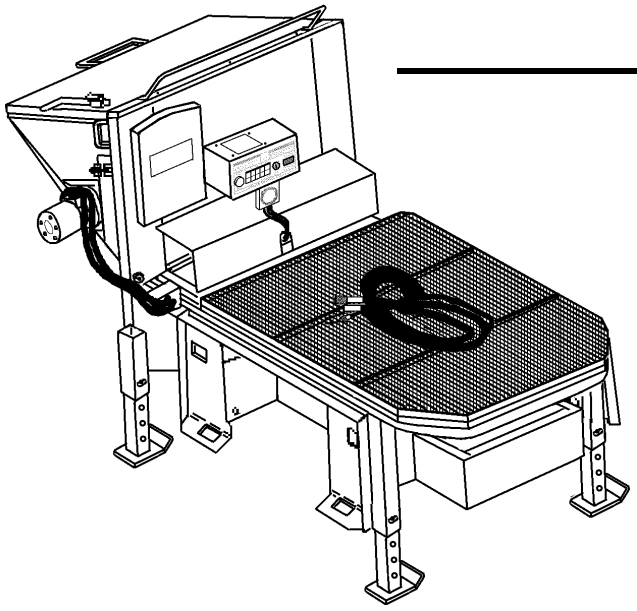
Concrete Pump

Used With Remote Attachment Control

Bobcat®

Service Manual

S/N 235400101 & Above



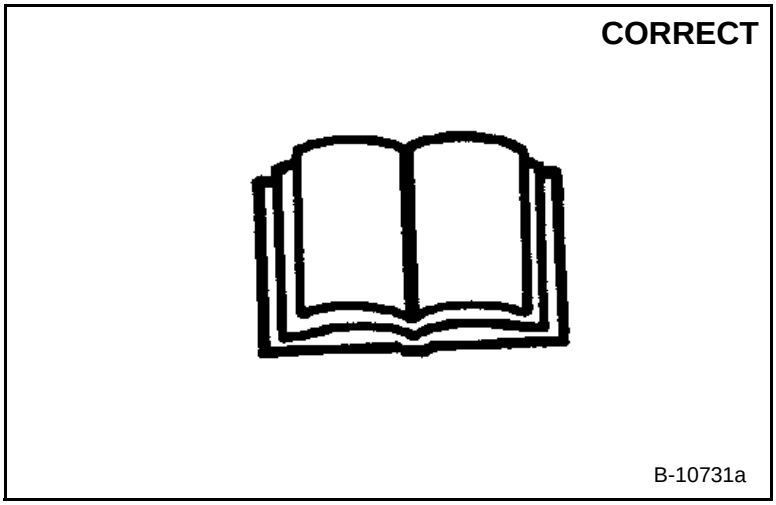
6903713 (12-07) Printed in U.S.A.

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.


Bobcat®

ALPHABETICAL INDEX

Concrete Pump
Service Manual

CONTENTS

CALIFORNIA

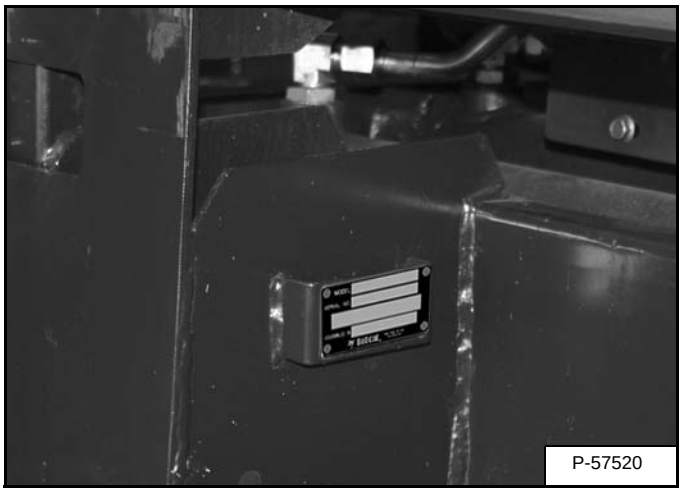
PROPOSITION 65 WARNING

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


Bobcat®

SERIAL NUMBER LOCATION

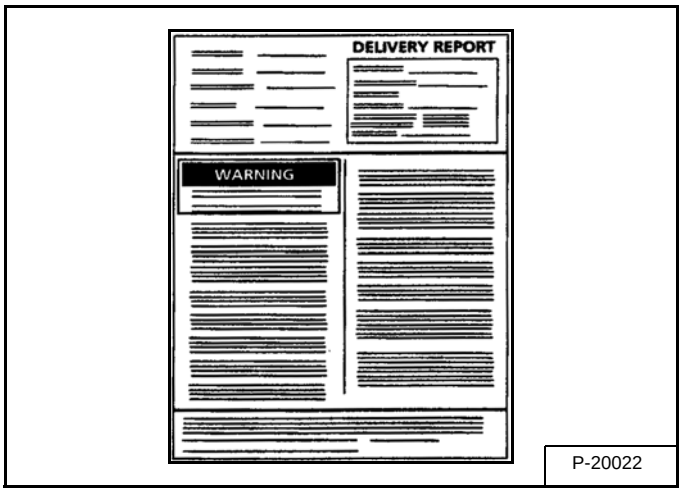
Figure 1



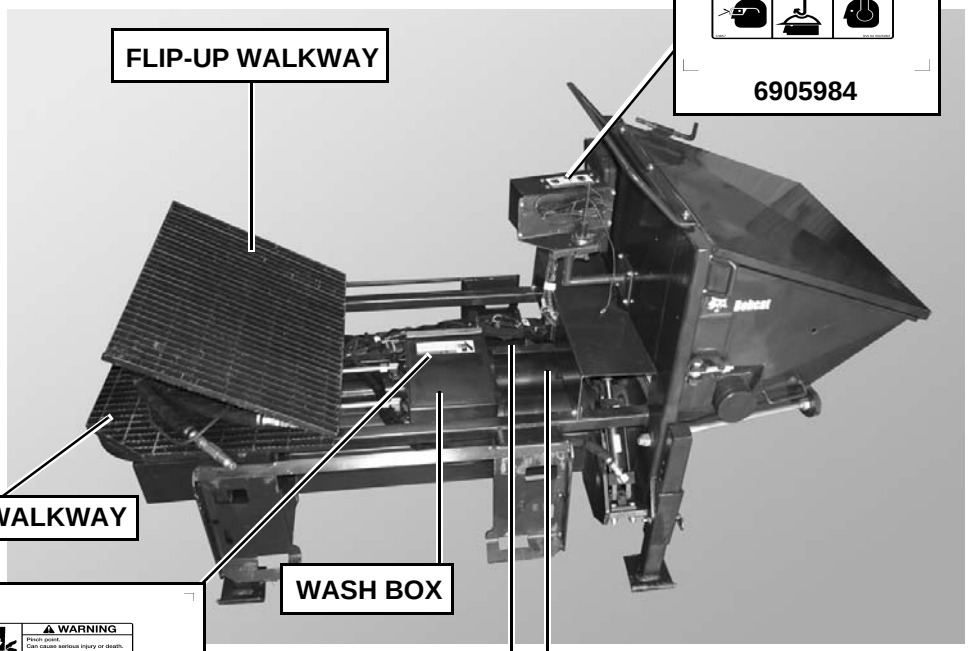
Always use the serial number of the Concrete Pump when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 1]**.

