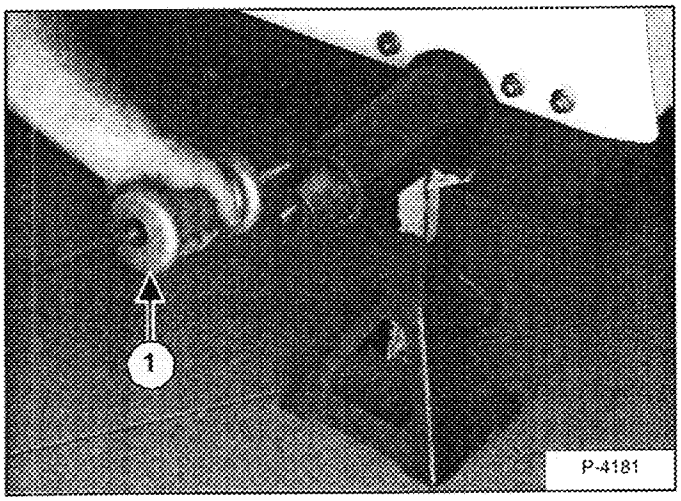
Axle Seal Removal And Installation (Cont'd)

Figure 40-20-3



Remove the key (Item 1) **[Figure 40-20-3]** from the axle.

Figure 40-20-4

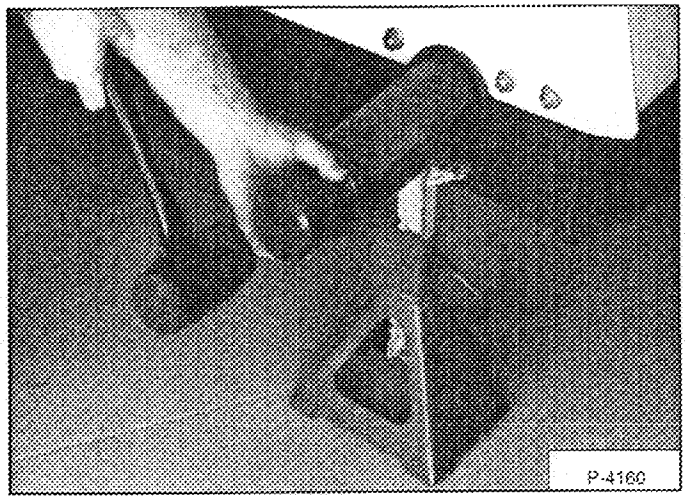


Drill a small hole in the axle seal.

Install a slide hammer (Item 1) **[Figure 40-20-4]** with a screw tip end in the axle seal.

Remove the axle seal.

Figure 40-20-5



Installation: MEL1399 seal driver tool is necessary for the following procedure:

Clean the seal area and inspect the shaft for wear.

NOTE: If the shaft is damaged or worn, an axle repair sleeve kit is available from Melroe Parts Sales in Chicago.

Place the new axle seal over the axle and into the axle tube.

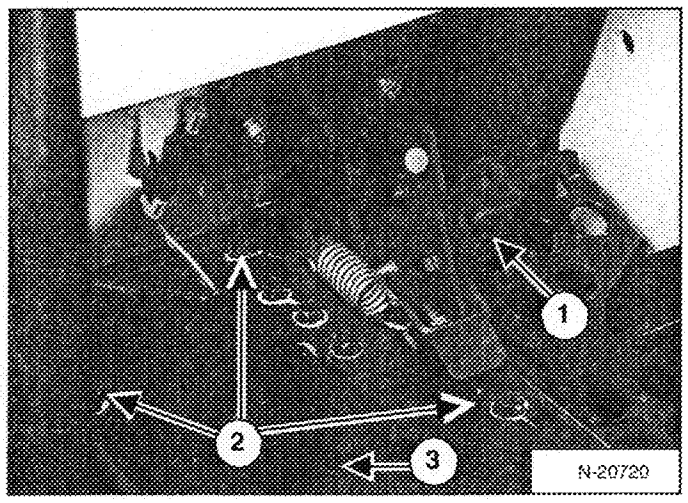
Install MEL1399 seal driver tool over the axle and put against the axle seal **[Figure 40-20-5]**.

Hit the seal driver tool with a hammer until the tool is flush with the edge of the axle tube **[Figure 40-20-5]**.

Reverse removal procedure to install the axle hub and wheel assembly.

Axle Sprocket And Bearings Removal And Installation

Figure 40-20-6



The tools listed are needed for the following procedure:

MEL1242 - Power Ram
MEL1202B - Axle Bearing Service Set

NOTE: The procedure shown is for removing the front axle, bearings and sprocket. This procedure can also be used for the rear axle, bearings and sprocket. (See Contents, Page 40-01 for rear chaincase cover removal.)

⚠ WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

Raise the lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Lift and block the loader. (See Contents Page 10-01.)

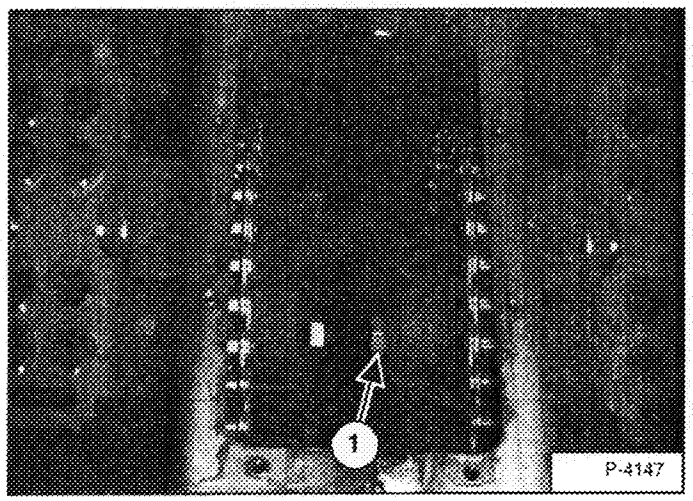
Raise the operator cab. (See Contents Page 10-01.)

Remove the control panel. (See Contents Page 50-01).

