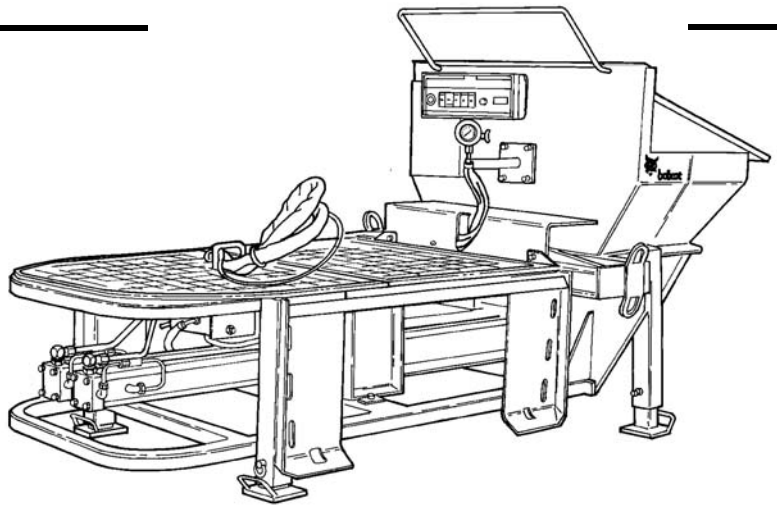
Concrete Pump

Used With Remote Attachment Control

Bobcat®

Service Manual

S/N 233100101 & Above



Ingersoll Rand
Compact Vehicle Technologies

6901060 (2-06) Printed in U.S.A.

CONTENTS

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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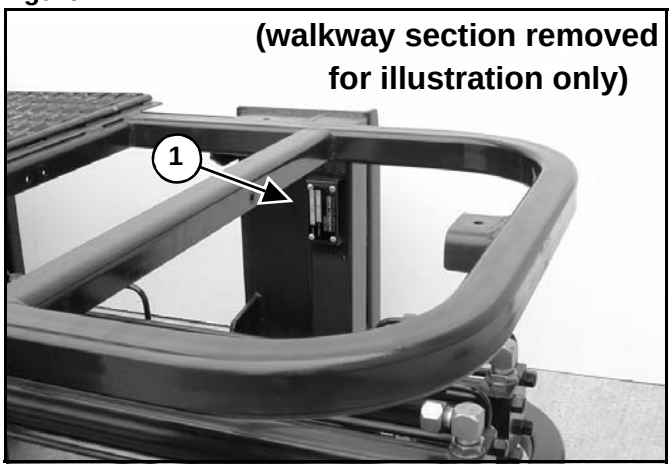
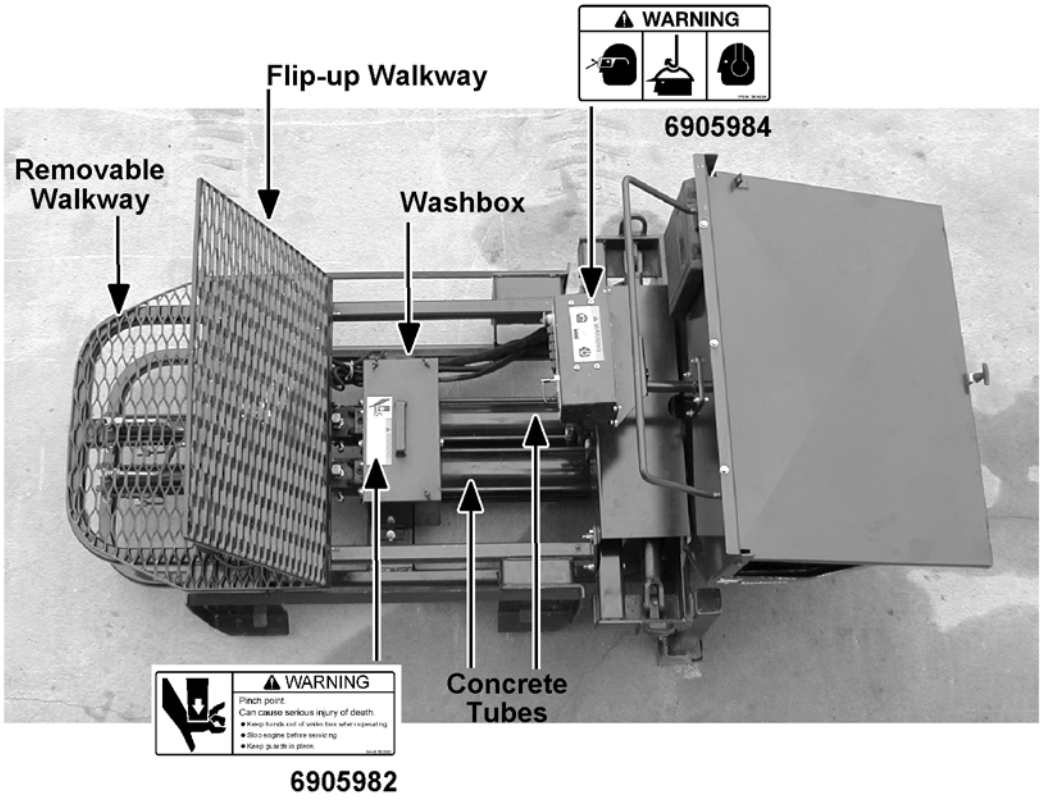
SERIAL NUMBER LOCATION

Figure 1



It is important to make the correct reference to the serial number of the Concrete Pump when making repairs or ordering parts **[Figure 1]**. Early or later models (identifications made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation.



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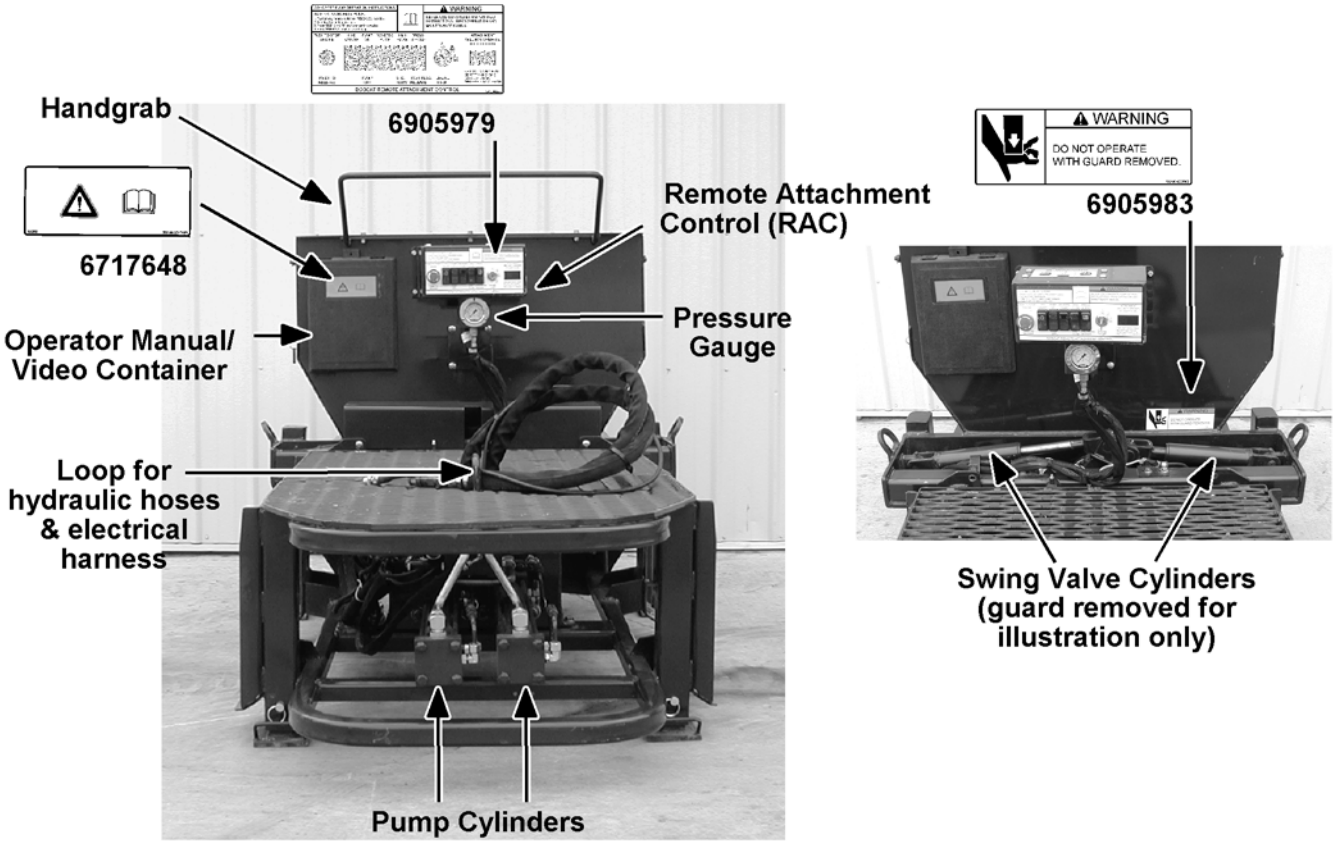

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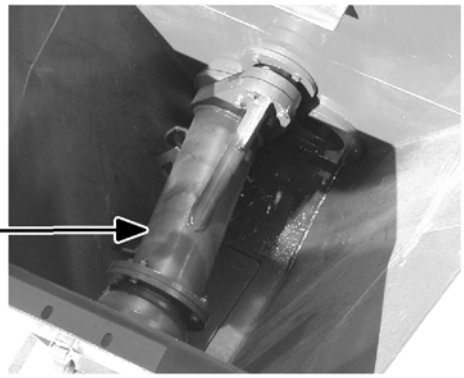

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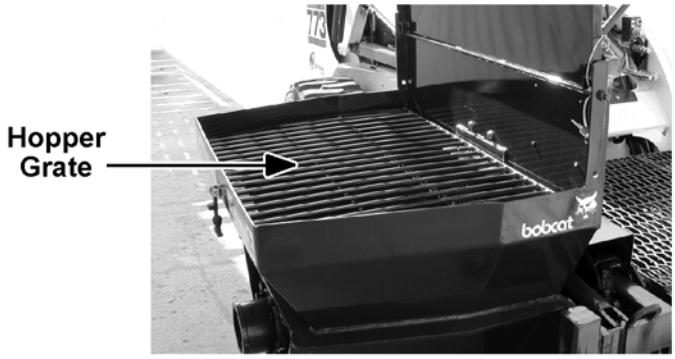