ATTACHMENT DELIVERY REPORT

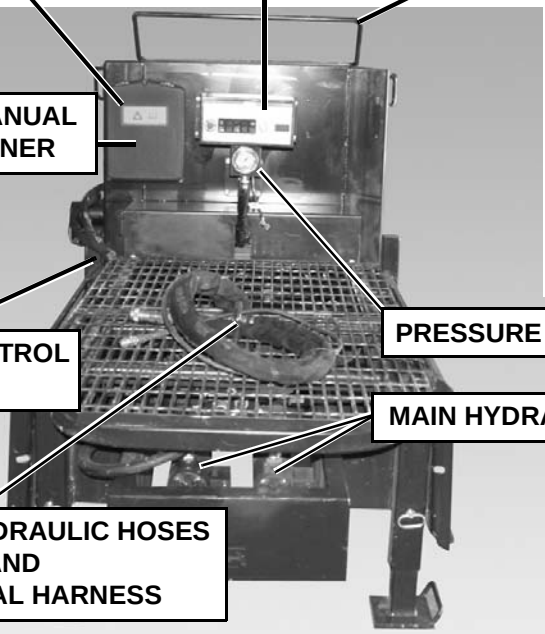
Figure 2



The Attachment Delivery Report must be filled out by the dealer and signed by the owner or operator when the Concrete Pump is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely **[Figure 2]**.

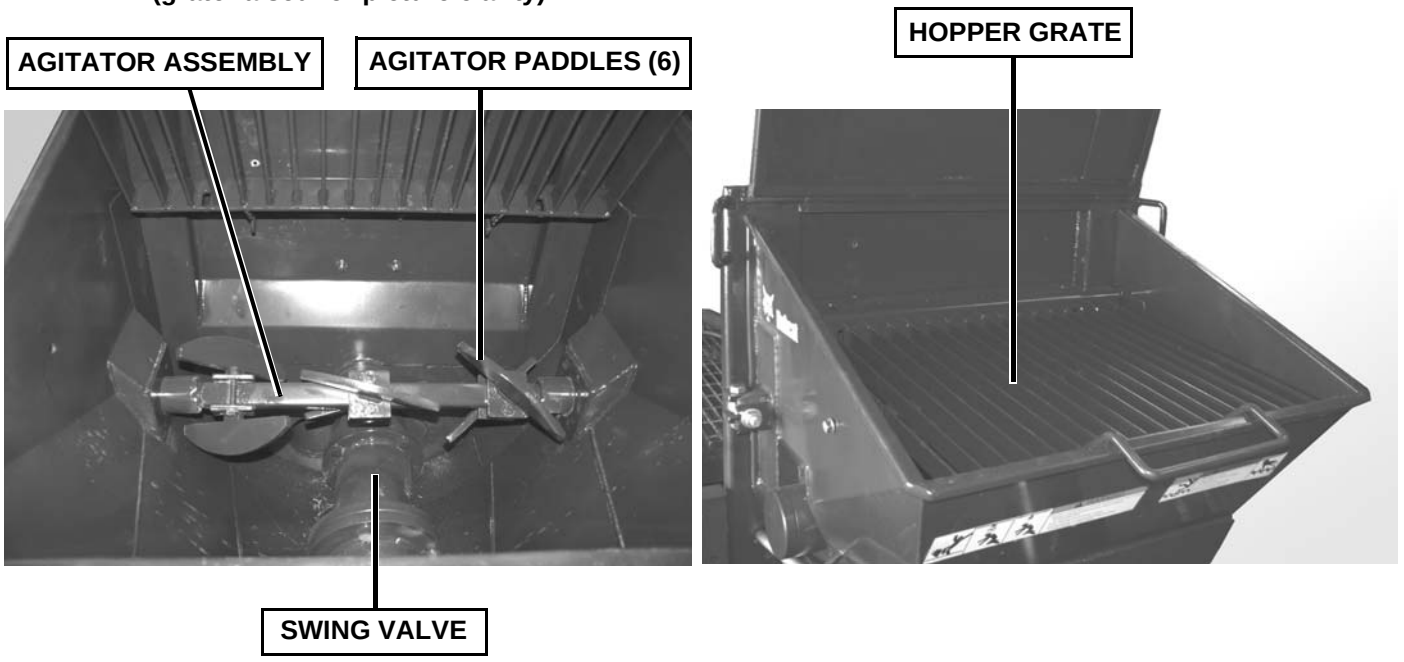


P-57531

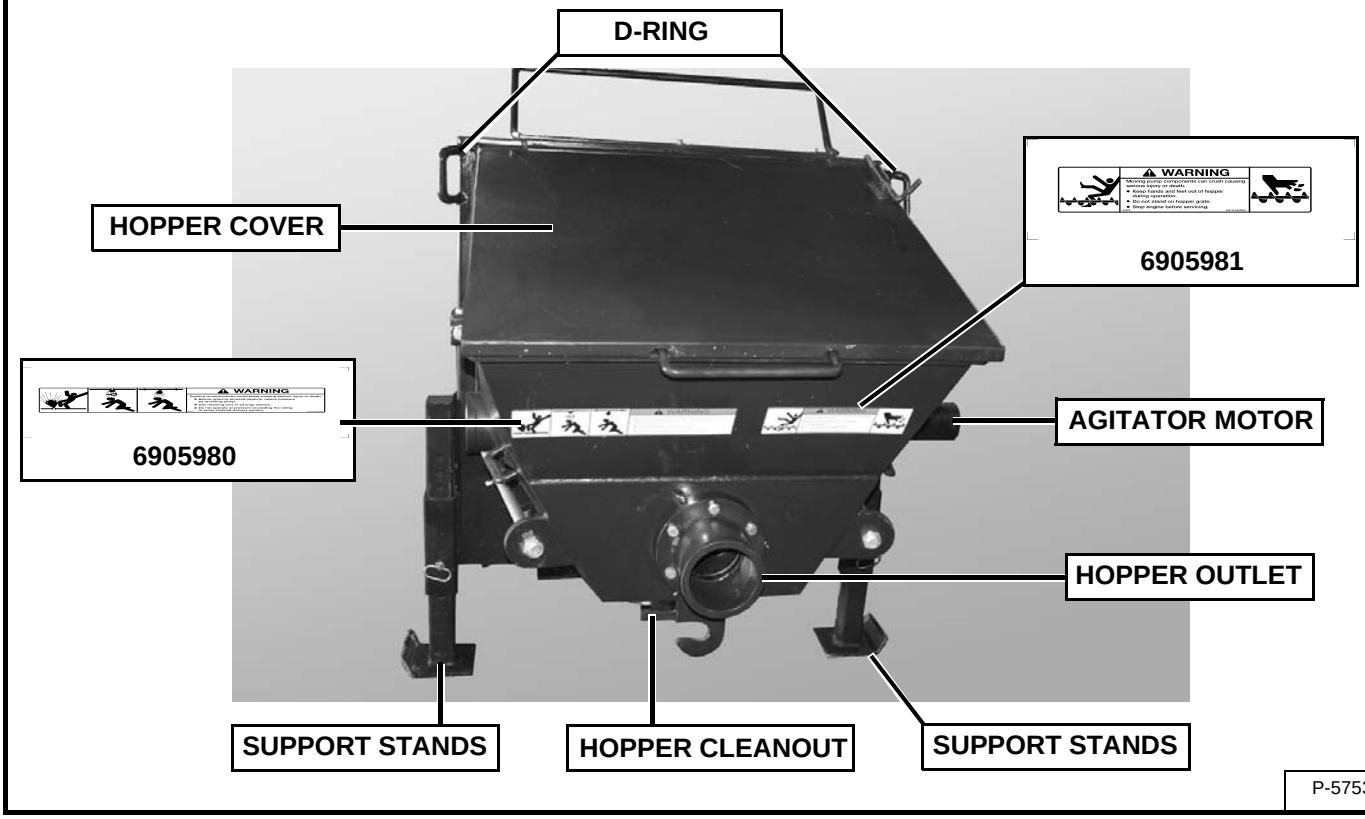


P-57578
P-57532

(grate raised for picture clarity)



P-57536
P-57535



P-57534


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 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.
Wash box 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.

