



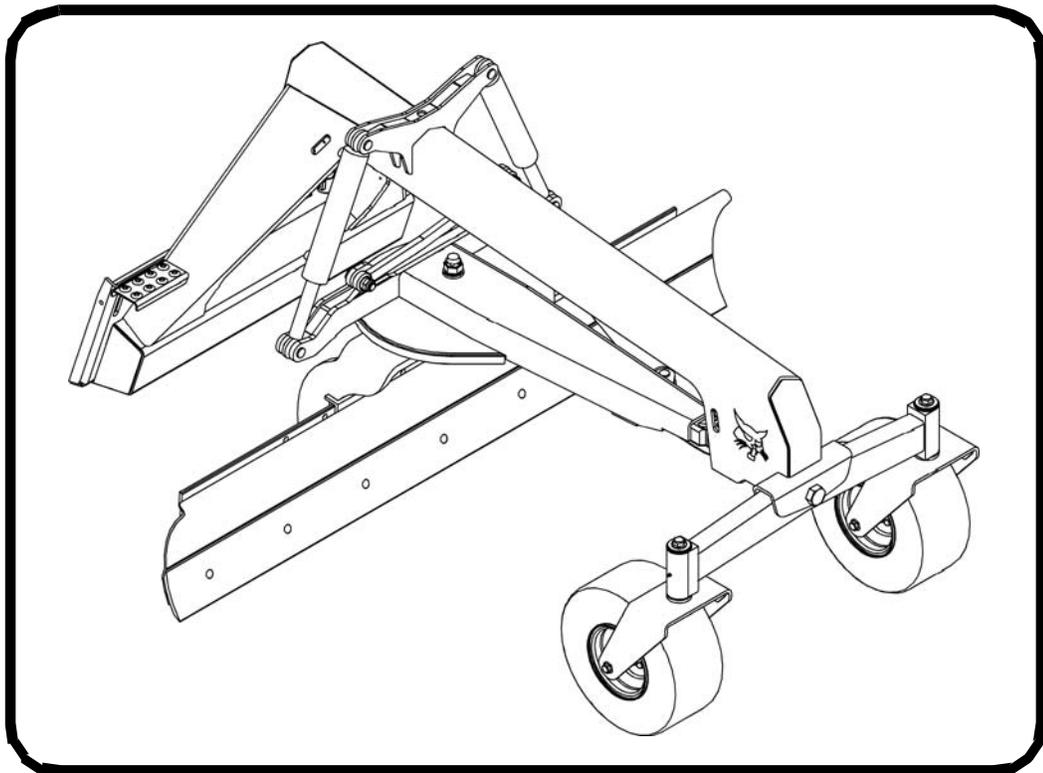
# Bobcat®

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## Service Manual Grader

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**(Grader 84) S/N 648000101 & Above**



Product: Bobcat Grader Service Repair Workshop Manual

Full Download: <https://www.arepairmanual.com/downloads/bobcat-grader-service-repair-workshop-manual-2/>

Sample of manual. Download All 126 pages at:

<https://www.arepairmanual.com/downloads/bobcat-grader-service-repair-workshop-manual-2/>

# MAINTENANCE SAFETY



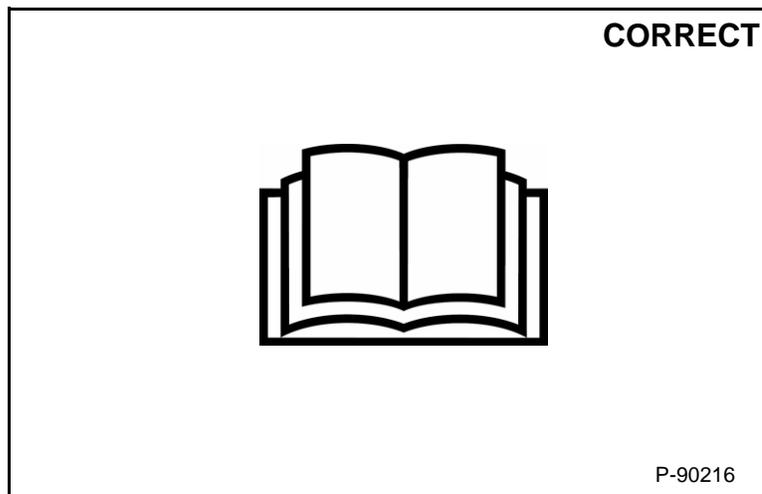
## WARNING

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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## FOREWORD

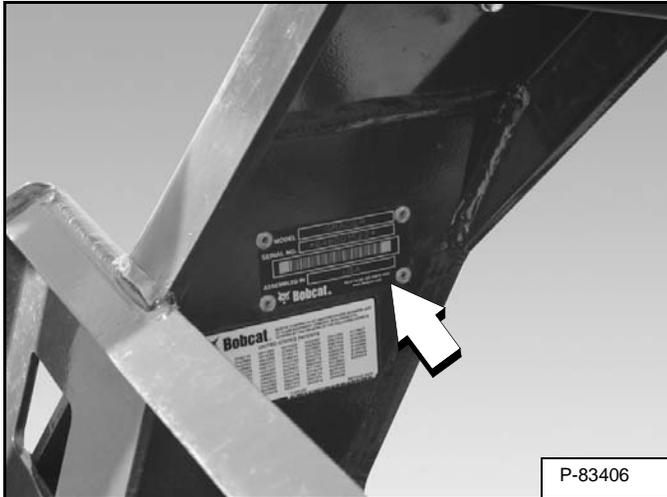
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## SERIAL NUMBER LOCATION

