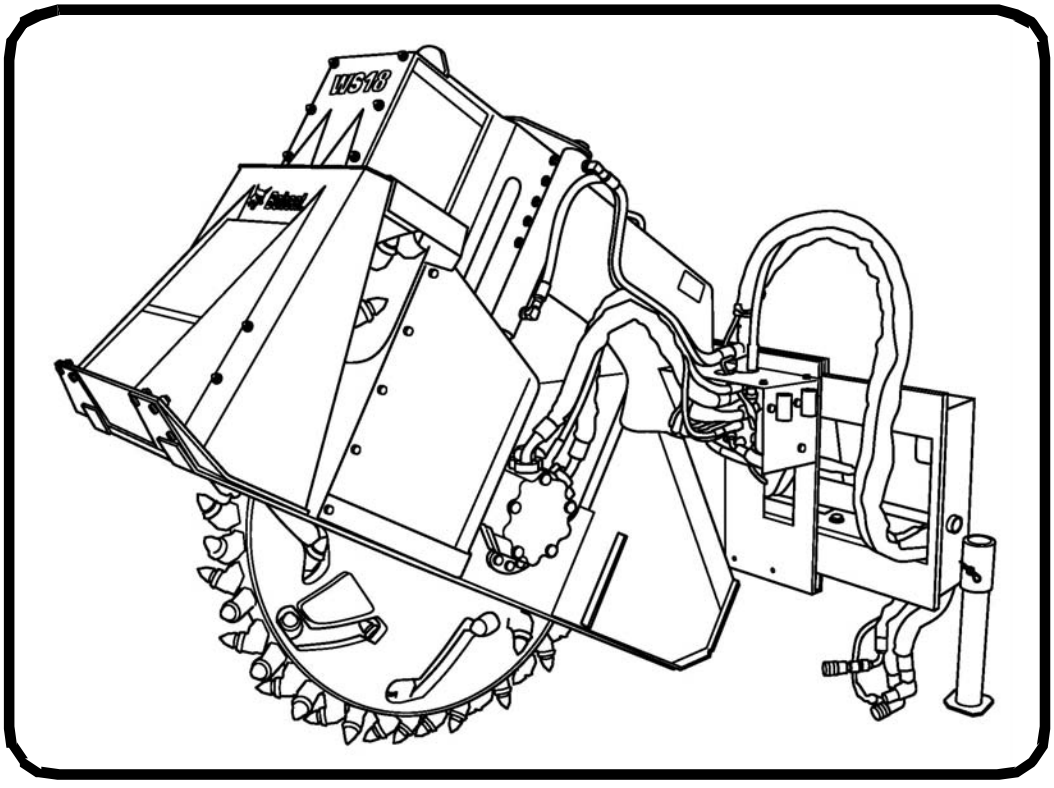
Bobcat®

Service Manual
Wheel Saw

(WS18 Wheel Saw) S/N 991800101 & Above
(WS24 Wheel Saw) S/N 991900101 & Above



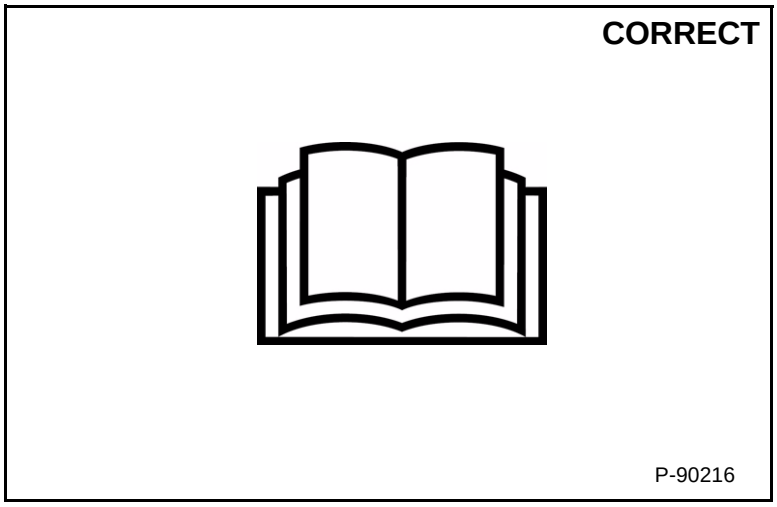
6901389 (4-11)
Printed in U.S.A.

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-2003-0807

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.

MSW30-0409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CONTENTS

SAFETY AND MAINTENANCE 10-01

HYDRAULIC SYSTEM 20-01

MAIN FRAME 30-01

SPECIFICATIONS SPEC-01

ALPHABETICAL INDEX INDEX-01


Bobcat®

FOREWORD

SERIAL NUMBER LOCATION 1-7
Attachment Serial Number 1-7

DELIVERY REPORT 1-7

ATTACHMENT IDENTIFICATION 1-8

FEATURES AND ACCESSORIES 1-9
Standard Items 1-9


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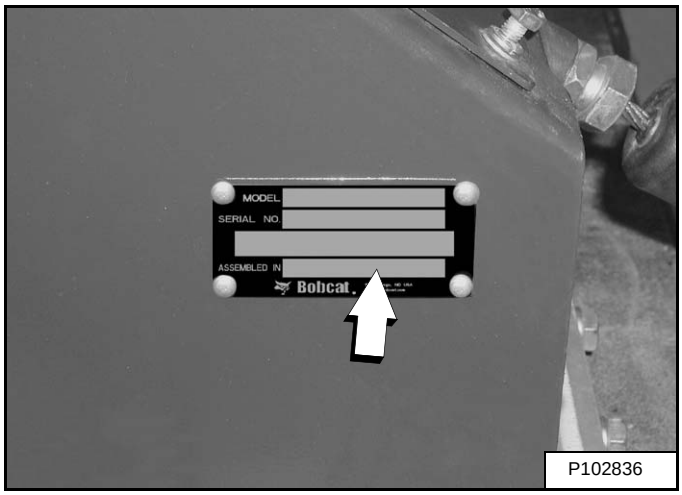
SERIAL NUMBER LOCATION