Radio Remote Control

PROBLEM	CAUSE	CORRECTION
Transmitter Doesn't Work	Weak Battery	Replace Battery
	Not Activated	Turn Toggle Off And On To Reset
	Antenna Cord Is Coiled Up	Uncoil Antenna Cord
	Poor Antenna Placement	Place On Cab Or Away From Pump
	Steel Covered Building Blocking Signal	Place Antenna In Line Of Sight With Transmitter
	Loose Receiver Wire Connection	Check Wire Connections

INSPECTION

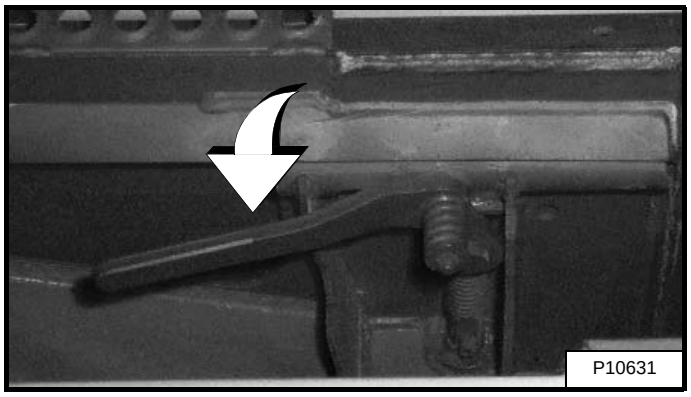
Hand Lever Bob-Tach Inspection

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.

W-2102-0497

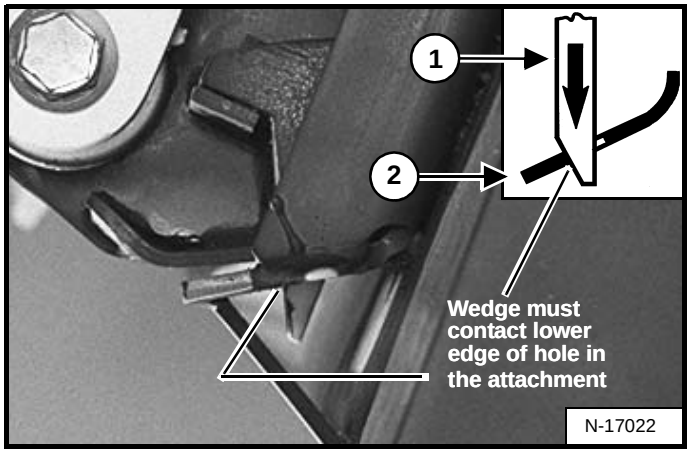
Figure 10-20-1



Move the Bob-Tach levers down to engage the wedges **[Figure 10-20-1]**.

The levers and wedges must move freely.

Figure 10-20-2

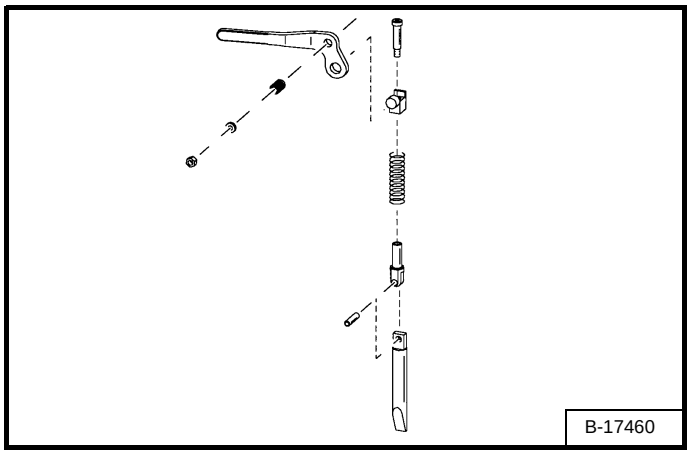


The wedges must extend through the holes in the attachment mounting frame (Item 2) **[Figure 10-20-2]**.

The spring loaded wedge (Item 1) must contact the lower edge of the hole in the attachment (Item 2) **[Figure 10-20-2]**.

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

Figure 10-20-3



Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage. Replace any parts that are damaged, bent, or missing **[Figure 10-20-3]**.

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 MACHINE*.)

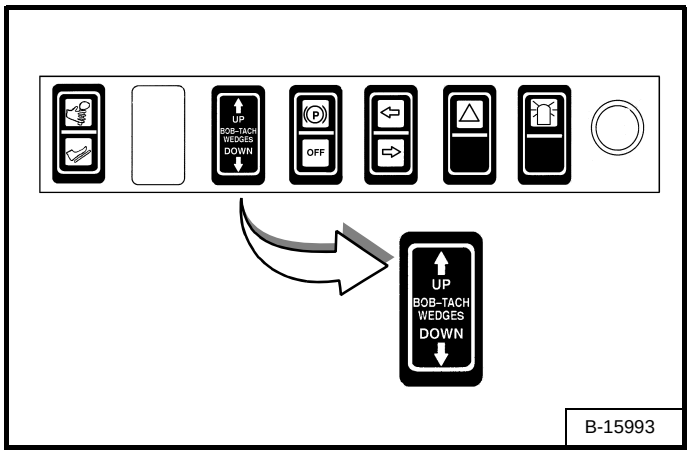
Power Bob-Tach Inspection

⚠ 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.

W-2102-0497

Figure 10-20-4

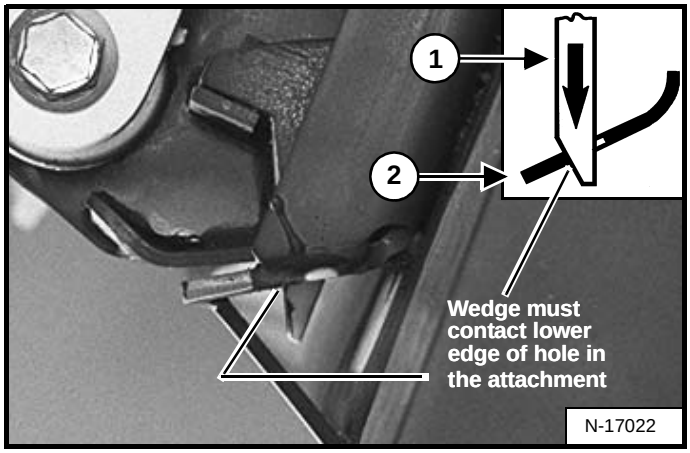


Push and hold the *BOB-TACH WEDGES UP* switch until wedges are fully raised. Push and hold the *BOB-TACH WEDGES DOWN* switch until the wedges are fully down **[Figure 10-20-4]**.

The wedges must move freely.

NOTE: The Power Bob-Tach system has continuous pressurized hydraulic oil to keep the wedges in the engaged position and prevent attachment disengagement. Because the wedges can slowly lower, the operator may need to reactivate the switch (WEDGES UP) before installing an attachment to be sure both wedges are fully raised before installing the attachment.

Figure 10-20-5

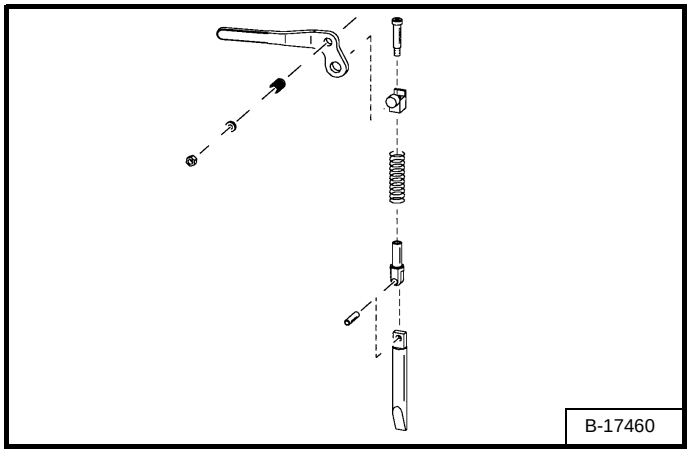


The wedges must extend through the holes in the attachment mounting frame (Item 2) **[Figure 10-20-5]**.

The spring loaded wedge (Item 1) must contact the lower edge of the hole in the attachment (Item 2) **[Figure 10-20-5]**.

