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**SAFETY AND
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

UNDERCARRIAGE

**UPPERSTRUCTURE
& SWING
SECTION**

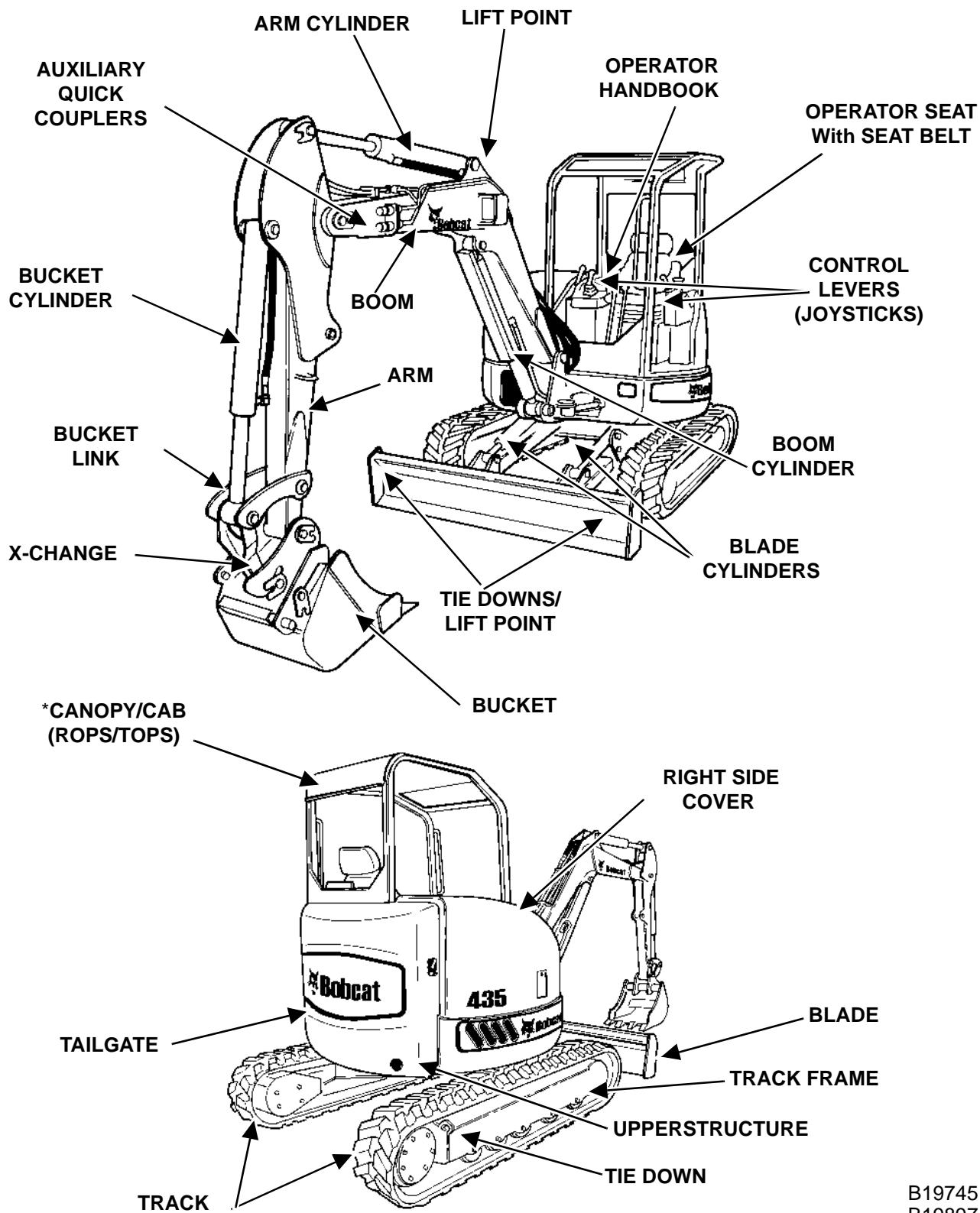
**ELECTRICAL
SYSTEM AND
ANALYSIS**

**ENGINE
SERVICE**

HVAC

SPECIFICATIONS

BOBCAT EXCAVATOR IDENTIFICATION



B19745
B19897

* FOGS (Falling Object Guards) is available from your Bobcat Excavator dealer.

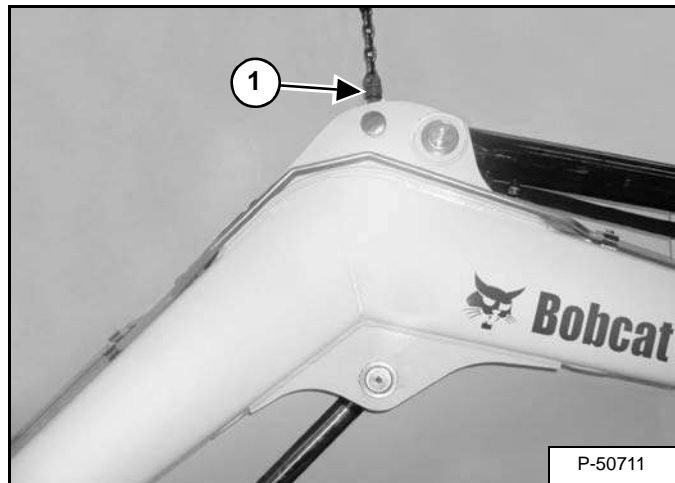
BOOM CYLINDER (CONT'D)

Removal And Installation

Lower the boom/bucket and blade to the ground.

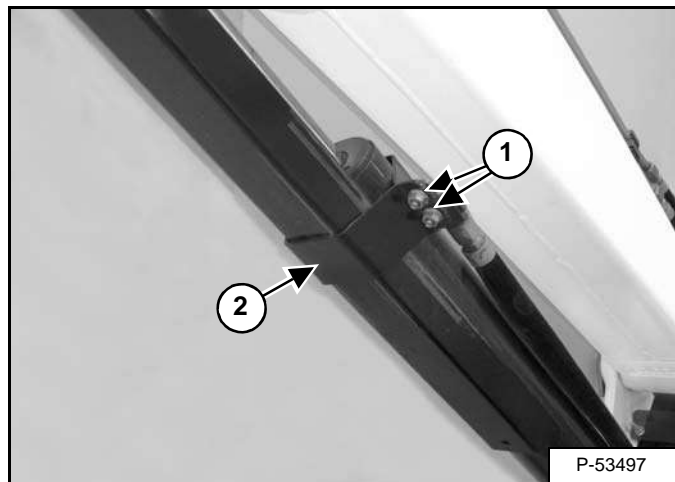
With the engine off, turn the key to the ON position and move both hydraulic control levers to relieve hydraulic pressure.

Figure 20-20-9



Support the boom with a chain hoist (Item 1) [Figure 20-20-9].

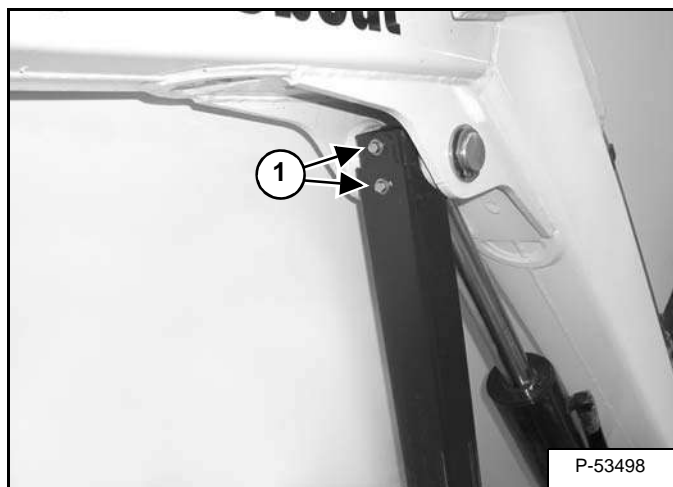
Figure 20-20-10



Remove the bolts (Item 1) from both sides of the cylinder rod guard bracket (Item 2) [Figure 20-20-10].

Remove the brackets.

