

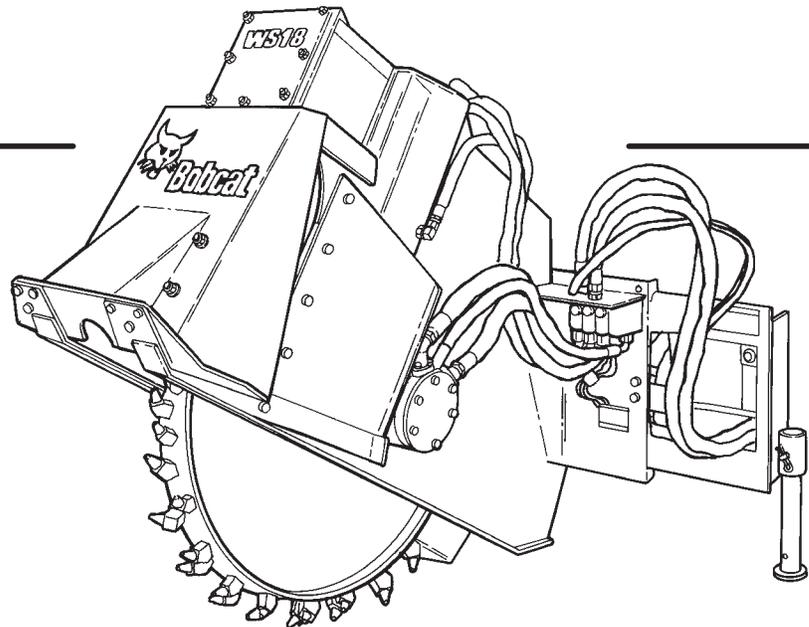
**Wheel  
Saw  
WS18  
WS24**



**Bobcat®**

# Service Manual

**S/N 991800101 & Above  
S/N 991900101 & Above**



Product: 2001 Bobcat WS18/WS24 Wheel Saw Service Repair Workshop Manual  
Full Download: <https://www.arepairmanual.com/downloads/2001-bobcat-ws18-ws24-wheel-saw-service-repair-workshop-manual/>

Sample of manual. Download All 126 pages at:  
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# MAINTENANCE SAFETY



## WARNING

Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.

W-2003-0903



**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.



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**SAFETY AND  
MAINTENANCE**

**HYDRAULIC  
SYSTEM**

**MAIN  
FRAME**

**SPECIFICATIONS  
AND  
SCHEMATICS**

**CALIFORNIA  
PROPOSITION 65 WARNING**

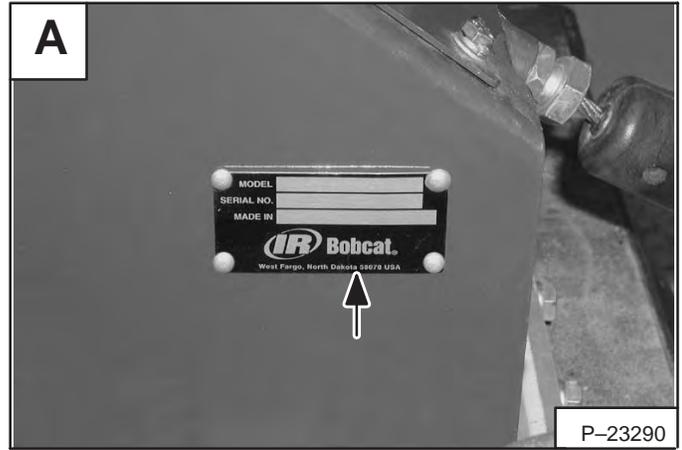
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



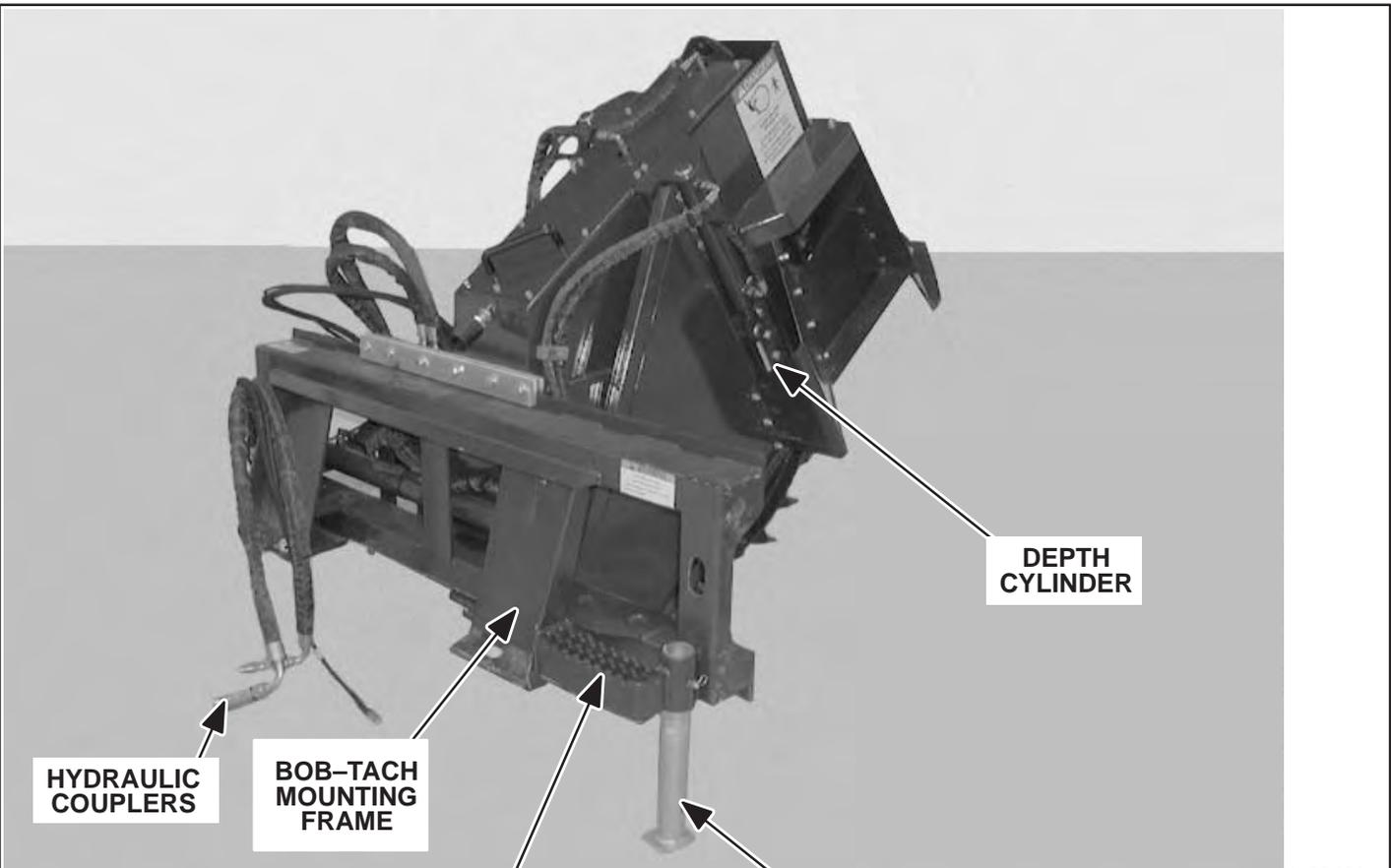
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## SERIAL NUMBER LOCATION