If the wedge does not contact the lower edge of the hole **[Figure 10-20-5]** the attachment will be loose and can come off the Bob-Tach.

Figure 10-20-6



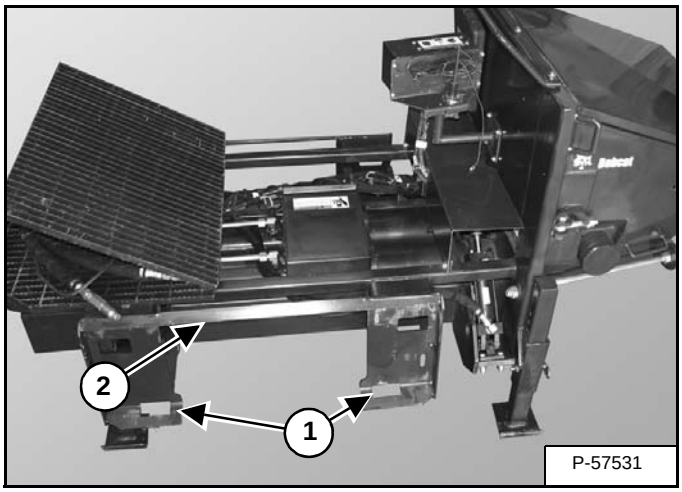
Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 10-20-6]**. Replace any parts that are damaged, bent, or missing. Keep all fasteners tight. Inspect the hoses and fittings for leaks.

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

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

Concrete Pump Mount Inspection

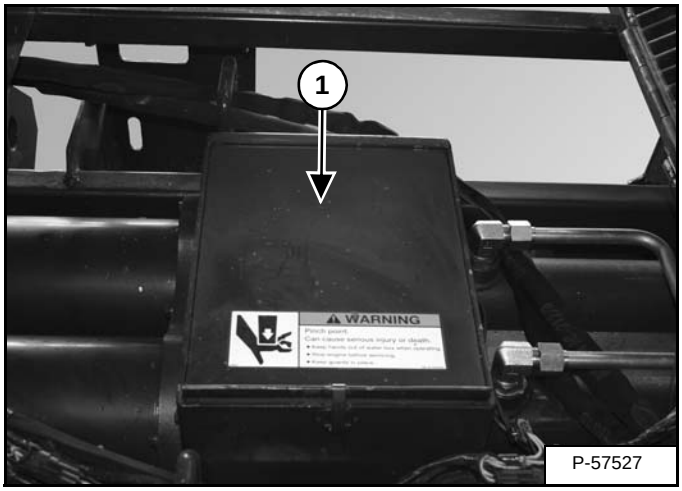
Figure 10-20-7



Inspect the Bob-Tach wedge mounts (Item 1), mounting flange (Item 2) and all welds on the Concrete Pump mount for wear and damage each time the Concrete Pump is removed from the loader **[Figure 10-20-7]**.

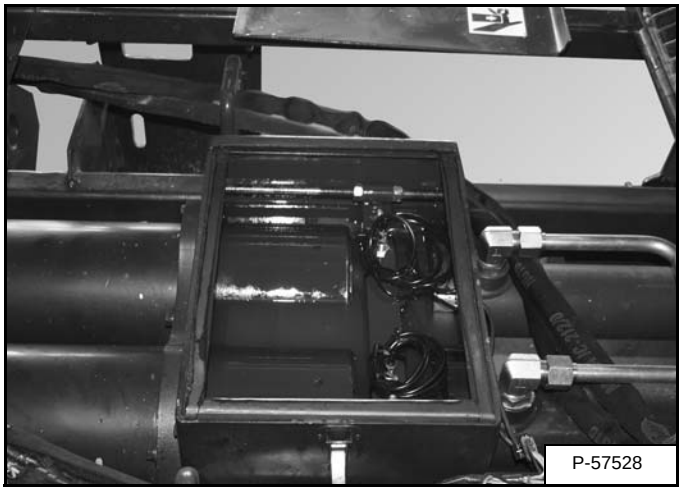
Wash Box Fluid Inspection

Figure 10-20-8



Inspect the fluid level in the wash box (Item 1) **[Figure 10-20-8]** after every other use. If more than 1 inch of sediment is present in the bottom of the wash box, the fluid must be changed.

Figure 10-20-9



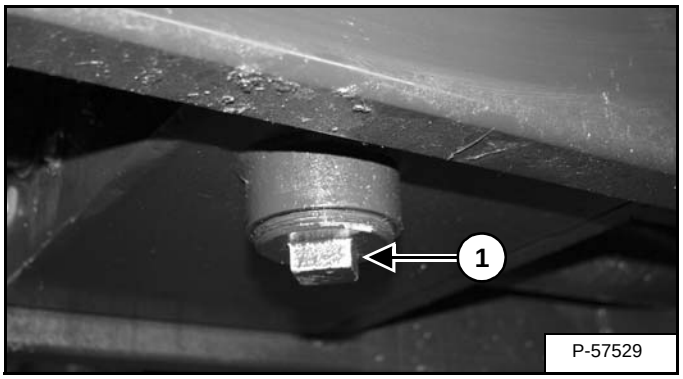
The wash box should be kept filled with up to 3 gallons of SAE #30 motor oil **[Figure 10-20-9]**.

NOTE: The oil should be checked daily.

NOTE: DO NOT use transmission fluid in the wash box or piston cup damage may occur.

Position a drain pan under the wash box to collect the hydraulic fluid.

Figure 10-20-10



Remove the drain plug (Item 1) **[Figure 10-20-10]** and drain the fluid from the wash box. Clean any sediment from the bottom of the wash box, then reinstall the drain plug and fill the wash box 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.

I-2067-0499

INSPECTION (CONT'D)

Delivery System Inspection

All delivery system components must be inspected for wear **AFTER EVERY USE:**

Hoses, tubes, elbows and bends must be inspected for inside diameter wear. An ultrasonic wall gauge can be used to measure steel pipe wall thickness. Replace worn components.

The inner liners and outer covers of hoses must be inspected for exposed braiding or reinforcing plies. Replace hoses which have breaks or frays.

Inspect hose and tube ends, and couplings for wear and cleanliness. Material buildup can interfere with safe coupling.

Inspect all gaskets and coupling retainer locking pins for cleanliness and wear. Each coupling must have a gasket and a retainer locking pin.

LUBRICATION

Always use a good quality lithium base grease when lubricating the Concrete Pump. Apply the lubricant until extra grease shows.

IMPORTANT

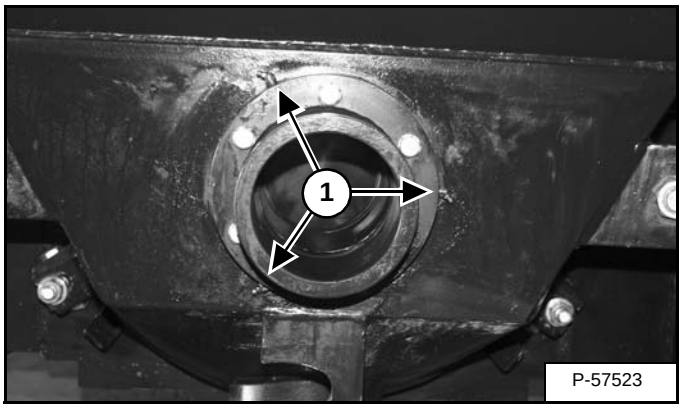
Fluid such as engine oil, hydraulic fluid, coolants, grease, etc. must be disposed of in an environmentally safe manner. Some regulations require that certain spills and leaks on the ground must be cleaned in a specific manner. See local, state and federal regulations for the correct disposal.

