

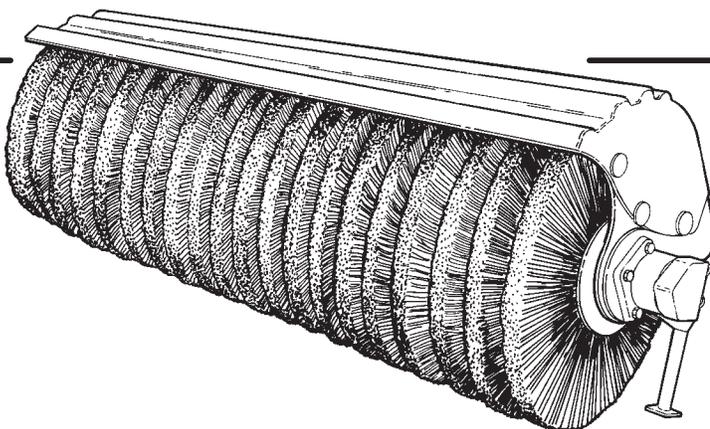


**Bobcat**®

**Angle  
Broom  
84"**

**VersaHANDLER  
Attachment  
Service  
Manual**

**84" – S/N 662700101 & Above**



Product: Bobcat Angle Broom 84- Service Repair Workshop Manual  
Full Download: <https://www.arepairmanual.com/downloads/bobcat-angle-broom-84-service-repair-workshop-manual/>

Sample of manual. Download All 64 pages at:  
<https://www.arepairmanual.com/downloads/bobcat-angle-broom-84-service-repair-workshop-manual/>

# 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.



B-10731a

-  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**

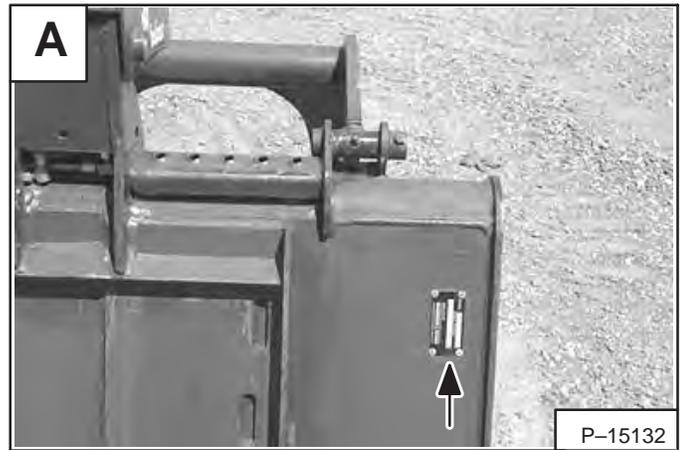
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