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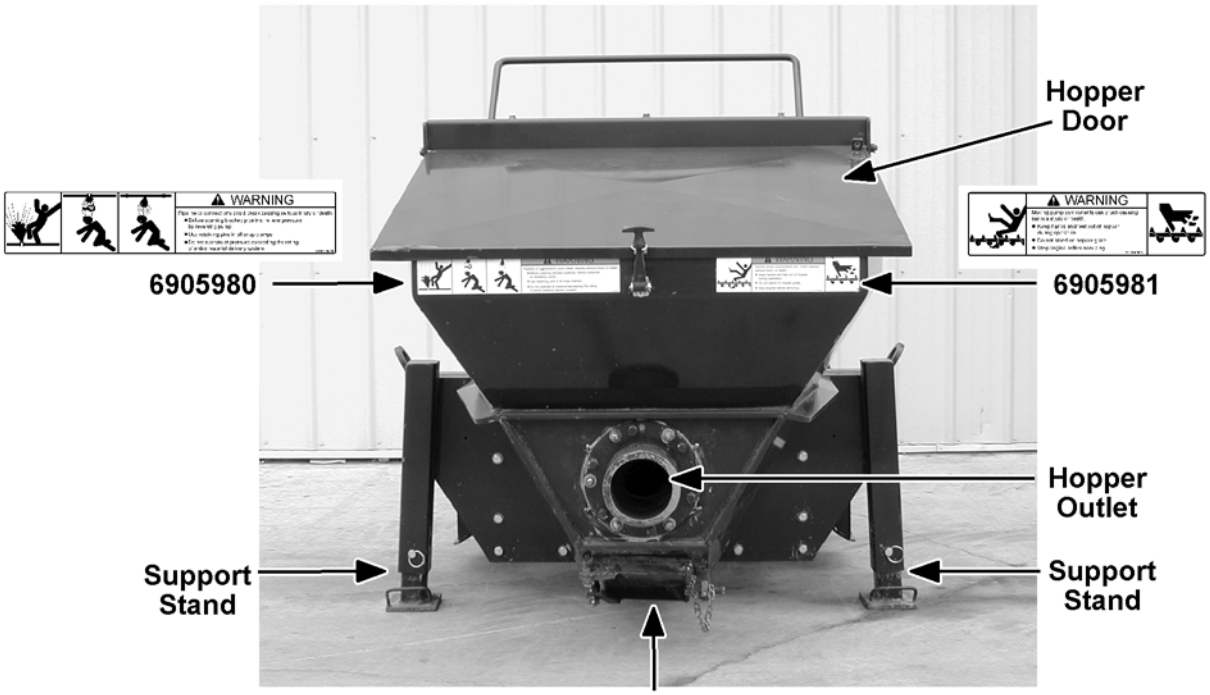

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Bobcat®

SAFETY AND MAINTENANCE


Bobcat®

TROUBLESHOOTING

Concrete Pump

PROBLEM	CAUSE	CORRECTION
Concrete Pump does not seat properly on the Bob-Tach.	Bob-Tach wedges are not fully retracted before installation.	Retract Bob-Tach wedges before installation.
	Mud, dirt or stones are lodged between the Bob-Tach and the Concrete Pump.	Remove debris between Bob-Tach and Concrete Pump.
Loader will not start with Concrete Pump removed (Early models only).	Connector not installed on remote attachment control harness on the loader lift arm.	Install connector on wire harness.
Loader will not start with loader key switch with Concrete Pump installed.	Engine stop switch on Remote Attachment Control engaged.	Turn the engine stop switch clockwise to release the switch.
	Key switch on Remote Attachment Control in the run position.	Turn the key switch to the OFF position.
Loader will not start with the Remote Attachment Control key switch.	Engine stop switch on Remote Attachment Control engaged.	Turn the engine stop switch clockwise to release the switch.
	Loader key switch in the run position.	Turn the loader key switch to the OFF position, or press the stop button.
Concrete Pump does not pump.	No hydraulic flow.	Check quick couplers connection. Check for damaged hose ends and fittings.
	Electrical connections not made.	Check electrical connections.
		Press RAC PUMP ON switch.
Delivery system plugs.	Mix is not pumpable.	Consult mix supplier.
	Delivery system components are too small.	Be sure delivery system hoses and tubes are 3 to 4 times the size of the largest aggregate to be pumped.
	Delivery system not lubricated before pumping.	Disassemble and clean delivery system and hopper. Lubricate the delivery system before pumping.
	Old concrete set up in delivery system.	Disassemble, clean and inspect delivery system.
	Damaged or defective couplings or gaskets.	Disassemble, clean and inspect delivery system.
	Bends or kinks in delivery system hoses or tubes.	Inspect delivery system. Run delivery system in a line as short and straight as possible to placement area.
Concrete mix leaking at coupling joints.	Coupling and gasket not installed properly or worn.	Dip gasket in warm, soapy water or oil before applying. Correctly align components to be connected before applying coupling.
		Disassemble, clean and inspect coupling and gasket for wear.
Washbox oil rapidly becomes contaminated with concrete mix.	Worn piston cups.	Replace piston cups.
Oil dripping from cylinder block.	Worn rod seals.	Replace cylinder rod seals.
Pumping rate is decreasing.	Worn piston cups.	Replace piston cups.
	Wear ring not tight against wear plate.	Tighten nut on crank arm assembly.
	Worn or scored concrete tubes.	Replace concrete tubes.

Agitator

PROBLEM	CAUSE	CORRECTION
Agitator not turning.	Valve not turned on.	Turn valve on.
	Loader hydraulics not turned on.	Start loader hydraulics.

Remote Control

PROBLEM	CAUSE	CORRECTION
Transmitter does not work.	Weak battery.	Replace battery.
	Not activated.	Turn toggle OFF, then ON to reset.
	Antenna cord is coiled up.	Uncoil cord.
	Poor antenna placement.	Place on cab or away from pump.
	Steel covered building blocking signal.	Place antenna in line of site with transmitter.
	Loose receiver wire connection.	Check wire connections.

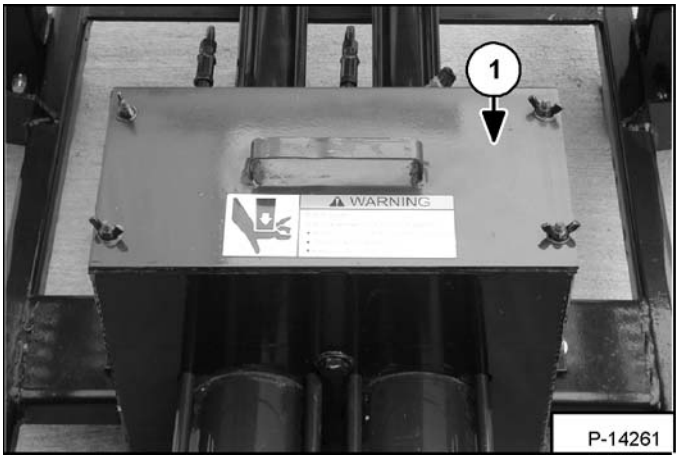
***NOTE: For other service related questions concerning the Radio Remote Control, contact Microtronics.**

Microtronics
Technical Service Department
1219 North 10
Humboldt, KS 66748
Phone - (620) - 473 - 3533
***A serial number is required when contacting them.**

INSPECTION

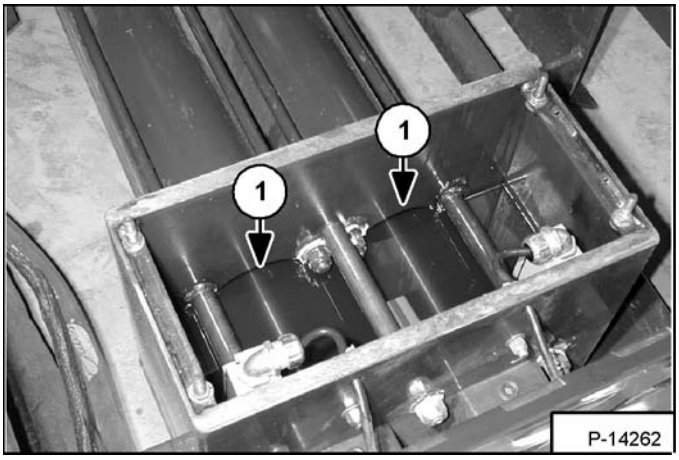
Washbox Fluid Inspection

Figure 10-20-1



Inspect the fluid level in the washbox (Item 1) **[Figure 10-20-1]** after every other use. If more than 1 inch of sediment is present in the bottom of the washbox, the fluid must be changed.

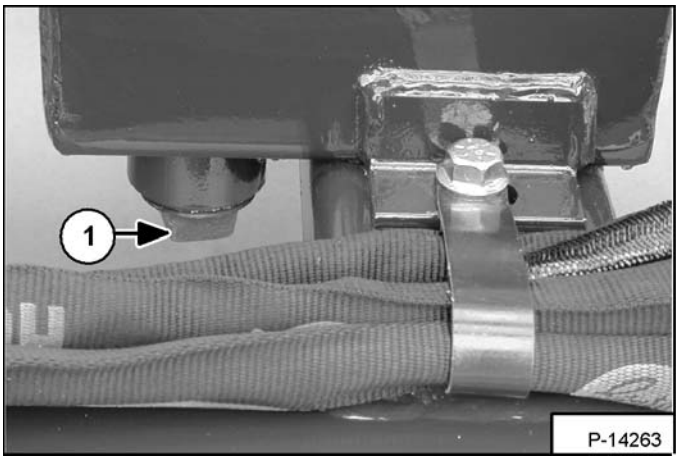
Figure 10-20-2



The washbox should be kept filled with skid-steer loader hydraulic fluid (or SAE 10W-40 oil) to a level about 1 inch below the top of the concrete tubes (Item 1) **[Figure 10-20-2]**.

Position a drain pan under the washbox to collect the hydraulic fluid.

Figure 10-20-3



Remove the drain plug (Item 1) **[Figure 10-20-3]** and drain the fluid from the washbox. Clean any sediment from the bottom of the washbox.

Reinstall the drain plug and fill the washbox as described above.