I-2067-0499

Lubrication Points

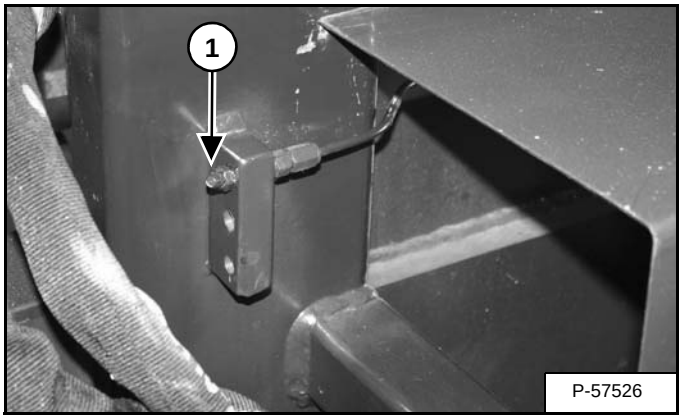
Lubrication of the Concrete Pump is very important to keep concrete mix out of the wear areas. Lubricate the following five grease fittings **[Figure 10-30-1]** & **[Figure 10-30-2] AFTER EVERY POUR AND EVERY 2 HOURS OF OPERATION:**

Figure 10-30-1



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

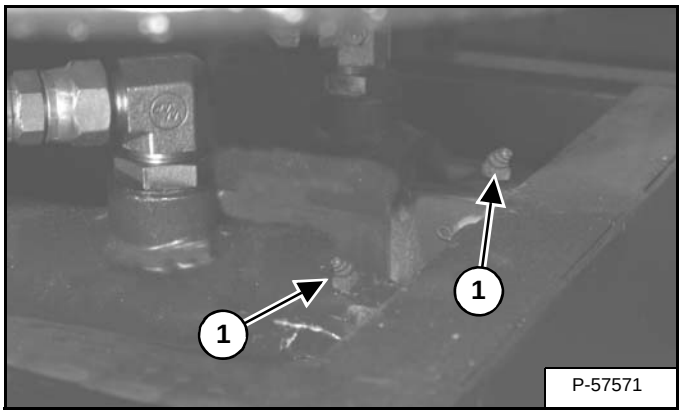
Figure 10-30-2



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

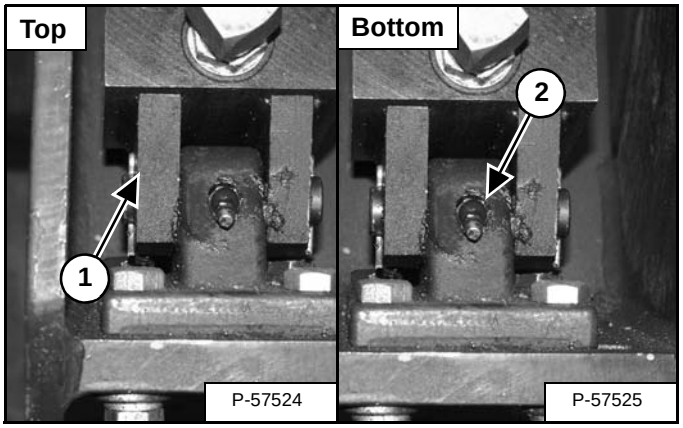
Lubricate the following four grease fittings **[Figure 10-30-3]** & **[Figure 10-30-4] AFTER EVERY POUR AND EVERY 8 HOURS OF OPERATION:**

Figure 10-30-3



3. Concrete Cylinders (Item 1) **[Figure 10-30-3]**.

Figure 10-30-4



4. Lubricate the top and bottom Swing Valve Cylinder bushings (Item 1) **[Figure 10-30-4]**.


Bobcat®

HYDRAULIC SYSTEM


Bobcat®

PUMP 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.

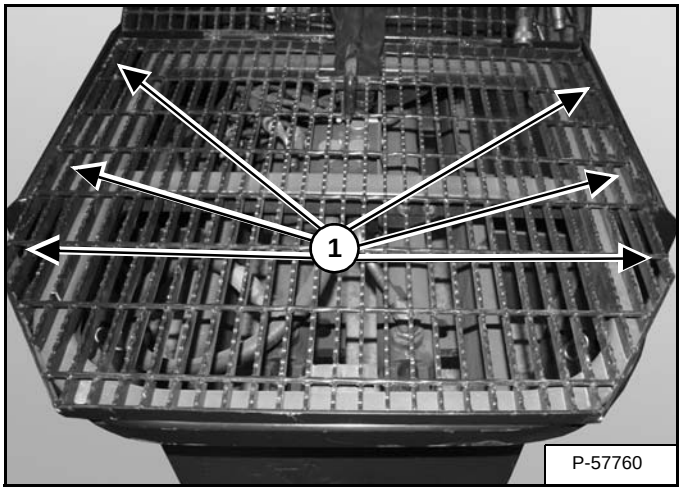
I-2003-0888

IMPORTANT

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

I-2066-0395

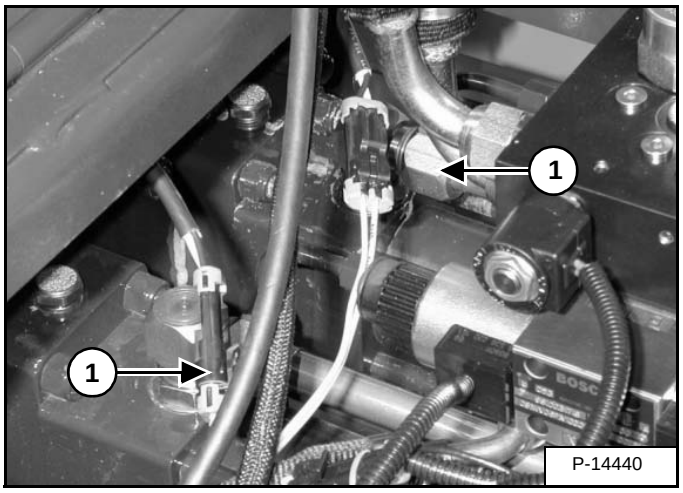
Figure 20-10-1



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

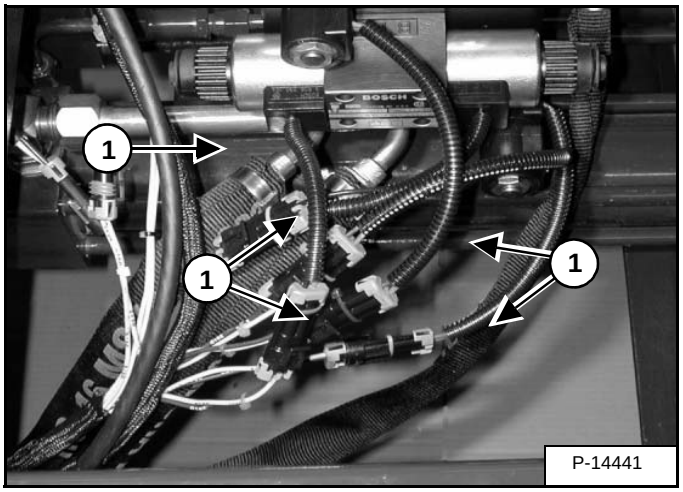
Mark the hoses and tubelines for correct installation.

Figure 20-10-2



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

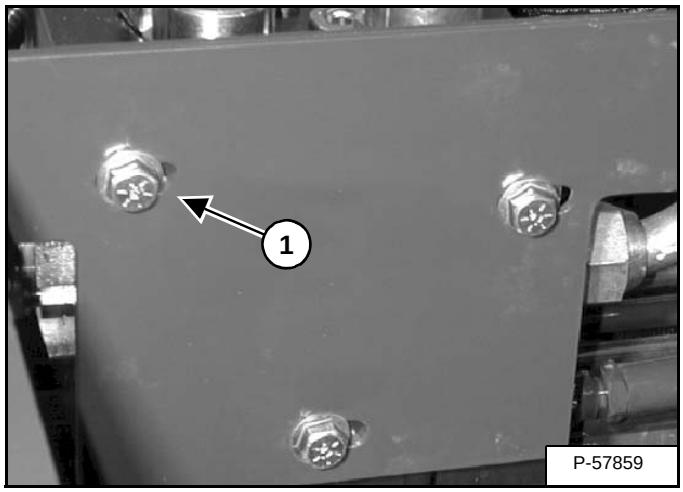
Figure 20-10-3



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.

