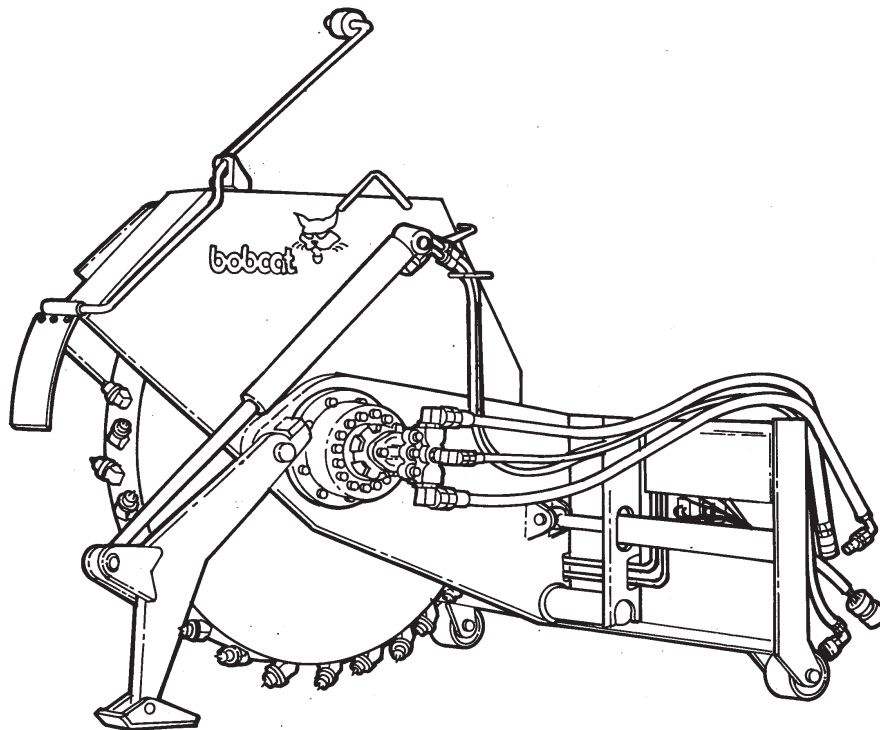




WHEEL SAW

WS 12 (S/N 561500101 & Above)
WS 18 (S/N 561600101 & Above)

Service Manual



**MELROE
INGERSOLL-RAND**

6900894(9-99)



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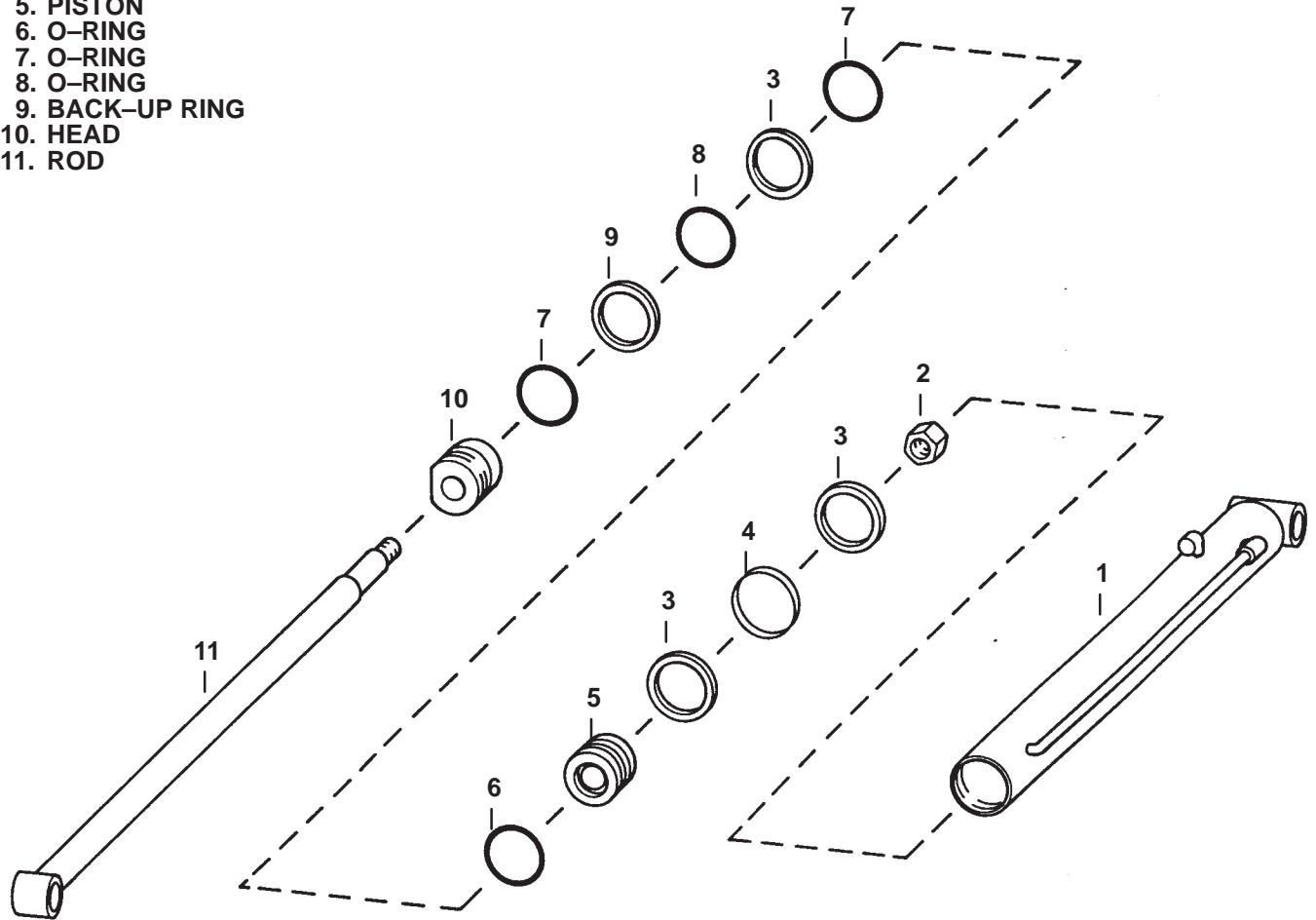
PREVENTIVE MAINTENANCE

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HYDRAULIC CYLINDER

Parts Identification

1. CASE
2. NUT
3. BACK-UP RING
4. DUST SEAL
5. PISTON
6. O-RING
7. O-RING
8. O-RING
9. BACK-UP RING
10. HEAD
11. ROD



MAIN FRAME

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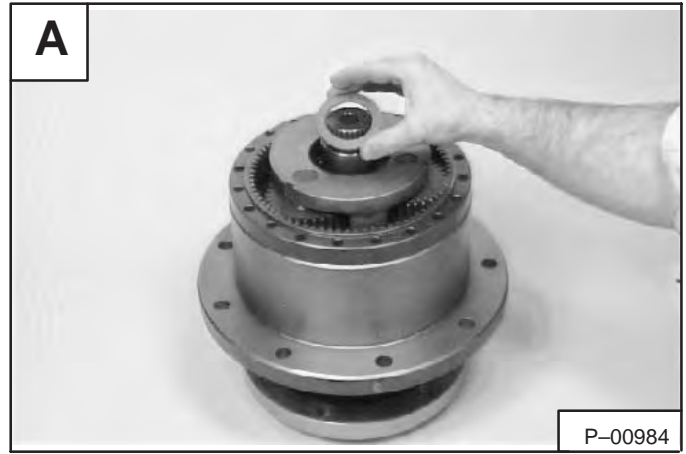
MAIN FRAME

PLANETARY DRIVE (Cont'd)

Main Disassembly And Assembly (Cont'd)

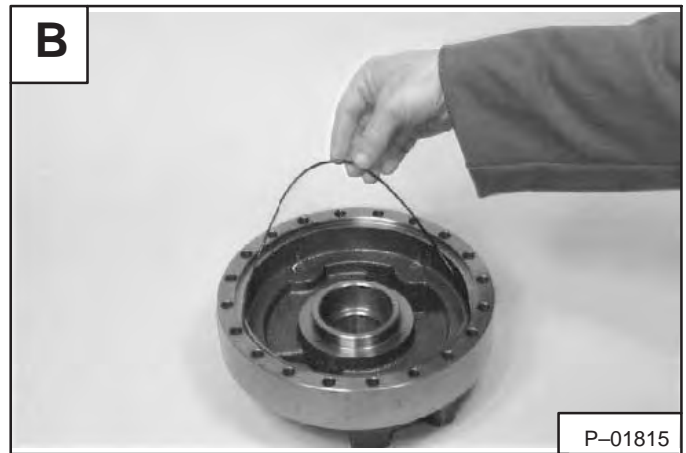
Remove the thrust washer from the top of the input gear/coupler assembly [A].

NOTE: The thrust washer might remain in the cover during the disassembly procedure. If the washer is not on the input gear, it is in the cover.

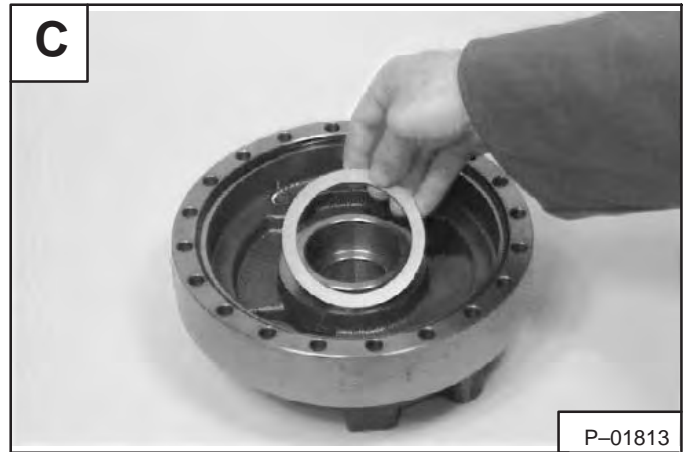


Remove the O-ring from the counter-bore around the rim of the cover [B].

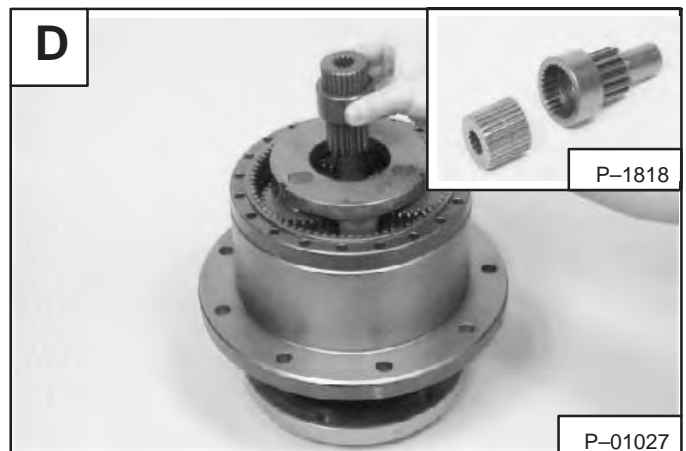
Discard the O-ring and replace with a new one.



Remove the thrust washer from the raised circular edge around the center of the cover [C].



Remove the input gear/coupler from the carrier sub-assembly [D].



PLANETARY DRIVE (Cont'd)

Hub Shaft Assembly (Cont'd)

NOTE: The LOCTITE used in the Step is an anaerobic adhesive, which begins to set once it is out of contact with the air. Read the next steps before preceding and then do them as quickly as possible.

Apply LOCTITE 227 to the threads of the lock nut. DO NOT put LOCTITE on the hub/shaft threads.

Thread the lock nut onto the shaft with the chamfered side of the lock nut toward the lock washer.

Tighten the lock nut finger tight.

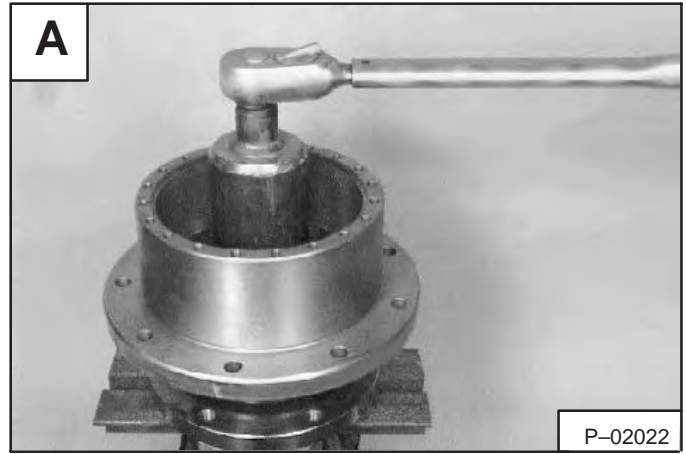
Using the lock nut tool and torque wrench, tighten the lock nut to 175 ft.-lbs. (237 Nm) torque [A].

NOTE: One tab of the lock washer should be aligned with one of the slots in the lock nut. If a tab does not line up when the correct torque is reached, continue to tighten the lock nut until one tab is aligned. DO NOT loosen the lock nut to align the tab.

Check the final rolling torque (procedure on Page 10-30-20). The final rolling torque should be 5-10 in.-lbs. (0,57-1,13 Nm) greater than the rolling torque recorded in the initial procedure. (Example: Initial rolling torque is 35 in.-lbs. (4 Nm); final torque must be 40-45 in.-lbs. [4,5-5,1 Nm]).