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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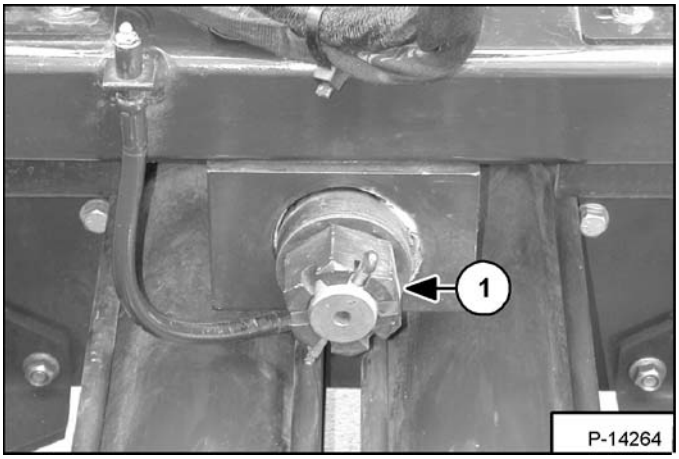
INSPECTION (CONT'D)

Swing Valve Shaft Inspection

Figure 10-20-4

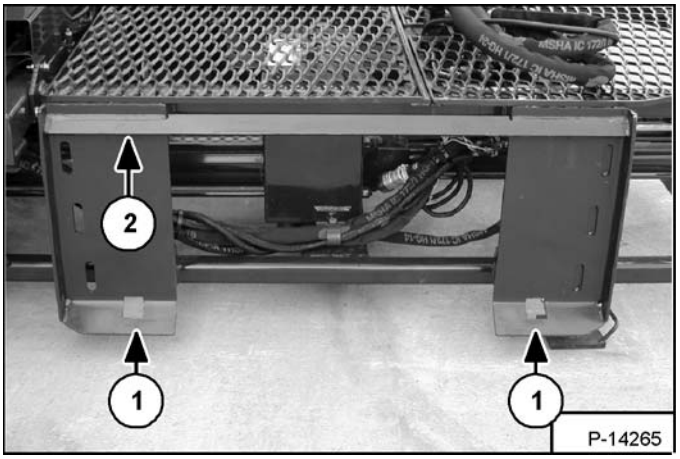


Periodically check and adjust the tightness of the castle nut (Item 1) **[Figure 10-20-4]** on the swing valve shaft to keep the wear area tight. Tighten to 40 in.-lb. (5 N•m) torque.

NOTE: Overtightening will cause excessive wear on the wear ring and wear plate.

Concrete Pump Mount Inspection

Figure 10-20-5

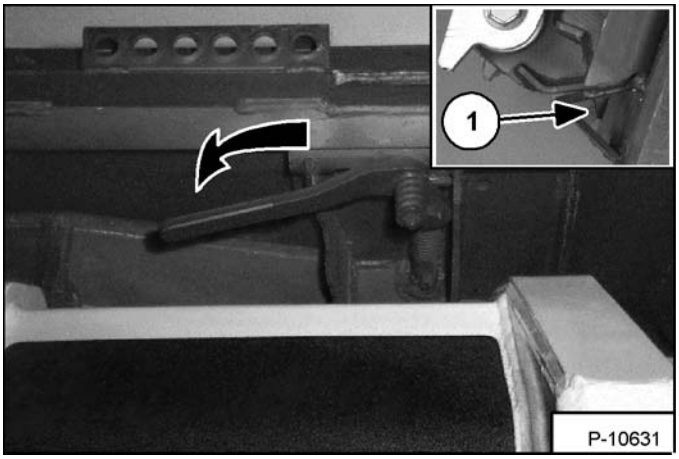


Inspect the Bob-Tach wedge mounts (Item 1) **[Figure 10-20-5]**, mounting flange (Item 2) **[Figure 10-20-5]** and all welds on the Concrete Pump mount for wear and damage each time the Concrete Pump is removed from the loader.

INSPECTION (CONT'D)

Hand Lever Bob-Tach Inspection

Figure 10-20-6



Move the Bob-Tach levers to engage the wedges **[Figure 10-20-6]**. The levers and wedges must move freely.

The wedges must extend through the holes in the attachment mounting frame (Item 1) **[Figure 10-20-6]**.

⚠ WARNING

Bob-Tach wedges must extend through the holes in attachment. Lever(s) must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.

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Figure 10-20-7

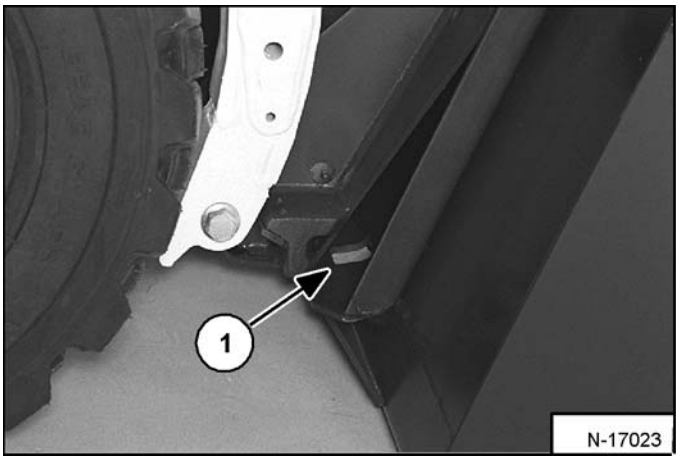
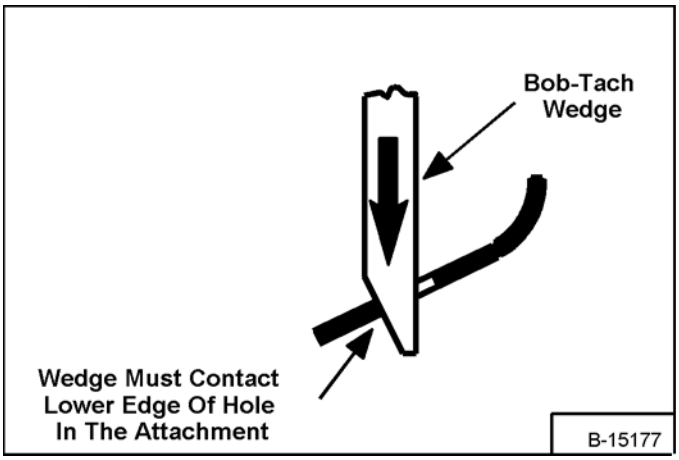


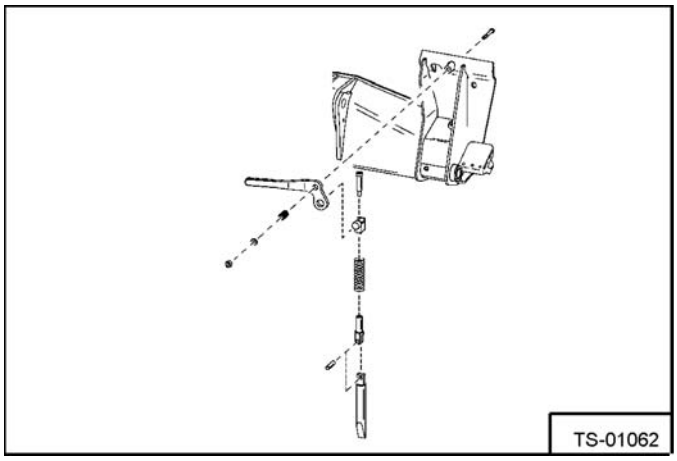
Figure 10-20-8



The spring loaded wedge (Item 1) **[Figure 10-20-6]** must contact the lower edge of the hole in the attachment (Item 1) **[Figure 10-20-7]** and **[Figure 10-20-8]**.

If the wedge does not contact the lower edge of the hole **[Figure 10-20-7]** and **[Figure 10-20-8]**, the attachment will be loose and can come off the Bob-Tach.

Figure 10-20-9



Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 10-20-9]**. Replace any parts that are damaged, bent, or missing. Keep all fasteners tight.

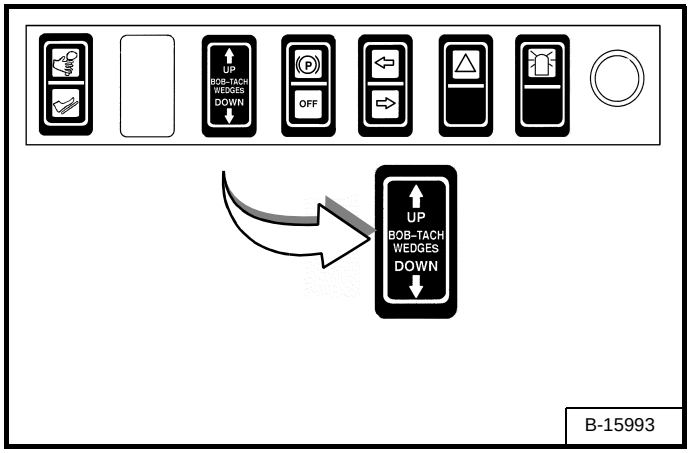
Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See the correct loader Operation & Maintenance Manual for *LUBRICATION OF THE BOBCAT LOADER*.)

INSPECTION (CONT'D)

Power Bob-Tach Inspection

Figure 10-20-10



Push and hold the BOB-TACH WEDGES UP switch **[Figure 10-20-10]** (Front Accessory Panel) until the wedges are fully raised. Push and hold the BOB-TACH WEDGES DOWN switch **[Figure 10-20-10]** until the wedges are fully down. The wedges must move freely.

Figure 10-20-11

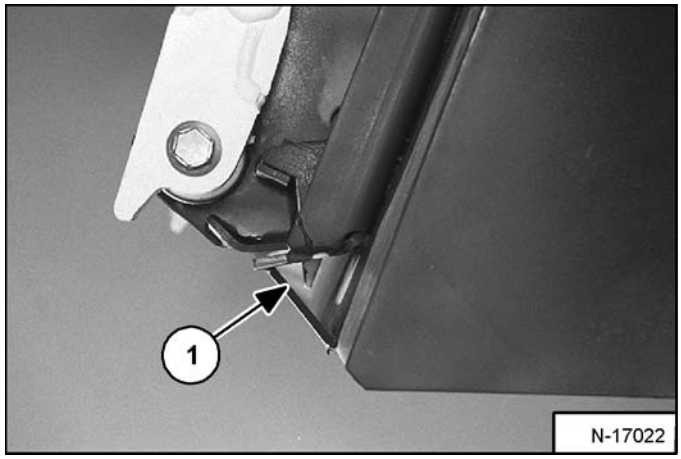
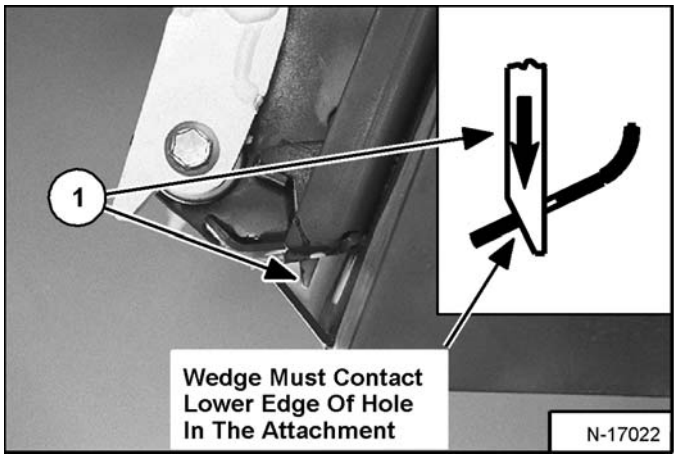