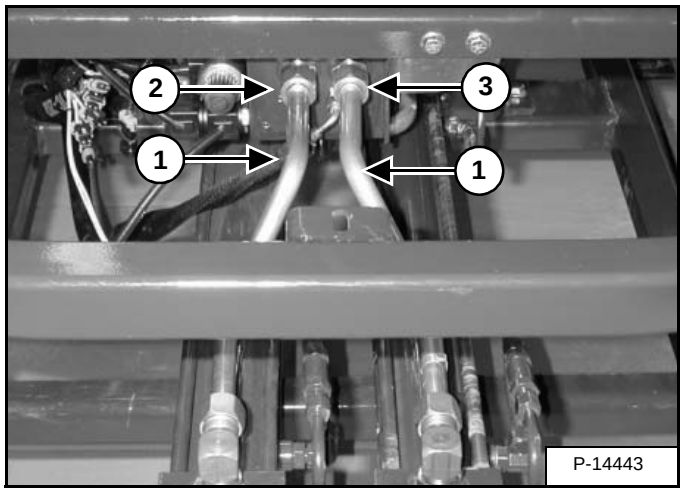
Removal And Installation (Cont'd)

Figure 20-10-4



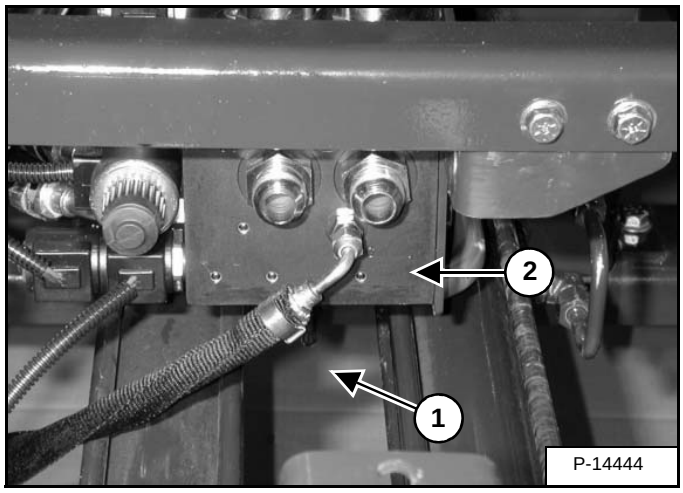
Loosen the three mounting bolts (Item 1) **[Figure 20-10-4]** on the control valve just enough to allow you to slide the control valve in the mounting slots.

Figure 20-10-5



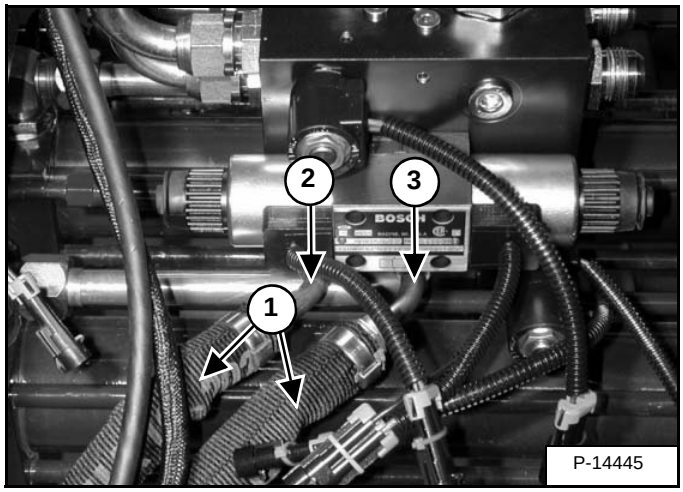
Remove the two tubelines (Item 1) which run from the pump cylinder bases to control valve ports C3 (Item 2) and C4 (Item 3) **[Figure 20-10-5]**. Slide the control valve in the mounting slots to remove the tubelines.

Figure 20-10-6



Remove the pressure gauge hose (Item 1) from control valve port G (Item 2) **[Figure 20-10-6]**.

Figure 20-10-7

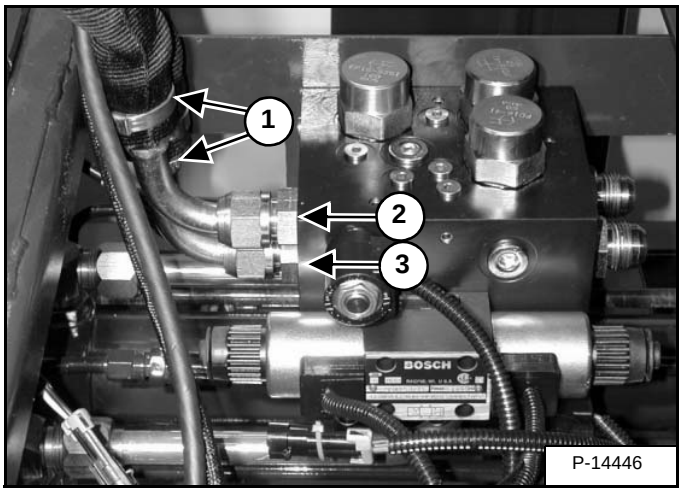


Mark and remove the two hoses (Item 1) from control valve ports C1 (Item 2) and C2 (Item 3) **[Figure 20-10-7]**.

The hose connected to port C1 runs to the left pump cylinder. The hose connected to port C2 runs to the right pump cylinder.

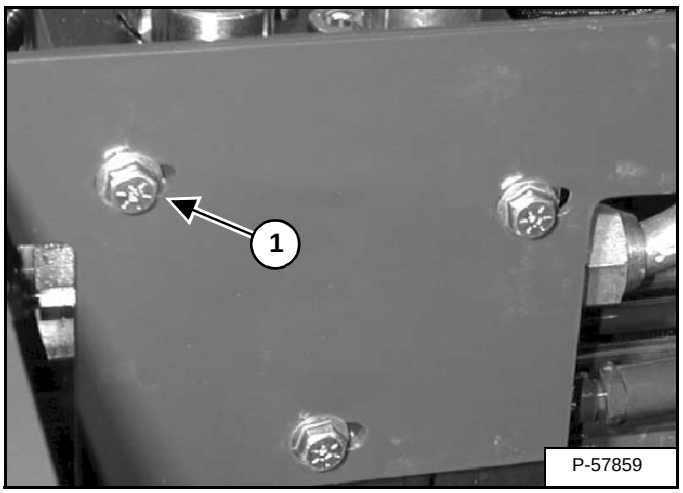
Removal And Installation (Cont'd)

Figure 20-10-8



Remove the two hydraulic coupler hoses (Item 1) from control valve ports T (Item 2) and P (Item 3) **[Figure 20-10-8]**. The male coupler is connected to the hose in port P. The female coupler is connected to the hose in port T.

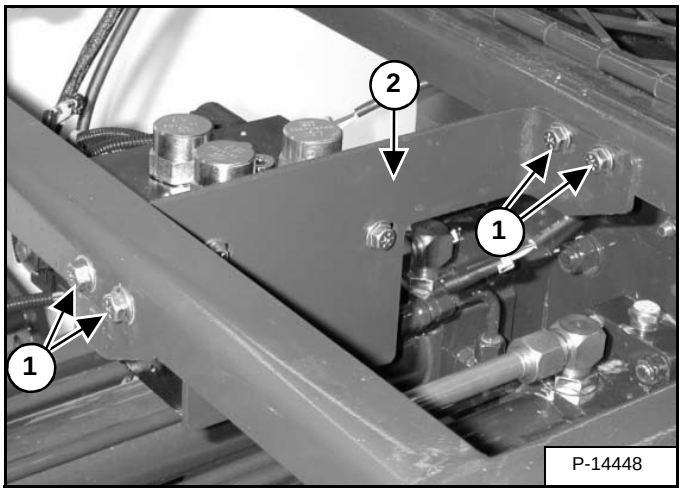
Figure 20-10-9



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

Installation: Tighten the mounting bolts to 40 ft.-lbs. (54 Nm) torque.