Remove the brake pedal (Item 1) **[Figure 40-20-6]**. (If so equipped.)

Remove the eight front cover mounting bolts (Item 2) and the front cover (Item 3) **[Figure 40-20-6]** from the chaincase.

Figure 40-20-7



Loosen the axle sprocket mounting bolt (Item 1) **[Figure 40-20-7]**.

Remove the fluid from the chaincase. (See Contents, Page 40-01.)

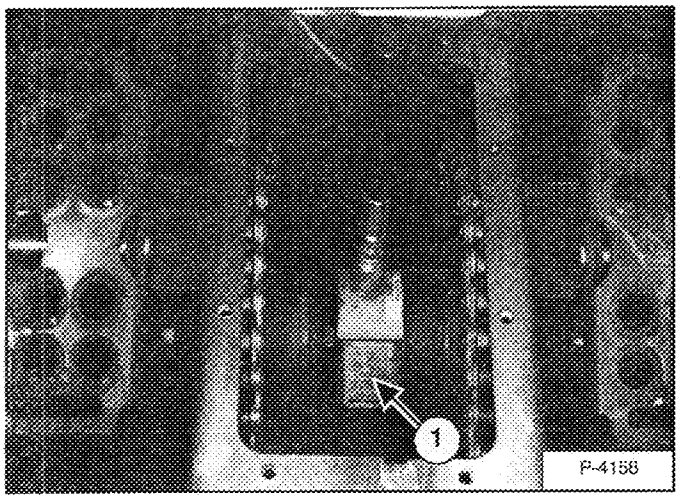
Remove the axle hub. (See Contents, Page 10-01.)

Remove the sprocket mounting bolt (Item 1) **[Figure 40-20-7]**.

Installation: Tighten the sprocket mounting bolt to 220-245 ft.-lbs. (298-332 Nm) torque.

Axle Sprocket And Bearings Removal And Installation (Cont'd)

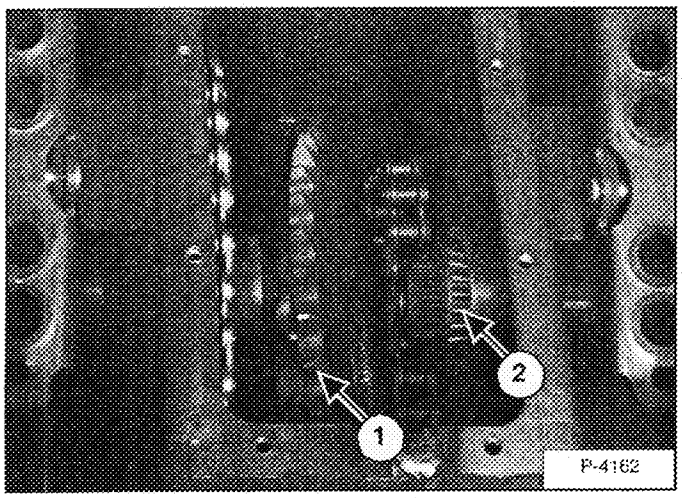
Figure 40-20-8



Install the MEL1242 power ram (Item 1) **[Figure 40-20-8]** between the two sprockets.

Put a spacer between the power ram and axle. Push the axle out to the end of the power ram stroke. Add another spacer and push the axle again. Repeat this procedure until the axle is free from the sprocket and inner bearing.

Figure 40-20-9

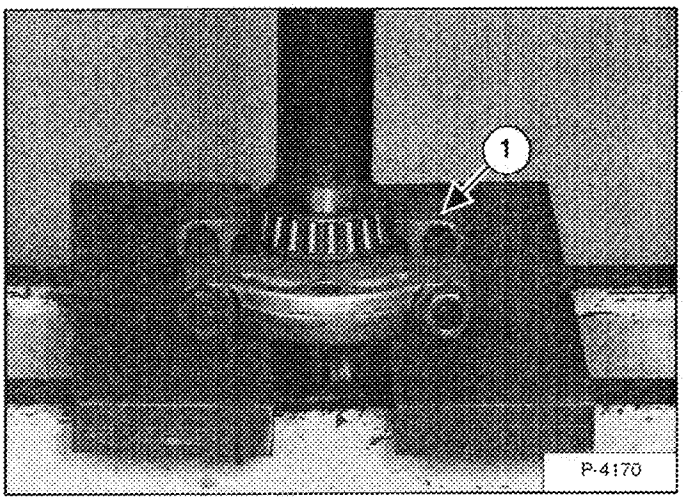


Remove the drive chain from the sprocket (Item 1) **[Figure 40-20-9]** and remove the sprocket from the chaincase.

Remove the inner bearing (Item 2) **[Figure 40-20-9]** and remove the axle from the axle tube. (See Contents Page 40-01 for outer bearing removal from the axle.)

Installation: Pack both axle bearings with grease before installing them.

Figure 40-20-10

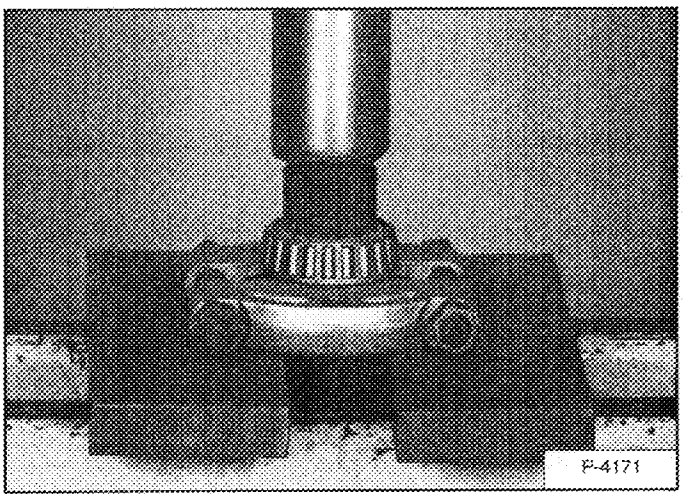


A bearing puller (Item 1) **[Figure 40-20-10]** is needed for the following procedure:

Put the axle/outer bearing assembly in the bearing puller as shown and put in the hydraulic press**[Figure 40-20-10]**

Be sure the bearing puller makes good contact with the inner race of the bearing and press the bearing off the mounting surface of the axle.