Attachment Serial Number

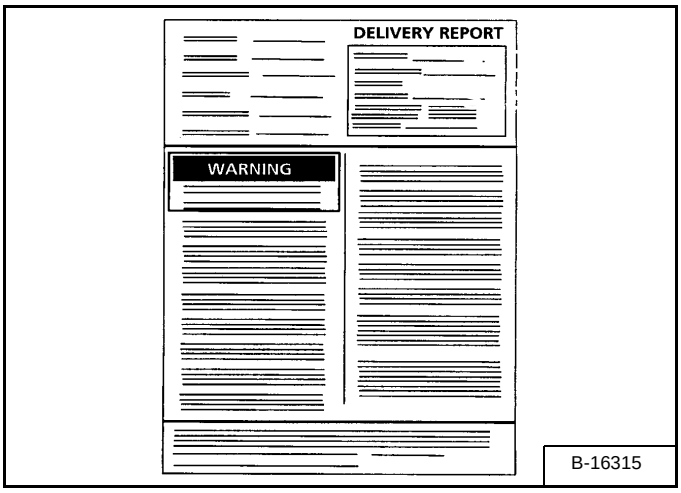
Figure 1



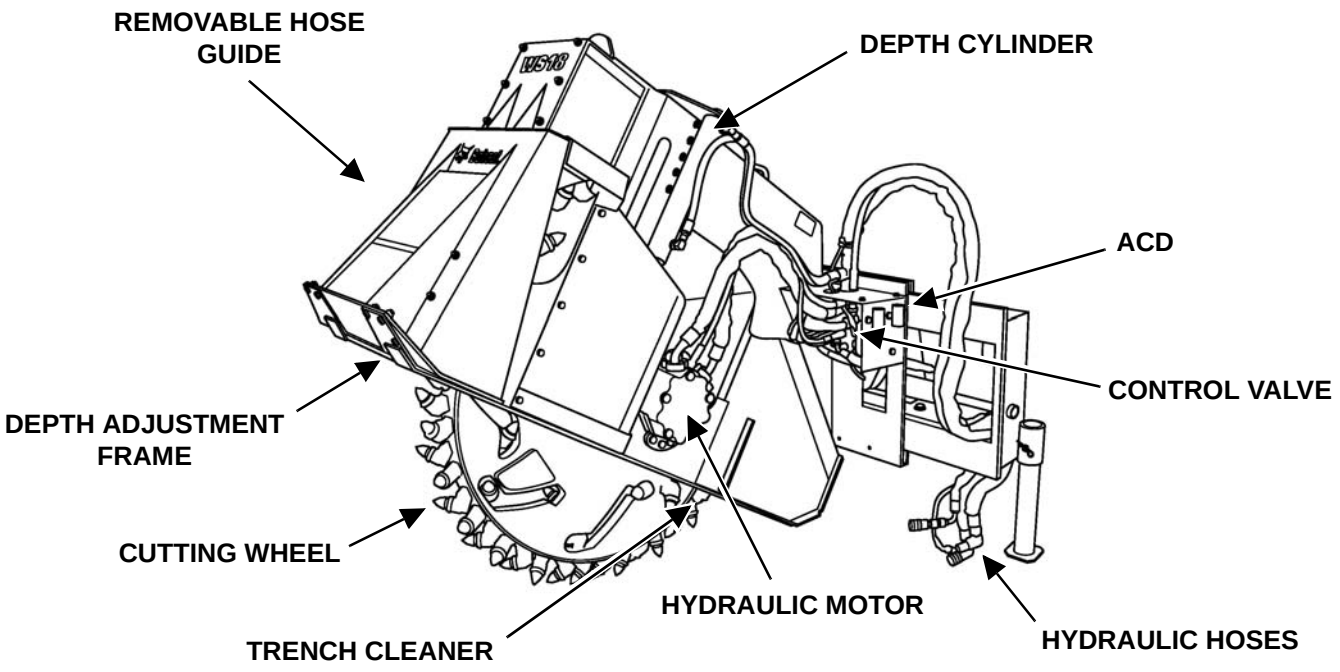
Always use the serial number of the wheel saw when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation **[Figure 1]**.

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 wheel saw is delivered. An explanation of the form must be given to the owner.



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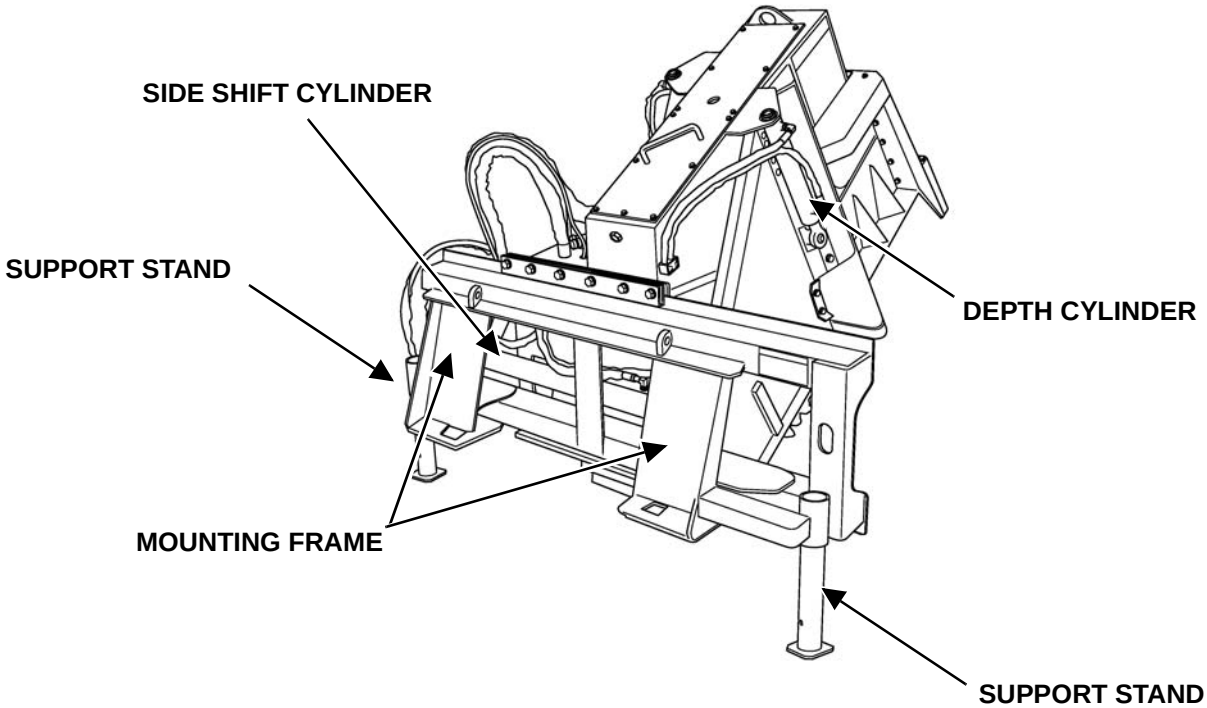

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FEATURES AND ACCESSORIES

Standard Items

The wheel saw is equipped with the following Standard Items:

- Hydraulic Side Shift
- Trench Cleaner
- Wheel Width: 3, 6 and 8 in


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SAFETY AND MAINTENANCE

TROUBLESHOOTING 10-10-1
Chart 10-10-1

DAILY INSPECTION 10-20-1
Attachment Mounting Frame 10-20-1
Bob-Tach 10-20-1
Tool Bit Inspection 10-20-3
Wear Plates Inspection 10-20-3
Spoil Deflector Inspection 10-20-4
Trench Cleaner Inspection 10-20-4

REGULAR MAINTENANCE 10-30-1
Tool Bit Replacement 10-30-1
Hardening The Wheel And Carbide Holders 10-30-2
Wear Plate Replacement 10-30-2
Spoil Deflector Replacement 10-30-3
Cleaning The Trench Cleaner 10-30-3
Trench Cleaner Adjustment 10-30-4

ATTACHMENT STORAGE AND RETURN TO SERVICE 10-40-1
Storage 10-40-1
Return To Service 10-40-1


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TROUBLESHOOTING

Chart

⚠ 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

If the attachment is not working correctly, check the hydraulic system of the machine thoroughly before making any repairs on the attachment. Attachment problems can be affected by a hydraulic system that is not operating to specifications. Connect a flow meter to the machine to check the hydraulic pump output, relief valve setting and tube lines to check flow and pressure. (See the machine's Service Manual for the correct procedure to connect the flow meter.)