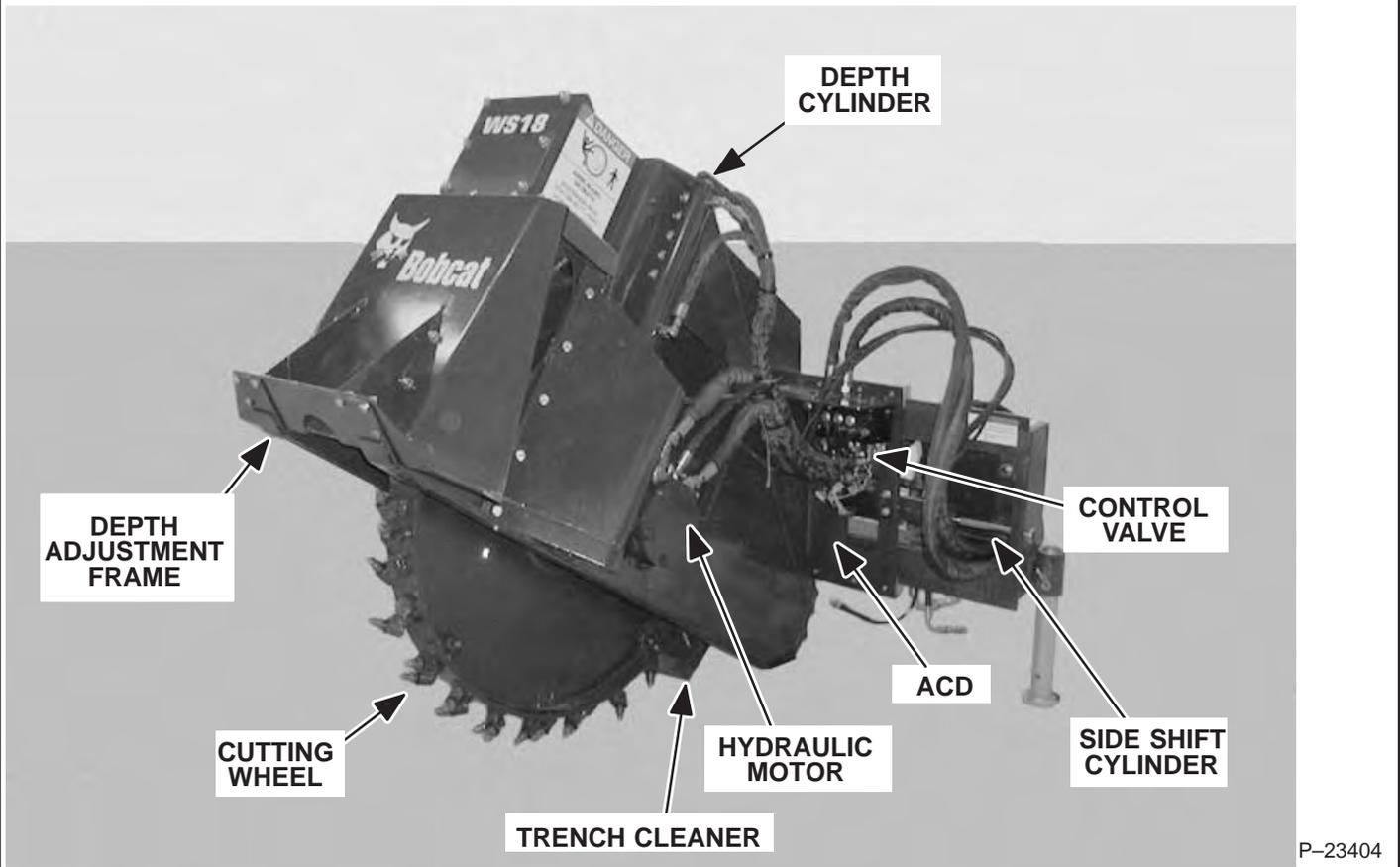
Always use the serial number of the machine when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation [A].



PARTS IDENTIFICATION – WS18

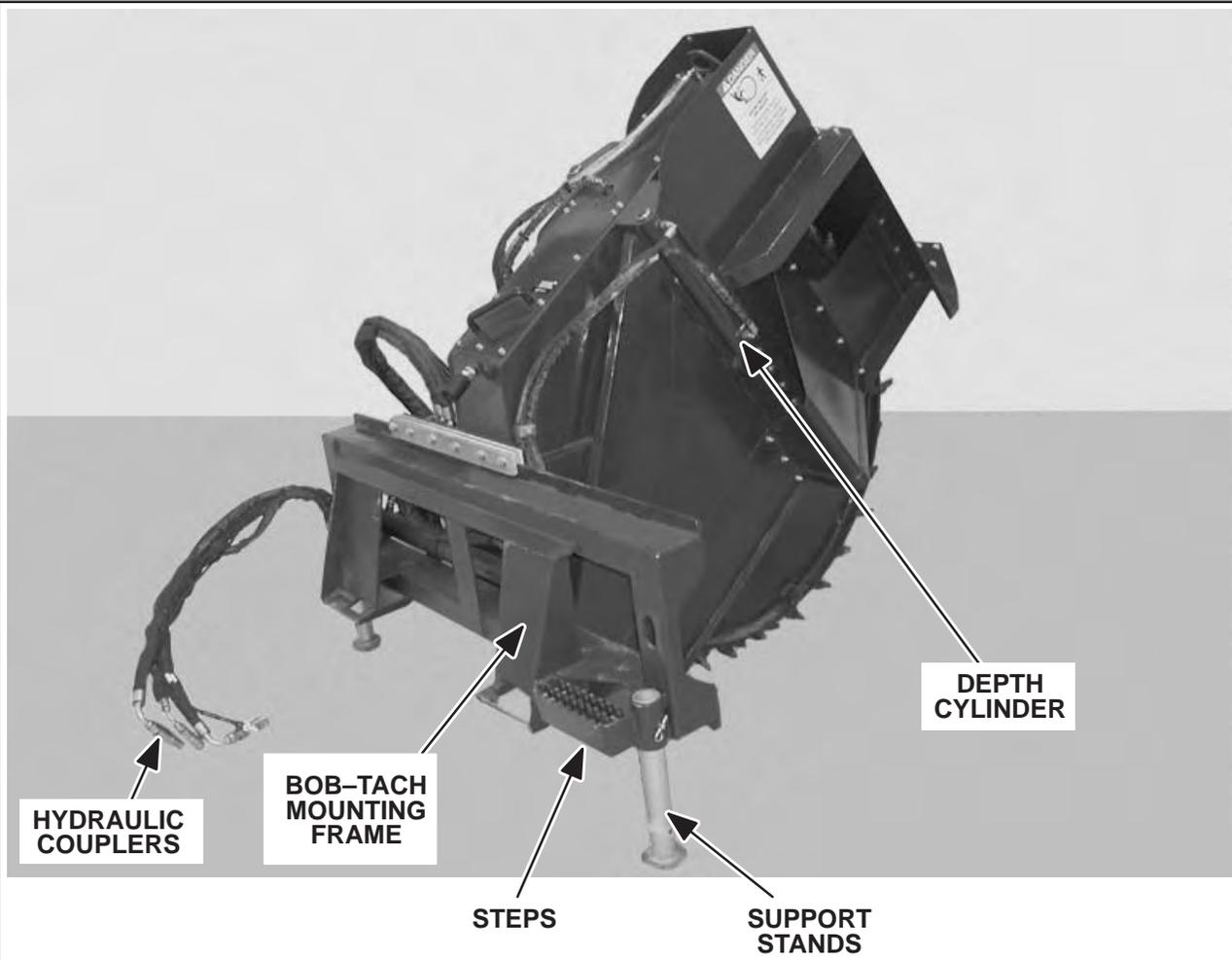


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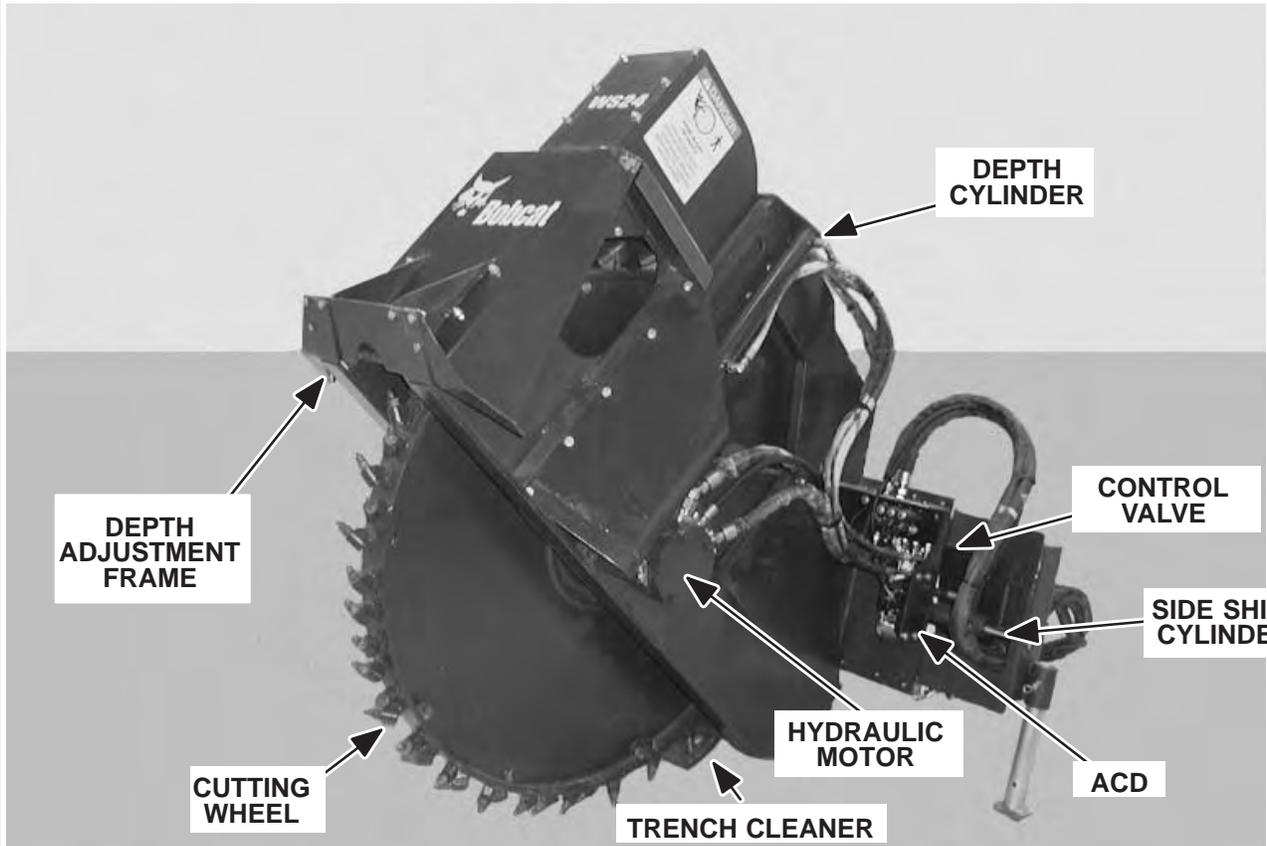