Figure 40-20-11

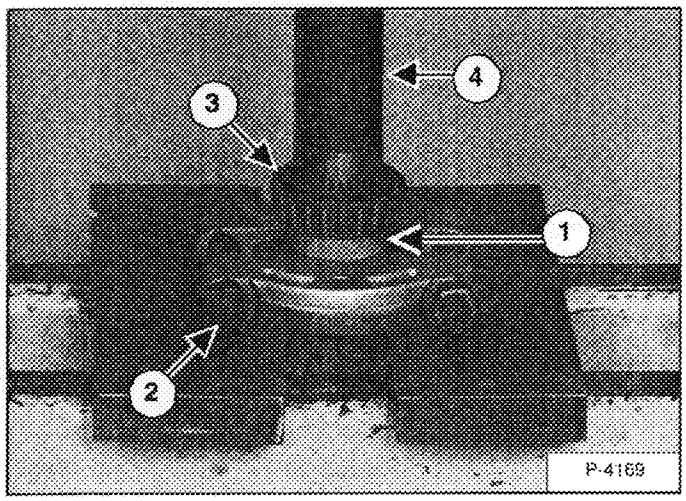


Be sure to hold onto the axle during removal as it will slide freely along the axle shaft after removal from the bearing mounting surface and until the bearing contacts the spline on the shaft.

Press the splined end of the axle free from the bearing **[Figure 40-20-11]**.

Axle Sprocket And Bearings Removal And Installation (Cont'd)

Figure 40-20-12



Installation: A piece of round tubing (Item 1) **[Figure 40-20-12]** is needed to install the bearing on the axle shaft. The tubing needs to measure approximately 0.500 inch (12,7 mm) to 1.0 inch (25,4 mm) in length. The inside diameter of the tubing should not be under 2.100 inches (53,3 mm) and the outside diameter should not be over 2.400 inches (60 mm).

A bearing puller (Item 2) **[Figure 40-20-12]** is also needed to install the bearing on the axle.

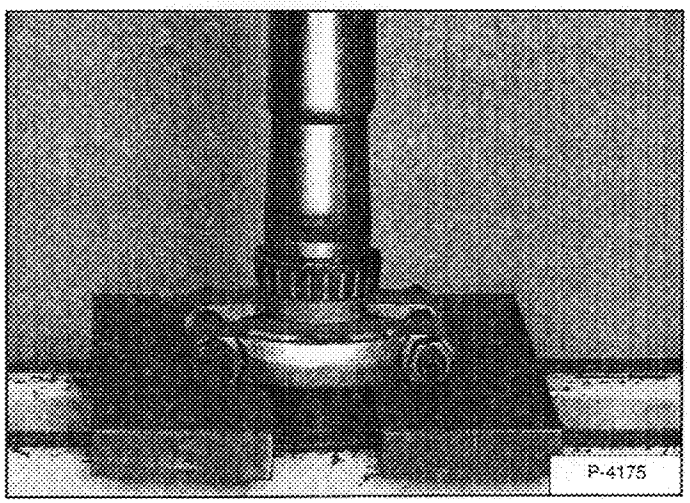
Put the tubing (Item 1) on the bearing puller (Item 2) **[Figure 40-20-12]**.

Put the bearing (Item 3) **[Figure 40-20-12]** on the tube as shown.

Put the spline end of the axle shaft (Item 4) **[Figure 40-20-12]** in the bearing and press the bearing onto the axle.

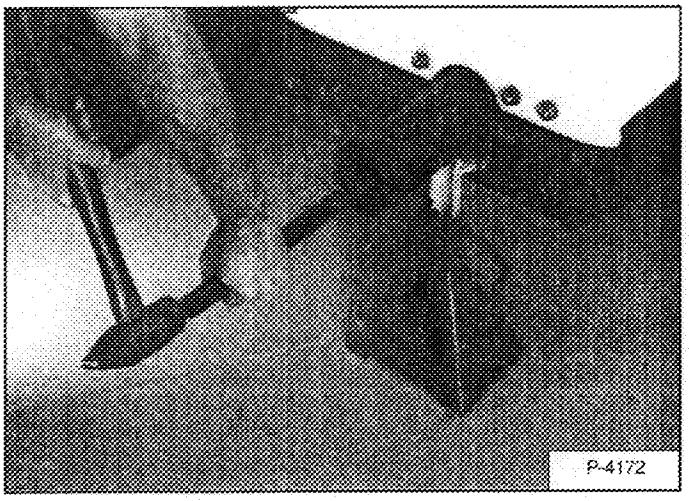
Be sure to hold onto the axle during installation, as it will slide freely along the axle shaft after the spline end has passed through the bearing and until it reaches the bearing mounting surface on the axle.

Figure 40-20-13



When the bearing reaches the bearing mounting surface, continue the installation until the bearing is fully seated **[Figure 40-20-13]**.

Figure 40-20-14



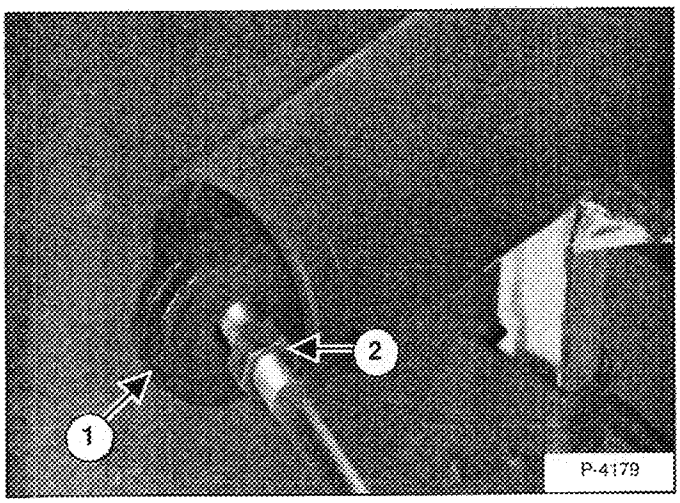
Use the tools provided in the MEL1202B Axle Bearing Service Set for bearing cup removal and installation. A slide hammer is also necessary for this procedure.

