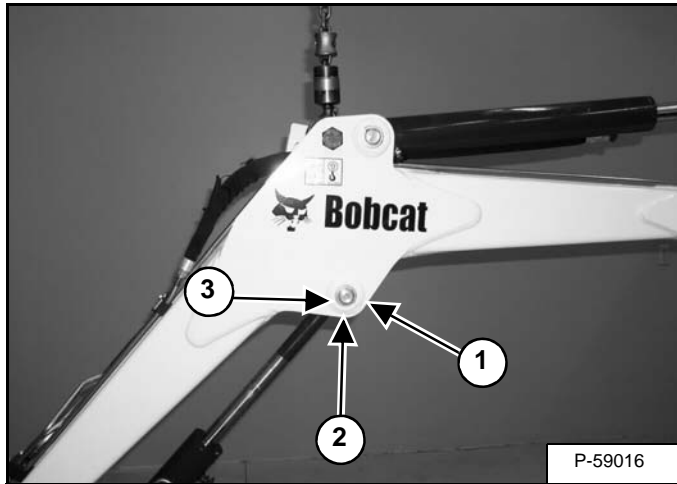


BOOM CYLINDER (CONT'D)

Testing (Cont'd)

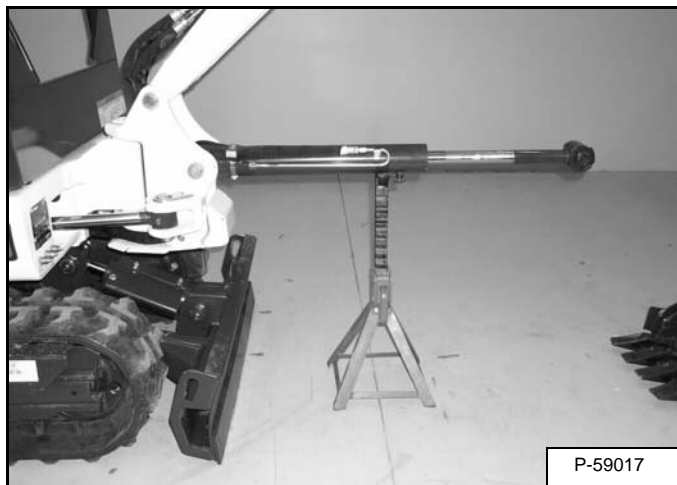
Figure 20-20-5



Remove the retaining ring (Item 1) and washer (Item 2) [Figure 20-20-5] from the rod end pivot pin.

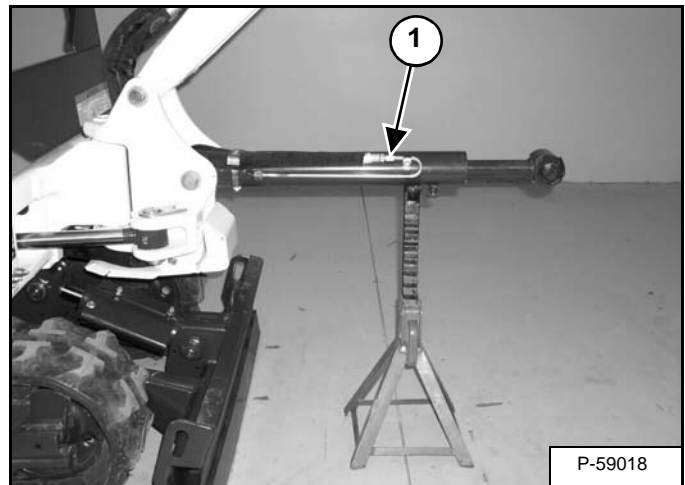
Remove the pivot pin (Item 3) [Figure 20-20-5].

Figure 20-20-6



Support the boom cylinder [Figure 20-20-6].

Figure 20-20-7



Lower control console and fasten the seat belt. Start the engine and retract the boom cylinder [Figure 20-20-7].

With the key in the ON position and the engine stopped, move the hydraulic controls to release the hydraulic pressure. Raise the control console.

WARNING

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin. This can cause serious injury and possible death if proper medical treatment by a physician familiar with this injury is not received immediately.

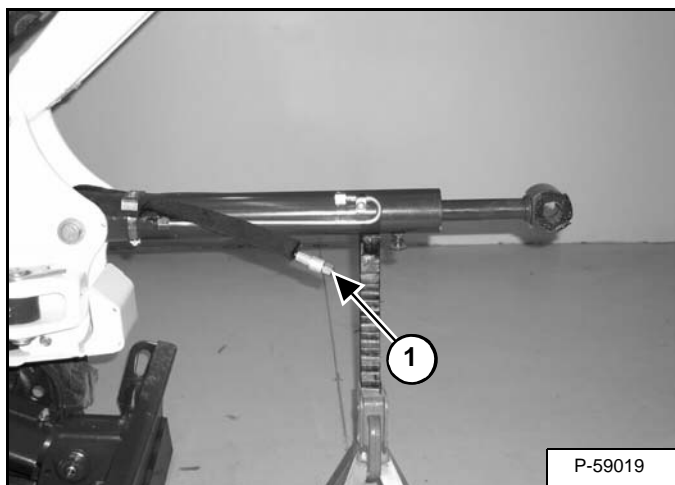
W-2145-0290

Disconnect the boom cylinder base end hose (Item 1) [Figure 20-20-7] at the hose tubeline connection.