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PARTS IDENTIFICATION – WS24



P-23208



P-23209



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**SAFETY AND MAINTENANCE**

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## TROUBLESHOOTING

### **WARNING**

Instructions are necessary before operating or servicing machine, Read Operation & Maintenance Manual, 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. Failure to follow instructions can cause injury or death.

W-2003-0199

If the Wheel Saw is not working correctly, check the hydraulic system of the loader thoroughly before making any repairs on the Wheel Saw. Wheel Saw problems can be affected by a hydraulic system that is not operating to specifications.

If the loader operation is found to be correct, use the following troubleshooting chart to locate and correct problems with the Wheel Saw.

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 12" (305 mm) of trench before attempting to lower the trench cleaner.
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.

## INSPECTION

### Hand Lever Bob-Tach Inspection

Move the Bob-Tach levers to engage the wedges [A]. The levers and wedges must move freely.

The wedges must extend through the holes in the attachment mounting frame (Item 1) [A].

## 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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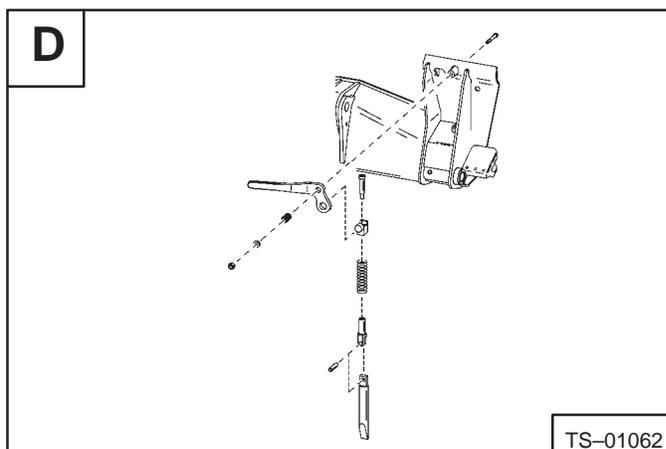
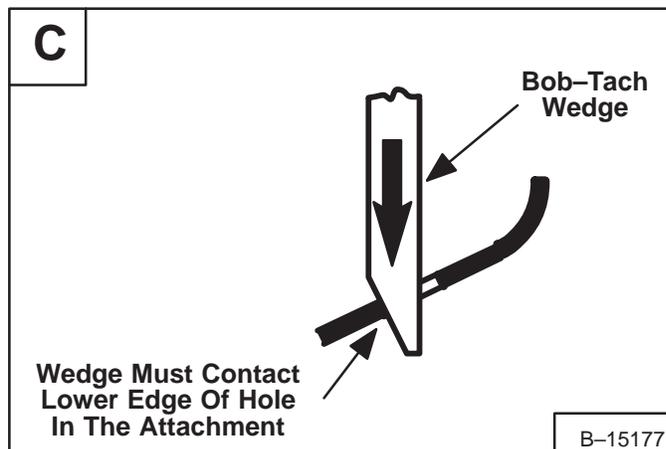
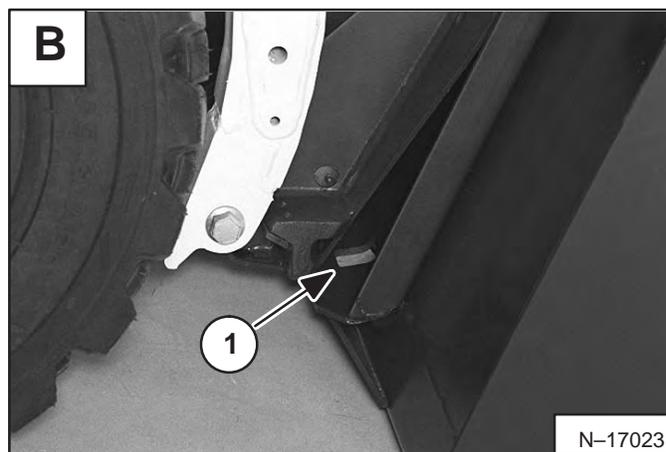
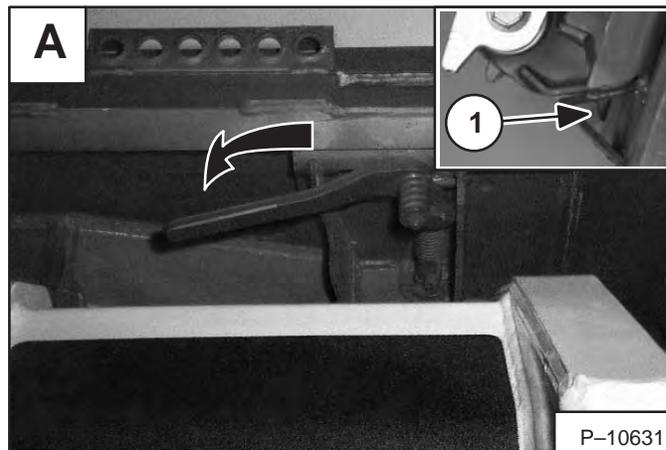
The spring loaded wedge (Item 1) [A] must contact the lower edge of the hole in the attachment (Item 1) [B] and [C].

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

Inspect the mounting frame on the attachment and the Bob-Tach, linkages and wedges for excessive wear or damage [D]. 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.

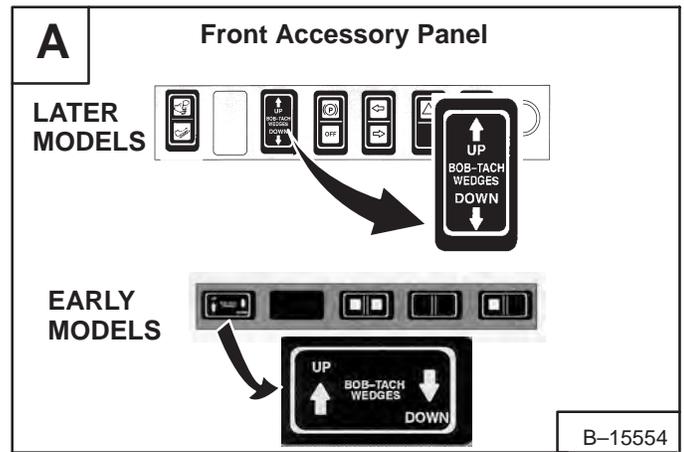
Lubricate the wedges (See the correct loader Operation And Maintenance Manual for *LUBRICATION OF THE BOBCAT LOADER*).



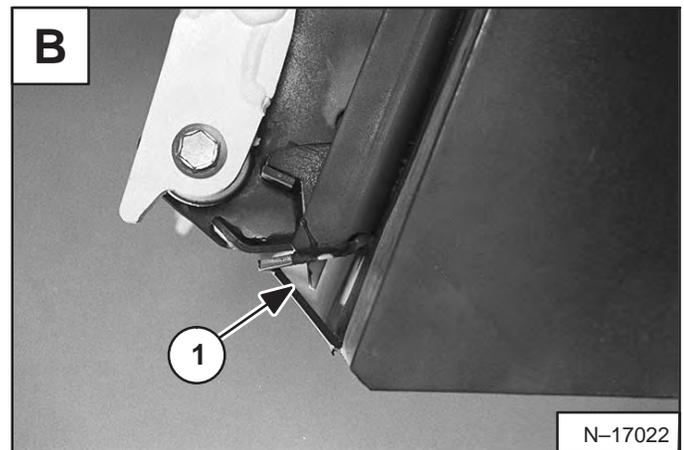
## INSPECTION (Cont'd)

### Power Bob-Tach Inspection

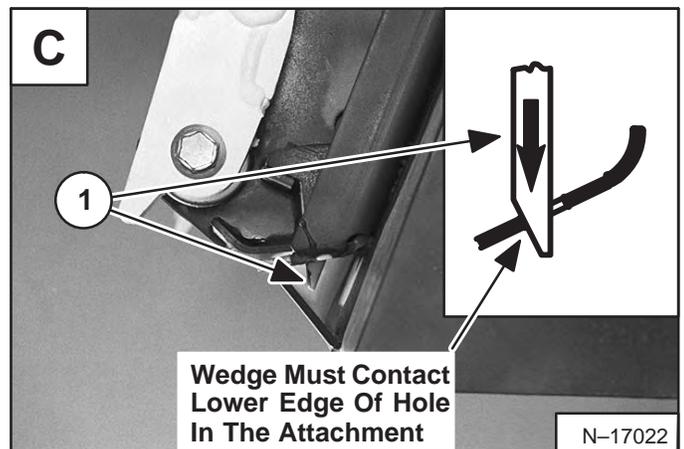
Push and hold the Bob-tach “wedges up” switch [A] until wedges are fully raised. Push and hold the Bob-tach “wedges down” switch [A] until the wedges are fully down. the wedges must move freely.