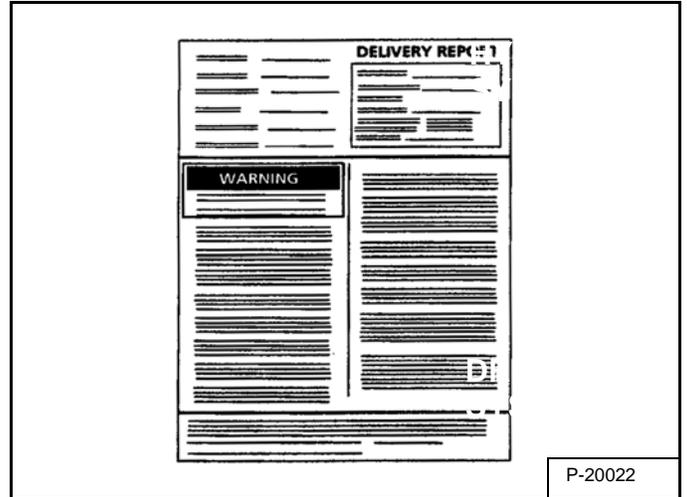
Figure 1



Always use the serial number of the grader 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].

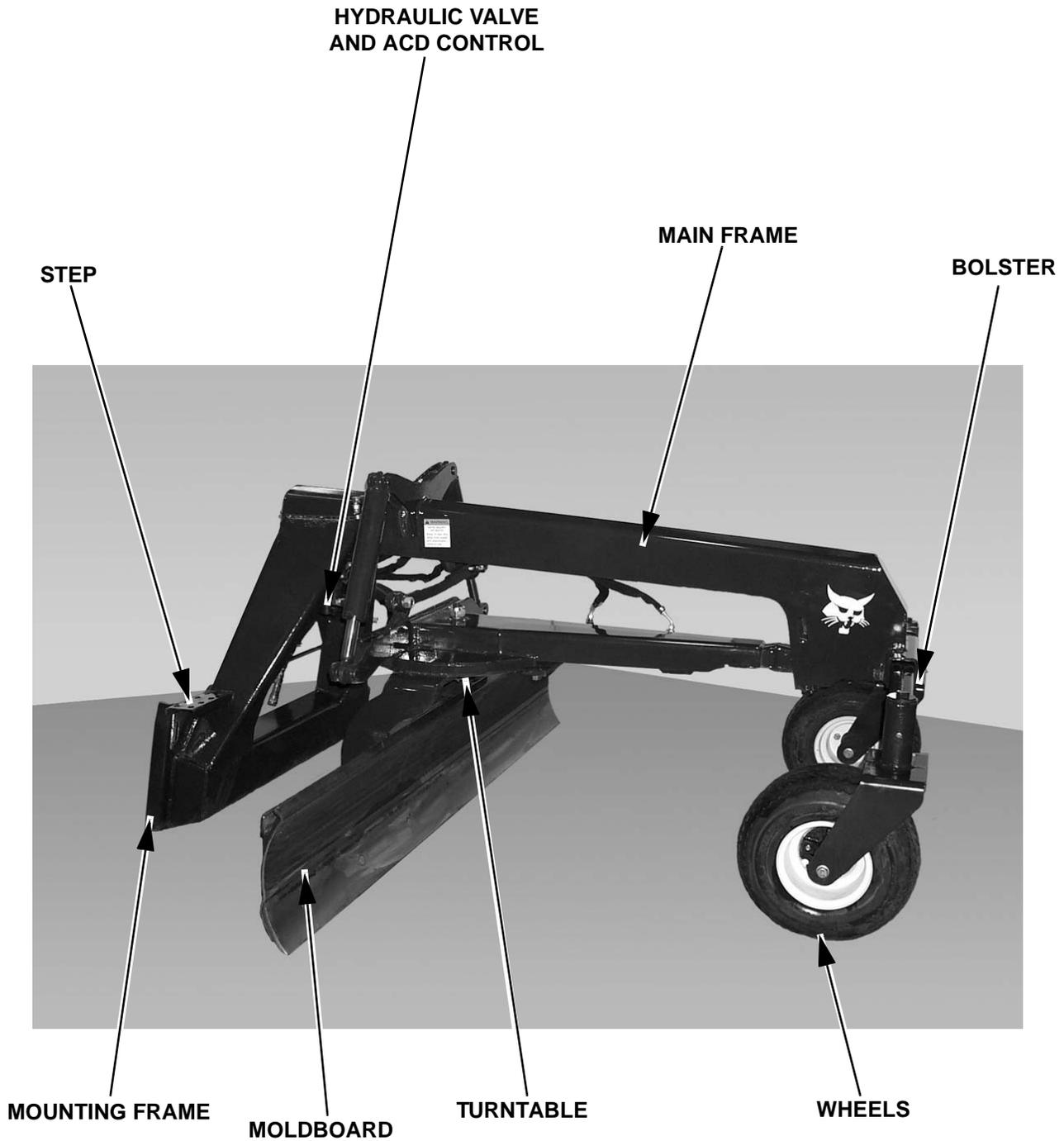
## DELIVERY REPORT

Figure 2



The delivery report [Figure 2] must be completed by the dealer and signed by the owner or operator when the Bobcat grader is delivered. An explanation of the form must be given to the owner.