Figure 20-10-10

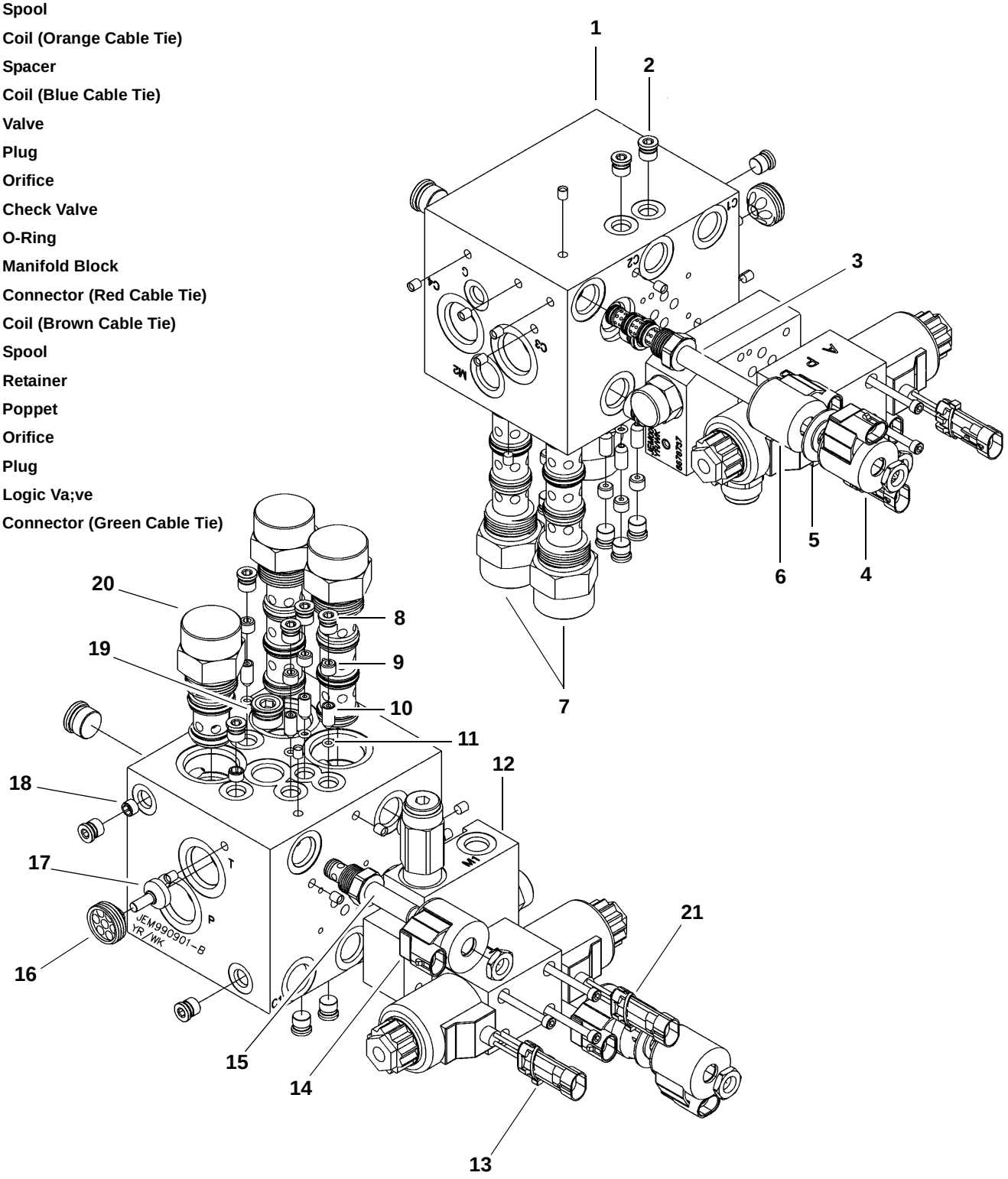


NOTE: Before installation, loosen the four mounting bolts (Item 1) to allow the support bracket (Item 2) to slide in the mounting slots when installing the tubelines on the control valve [Figure 20-10-10].

Installation: Tighten the mounting bolts to 40 ft.-lbs. (54 Nm) torque.

Parts Identification

1. Manifold Block
2. Plug
3. Spool
4. Coil (Orange Cable Tie)
5. Spacer
6. Coil (Blue Cable Tie)
7. Valve
8. Plug
9. Orifice
10. Check Valve
11. O-Ring
12. Manifold Block
13. Connector (Red Cable Tie)
14. Coil (Brown Cable Tie)
15. Spool
16. Retainer
17. Poppet
18. Orifice
19. Plug
20. Logic Va;ve
21. Connector (Green Cable Tie)



P-60493

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.

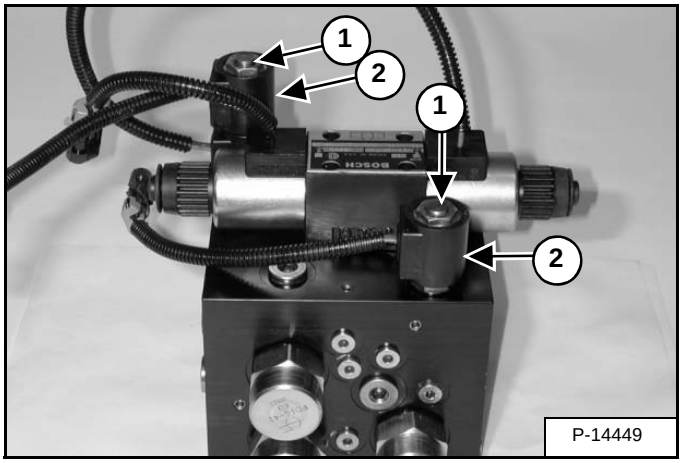
I-2003-0888

IMPORTANT

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

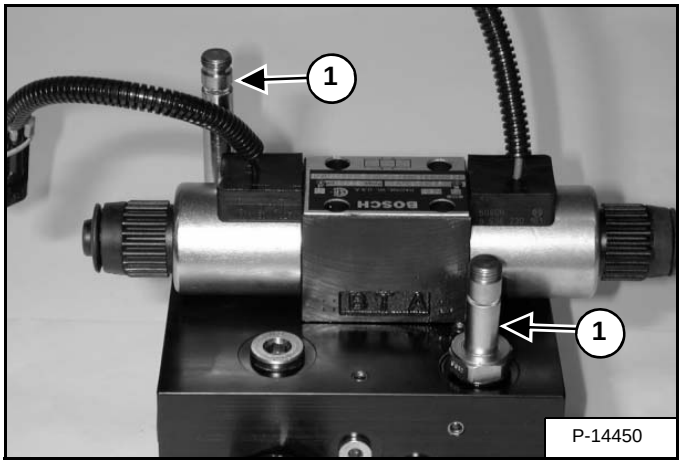
I-2066-0395

Figure 20-10-11



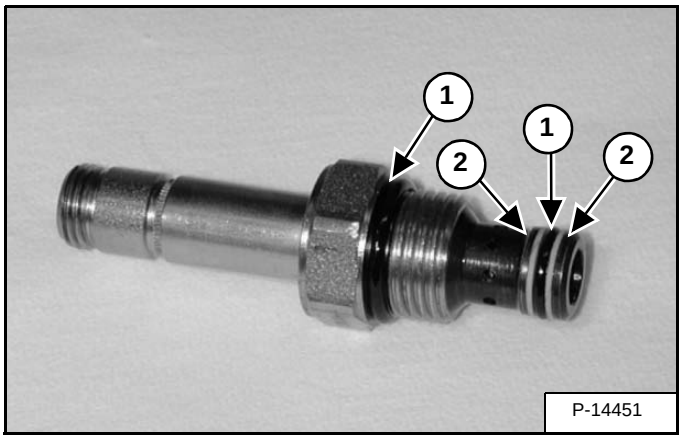
Remove the two nuts (Item 1) and the three coils (Item 2) and spacer from the two spools **[Figure 20-10-11]**.

