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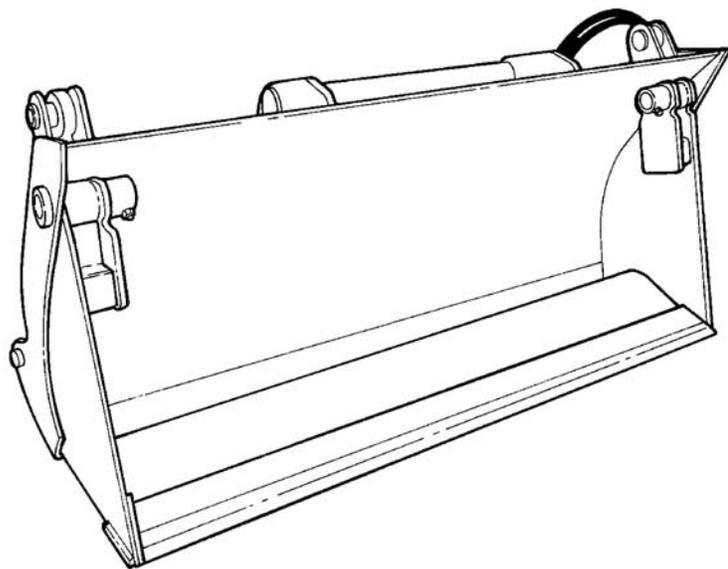
**Combination
Bucket
80" & 90"**



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VersaHANDLER Attachment Service Manual

**S/N 028500101 & Above
S/N 028700101 & Above**



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MAINTENANCE SAFETY



WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

W-2003-0903



Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



-  Never service attachments without instructions. See Operation & Maintenance Manual and Attachment Service Manual.
-  Cleaning and maintenance are required daily.
-  Never service or adjust attachment with the engine running unless instructed to do so in manual.
-  Always lower the attachment to the ground before lubricating or servicing.
-  Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.
-  Stop, cool and clean engine of flammable materials before checking fluids.
-  Keep body, loose objects and clothing away from moving parts, electrical contacts, hot parts and exhaust.
-  Safety glasses are needed for eye protection from electrical arcs, battery acid, compressed springs, fluids under pressure and flying debris or when tools are used. Use eye protection approved for type of welding.



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**SAFETY AND
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**MAIN
FRAME**

**SPECIFICATIONS
AND
SCHEMATICS**

**CALIFORNIA
PROPOSITION 65 WARNING**

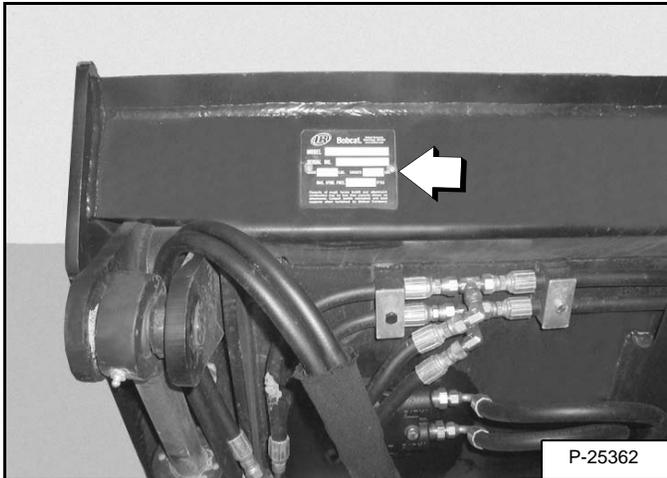
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



