



# Bobcat®

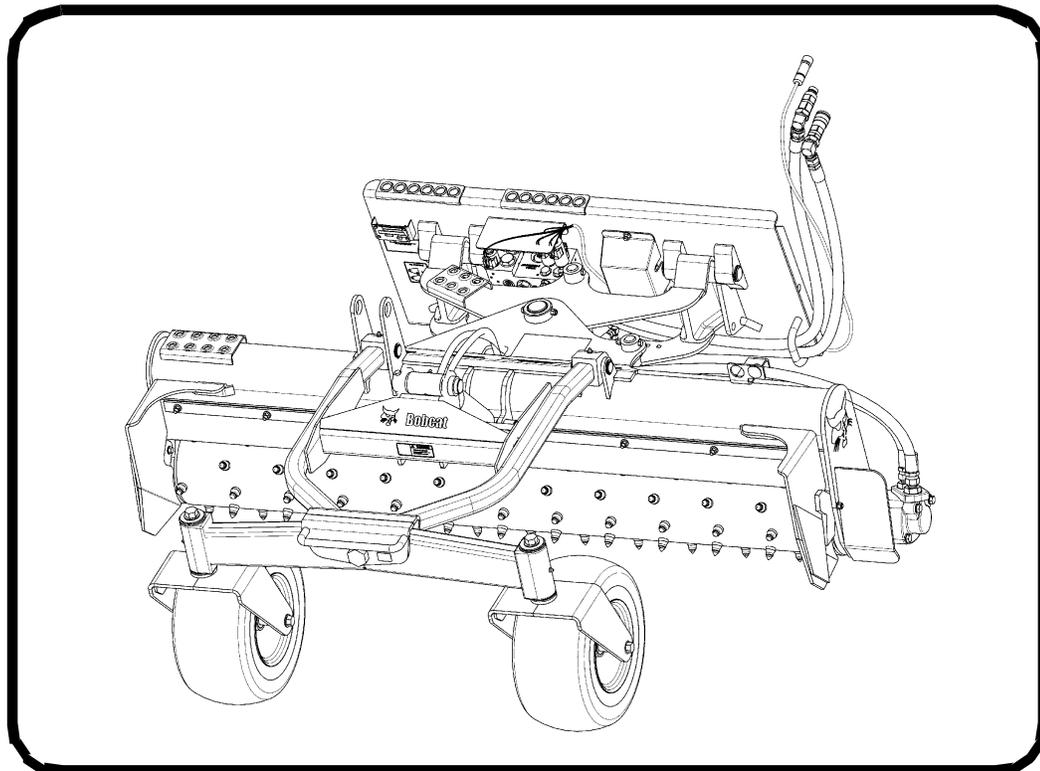
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## Service Manual Soil Conditioner

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(48SCM) S/N 651500101 & Above  
(60SCM) S/N A5PS00101 & Above  
(60SCH) S/N A86R00101 & Above  
(72SCM) S/N 651300101 & Above  
(Soil Cond) S/N 232000101 & Above

(72SCH) S/N S6TE00101 & Above  
(72SCHHF) S/N A6TD00101 & Above  
(Soil Cond 84) S/N 651400101 & Above  
(84SCH) S/N A6TG00101 & Above  
(84SCHHF) S/N A6TH00101 & Above



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# MAINTENANCE SAFETY



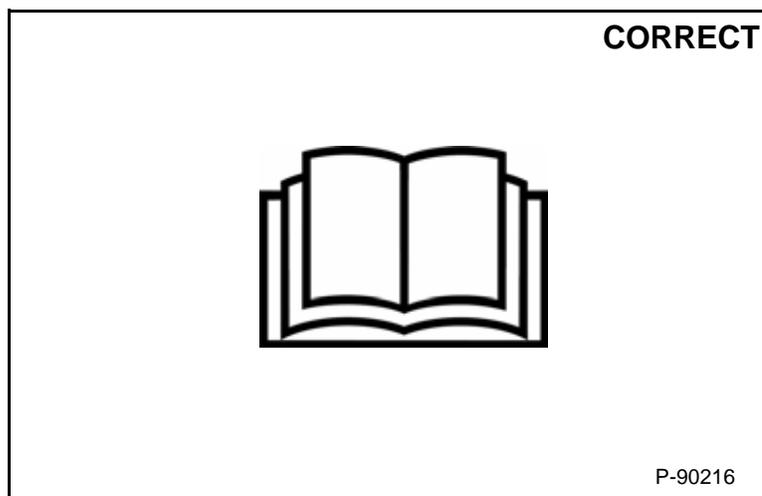
## WARNING

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-2003-0807



**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 / implements without instructions. See Operation & Maintenance Manual and Attachment / Implement Service Manual.
-  Cleaning and maintenance are required daily.
-  Never service or adjust attachment / implement with the engine running unless instructed to do so in manual.
-  Always lower the attachment / implement 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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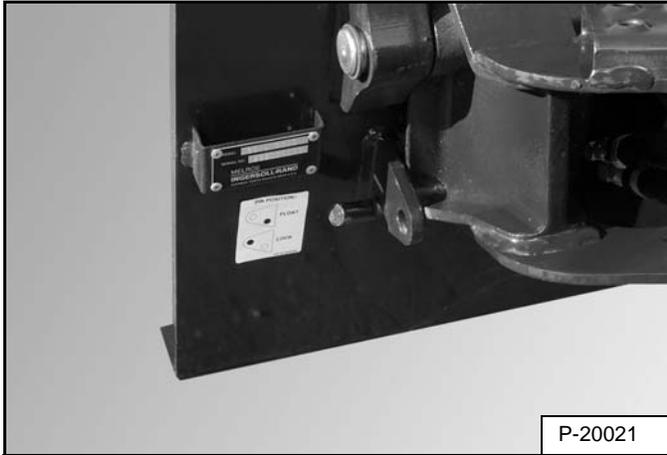


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## SERIAL NUMBER LOCATION

### Attachment Serial Number

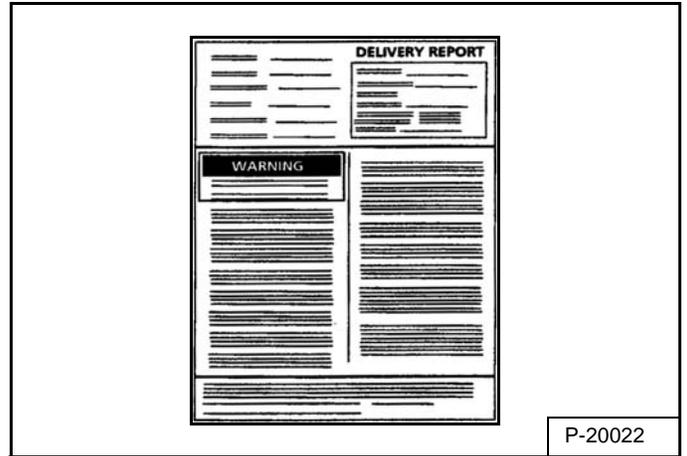
Figure 1



Always use the serial number of the soil conditioner 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 operation **[Figure 1]**.