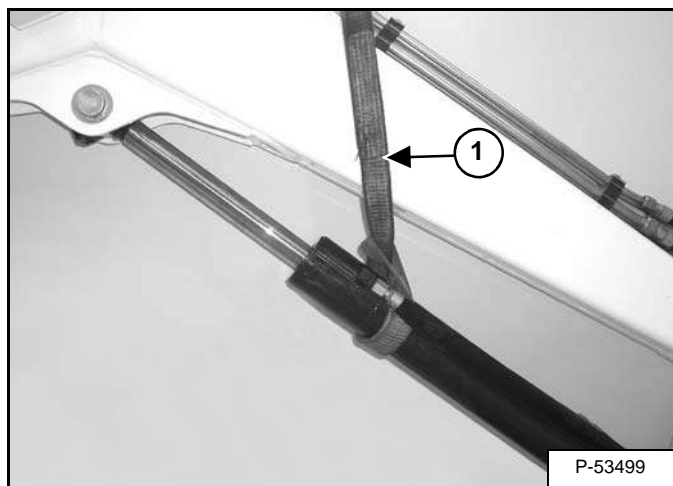
Figure 20-20-11



Remove the bolts (Item 1) [Figure 20-20-11] from the guard.

Remove the guard.

Figure 20-20-12



Install a sling (Item 1) [Figure 20-20-12] and hoist to the rod end of the boom cylinder. Support the cylinder with the hoist.

BLADE CYLINDER (CONT'D)

Assembly

Clean all parts in solvent and dry with compressed air.

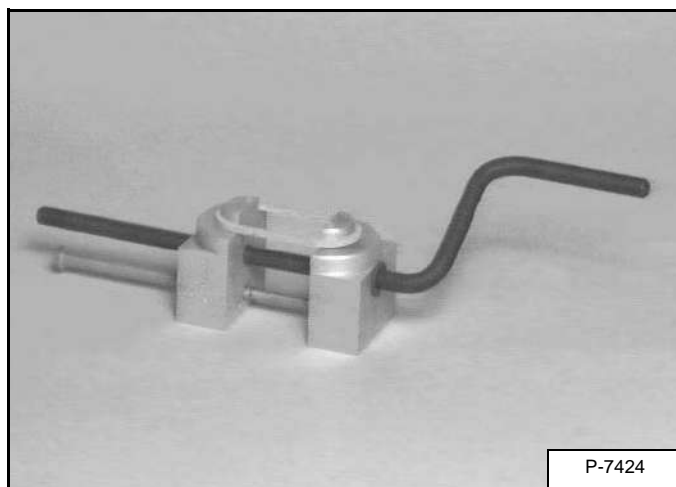
Inspect all parts for wear or damage. Replace any worn or damaged parts.

Always install new seals and O-rings. Lubricate all seals and O-rings with clean hydraulic fluid before installation.

Use the following tools to assemble the cylinder:

MEL1396 - Universal Seal Expander
MEL1033 - Rod Seal Installation Tool
Piston Ring Compressor
MEL1075 - Adjustable Gland Nut Wrench
MEL1075-1 - Standard Pins

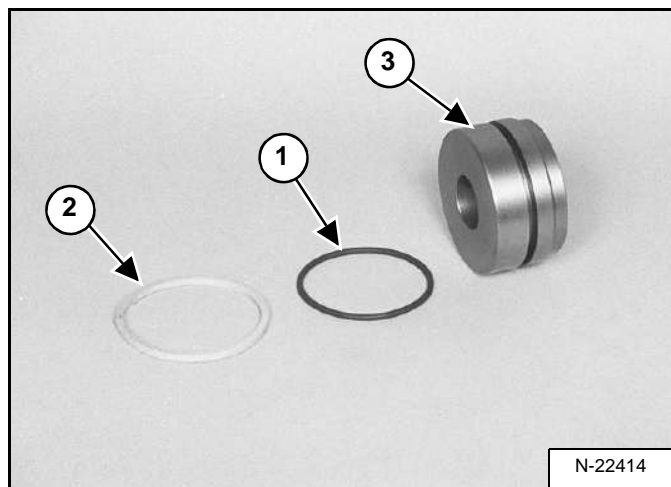
Figure 20-24-13



Install the seal on the tool and slowly stretch it until it fits the piston **[Figure 20-24-13]**.

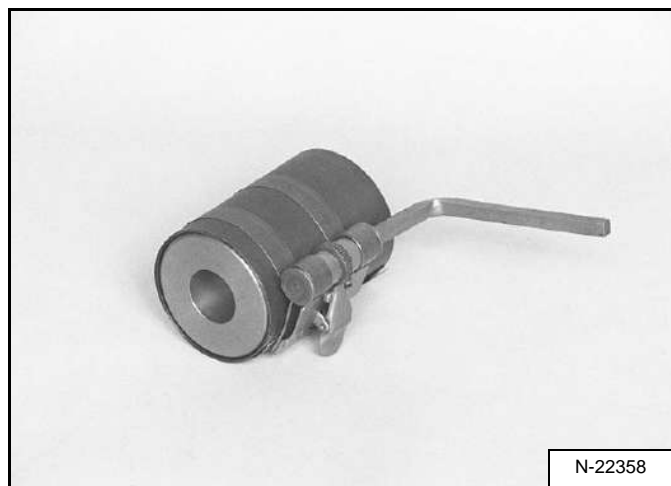
Allow the seal to stretch for 30 seconds before installing it on the piston.

Figure 20-24-14



Install the O-ring (Item 1) and seal (Item 2) on the piston (Item 3) **[Figure 20-24-14]**.

Figure 20-24-15

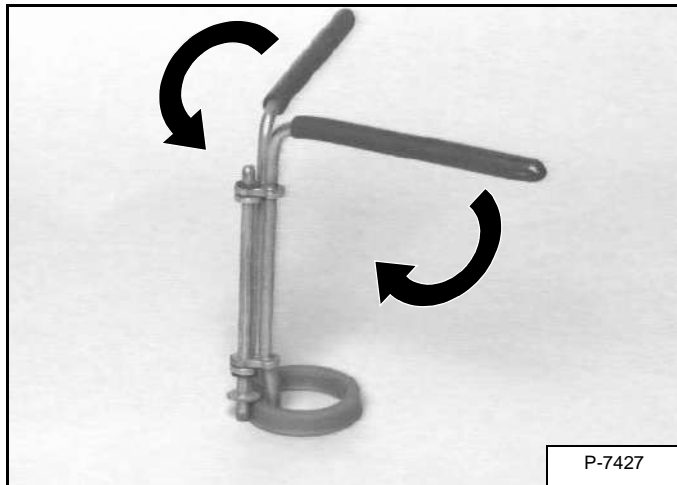


Use a ring compressor to compress the seal to the correct size. Leave the piston in the compressor for about three minutes **[Figure 20-24-15]**.

ANGLE BLADE CYLINDER (CONT'D)

Assembly (Cont'd)

Figure 20-26-19



Install the rod seal on the rod seal tool [Figure 20-26-19].

NOTE: During installation the spring side of the seal must be toward the inside of the cylinder.

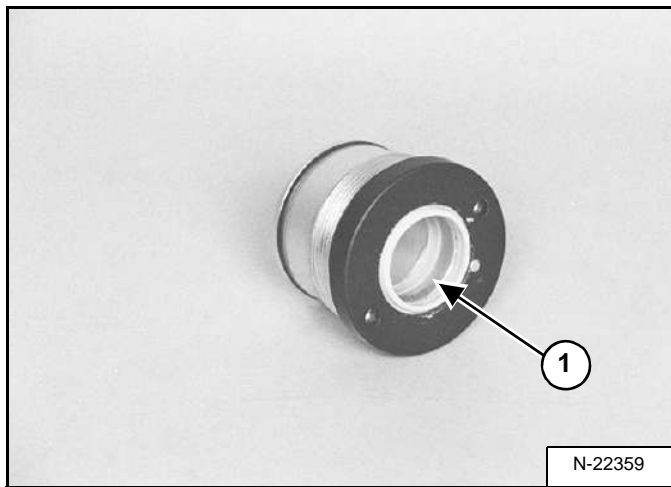
Rotate the handles to collapse the rod seal [Figure 20-26-19].