**ATTACHMENT IDENTIFICATION**



P-88923

## SAFETY & MAINTENANCE

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## TROUBLESHOOTING

### Grader Chart

TROUBLESHOOTING THE GRADER		
PROBLEM	CAUSE	CORRECTION
Grader does not mount properly on the Bob-Tach.	Bob-Tach wedges are not fully retracted prior to mounting.	Retract Bob-Tach wedges before installation.
	Mud, dirt or stones are lodged between the Bob-Tach and the grader mounting frame.	Remove debris between Bob-Tach and grader mounting frame.
Grader cut is not level.	Moldboard is not properly positioned.	Adjust moldboard to desired position.
	Cutting edge is worn.	Reverse cutting edge or install new cutting edge.
Grader moldboard does not maintain it's position.	Hydraulic cylinder has internal leakage.	Test and repair cylinder.
	Control valve has internal leakage.	Repair control valve.
Grader moldboard will not angle or oscillate.	Hydraulic auxiliary controls not activated.	Activate auxiliary hydraulics.
	Electrical harness not connected.	Connect electrical harness.
	Wires disconnected or broken at control valve.	Repair or replace as needed.
	Control harness disconnected or damaged ACD control module.	Check harness and control module, repair or replace as needed.
Laser graded surface is uneven.	Excessive ground speed.	Drive slower.
	Receiver correction speed set too slow for ground speed.	Drive slower or increase correction speed.
Trimble Support Machine Control - Construction Instructions Americas: 1 - 800 - 538 - 7800 (Option 3 For Support) Outside Of Americas: 1 - 303 - 323 - 4111 E-Mail: Trimble_Support@Trimble.com		

## TROUBLESHOOTING (CONT'D)

### GCR Receiver Chart

TROUBLESHOOTING THE GCR RECEIVER		
PROBLEM	CAUSE	CORRECTION
Unit will not turn on.	No power to the unit.	Make sure the system's Power Cable is connected to the machine's battery.
	Not enough power to the unit.	Make sure the machine has enough power (9 to 30 VDC required).
	Receiver cable loose.	Make sure the Grade Control Receiver cable is secure at both ends.
	Bad fuse.	Check the fuse.
	Receiver cable is bad.	If you have a spare, try a different Grade Control Receiver cable.
NOTE: For other problems related to the laser products, see Trimble Operation Manual or contact your Bobcat Dealer.		
Trimble Support Machine Control - Construction Instructions Americas: 1 - 800 - 538 - 7800 (Option 3 For Support) Outside Of Americas: 1 - 303 - 323 - 4111 E-Mail: <a href="mailto:Trimble_Support@Trimble.com">Trimble_Support@Trimble.com</a>		

## TROUBLESHOOTING (CONT'D)

### BLR2 Receiver Chart

TROUBLESHOOTING THE BLR2 RECEIVER		
PROBLEM	CAUSE	CORRECTION
Unit will not turn on.	No power to the unit.	Make sure the system's Power Cable is connected to the machine's battery.
	Not enough power to the unit.	Make sure the machine has enough power (9v to 16v DC required).
	Receiver cable loose.	Make sure the receiver cable is secure at both ends.
	Bad fuse.	Check the fuse.
	Receiver cable is bad.	If you have a spare, try a different receiver cable.
Single green LED is lit and arrows flash alternately.	Receiver is seeing laser beacon but there's no CAN communication with ACD.	Check 9xxx (purple) wires for correct routing.
		Check 9xxx (purple) wires for pushed back terminals.
		Receiver is damaged, replace receiver.
All lights flash once and then go from bright to dim.	Ambient light sensor on receiver is damaged.	Replace receiver.
Auto light goes not respond to trigger when used with 7 pin connector.	No CAN communication between receiver and ACD.	Check 9xxx (purple) wires for correct routing.
		Check 9xxx (purple) wires for pushed back terminals.
		Receiver is damaged, replace receiver.
Arrows do not respond to laser beacon and single LED does a double flash once every two seconds.	Receiver is not detecting laser beacon.	Adjust laser beacon or receiver height to bring receiver within range.
		Make sure laser beacon is at least 3 m (10 ft) away from receiver.
Erratic display of arrows.	Receivers are not properly initialized.	Shut off carrier and restart.
	ACD harness damaged.	Replace the harness.
	Receiver harness damaged or not properly installed.	Check connections or replace harness as required.
	Valve harness has left and right receiver connection points swapped.	Swap valve harness receiver connection points. (Black tie strap / 'RIGHT' identification tag should be on the right side of frame as viewed from the operators position.)
Trimble Support Machine Control - Construction Instructions Americas: 1 - 800 - 538 - 7800 (Option 3 For Support) Outside Of Americas: 1 - 303 - 323 - 4111 E-Mail: Trimble_Support@Trimble.com		

## TROUBLESHOOTING (CONT'D)

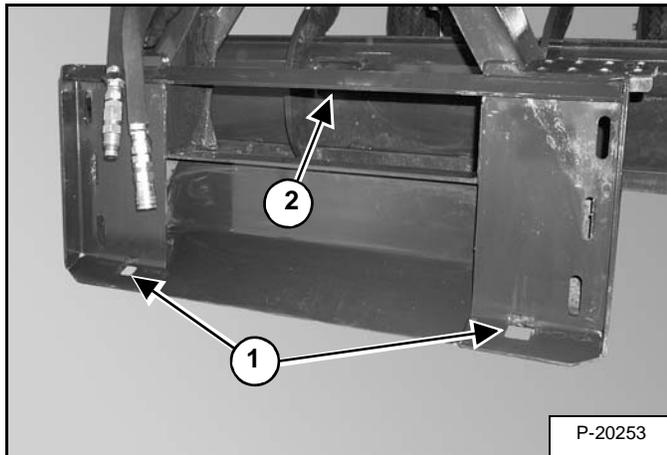
### Laser Beacon Chart

TROUBLESHOOTING THE LASER BEACON		
PROBLEM	CAUSE	CORRECTION
Laser Beacon will not operate.	No power.	Press power button.
	Batteries are bad.	Check or replace batteries.
	Laser needs servicing.	Return laser to service center for inspection.
Laser Beacon out-of-level indicator does not shut off.	Laser not mounted securely.	Make sure the laser is mounted to stable surface.
	Laser in wrong mode.	Press the mode button so that the laser is in automatic auto-leveling or grade mode.
	Leveling screws not turning.	Make sure the leveling screws are free to turn.
	Laser not level.	Allow the laser to re-level.
	Laser needs servicing.	Return laser to service center for inspection.
SafeGuard LED is on.	Calibration is off.	Check and adjust laser plane calibration as necessary.
	Laser needs servicing.	Return laser to service center for inspection.
Laser Beacon plane not accurate.	Calibration is off.	Check and adjust laser plane calibration as needed.
	Laser needs servicing.	Return laser to service center for inspection.
NOTE: For other problems related to the laser products, see Trimble Operation Manual or contact your Bobcat Dealer.		
Trimble Support Machine Control - Construction Instructions Americas: 1 - 800 - 538 - 7800 (Option 3 For Support) Outside Of Americas: 1 - 303 - 323 - 4111 E-Mail: Trimble_Support@Trimble.com		