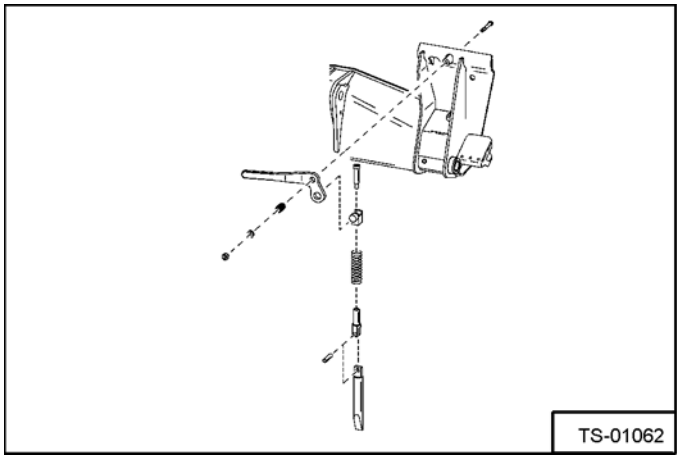
Figure 10-20-12



The wedges must extend through the holes in the attachment mounting frame (Item 1) **[Figure 10-20-11]** and must contact the lower edge of the hole in the attachment **[Figure 10-20-11]** and (Item 1) **[Figure 10-20-12]**.

If the wedge does not contact the lower edge of the hole **[Figure 10-20-12]**, the attachment will be loose and can come off the Bob-Tach.

Figure 10-20-13



Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 10-20-13]**. Replace any parts including decals and lever that are damaged, bent, or missing. Keep all fasteners tight. Inspect the hoses and fittings for leaks.

Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

LUBRICATION

Lubrication Points

Always use a good quality lithium base grease when lubricating the Concrete Pump. 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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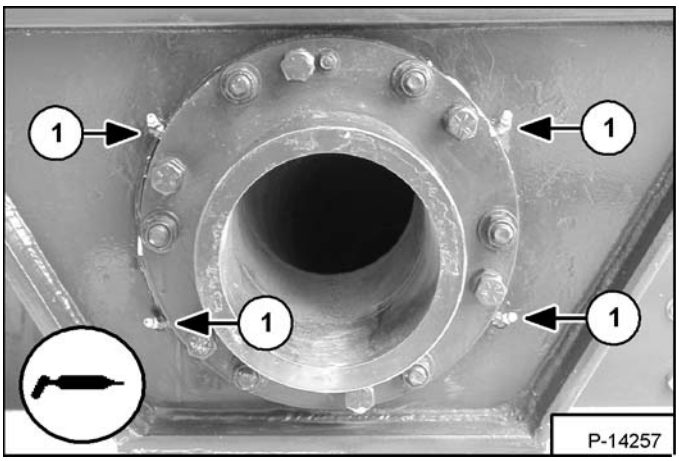
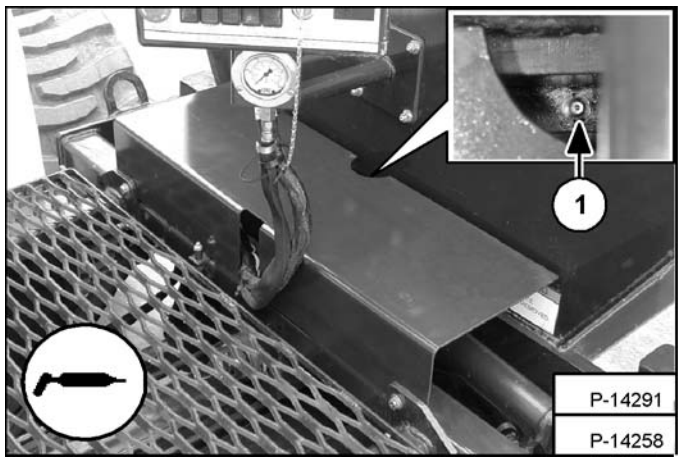
Lubrication of the Concrete Pump is very important to keep concrete mix out of the wear areas. Lubricate the following five grease fittings **AFTER EVERY USE:**

Figure 10-30-1



1. Outlet Housing (Item 1) **[Figure 10-30-1]**.

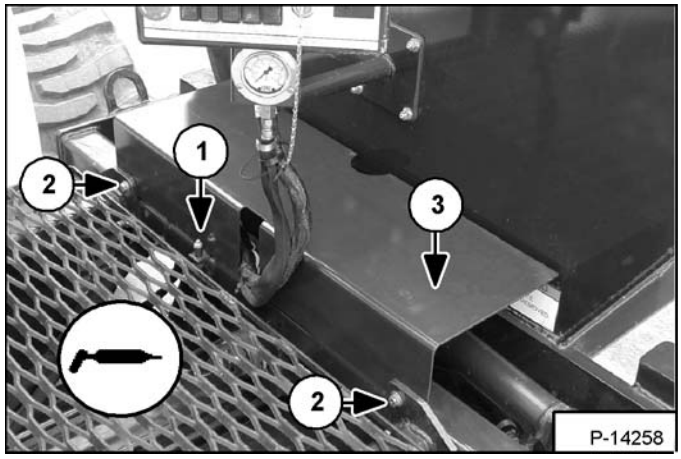
Figure 10-30-2



2. Crank Arm Bushing (Item 1) **[Figure 10-30-2]**.

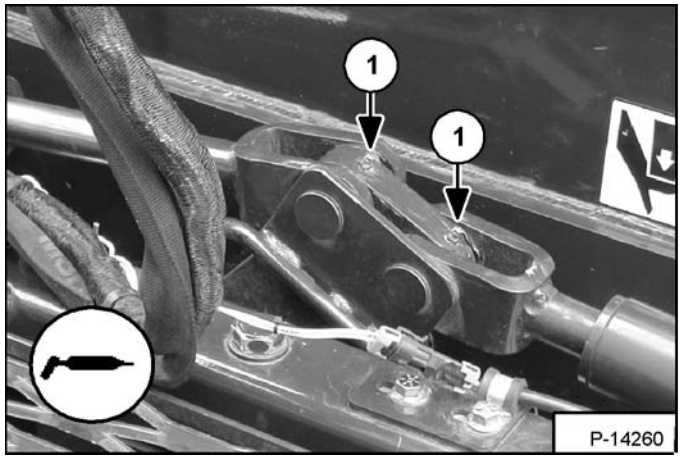
Lubricate the following three grease fittings **EVERY 40 HOURS:**

Figure 10-30-3



3. Crank Arm Bearing (Item 1) **[Figure 10-30-3]**.

Figure 10-30-4



4. Loosen the two bolts (Item 2) **[Figure 10-30-3]** and remove the guard (Item 3) **[Figure 10-30-3]** to access and lubricate the Crank Arm (Item 1) **[Figure 10-30-4]**.


Bobcat®

HYDRAULIC SYSTEM


Bobcat®

HYDRAULIC CONTROL VALVE

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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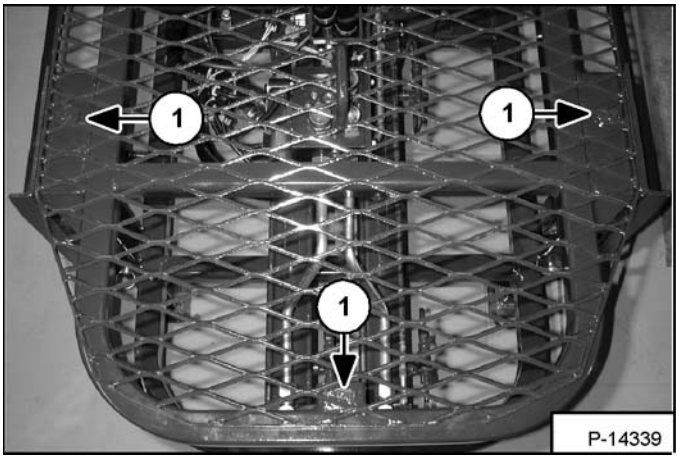
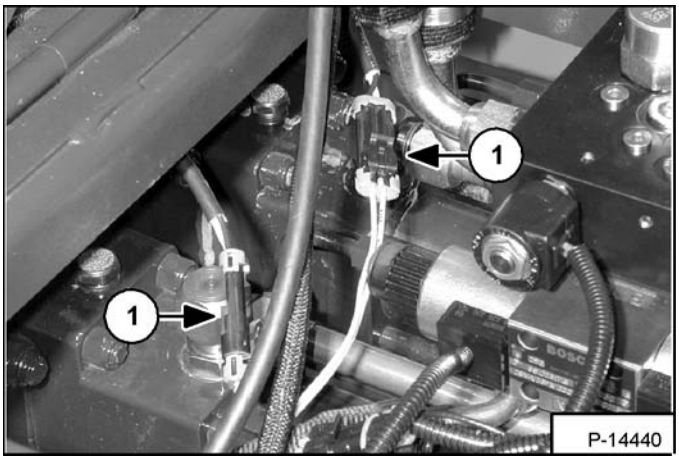
Figure 20-10-1



Remove the three nuts (Item 1) **[Figure 20-10-1]** attaching the removable walkway to the Concrete Pump frame. Remove the walkway.

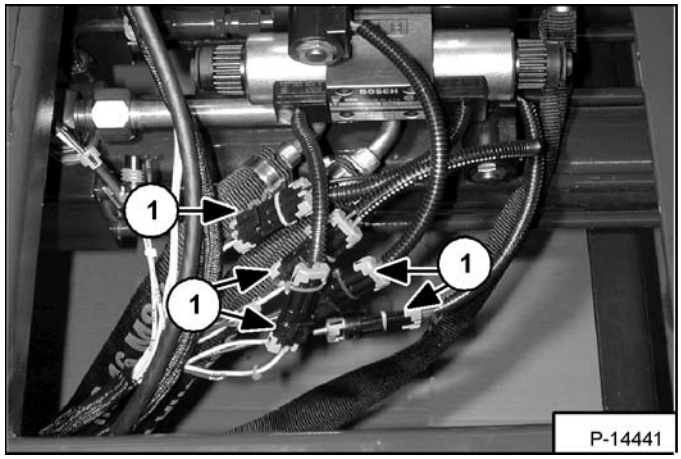
Mark the hoses and tubelines for correct installation.