The wedges must extend through the holes in the attachment mounting frame (Item 1) [B] and must contact the lower edge of the hole in the attachment [B] and (Item 1) [C].

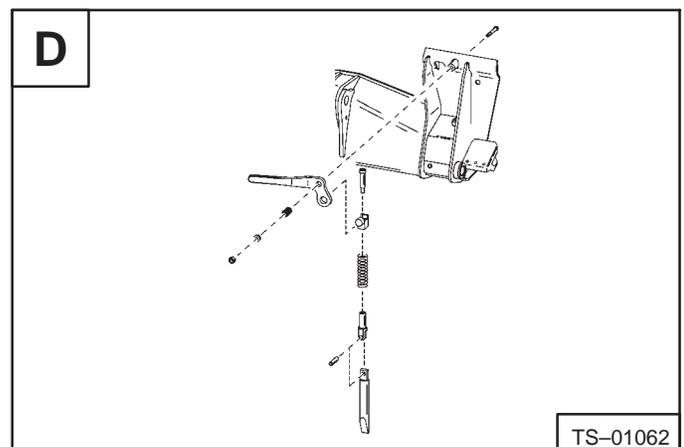


If the wedge does not contact the lower edge of the hole [C], the attachment will be loose and can come off the Bob-tach.



Inspect the mounting frame on the attachment and the Bob-tach, linkages and wedges for excessive wear or damage [D]. 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.



## INSPECTION (Cont'd)

### Wheel Saw Mount Inspection

Inspect the Bob-Tach wedge mounts (Item 1) [A], mounting flange (Item 2) [A] and all welds on the Wheel Saw mount for wear and damage each time the Wheel Saw is removed from the loader.

### Tool Bit Inspection and Replacement

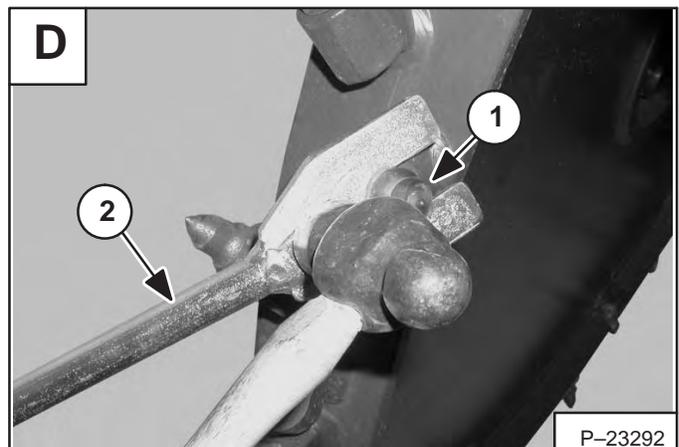
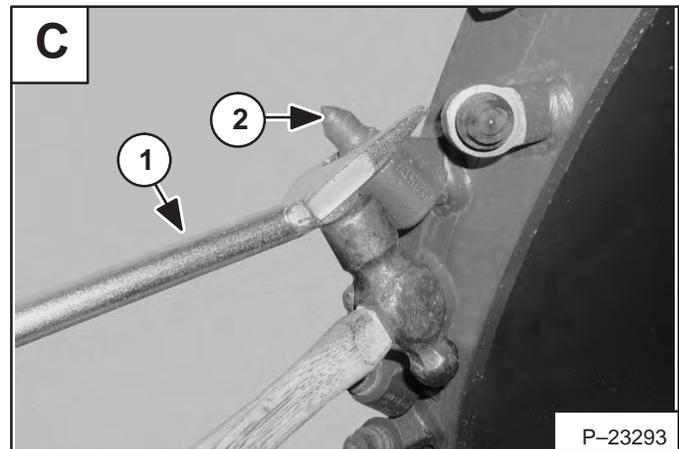
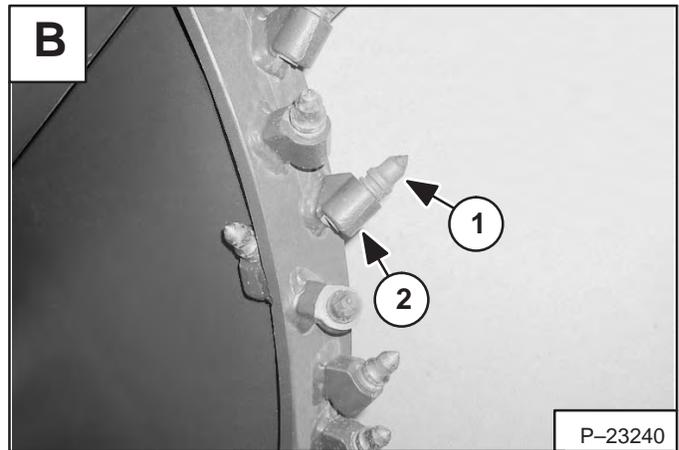
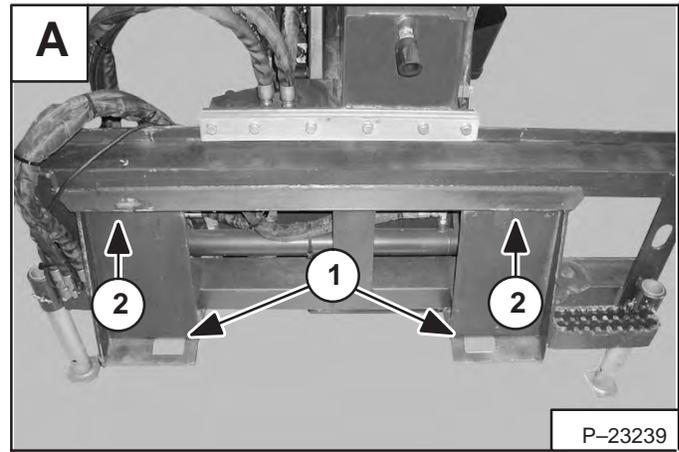
The tool bits will be hot if the wheel saw has just been used, allow the tool bits to cool before inspection.

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.

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

The carbide tool bits (Item 1) [B] must be free rotate in their holders (Item 2) [B].

If the tool bits (Item 1) [B] become seized in the holders (Item 2) [B] 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.



## WARNING

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-2019-1285

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

Use the MEL1302 Bit Removal and Installation Tool (Item 1) [C] (supplied with the wheel saw) and a hammer to remove the tool bits (Item 2) [C]. 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.

To install the tool bits (Item 1) [D], place the tool (Item 2) [D] above the tool bit flange and strike the tool with the hammer.