## 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 grader mount for wear and damage each time the grader is removed from the machine.

Frequently inspect the grader to ensure that all components are secure and that all bolts and nuts are thoroughly tightened.

### Bob-Tach

*Hand Lever Bob-Tach*

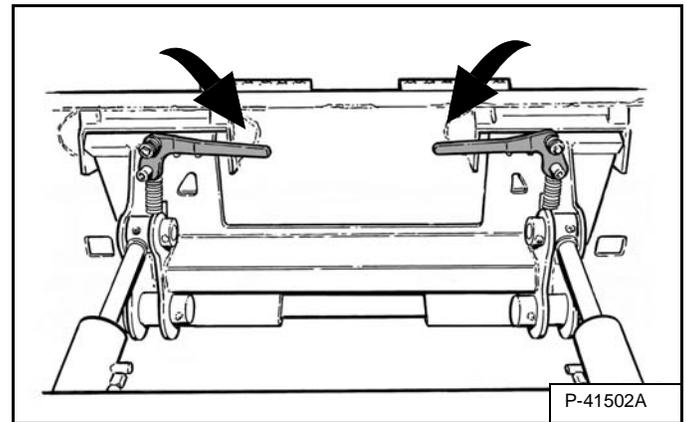


#### AVOID INJURY OR DEATH

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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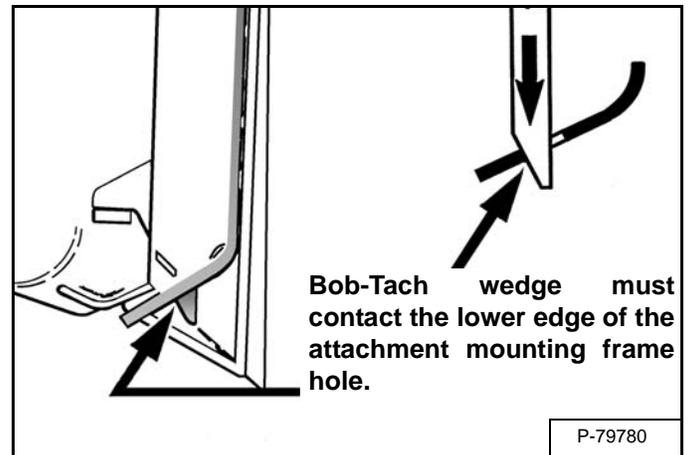
Figure 10-20-2



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 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.)