Use the following troubleshooting chart to locate and correct problems which most often occur with the attachment.

PROBLEM	CAUSE	CORRECTION
Wheel saw will not rotate.	Auxiliary hydraulics not activated.	Activate auxiliary hydraulics.
	Hydraulic couplers not fully connected.	Check hydraulic connections.
	Wheel saw bits are contacting the ground when start-up is attempted.	Raise the wheel saw off the ground before engaging auxiliary hydraulics.
	Electrical solenoids on wheel saw disconnected or defective.	Check all electrical connections. Repair and / or replace solenoids.
	Control valve on wheel saw damaged or defective.	Repair and / or replace control valve.
Wheel saw loses power.	Trying to cut at too fast a travel speed.	Move loader forward at a slower rate.
	Loss of hydraulic flow.	Make sure High Flow hydraulics are activated.
	Loader relief valve not set to specification.	Check loader relief valve setting.
	Hydraulic pump flow insufficient.	Check hydraulic pump flow.
Wheel saw will not side shift.	Debris obstructing side shift function.	Check area around side shift cylinder for any obstructions.
	Electrical solenoids on wheel saw disconnected or defective.	Check all electrical connections. Repair and / or replace solenoids.
	Control valve on wheel saw damaged or defective.	Repair and / or replace control valve.
Wheel saw depth frame will not lower or raise.	Debris obstructing depth frame movement.	Clean all areas around depth frame.
	Electrical solenoids on wheel saw disconnected or defective.	Check all electrical connections. Repair and / or replace solenoids.
Wheel saw trench cleaner will not lower.	Debris obstructing trench cleaner movement.	Remove the cover. Clean track of debris and obstructions.
	Electrical solenoids on wheel saw disconnected or defective.	Check all electrical connections. Repair and / or replace solenoids.
	Trench not allowing trench cutter to lower.	Cut at least 305 mm (12 in) of trench before attempting to lower the trench cleaner.

TROUBLESHOOTING (CONT'D)

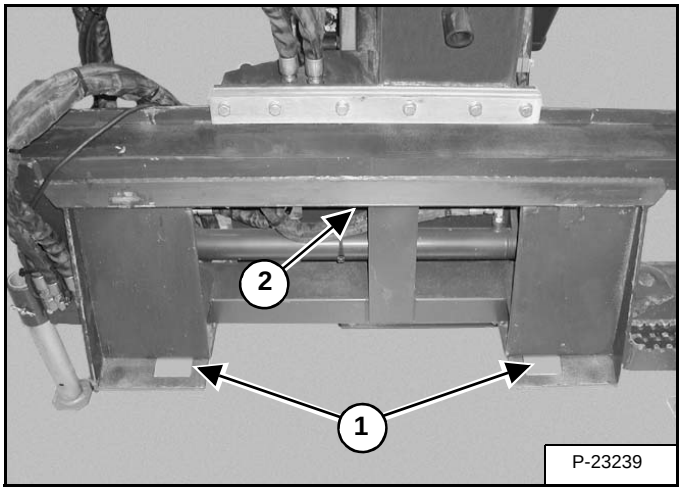
Chart (Cont'd)

PROBLEM	CAUSE	CORRECTION
Trench has excessive debris after cutting operation.	Wheel saw trench cleaner not lowering completely into trench.	See trench cleaner will not lower information above.
Cutting bits wear unevenly.	Bits are not rotating in their housings.	See bit replacement page 10 -10 - 4.
Wheel saw vibrates.	Wheel saw frame not positioned firmly on work surface.	The wheel saw frame should be fully lowered on the work surface.
	Not enough loader weight on the wheel saw.	Raise loader front wheels slightly off of the ground to add additional weight.

DAILY INSPECTION

Attachment Mounting Frame

Figure 10-20-1



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

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

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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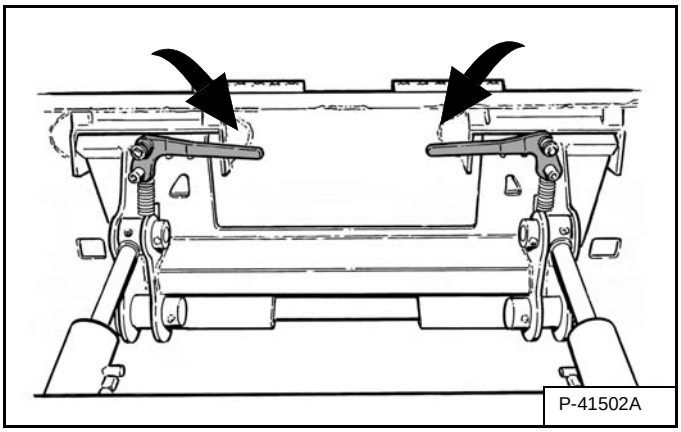
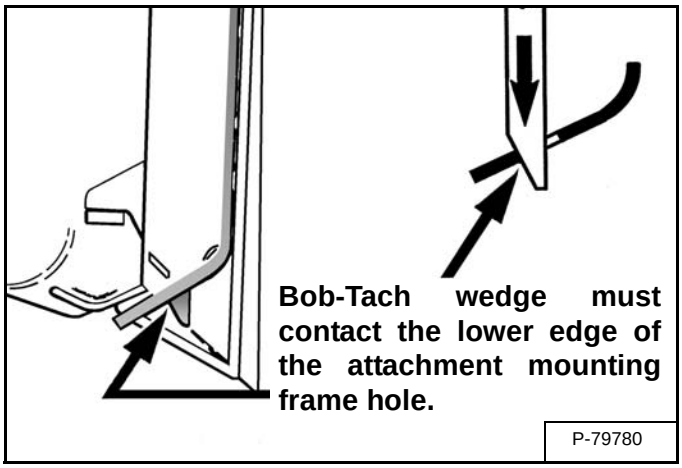
Figure 10-20-2



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 attachment. (See the machine's Operation and 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