Figure 20-26-20



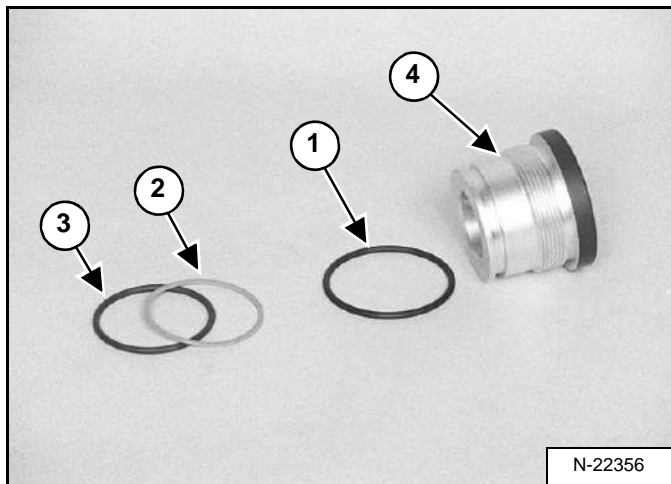
Install the rod seal in the head [Figure 20-26-20].

Figure 20-26-21



Install the wiper seal with the wiper (Item 1) [Figure 20-26-21] toward the outside of the head.

Figure 20-26-22



Install the O-ring (Item 1) [Figure 20-26-22].

Install the back-up ring (Item 2) and O-ring (Item 3) into the groove on the head (Item 4) [Figure 20-26-22].

Removal And Installation

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.

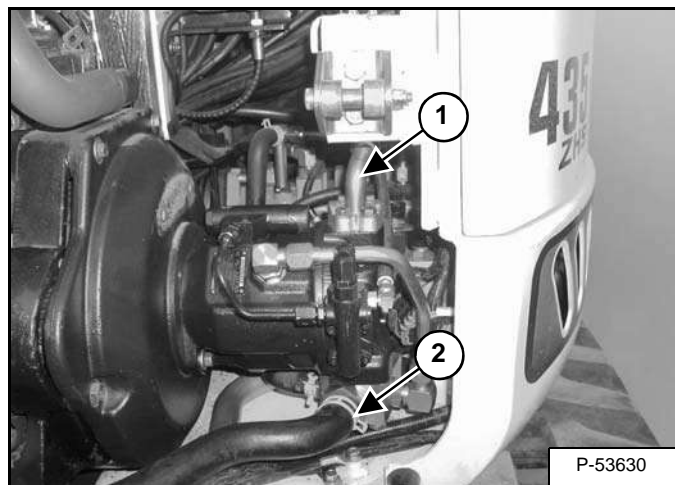
I-2003-0888

Open the tailgate.

Drain the hydraulic reservoir. (See Replacing The Hydraulic Oil on Page 10-100-2)

Remove the muffler. (See Removal And Installation on Page 70-20-1)

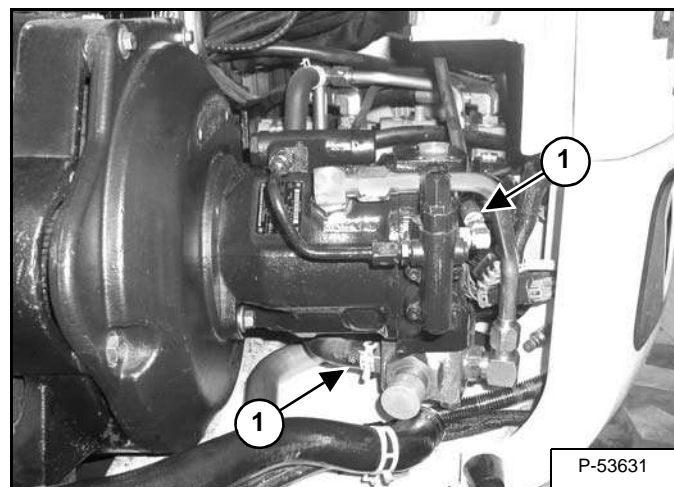
Figure 20-50-38



Remove the hose (Item 1) [Figure 20-50-38] that goes from the pump to the control valve.

Remove the hose (Item 2) [Figure 20-50-38] that goes from the reservoir to the pump.

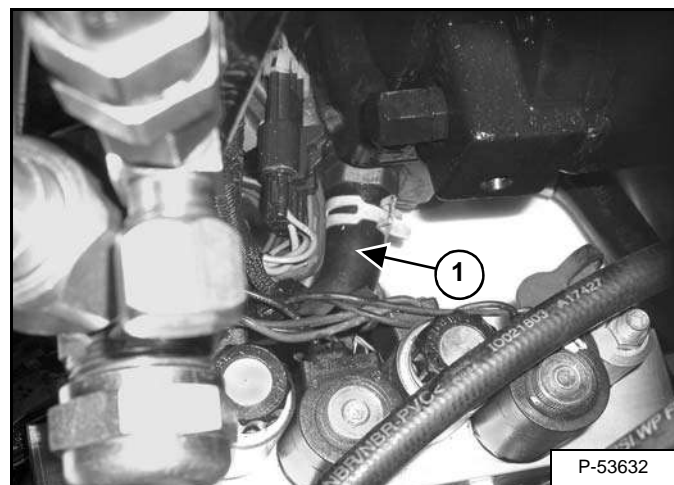
Figure 20-50-39



Remove the hoses (Item 1) [Figure 20-50-39].

Open the right side cover.

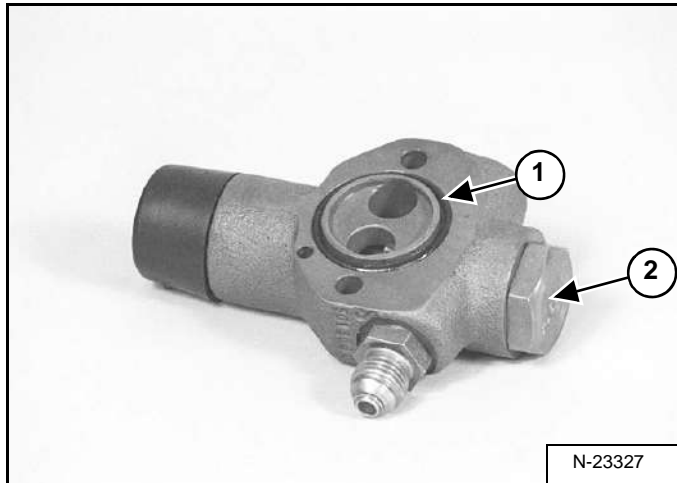
Figure 20-50-40



Remove the hose (Item 1) [Figure 20-50-40].

Torque Limiter Valve Disassembly

Figure 20-51-48



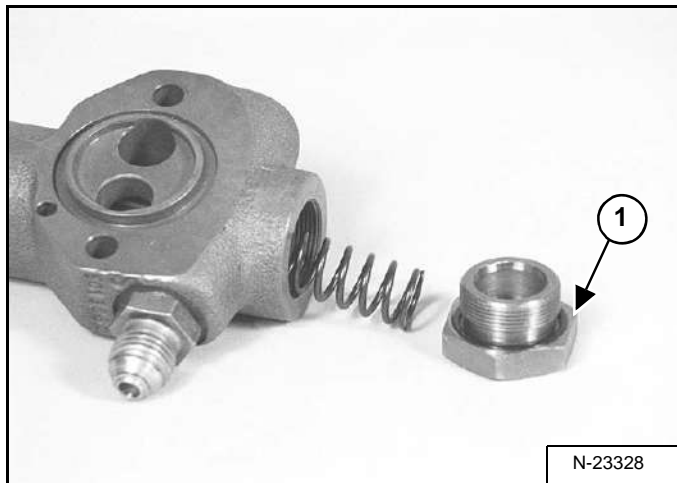
Remove the O-ring (Item 1) [Figure 20-51-48] from the torque limiter valve.

NOTE: Care should be taken not to scratch or damage the mounting surface on the housing.

NOTE: The plug (Item 2) [Figure 20-51-48] is under spring pressure.