## 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.

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Figure 10-20-4

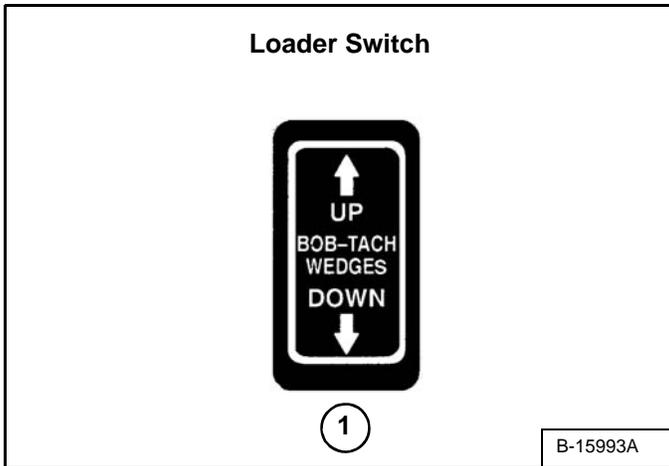


Figure 10-20-5

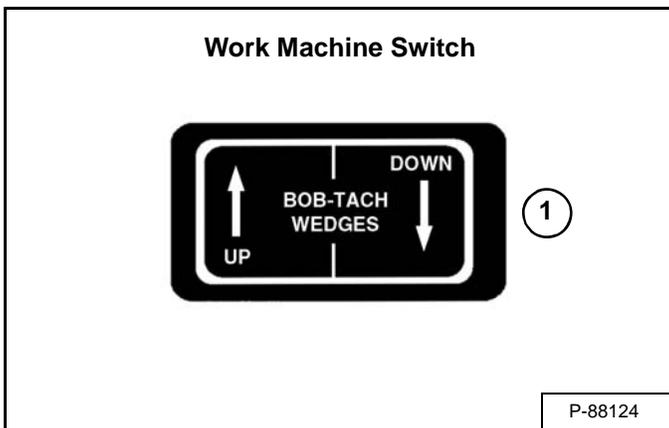
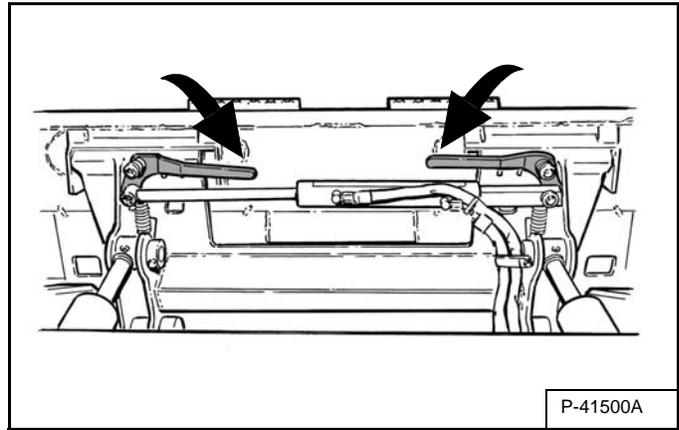
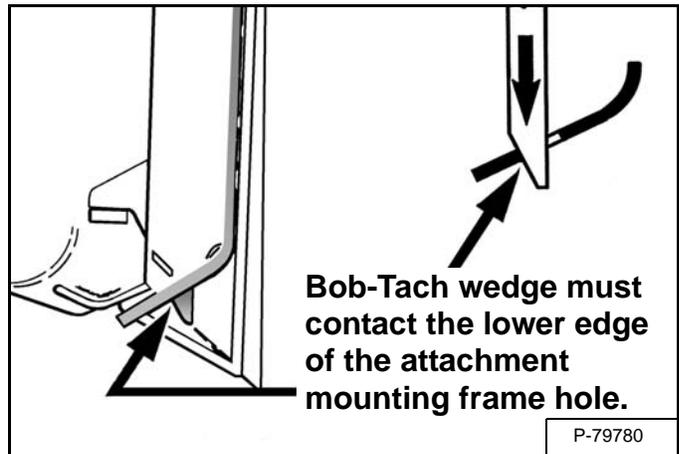


Figure 10-20-6



Push and hold the BOB-TACH “WEDGES DOWN” switch (Item 1) [Figure 10-20-4] and [Figure 10-20-5] 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.)

## LUBRICATING THE ATTACHMENT

### Lubrication Locations

Always use a good quality lithium base multi purpose grease when lubricating the attachment. Apply 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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# ! WARNING

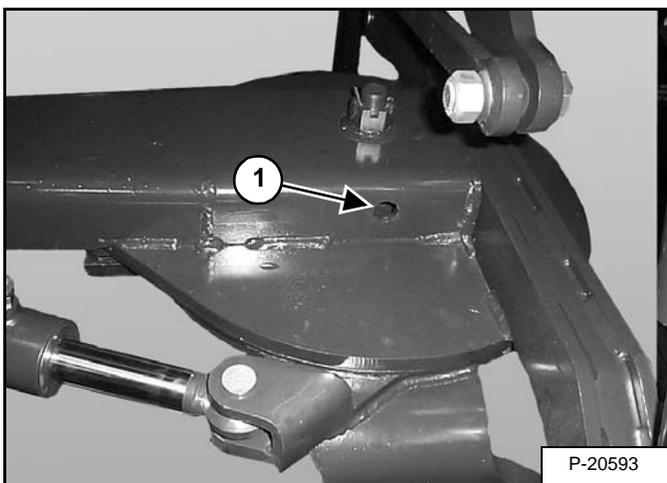
## AVOID INJURY OR DEATH

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

- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

W-2019-0907

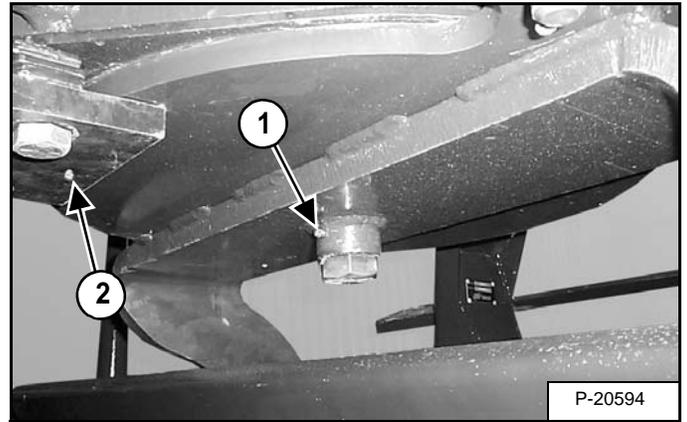
Figure 10-30-1



Lubricate the following locations [Figure 10-30-1].

1. Turntable Pivot.

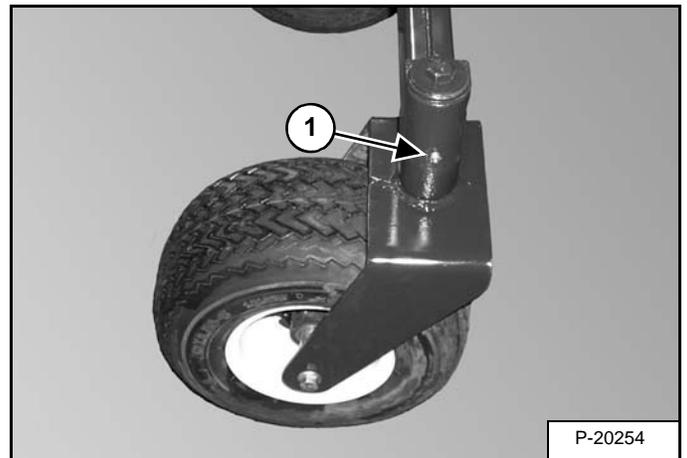
Figure 10-30-2



Lubricate the following locations [Figure 10-30-2].