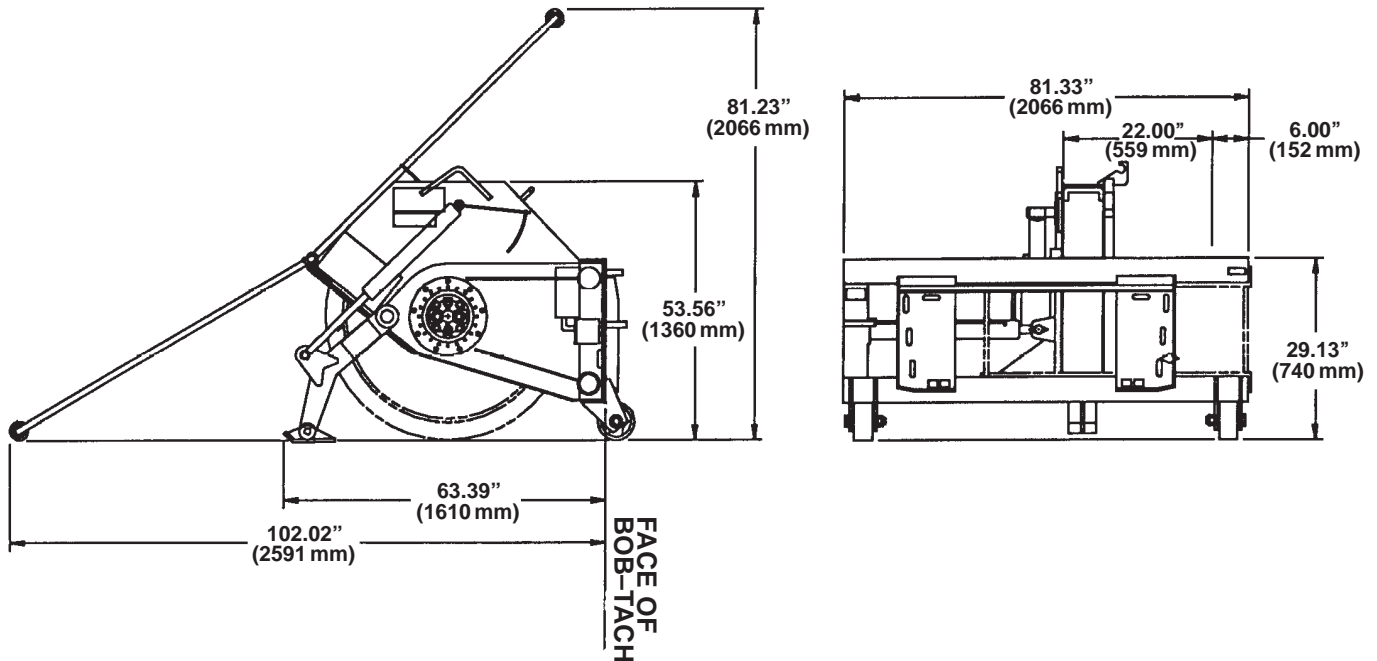
NOTE: If the final rolling torque is 5 to 10 in.-lbs. (0,57-1,13 Nm) or greater, remove the lock nut and lock washer and clean the LocTite from all parts. Repeat the previous procedure until the rolling torque is correct.

After obtaining the correct rolling torque, remove the bolt from the bolt circle of the hub housing.



SPECIFICATIONS (Cont'd)
WS 18

- All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.
- Where applicable, specifications conform to SAE or ISO standards and are subject to change without notice.



MC-01818

WS18	
Overall Width	81.33" (2066 mm)
Overall Length (From Bob-Tach Face)	68" (1727 mm)
Length to Line Guide (From Bob-Tach Face)	102" (2591 mm)
Overall Height	53.6" (1361 mm)
Height to Line Guide	81.3" (2066 mm)
Mounting Frame Height	29.1" (739 mm)
Attachment Weight (Less Wheel)	1270 lbs. (474 kg)
4.5" (114 mm) Cutting Wheel Weight	370 lbs. (168 kg)
2.5" (63,5 mm) Cutting Wheel Weight	318 lbs. (144 kg)
Cutting Depth	18" (457 mm)
Cutting Widths	4.5" (114 mm) – 44 Bits (Asphalt) Standard 2.5" (63,5 mm) – 42 Bits (Asphalt) Standard
Sideshift Cylinder Stroke	22" (559 mm)
Sideshift Travel (From Center of Cutting Wheel to Edge of Mounting Frame)	6" min. to 22" max. (152,4 mm to 559 mm)
Tool Bit Speed	723 ft./min. (222 m/min.)
Wheel Speed	53 RPM @ 24 GPM (90,8 L/min.)
Cutting Speed	Up to 15'/min. (4.6 m./min.)
Flow & Pressure	24 GPM (90,8 L/min.) and 3300 PSI (22754 kPa)
Motor Displacement	2.8 cu. in. (46 cc/Rev.)
Planetary Gearbox Capacity	38 oz/ (80W-90 GL5 Gear Lube)
Planetary Gearbox Reduction	37.64:1

SERIAL NUMBER LOCATION

Attachment Serial Number

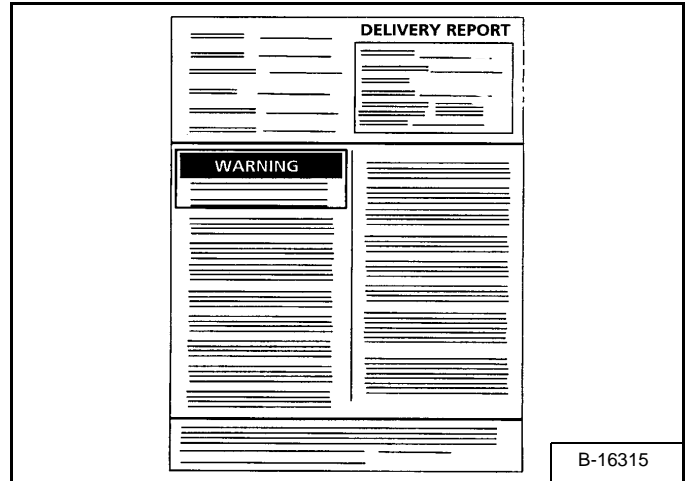
Figure 1



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

A schematic diagram of a delivery report form. The form is rectangular and divided into several sections. At the top right is a section titled 'DELIVERY REPORT' with several lines of text. Below this is a section titled 'WARNING' with a black background and white text, followed by several lines of text. The bottom right corner of the form contains the text 'B-16315'.

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.

DAILY INSPECTION (CONT'D)

Tool Bit Inspection

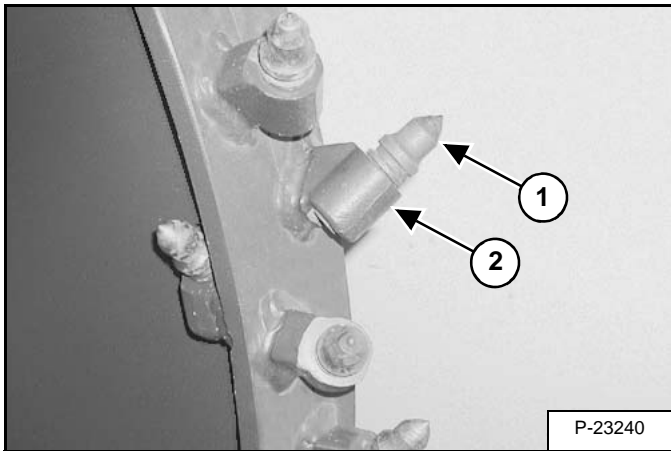
NOTE: The tool bits will be hot if the wheel saw has just been used, allow the tool bits to cool before inspection.

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

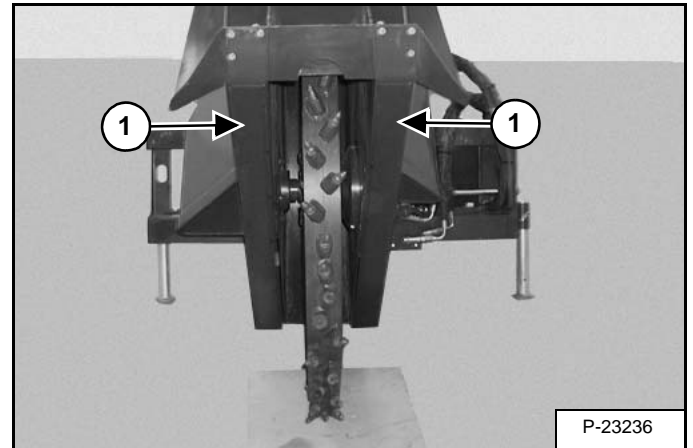
WARNING

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.)

HYDRAULIC SYSTEM

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Parts Identification	20-30-4
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HYDRAULIC CYLINDER (CONT'D)

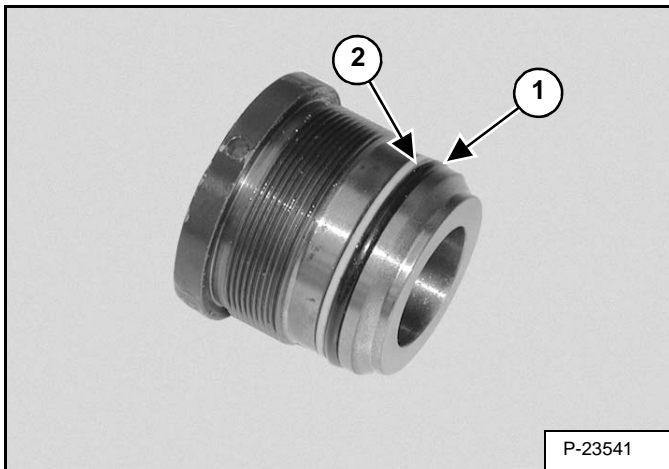
Depth Control Cylinder Assembly (Cont'd)

Figure 20-10-20



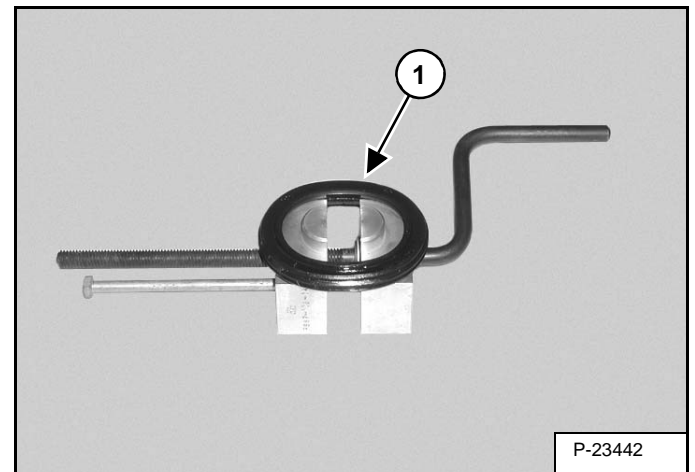
Install the rod seals in the head [Figure 20-10-20].

Figure 20-10-21



Install the O-ring (Item 1) and back-up ring (Item 2) [Figure 20-10-21] on the head.

Figure 20-10-22

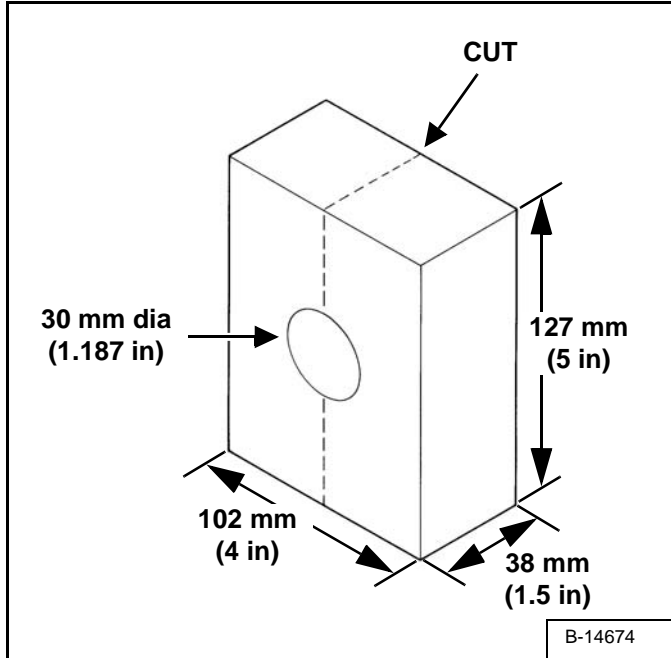


Install the seal (Item 1) [Figure 20-10-22] on the seal expander and slowly stretch the seal until it fits the piston.

HYDRAULIC CYLINDER (CONT'D)

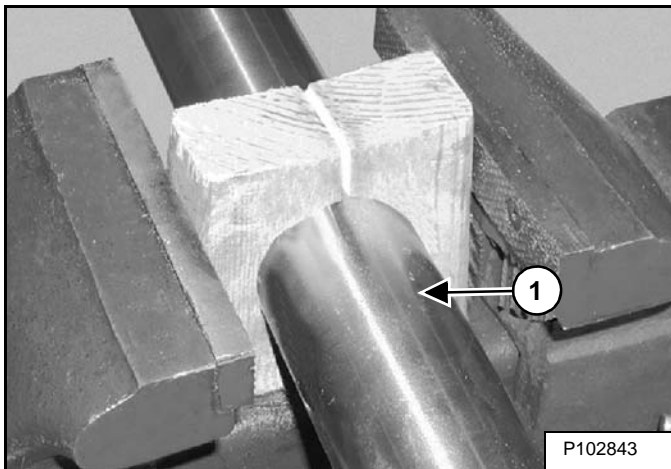
Side Shift Cylinder Disassembly (Cont'd)

Figure 20-10-48



To remove the piston from the rod a holding fixture will have to be made from a 38 mm (1.5 in) thick x 101,6 mm (4.0 in) wide x 127 mm (5.0 in) long piece of hardwood. Drill a 30 mm (1.187 in) hole in the center of the hardwood block. Cut the block lengthwise [Figure 20-10-48].

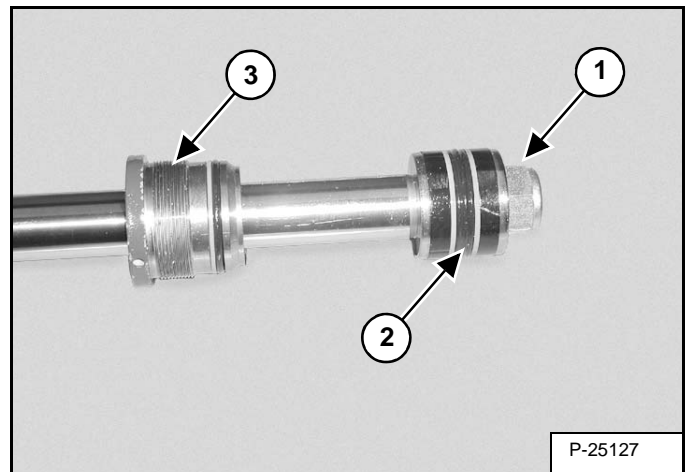
Figure 20-10-49



Using the wood blocks clamp the rod (Item 1) [Figure 20-10-49] in a vise.