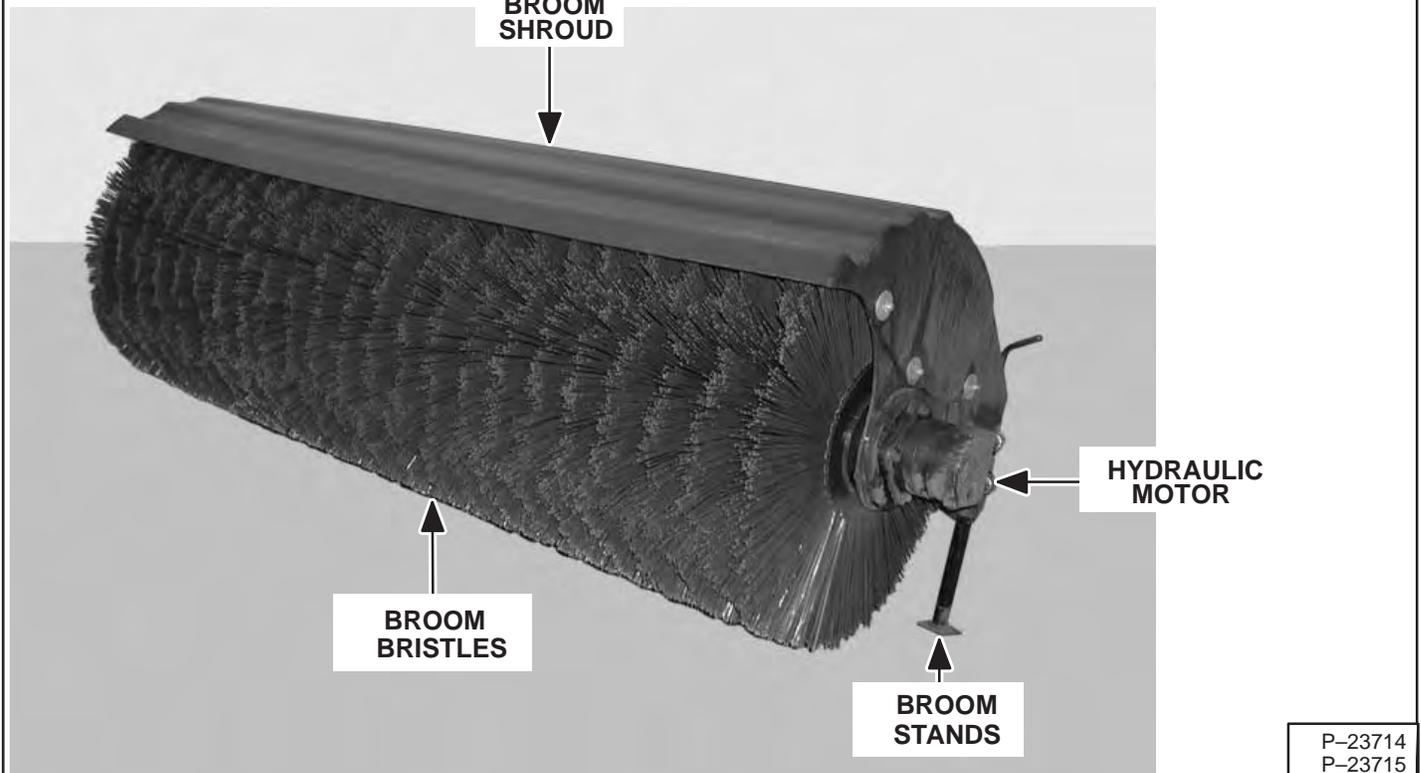
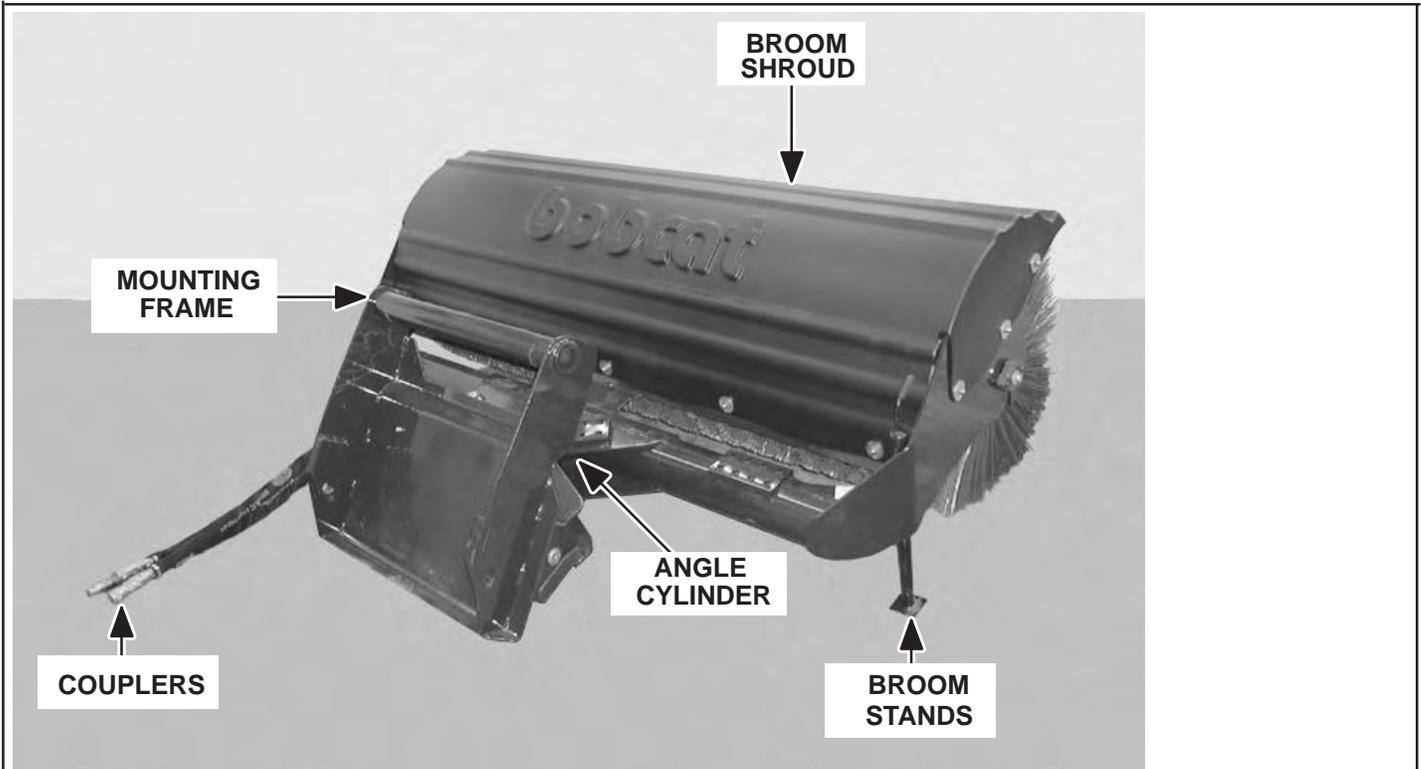
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## SERIAL NUMBER LOCATION