1. Turntable Pivot.
2. Turntable Clamp.

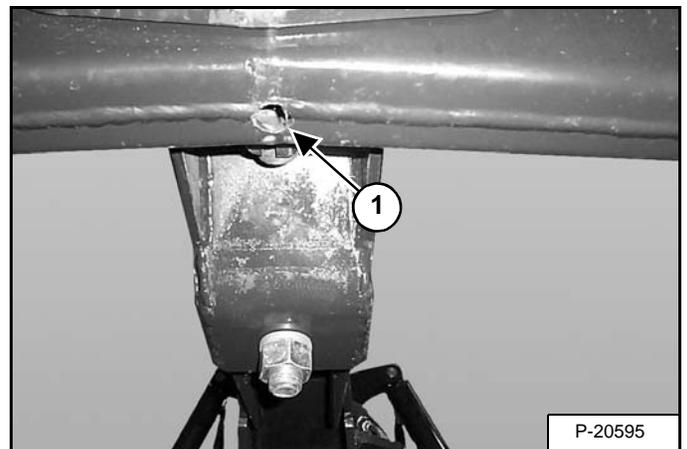
Figure 10-30-3



Lubricate the following locations [Figure 10-30-3].

1. Caster Wheel Spindle (Both Sides).

Figure 10-30-4



Lubricate the following locations [Figure 10-30-4].

1. Bolster Bolt.



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## REGULAR MAINTENANCE ITEMS

### Cutting Edge

# WARNING

### AVOID INJURY OR DEATH

Securely block up the attachment before working underneath.

W-2795-0409

# WARNING

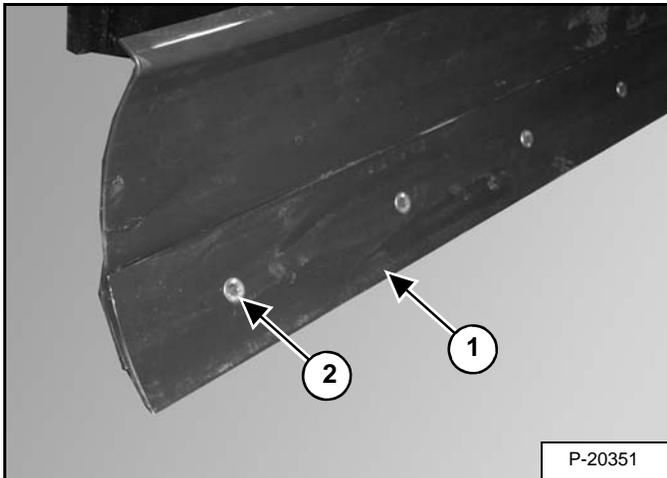
### AVOID INJURY OR DEATH

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

- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

W-2019-0907

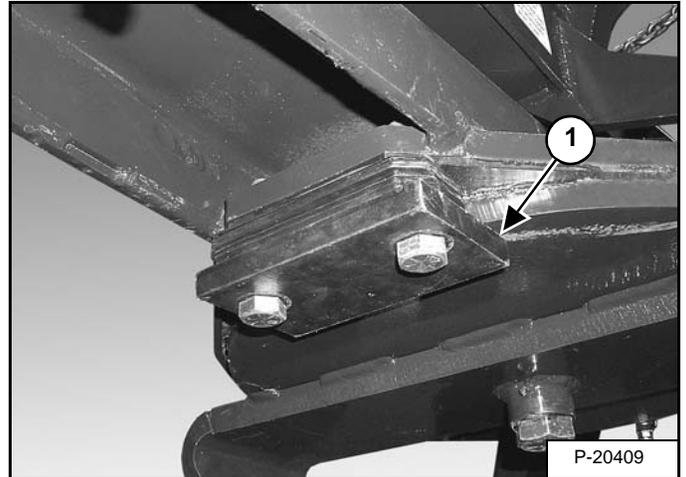
Figure 10-40-1



Inspect the cutting edge (Item 1), replace if any damage or excessive wear is visible. Tighten or replace any loose or missing bolts or nuts (Item 2) [Figure 10-40-1] (See Cutting Edge on Page 10-50-1.)

### Turntable Clamp Clearance

Figure 10-40-2



Check the clearance (Item 1) [Figure 10-40-2] between the bottom of the turntable and the turntable clamp.

If the clearance is over 0,8 mm (0.03 in), (See Turntable Clamp Clearance on Page 10-50-1.)

## REGULAR MAINTENANCE ITEMS (CONT'D)

### Laser System

Be sure to store the laser receiver(s) in the case when you're not using it.

Be sure to store the laser beacon in its case when you're not using it.

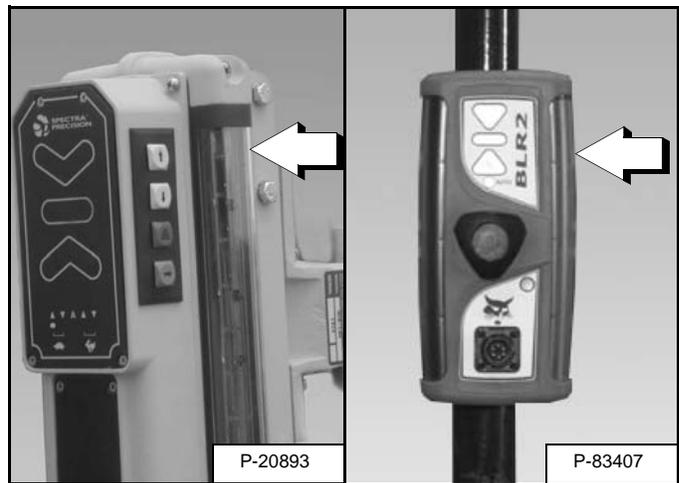
**NOTE:** Do not store the laser receiver or laser beacon in a wet carrying case. If the case gets wet, open it and let it dry before storing.

**NOTE:** Remove the batteries from the laser beacon and laser receiver (if equipped) when storing the equipment more than 30 days.

Figure 10-40-3



Figure 10-40-4



Use only a good quality glass cleaner and a soft cloth to clean all external optical components [Figure 10-40-3] and [Figure 10-40-4]. A dry cloth used on the laser exit windows, laser receiving window, or displays could scratch or damage these surfaces.