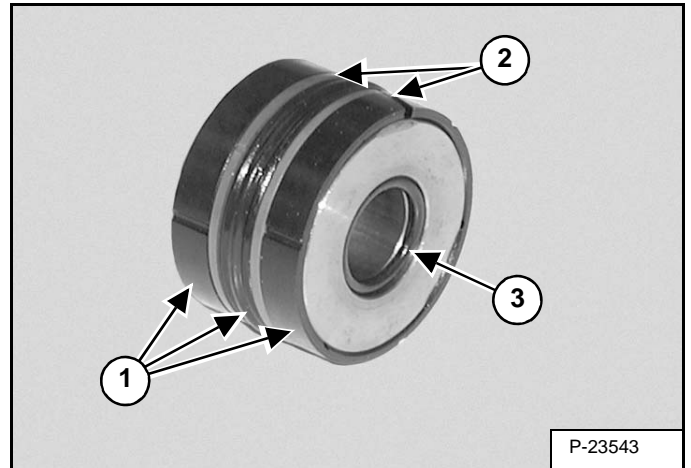
NOTE: Do not use anything other than hardwood blocks to grip the rod, or the rod will be damaged.

Figure 20-10-50



Remove the nut (Item 1), piston (Item 2) and head (Item 3) [Figure 20-10-50] from the rod. Discard the nut.

Figure 20-10-51



Remove the seals (Item 1), back-up rings (Item 2) and O-ring (Item 3) [Figure 20-10-51] from the piston.

HYDRAULIC CYLINDER (CONT'D)

Trench Cleaner Cylinder Disassembly

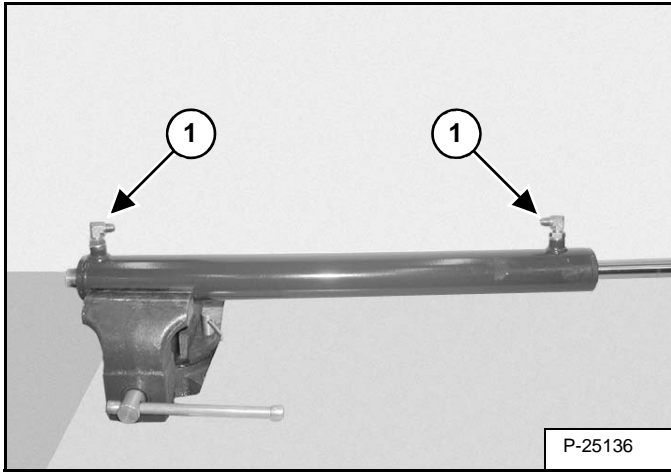
Use the following tools to disassemble the cylinder.

MEL1074 - O-ring Seal Hook

MEL1076 - Cylinder Wrench

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

Figure 20-10-74

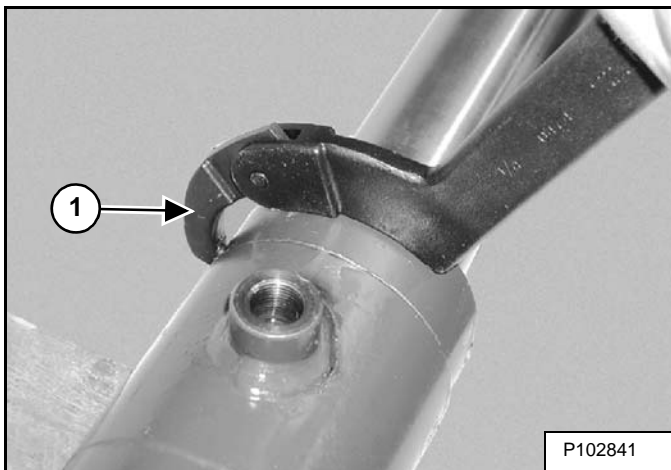


Clamp the base end of the cylinder in a vise [Figure 20-10-11].

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

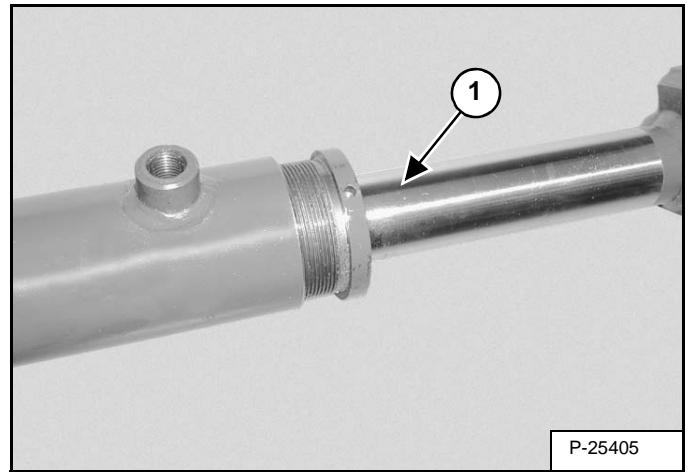
Remove the fittings (Item 1) [Figure 20-10-11] from the cylinder housing.

Figure 20-10-75



Insert a spanner wrench in a hole (Item 1) [Figure 20-10-12] and loosen the head.

Figure 20-10-76



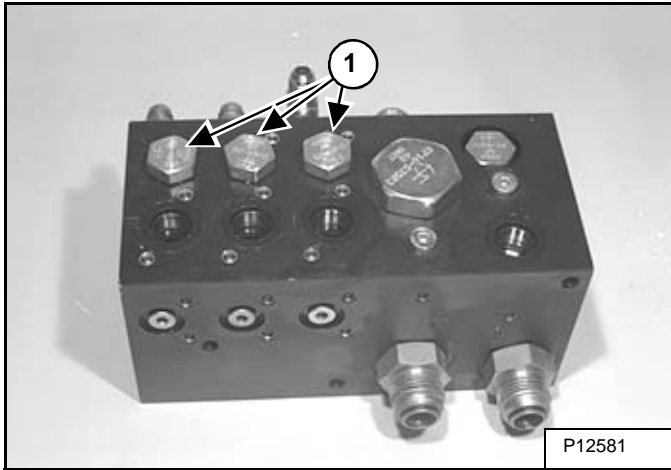
Remove the head and rod assembly (Item 1) [Figure 20-10-13] from the cylinder housing.

HYDRAULIC CONTROL VALVE (S/N 991800662 & BELOW, S/N 991900905 & BELOW) (CONT'D)

Disassembly (Cont'd)

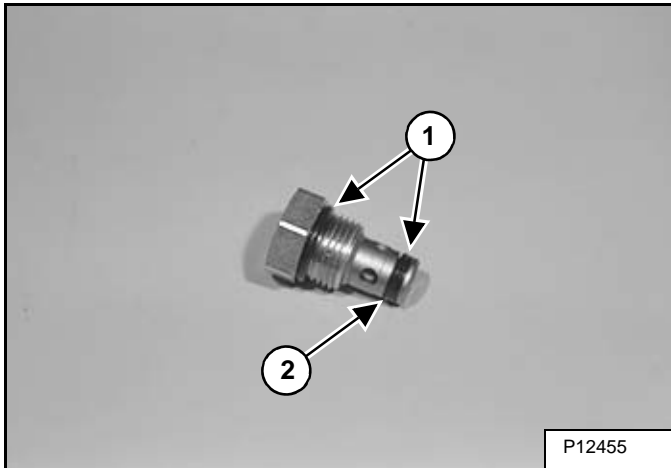
Mark the check valves for correct assembly.

Figure 20-20-11



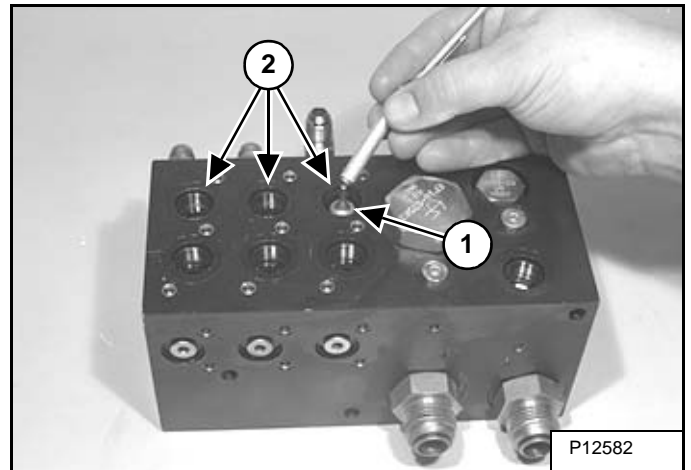
Remove the three check valves (Item 1) [Figure 20-20-11] from the control valve.

Figure 20-20-12



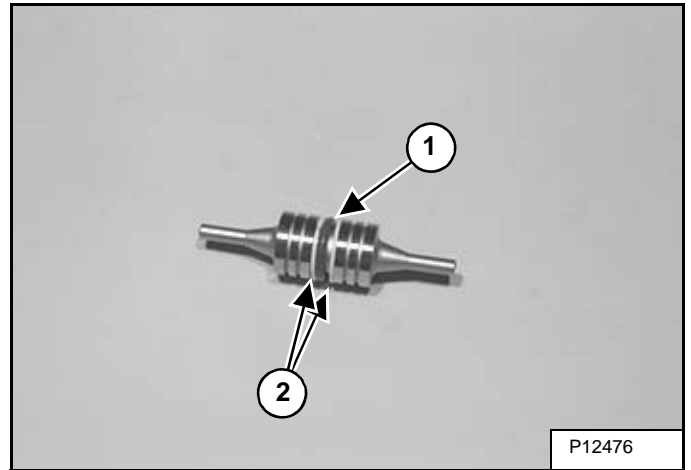
Remove the O-rings (Item 1) and back-up ring (Item 2) [Figure 20-20-12] from the check valves.

Figure 20-20-13



Remove the three pilot pistons (Item 1) from the three holes (Item 2) [Figure 20-20-13] in the control valve.

Figure 20-20-14

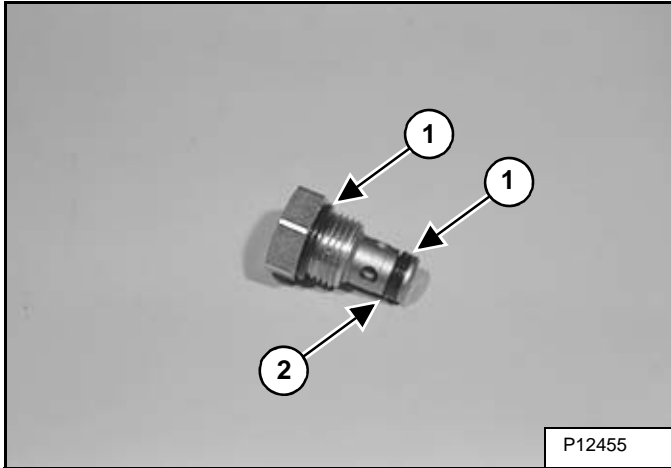


Remove the O-ring (Item 1) and back-up rings (Item 2) [Figure 20-20-14] from the three pilot pistons.

HYDRAULIC CONTROL VALVE (S/N 991800662 & BELOW, S/N 991900905 & BELOW) (CONT'D)

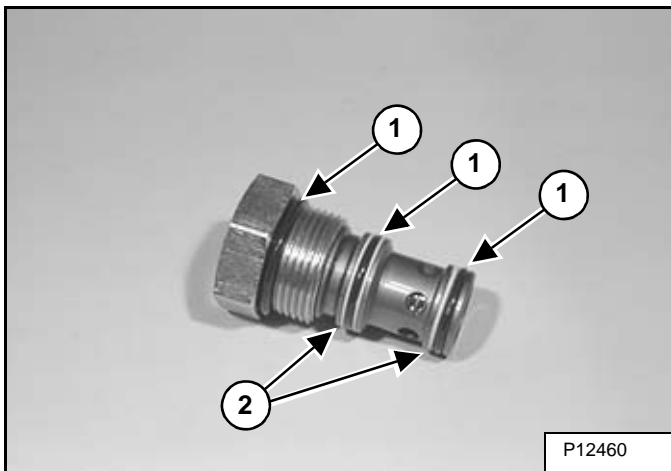
Assembly (Cont'd)

Figure 20-20-51



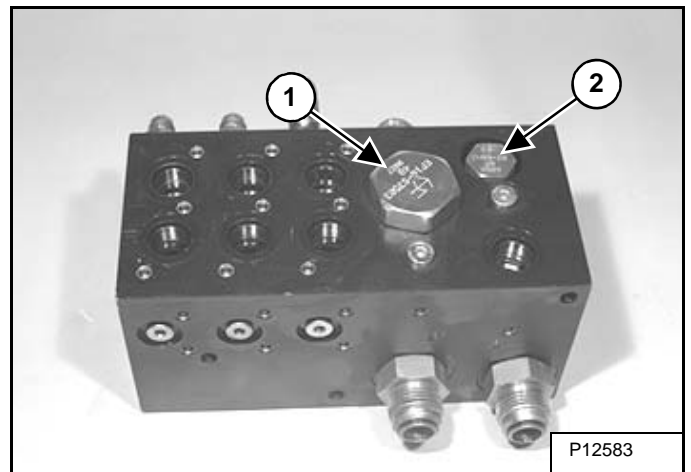
Install O-rings (Item 1) and back-up ring (Item 2) [Figure 20-20-51] on the check valve.

Figure 20-20-52



Install O-rings (Item 1) and back-up rings (Item 2) [Figure 20-20-52] on the flow divider valve.

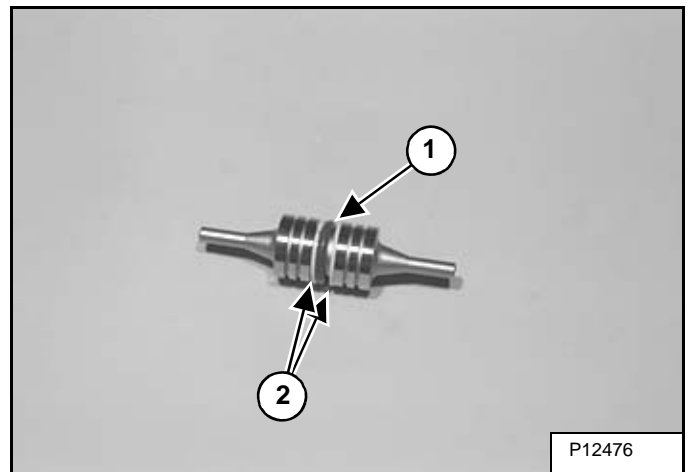
Figure 20-20-53



Install the flow divider valve (Item 1) [Figure 20-20-53]. Tighten the valve to 68 N•m (50 ft-lb) torque.