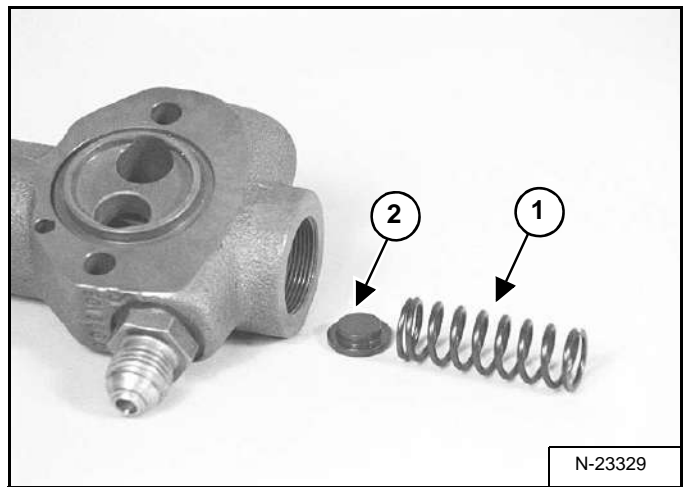
Remove the plug (Item 2) [Figure 20-51-48] from the torque limiter valve to relieve pressure on the torque limiter valve spool.

Figure 20-51-49



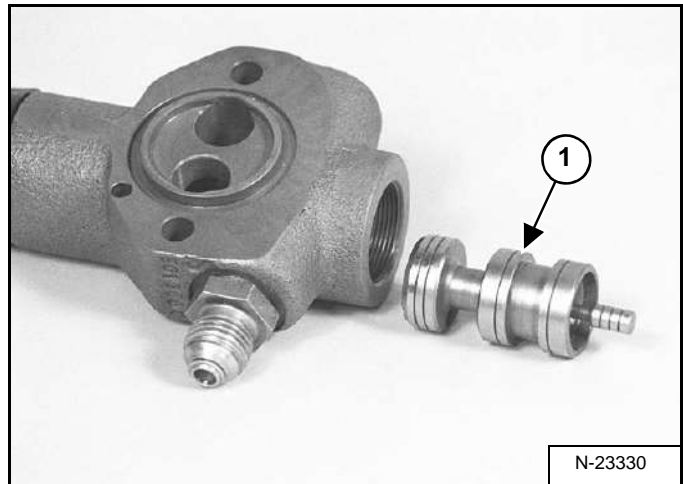
Remove the O-ring (Item 1) [Figure 20-51-49].

Figure 20-51-50



Remove the spring (Item 1) and spring seat (Item 2) [Figure 20-51-50].

Figure 20-51-51

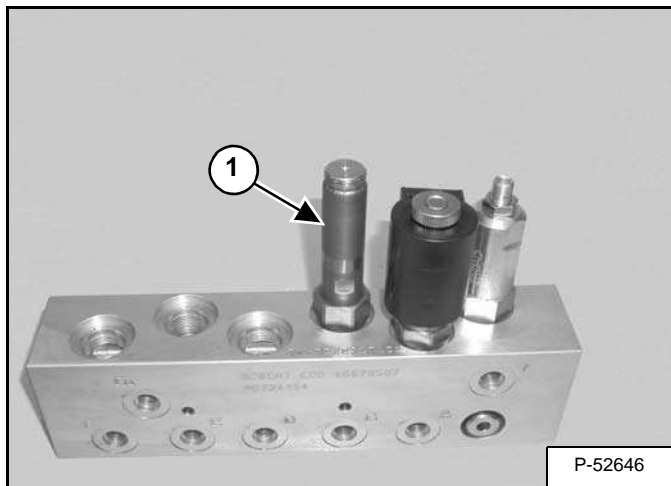


Remove the control spool assembly (Item 1) [Figure 20-51-51].

NOTE: Use care not to scratch or damage the spool. Scratches in the spool can cause internal leakage.

Assembly (Cont'd)

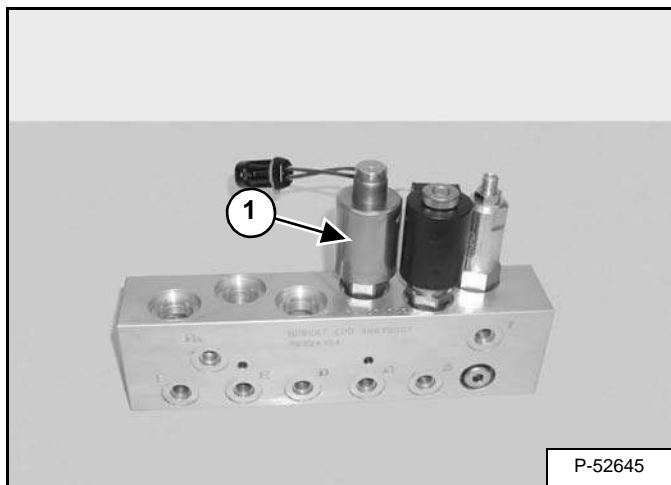
Figure 20-60-75



Install the spool (Item 1) [Figure 20-60-75].

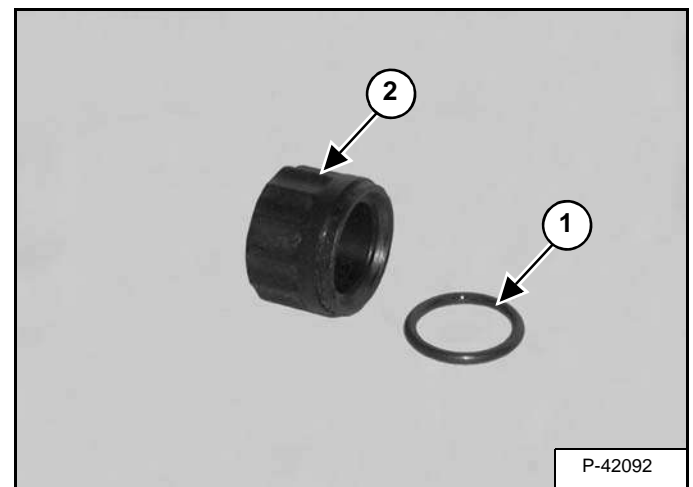
Tighten the spool to 22 ft.-lb. (30 N•m) torque.

Figure 20-60-76



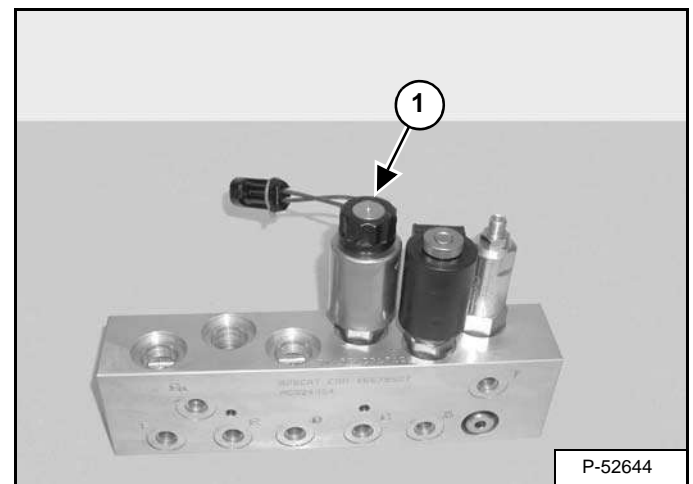
Install the coil with the orange cable tie (Item 1) [Figure 20-60-76].

Figure 20-60-77



Install the O-ring (Item 1) on the nut (Item 2) [Figure 20-60-77].

Figure 20-60-78

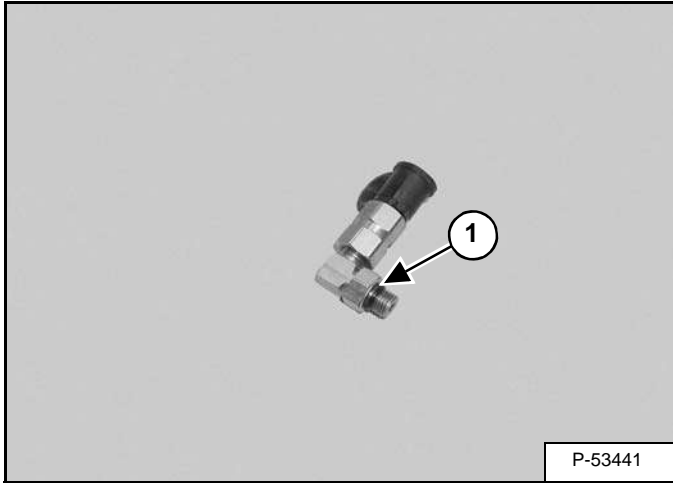


Install the nut (Item 1) [Figure 20-60-78] on the spool.

Tighten the nut to 53 in.-lb. (6 N•m) torque.