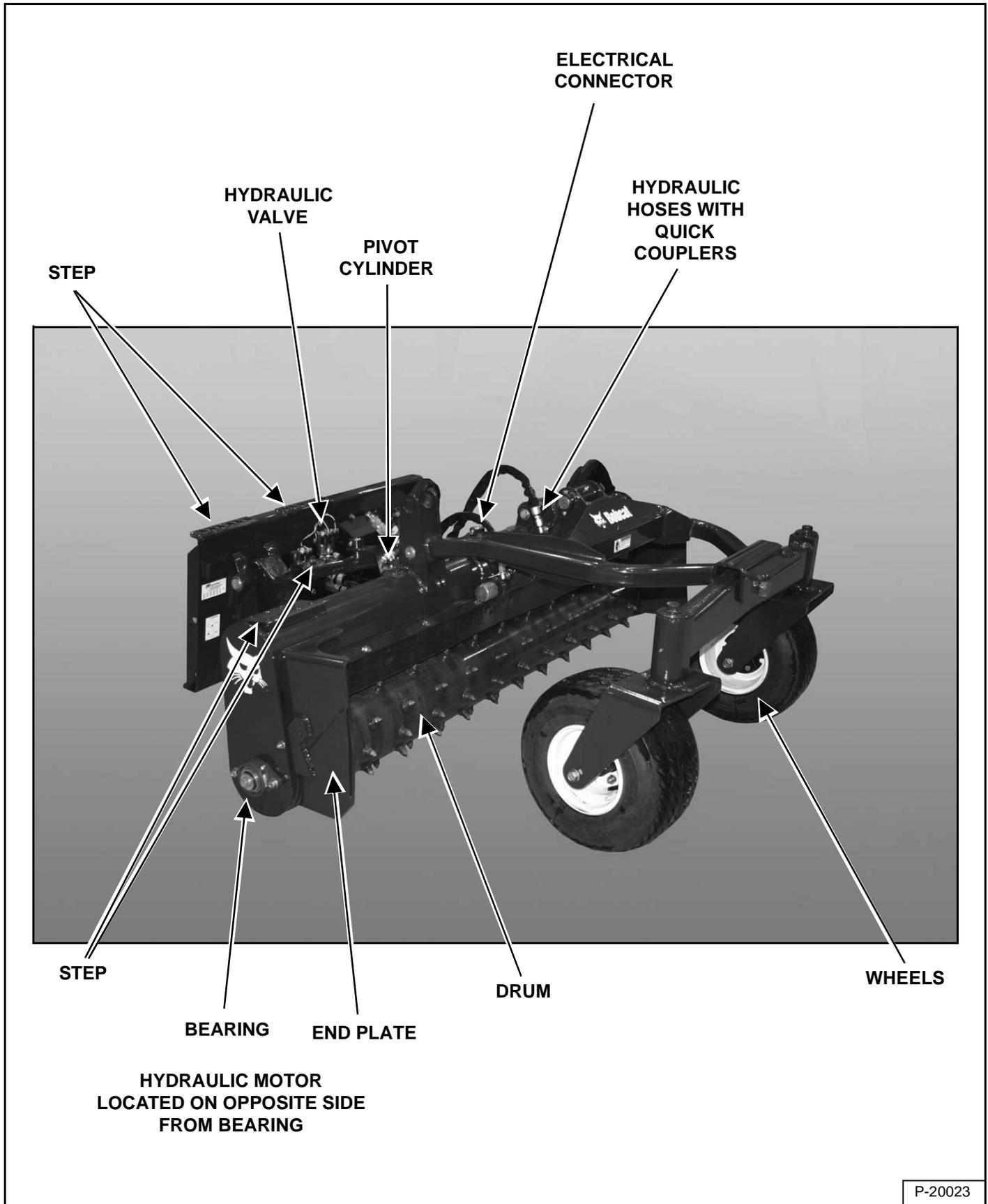
## DELIVERY REPORT

Figure 2



The delivery report must be filled out by the dealer and signed by the owner or operator when the soil conditioner is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely **[Figure 2]**.

**ATTACHMENT IDENTIFICATION**



## SAFETY & MAINTENANCE

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## TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
Soil Conditioner does not mount properly on the Bob-Tach™.	Bob-Tach wedges are not fully retracted.	Retract Bob-Tach wedges.
	Mud, dirt or stones are lodged between the Bob-Tach and the Soil Conditioner mount.	Remove debris between Bob-Tach and Soil Conditioner mount.
Soil Conditioner roller does not rotate.	No hydraulic flow.	Activate loader front auxiliary hydraulics.
		Check quick couplers connection. Check for damaged hose ends and fittings.
Soil Conditioner does not angle or angles slowly.	No hydraulic flow.	Activate loader front auxiliary hydraulics.
	Center pin not lubricated.	Lubricate center pin.
	Electrical harness not installed.	Install harness from the Soil Conditioner to the loader.
Soil Conditioner is performing poorly.	Teeth on roller are worn.	Replace teeth.
	Improper height adjustment.	See "Adjusting the Soil Conditioner" in the Operation & Maintenance Manual.

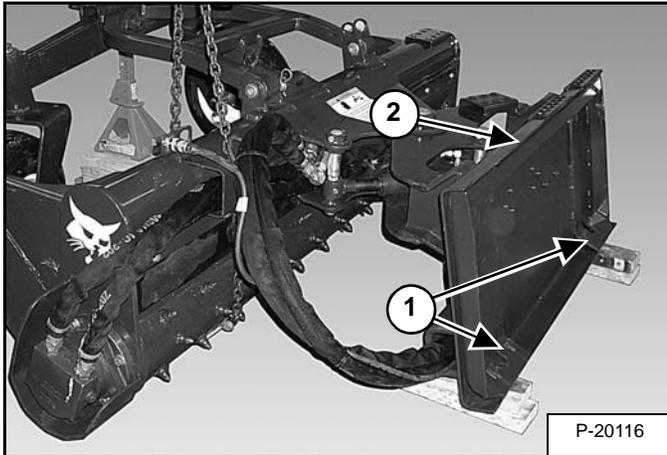


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## DAILY INSPECTION

### Attachment Mounting Frame

Figure 10-20-1



Inspect the Bob-Tach wedge mounts (Item 1), mounting flange (Item 2) [Figure 10-20-1] and all welds on the soil conditioner mount for wear and damage each time the soil conditioner is removed from the machine.

### Bob-Tach

*Hand Lever Bob-Tach*

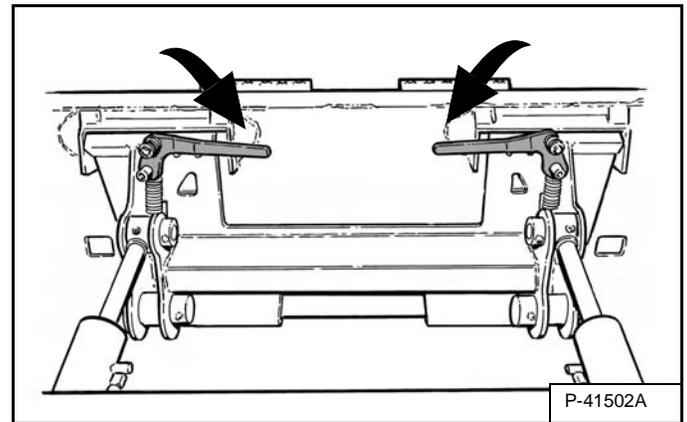
## **WARNING**

### AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

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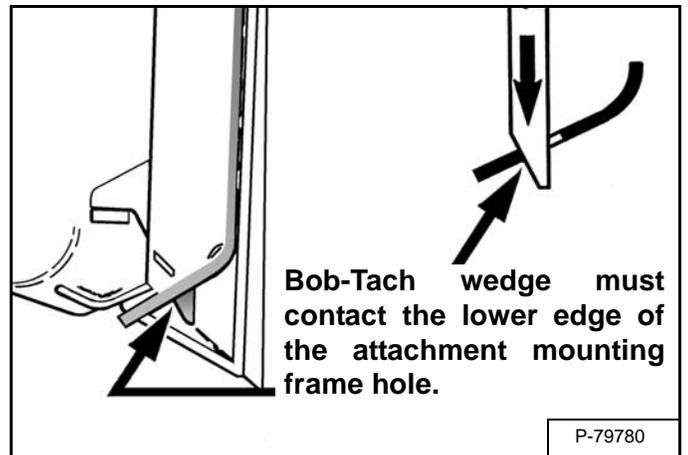
Figure 10-20-2



Push down on the Bob-Tach levers until they are fully engaged in the locked position [Figure 10-20-2] (wedges fully extended through the attachment mounting frame holes).

The levers and wedges must move freely [Figure 10-20-2].

Figure 10-20-3



The wedges must extend through the holes in the attachment mounting frame, securely fastening the attachment to the Bob-Tach [Figure 10-20-3].

**NOTE:** If the wedge does not contact the lower edge of the hole, the attachment will be loose and can come off the Bob-Tach.

Inspect the mounting frame on the machine. (See the machine's Operation & Maintenance Manual for inspecting the Bob-Tach). Replace any parts that are damaged, bent or missing. Keep all fasteners tight. Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See the machine's Operation & Maintenance Manual for the correct procedure.)