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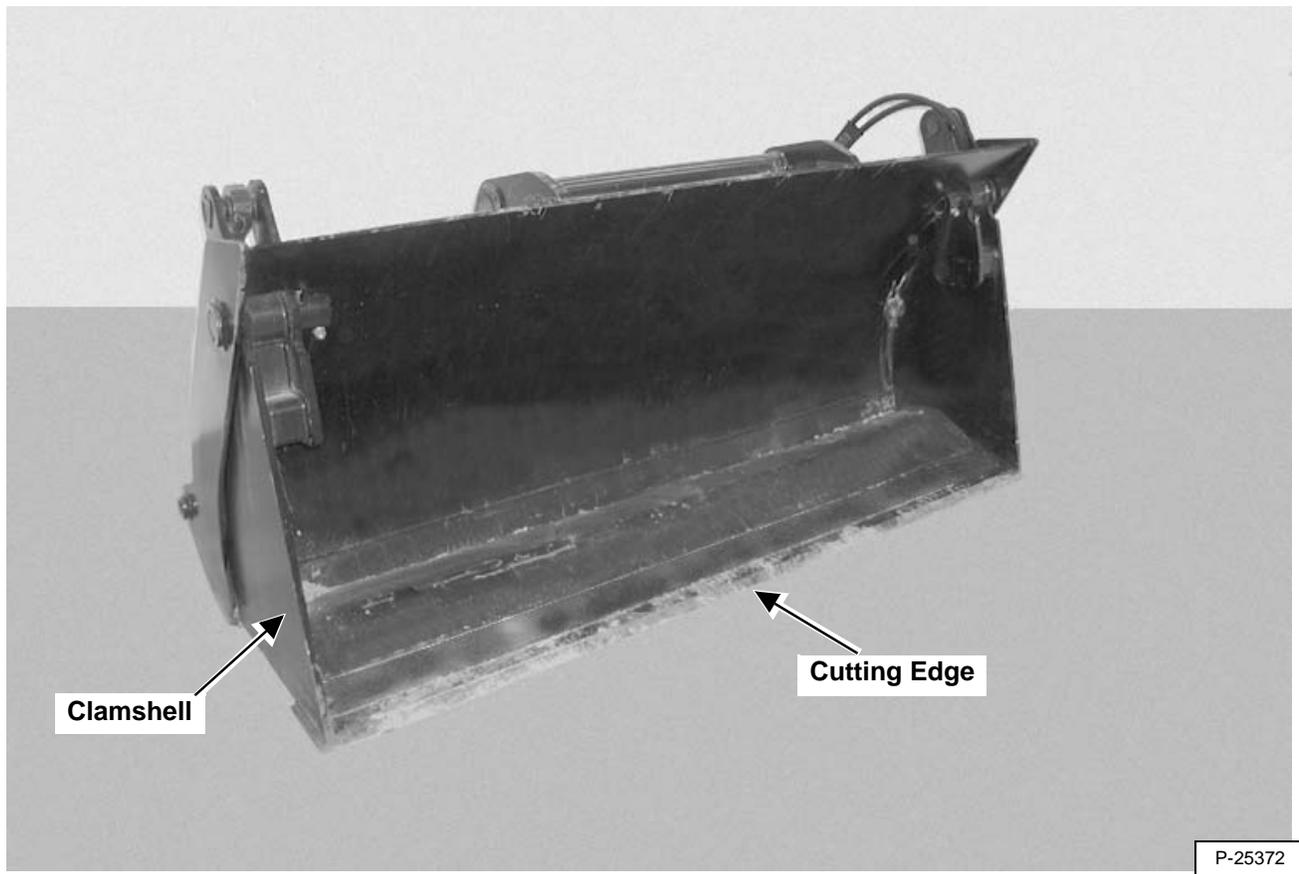
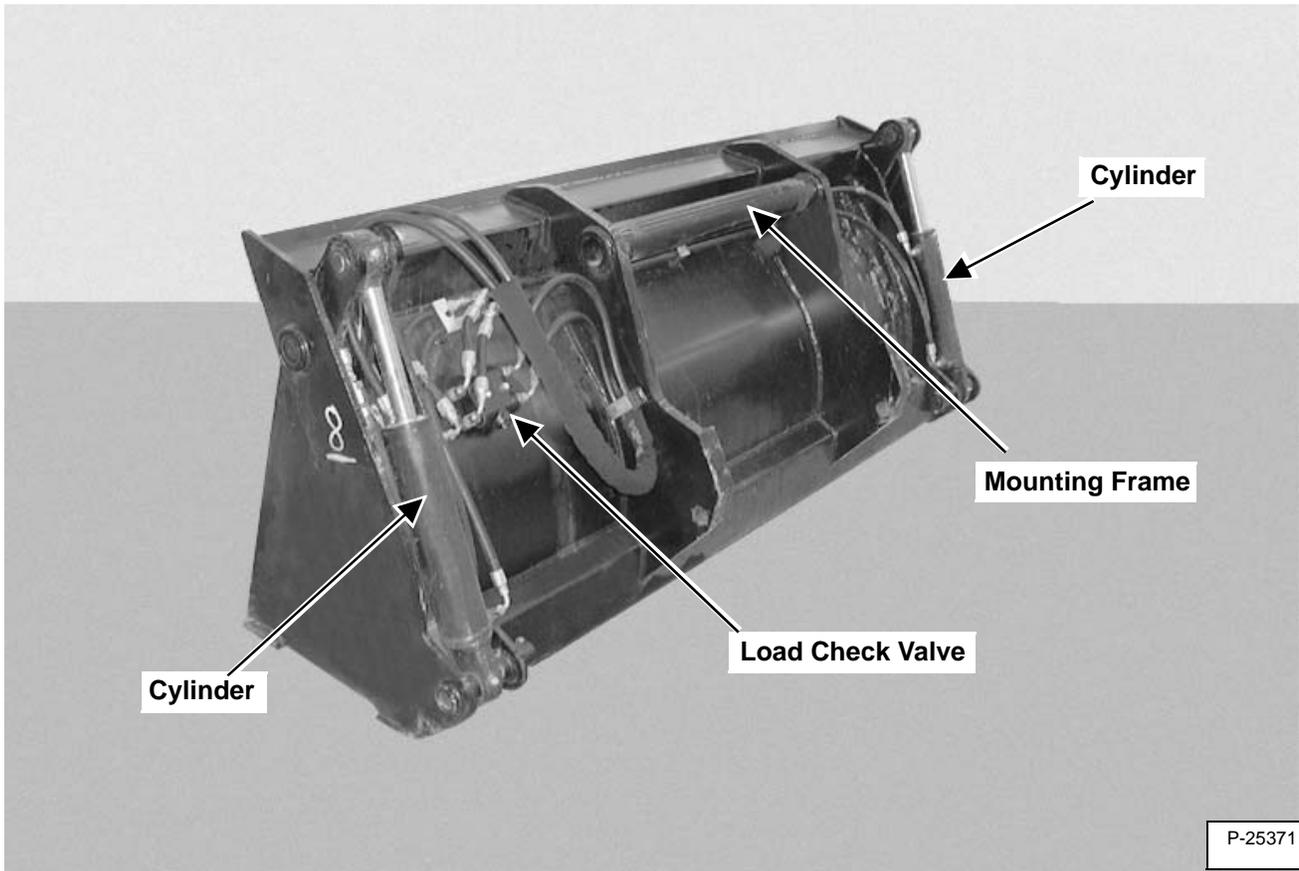
SERIAL NUMBER LOCATION

Figure 1



Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service [Figure 1].

PARTS IDENTIFICATION



SAFETY AND MAINTENANCE

SAFETY AND MAINTENANCE

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TROUBLESHOOTING

 WARNING	<p>Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator’s Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.</p> <p style="text-align: right;">W-2003-0903</p>
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If the Combination Bucket is not working correctly, check the hydraulic system of the VersaHANDLER thoroughly before making any repairs on the Combination Bucket. Combination Bucket problems can be affected by a hydraulic system that is not operating to specifications.

If the VersaHANDLER operation is found to be correct, use the following troubleshooting chart to locate and correct problems with the Combination Bucket.

PROBLEM	CAUSE	CORRECTION
Combination Bucket does not mount properly on the VersaHANDLER.	VersaHANDLER attachment locking pins are not fully retracted.	Retract VersaHANDLER attachment locking pins.
	Mud, dirt or stones are lodged between the VersaHANDLER mounting frame and the Combination Bucket mount.	Remove debris between the VersaHANDLER mounting frame and Combination Bucket mount.
Grapple does not open or close.	No hydraulic flow	Activate VersaHANDLER hydraulic on/off switch.
	No Hydraulic flow	Activate VersaHANDLER secondary auxiliary hydraulic switch.
	No hydraulic flow	Check quick couplers connection. Check for damaged hose ends and fittings.