Use the long rod and bearing cup tool to remove the inner bearing cup **[Figure 40-20-14]**.

Hit the long rod with a hammer to remove the bearing cup from the axle tube **[Figure 40-20-14]**.

Axle Sprocket And Bearings Removal And Installation (Cont'd)

Figure 40-20-15

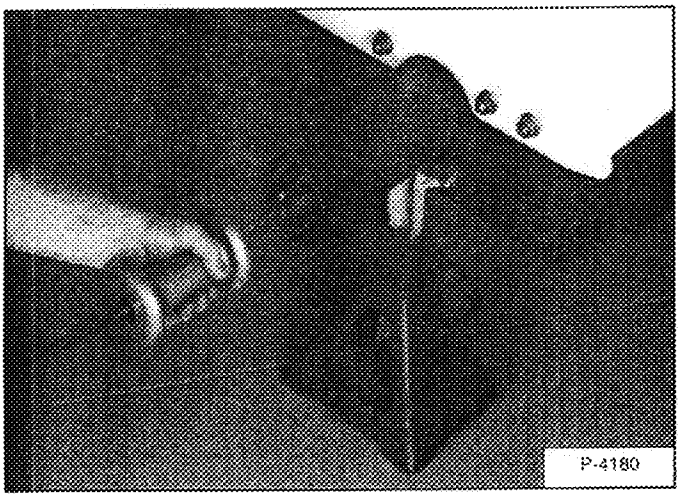


To remove the outer bearing cup, place the bearing cup tool (Item 1) **[Figure 40-20-15]** on the slide hammer.

Leave the bearing cup tool loose until the tool is installed inside the tube **[Figure 40-20-15]**.

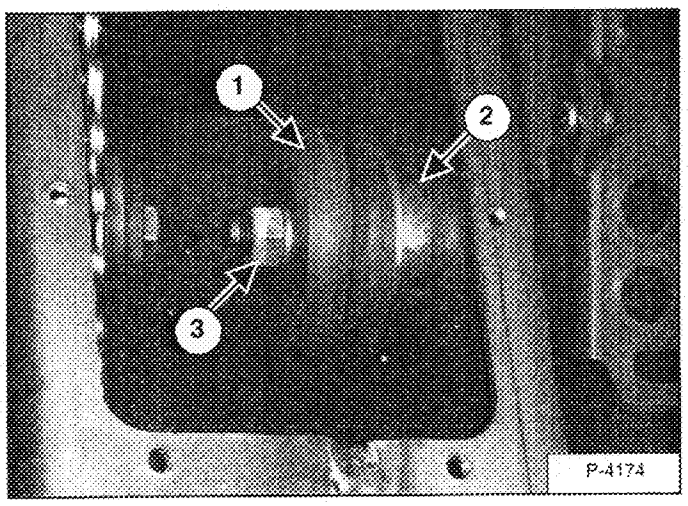
After the bearing cup tool is inside the axle tube, pull the tool against the bearing cup and tighten the nut (Item 2) **[Figure 40-20-15]** on the tool.

Figure 40-20-16



Use the slide hammer and remove the bearing cup from the axle tube **[Figure 40-20-16]**.

Figure 40-20-17



Use the bearing cup installation tools (Item 1) **[Figure 40-20-17]** and (Item 1) **[Figure 40-20-18]** and the long threaded rod (Item 2) **[Figure 40-20-18]** from the service set to install the inner and outer bearing cups.

Put the inner bearing cup in the axle tube (Item 2) **[Figure 40-20-17]**.

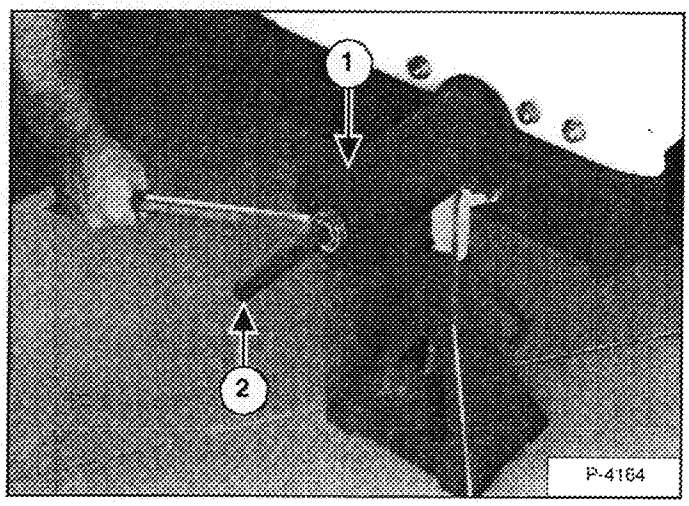
Put the installation tool (Item 1) **[Figure 40-20-17]** in the axle tube.

Install the long threaded rod (Item 2) **[Figure 40-20-18]** into the axle tube and through the installation tool (Item 1) **[Figure 40-20-17]**.

Secure the tool to the threaded rod with a nut (Item 3) **[Figure 40-20-17]**.