BOOM CYLINDER (CONT'D)

Testing (Cont'd)

Figure 20-20-8



Install a cap (Item 1) **[Figure 20-20-8]** on the hose fitting and tighten.

Lower control console and fasten seat belt. Start the engine and retract the boom cylinder.

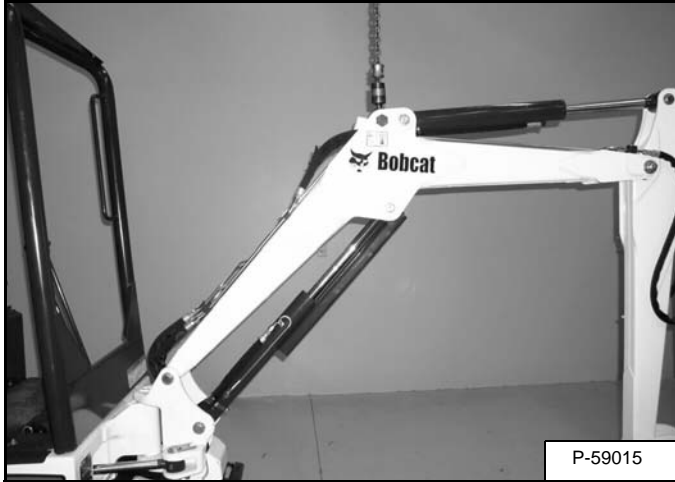
If there is any leakage from the base end fitting on the boom cylinder, remove the cylinder for repair or replacement.

BOOM CYLINDER (CONT'D)

Removal and Installation

Lower the boom/bucket and blade to the ground. Stop the engine.

Figure 20-20-9

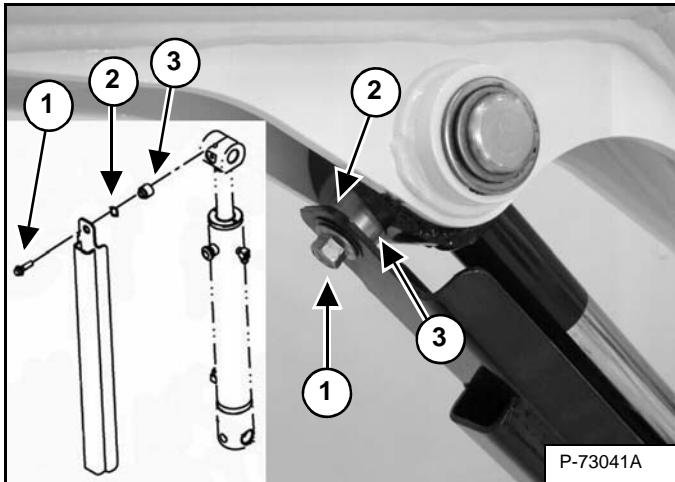


Support the boom using a chain hoist [Figure 20-20-9].

With the key in the ON position, move the hydraulic controls to release the hydraulic pressure.

Boom Shield

Figure 20-20-10



Remove the boom shield mounting bolt (Item 1), spring washer (Item 2), and spacer (Item 3) [Figure 20-20-10].

Figure 20-20-11

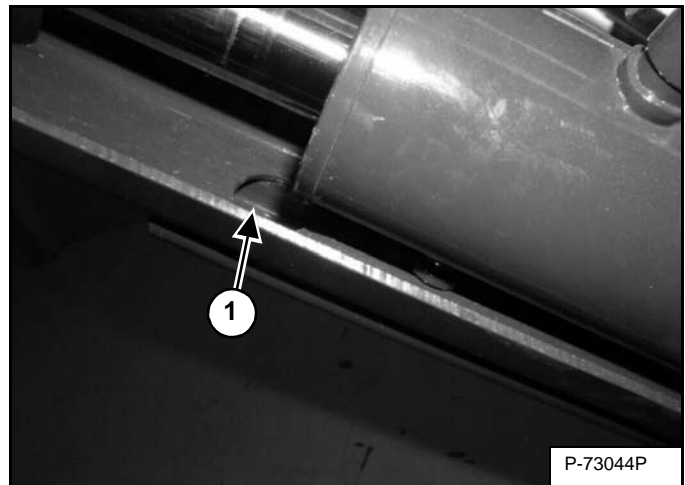
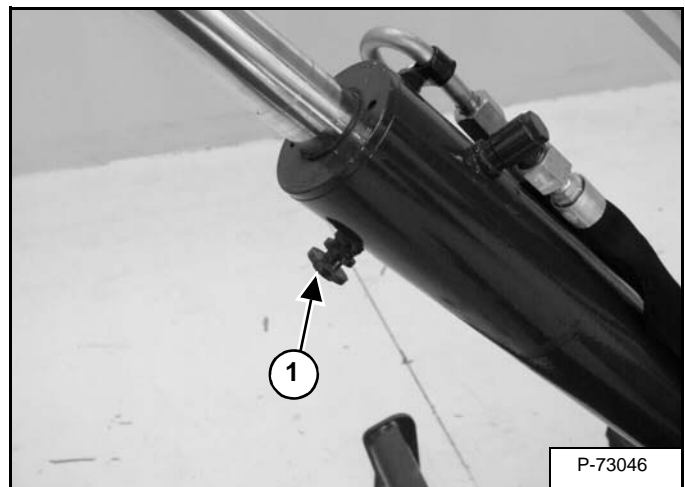


Figure 20-20-12



Slide the shield down until the keyhole (Item 1) [Figure 20-20-11] in the shield lines up with the mounting stud (Item 1) [Figure 20-20-12] on the cylinder.