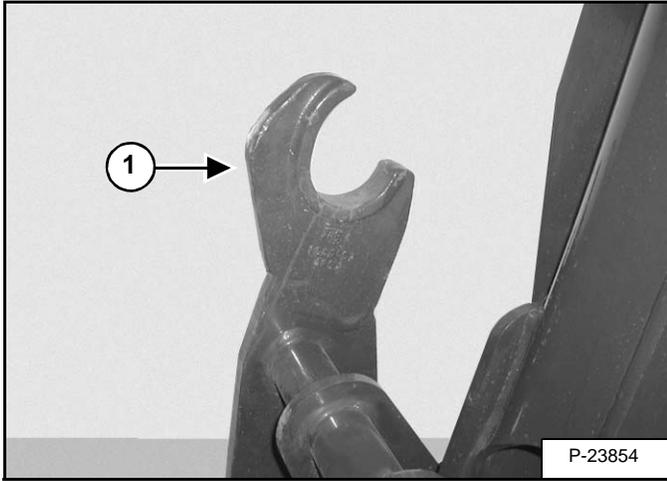


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INSPECTION

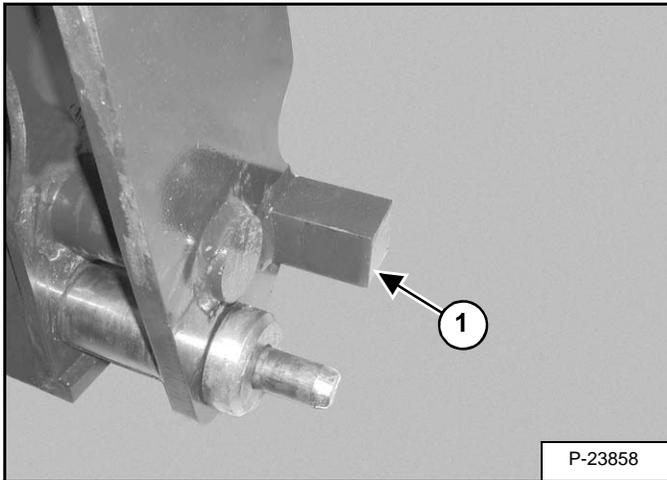
VersaHANDLER Mounting Frame Inspection

Figure 10-20-1



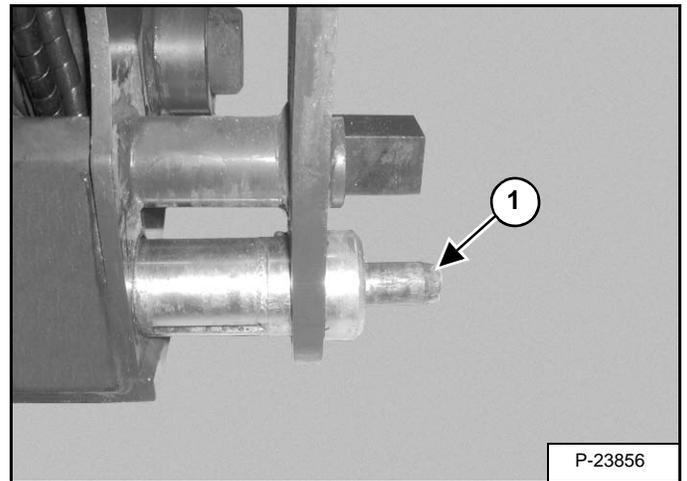
The VersaHANDLER mounting hooks (item 1) [Figure 10-20-1] must not be damaged. Check for cracked or broken hooks.

Figure 10-20-2



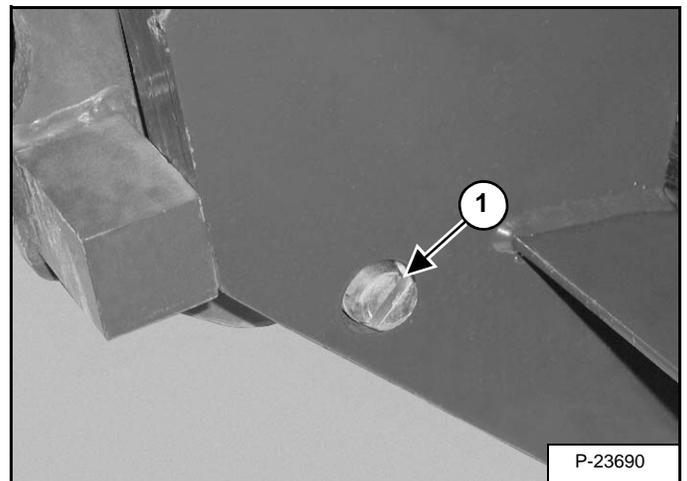
The stop blocks (Item 1) [Figure 10-20-2] must not be damaged. Check for bent or broken stop blocks.

Figure 10-20-3



Move the VersaHANDLER locking pins to engage the pins (Item 1) [Figure 10-20-3]. The pins must move freely. The pins must not be bent or the ends mushroomed.

Figure 10-20-4

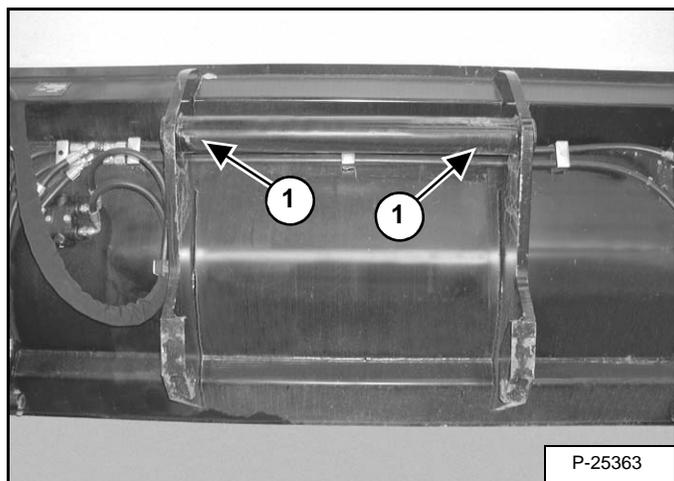


The pins must extend through the holes in the attachment mounting frame (Item 1) [Figure 10-20-4].

INSPECTION (CONT'D)

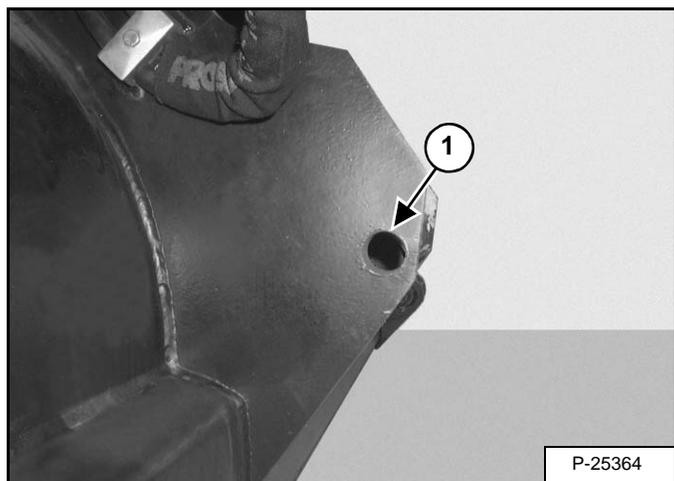
Combination Bucket Mount Inspection

Figure 10-20-5



Inspect the Combination bucket mounting tube (Item 1) [Figure 10-20-5] and all welds on the Combination Bucket mount for wear and damage each time the attachment is removed from the VersaHANDLER.