Axle Sprocket And Bearings Removal And Installation (Cont'd)

Figure 40-20-18



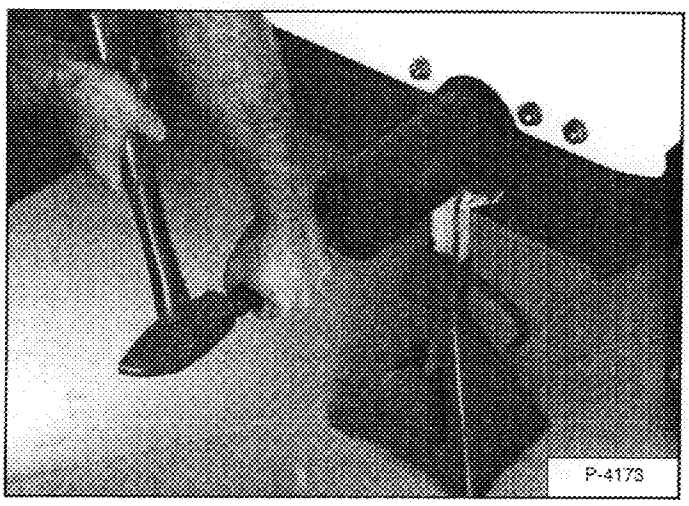
Put the installation tool (Item 1) **[Figure 40-20-18]** in the axle tube with the threaded rod through the hole in the tool.

Secure the tool to the threaded rod with a nut **[Figure 40-20-18]**.

Hold the inside nut (Item 3) **[Figure 40-20-17]** with a wrench and tighten the outside nut as shown in photo **[Figure 40-20-18]**.

Tighten the nut until the bearing cup is seated.

Figure 40-20-19



To install the outer bearing cup, use the short rod and the bearing cup tool used for removing the bearing cups.

Put the bearing cup tool on the short rod.

Put the bearing cup in the axle tube and put the tool into the tube over the bearing cup **[Figure 40-20-19]**.

Hit the short rod with a hammer until the bearing cup is seated inside the axle tube.

Chain Removal And Installation

⚠ WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

Raise the loader lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Lift and block the loader. (See Contents Page 10-01.)

Raise the loader operator cab. (See Contents Page 10-01.)

Drain the fluid from the chaincase. (See Contents Page 40-01.)

Remove the engine speed control. (See Contents Page 70-01.)

Remove the control panel. (See Contents Page 50-01.)

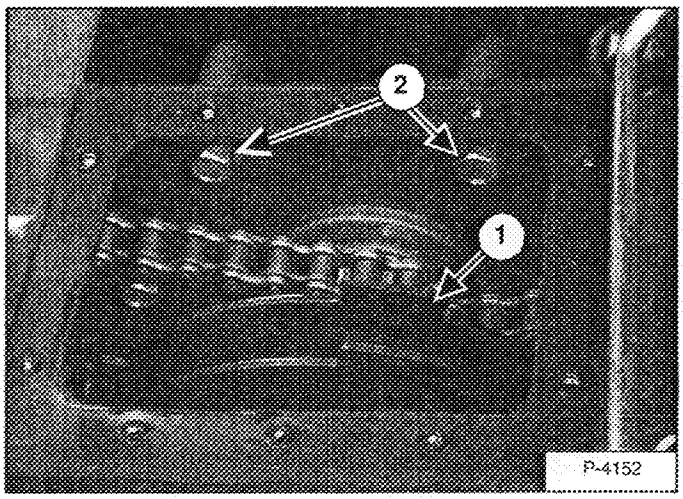
Remove the traction lock assembly. (See Contents Page 60-01.)

Remove the center chaincase cover. (See Contents Page 40-01.)

Remove the front (or rear) chaincase cover. (See Contents Page 40-01.)

Remove the front (or rear) axle and sprocket. (See Contents Page 40-01.)

Figure 40-20-20

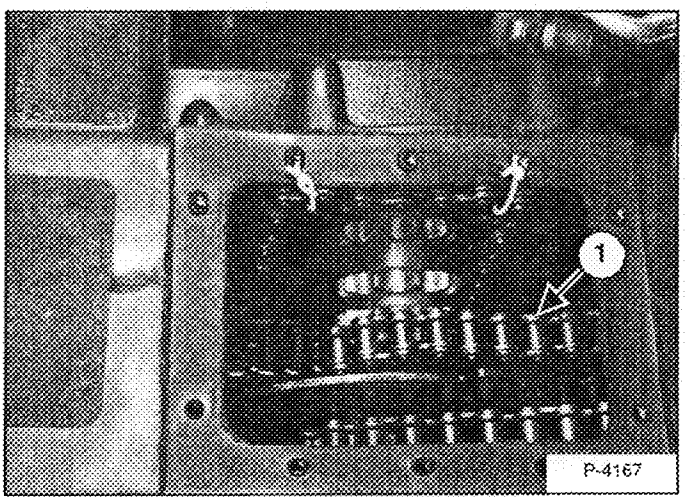


Remove the parking brake disc (Item 1) **[Figure 40-20-20]**. (See Contents Page 40-01.)

Remove the six carrier mounting bolts (Item 2) **[Figure 40-20-20]** from inside the chaincase.

Installation: Tighten the motor carrier mounting bolts to 125-140 ft.-lbs. (170-190 Nm) torque.

Figure 40-20-21



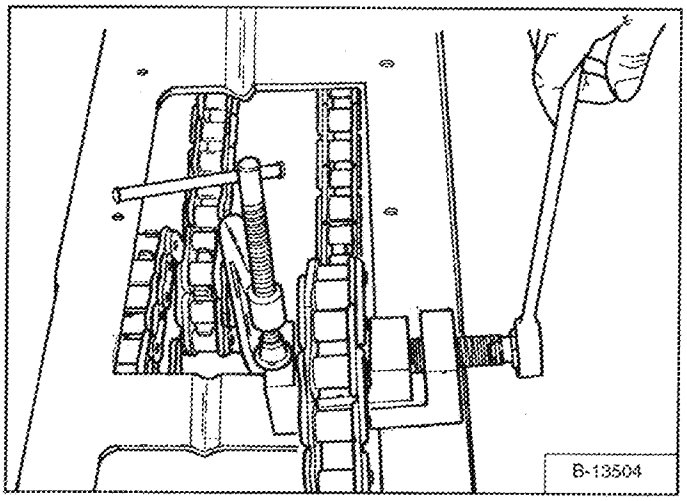
Tip the end of the sprocket on the motor carrier toward the rear of the loader and remove the rear drive chain from the sprocket.

NOTE: It may be necessary to tie the front drive chain up as shown in photo [Figure 40-20-21], so the carrier/motor assembly can be moved enough to free the rear drive chain (Item 1) [Figure 40-20-21] from the sprocket.