Remove the shield.

IMPORTANT

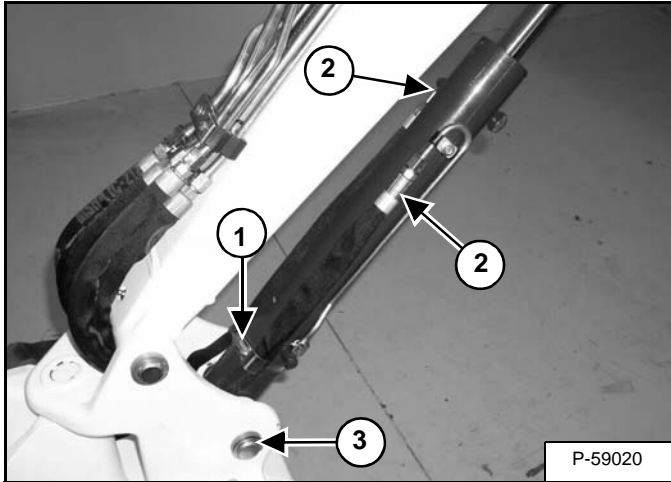
When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I-2003-0888

BOOM CYLINDER (CONT'D)

Removal and Installation (Cont'd)

Figure 20-20-13



Remove hose retainer clamp (Item 1) [Figure 20-20-13] from hoses and cylinder.

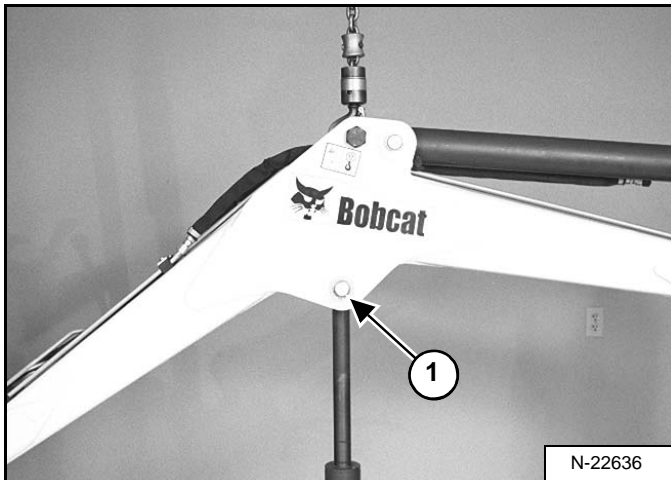
Disconnect and cap the two hoses (Item 2) [Figure 20-20-13] from the boom cylinder.

Remove the snap ring (Item 3) [Figure 20-20-13] and washers from the boom cylinder base end pin.

Remove the cylinder base end pin.

Lower the base end of the cylinder to the floor.

Figure 20-20-14



Remove the snap ring (Item 1) [Figure 20-20-14] and washer from the cylinder rod end pin.

Remove the cylinder rod end pin. Remove the boom cylinder from the boom.

WARNING

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin. This can cause serious injury and possible death if proper medical treatment by a physician familiar with this injury is not received immediately.