Install the check valve (Item 2) [Figure 20-20-53]. Tighten the valve to 27 N•m (20 ft-lb) torque.

Figure 20-20-54

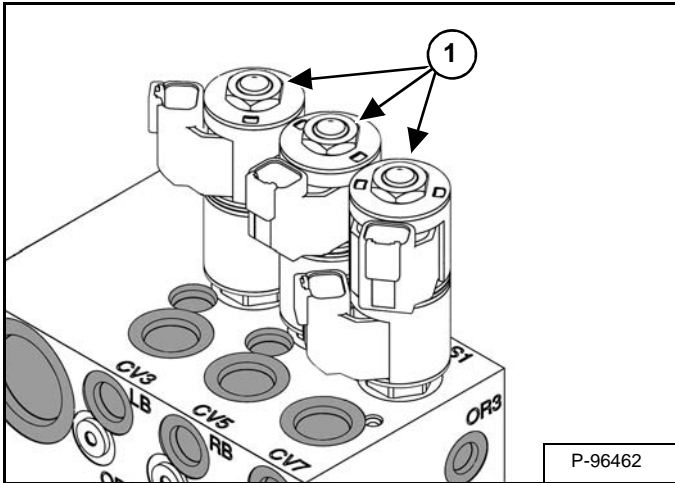


Install the O-ring (Item 1) and back-up rings (Item 2) [Figure 20-20-54] on the spools.

HYDRAULIC CONTROL VALVE (S/N 991800663 & ABOVE, S/N 991900906 & ABOVE) (CONT'D)

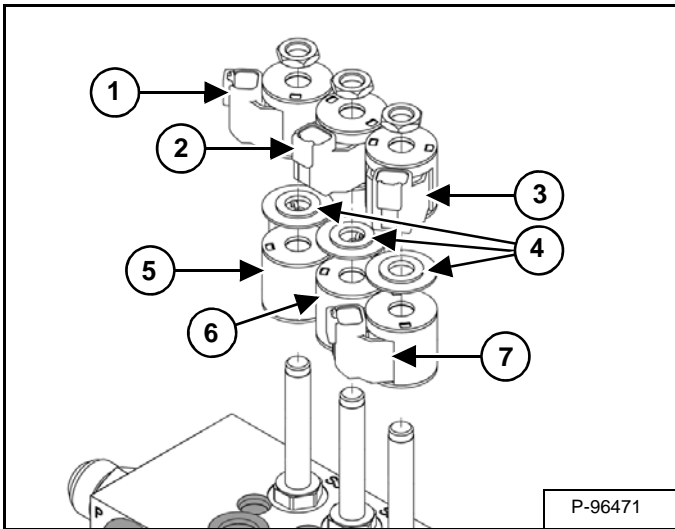
Disassembly (Cont'd)

Figure 20-21-12



Remove the three nuts (Item 1) [Figure 20-21-12].

Figure 20-21-13



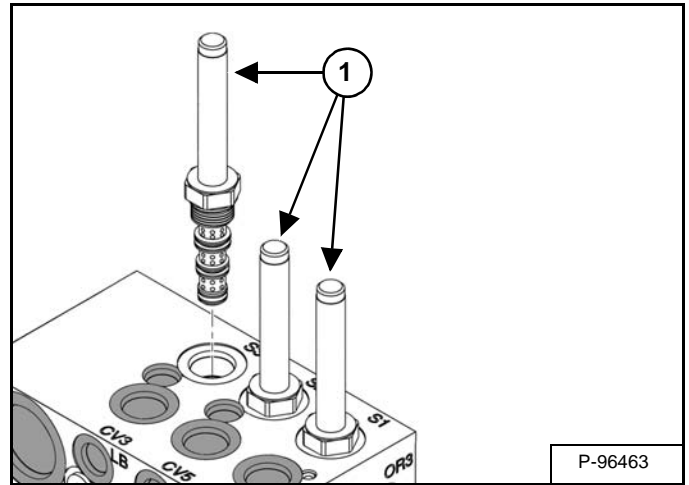
NOTE: Control valve coils are color coded, record the location and position of the coils during disassembly.

Remove coils (Item 1) (BLUE), (Item 2) (YELLOW) and (Item 3) (RED) [Figure 20-21-13].

Remove the three spacers (Item 4) [Figure 20-21-13].

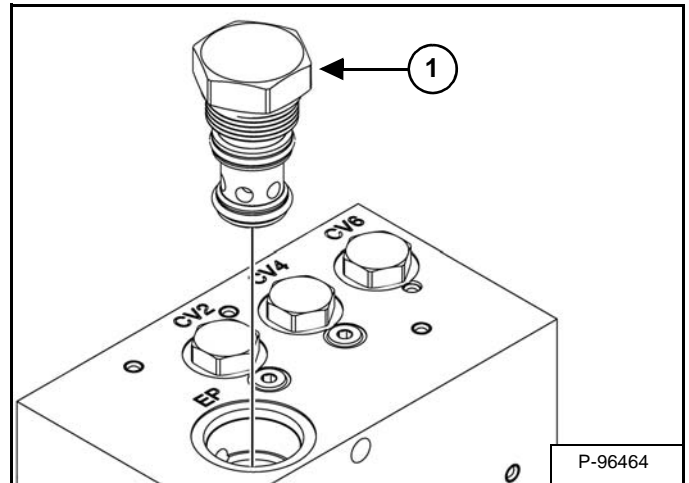
Remove coils (Item 5) (ORANGE), (Item 6) (GREEN) and (Item 7) (WHITE) [Figure 20-21-13].

Figure 20-21-14



Remove the three solenoid valves (Item 1) [Figure 20-21-14].

Figure 20-21-15



Remove the piloted logic element (Item 1) [Figure 20-21-15].

HYDRAULIC MOTOR (CONT'D)

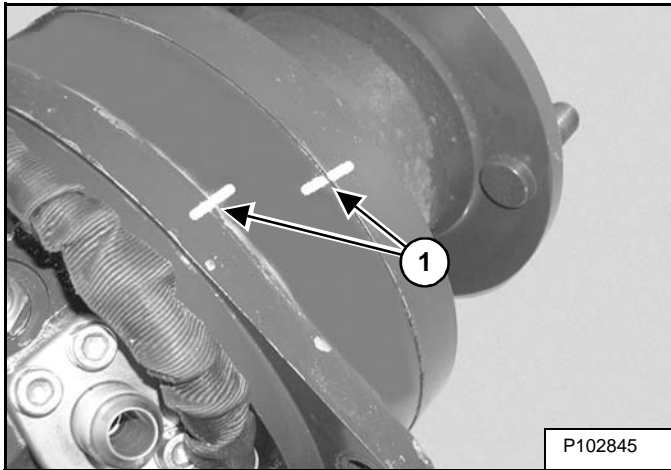
Disassembly

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.

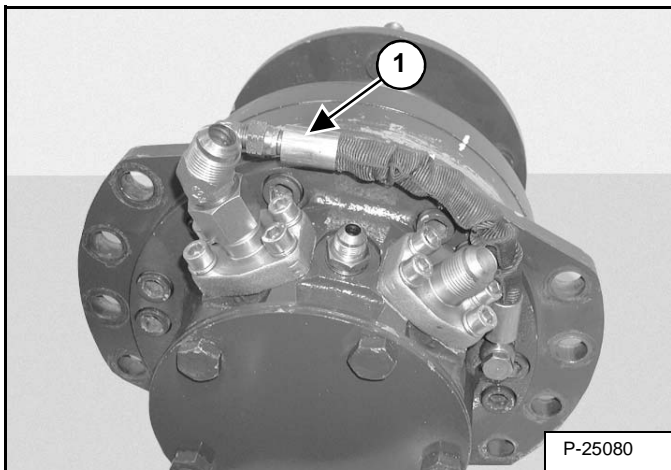
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Figure 20-30-9



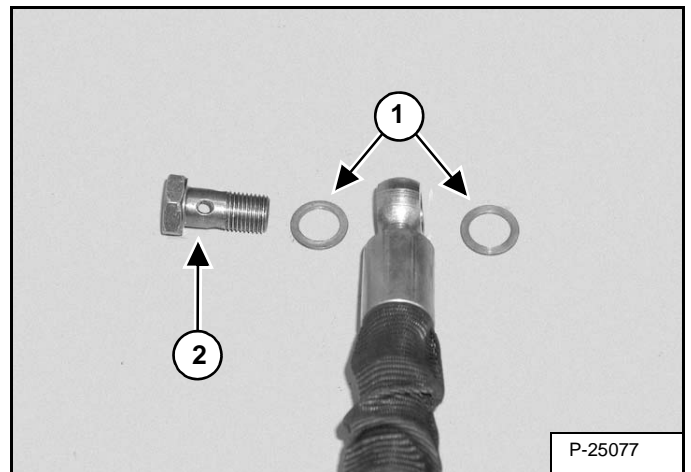
Mark the hydraulic motor sections for ease of assembly (Item 1) [Figure 20-30-9].

Figure 20-30-10



Remove the hose (Item 1) [Figure 20-30-10]. (WS24 wheel saw only)

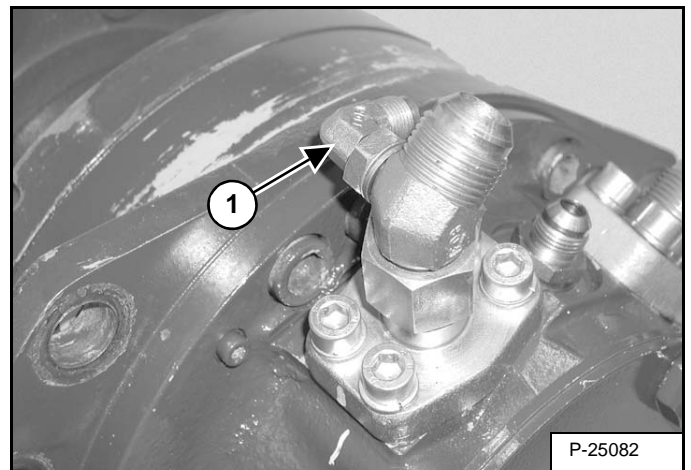
Figure 20-30-11



Remove the brass washers (Item 1) and port bolt (Item 2) [Figure 20-30-11] from the hose. (WS24 wheel saw only)

NOTE: Mark the fittings for correct assembly.

Figure 20-30-12



Remove the hose fitting (Item 1) [Figure 20-30-12]. (WS24 wheel saw only)

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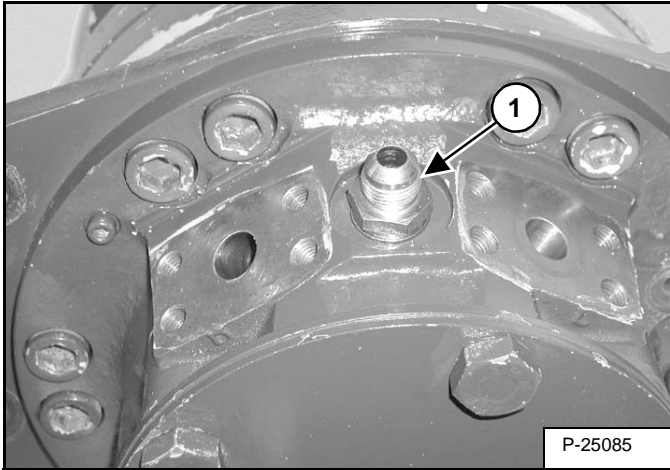
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HYDRAULIC MOTOR (CONT'D)

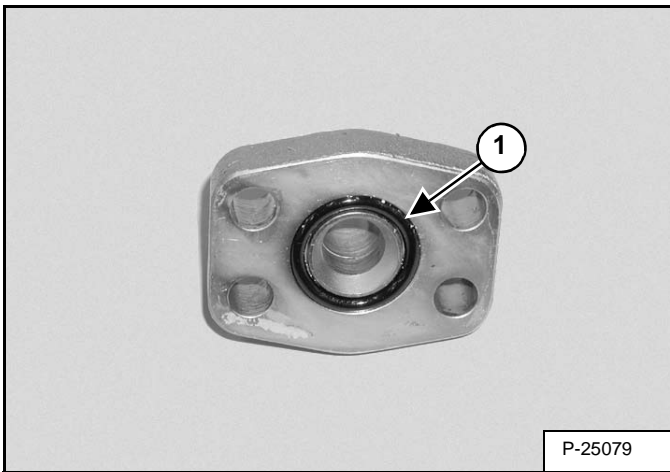
Assembly (Cont'd)

Figure 20-30-48



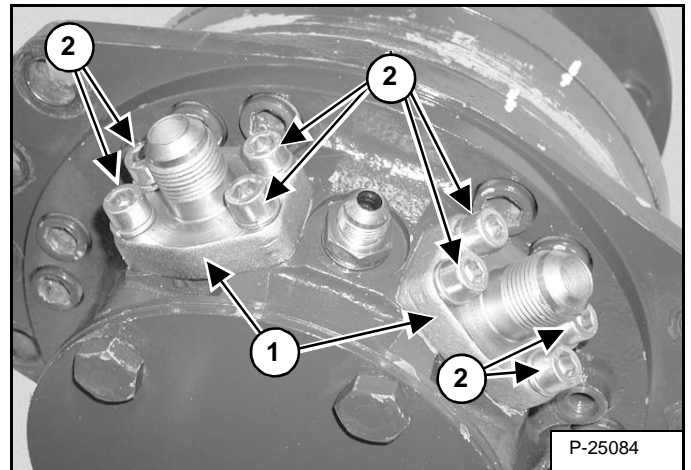
Install the hose fitting (Item 1) [Figure 20-30-48].