Remove the front drive chain from the chaincase.

Chain Removal And Installation (Cont'd)

Figure 40-20-22



The tool listed is needed for the following procedure:

MEL1037 - Chain Link Tool

Installation: If a new chain is installed, a connector link must be used to connect the chain together.

Use MEL1037 Chain Link Tool and #80 chain adapter.

Secure the tool and place the connector link in the tool as shown **[Figure 40-20-22]**.

Turn the threaded rod of the tool and press the connector link together on the chain **[Figure 40-20-22]**. Tighten the threaded rod of the chain link tool to 130 ft.-lbs. (176 Nm) torque.

⚠ WARNING

DO NOT exceed the recommended torque of 130 ft.-lbs. (176 Nm). The tool may fail under too much torque. Put cloth around the tool to protect yourself from flying debris.

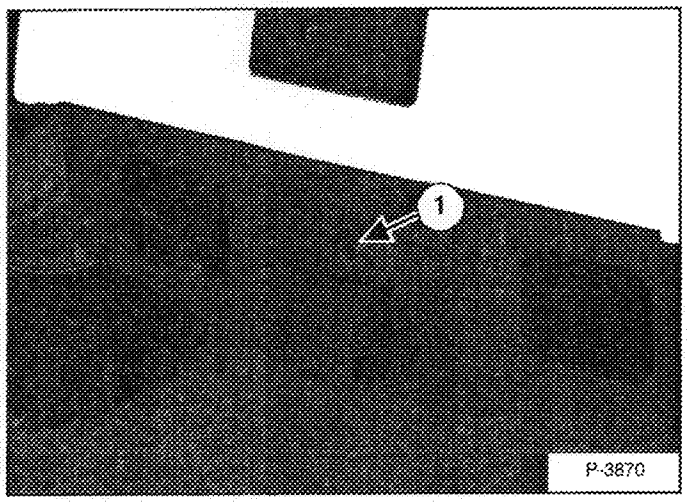
W-2233-0296

Bobcat®

CHAINCASE

Checking And Adding Oil

Figure 40-30-1



The chaincase contains the final drive sprockets and chains and uses the same type of oil as the hydraulic/ hydrostatic system. (See Contents Page SPEC-01.)

To check the chaincase oil level, use the following procedure:

Drive the loader on a level surface. Stop the engine.

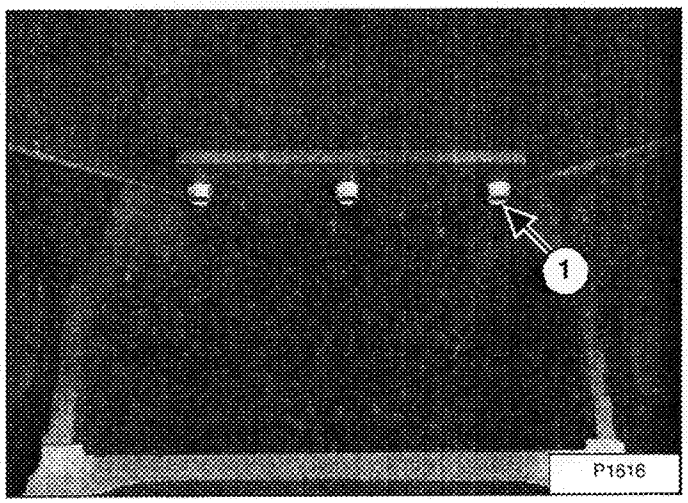
Remove the plug (Item 1) **[Figure 40-30-1]** from the front of the chaincase housing.

If oil can be reached with the tip of the your finger through the hole the oil level is correct.

If the level is low, add oil through the check plug hole until the oil flows from the hole. Install and tighten the plug.

Removing The Oil

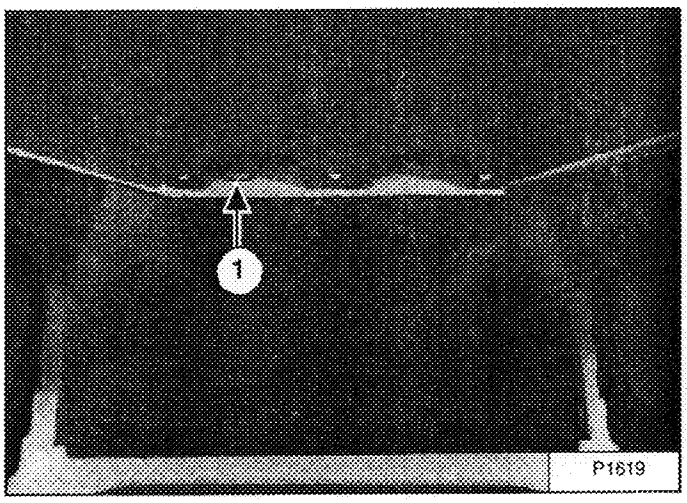
Figure 40-30-2



To drain the oil from the chaincase, remove the cover (Item 1) **[Figure 40-30-2]** which is installed over the drain plug at the rear of the chaincase.

Installation: Tighten the cover bolts to 10-20 ft.-lbs. (24-27 Nm) torque.

Figure 40-30-3



Remove the drain plug (Item 1) **[Figure 40-30-3]** and drain the oil into a container.

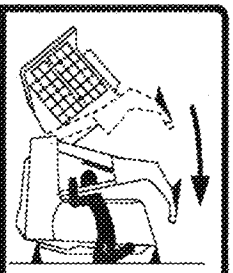
NOTE: When installing the drain plug into the chaincase, always use a NEW drain plug gasket.