Figure 10-20-6



Inspect the mounting holes (Item 1) [Figure 10-20-6].

LUBRICATION

Always use a good quality lithium base multi-purpose grease when lubricating the Combination bucket. Apply the lubricant until extra grease shows.

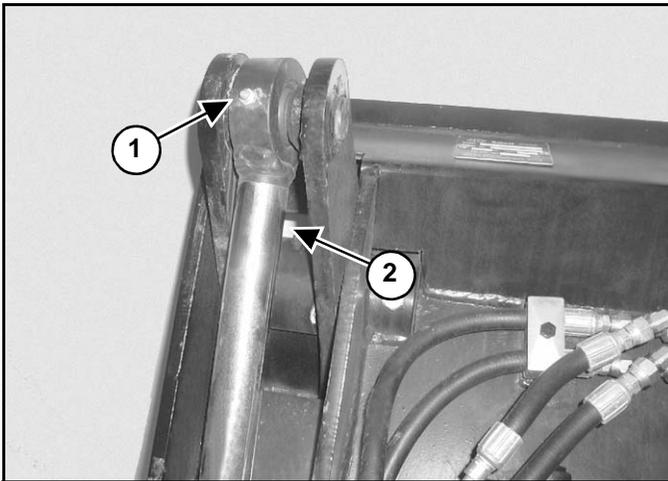
IMPORTANT

Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

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Lubricate the six grease fittings (three per side), EVERY 8-10 hours:

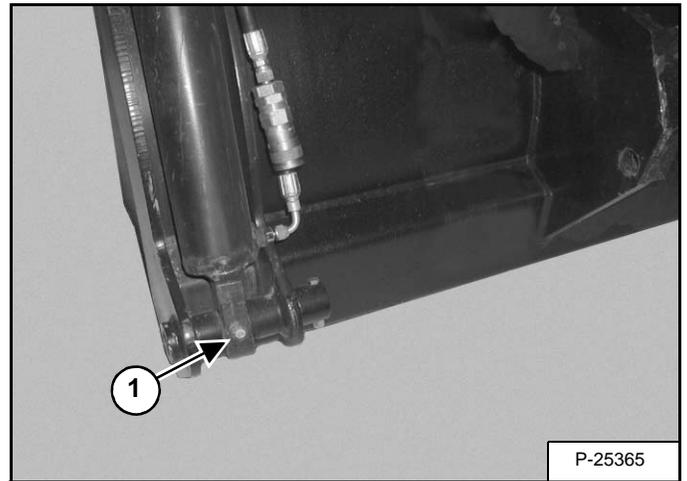
Figure 10-30-1



Cylinder rod end (Item 1) [Figure 10-30-1] (both sides).

Clamshell pivot pin (Item 2) [Figure 10-30-1] (both sides).

Figure 10-30-2



Cylinder base end (Item 1) [Figure 10-30-2] (both sides).



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HYDRAULIC SYSTEM

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HYDRAULIC SYSTEM



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HYDRAULIC CYLINDER

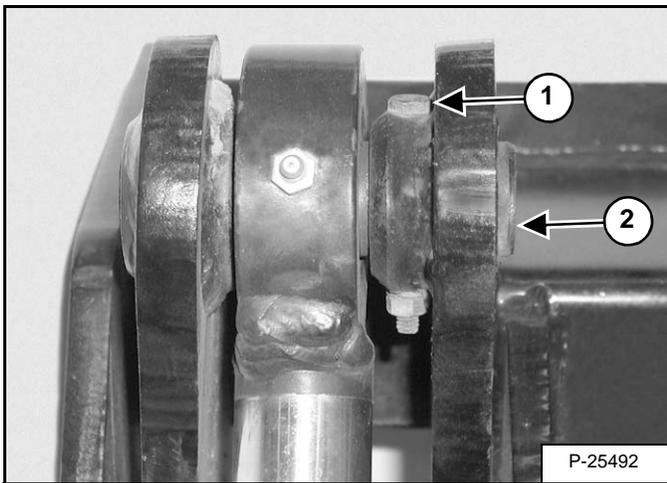
Checking

IMPORTANT

Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

I-2067-0499

Figure 20-10-1



Lower the Combination Bucket to the ground.

Stop the VersaHANDLER engine, engage the parking brake, unfasten the seat belt and exit the VersaHANDLER.

Remove the bolts and lock nuts (Item 1) [Figure 20-10-1] from the rod end cylinder pins on both cylinders. Remove the pins (Item 2) [Figure 20-10-1].

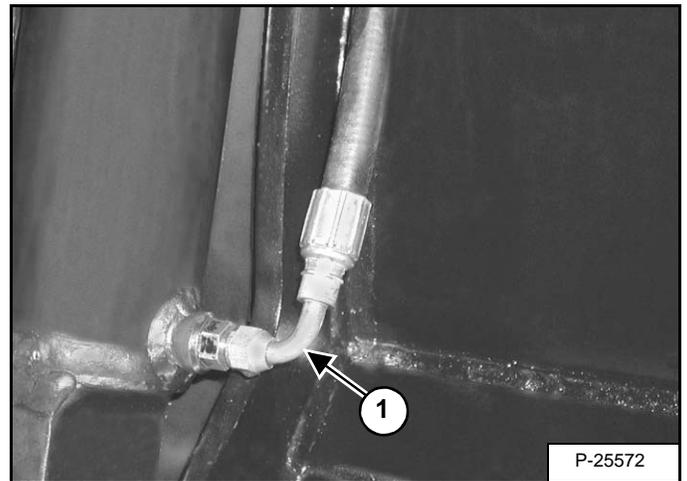
Enter the Versa HANDLER, fasten the seat belt, and start the engine.

Retract the cylinders.

Stop the VersaHANDLER engine, unfasten the seat belt and exit the VersaHANDLER.

Release the auxiliary hydraulic pressure.

Figure 20-10-2



Remove the base end cylinder hose (Item 1) [Figure 20-10-2] from both cylinders.

Install a plug on the hose.

Enter the VersaHANDLER, fasten the seat belt and start the engine.

Retract the hydraulic cylinders.

If there is any leakage from the hose end of either cylinder remove the cylinder for repair or replacement.

HYDRAULIC CYLINDER (CONT'D)

Removal And Installation

! 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.