W-2145-0290

WARNING

AVOID INJURY OR DEATH

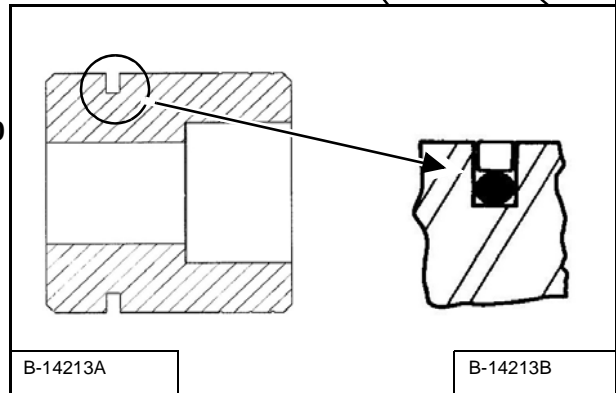
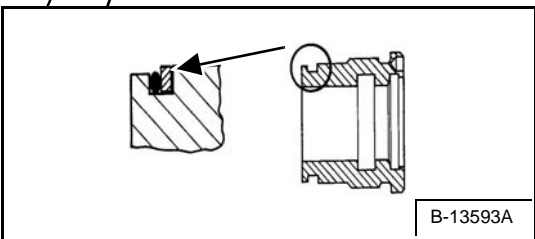
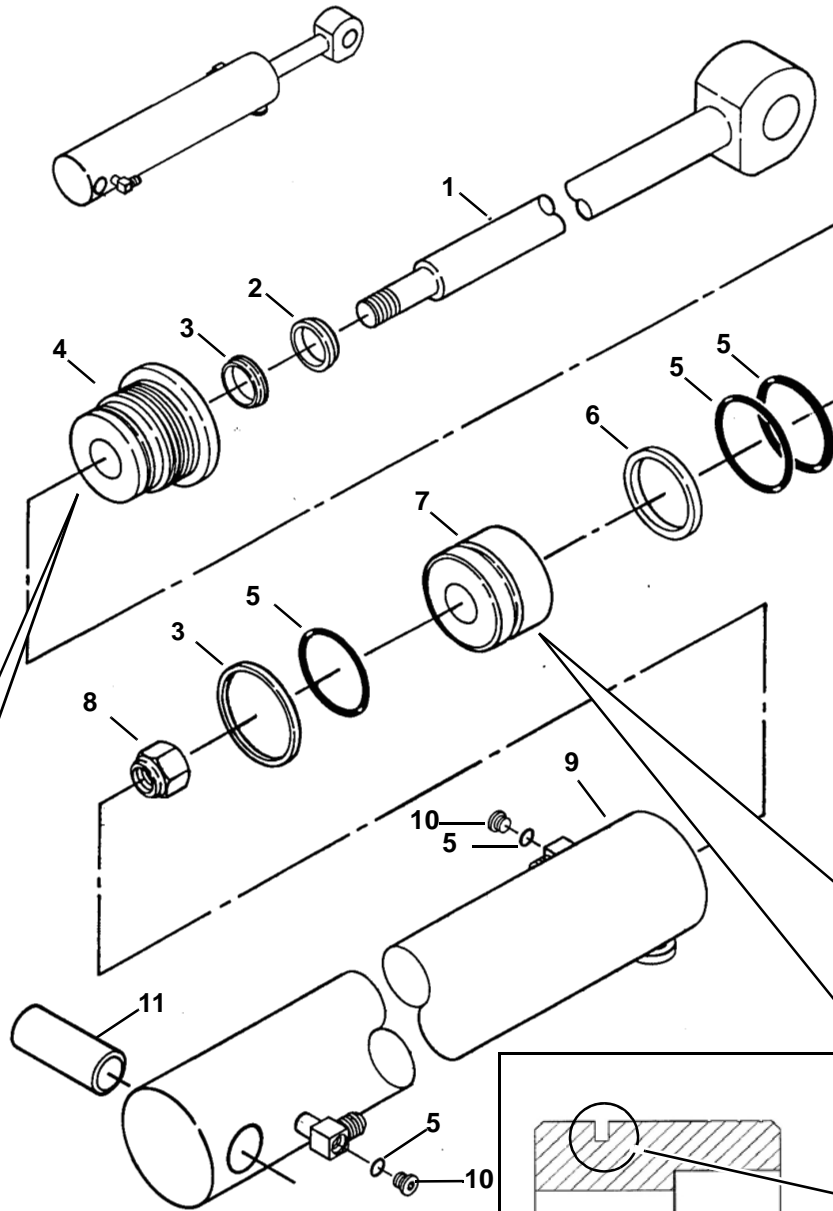
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-0807

BOOM CYLINDER (CONT'D)

Parts Identification

- 1. Rod
- 2. Wiper
- 3. Seal
- 4. Head
- 5. O-Ring
- 6. Backup Ring
- 7. Piston
- 8. Nut
- 9. Housing
- 10. Plug
- 11. Bushing



BOOM CYLINDER (CONT'D)

Disassembly

Clean the outside of the boom cylinder before disassembly.

Use the following tools to disassemble the cylinder:

MEL1074 - O-ring Seal Hook

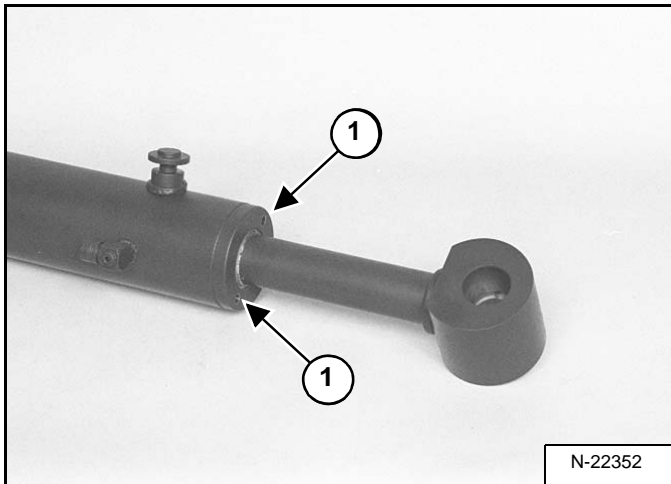
MEL1075 - Adjustable Gland Nut Wrench

MEL1075-1 - Standard Pins

Hold the hydraulic cylinder over a drain pan and move the rod in and out slowly to remove the fluid from the cylinder.