## DAILY INSPECTION (CONT'D)

### Bob-Tach (Cont'd)

Power Bob-Tach

# WARNING

## AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

W-2715-0208

Figure 10-20-4

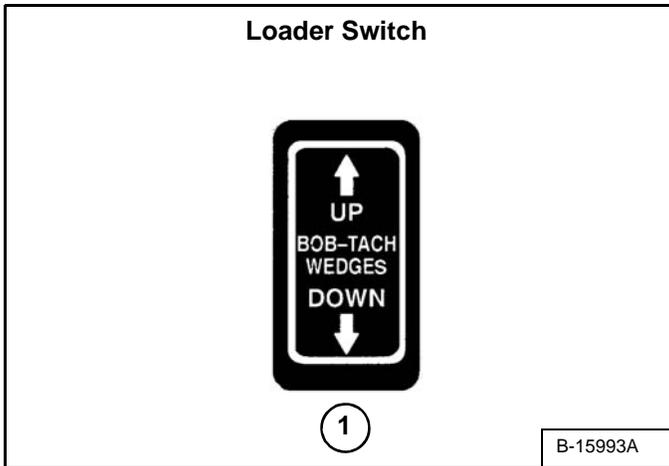


Figure 10-20-5

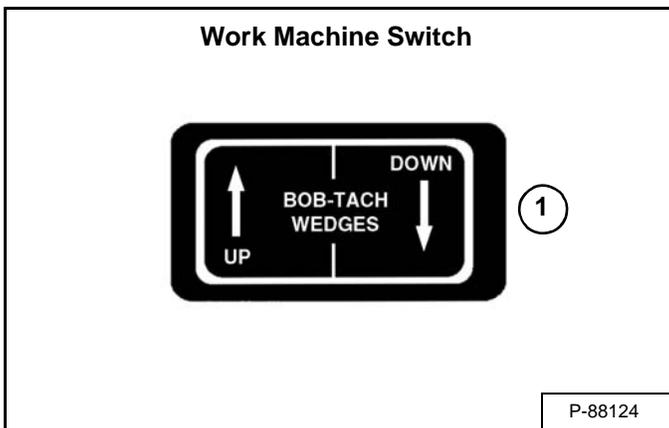
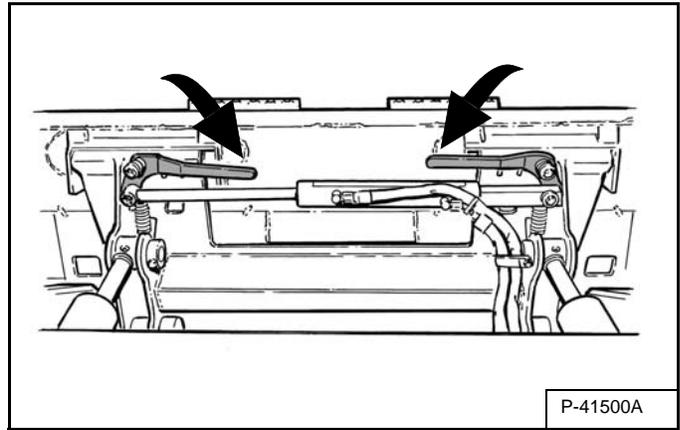
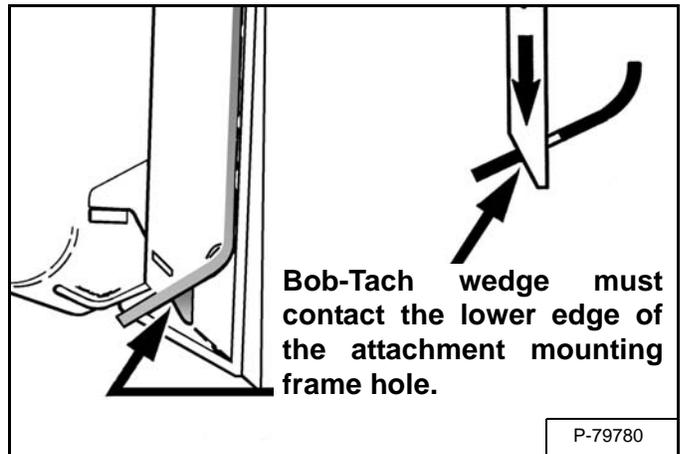


Figure 10-20-6



Push (Item 1) [Figure 10-20-4] or [Figure 10-20-5] and hold the BOB-TACH "WEDGES DOWN" switch until the levers are fully engaged in the locked position [Figure 10-20-6] (wedges fully extended through the attachment mounting frame holes).

Figure 10-20-7



The wedges must extend through the holes in the attachment mounting frame, securely fastening the attachment to the Bob-Tach [Figure 10-20-7].

**NOTE: If the wedge does not contact the lower edge of the hole, the attachment will be loose and can come off the Bob-Tach.**

Inspect the mounting frame on the attachment. (See the machine's Operation & Maintenance Manual for inspecting the Bob-Tach). Replace any parts that are damaged, bent or missing. Keep all fasteners tight. Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See the machine's Operation & Maintenance Manual for the correct procedure.)

## LUBRICATION

### Lubrication Locations

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

## WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- Pressurized fluids and springs or other stored energy components.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

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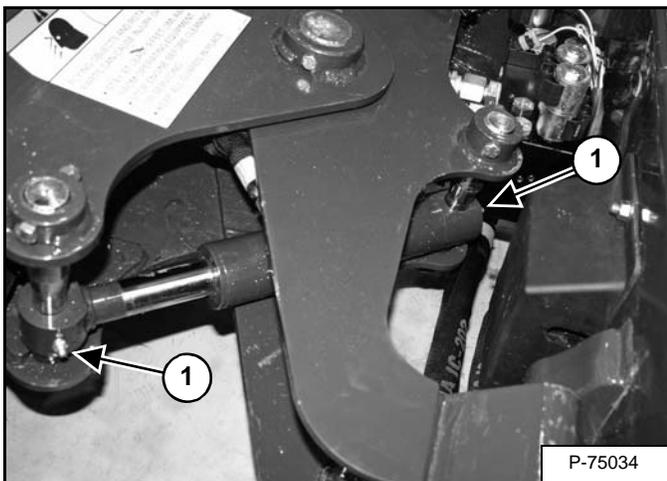
## IMPORTANT

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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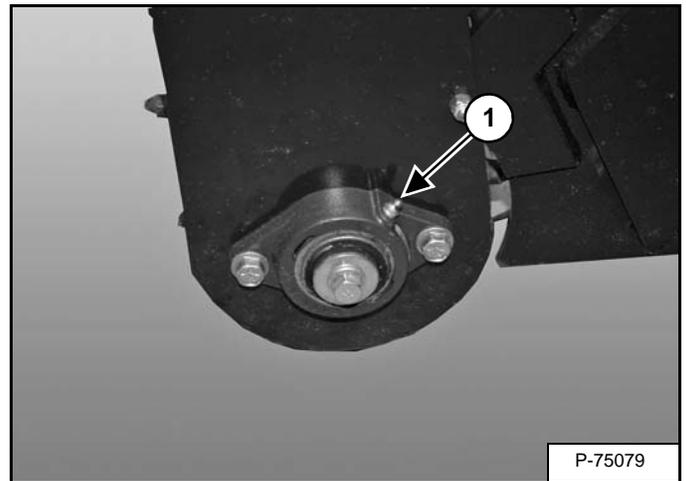
Lubricate the grease fittings, **EVERY 8 - 10 hours**.

Figure 10-30-1



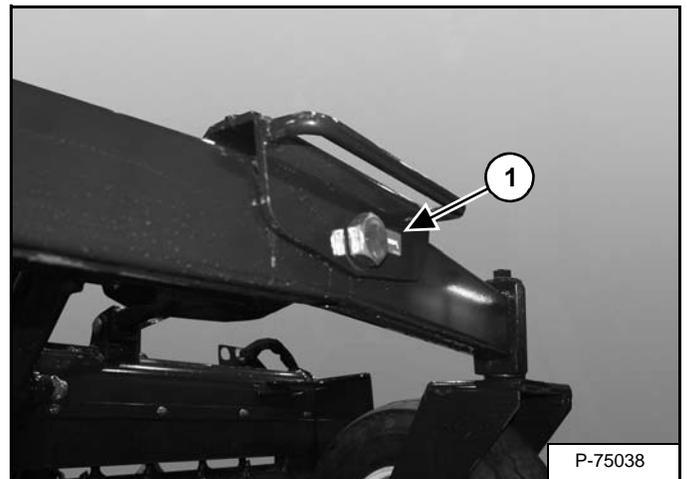
Add grease to the fittings on each end of the cylinder (Item 1) [Figure 10-30-1].

Figure 10-30-2



Lubricate the bearing at the end of the roller (Item 1) [Figure 10-30-2].

Figure 10-30-3

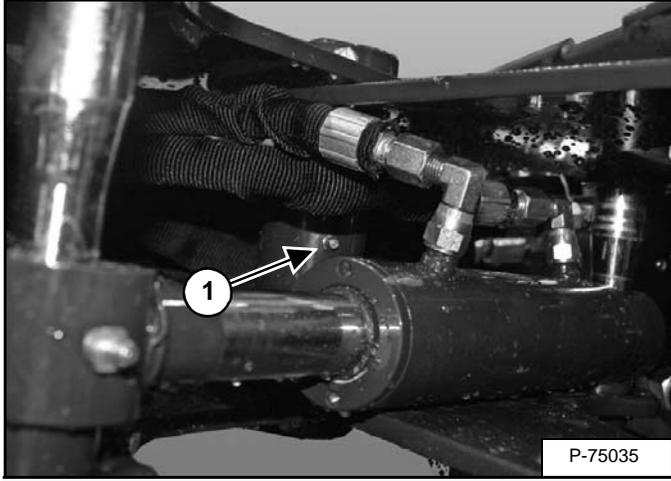


Add grease to the front pivot bushing (Item 1) [Figure 10-30-3].

## LUBRICATION (CONT'D)

### Lubrication Locations (Cont'd)

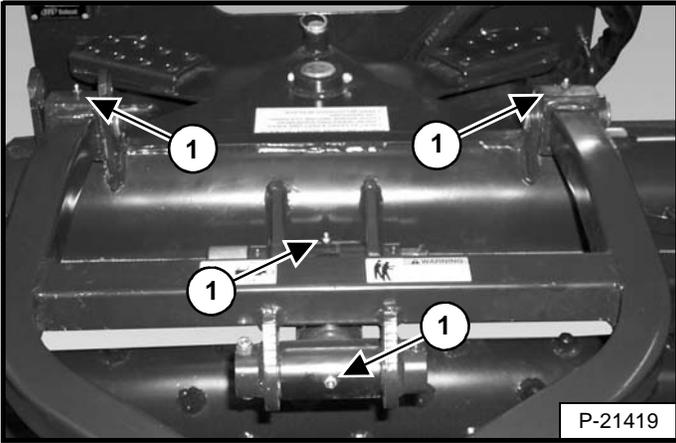
Figure 10-30-4



Add grease to the center pivot bushing (Item 1) [Figure 10-30-4].

### 48 In. Soil Conditioner

Figure 10-30-5



Add grease to the fittings (Item 1) [Figure 10-30-5].

## ROLLER TEETH

### Inspection

The soil condition and type of use will determine the life of the roller teeth.