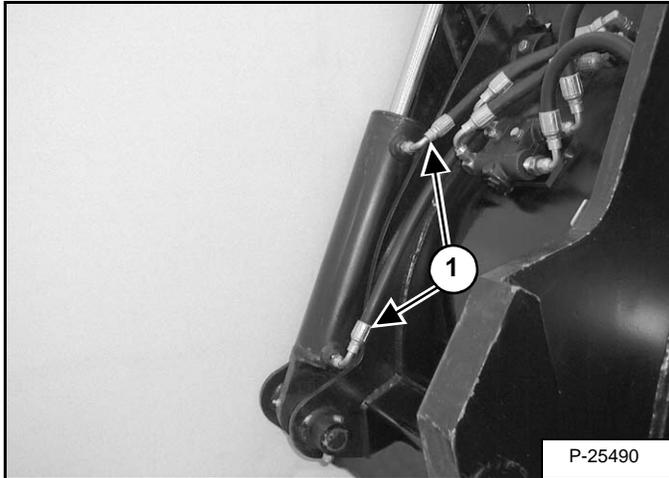
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IMPORTANT

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

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Figure 20-10-3

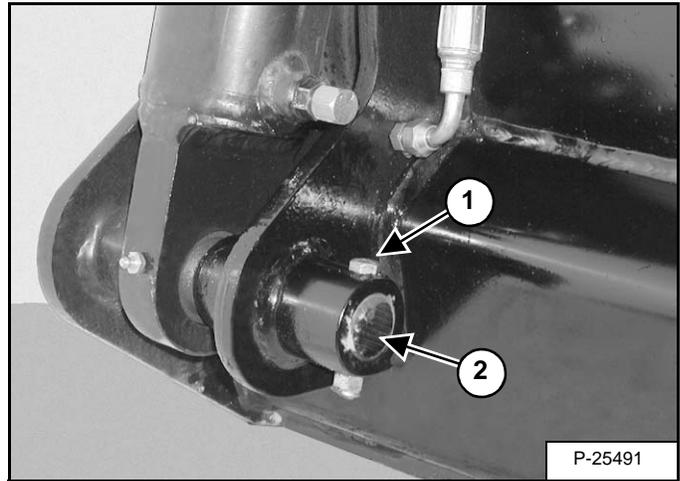


Mark the hoses for correct installation.

Remove the hoses (Item 1) [Figure 20-10-3] from the cylinder.

Install caps and plugs.

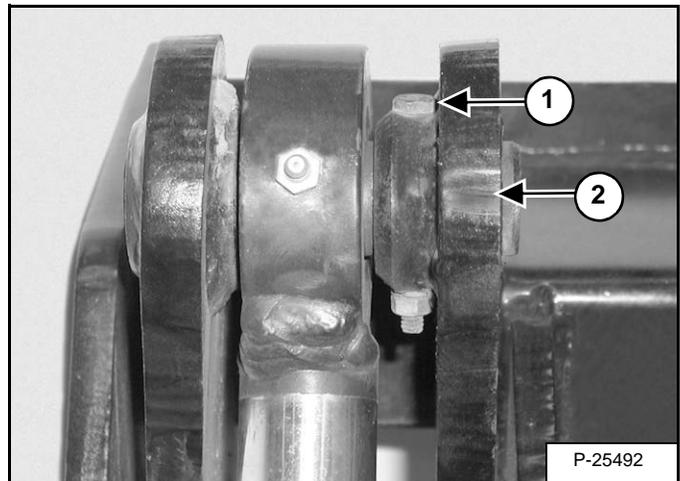
Figure 20-10-4



Remove the bolt and lock nut (Item 1) [Figure 20-10-4] from the base end cylinder pin (Item 2) [Figure 20-10-4] and remove the pin.

Installation: tighten the bolt to 25-28 ft.-lb. (38 N•m) torque.

Figure 20-10-5



Remove the bolt and lock nut (Item 1) [Figure 20-10-5] from the rod end cylinder pin (Item 2) [Figure 20-10-5].

Installation: Tighten the bolt to 25-28 ft.-lb. (34-38 N•m) torque.

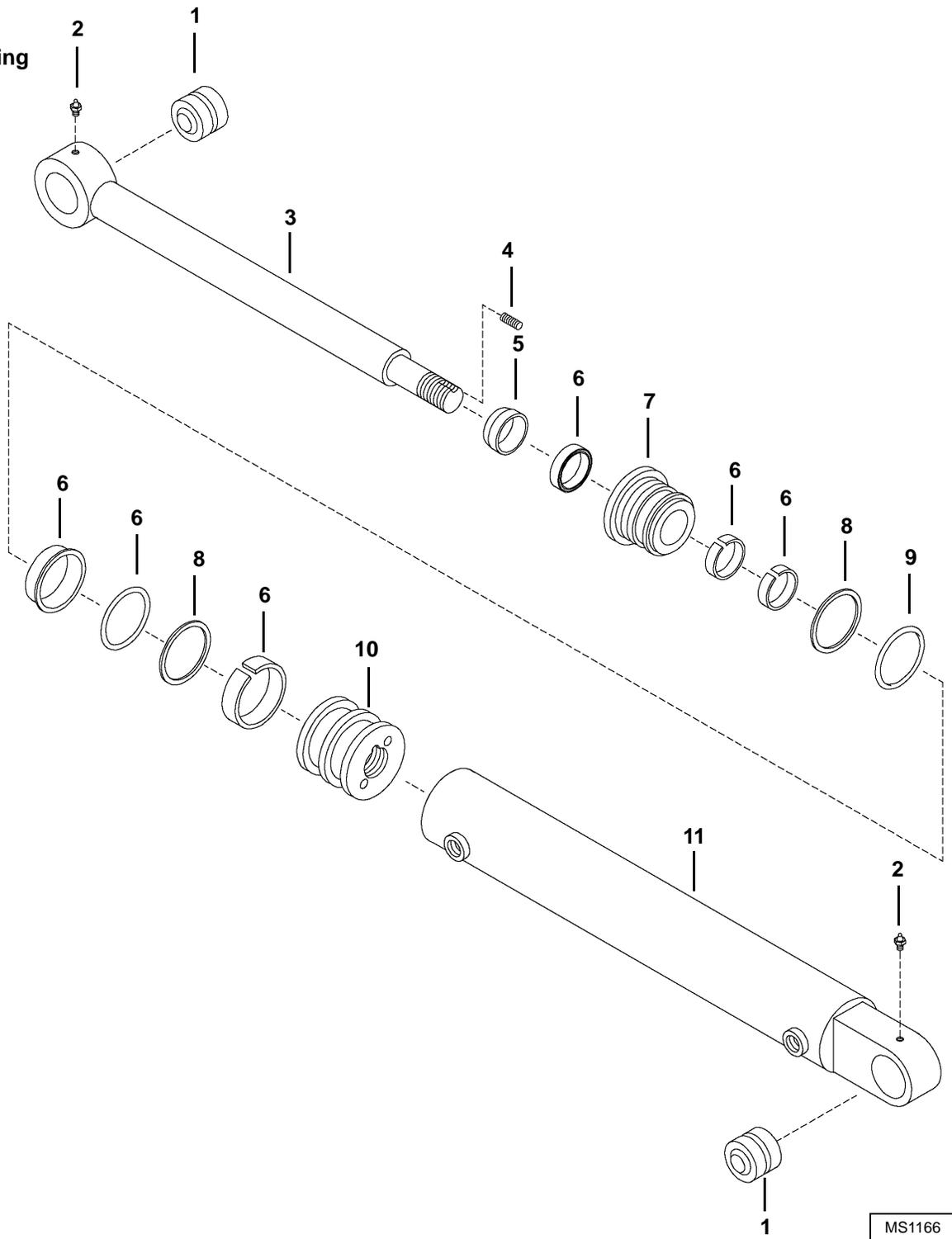
Remove the pin (Item 2) [Figure 20-10-5].