Figure 20-10-12



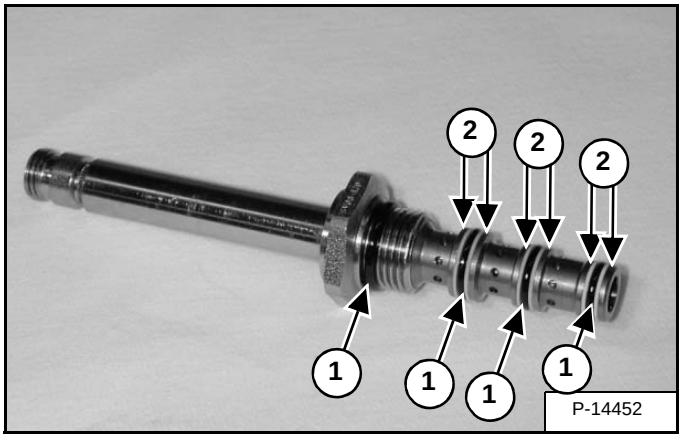
Loosen and remove the two spools (Item 1) **[Figure 20-10-12]**.

Figure 20-10-13



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

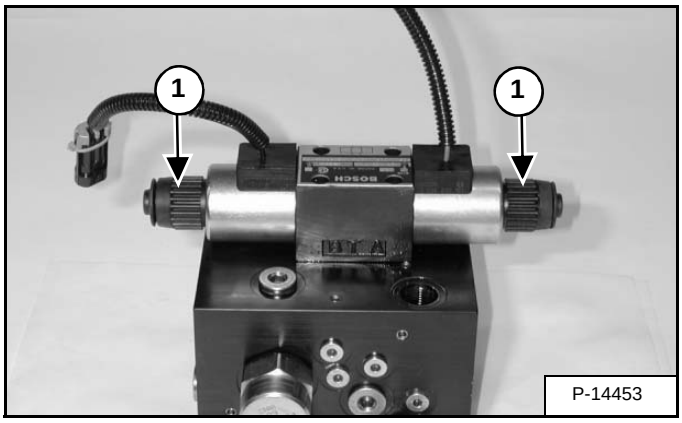
Figure 20-10-14



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

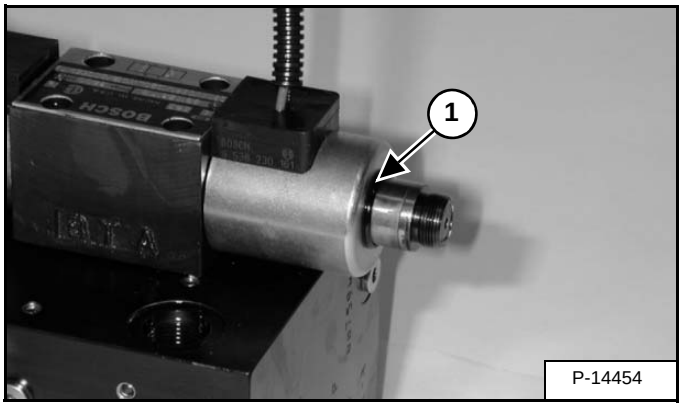
Disassembly (Cont'd)

Figure 20-10-15



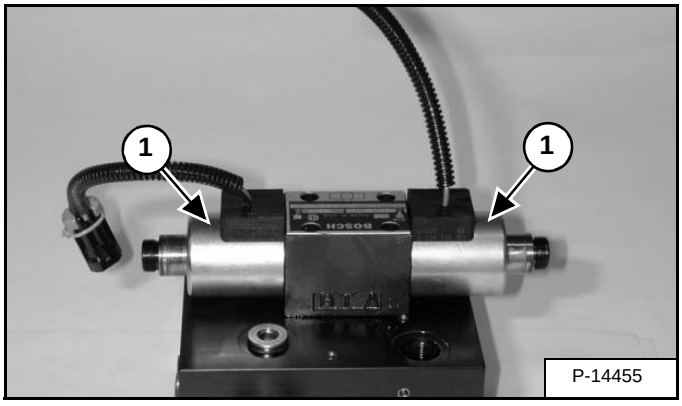
Remove the two caps (Item 1) **[Figure 20-10-15]**.

Figure 20-10-16



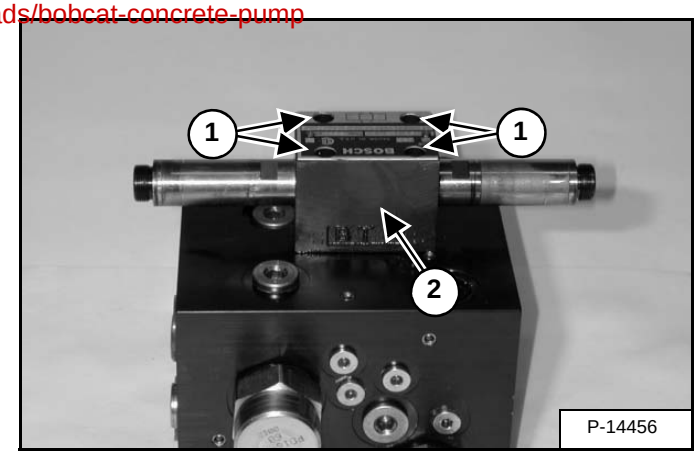
Remove the two O-rings (Item 1) **[Figure 20-10-16]** from the D03 valve.

Figure 20-10-17



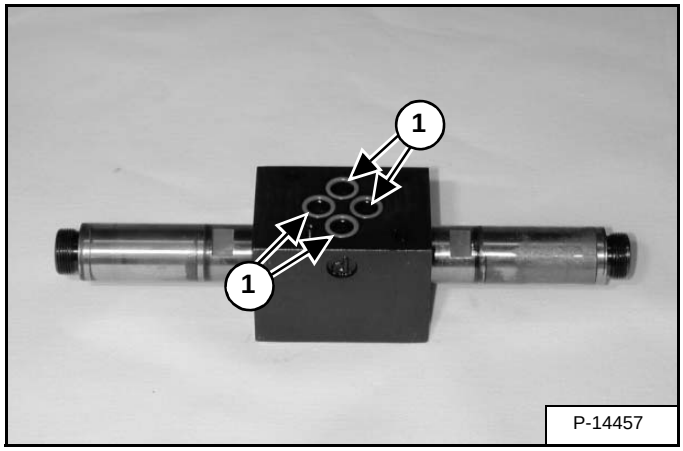
Loosen and remove the two coils (Item 1). Remove the D03 valve (Item 2) from the manifold block **[Figure 20-10-17]**.

Figure 20-10-18



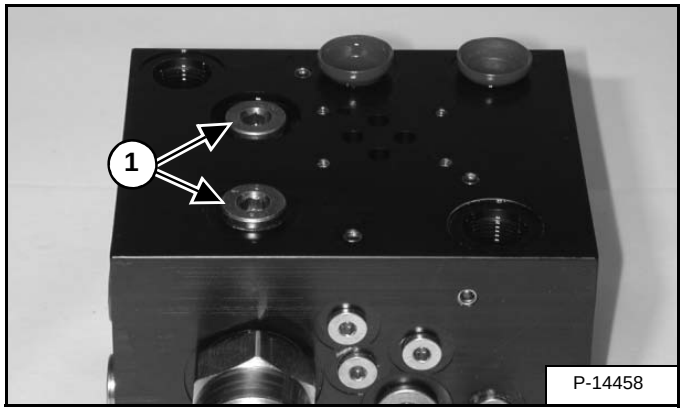
Loosen and remove the four cap screws (Item 1). Remove the D03 valve (Item 2) **[Figure 20-10-18]** from the manifold block.

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.