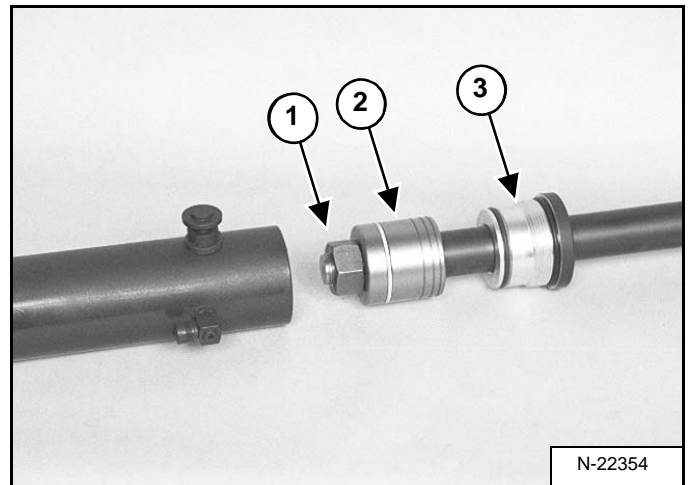
Put the base end of the cylinder in a vise.

Figure 20-20-15



Insert the adjustable gland nut wrench into the two holes (Item 1) [Figure 20-20-15] to loosen the head.

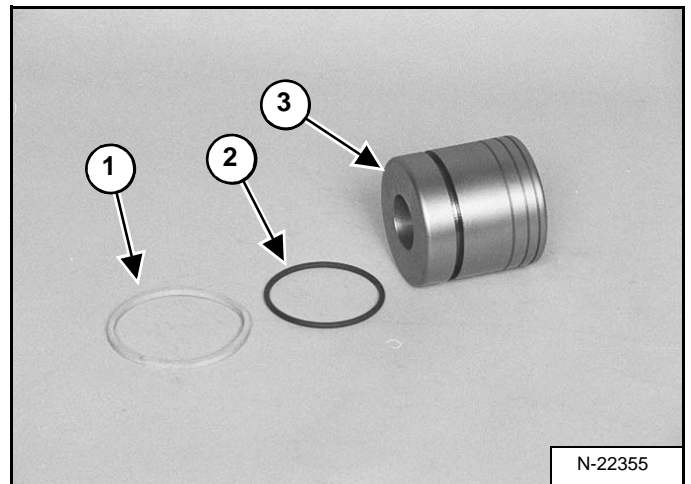
Figure 20-20-16



Remove the head and the rod assembly from the cylinder [Figure 20-20-16]. Put the rod end in a vise.

Remove the nut (Item 1), piston (Item 2) and head (Item 3) [Figure 20-20-16].

Figure 20-20-17

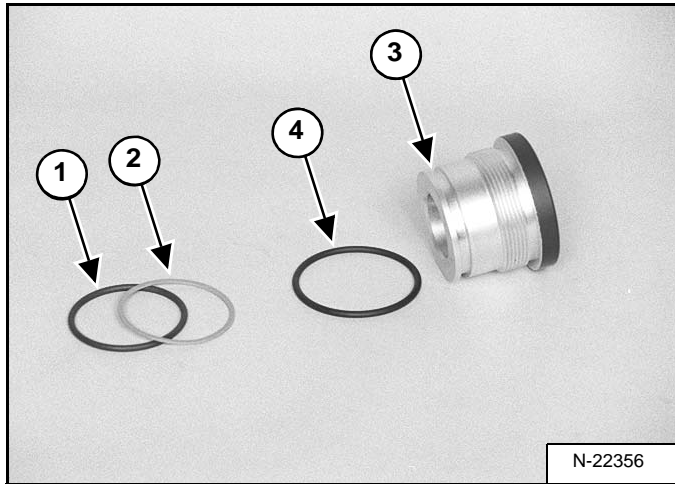


Cushion Piston: Remove the seal (Item 1) and O-ring (Item 2) from the piston (Item 3) [Figure 20-20-17].

BOOM CYLINDER (CONT'D)

Disassembly (Cont'd)

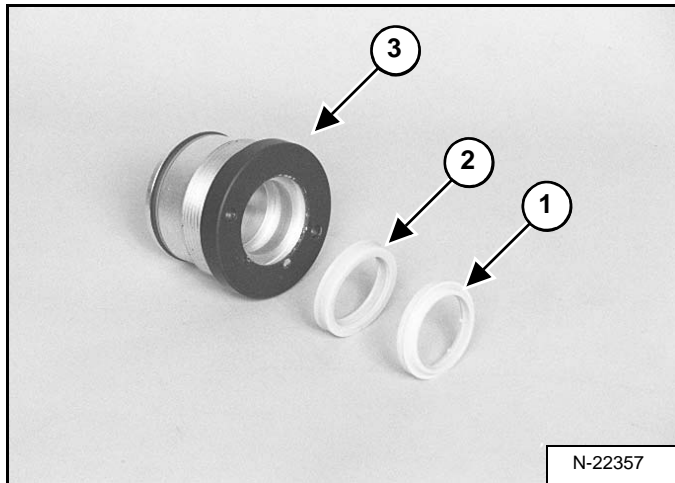
Figure 20-20-18



Remove the O-ring (Item 1) and the back-up ring (Item 2) from the groove in the head (Item 3) [Figure 20-20-18].