Remove the cylinder.

HYDRAULIC CYLINDER (CONT'D)

Parts Identification

- 1. Ball Socket
- 2. Grease Fitting
- 3. Rod
- 4. Set Screw
- 5. Wiper Seal
- 6. Seal
- 7. Head
- 8. Backup Ring
- 9. O-Ring
- 10. Piston
- 11. Housing



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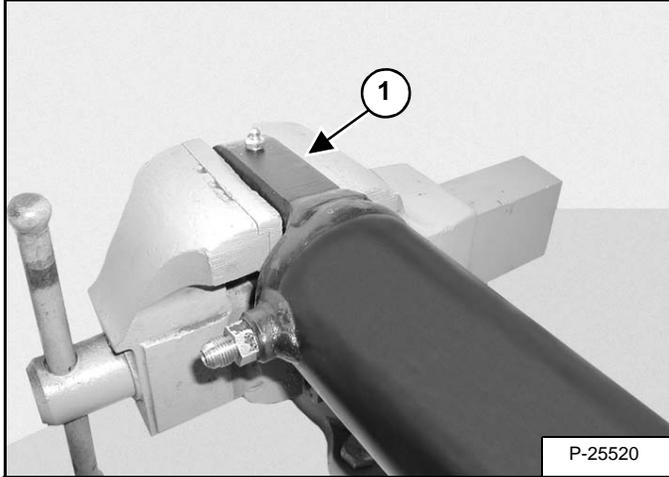
HYDRAULIC CYLINDER (CONT'D)

Disassembly

Use the following tools to disassemble the cylinder:

MEL1074-O-Ring Seal Hook
MEL1075-Adjustable Gland Nut Wrench
MEL1075-2 Special Offset Pins

Figure 20-10-6

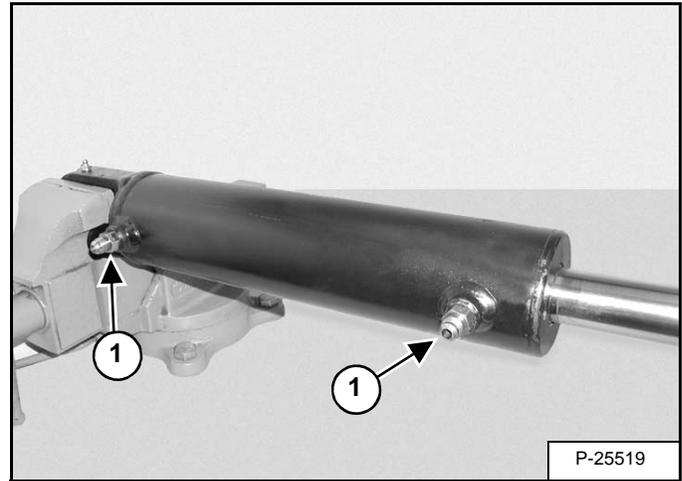


Hold the hydraulic cylinder over a drain pan and move the rod in and out slowly to remove the fluid from the cylinder.

Clamp the base end of the cylinder (Item 1) **[Figure 20-10-6]** in a vise.

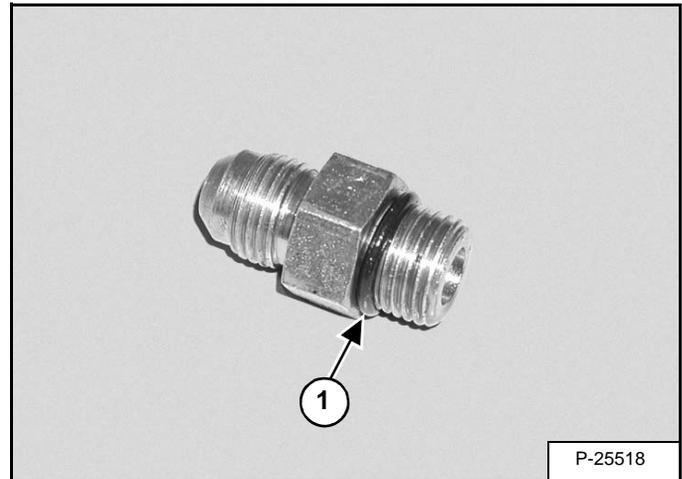
Be careful not to damage the cylinder housing.

Figure 20-10-7



Remove the fittings (Item 1) **[Figure 20-10-7]** from the cylinder housing.

Figure 20-10-8

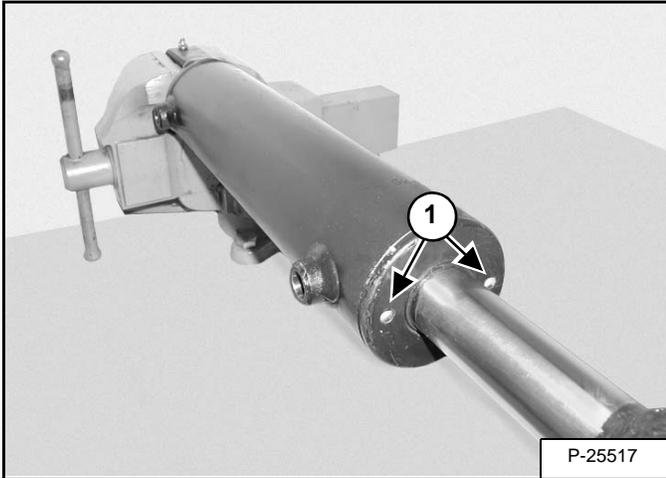


Remove the O-ring (Item 1) **[Figure 20-10-8]** from the fittings.