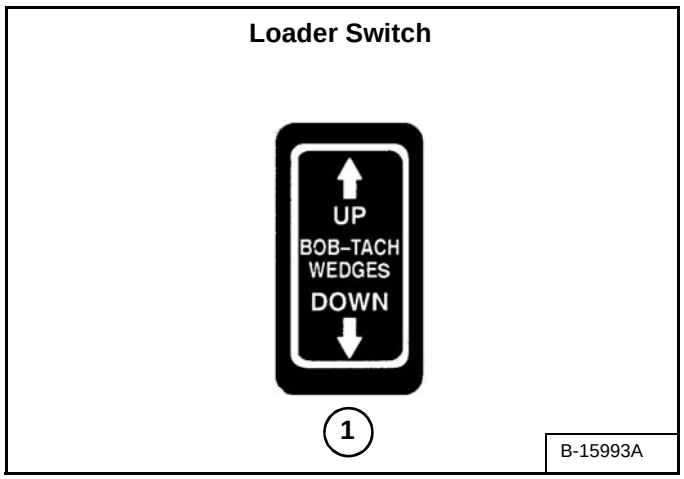
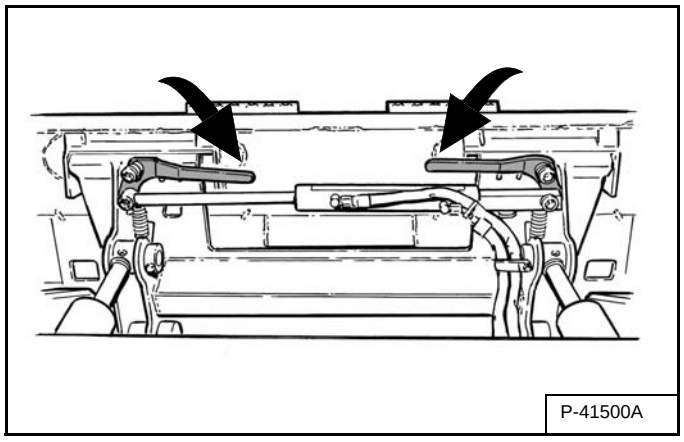
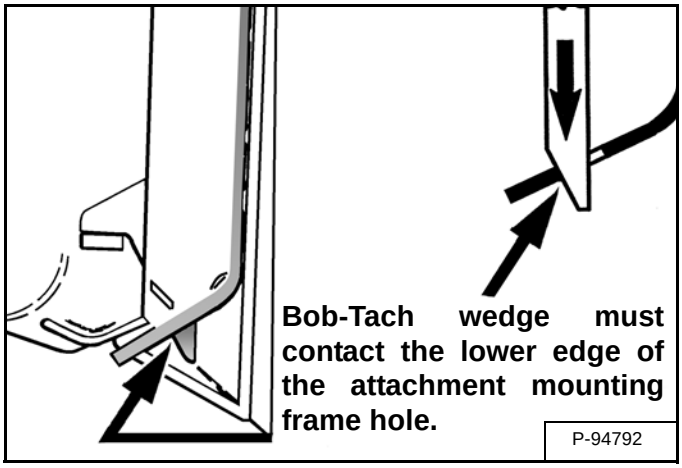


Figure 10-20-5



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

Figure 10-20-6



The wedges must extend through the holes in the attachment mounting frame, securely fastening the attachment to the Bob-Tach **[Figure 10-20-6]**.

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.)

Tool Bit Inspection

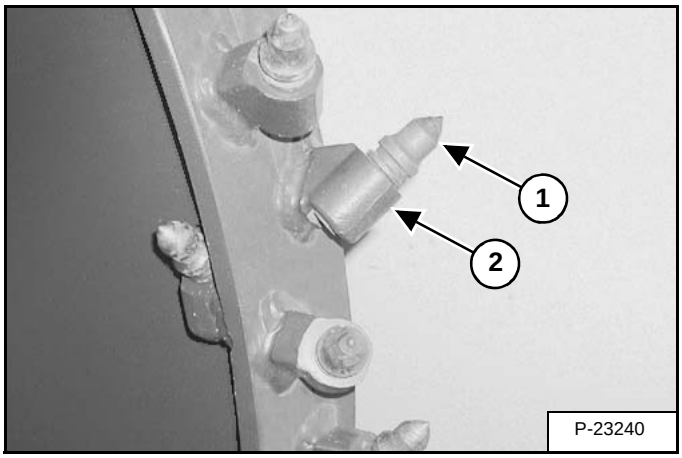
NOTE: The tool bits will be hot if the wheel saw has just been used, allow the tool bits to cool before inspection.

Lower the wheel saw fully to the ground.

Stop the loader and exit the loader.

Disconnect the auxiliary hydraulic hoses before inspecting the tool bits.

Figure 10-20-7



The carbide tool bits (Item 1) must be free rotate in their holders (Item 2) **[Figure 10-20-7]**.

NOTE: During normal use, the bits located on the outer edge will wear out the quickest. Check the bits every three hours of operation.

If the tool bits become seized in the holders it will cause premature tool bit wear. Tap the edges of the holders to loosen dirt and foreign particles. If the bit will still not turn, remove the bit. (See Tool Bit Replacement on Page 10-30-1.)

⚠ 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

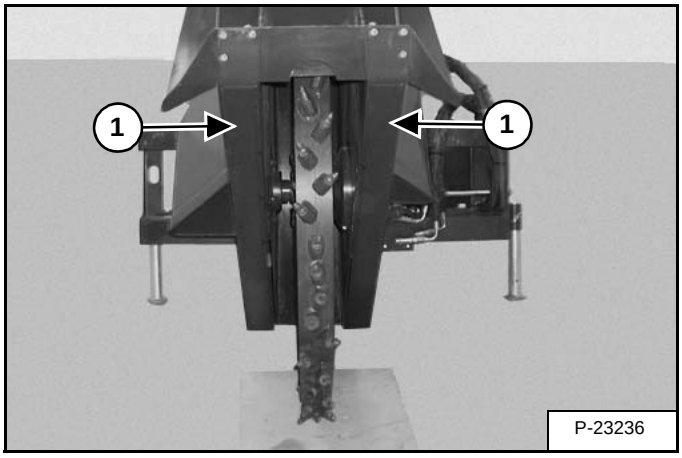
⚠ WARNING

Do not strike the cutter bit with a hammer. The hard bit can shatter and cause serious injury. Use the correct bit installation tool.

W-2114-1191

Wear Plates Inspection

Figure 10-20-8

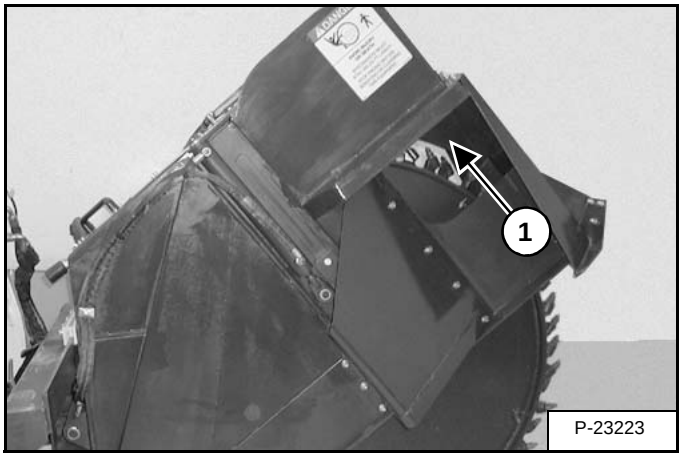


Inspect the two wear plates (Item 1) **[Figure 10-20-8]**.