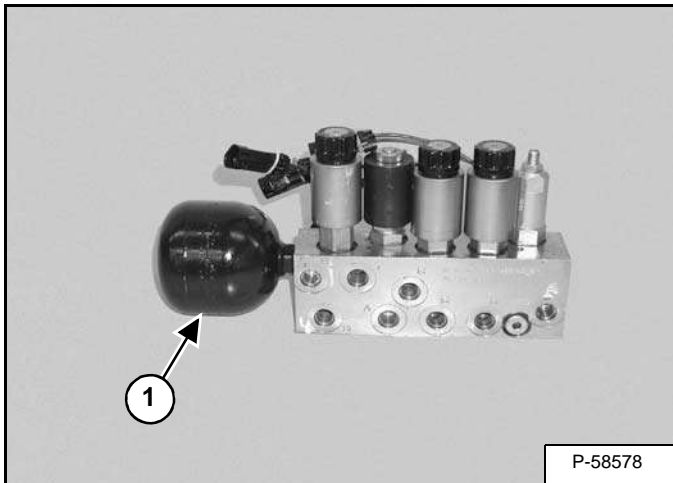
Disassembly (Cont'd)

Figure 20-63-18



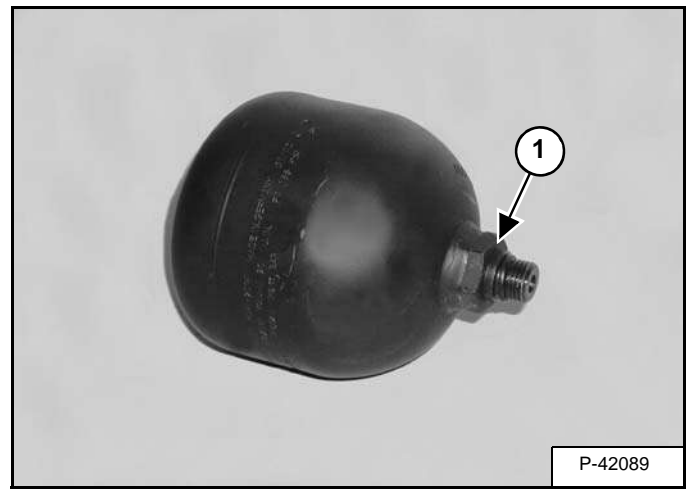
Remove the O-ring (Item 1) [Figure 20-63-18] from the fittings and plug (test fitting shown).

Figure 20-63-19



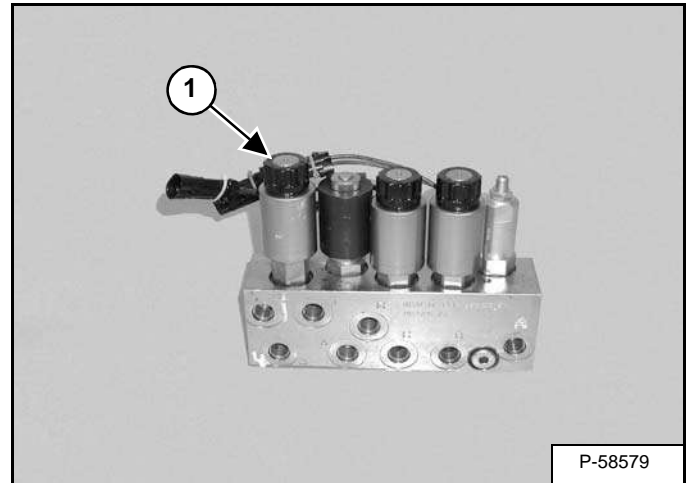
Remove the accumulator (Item 1) [Figure 20-63-19].

Figure 20-63-20



Remove the O-ring (Item 1) [Figure 20-63-20].

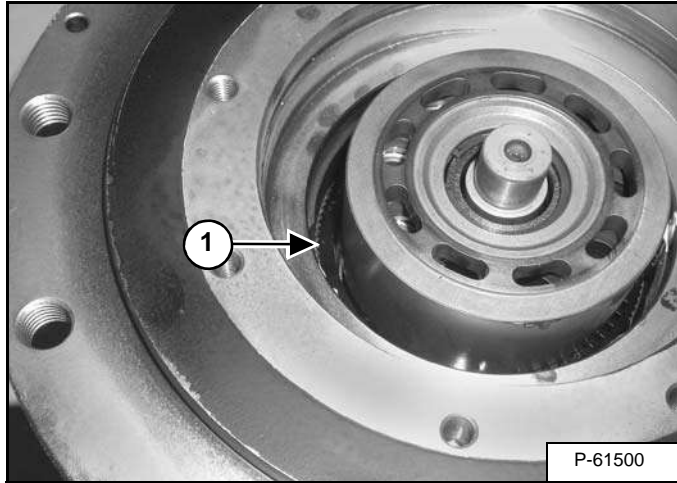
Figure 20-63-21



Remove the nut (Item 1) [Figure 20-63-21] from the spool.

Assembly (Cont'd)

Figure 20-71-73



Install the stop (Item 1) [Figure 20-71-73] into the hub.

Figure 20-71-74

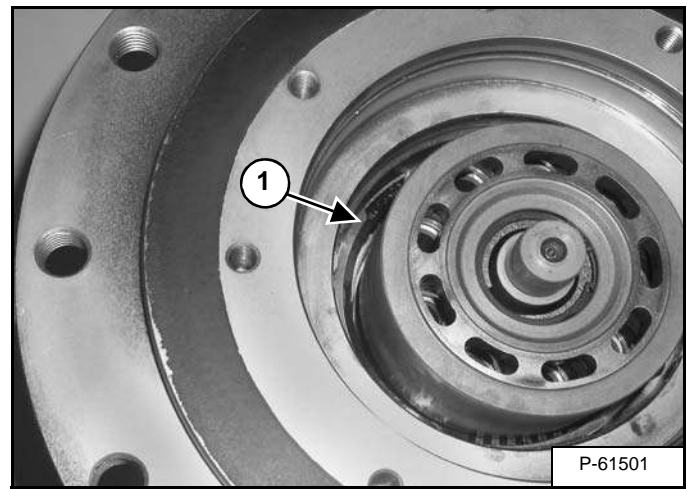
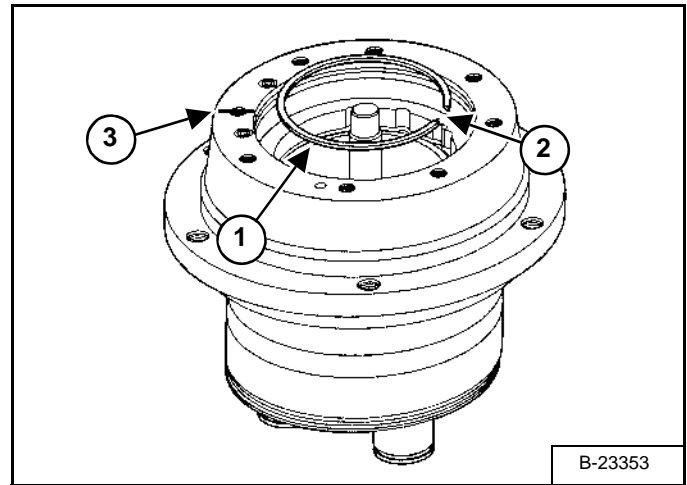


Figure 20-71-75



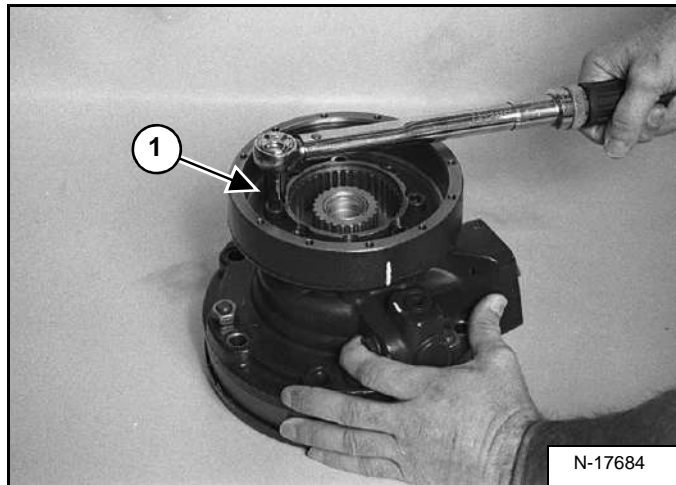
Install the retaining ring (Item 1) [Figure 20-71-74] and [Figure 20-71-75].