HYDRAULIC CYLINDER (CONT'D)

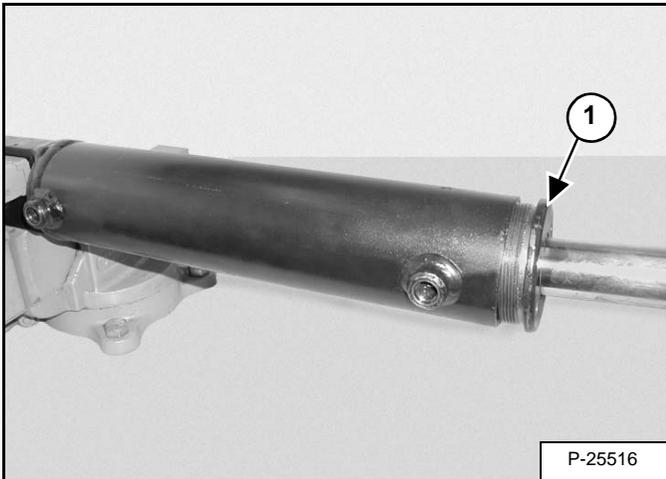
Disassembly (Cont'd)

Figure 20-10-9



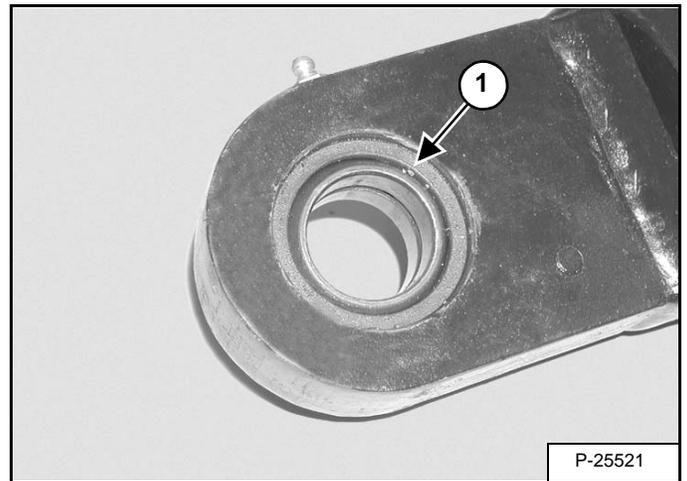
Insert a spanner wrench into the two holes (Item 1) [Figure 20-10-9] to loosen the head.

Figure 20-10-10



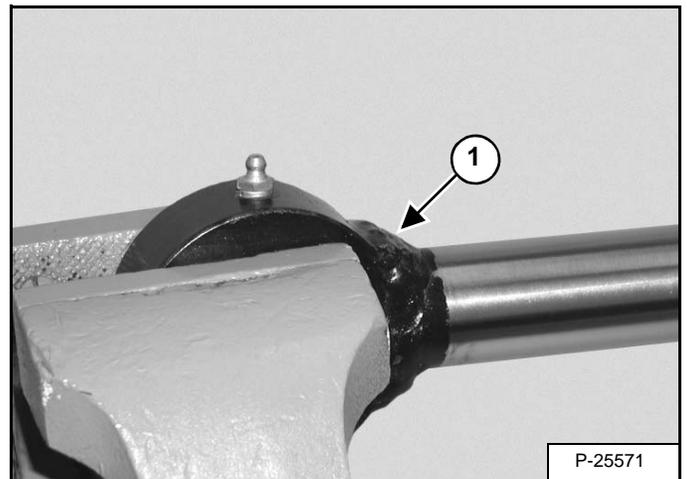
Remove the head and rod assembly (Item 1) [Figure 20-10-10] from the cylinder housing.

Figure 20-10-11



Remove the ball socket (Item 1) [Figure 20-10-11] from the base end of the cylinder.

Figure 20-10-12



Clamp the rod end (Item 1) [Figure 20-10-12] in a vise.

Be careful not to damage the rod.

HYDRAULIC CYLINDER (CONT'D)

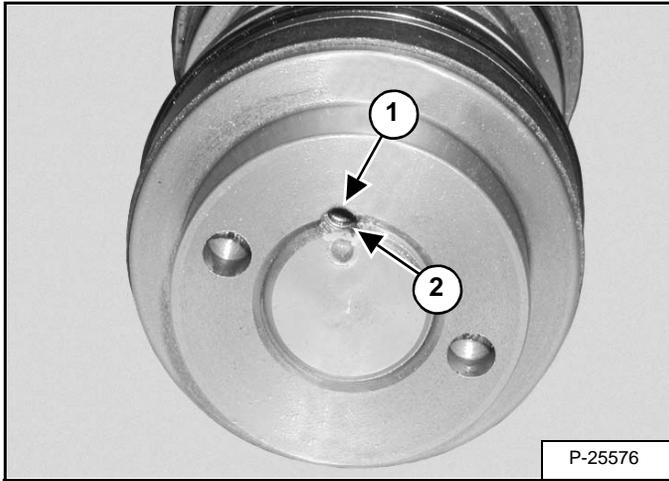
Disassembly (Cont'd)

WARNING

Eye and body protection is required when welding or grinding. Wear approved goggles, helmet and clothing. Failure to wear eye and body protection can result in serious injury.

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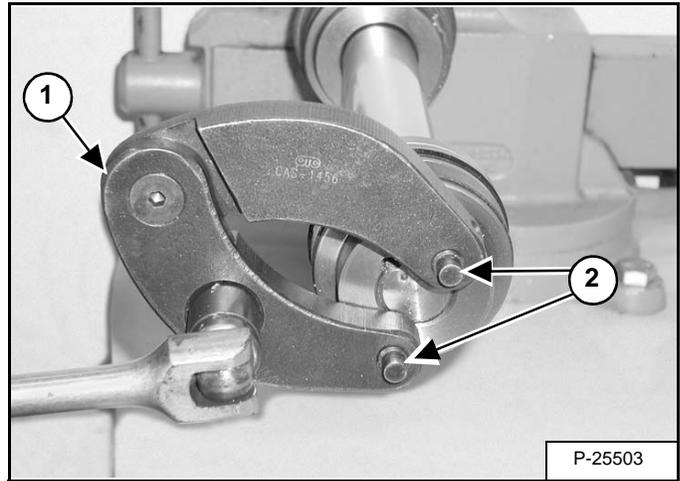
Figure 20-10-13



Remove the set screw (Item 1) [Figure 20-10-13] from the piston and rod.