**NOTE: Do not strike the tool bit with the hammer. The hard tool bit tip can shatter and cause injury. Always use the removal and installation tool to remove and install the tool bits.**

**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.**

## INSPECTION (Cont'd)

### Hardening The Wheel And Carbide Holders.

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

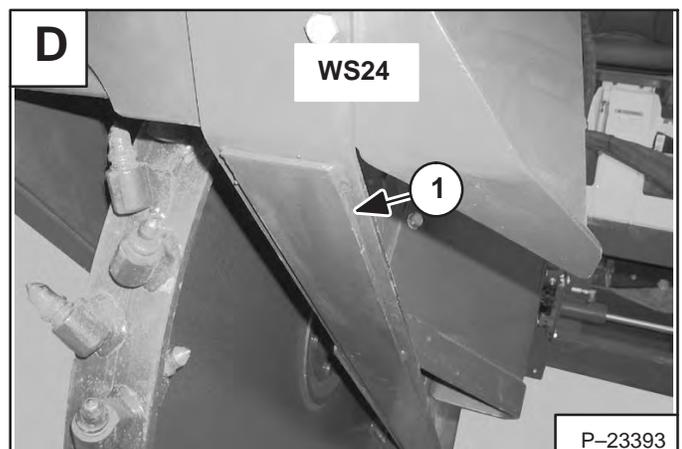
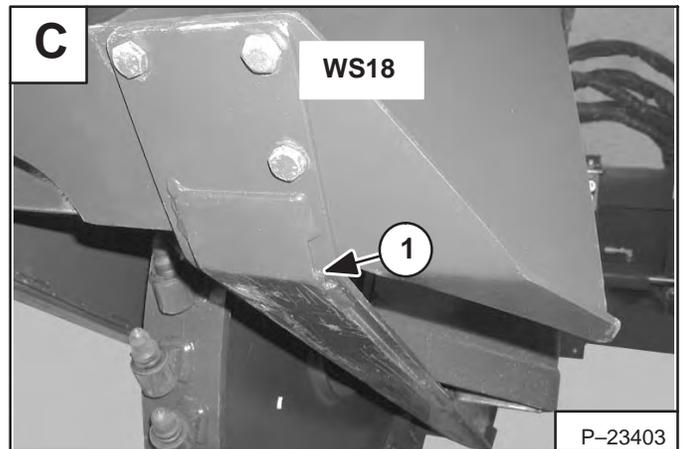
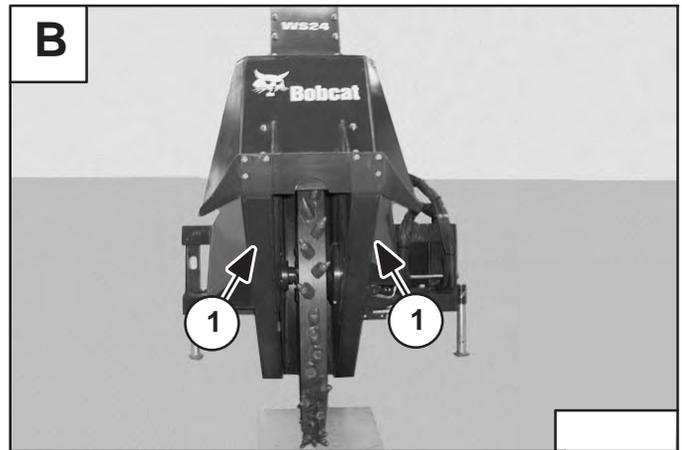
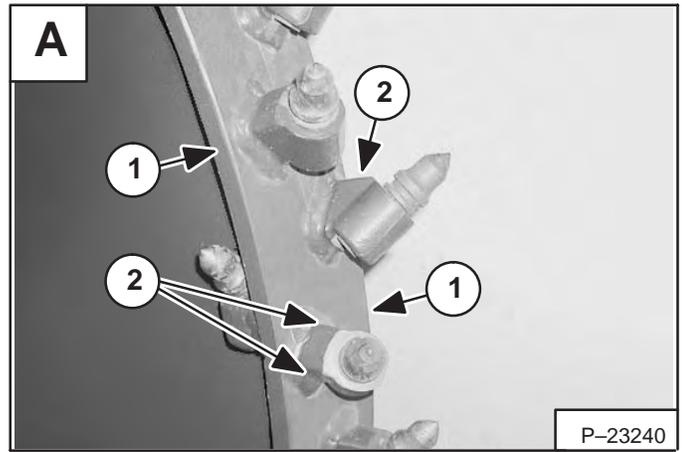
Apply hard surface welding to these contact edges to prolong the life of the cutter wheel and the holders.

### Wear Plates Inspection And Replacement

Inspect the wear plates (Item 1) **[B]**, **[C]** & **[D]**.

When these plates get worn thin, grind off the stitch welds and remove the remaining wear plates.

The two wear plates (Item 1) **[B]** are 1/4 inch (6,3 mm) thick: The WS18 (Item 1) **[C]** is 3-1/4 x 67 inches (82,5 x 1702 mm); The WS24 (Item 1) **[D]** is 3-1/4 x 64 inches (82,5 x 1626 mm). Fabricate these replacement wear plates locally. Fasten the wear plates to the frame with clamps and stitch weld the new plates to the wheel saw frame.



## INSPECTION (Cont'd)

### Spoil Deflectors Inspection And Replacement

The spoil deflectors (Item 1) **[A]** and (Item 2) **[B]** are subject to abrasion wear as they deflect the spoil.

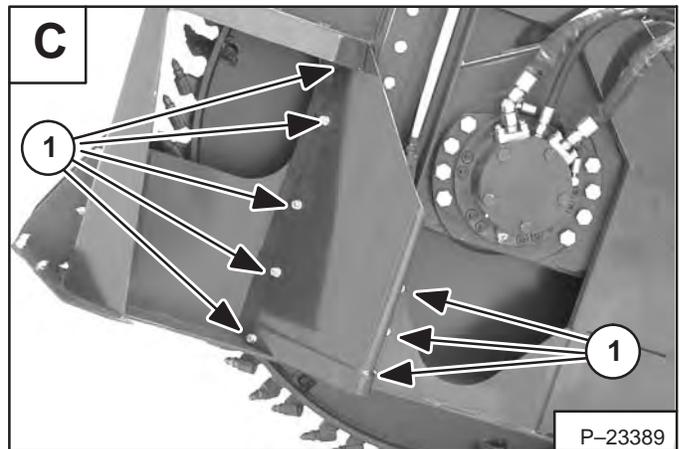
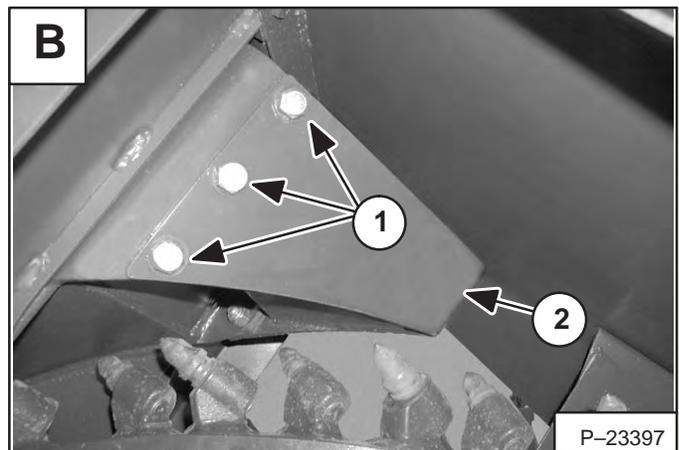
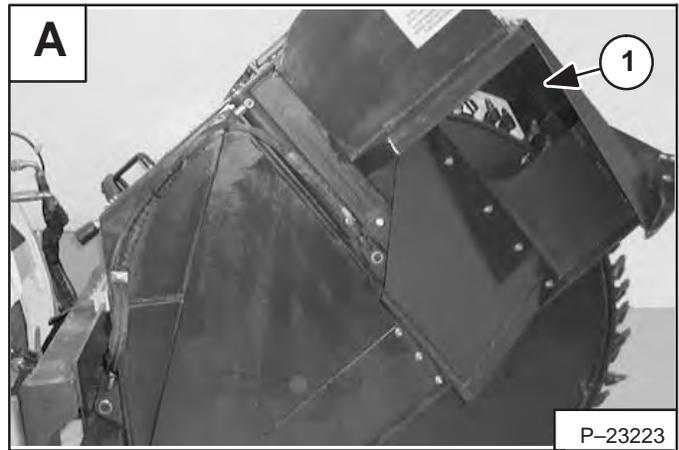
Inspect the deflectors and replace as necessary. Replacement deflectors are available from your Bobcat dealer.

Remove the six bolts (Item 1) **[B]** from the deflector and remove the deflector (Item 2) **[B]**.

*Installation:* Tighten the bolts to 48 – 55 ft.-lbs. (65 – 75 Nm) torque.

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

*Installation:* Tighten the bolts to 30 – 37 ft.-lbs. (40 – 50 Nm) torque.