NOTE: The opening in the retaining ring (Item 2) must be installed in the housing on the opposite side of the piston (marked earlier) (Item 3) [Figure 20-71-75].

SWING MOTOR (CONT'D)

Assembly (Cont'd)

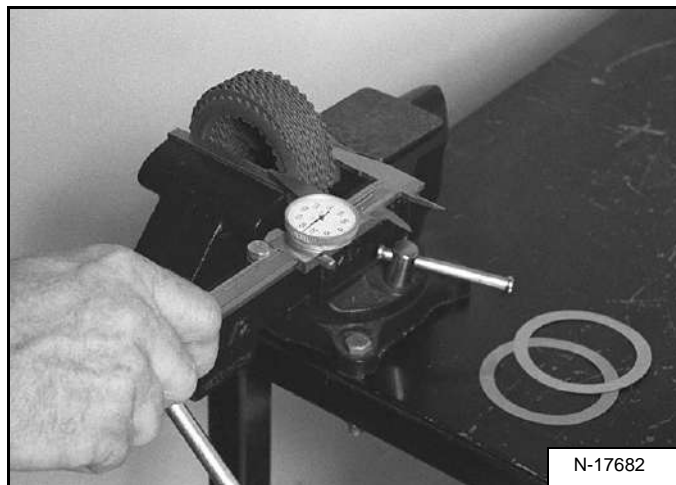
Figure 20-90-49



Put Loctite™ 243 on the bolts. Install the 6 bolts (Item 1) [Figure 20-90-49] and washers. Tighten the bolts to 52 to 57 ft.-lb. (70 to 77 N•m) torque.

All Models

Figure 20-90-50



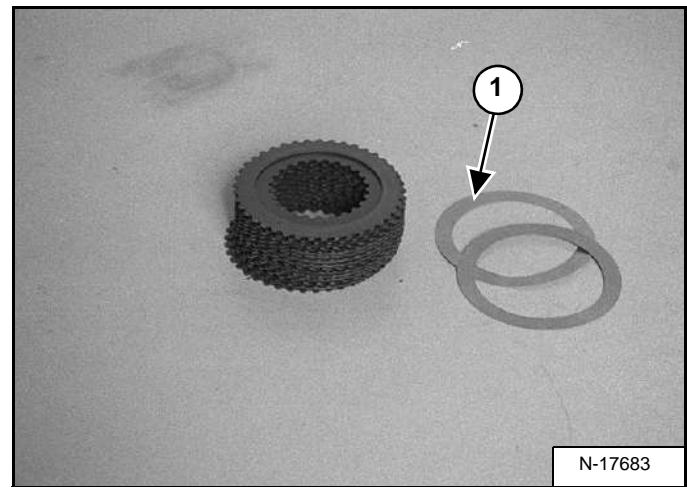
Assemble the brake discs into a pack. Clamp the disc pack in a vise [Figure 20-90-50].

Make sure the inner discs, alternate with the outer disc and an outer disc is placed at each end of the disc pack.

Check the disc pack height [Figure 20-90-50].

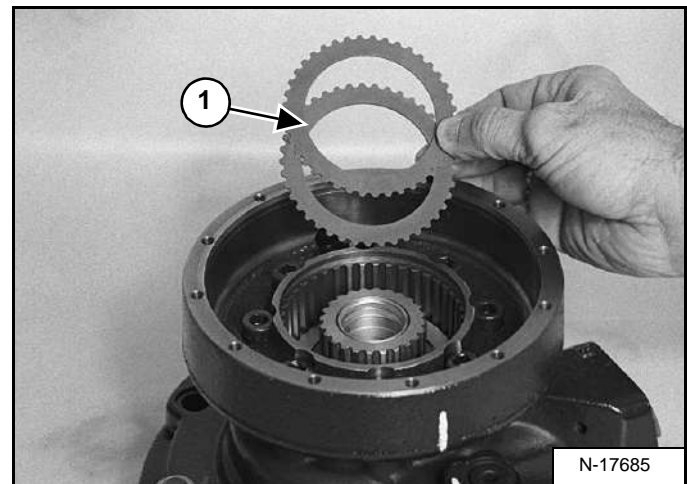
The correct disc pack height specification is 1.13 ± 0.004 inch ($28,9 \pm 0,1$ mm).

Figure 20-90-51



An extra outer disc is preferred to reduce the number of required shims. Shims (Item 1) [Figure 20-90-51] should be placed at the end of the disc pack in contact with the motor housing.

Figure 20-90-52

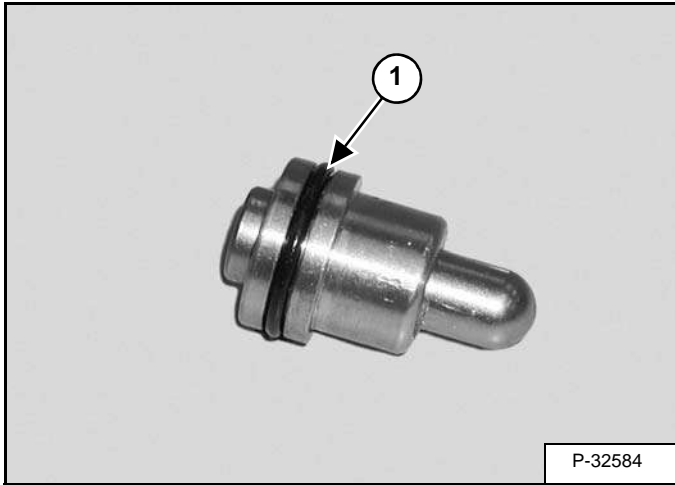


Install the shims as needed. Install the outer discs (Item 1) [Figure 20-90-52].

LEFT CONTROL LEVER (JOYSTICK) (CONT'D)

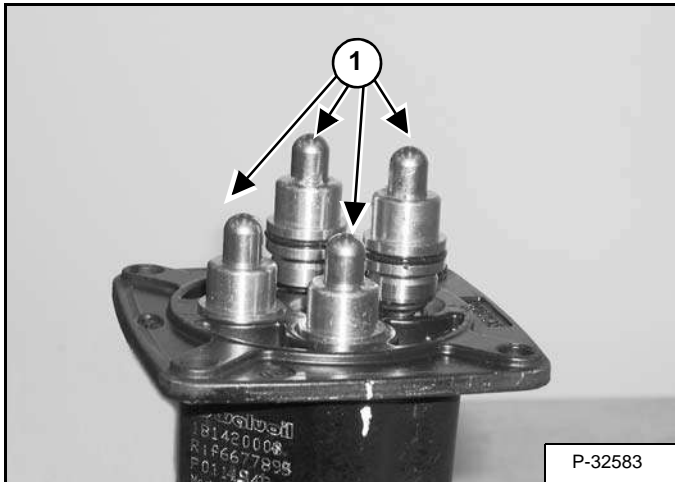
Assembly (Cont'd)

Figure 20-111-49



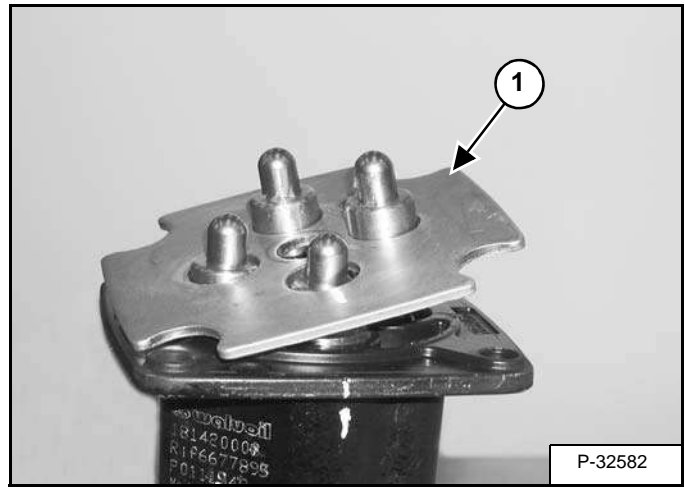
Install the O-ring (Item 1) [Figure 20-111-49] on the bushing.