Figure 20-30-49



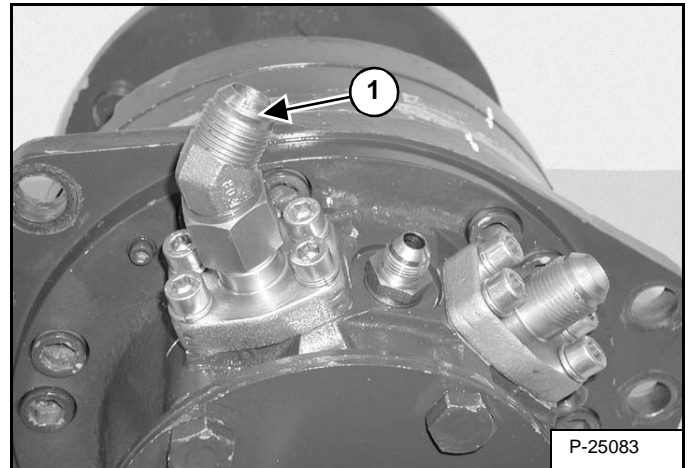
Install O-rings (Item 1) [Figure 20-30-49] on both hose fittings.

Figure 20-30-50



Install the fittings (Item 1) with the eight bolts and lock washer (Item 2) [Figure 20-30-50]. Tighten the bolts to 43 - 47 N•m (32 - 35 ft-lb) torque.

Figure 20-30-51



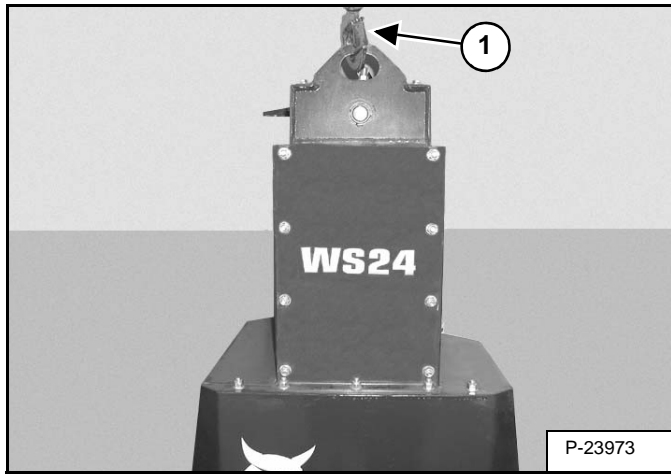
Install the fitting (Item 1) [Figure 20-30-51].

DEPTH ADJUSTMENT FRAME

Removal And Installation

Position the attachment on the work surface.

Figure 30-20-1



Install a hoist (Item 1) [Figure 30-20-1] and raise the attachment until the weight of the attachment is supported by the hoist.

Figure 30-20-2

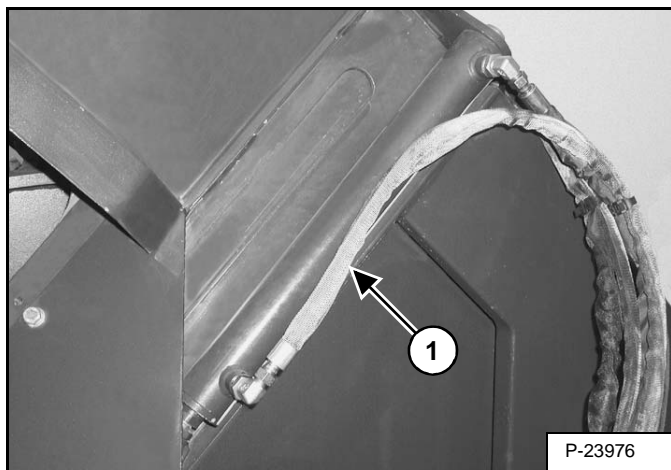
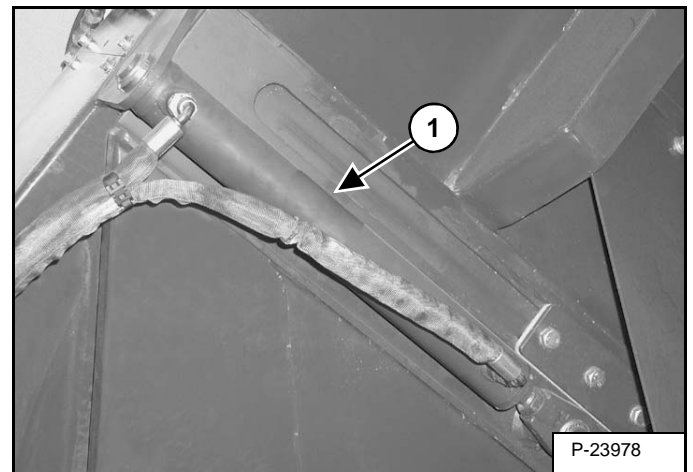
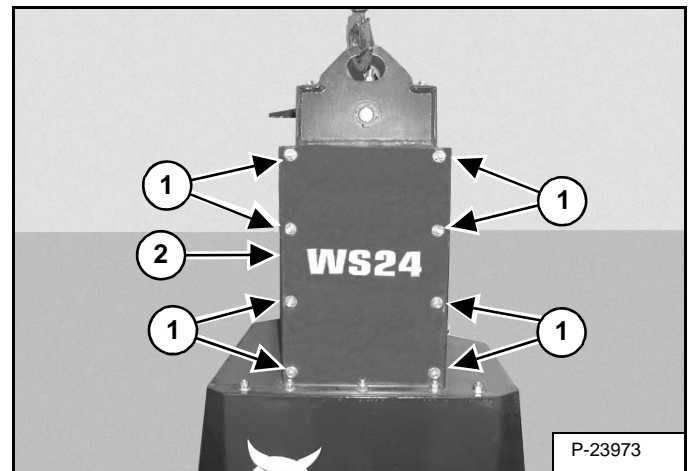


Figure 30-20-3



Remove the depth control cylinders (Item 1) [Figure 30-20-2] and [Figure 30-20-3]. (See Depth Control Cylinder Removal And Installation on Page 20-10-2.)

Figure 30-20-4



Remove the bolts, washers and locknuts (Item 1) from the cover (Item 2) [Figure 30-20-4].

Remove the cover.

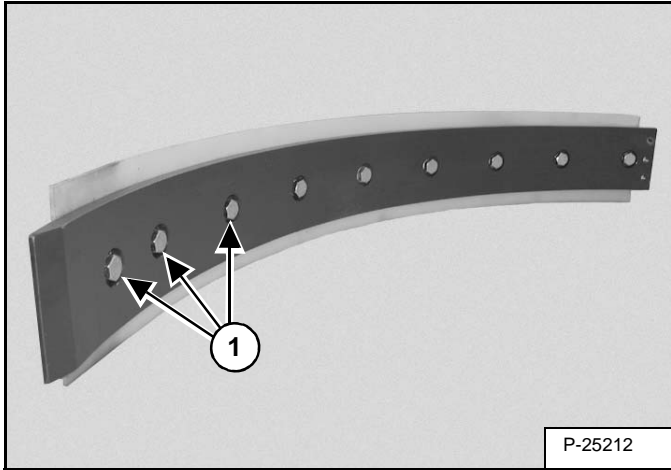
NOTE: The WS24 has eleven bolts, the WS18 has seven bolts.

Installation: Install the cover, bolts, washers and locknuts. Tighten the bolts and locknuts to 43 - 47 N•m (32 - 35 ft-lb) torque.

TRENCH CLEANER (CONT'D)

Removal And Installation (Cont'd)

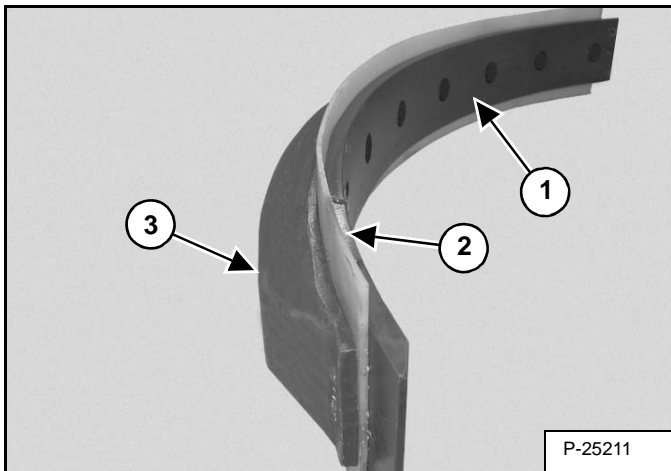
Figure 30-40-9



Remove the nine bolts and lock washers (Item 1) [Figure 30-40-9].

Installation: Install lockwashers and bolts. Tighten the bolts to 125 - 140 N•m (90 - 100 ft-lb) torque.

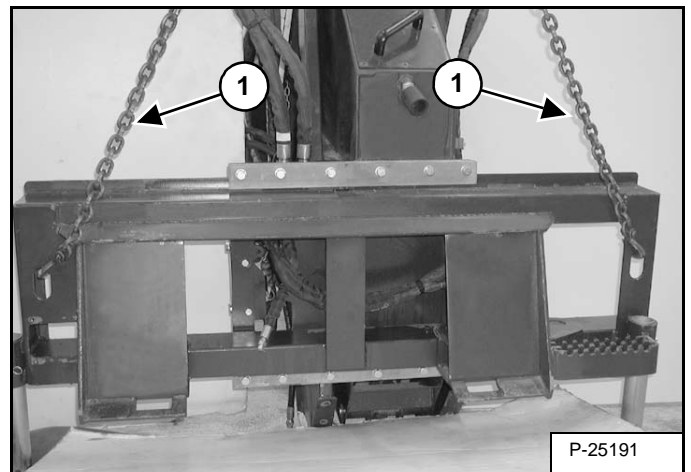
Figure 30-40-10



Remove the plate (Item 1) wear plate (Item 2) and frame (Item 3) [Figure 30-40-10].

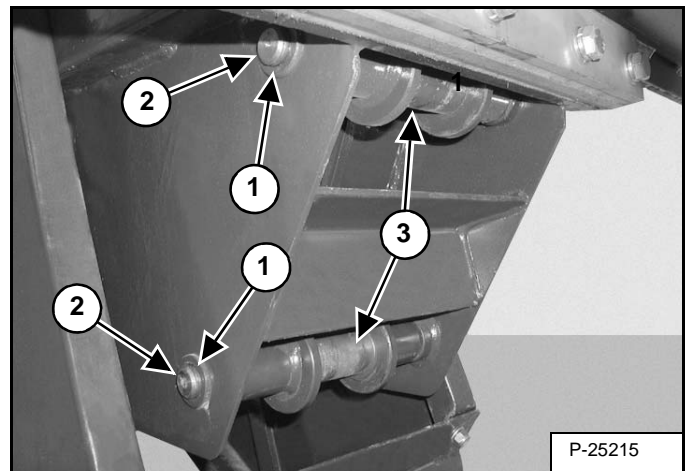
Installation: Install the frame, wear plate and plate.

Figure 30-40-11



Attach an additional hoist (Item 1) [Figure 30-40-11] and raise the back of the wheel saw until the pins can be removed.

Figure 30-40-12



Remove the snap rings (Item 1), pins (Item 2) and rollers (Item 3) [Figure 30-40-12].

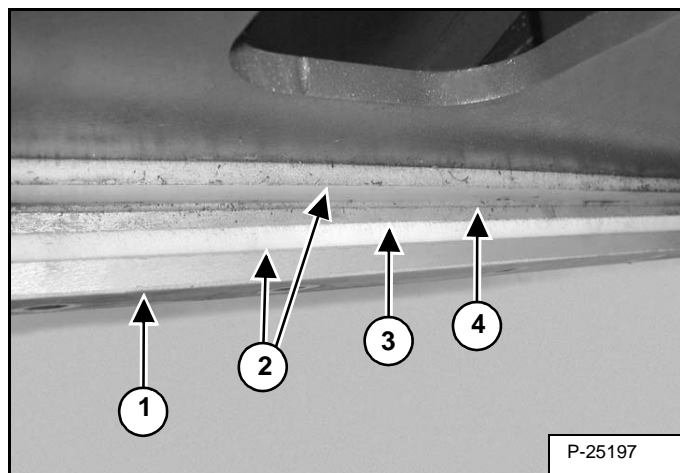
Installation: Install rollers, pins and snap rings.

After installation check the adjustment of the trench cleaner. (See Trench Cleaner Adjustment on Page 10-30-4)

SIDE SHIFT FRAME (CONT'D)

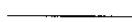



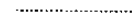
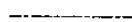





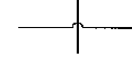


Removal And Installation (Cont'd)

Figure 30-60-8

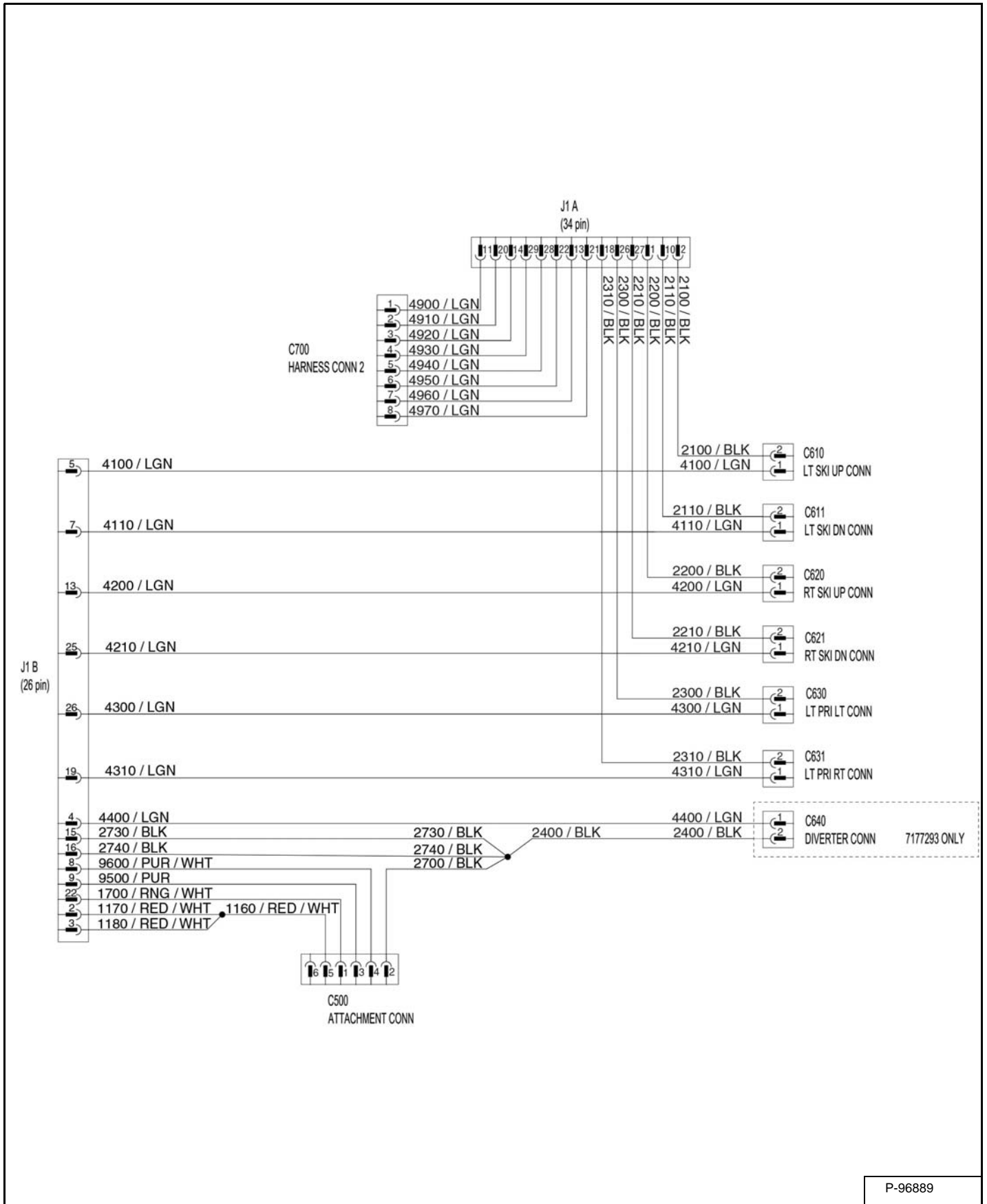


Remove the plate (Item 1), wear plates (Item 2), spacer (Item 3) and shim (Item 4) **[Figure 30-60-8]**.