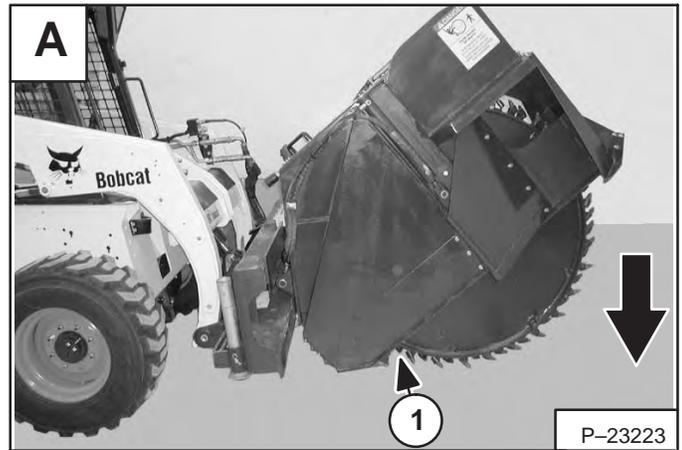


## INSPECTION (Cont'd)

### Trench Cleaner Inspection And Cleaning

**NOTE:** The trench cleaner is not available for Wheel Saws equipped with the 3-1/8" (80mm) width cutting wheel.

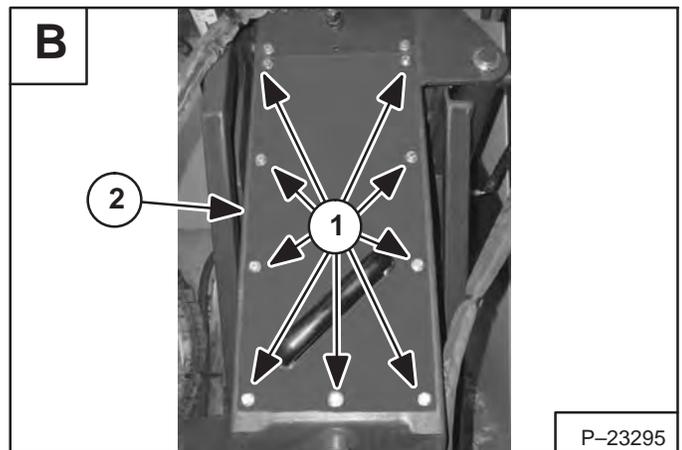
Fully raise the depth frame and then fully lower the wheel saw to the ground. Stop the loader and exit. Disconnect the auxiliary hydraulic couplers from the loader before servicing.



Remove the nine bolts (Item 1) [B] and remove the cover (Item 2) [B].

**NOTE:** The WS 18 has 7 bolts and the WS 24 has 9 bolts.

*Installation:* Tighten the bolts to 15 – 18 ft.-lbs. (20 – 25 Nm) torque.



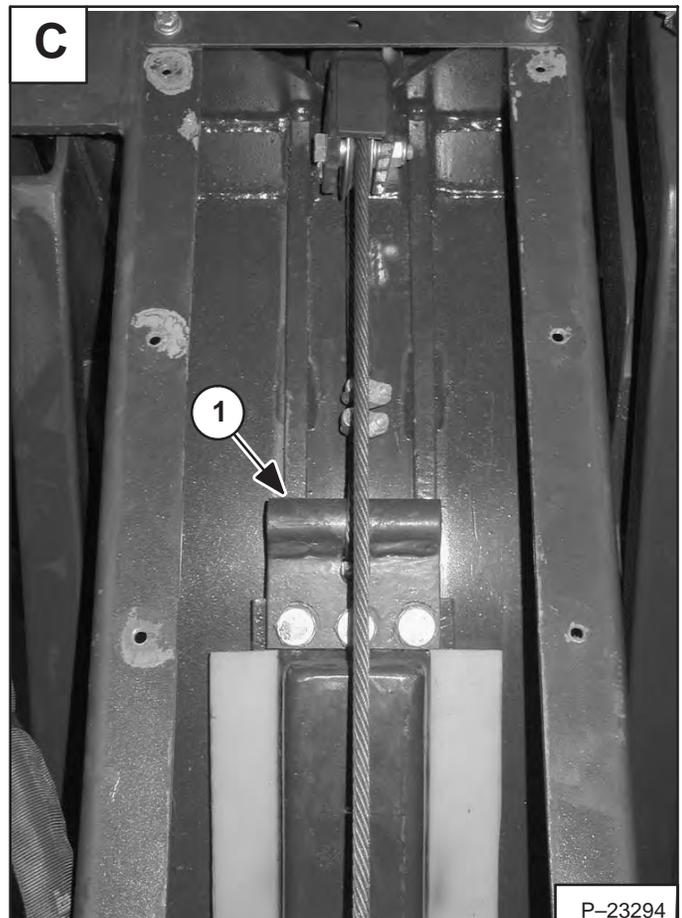
Inspect the trench cleaner for damage and/or debris in the tracks and lower rollers that can restrict the movement of the trench cleaner.

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) [A].

Keep hands out of pinch areas.

Use a rubber mallet and tap on the bracket (Item 1) [C] to try to free the trench cleaner.



## TRENCH CLEANER ADJUSTMENT

**NOTE:** The trench cleaner is not available for Wheel Saws equipped with the 3-1/8" (80mm) width cutting wheel.

The correct clearance between the bottom of the trench and the cutting surface (Item 1) **[A]** of the trench cleaner should be 0.15 – 0.20 inch (4 – 5 mm).

Raise the wheel saw and have the bottom edge of the wheel saw parallel to the ground **[A]**. Lower the wheel saw until the cutting bits are touching the ground.

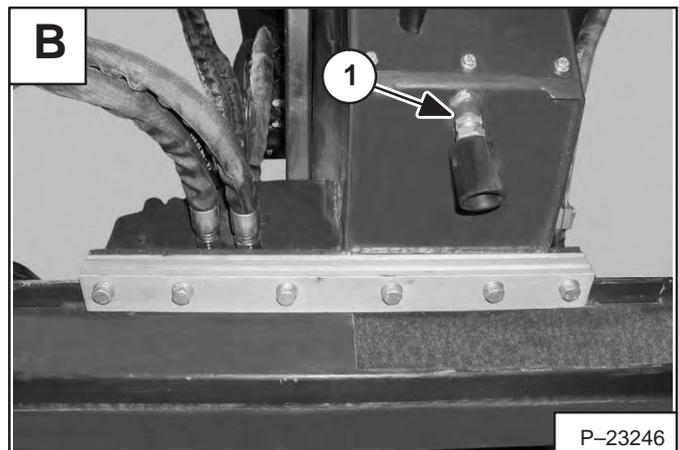
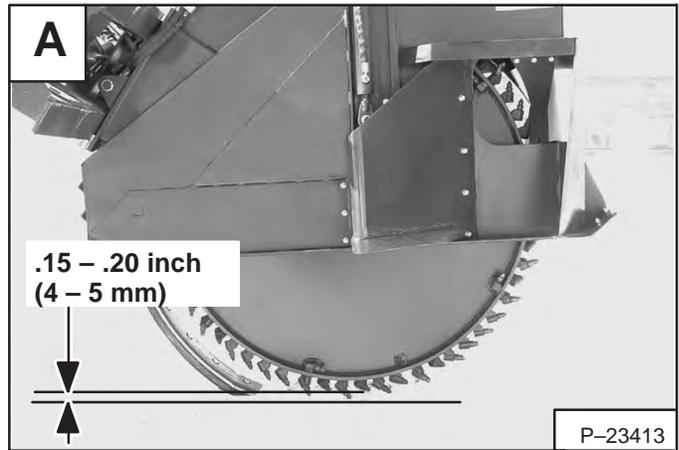
Lower the trench cleaner fully.

Have a second person use a piece of wood or a steel plate 0.15 – 0.20 inch (4 – 5 mm) 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.

Tighten the nut (Item 1) **[B]** to increase the clearance or loosen the nut (Item 1) **[B]** to decrease the clearance.

Recheck the trench cleaner and readjust as needed.



## HYDRAULIC SYSTEM

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## HYDRAULIC SYSTEM



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## HYDRAULIC CYLINDER

### Depth Control Cylinder Checking

**NOTE:** The cutting wheel will spin momentarily whenever a control switch is released.

Retract the depth control cylinders (Item 1) [A] and lower the attachment to the ground.

## WARNING

Before you leave the operator's seat:

- Lower the lift arms, put the attachment flat on the ground.
- Stop the engine.
- Engage the parking brake.
- Raise seat bar.
- *(Foot Pedal Controls)* Move pedals until both lock.
- *(Mechanical Hand Controls)* Move the hand controls until both lock. The seat bar system must lock the lift and tilt controls in neutral when the seat bar is up. Service the system if hand controls do not lock correctly.
- *(Advanced Hand Controls)* Move the hand controls to the NEUTRAL POSITION to make sure that both lift and tilt functions are deactivated. The seat bar system must deactivate the lift and tilt control functions when the seat bar is up. Service the system if hand controls do not deactivate.