Figure 10-40-1

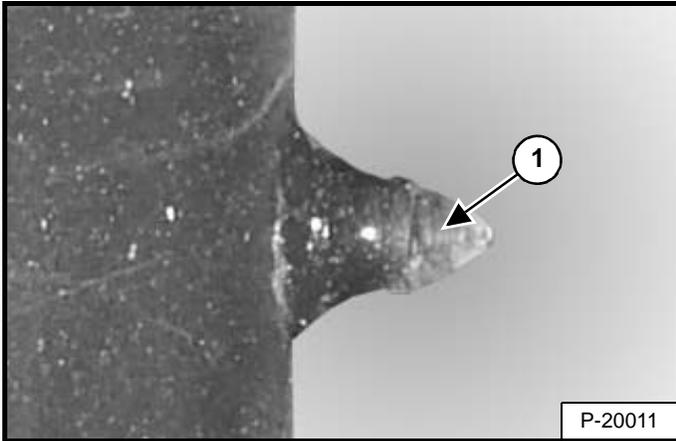
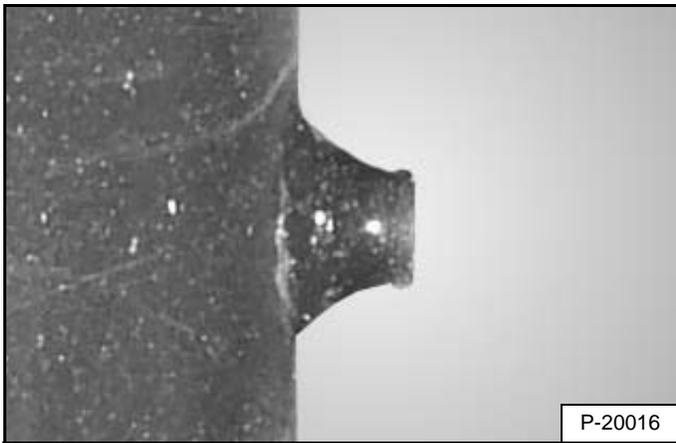


Figure 10-40-2



When the carbide tip (Item 1) [Figure 10-40-1] is worn to the holder [Figure 10-40-2], the tooth needs to be replaced with a new carbide tip.

### Replacement

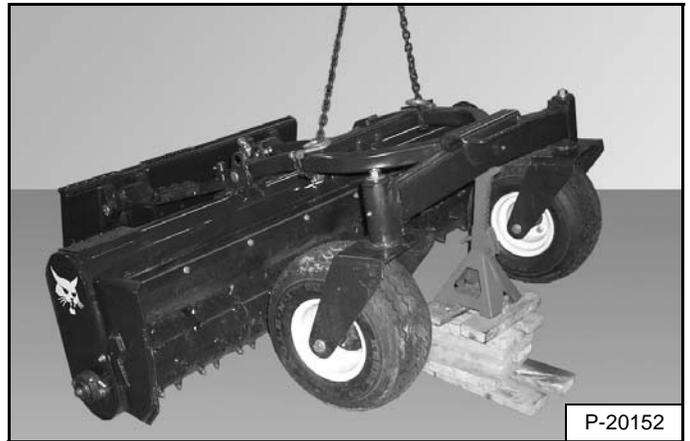


# WARNING

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.

W-2009-1285

Figure 10-40-3

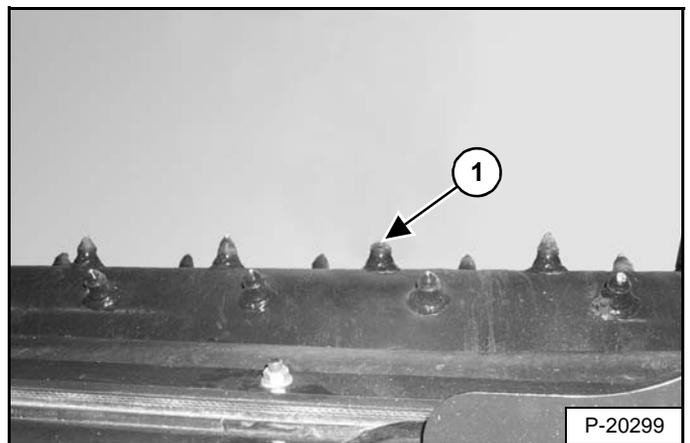


If welding is to be done with the roller installed in the soil conditioner, clamp the ground cable directly to the roller to prevent current from passing through the bearings.

Support the soil conditioner with blocks and chains [Figure 10-40-3].

**NOTE:** Use chains that are in good condition and of adequate size to lift the attachment.

Figure 10-40-4

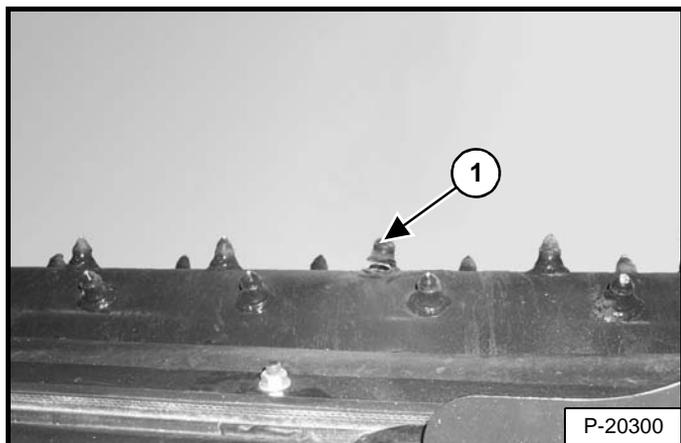


Grind the old tooth holder (Item 1) [Figure 10-40-4] off the roller at the weld.

## ROLLER TEETH (CONT'D)

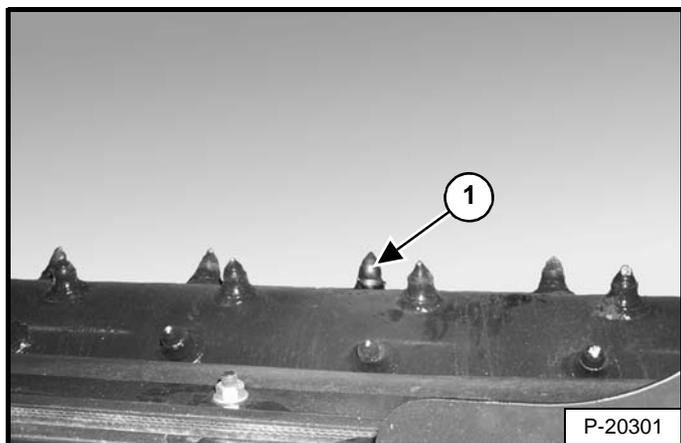
### Replacement (Cont'd)

Figure 10-40-5



Knock the remainder of the tooth (Item 1) [Figure 10-40-5] off the roller, then grind area smooth.

Figure 10-40-6



Weld a new tooth (Item 1) [Figure 10-40-6] to the roller.

## HYDRAULIC SYSTEM

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Disassembly .....	20-10-4
Assembly .....	20-10-7
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Removal And Installation .....	20-11-1
Parts Identification .....	20-11-1
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HYDRAULIC MOTOR (S/N A5PS00101 & ABOVE, S/N A86R00101 & ABOVE, S/N 651301556 & ABOVE, S/N S6TE00101 & ABOVE, S/N A6TD00101 & ABOVE, S/N A6TG00101 & ABOVE, S/N A6TH00101 & ABOVE) .....	20-42-1
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Inspection .....	20-42-5
Assembly .....	20-42-6

**HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW)**

**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.

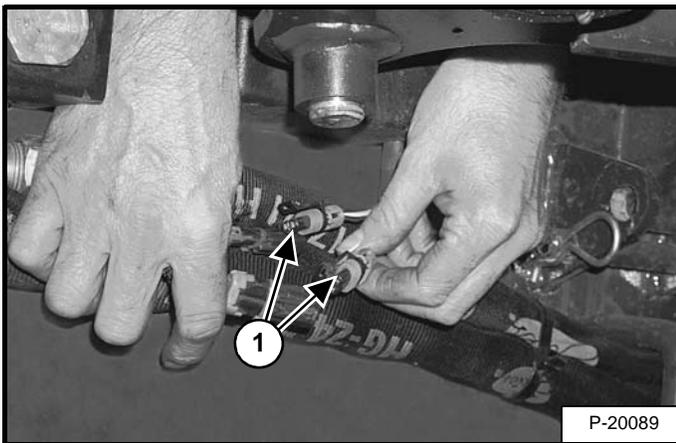
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**IMPORTANT**

Contain and dispose of any oil leakage in an environmentally safe manner.

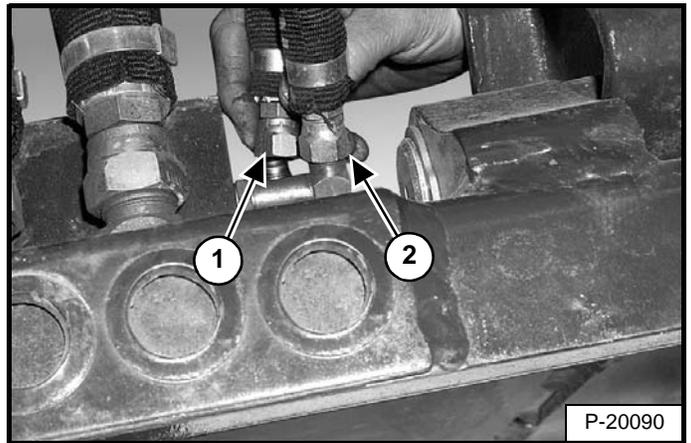
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**Figure 20-10-1**



Disconnect the electrical wiring (Item 1) [Figure 20-10-1] from the coils.