GLOSSARY OF HYDRAULIC SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FLOW LINES and CONNECTIONS			
	WORKING CIRCUITS - Continuous, Solid Line - Working (Main) Line. Return Line (line conducting fluid from working devices to the reservoir) and Feed Line (main line conductor)		RESTRICTION - Line with Fixed Restriction - Affected by Viscosity (property of resistance to flowing fluid)
	PILOT PRESSURE - Dashed Line - Pilot Line (line which conducts control fluid)		COUPLER - Quick-Acting Coupling (uncoupled, closed by non-return valve)
	DRAIN CIRCUITS - Dotted Line - Drain Line (drain or bleed line - line conducting fluid from a component housing to the reservoir)	NON-RETURN VALVE. SHUTTLE VALVE: Valve which allows free flow in one direction only	
	COMPONENTS - Long Chain Line - Enclosure outline for several components assembled in one unit		NON RETURN VALVE (Check Valve) Used as Replenishing Valve, Load Check valve or Anticavitation Valve - Opens if the inlet pressure is higher than the Outlet pressure. Often contains internal spring which has NO significant pressure value.
	MECHANICAL CONNECTIONS - Double Line shaft, Lever, Piston Rod)		CONTROL VALVE WITH SPRING RETURN (mechanical)
	CONNECTED JUNCTION OF OIL LINES (Flow Line Connection)		CONTROL VALVE ACTIVATED BY AN ELECTRIC SOLENOID (electrical)
	OIL LINES CROSSING (NOT Connected)	CYLINDER: Equipment to convert hydraulic energy into linear energy and in which the fluid pressure operates alternately in both directions (forward and backward strokes)	
MOTOR: To convert hydraulic energy into rotary mechanical energy			DOUBLE ACTING HYDRAULIC CYLINDER, UNEQUAL DISPLACEMENT - With single piston rod
	FIXED CAPACITY DISPLACEMENT BIDIRECTIONAL HYDRAULIC MOTOR With two directions of flow (bidirectional)		

ELECTRICAL SCHEMATIC (S/N 991800663 & ABOVE, S/N 991900906 & ABOVE)





SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER	<input type="checkbox"/>
SERVICE MANAGER	<input checked="" type="checkbox"/>
SALES MANAGER	<input type="checkbox"/>

NOTICE

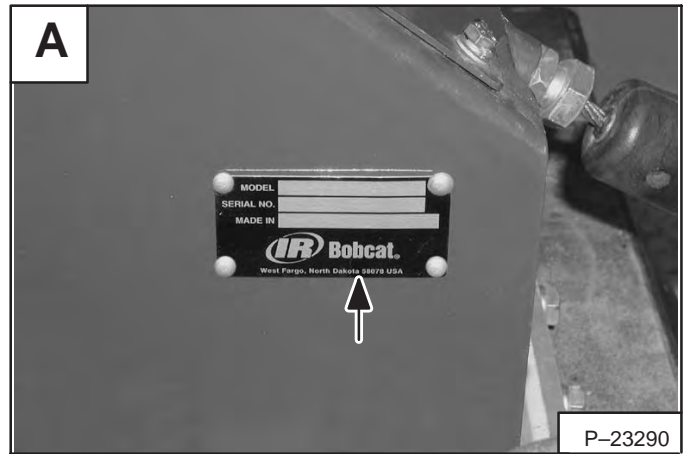
Insert This Sheet With The Below Listed Manual For Future Reference.

Revision No: Wheel Saw - 1
Date: 15 April 2011
Product: Bobcat Attachment
Model: Wheel Saw
Manual No: 6901389 (4-11)

Wheel Saw Service Manual (P/N 6901389) Dated 4-11 contains updated service information which replaces the previous Wheel Saw Service Manual (P/N 6901389) Dated 5-01.

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].



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.

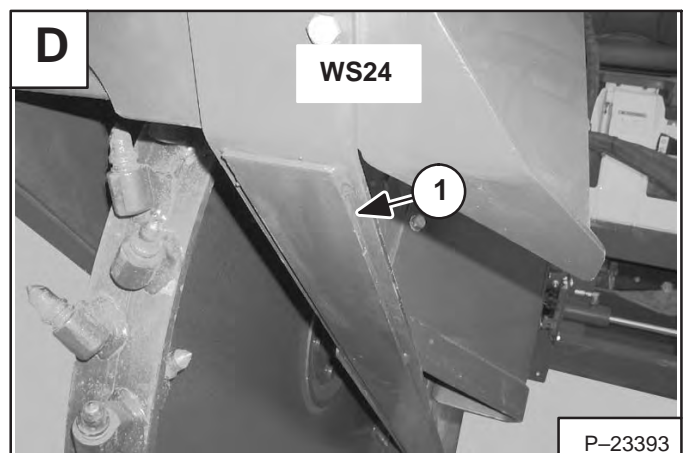
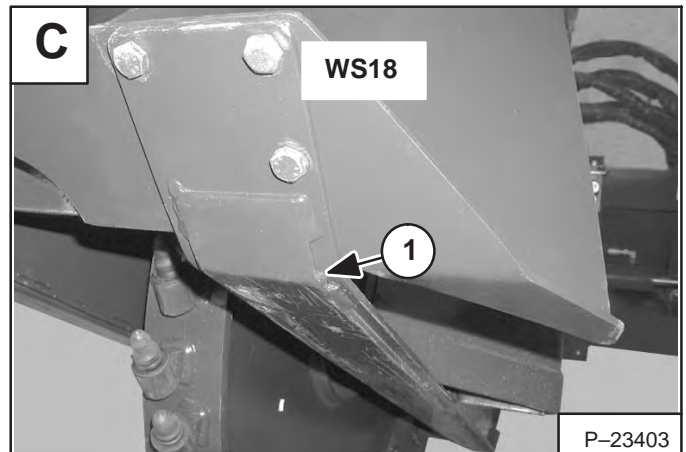
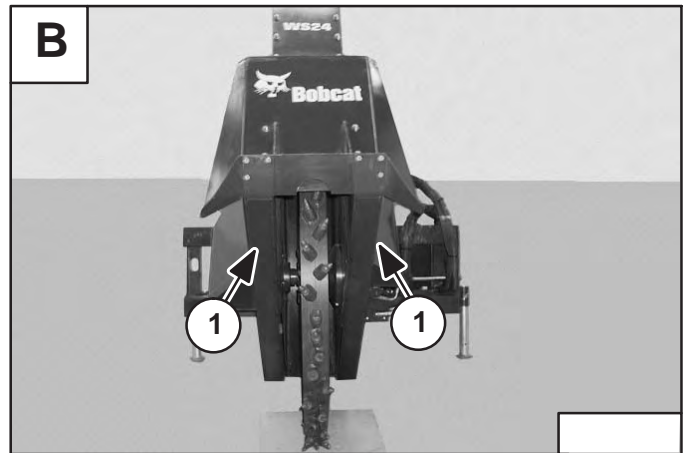
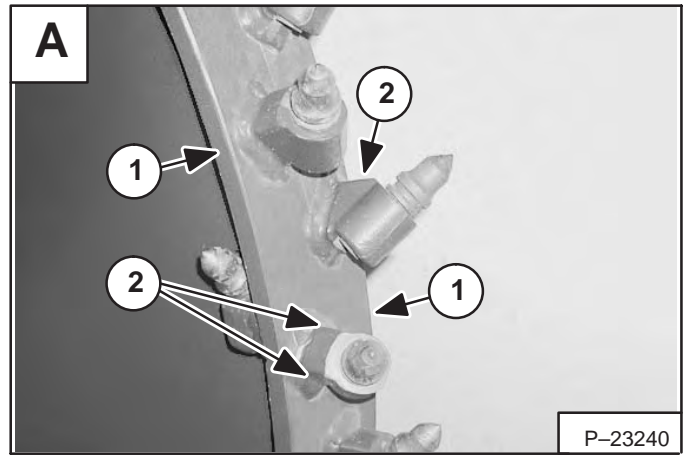
Apply hard surface welding to these contact edges to prolong the life of the cutter wheel and the holders.

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.

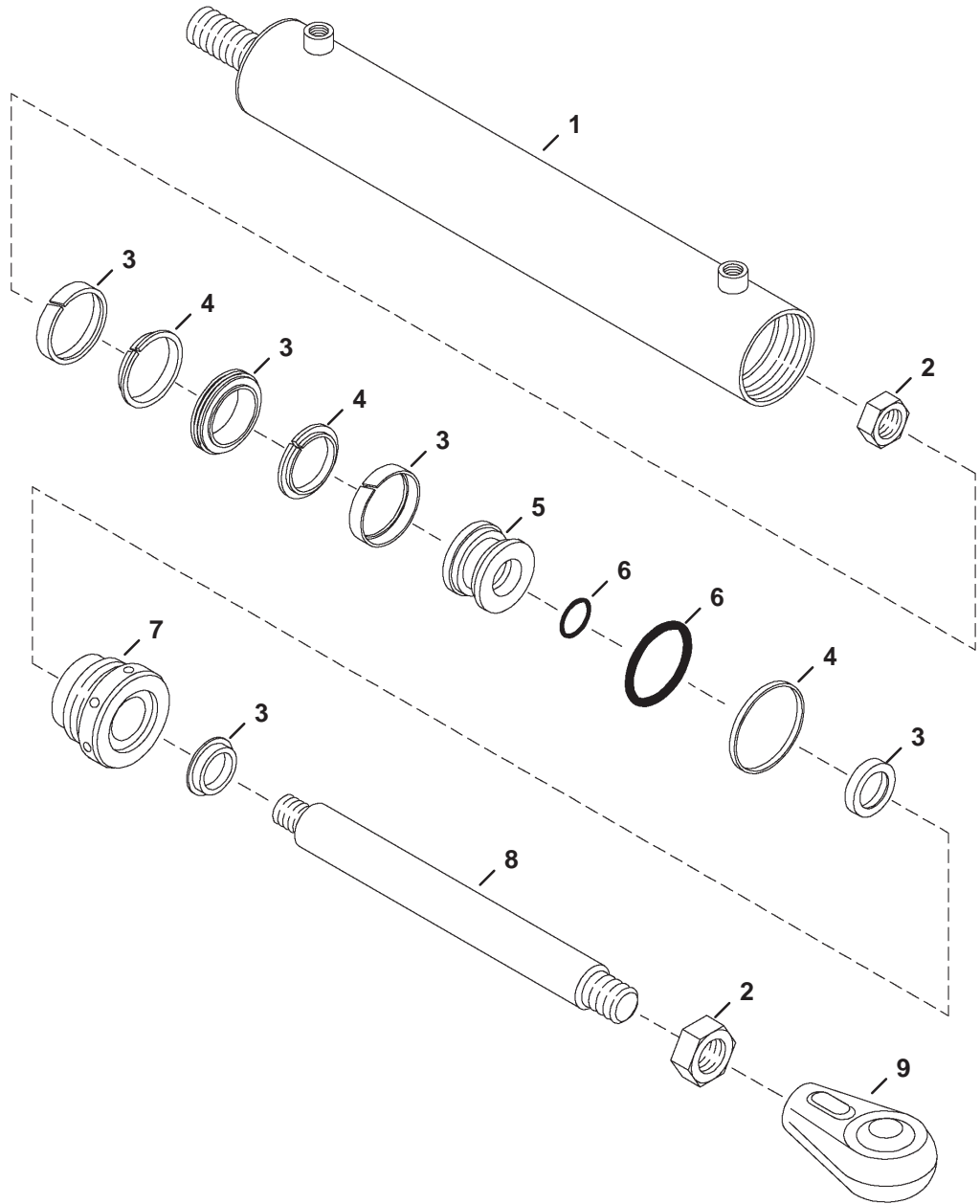
The two wear plates (Item 1) **[B]** are 1/4 inch (6,3 mm) thick: The WS18 (Item 1) **[C]** is 3-1/4 x 67 inches (82,5 x 1702 mm); The WS24 (Item 1) **[D]** is 3-1/4 x 64 inches (82,5 x 1626 mm). Fabricate these replacement wear plates locally. Fasten the wear plates to the frame with clamps and stitch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



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)

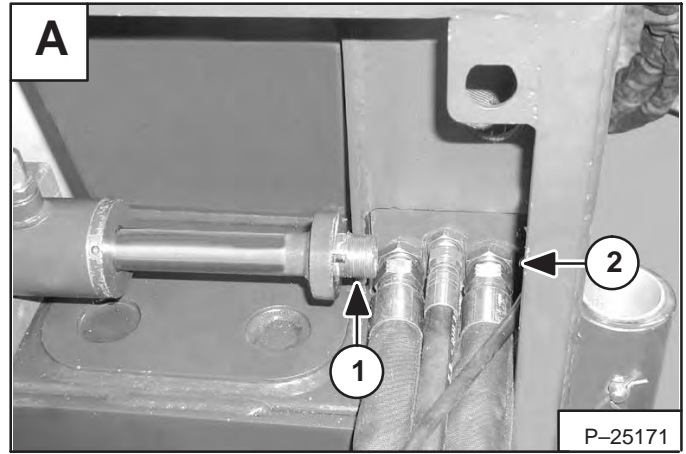
Side Shift Cylinder Removal And Installation (Cont'd)

Lower the seat bar, start the engine, raise the attachment until the cutter wheel clears the floor and retract the side shift cylinder until the rod (Item 1) [A] clears the frame (Item 2) [A].