Figure 20-10-2



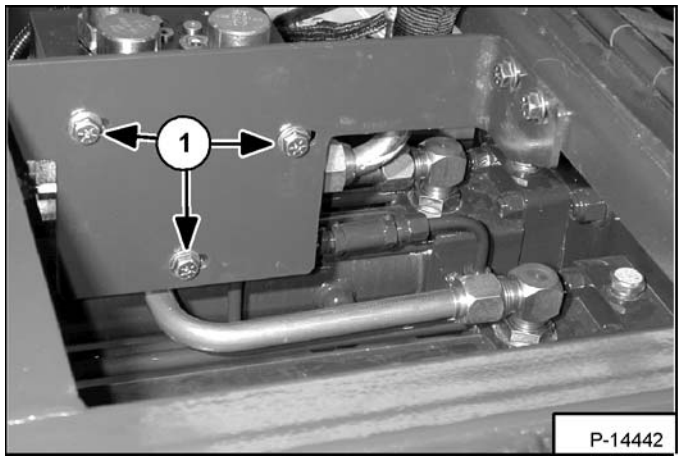
Unplug the two wire connectors (Item 1) **[Figure 20-10-2]** which connect the washbox limit switches to the wire harness. Note the black band on the right wires and the white band on the left wires for installation.

Figure 20-10-3



Unplug the five wire connectors (Item 1) **[Figure 20-10-3]** which connect the control valve to the wire harness. Note the colored bands on the wire connectors and the wires for installation.

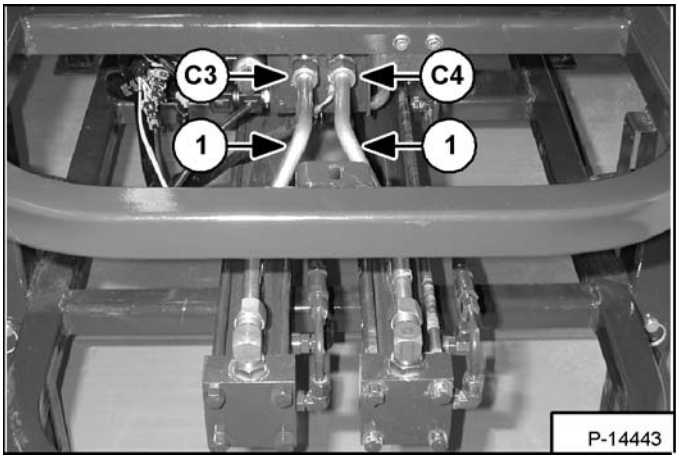
Figure 20-10-4



Loosen the three mounting bolts (Item 1) **[Figure 20-10-4]** on the control valve just enough to allow you to slide the control valve in the mounting slots.

Removal And Installation (Cont'd)

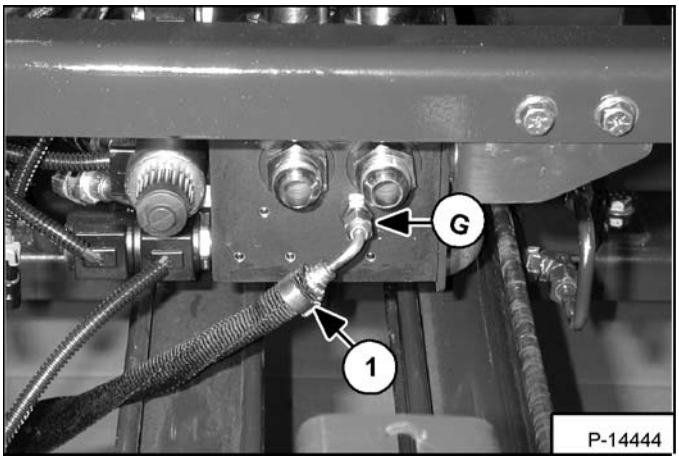
Figure 20-10-5



Remove the two tubelines (Item 1) **[Figure 20-10-5]** which run from the pump cylinder bases to control valve ports C3 and C4. Slide the control valve in the mounting slots to remove the tubelines.

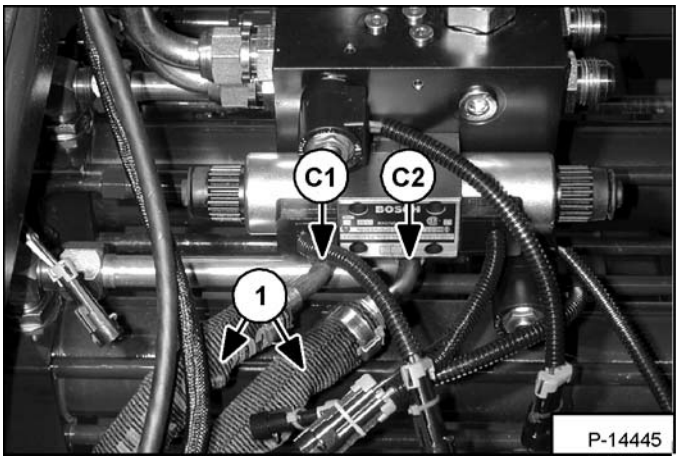
Installation: Tighten the tubeline nuts to 79-88 ft.-lb. (107-119 N•m) torque.

Figure 20-10-6



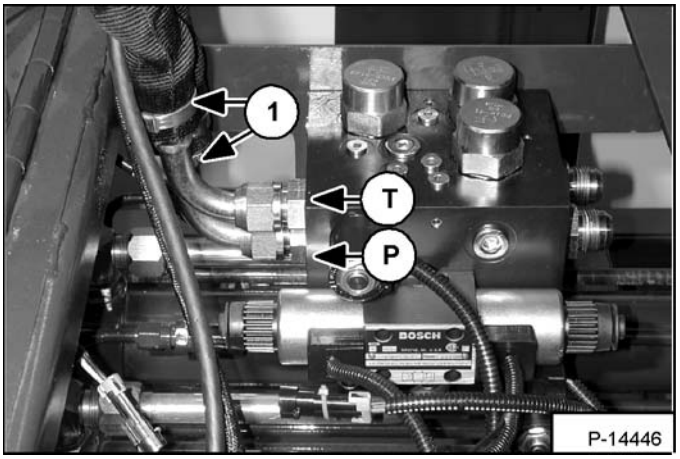
Remove the pressure guage hose (Item1) **[Figure 20-10-6]** from control valve port G.

Figure 20-10-7



Mark and remove the two hoses (Item 1) **[Figure 20-10-7]** from control valve ports C1 and C2. The hose in port C1 runs to the left pump cylinder. The hose in port C2 runs to the right pump cylinder.

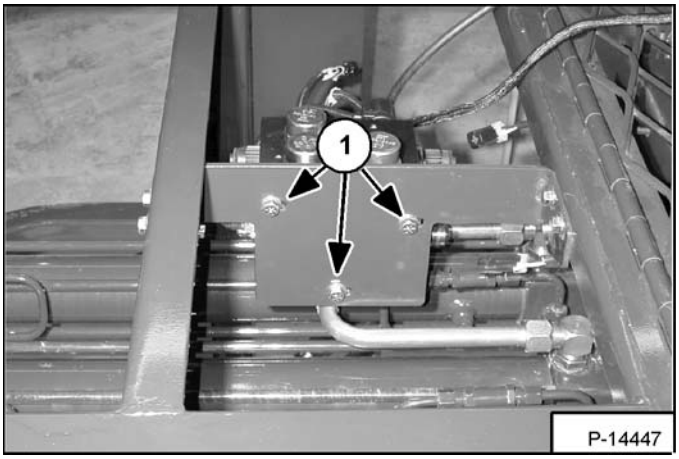
Figure 20-10-8



Remove the two hydraulic coupler hoses (Item 1) **[Figure 20-10-8]** from control valve ports T and P. The male coupler is connected to the hose in port P. The female coupler is connected to the hose in port T.

Removal And Installation (Cont'd)

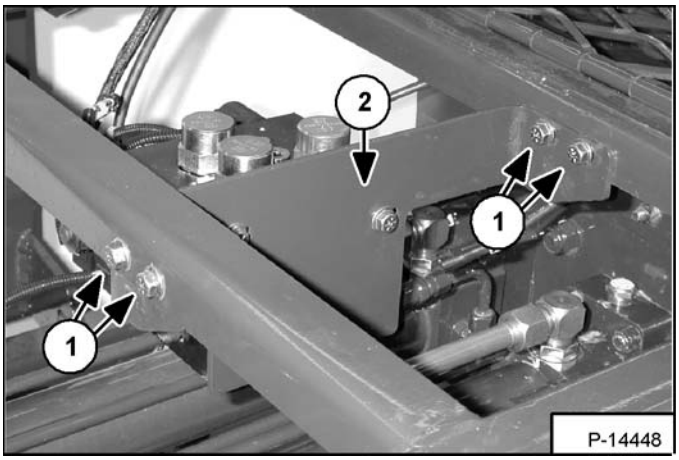
Figure 20-10-9



Remove the three mounting bolts (Item 1) **[Figure 20-10-9]**. Remove the control valve.

Installation: Tighten the mounting bolts to 40 ft.-lb. (54 N•m) torque.