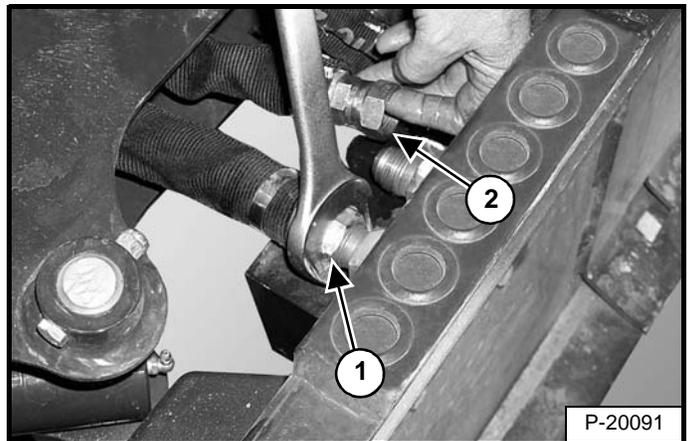
**Figure 20-10-2**



Remove the cylinder to control valve hoses (Item 1 and 2) [Figure 20-10-2].

**Installation:** Hose from base end goes to port C1 (Item 1). Hose from rod end goes to port C2 (Item 2) [Figure 20-10-2].

**Figure 20-10-3**



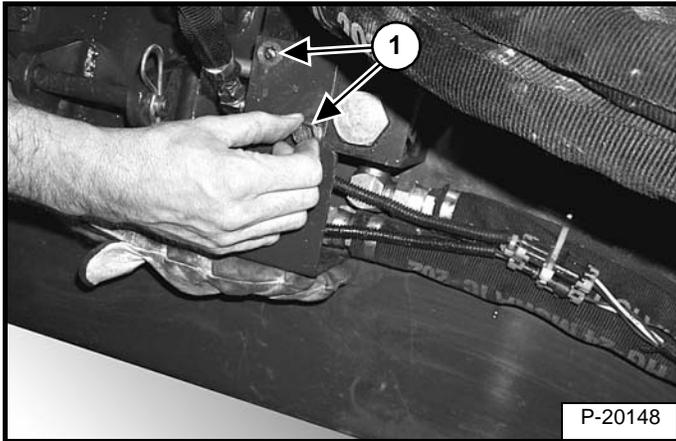
Remove the motor to control valve hoses. (Item 1 and 2) [Figure 20-10-3].

**Installation:** The hose from the back of the motor goes to port M1 (Item 1) and the hose from the front of the motor goes to port M2 (Item 2) [Figure 20-10-3].

HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)

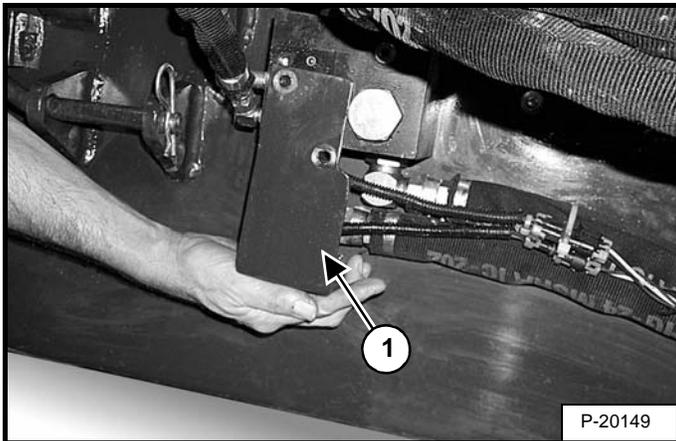
Removal And Installation (Cont'd)

Figure 20-10-4



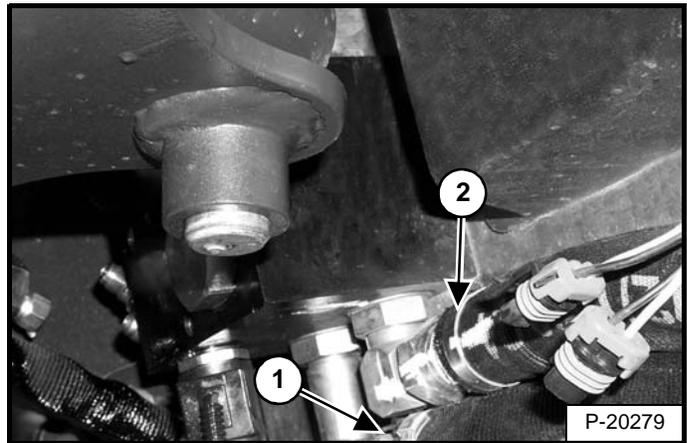
Remove the two bolts (Item 1) [Figure 20-10-4] from the cover.

Figure 20-10-5



Remove the cover (Item 1) [Figure 20-10-5].

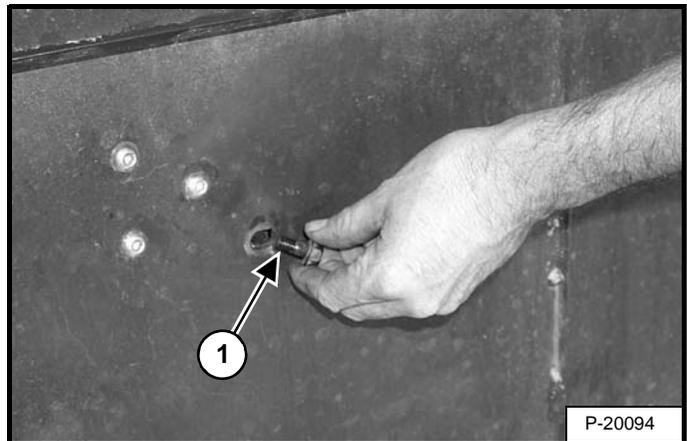
Figure 20-10-6



Remove the two loader to control valve hoses (Item 1 and 2) [Figure 20-10-6].

**Installation:** Hose (Item 1) (with male coupler) goes to port P (Pressure) and hose (Item 2) (with female coupler) goes to port T (Tank).

Figure 20-10-7

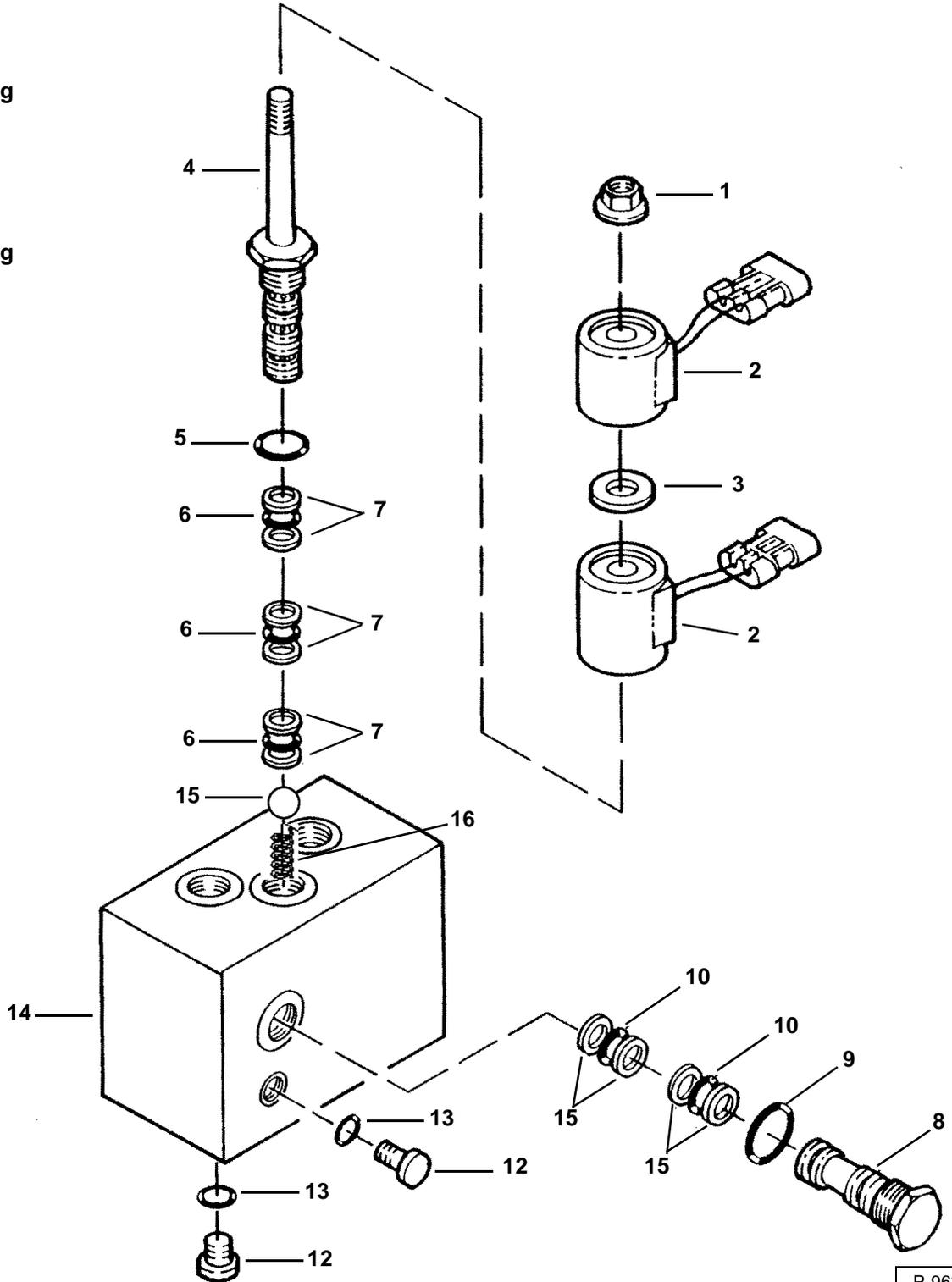


Remove the two bolts (Item 1) [Figure 20-10-7] that mount the control valve to the mounting frame.

HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)

Parts Identification

- 1. Nut
- 2. Coil
- 3. Spacer
- 4. Spool
- 5. O-ring
- 6. O-ring
- 7. Back-up Ring
- 8. Valve
- 9. O-ring
- 10. O-ring
- 11. Back-up Ring
- 12. Plug
- 13. O-ring
- 14. Valve Block
- 15. Ball
- 16. Spring



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HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)

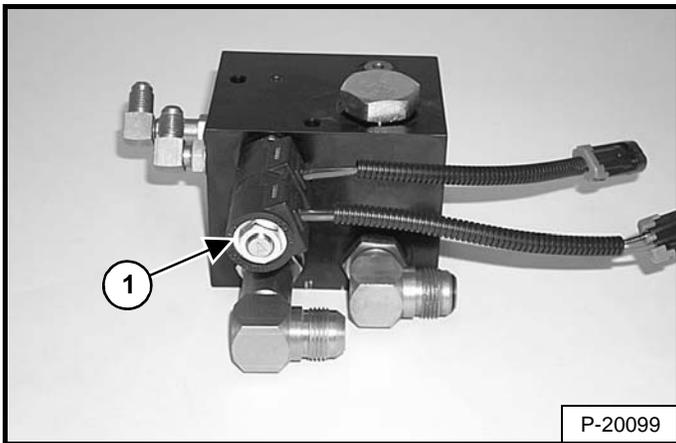
Disassembly

# 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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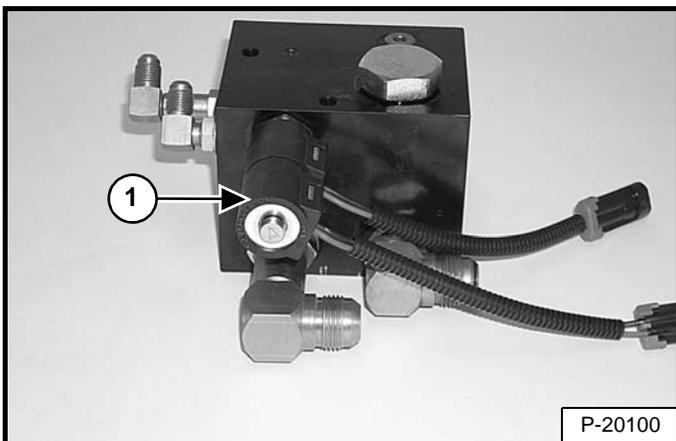
Figure 20-10-8



Remove the nut (Item 1) [Figure 20-10-8].

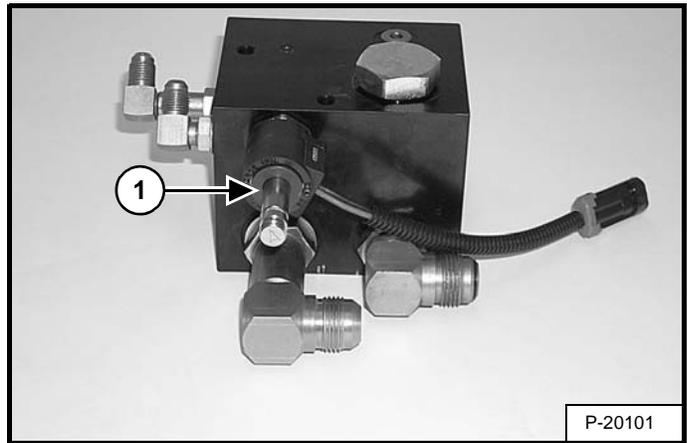
**Installation:** Tighten the nut to 4 - 5 ft.-lb. (5,4 - 6,8 N•m) torque.

Figure 20-10-9



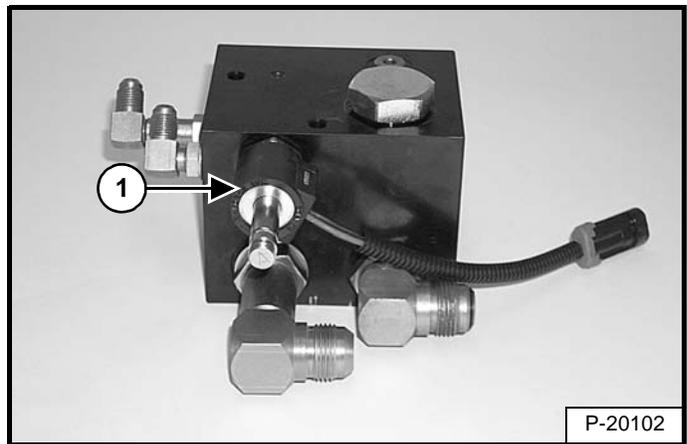
Remove the coil (Item 1) [Figure 20-10-9].

Figure 20-10-10



Remove the spacer (Item 1) [Figure 20-10-10].

Figure 20-10-11

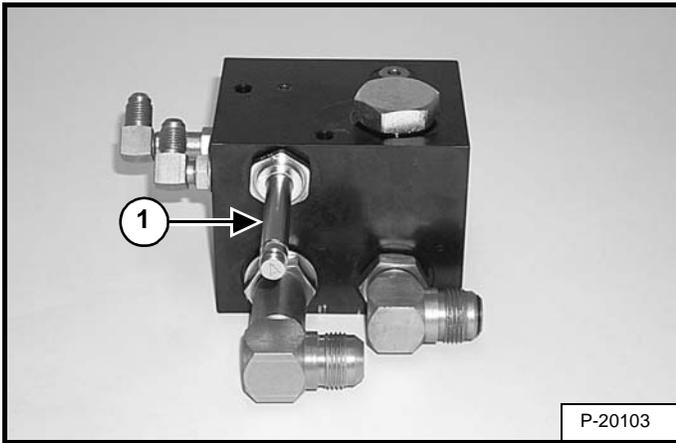


Remove the coil (Item 1) [Figure 20-10-11].

**HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)**

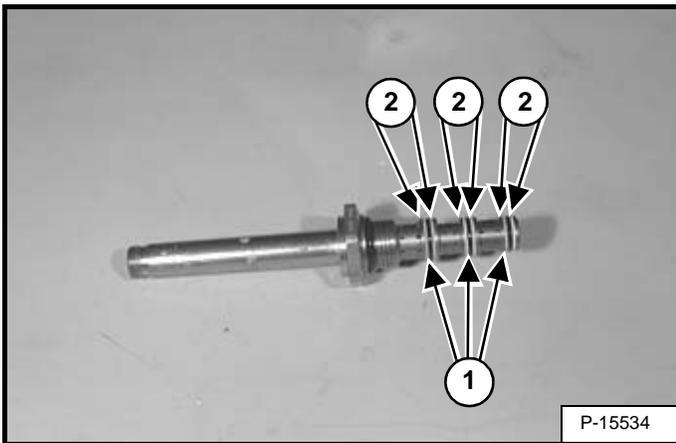
**Disassembly (Cont'd)**

**Figure 20-10-12**



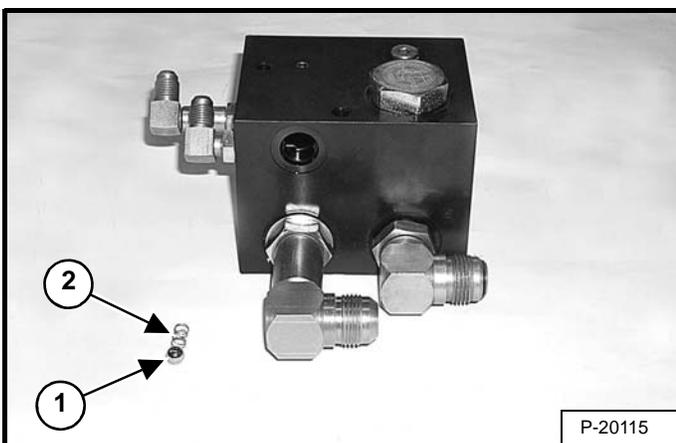
Remove the spool (Item 1) [Figure 20-10-12].

**Figure 20-10-13**



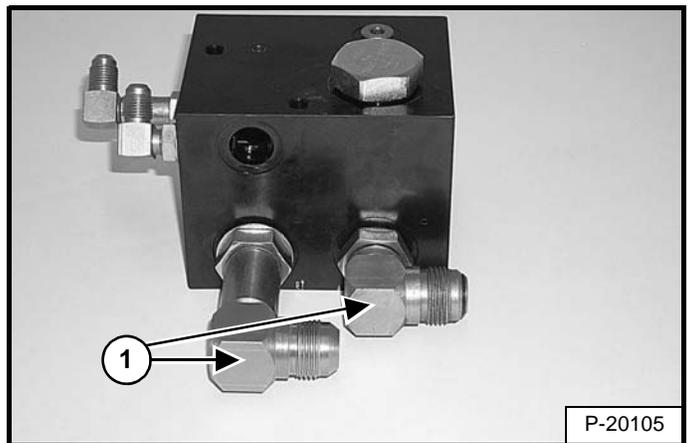
Remove the O-rings (Item 1) and back-up rings (Item 2) [Figure 20-10-13].