Front Cover Removal And Installation

⚠ DANGER

AVOID DEATH

- Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop.
- Keep out of this area when lift arms are raised unless supported by an approved lift arm support. Replace if damaged. 57051



⚠ WARNING

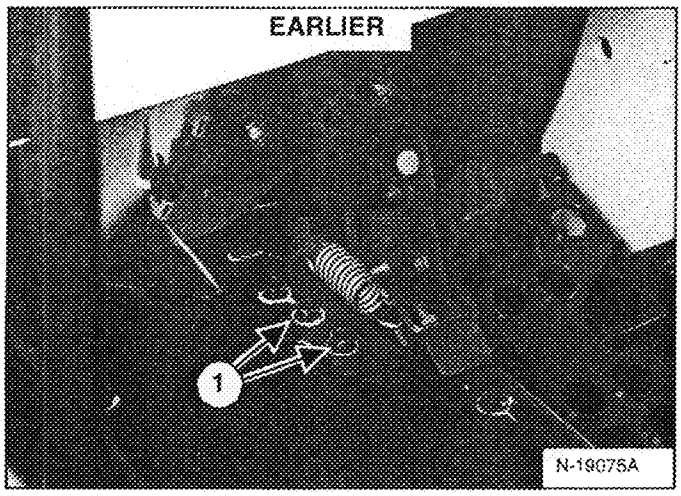
Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

Raise the loader lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Raise the loader operator cab. (See Contents Page 10-01.)

Figure 40-30-4



Remove the mounting bolts (Item 1) **[Figure 40-30-4]** from the parking brake.

Figure 40-30-5

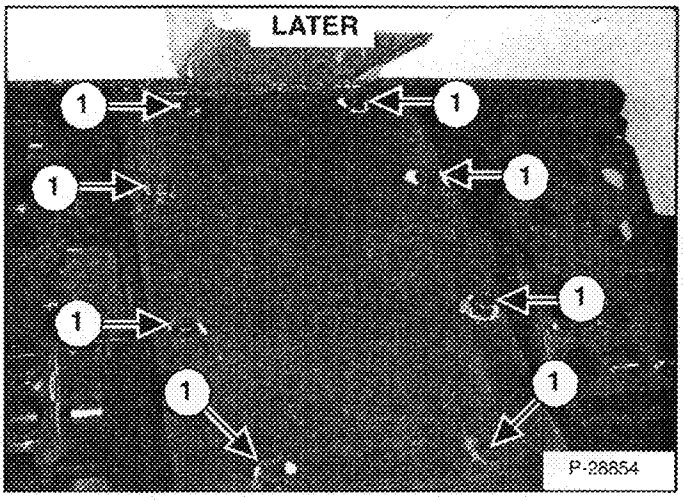
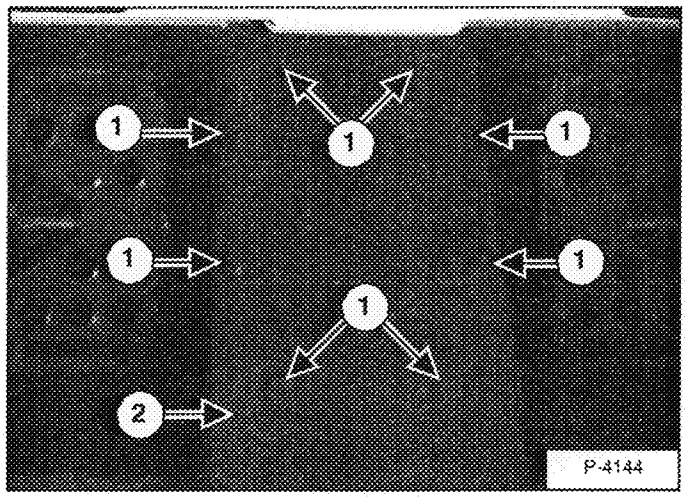


Figure 40-30-6



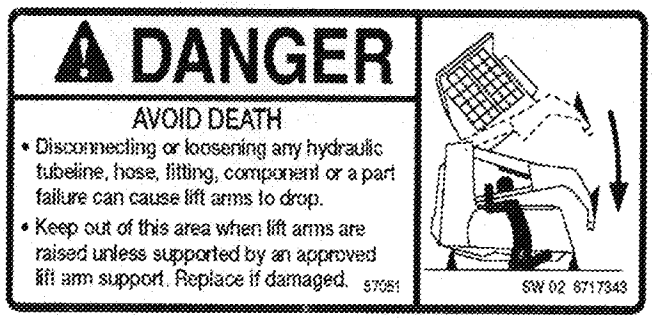
Remove the eight front chaincase cover mounting bolts (Item 1) **[Figure 40-30-5]** & **[Figure 40-30-6]**.

Installation: Tighten the mounting bolts to 25-28 ft.-lbs. (34-38 Nm) torque.

Remove the front chaincase cover (Item 2) **[Figure 40-30-6]** from the loader.

Installation: The front chaincase cover (Item 2) **[Figure 40-30-6]** has a gasket installed between the cover and the chaincase as shown in photo **[Figure 40-30-6]**. Install new gasket if necessary.

Center Cover Removal And Installation



WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

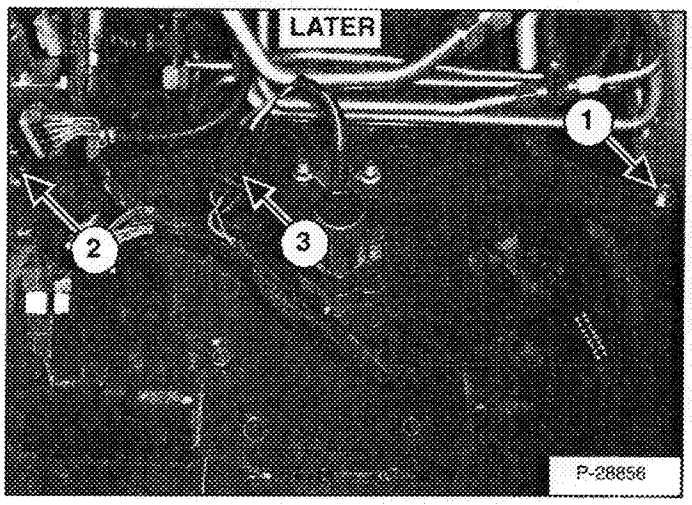
Raise the loader lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Raise the loader operator cab. (See Contents Page 10-01.)

Disconnect and remove the engine speed control from the control panel. (See Contents Page 70-01.)