Figure 20-10-10

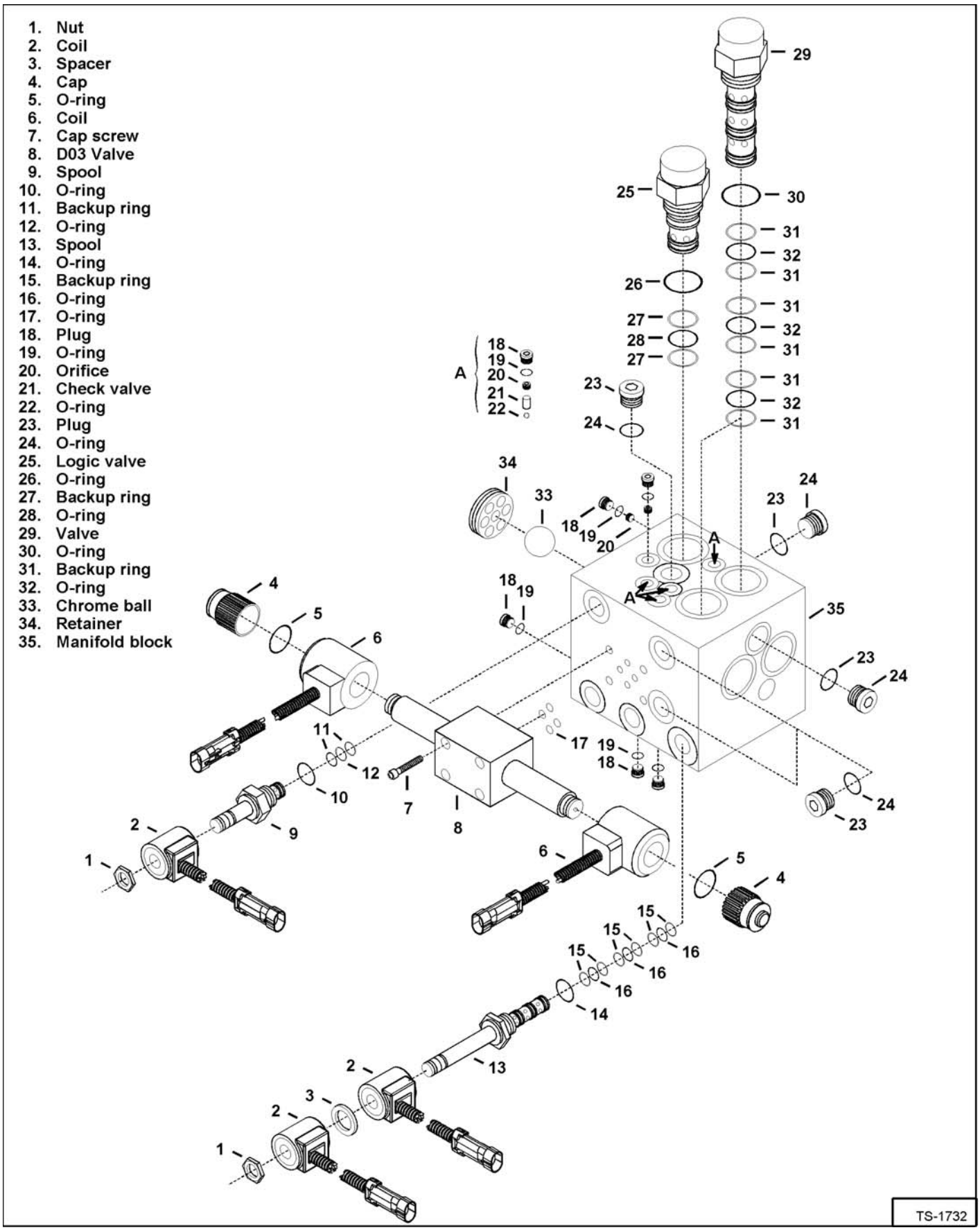


NOTE: Before installation, loosen the four mounting bolts (Item 1) [Figure 20-10-10] to allow the support bracket (Item 2) [Figure 20-10-10] to slide in the mounting slots when installing the tubelines on the control valve.

Installation: Tighten the mounting bolts to 40 ft.-lb. (54 N•m) torque.

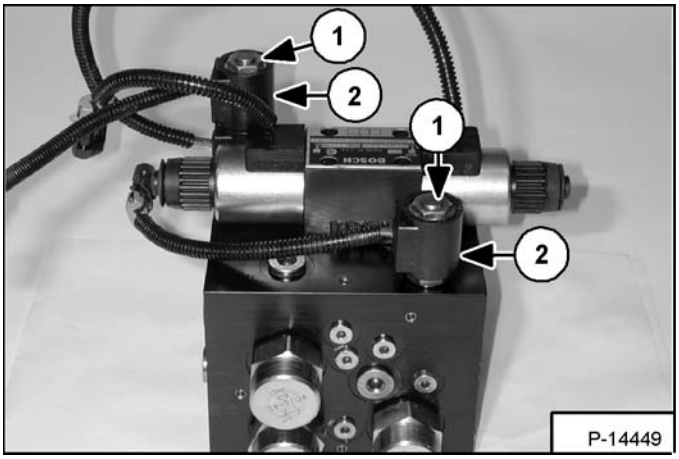
Parts Identification

1. Nut
2. Coil
3. Spacer
4. Cap
5. O-ring
6. Coil
7. Cap screw
8. D03 Valve
9. Spool
10. O-ring
11. Backup ring
12. O-ring
13. Spool
14. O-ring
15. Backup ring
16. O-ring
17. O-ring
18. Plug
19. O-ring
20. Orifice
21. Check valve
22. O-ring
23. Plug
24. O-ring
25. Logic valve
26. O-ring
27. Backup ring
28. O-ring
29. Valve
30. O-ring
31. Backup ring
32. O-ring
33. Chrome ball
34. Retainer
35. Manifold block



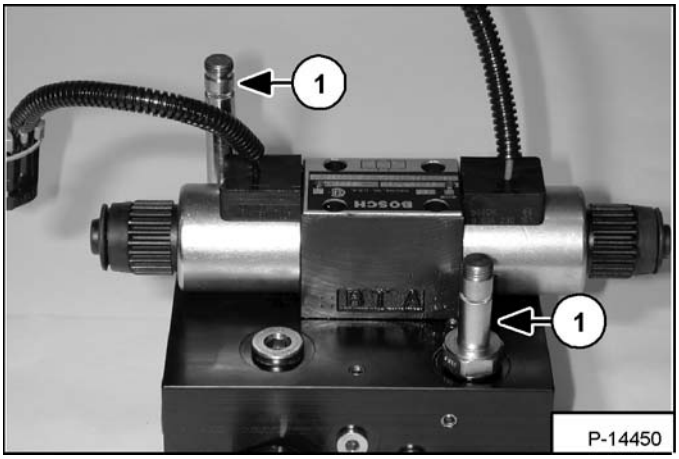
Disassembly

Figure 20-10-11



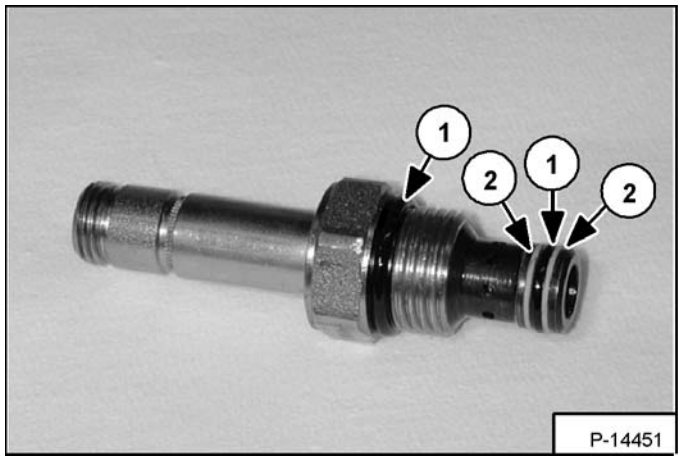
Remove the two nuts (Item 1) **[Figure 20-10-11]** and the three coils (Item 2) **[Figure 20-10-11]** and spacer from the two spools.

Figure 20-10-12



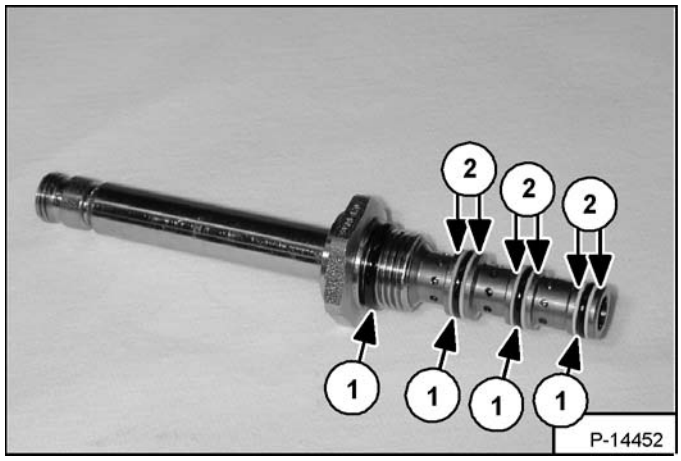
Loosen and remove the two spools (Item 1) **[Figure 20-10-12]**.

Figure 20-10-13



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

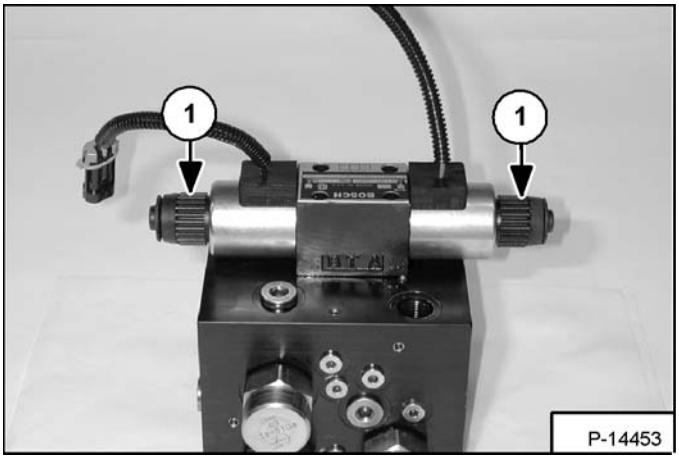
Figure 20-10-14



Remove the O-rings (Item 1) **[Figure 20-10-14]** and back-up rings (Item 2) **[Figure 20-10-14]** from the spool.

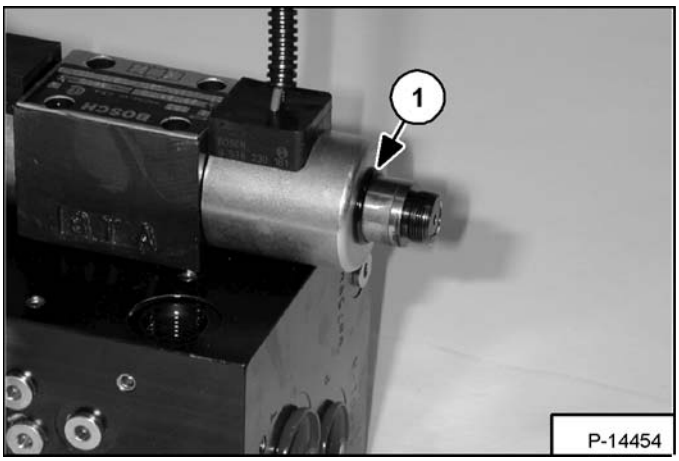
Disassembly (Cont'd)

Figure 20-10-15



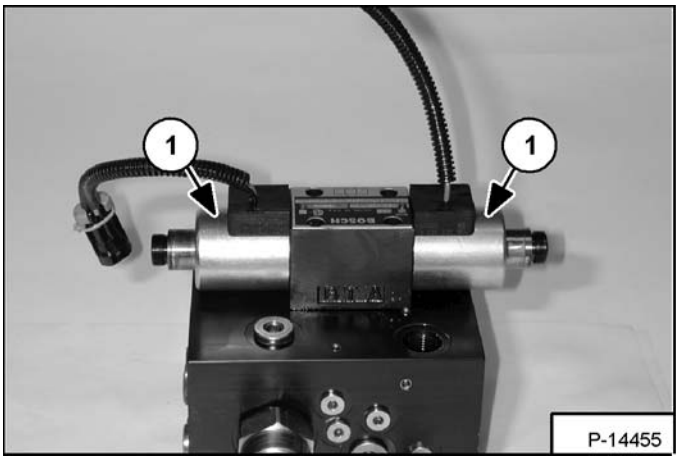
Remove the two caps (Item 1) **[Figure 20-10-15]**.