**Figure 20-10-14**



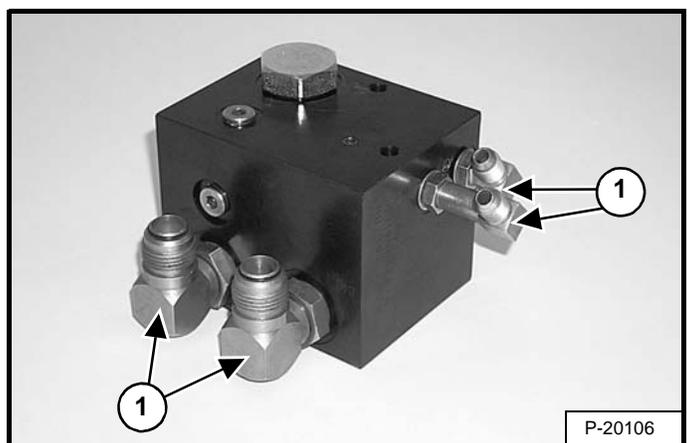
Remove the steel ball (Item 1) and spring (Item 2) [Figure 20-10-14] that were behind the spool.

**Figure 20-10-15**



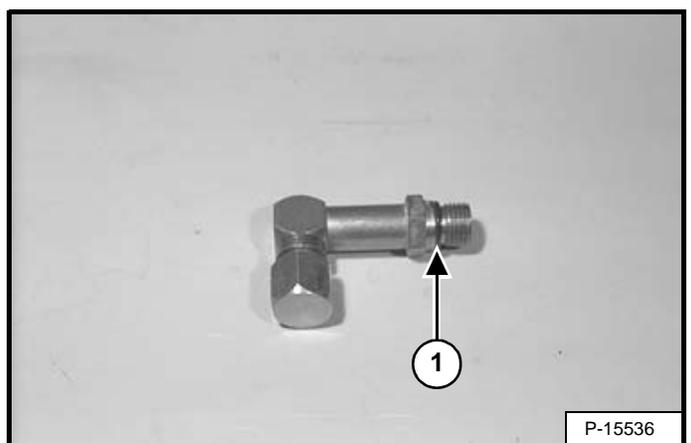
Remove the two bottom fittings (Item 1) [Figure 20-10-15].

**Figure 20-10-16**



Remove the four fittings (Item 1) [Figure 20-10-16].

**Figure 20-10-17**

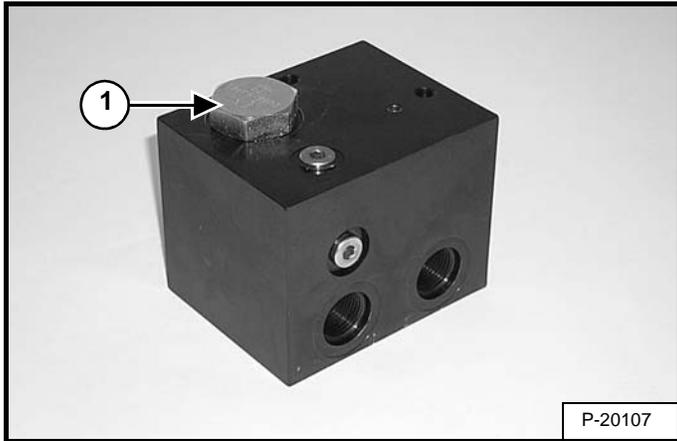


Remove the O-ring (Item 1) [Figure 20-10-17] from all six fittings.

HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)

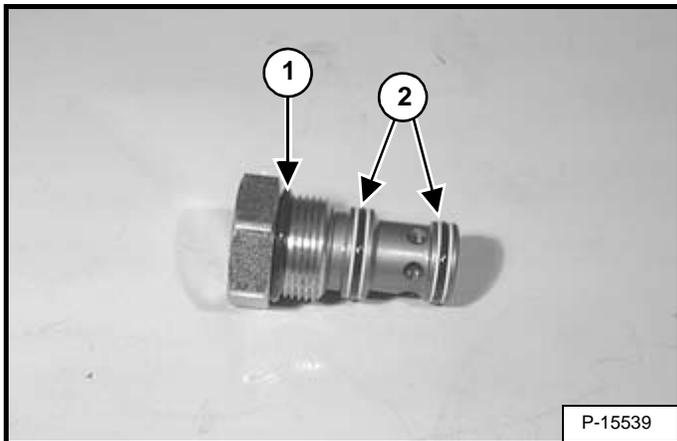
Disassembly (Cont'd)

Figure 20-10-18



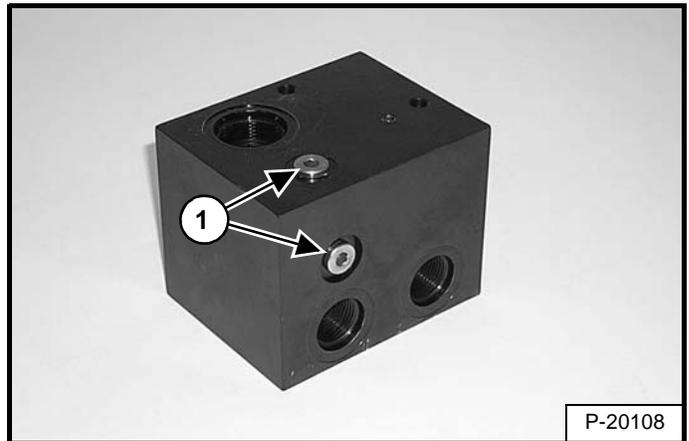
Remove the valve (Item 1) [Figure 20-10-18].

Figure 20-10-19



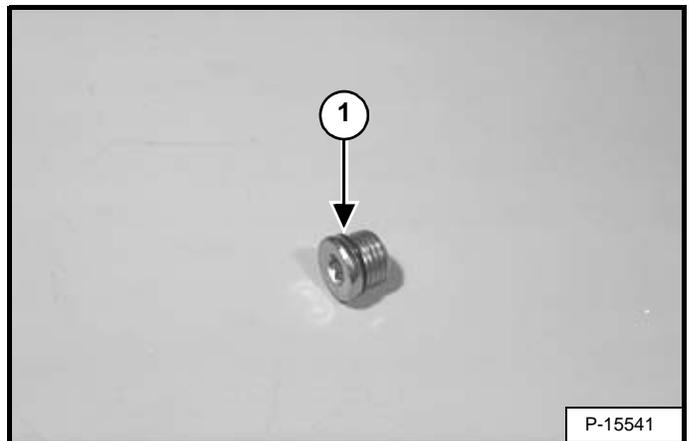
Remove the O-rings (Item 1) and back-up rings (Item 2) [Figure 20-10-19].

Figure 20-10-20



Remove the two plugs (Item 1) [Figure 20-10-20].

Figure 20-10-21



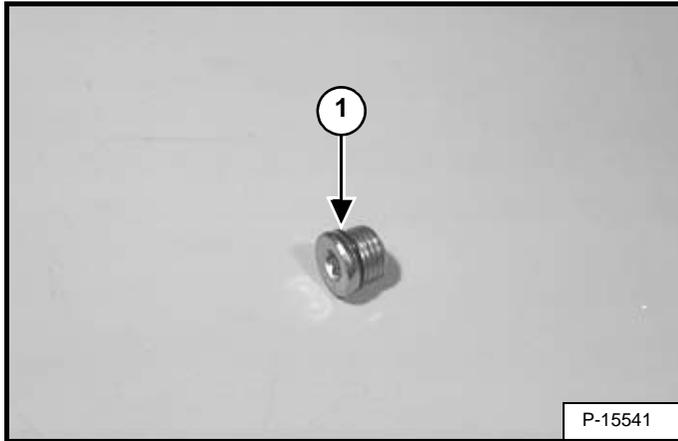
Remove the O-ring (Item 1) [Figure 20-10-21] from both plugs.

**NOTE:** Always use new O-rings and seals when assembling the valve. Put a small amount of grease on all the O-rings and seals for easier installation.

HYDRAULIC CONTROL VALVE (S/N 651500101 & ABOVE) & (S/N 651301555 & BELOW) (CONT'D)

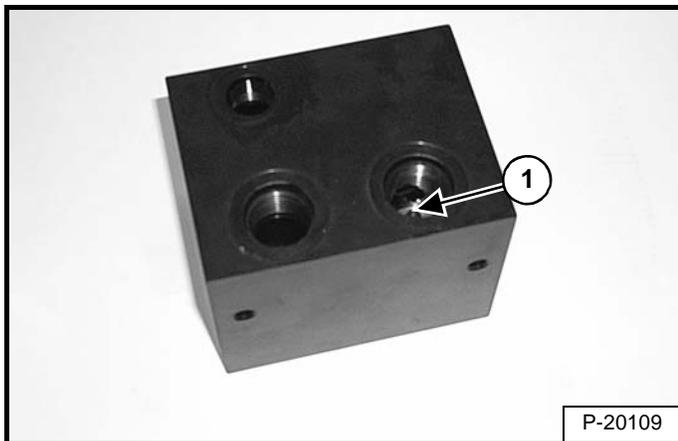
Assembly

Figure 20-10-22



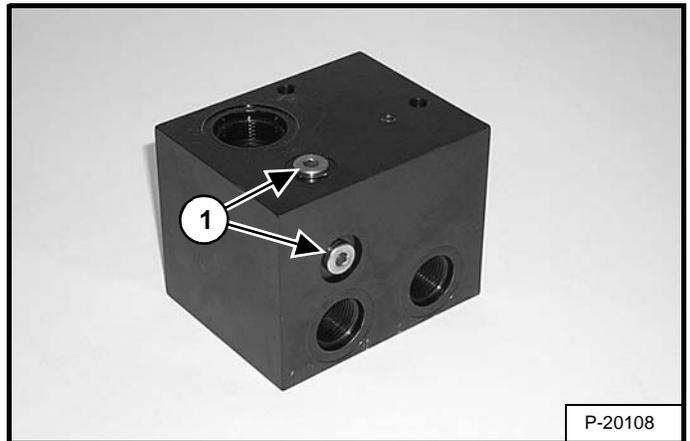
Install the O-ring (Item 1) [Figure 20-10-22] on both plugs.