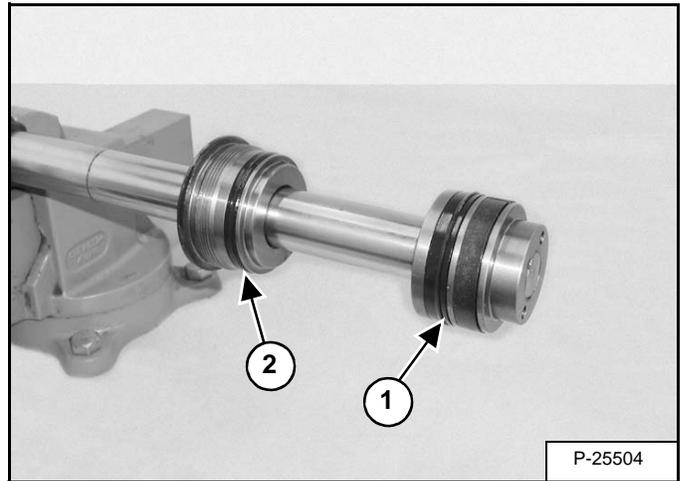
NOTE: It may be necessary to grind the end of the set screw hole (Item 2) [Figure 20-10-13] as the hole was deformed during assembly to prevent the set screw from backing out.

Figure 20-10-14



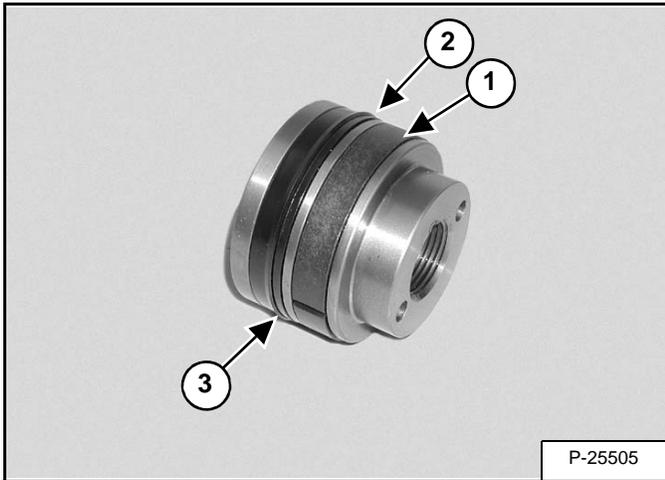
Insert the adjustable gland nut wrench (Item 1) [Figure 20-10-14] in the holes (Item 2) [Figure 20-10-14] and loosen the piston.

Figure 20-10-15



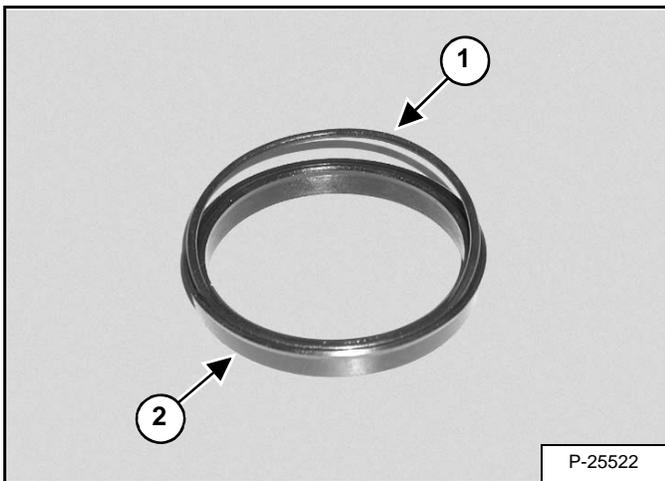
Remove the piston (Item 1) [Figure 20-10-15] and head (Item 2) [Figure 20-10-15] from the rod.

Figure 20-10-16



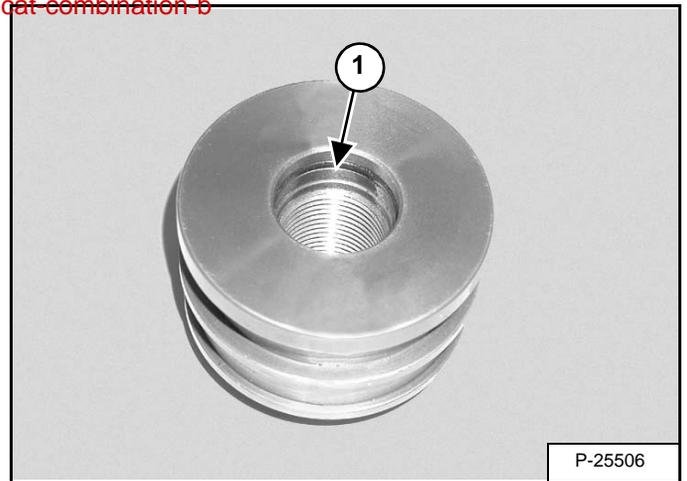
Remove the wear ring (Item 1) [Figure 20-10-16], backup ring (Item 2) [Figure 20-10-16] and seal assembly (Item 3) [Figure 20-10-16] from the piston.

Figure 20-10-17



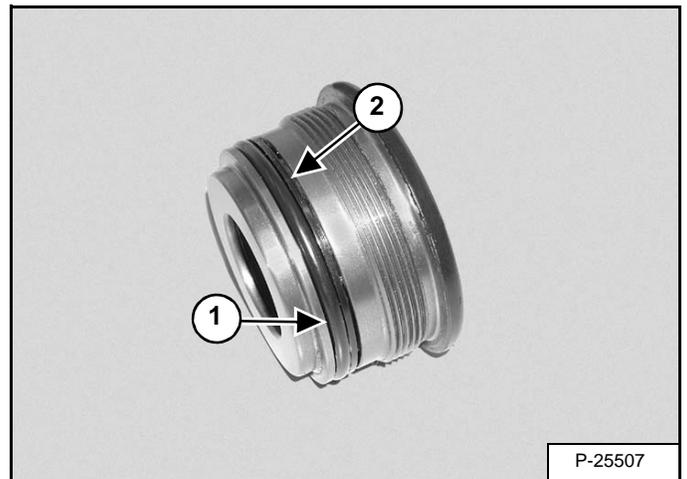
Remove the O-ring (Item 1) [Figure 20-10-17] from the seal (Item 2) [Figure 20-10-17].

Figure 20-10-18



Remove the O-ring (Item 1) [Figure 20-10-18] from the piston.

Figure 20-10-19



Remove the O-ring (Item 1) [Figure 20-10-19] and backup ring (Item 2) [Figure 20-10-19] from the head.