When these plates get worn thin, grind off the stitch welds and remove the remaining wear plates. (See Wear Plate Replacement on Page 10-30-2.)

Spoil Deflector Inspection

Figure 10-20-9



The spoil deflectors (Item 1) **[Figure 10-20-9]** are subject to abrasion wear as they deflect the spoil.

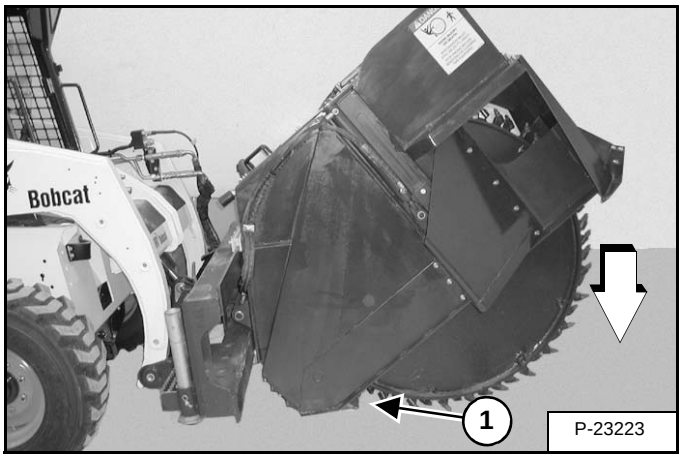
Inspect the deflectors and replace as necessary. (See Spoil Deflector Replacement on Page 10-30-3.)

See your Bobcat dealer for replacement deflectors.

Trench Cleaner Inspection

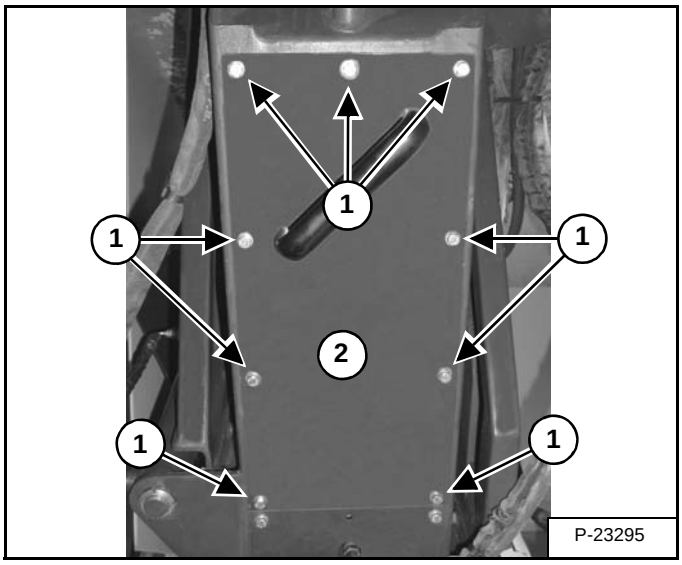
NOTE: The trench cleaner is not available for wheel saws equipped with the 80 mm (3.125 in) width cutting wheel.

Figure 10-20-10



Fully raise the depth frame (Item 1) **[Figure 10-20-10]** and then fully lower the wheel saw to the ground. Stop the loader and exit. Disconnect the auxiliary hydraulic couplers from the loader before servicing.

Figure 10-20-11



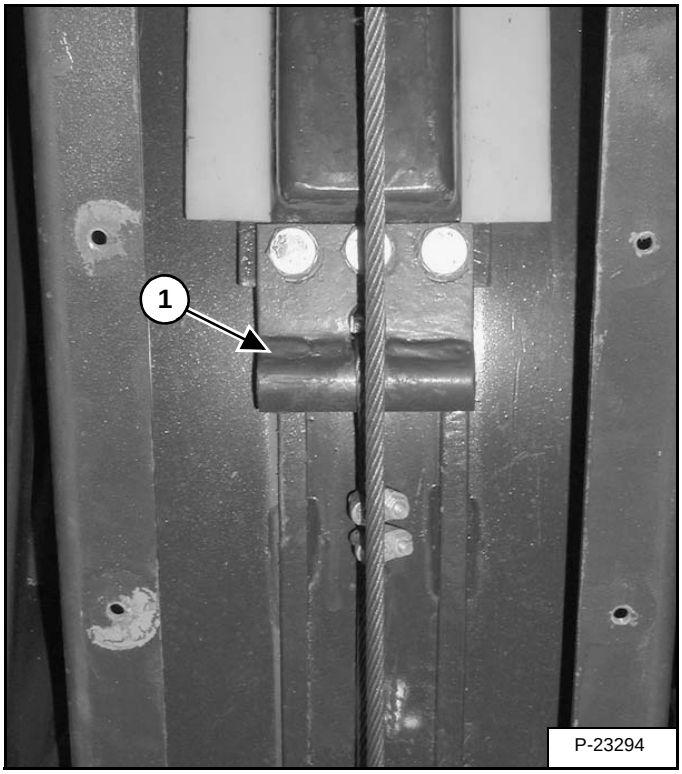
Remove the nine bolts (Item 1) and remove the cover (Item 2) **[Figure 10-20-11]**.

NOTE: WS24 wheel saw shown in [Figure 10-20-11]. The WS18 wheel saw has 7 bolts.

Installation: Tighten the bolts to 20 - 25 N•m (15 - 18 ft-lb) torque.

Trench Cleaner Inspection (Cont'd)

Figure 10-20-12



Inspect the trench cleaner for damage and / or debris in the tracks and lower rollers that can restrict the movement of the trench cleaner.

Clean and / or replace as necessary.

Be careful when cleaning the trench cleaner track, the trench cleaner can drop suddenly. Keep feet out of the trench cleaner area (Item 1) **[Figure 10-20-10]**.

Keep hands out of pinch areas.

Use a rubber mallet and tap on the bracket (Item 1) **[Figure 10-20-12]** to try to free the trench cleaner.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Tool Bit Replacement

NOTE: The tool bits will be hot if the wheel saw has just been used, allow the tool bits to cool before replacing.

Lower the wheel saw fully to the ground.

Stop the loader and exit the loader.

Disconnect the auxiliary hydraulic hoses before inspecting the tool bits.