Figure 20-111-50



Install the four plunger assemblies (Item 1) [Figure 20-111-50] in the housing.

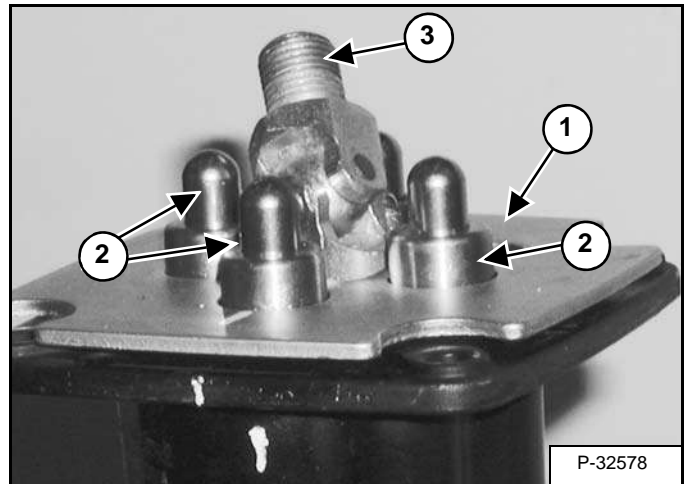
Figure 20-111-51



Install the plate (Item 1) [Figure 20-111-51].

NOTE: Spring pressure can dislodge the plunger assemblies until the plate is secured in place.

Figure 20-111-52



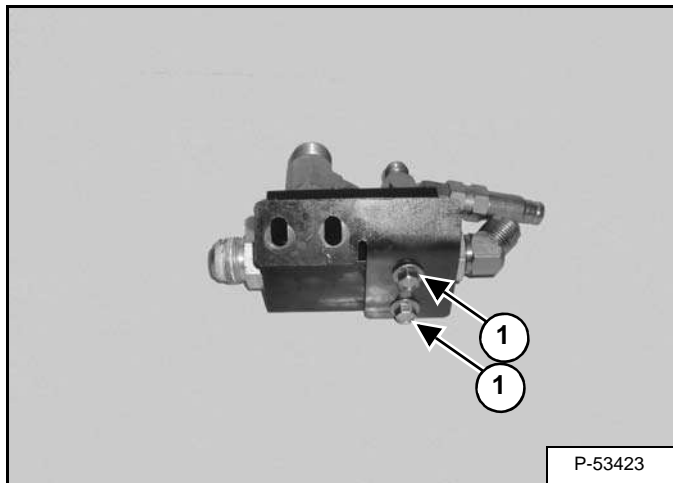
Press down on the plate (Item 1) keeping the plunger assemblies (Item 2) fully seated and install the U-joint (Item 3) [Figure 20-111-52].

BUILD UP VALVE (CONT'D)

Disassembly And Assembly

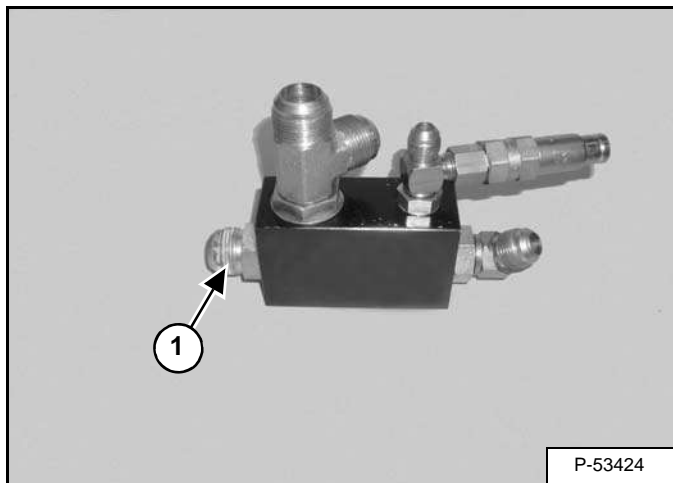
Clean the outside of the build up valve before disassembly.

Figure 20-170-4



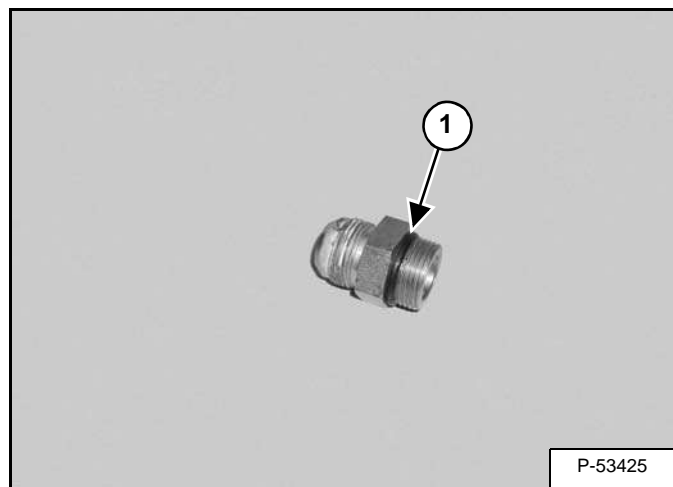
Remove the bolts (Item 1) [Figure 20-170-4]. Remove the mount bracket from the housing.

Figure 20-170-5



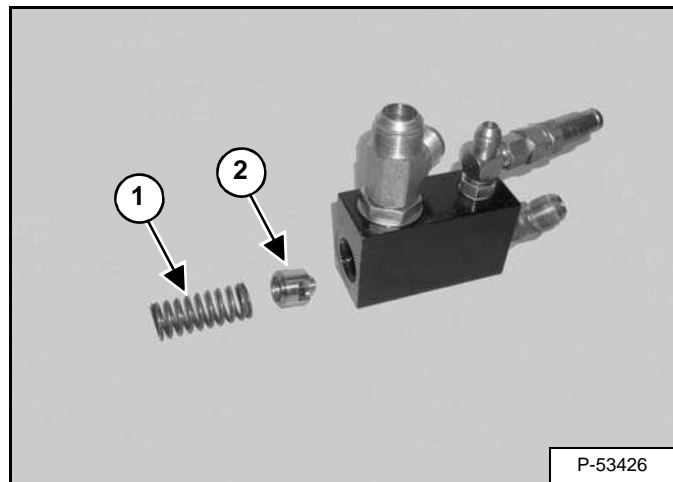
Remove the fitting (Item 1) [Figure 20-170-5] from the housing.

Figure 20-170-6



Remove the O-ring (Item 1) [Figure 20-170-6] from the fitting.

Figure 20-170-7

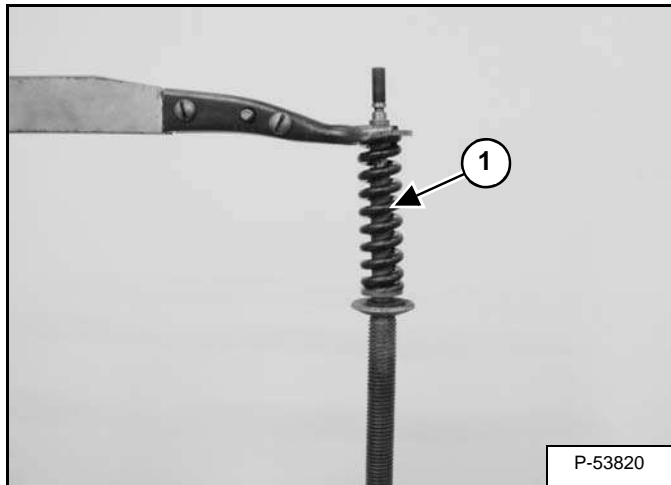


Remove the spring (Item 1) and poppet (Item 2) [Figure 20-170-7] from the housing.