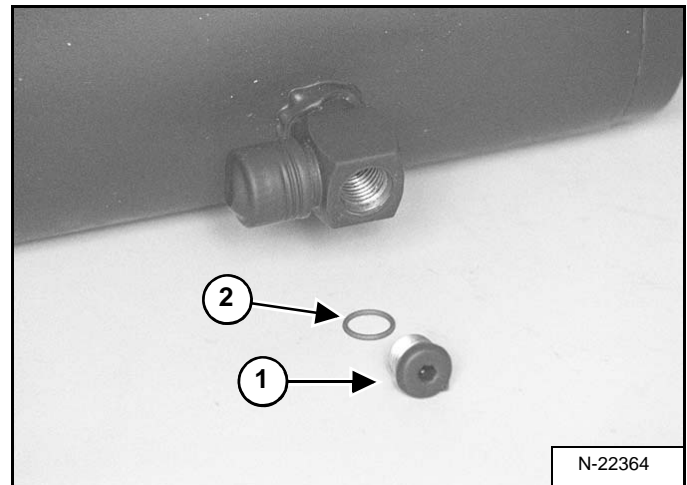
Remove the O-ring (Item 4) [Figure 20-20-18].

Figure 20-20-19



Remove the wiper seal (Item 1) and rod seal (Item 2) from the inside of the head (Item 3) [Figure 20-20-19].

Figure 20-20-20



Remove plug (Item 1) and O-ring (Item 2) [Figure 20-20-20].

BOOM CYLINDER (CONT'D)

Assembly

Use the following tools to assemble the cylinder:

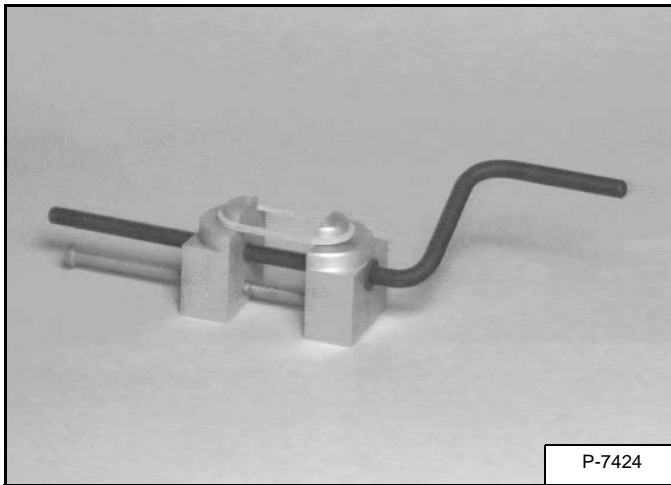
MEL1396 - Universal Seal Expander
MEL1033 - Rod Seal Installation Tool
Piston Ring Compressor
MEL1075 - Adjustable Gland Nut Wrench
MEL1075-1 - Standard Pins

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.

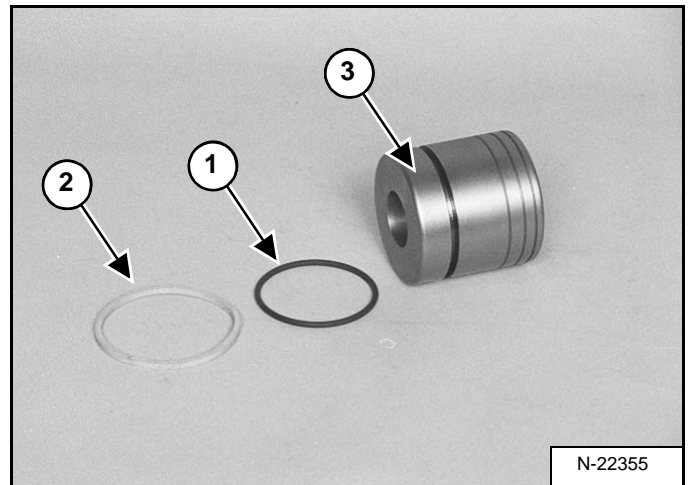
Figure 20-20-21



Install new seal on the tool and slowly stretch it until it fits the piston **[Figure 20-20-21]**.

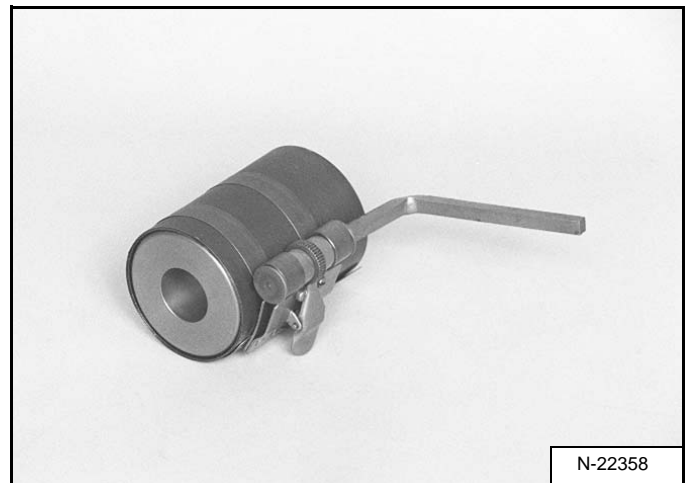
Allow the seal to stretch for 30 seconds before installing it on the piston.