⚠ 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.**

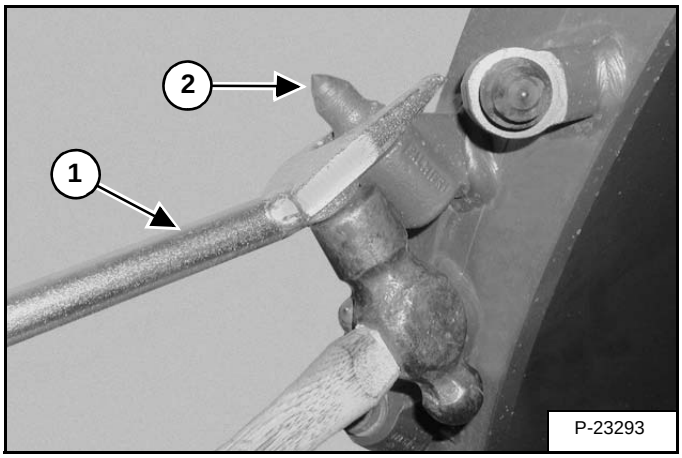
W-2019-0907

⚠ WARNING

Do not strike the cutter bit with a hammer. The hard bit can shatter and cause serious injury. Use the correct bit installation tool.

W-2114-1191

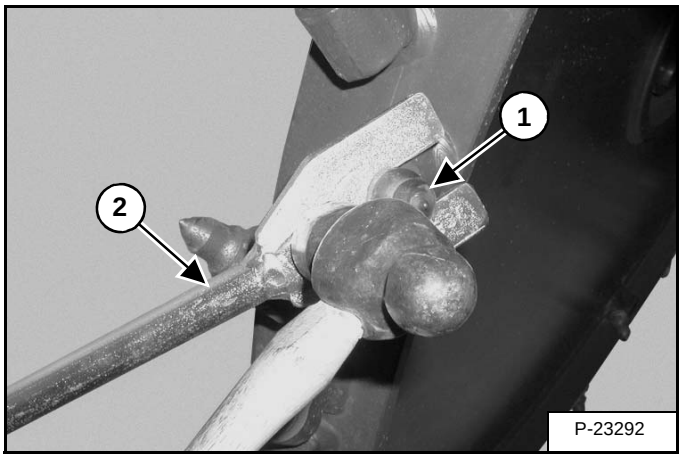
Figure 10-30-1



Use the MEL1302 Bit Removal and Installation Tool (Item 1) (supplied with the wheel saw) and a hammer to remove the tool bits (Item 2) **[Figure 10-30-1]**. Place the tool under the tool bit flange and strike the tool with the hammer to remove the bits.

Clean the debris from inside the holder and from the outside surface of the bit before reinstalling the bit. Make sure the bit turns freely after it has been reinstalled.

Figure 10-30-2

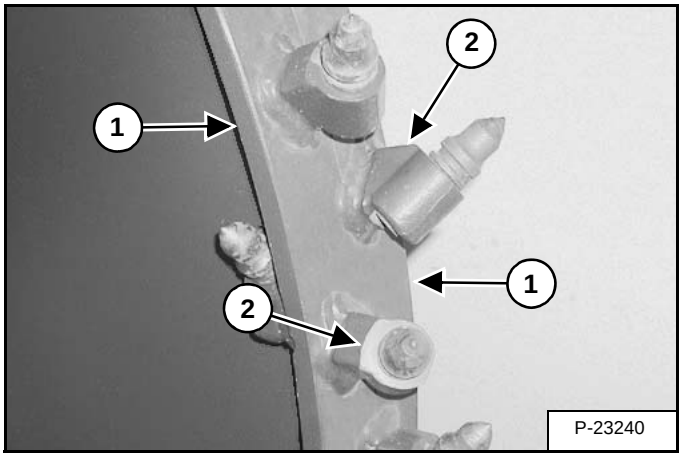


To install the tool bits (Item 1), place the tool (Item 2) **[Figure 10-30-2]** above the tool bit flange and strike the tool with the hammer.

NOTE: Do not lubricate the tool bits and / or the holders. Lubricant will cause dust and dirt to stick to the bit and holder and cause the tool bit to seize.

Hardening The Wheel And Carbide Holders

Figure 10-30-3

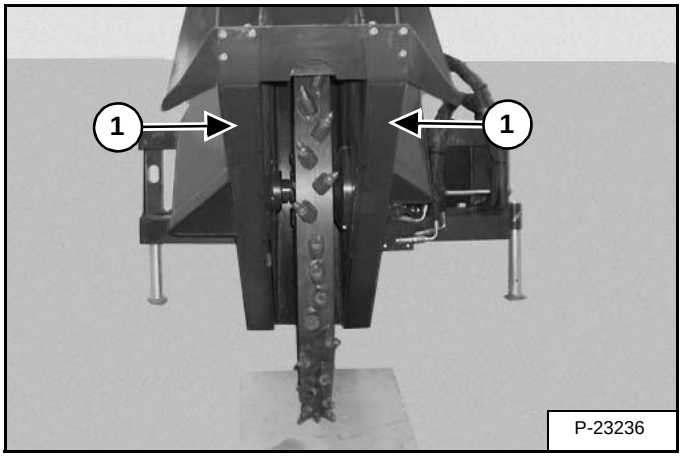


The outer edges of the cutter wheel (Item 1) and the leading edges (Item 2) **[Figure 10-30-3]** of the holders will wear as these surfaces are in contact with the loose spoil.

Apply hard surface welding to these contact edges to prolong the life of the cutter wheel and the holders.

Wear Plate Replacement

Figure 10-30-4



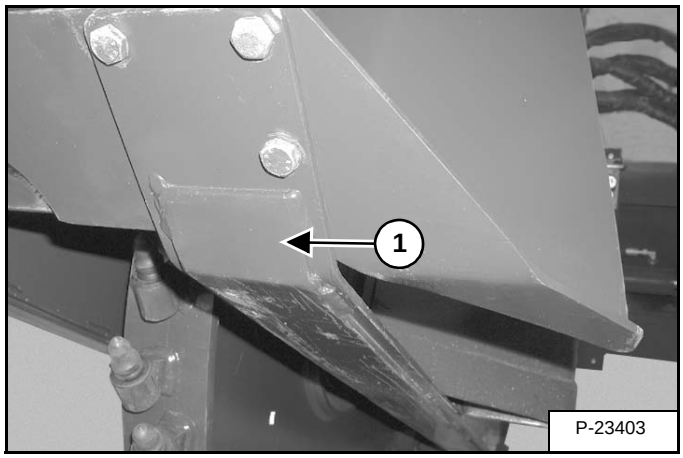
Inspect the two wear plates (Item 1) **[Figure 10-30-4]**.

When these plates get worn thin, grind off the stitch welds and remove the remaining wear plates. (See Tool Bit Replacement on Page 10-30-1.)

Fabricate these replacement wear plates locally.