Figure 20-10-23



Inspect the check ball located behind the retainer (Item 1) [Figure 20-10-23] after it has been cleaned with solvent. The ball must move freely in the valve block.

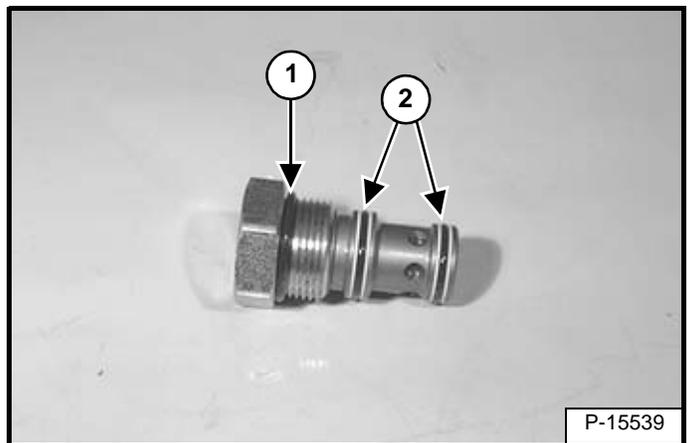
Figure 20-10-24



Install the plugs (Item 1) [Figure 20-10-24].

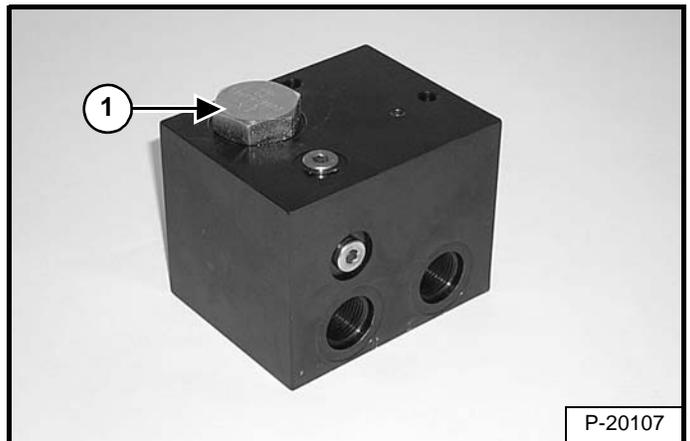
**Installation:** Tighten to 198 in.-lb. (267 N•m) torque.

Figure 20-10-25



Install the O-rings (Item 1) and back-up rings (Item 2) [Figure 20-10-25] on the valve.

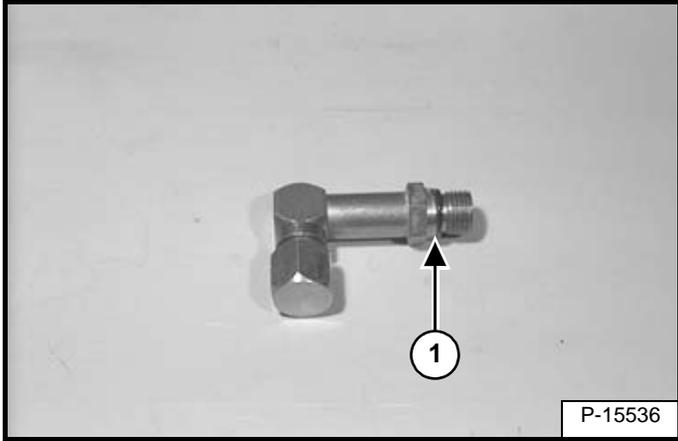
Figure 20-10-26



Install the valve (Item 1) [Figure 20-10-26].

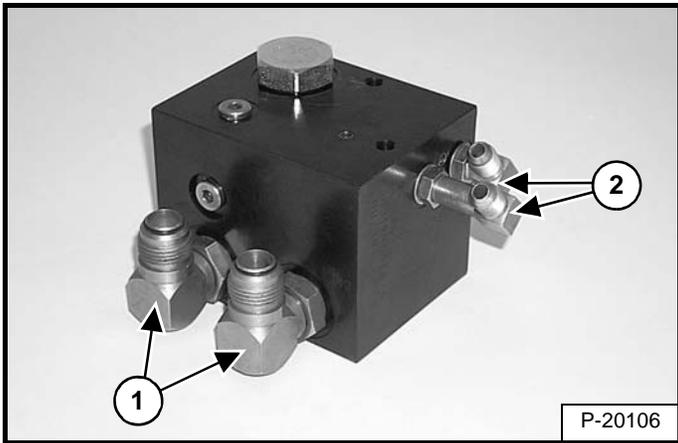
**Installation:** Tighten to 50 ft.-lb. (67,5 N•m) torque.

Figure 20-10-27



Install the O-ring (Item 1) [Figure 20-10-27] on all six fittings.

Figure 20-10-28



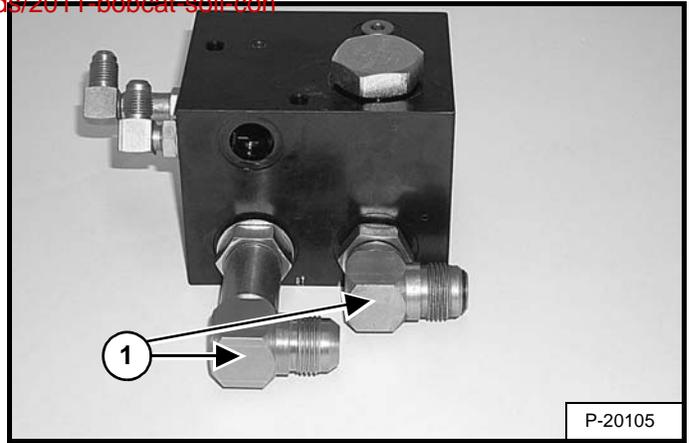
Install the two fittings (Item 1) [Figure 20-10-28].

**Installation:** Tighten to 68 - 75 ft.-lb. (93 - 102 N•m) torque.

Install the two fittings (Item 2) [Figure 20-10-28].

**Installation:** Tighten to 22 - 24 ft.-lb. (29 - 33 N•m) torque.

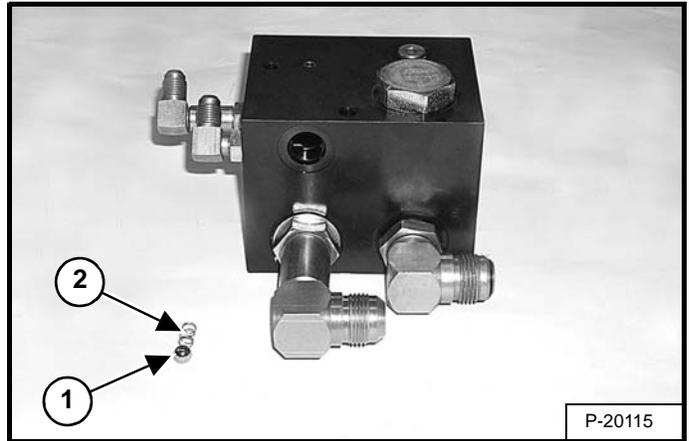
Figure 20-10-29



Install the two bottom fittings (Item 1) [Figure 20-10-29].

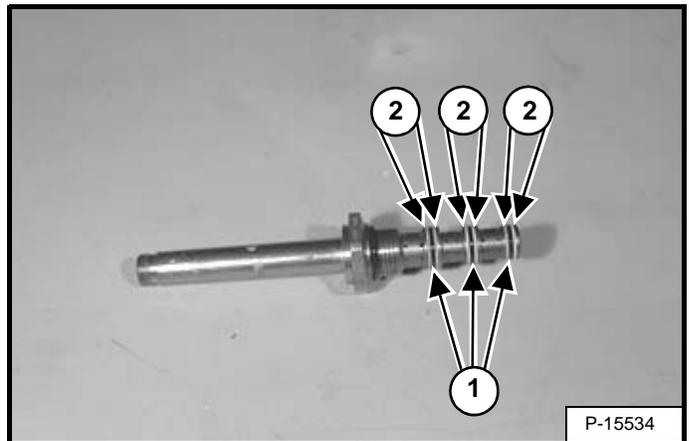
**Installation:** Tighten to 68 - 75 ft.-lb. (93 - 102 N•m) torque.

Figure 20-10-30



Install the steel ball (Item 1) and spring (Item 2) [Figure 20-10-30].

Figure 20-10-31



Install the O-rings (Item 1) and back-up rings (Item 2) [Figure 20-10-31] on the spool.