Figure 20-20-22



Cushion Piston: Install the O-ring (Item 1) and seal (Item 2) on the piston (Item 3) **[Figure 20-20-22]**.

Figure 20-20-23

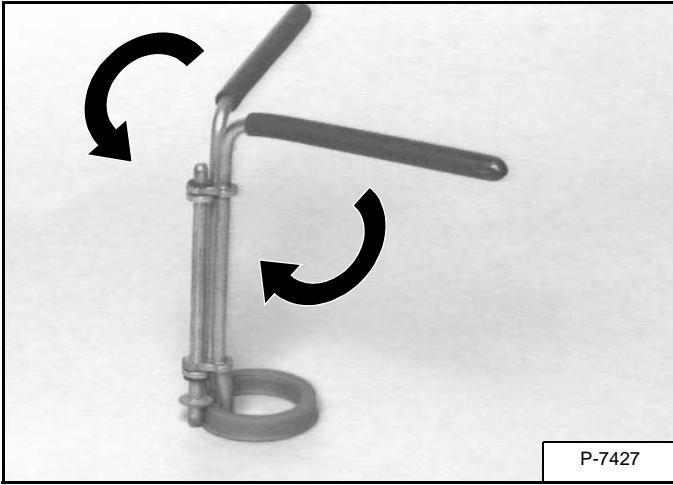


Use a ring compressor to compress the seal to the correct size. Leave the piston in the compressor for about three minutes **[Figure 20-20-23]**.

BOOM CYLINDER (CONT'D)

Assembly (Cont'd)

Figure 20-20-24

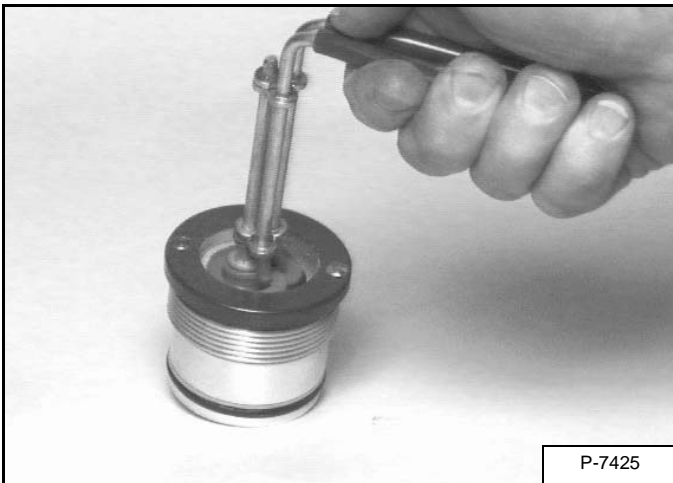


Install the rod seal on the rod seal tool [Figure 20-20-24].

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

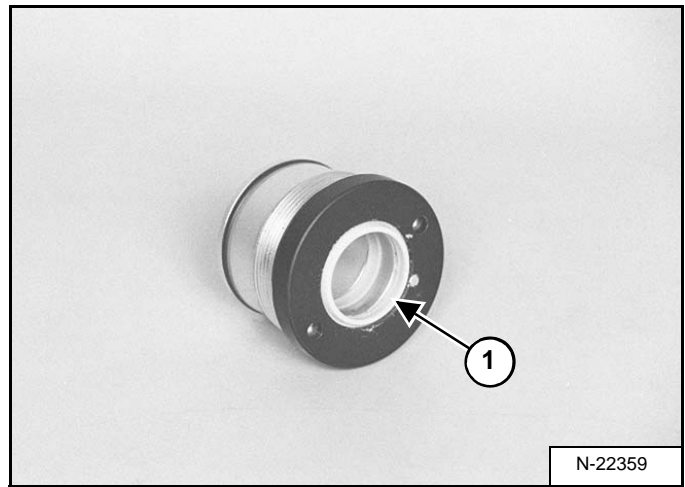
Rotate the handles to collapse the rod seal [Figure 20-20-24].

Figure 20-20-25



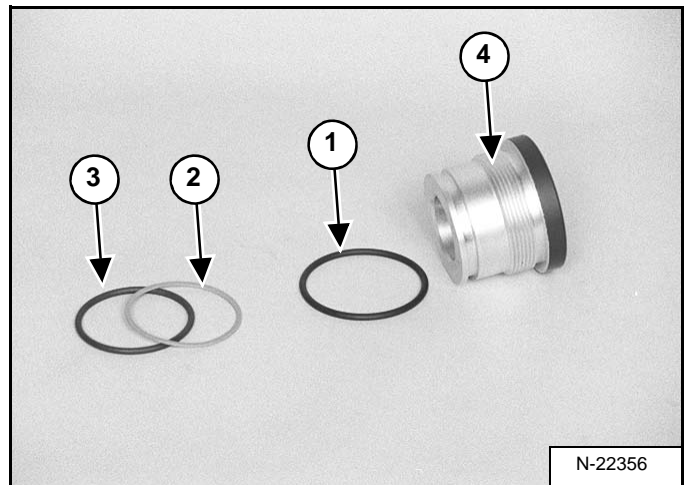
Install the rod seal in the head [Figure 20-20-25].