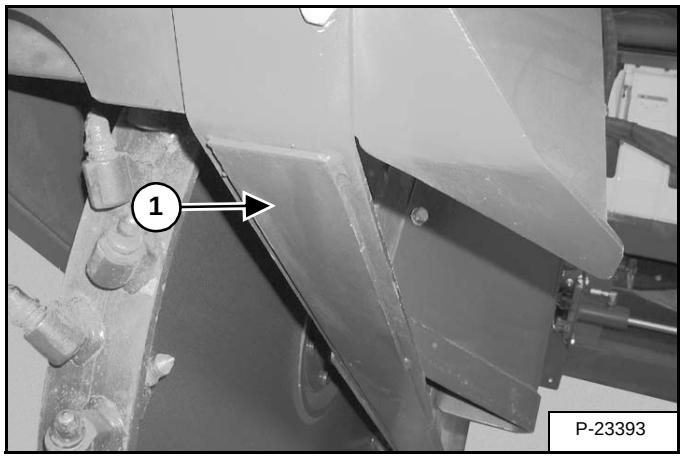
The two wear plates are 6,3 mm (0.25 in) thick.

Figure 10-30-5



The two WS18 wheel saw wear plates (Item 1) **[Figure 10-30-5]** are 82,5 x 1702 mm (3.25 in x 67 in).

Figure 10-30-6

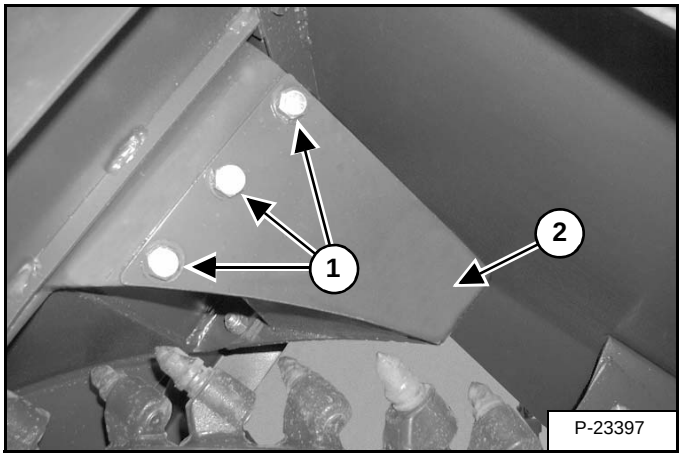


The two WS24 wheel saw wear plates (Item 1) **[Figure 10-30-6]** are 82,5 x 1626 mm (3.25 in x 64 in).

Fasten the wear plates to the frame with clamps and stitch weld the new plates to the wheel saw frame.

Spoil Deflector Replacement

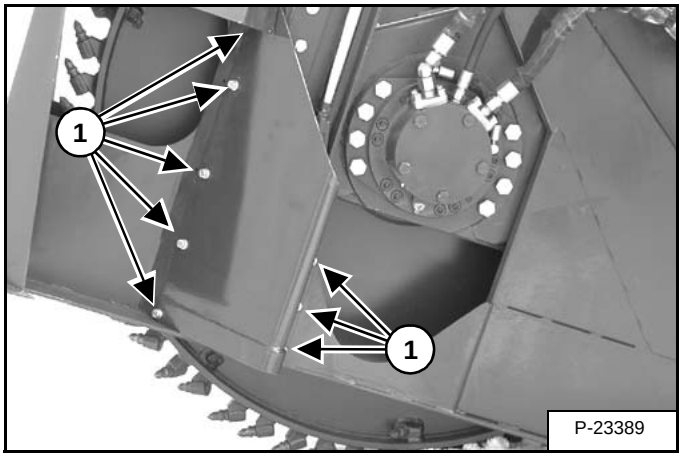
Figure 10-30-7



Remove the six bolts (Item 1) from the deflector and remove the deflector (Item 2) **[Figure 10-30-7]**.

Installation: Tighten the bolts to 65 - 75 N•m (48 - 55 ft-lb) torque.

Figure 10-30-8



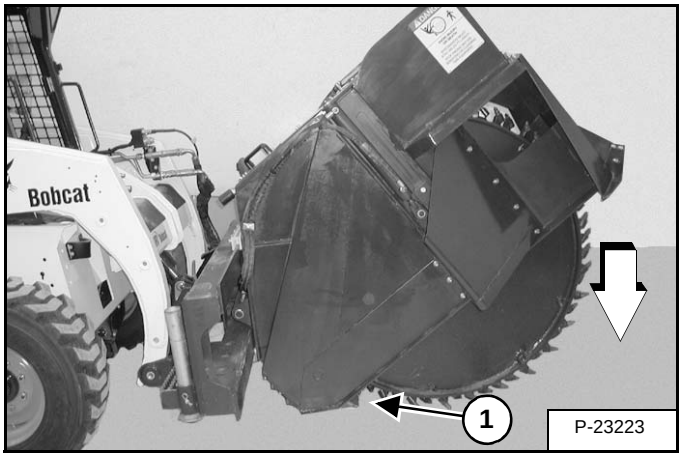
Remove the eight bolts (Item 1) **[Figure 10-30-8]** and remove the deflector(s) (the deflectors are on both sides of the wheel saw).

Installation: Tighten the bolts to 40 - 50 N•m (30 - 37 ft-lb) torque.

Cleaning The Trench Cleaner

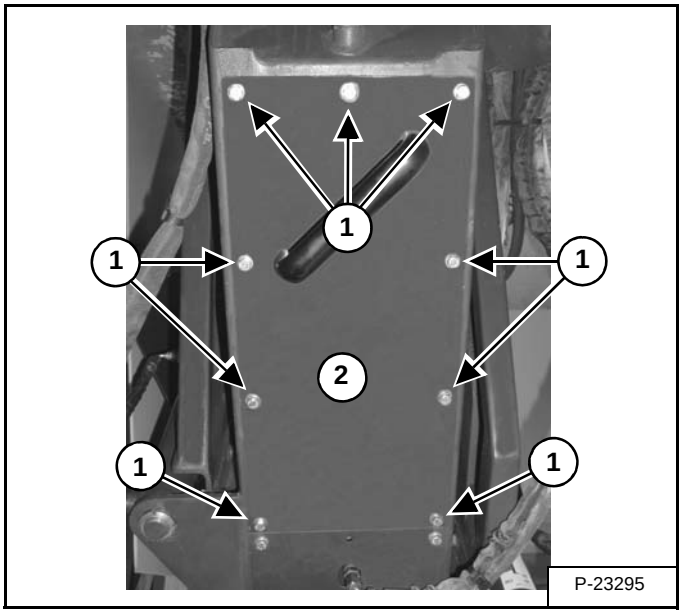
NOTE: The trench cleaner is not available for wheel saws equipped with the 80 mm (3.125 in) width cutting wheel.

Figure 10-30-9



Fully raise the depth frame (Item 1) **[Figure 10-30-9]** and then fully lower the wheel saw to the ground. Stop the loader and exit. Disconnect the auxiliary hydraulic couplers from the loader before servicing.