As needed, wipe off with a moist, clean cloth any dust or dirt from the laser beacon and receiver's outer surface. Blow off any loose debris before cleaning any surfaces to prevent scratching the optical surfaces.

## REMOVAL AND INSTALLATION

### **WARNING**

#### AVOID INJURY OR DEATH

Securely block up the attachment before working underneath.

W-2795-0409

### **WARNING**

#### AVOID INJURY OR DEATH

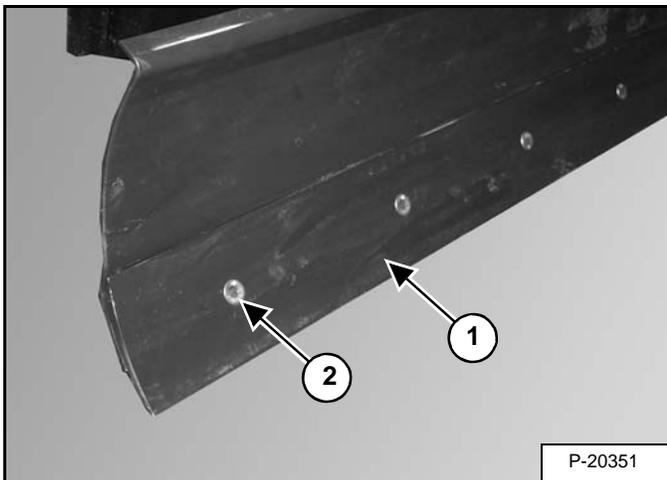
Wear safety glasses to prevent eye injury when any of the following conditions exist:

- When fluids are under pressure.
- Flying debris or loose material is present.
- Engine is running.
- Tools are being used.

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## Cutting Edge

Figure 10-50-1



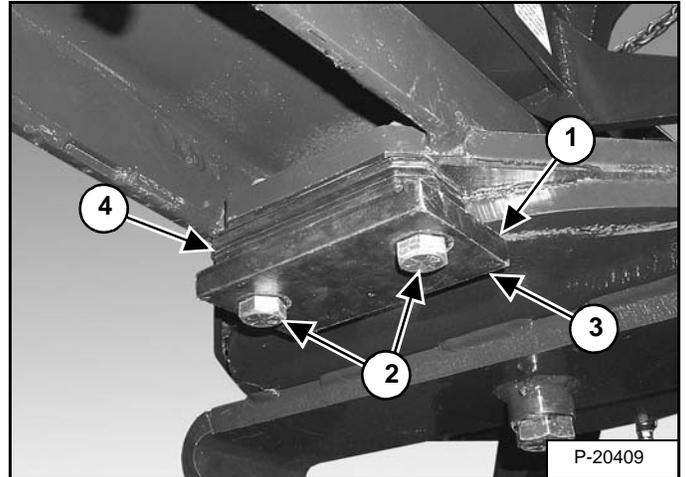
The cutting edge (Item 1) [Figure 10-50-1] is reversible.

When the cutting edge becomes worn or damaged, remove the nuts and bolts (Item 2) [Figure 10-50-1] from the cutting edge, rotate it 180° and reinstall.

**Installation:** Tighten nuts and bolts to 170 - 190 N•m (125 - 140 ft-lb) torque.

## Turntable Clamp Clearance

Figure 10-50-2



Check the clearance (Item 1) [Figure 10-50-2] between the bottom of the turntable and the turntable clamp.

If the clearance is over 0,8 mm (0.03 in), remove the two bolts (Item 2) and clamp (Item 3) [Figure 10-50-2].

Remove or add the shim(s) (Item 4) [Figure 10-50-2] as needed. Replace the clamp and tighten the bolts.

**Installation:** Tighten bolts to 408 - 469 N•m (301 - 339 ft-lb) torque.



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## ATTACHMENT STORAGE AND RETURN TO SERVICE

### Storage

Sometimes it may be necessary to store your Bobcat attachment for an extended period of time. Below is a list of items to perform before storage.

- Thoroughly clean the attachment.
- Lubricate the attachment.
- Inspect the Bob-Tach wedge mounts, mounting flange and all welds on the attachment for wear and damage.
- Check for loose hardware, missing guards, or damaged parts.
- Replace worn or damaged parts.
- Check for damaged or missing decals. Replace if necessary.
- Place the attachment in a dry protected shelter.
- Place the attachment flat on the ground.

**NOTE: In muddy conditions or to prevent the attachment from freezing to the ground, put the attachment on planks or blocks before removing the attachment from the machine.**

### Return To Service

After the Bobcat attachment has been in storage, it is necessary to follow a list of items to return the attachment to service.

- Be sure all shields and guards are in place.
- Lubricate the attachment.
- Install and operate attachment, check for correct function.
- Check for leaks. Repair as needed.



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## HYDRAULIC SYSTEM

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## HYDRAULIC CONTROL VALVE (S/N 648001630 & 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.