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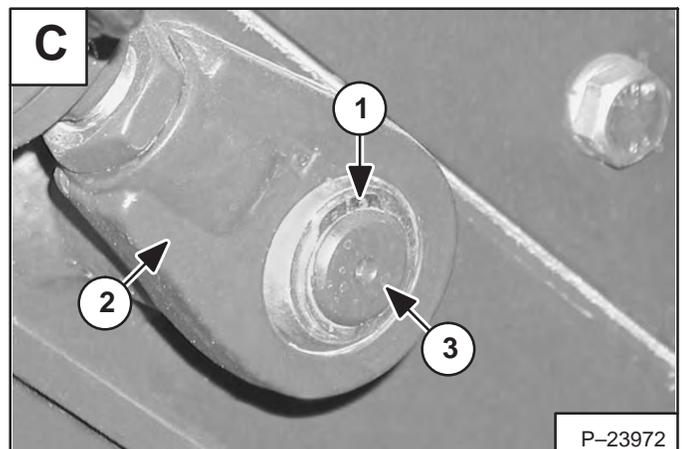
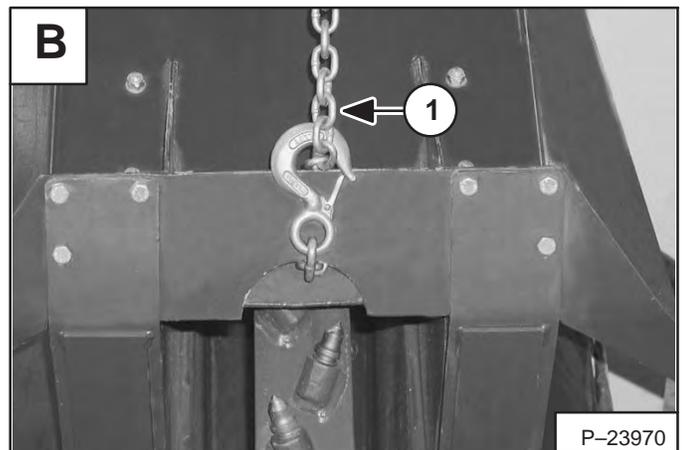
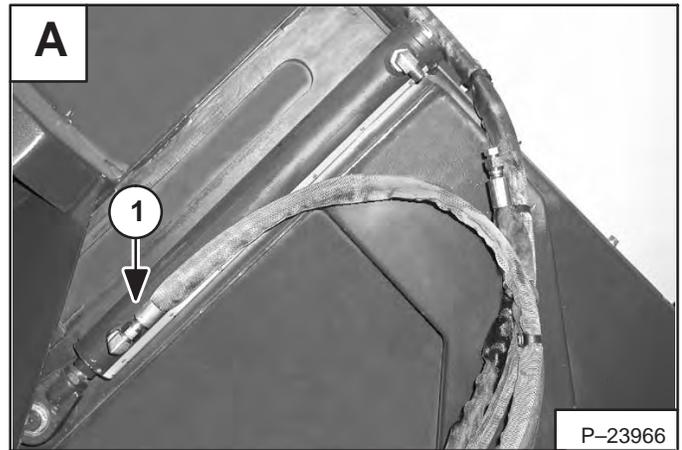
Stop the engine and release the hydraulic pressure.

Engage the parking brake and exit the loader.

Support the attachment with a hoist (Item 1) [B].

Remove the snap rings (Item 1) [C] from both depth control cylinders.

Raise the hoist until the cylinders (Item 2) [C] can be removed from the pins (Item 3) [C].



## WARNING

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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## HYDRAULIC CYLINDER (Cont'd)

### Depth Control Cylinder Checking (Cont'd)

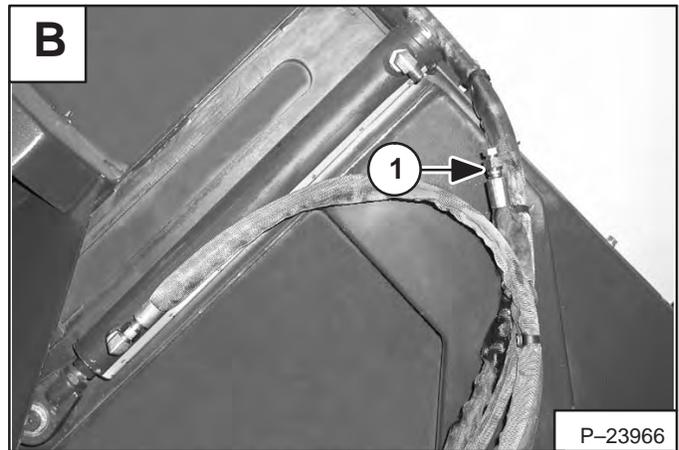
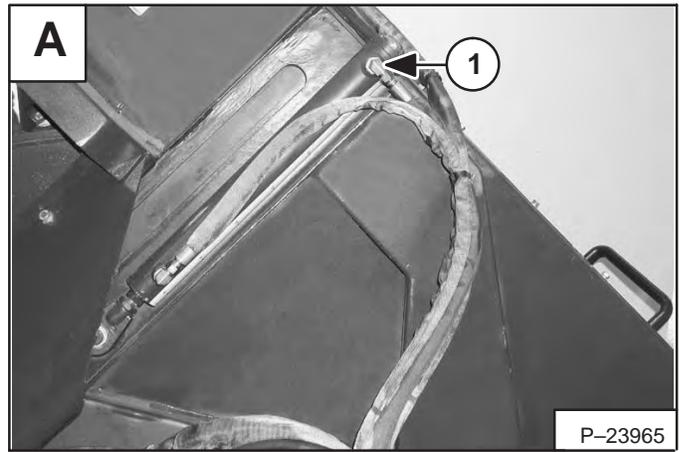
# **WARNING**

Hydraulic fluid escaping under pressure can have sufficient force to enter a person's body by penetrating the skin. This can cause serious injury and possibly death if proper medical treatment by a physician familiar with this injury is not received immediately.

W-2145-0290

Remove the hoses (Item 1) **[A]** from the base end of the cylinders. Install a plug (Item 1) **[B]** on the hoses and tighten. Lower the seat bar, start the engine, raise the cutting wheel off the floor and retract the cylinder.

If there is any leakage from the base end of either cylinder, remove the cylinder for repair or replacement.



## HYDRAULIC CYLINDER (Cont'd)

### Depth Control Cylinder Removal And Installation

# IMPORTANT

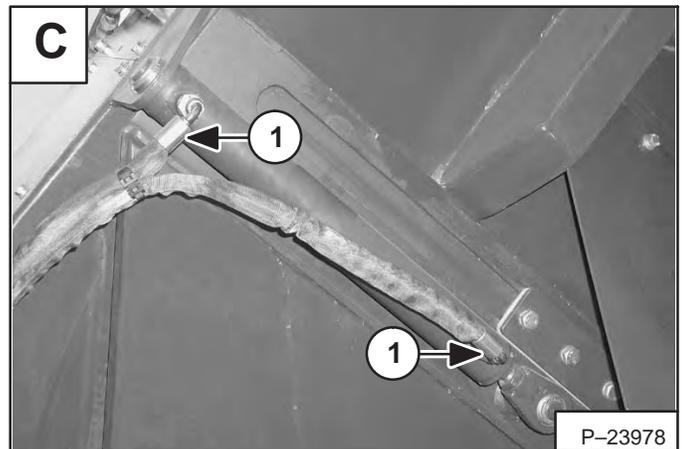
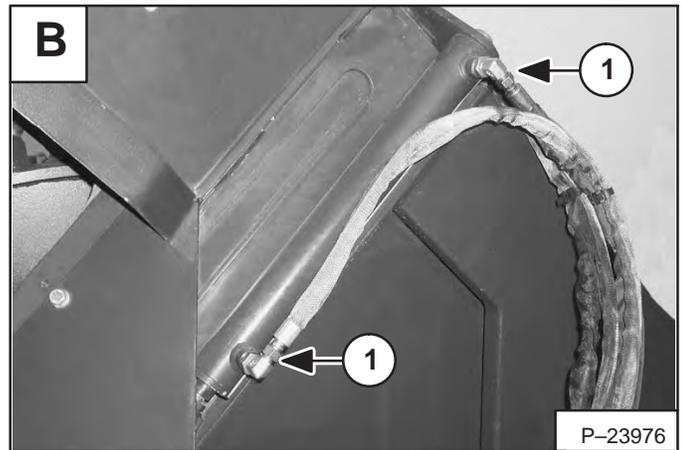
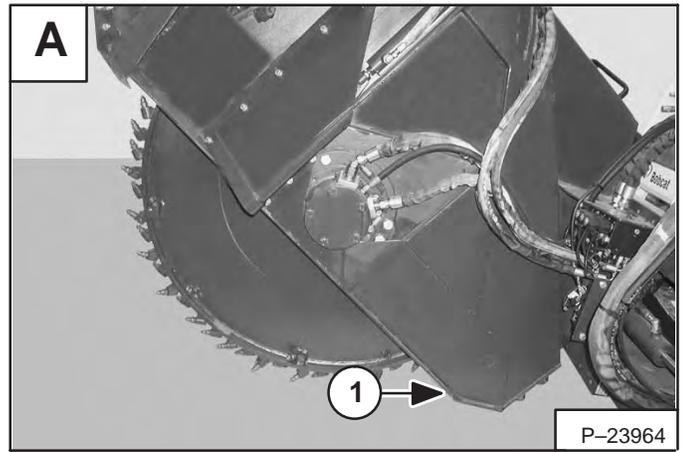
When making repairs on hydraulic system, clean the work area before disassemble and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I-2056-0793

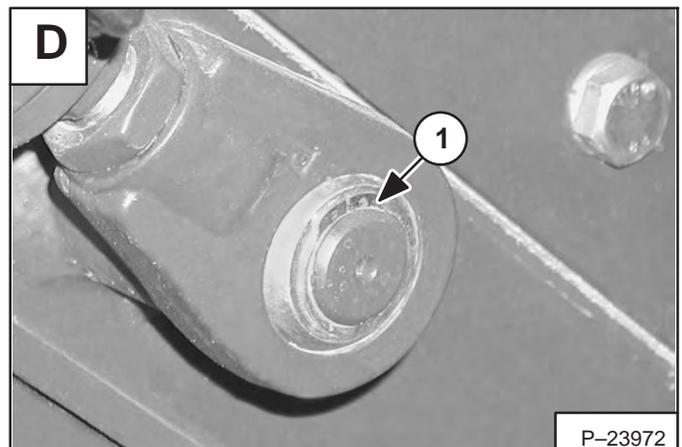
Place the attachment on the work surface and lower the depth adjustment frame (Item 1) [A].