Lower the wheel saw to the ground.

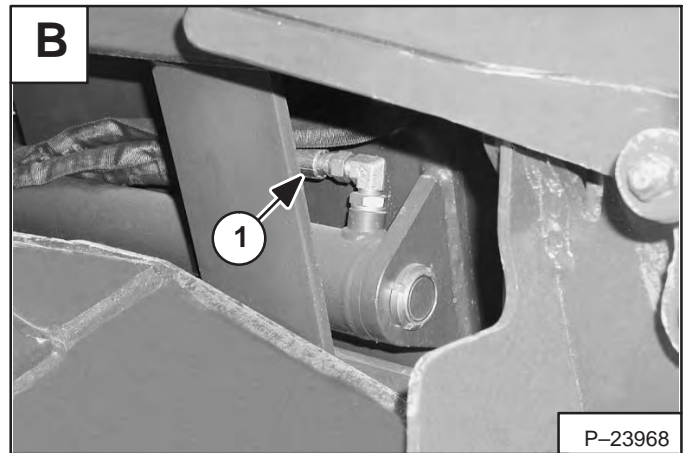
Stop the engine and release the hydraulic pressure.

Engage the parking brake and exit the loader.



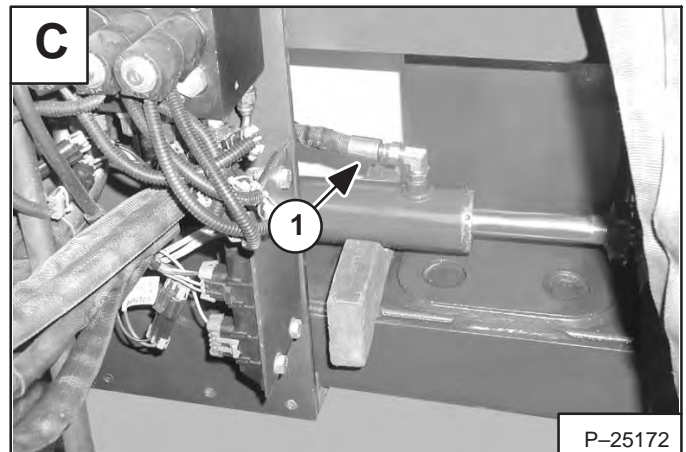
Remove the hydraulic hose (Item 1) [B] from the base end of the cylinder.

Install a cap and plug.



Remove the hydraulic hose (Item 1) [C] from the rod end of the cylinder.

Install a cap and plug.



HYDRAULIC CYLINDER (Cont'd)

Trench Cleaner Cylinder Checking

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

Retract the trench cleaner cylinder (Item 1) [A].

NOTE: It is not necessary to remove the cover to check the cylinder.

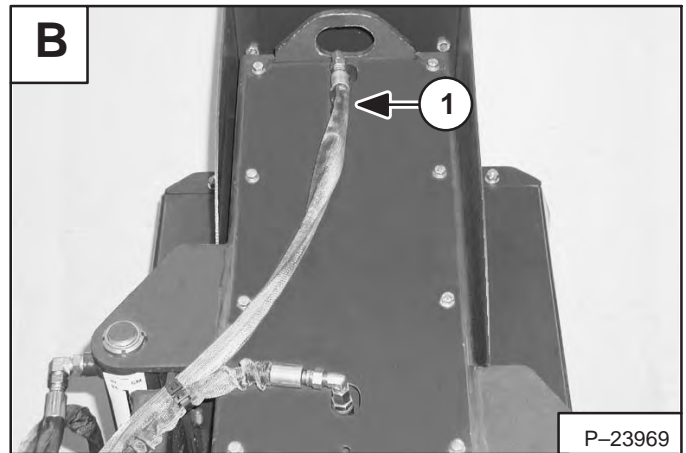
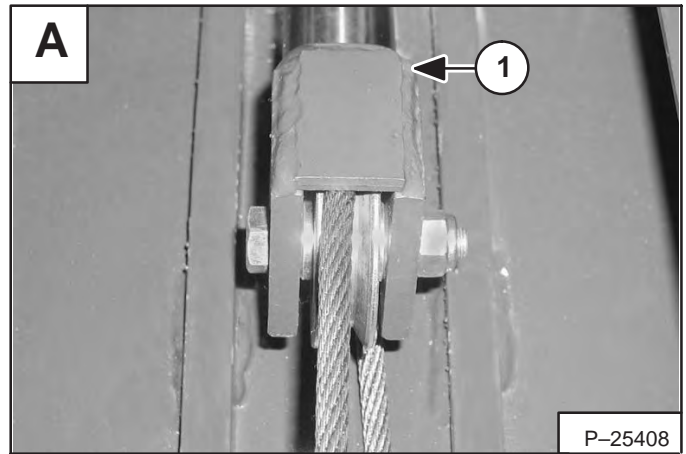
Relieve hydraulic pressure and stop the engine.

Engage the parking brake and exit the loader.

Remove the hydraulic hose from the base end of the cylinder (Item 1) [B] and install a plug on the hose.

Start the engine, raise the attachment until the cutter wheel is off the floor and retract the cylinder.

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



HYDRAULIC CONTROL VALVE

Removal And Installation

! 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

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

Remove the attachment control device (WS 24 only). (See Page 30-01.)

Remove the two bolts, flat washers and locknuts (Item 1) [A] from the attachment control device bracket and remove the bracket (WS-24 only).

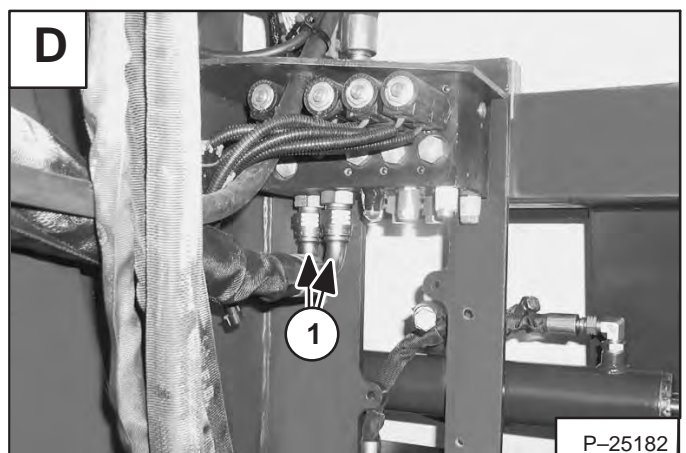
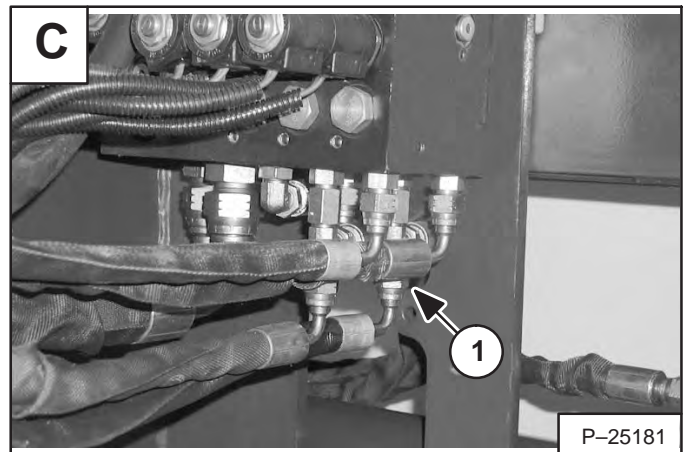
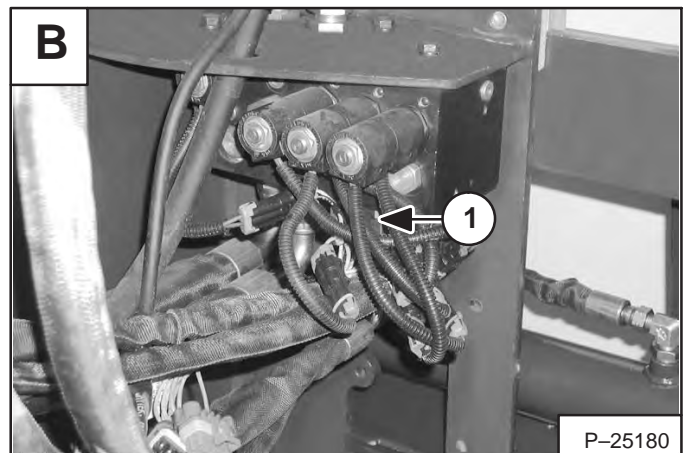
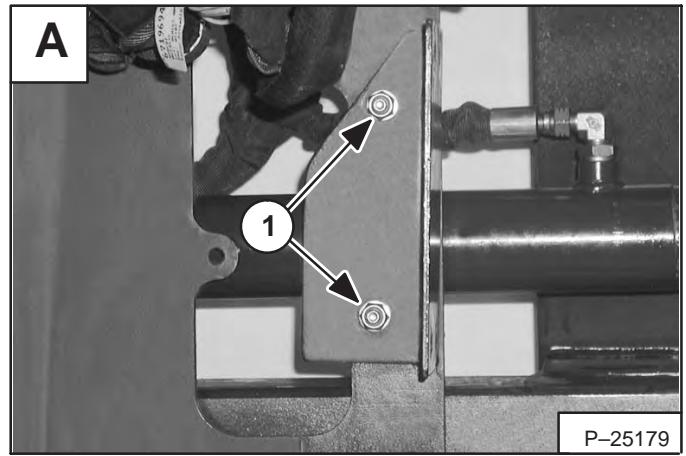
Installation: Tighten the bolts to 32-35 ft.-lbs. (43-47 Nm) torque.

Disconnect the six wire connectors (Item 1) [B].

Disconnect the six hydraulic cylinder hoses (Item 1) [C].

NOTE: Mark the hoses for correct installation.

Remove the two hydraulic motor hoses (Item 1) [D].



HYDRAULIC CONTROL VALVE (Cont'd)

Assembly

Clean all components with clean solvent and dry with compressed air.

Check the spools for wear or scratches.

Check that the spools are not loose in their ports.

Replace the parts as needed.

Use new O-rings and back-up rings.

Apply hydraulic oil to all new O-rings and back-up rings during assembly.

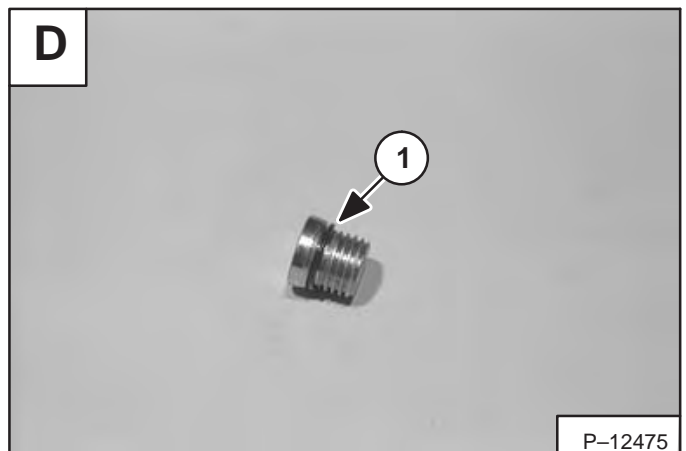
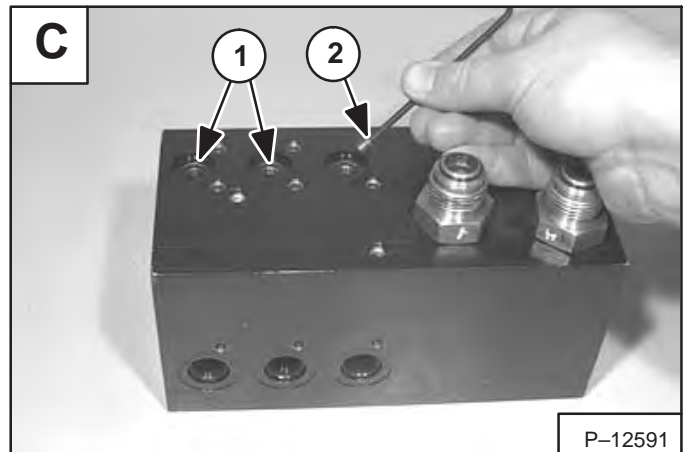
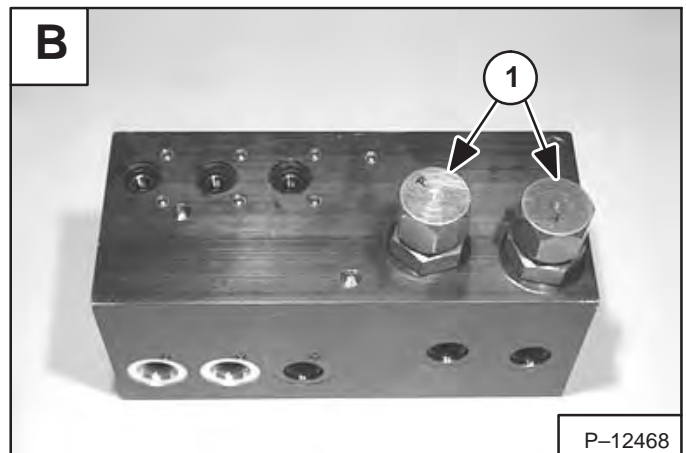
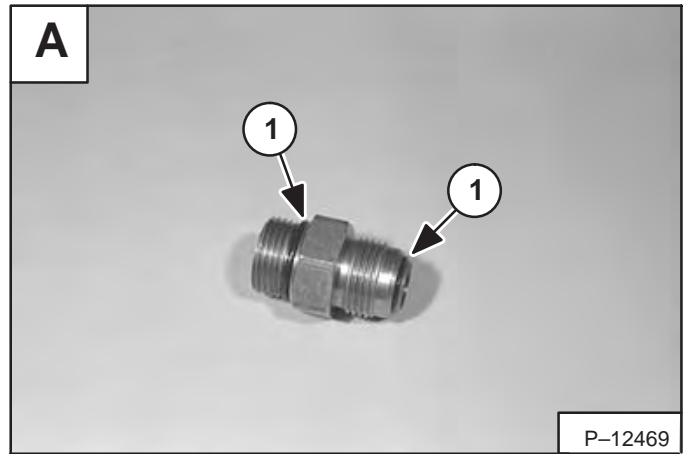
Install the O-rings (Item 1) **[A]** on the fittings.