Figure 20-20-26



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

Figure 20-20-27



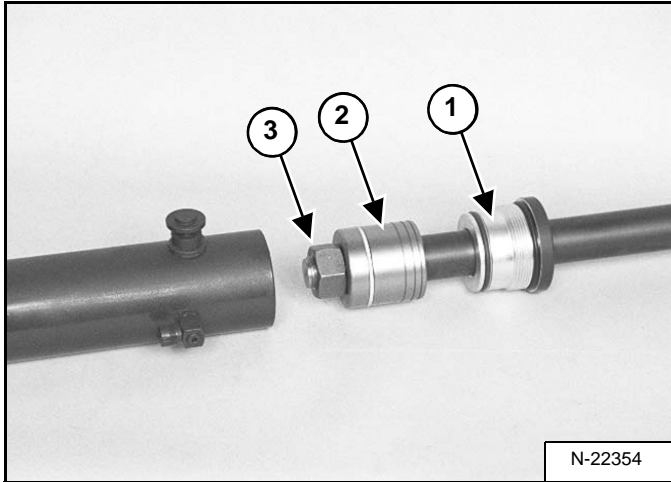
Install the O-ring (Item 1) [Figure 20-20-27].

Install the back-up ring (Item 2) and O-ring (Item 3) into the groove on the head (Item 4) [Figure 20-20-27].

BOOM CYLINDER (CONT'D)

Assembly (Cont'd)

Figure 20-20-28



Install the head (Item 1) and the piston (Item 2) [Figure 20-20-28] on the rod as shown.

Grease the piston where the nut contacts the piston. Do not get grease on the threads.

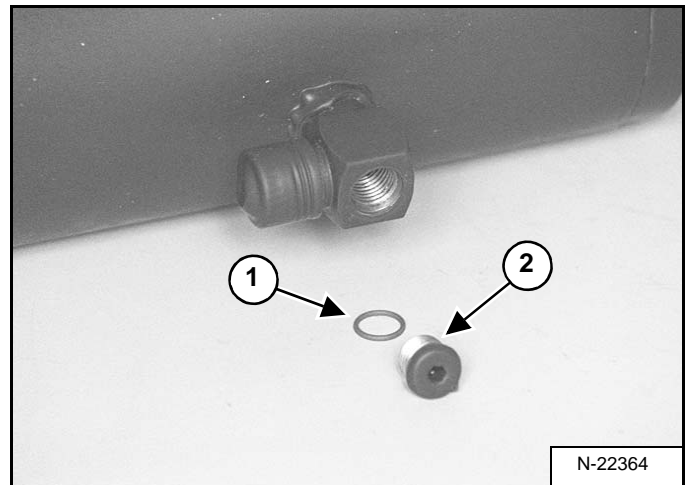
Provide an adequate support for the cylinder before tightening.

Install the nut (Item 3) [Figure 20-20-28].

NOTE: Clean and dry the rod threads, from the kit install a NEW NUT with pre-applied Loctite™.

Tighten the nut to 600 ft.-lb. (813 N•m) torque.

Figure 20-20-29

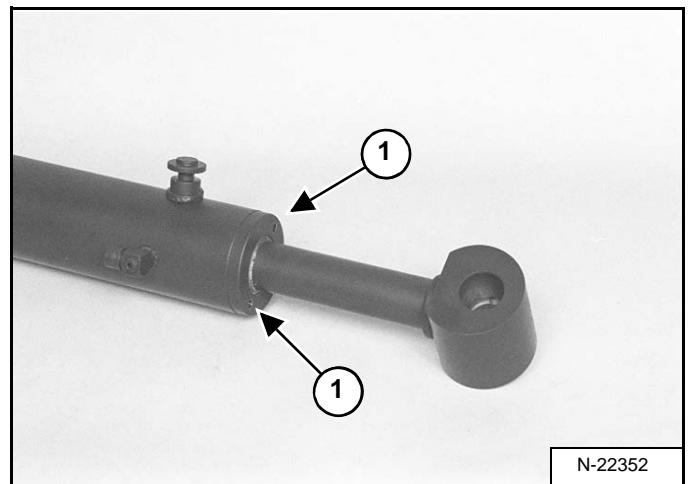


Install the O-ring (Item 1) and plug (Item 2) [Figure 20-20-29].

Tighten the plug to 8 ft.-lb. (11 N•m) torque.

Put the base end of the hydraulic cylinder in a vise.

Figure 20-20-30



Insert the adjustable gland nut wrench into the two holes (Item 1) [Figure 20-20-30] to tighten the head. Head to be torqued until flush with end of the housing.



Bobcat®