HYDROSTATIC PUMP (CONT'D)

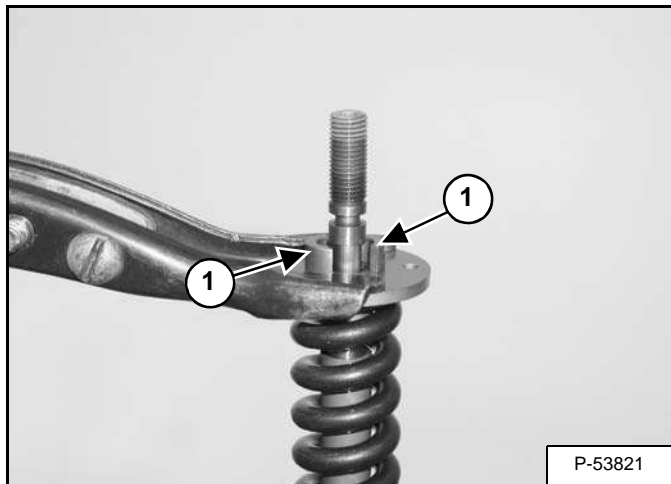
Disassembly (Cont'd)

Figure 30-30-69



Use a valve spring compressor to compress the spring (Item 1) [Figure 30-30-69].

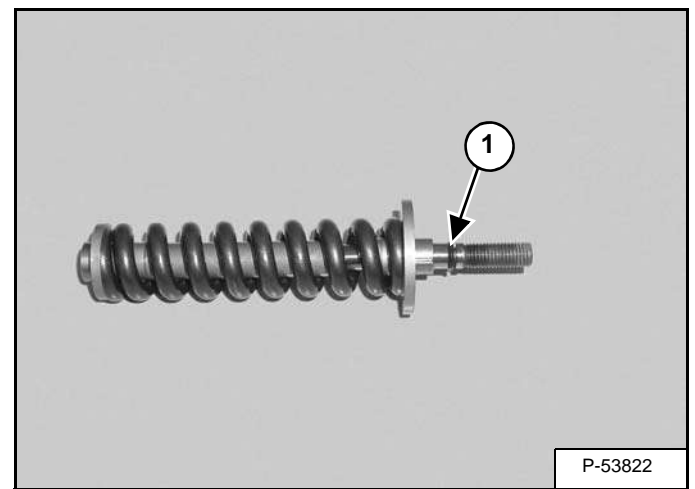
Figure 30-30-70



Remove the spring seat keepers (Item 1) [Figure 30-30-70].

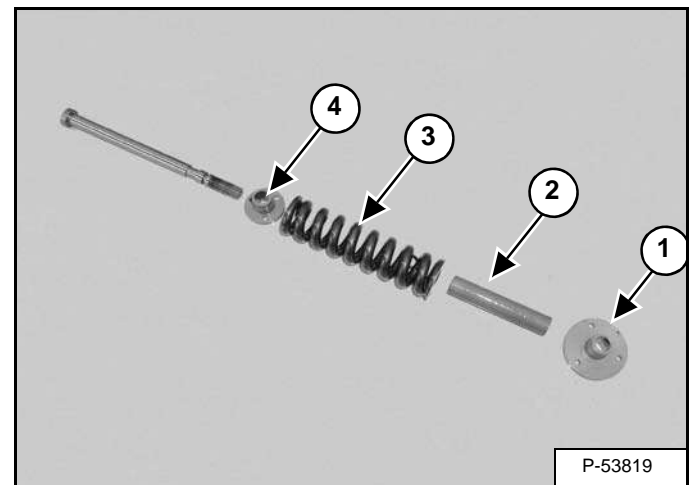
Remove the adjustment bolt/spring assembly from the valve spring compressor.

Figure 30-30-71



Remove the O-ring (Item 1) [Figure 30-30-71].

Figure 30-30-72

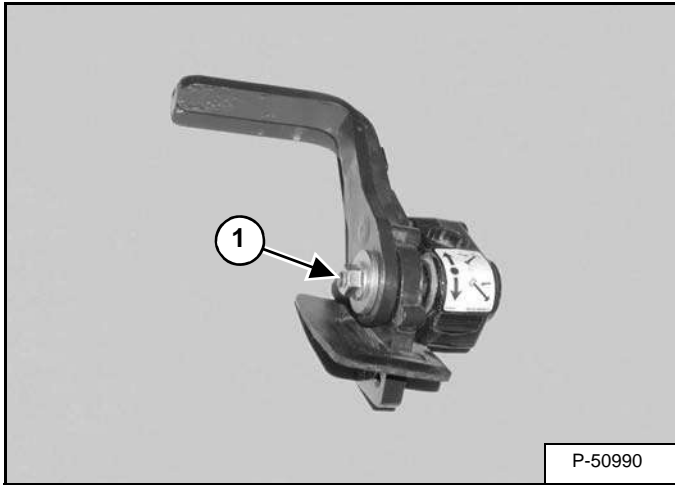


Remove the spring seat (Item 1), spacer (Item 2), spring (Item 3) and spring seat (Item 4) [Figure 30-30-72] from the bolt.

RIGHT PEDAL AND LINKAGE (CONT'D)

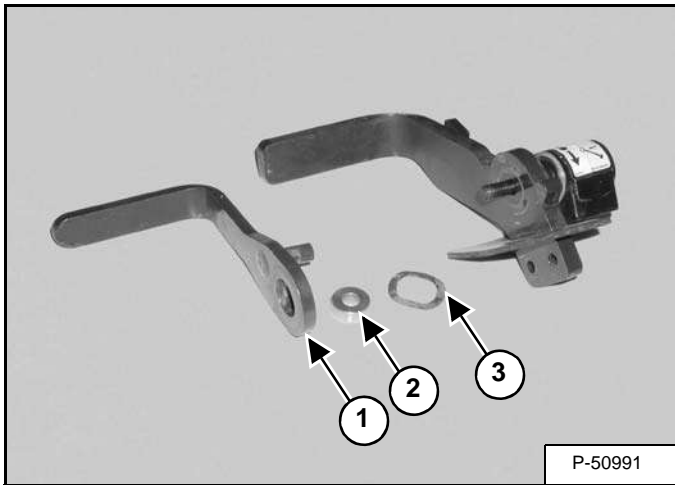
Pedal Disassembly And Assembly

Figure 50-90-4



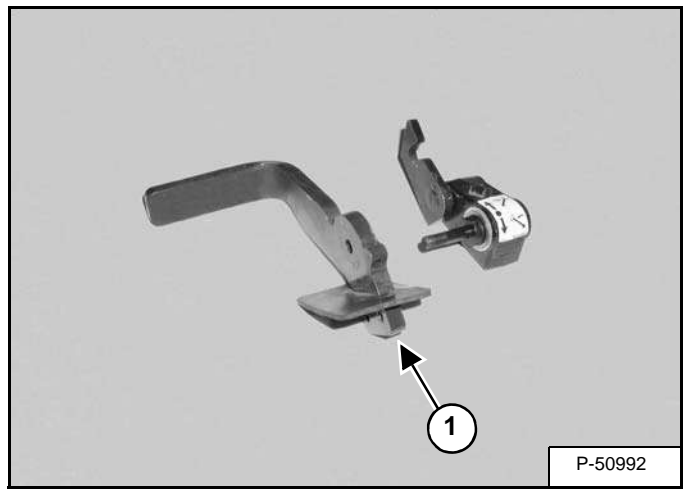
Remove the nut and washer (Item 1) [Figure 50-90-4].

Figure 50-90-5



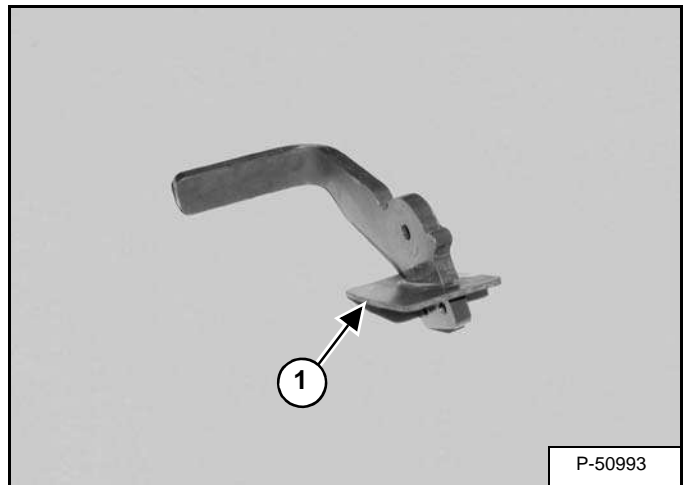
Remove the rear pedal (Item 1) bushing (Item 2) and wave washer (Item 3) [Figure 50-90-5].

Figure 50-90-6



Remove the front pedal (Item 1) [Figure 50-90-6].

Figure 50-90-7



Remove the dust cover (Item 1) [Figure 50-90-7].