Install and tighten the two fittings (Item 1) **[B]** in the control valve.

Apply one drop of thread lock adhesive (LOCTITE 242) on the two 0.047 orifices, install and tighten in the two ports (Item 1) **[C]** in the control valve.

Apply one drop of thread lock adhesive (LOCTITE 242) on the 0.060 orifice (Item 2) **[C]** install in the port in the control valve and tighten.

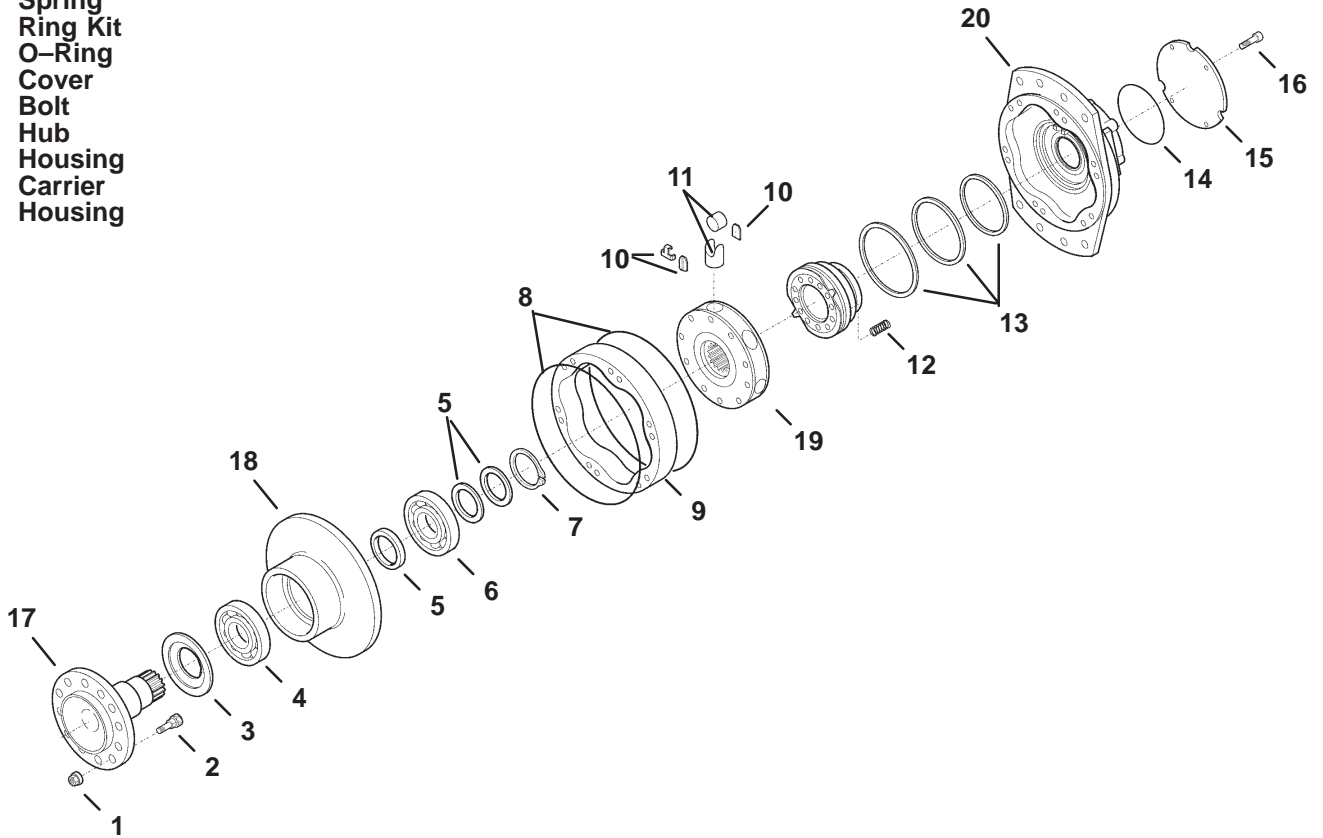
Install an O-ring (Item 1) **[D]** on the plugs.



HYDRAULIC MOTOR (Cont'd)

Parts Identification

- 1. Nut
- 2. Bolt
- 3. Seal
- 4. Bearing
- 5. Spacer
- 6. Bearing
- 7. Retaining Ring
- 8. O-Ring
- 9. Cam
- 10. Kit, E-clips
- 11. Piston
- 12. Spring
- 13. Ring Kit
- 14. O-Ring
- 15. Cover
- 16. Bolt
- 17. Hub
- 18. Housing
- 19. Carrier
- 20. Housing

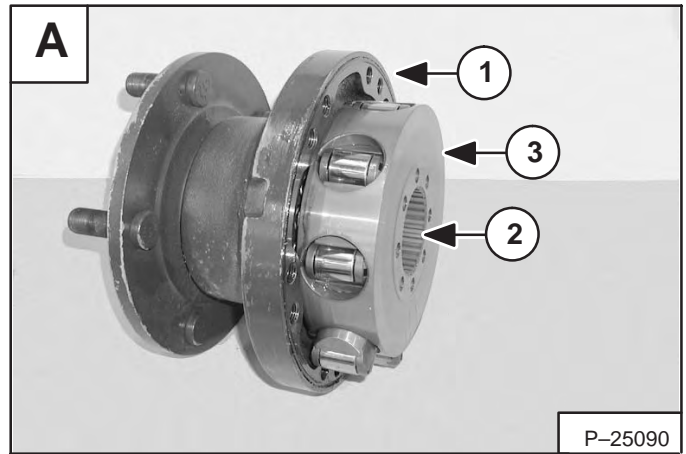


HYDRAULIC MOTOR (Cont'd)

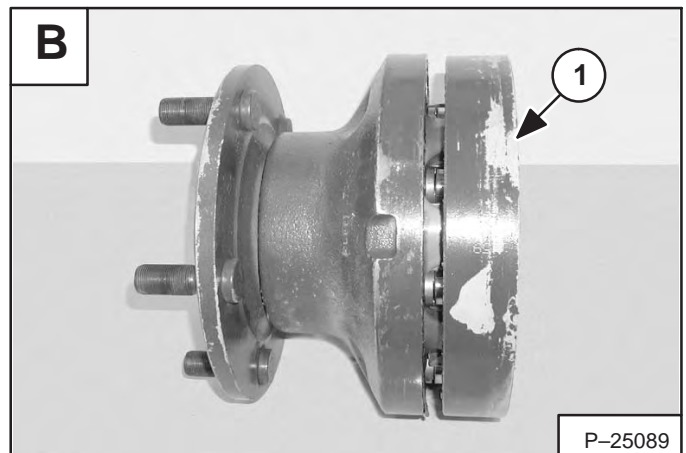
Assembly (Cont'd)

Install the O-ring (Item 1) **[A]** on the hub.

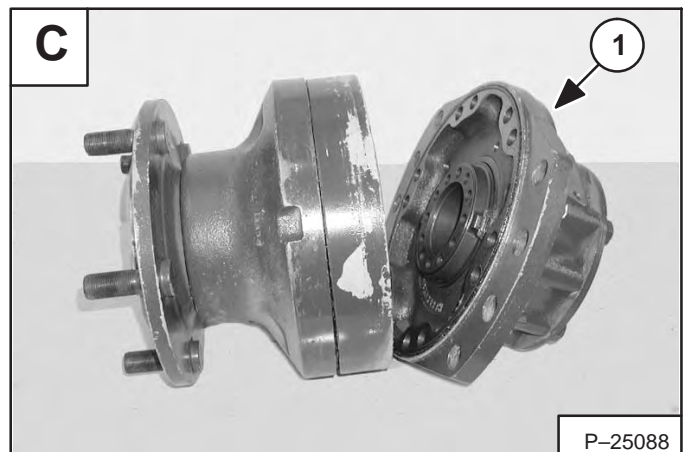
Install the carrier (Item 3) **[A]** on the bearing housing by aligning the splines on the shaft with the splines (Item 2) **[A]** of the carrier.



Place the center housing (Item 1) **[B]** on the hub.



Install the end cap (Item 1) **[C]** on the center housing.

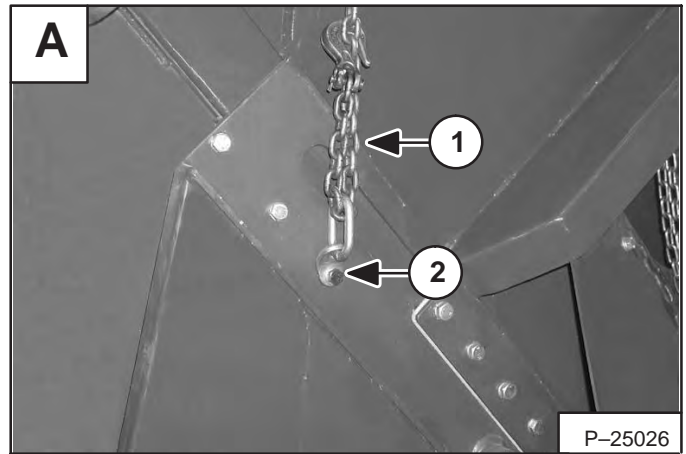


DEPTH ADJUSTMENT FRAME (Cont'd)

Removal And Installation (Cont'd)

Install an additional hoist (Item 1) [A] using the bolt hole (Item 2) [A].

Raise the hoist until the weight of the right side frame is supported by the hoist.



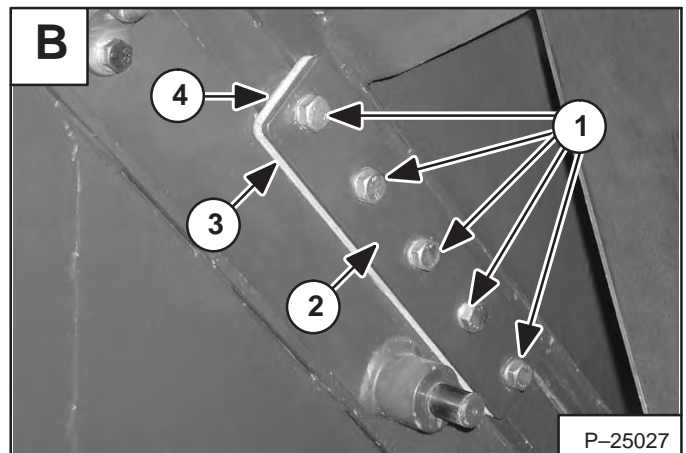
Remove the five bolts and lock washers (Item 1) [B] from the slide assembly.

Installation: Tighten the bolts to 90–100 ft.-lbs. (125–140 Nm) torque.

NOTE: Use caution when removing the slide assembly bolts. The frame may swing away from the housing.

Remove the slide assembly, plate (Item 2) [B], wear plate (Item 3) [B] and spacer (Item 4) [B].

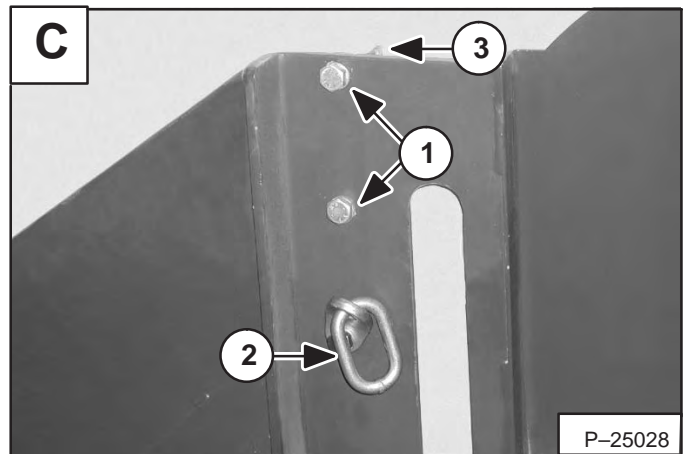
Raise the hoist and remove the right side frame.



Remove the bolts and lock washers (Item 1) [C] and hoist mount (Item 2) [C] from the guide (Item 3) [C].

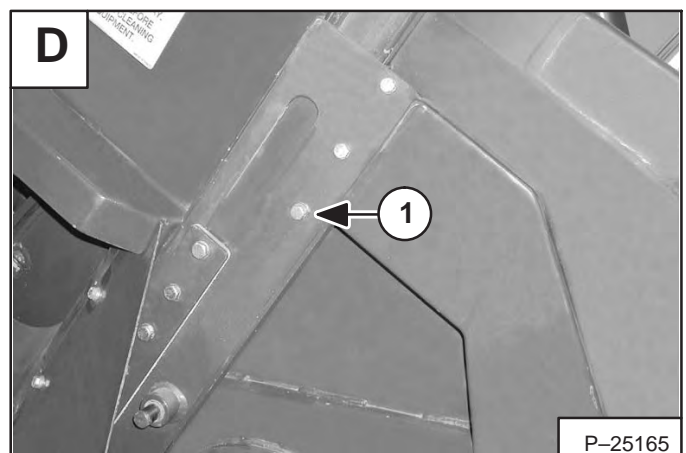
Installation: Tighten the bolts to 55–60 ft.-lbs. (75–85 Nm) torque.

Remove the guide.



Remove a bolt and lock washer (Item 1) [D] from the guide on the left side frame. The WS 24 is shown, the WS 18 has five guide bolts.

Installation: Tighten the bolt to 55–60 ft.-lbs. (75–85 Nm) torque.



HUB

Removal And Installation

See Hydraulic Motor Removal Page 20-01.

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