Figure 10-30-10



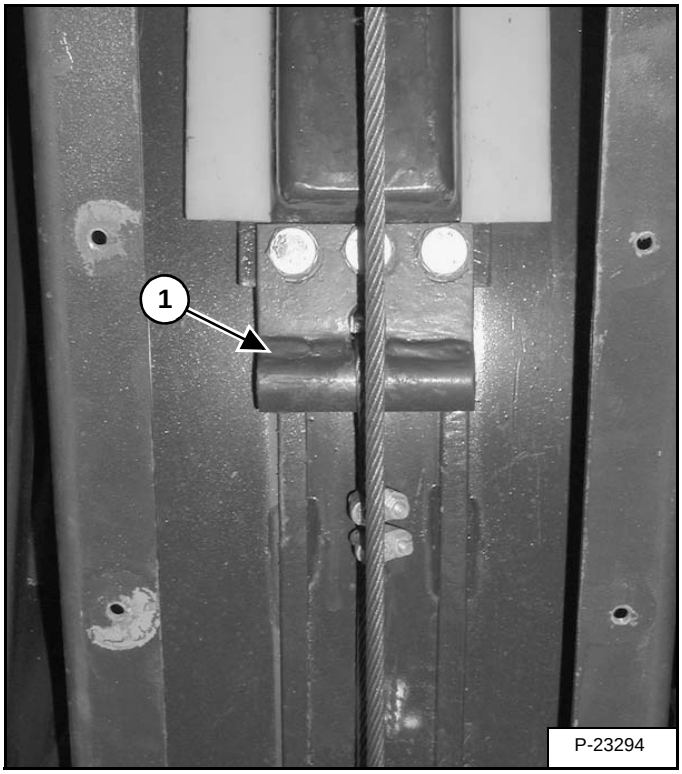
Remove the nine bolts (Item 1) and remove the cover (Item 2) **[Figure 10-30-10]**.

NOTE: WS24 wheel saw shown in [Figure 10-30-10]. The WS18 wheel saw has 7 bolts.

Installation: Tighten the bolts to 20 - 25 N•m (15 - 18 ft-lb) torque.

Cleaning The Trench Cleaner (Cont'd)

Figure 10-30-11



Clean and / or replace as necessary.

Be careful when cleaning the trench cleaner track, the trench cleaner can drop suddenly. Keep feet out of the trench cleaner area (Item 1) **[Figure 10-30-9]**.

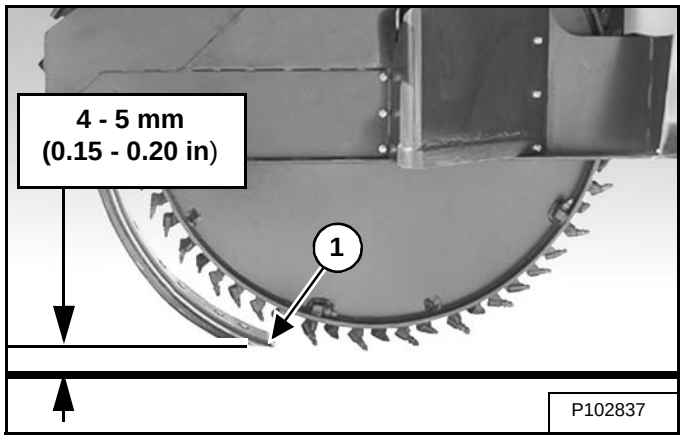
Keep hands out of pinch areas.

Use a rubber mallet and tap on the bracket (Item 1) **[Figure 10-30-11]** to try to free the trench cleaner.

Trench Cleaner Adjustment

NOTE: The trench cleaner is not available for wheel saws equipped with the 80 mm (3.125 in) width cutting wheel.

Figure 10-30-12



The correct clearance between the bottom of the trench and the cutting surface (Item 1) **[Figure 10-30-12]** of the trench cleaner should be 4 - 5 mm (0.15 - 0.20 in).

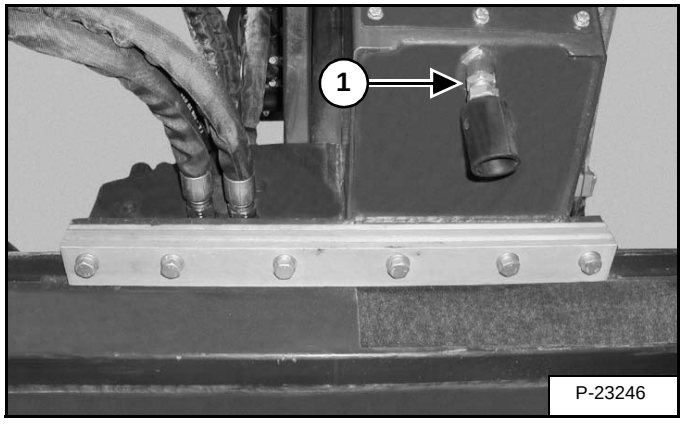
Raise the wheel saw and have the bottom edge of the wheel saw parallel to the ground **[Figure 10-30-12]**. Lower the wheel saw until the cutting bits are touching the ground.

Lower the trench cleaner fully.

Have a second person use a piece of wood or a steel plate 4 - 5 mm (0.15 - 0.20 in) thick to slide under the trench cleaner blade to check the clearance.

If the clearance needs to be adjusted, retract the trench cleaner completely. Lower the wheel saw fully to the ground. Stop the loader.

Figure 10-30-13



Tighten the nut (Item 1) **[Figure 10-30-13]** to increase the clearance or loosen the nut to decrease the clearance.

Recheck the trench cleaner clearance and readjust as needed.

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 below 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.


Bobcat®

HYDRAULIC SYSTEM

HYDRAULIC CYLINDER 20-10-1
- Depth Control Cylinder - Checking 20-10-1
- Depth Control Cylinder Removal And Installation 20-10-2
- Depth Control Cylinder Parts Identification 20-10-5
- Depth Control Cylinder Disassembly 20-10-6
- Depth Control Cylinder Assembly 20-10-8
- Side Shift Cylinder - Checking 20-10-13
- Side Shift Cylinder Removal And Installation 20-10-14
- Side Shift Cylinder Parts Identification 20-10-17
- Side Shift Cylinder Disassembly 20-10-18
- Side Shift Cylinder Assembly 20-10-20
- Trench Cleaner Cylinder - Checking 20-10-25
- Trench Cleaner Cylinder Removal And Installation 20-10-26
- Trench Cleaner Cylinder Parts Identification 20-10-28
- Trench Cleaner Cylinder Disassembly 20-10-29
- Trench Cleaner Cylinder Assembly 20-10-31

HYDRAULIC CONTROL VALVE (S/N 991800662 & BELOW, S/N 991900905 & BELOW) 20-20-1
- Removal And Installation 20-20-1
- Parts Identification 20-20-3
- Disassembly 20-20-4
- Assembly 20-20-11

HYDRAULIC CONTROL VALVE (S/N 991800663 & ABOVE, S/N 991900906 & ABOVE) 20-21-1
- Removal And Installation 20-21-1
- Parts Identification 20-21-4
- Disassembly 20-21-6
- Assembly 20-21-9

HYDRAULIC MOTOR 20-30-1
- Removal And Installation 20-30-1
- Parts Identification 20-30-4
- Disassembly 20-30-5
- Assembly 20-30-10