Figure 20-10-16



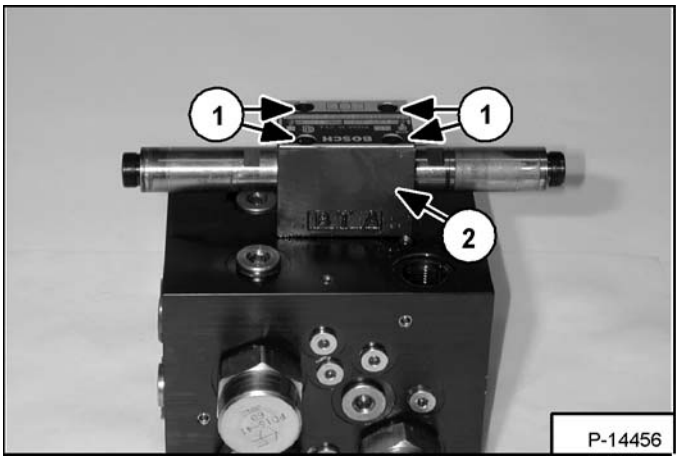
Remove the O-ring (Item 1) **[Figure 20-10-16]** from both sides of the D03 valve.

Figure 20-10-17



Remove the two coils (Item 1) **[Figure 20-10-17]** from the D03 valve.

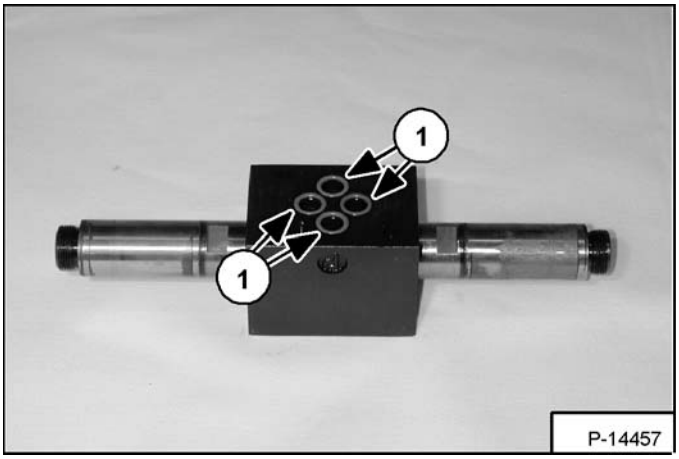
Figure 20-10-18



Loosen and remove the four cap screws (Item 1) **[Figure 20-10-18]**. Remove the D03 valve (Item 2) **[Figure 20-10-18]** from the manifold block.

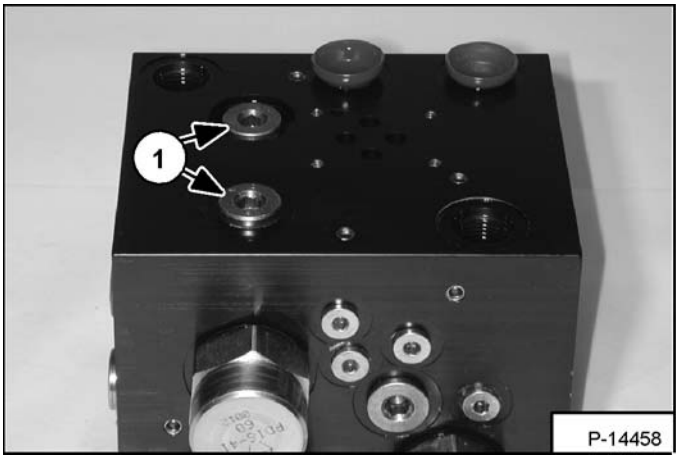
Disassembly (Cont'd)

Figure 20-10-19



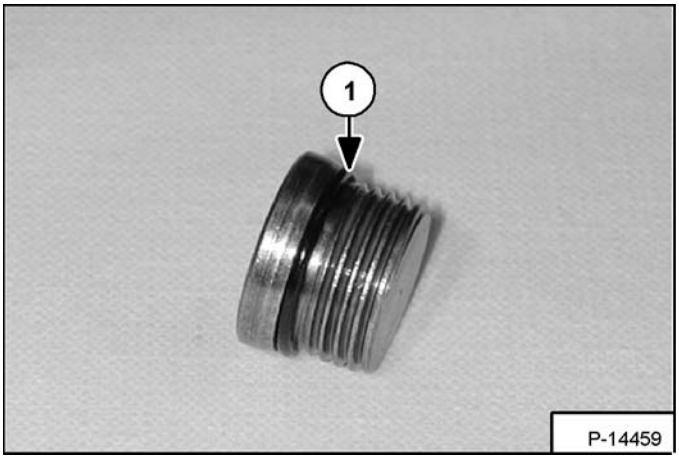
Remove the four O-rings (Item 1) **[Figure 20-10-19]** from the D03 valve.

Figure 20-10-20



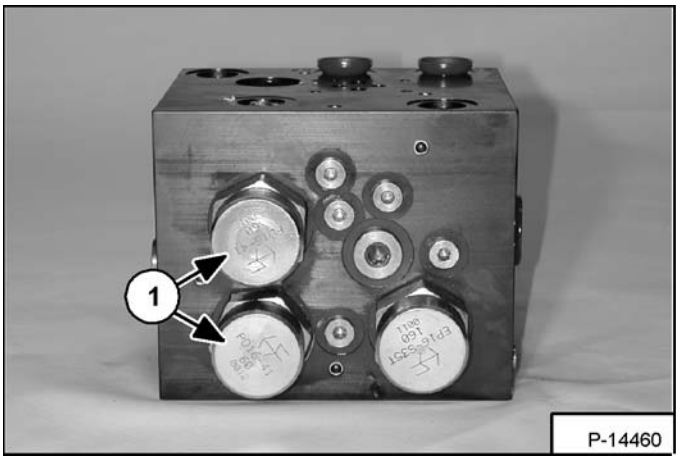
Remove the two plugs (Item 1) **[Figure 20-10-20]** from the manifold block.

Figure 20-10-21



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

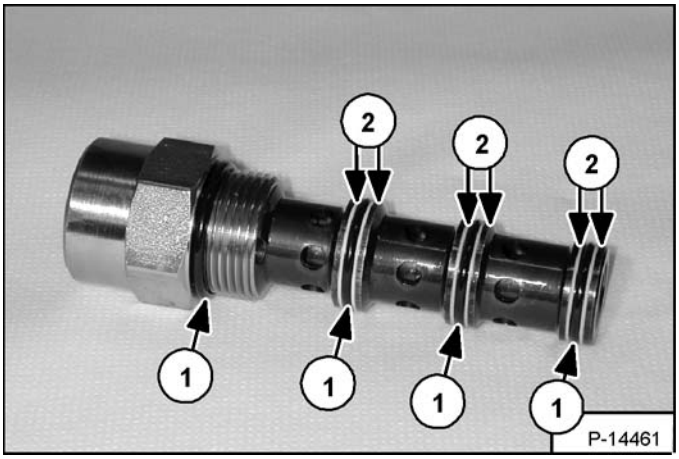
Figure 20-10-22



Remove the two valves (Item 1) **[Figure 20-10-22]** from the manifold block

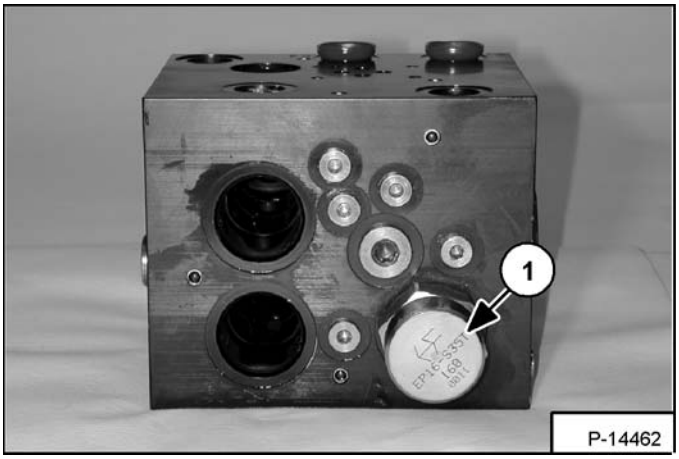
Disassembly (Cont'd)

Figure 20-10-23



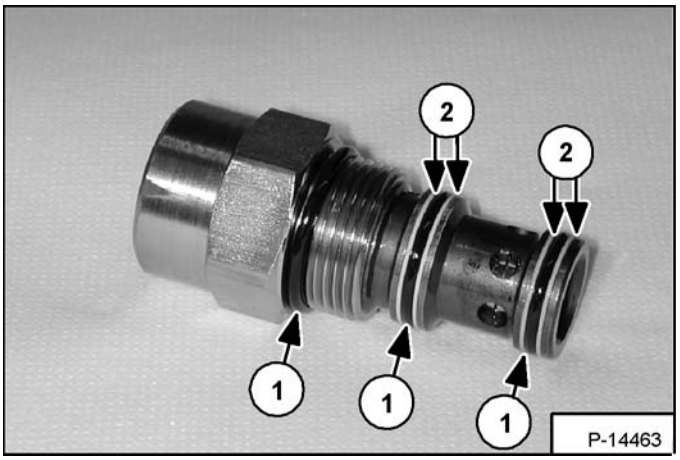
Remove the O-rings (Item 1) **[Figure 20-10-23]** and back-up rings (Item 2) **[Figure 20-10-23]** from the two valves.