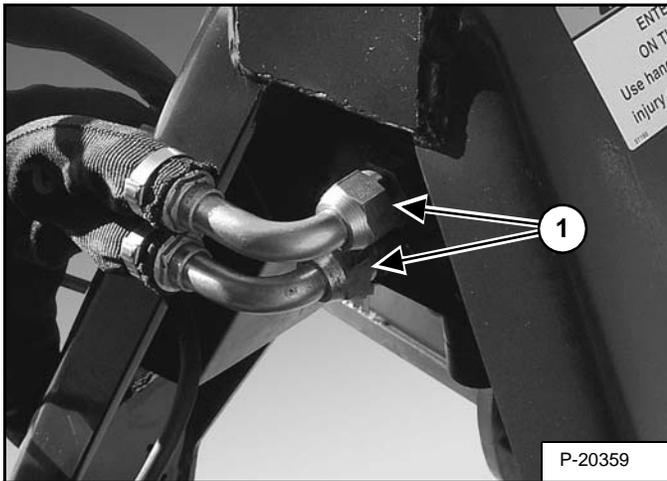
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# IMPORTANT

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

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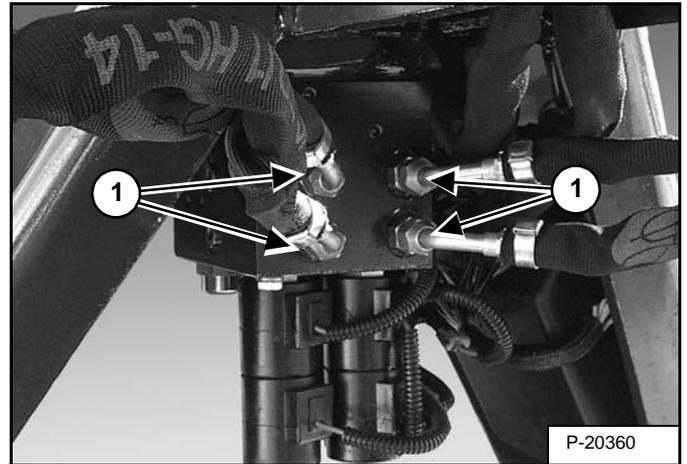
Figure 20-10-1



Mark hose location and orientation, remove the two hydraulic hoses (Item 1) [Figure 20-10-1].

**Installation:** Position hydraulic hoses according to marks previously made. Tighten hydraulic fittings.

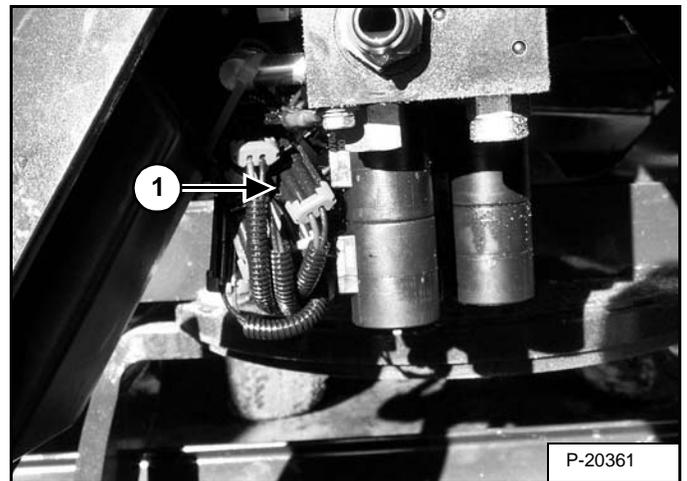
Figure 20-10-2



Mark hose location and orientation, remove the four hydraulic hoses (Item 1) [Figure 20-10-2].

**Installation:** Position hydraulic hoses according to marks previously made. Tighten hydraulic fittings.

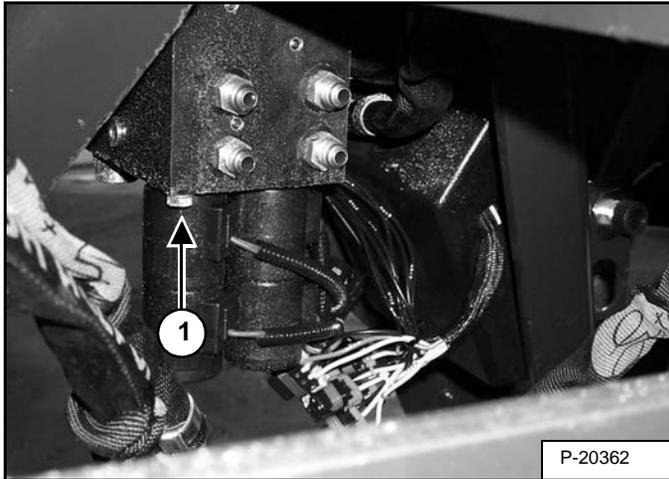
Figure 20-10-3



Disconnect the electrical wiring (Item 1) [Figure 20-10-3].

**Installation:** Connect the electrical wiring.

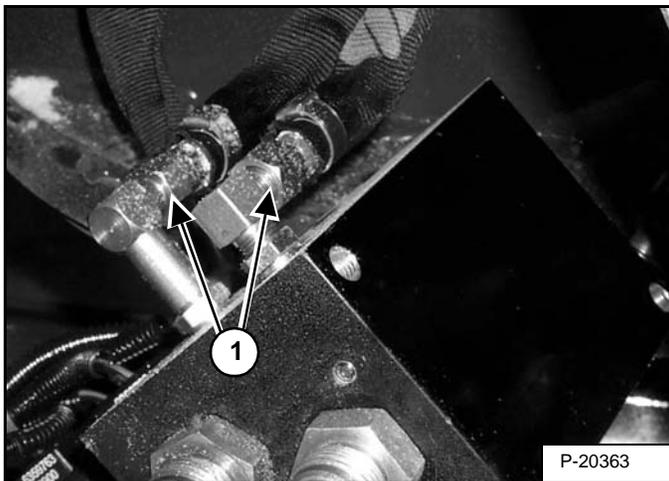
Figure 20-10-4



Remove the two bolts (Item 1) [Figure 20-10-4] holding the valve block to the frame.

**Installation:** Position valve block aligning holes, install and tighten bolts and nuts.

Figure 20-10-5



Mark hose location and orientation, remove the two hydraulic hoses (Item 1) [Figure 20-10-5].

**Installation:** Position hydraulic hoses according to marks previously made. Tighten hydraulic fittings.