Remove the hoses from the left depth control cylinder (Item 1) [B] and the right cylinder (Item 1) [C]. Install caps and plugs.

**NOTE:** The cutting wheel will spin momentarily when the control switches are released.



Remove the snap rings (Item 1) [D] from both depth control cylinders.

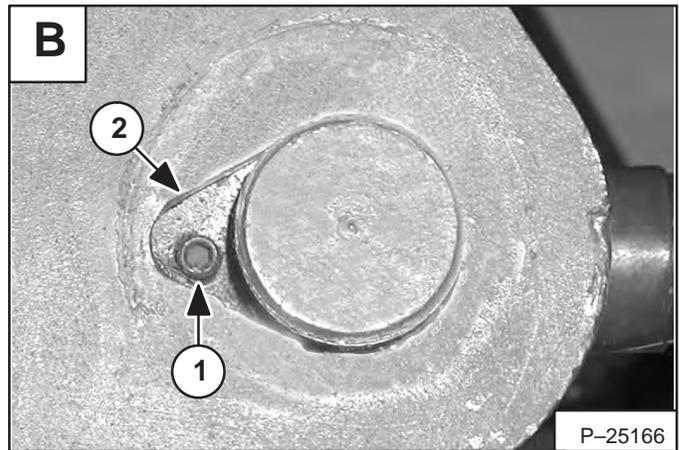
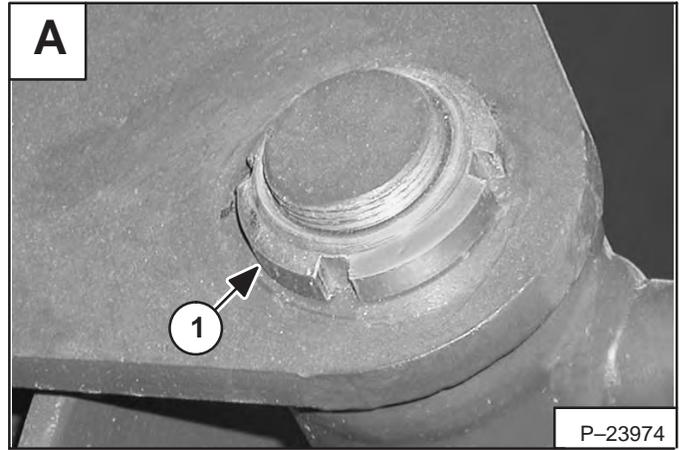


## HYDRAULIC CYLINDER (Cont'd)

### Depth Control Cylinder Removal And Installation (Cont'd)

Remove the nuts (Item 1) **[A]** from both depth control cylinders and remove the cylinders.

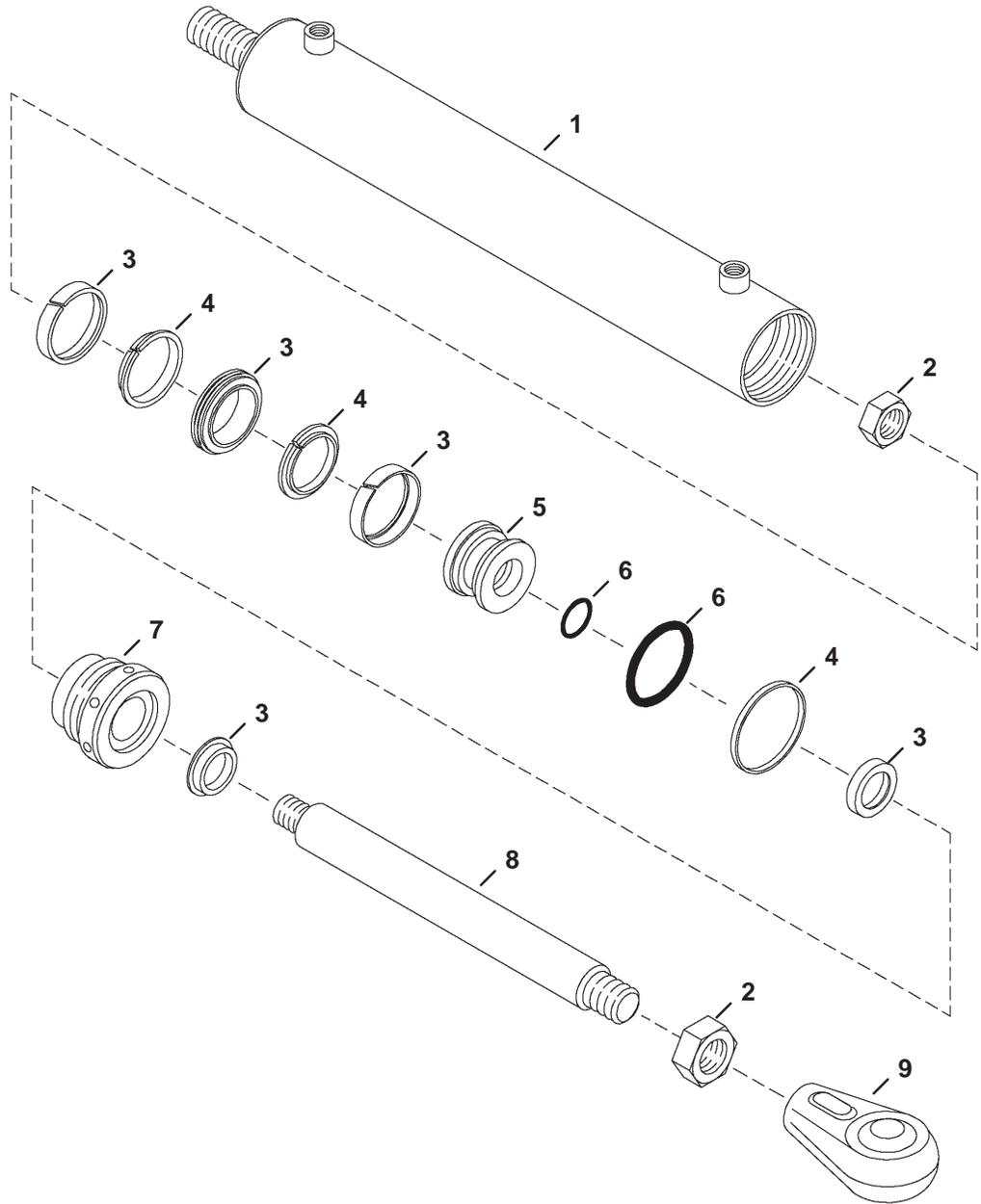
**Installation:** Make sure the pin (Item 1) **[B]** aligns with the slot (Item 2) **[B]**, install the nut and tighten to 75 ft.-lbs. (100 Nm) torque.



# HYDRAULIC CYLINDER (Cont'd)

## Depth Control Cylinder Parts Identification

- 1. Housing
- 2. Nut
- 3. Seal
- 4. Backup Ring
- 5. Piston
- 6. O-Ring
- 7. Head
- 8. Shaft
- 9. Clevis



MS-01157

## HYDRAULIC CYLINDER (Cont'd)

### Depth Control Cylinder Disassembly

Use the following tools to disassemble the cylinder.

MEL1074—O—Ring Seal Hook

Hold the cylinder over a drain pan and slowly move the rod in and out to remove the fluid from the cylinder.

Clamp the base end of the cylinder in a vise **[A]**.

Be careful not to damage the cylinder housing or mount stud.

Remove the fittings (Item 1) **[A]** from the cylinder housing.

Insert a spanner wrench in a hole (Item 1) **[B]** and loosen the head.

Remove the head and rod assembly (Item 1) **[C]** from the cylinder housing.