Remove the control panel from the loader. (See Contents, Page 50-01.)

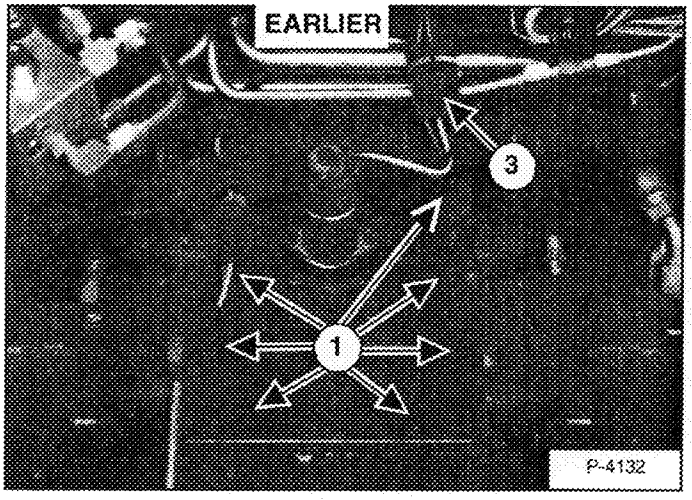
Figure 40-30-7



Disconnect the lift control cross bar (Item 1) **[Figure 40-30-7]** from the lift pedal linkage.

Disconnect the lift control cross bar (Item 2) **[Figure 40-30-7]** from the lift spool on the main control valve.

Figure 40-30-8



Disconnect the electrical connector (Item 3) **[Figure 40-30-7]** & **[Figure 40-30-8]** from the parking brake pedal sensor.

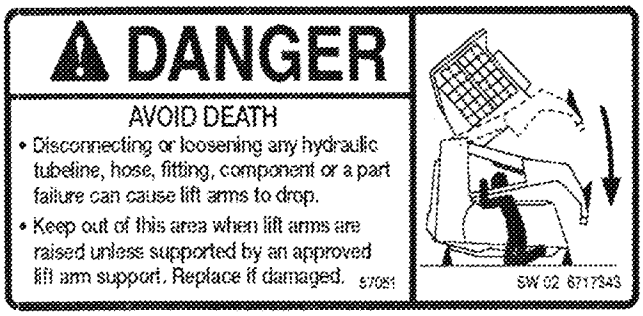
Remove the center chaincase cover mounting bolts (Item 1) **[Figure 40-30-8]**.

Installation: Tighten the mounting bolts to 25-28 ft.-lbs. (34-38 Nm) torque.

Remove the center chaincase cover and gasket.

Installation: Replace gasket before installation.

Rear Cover Removal And Installation



WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

W-2059-0598

Raise the loader lift arms and install an approved lift arm support device. (See Contents Page 10-01.)

Raise the loader operator cab. (See Contents Page 10-01.)

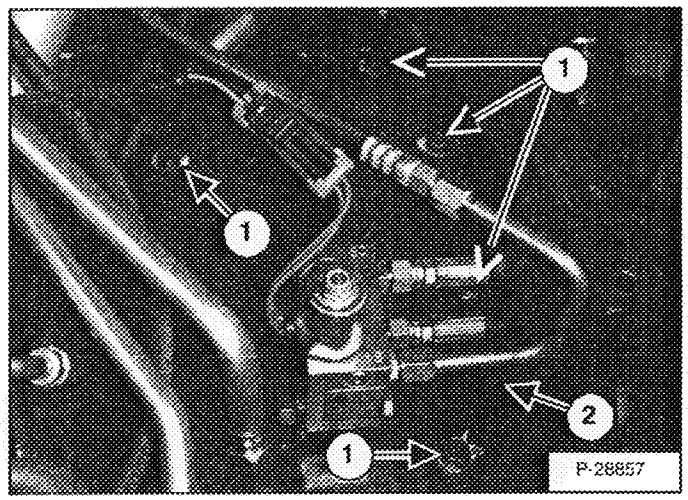
Mark and disconnect the front steering linkage bars from the rear linkage bars. (See the CONTROL PANEL, Contents Page 50-01 for correct procedure.)

Move the linkage bars to allow adequate space to remove the rear chaincase cover.

Remove the front auxiliary bleed block. (If so equipped.) (See Contents Page 20-01.)

Remove the rear auxiliary diverter block. (If so equipped.) (See Contents Page 20-01.)

Figure 40-30-9

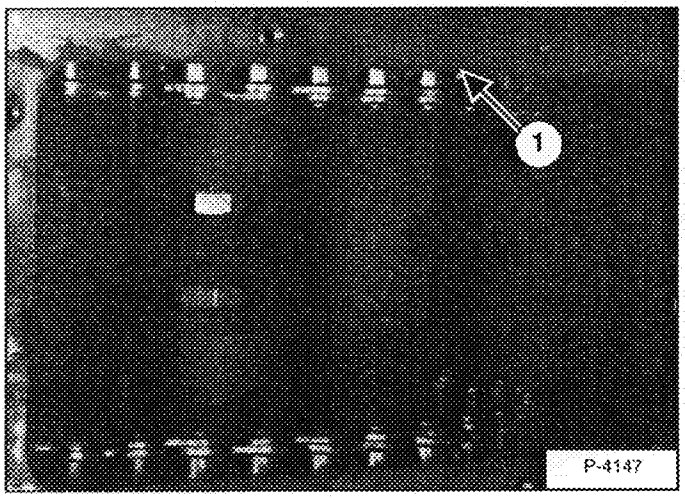


Remove the eight rear chaincase cover mounting bolts (Item 1) **[Figure 40-30-9]**.

Installation: Tighten the mounting bolts to 25-28 ft.-lbs. (34-38 Nm) torque.

Remove the rear chaincase cover (Item 2) **[Figure 40-30-9]** from the loader.

Figure 40-30-10



Installation: The rear chaincase cover (Item 2) **[Figure 40-30-9]** has a gasket (Item 1) **[Figure 40-30-10]** installed between the cover and the chaincase. Install a new gasket.