Figure 20-10-24



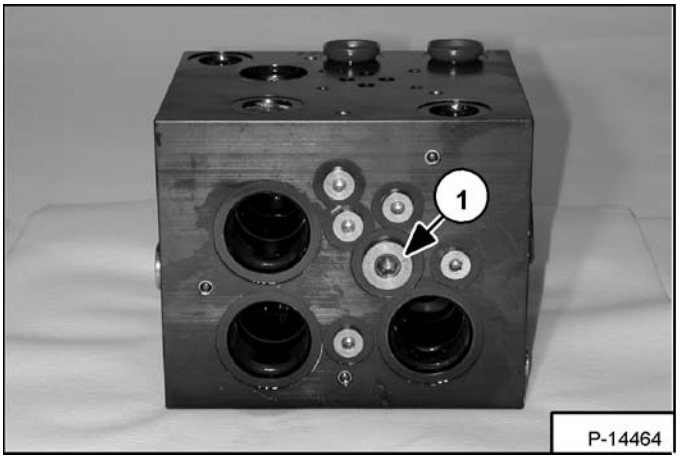
Remove the logic valve (Item 1) **[Figure 20-10-24]** from the manifold block.

Figure 20-10-25



Remove the O-rings (Item 1) **[Figure 20-10-25]** and back-up rings (Item 2) **[Figure 20-10-25]** from the logic valve.

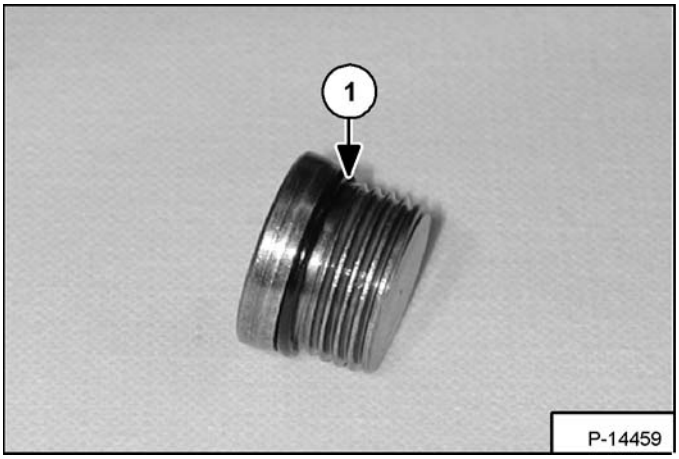
Figure 20-10-26



Remove the plug (Item 1) **[Figure 20-10-26]** from the manifold block.

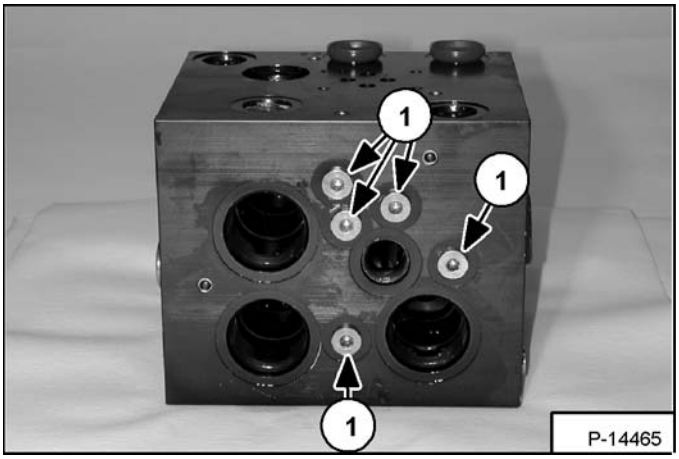
Disassembly (Cont'd)

Figure 20-10-27



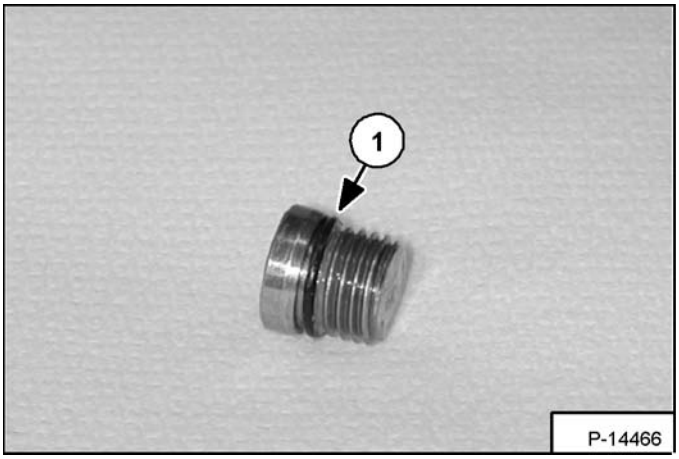
Remove the O-ring (Item 1) **[Figure 20-10-27]** from the plug.

Figure 20-10-28



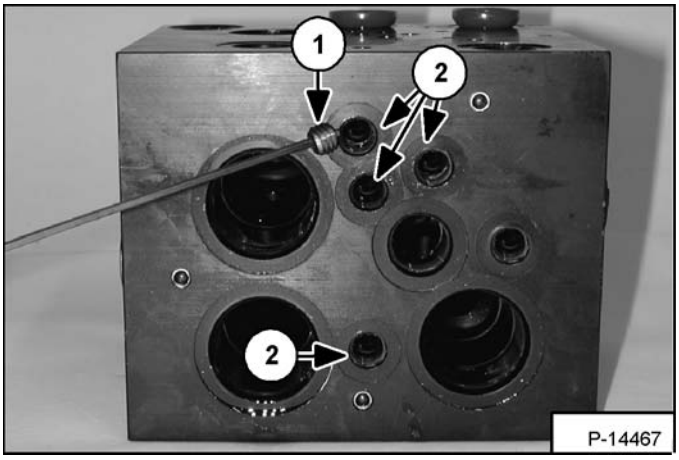
Remove the five plugs (Item 1) **[Figure 20-10-28]** from the manifold block.

Figure 20-10-29



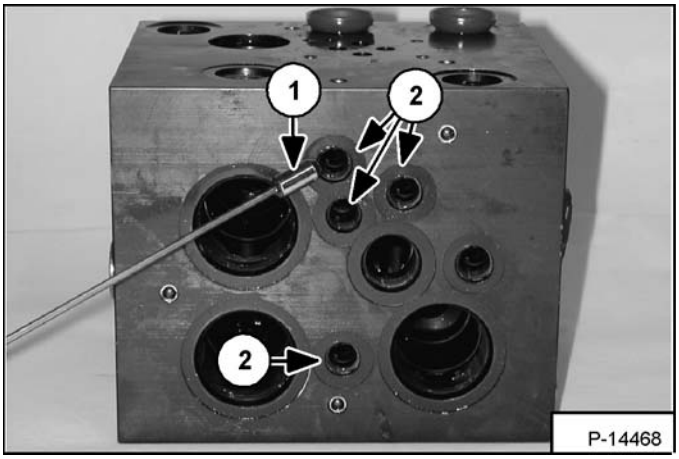
Remove the O-rings (Item 1) **[Figure 20-10-29]** from the five plugs.

Figure 20-10-30



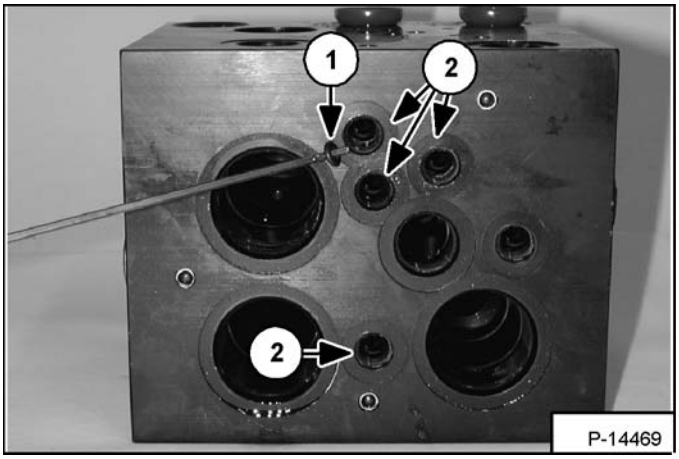
Remove the four orifices (Item 1) **[Figure 20-10-30]** from the ports (Item 2) **[Figure 20-10-30]** in the manifold block.

Figure 20-10-31



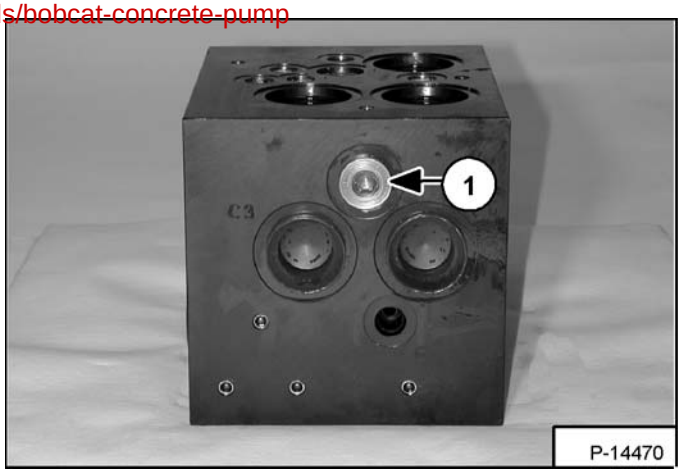
Remove the four check valves (Item 1) **[Figure 20-10-31]** from the ports (Item 2) **[Figure 20-10-31]** in the manifold block.

Figure 20-10-32



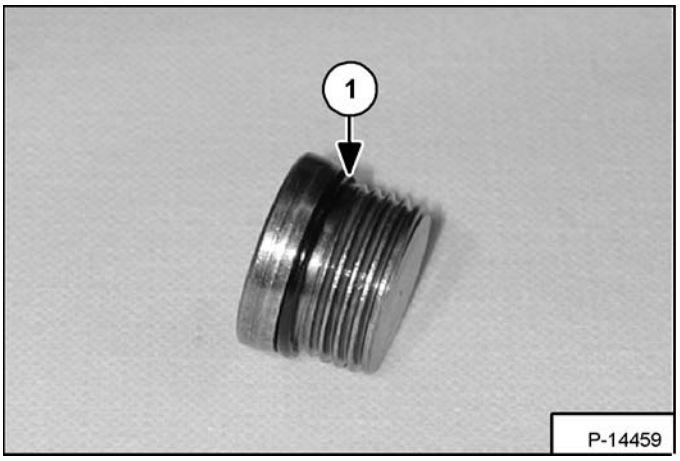
Remove the four O-rings (Item 1) **[Figure 20-10-32]** from the ports (Item 2) **[Figure 20-10-32]** in the manifold block.

Figure 20-10-33



Remove the plug (Item 1) **[Figure 20-10-33]** from the manifold block.

Figure 20-10-34



Remove the O-ring (Item 1) **[Figure 20-10-34]** from the plug.