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**



## SAFETY AND MAINTENANCE

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**SAFETY AND  
MAINTENANCE**



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**TROUBLESHOOTING**



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 Angle Broom is not working correctly, check the hydraulic system of the VersaHANDLER thoroughly before making any repairs on the Angle Broom. Angle Broom problems can be affected by a hydraulic system that is not operating to specifications.

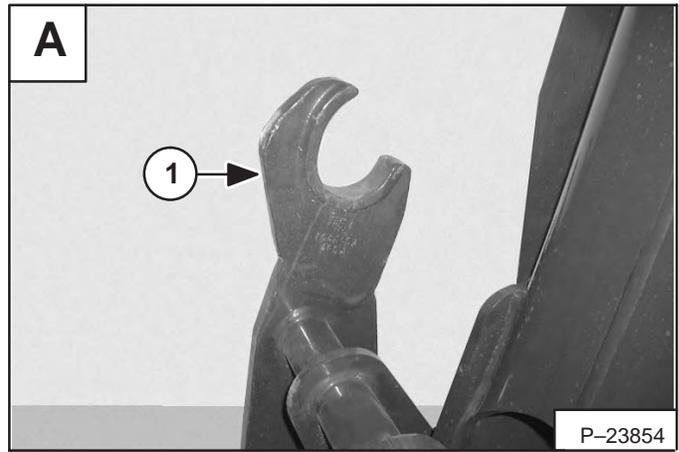
If the VersaHANDLER operation is found to be correct, use the following troubleshooting chart to locate and correct problems with the Angle Broom.

<b>PROBLEM</b>	<b>CAUSE</b>	<b>CORRECTION</b>
Angle Broom does not mount properly on the VersaHANDLER.	VersaHANDLER locking pins are not fully retracted.	Retract VersaHANDLER locking pins.
	Mud, dirt or stones are lodged between the VersaHANDLER mounting frame and the Grapple mount.	Remove debris between the VersaHANDLER mounting frame and Angle Broom mount.
Angle Broom does not angle..	No hydraulic flow.	Activate VersaHANDLER hydraulic on/off switch.
	No hydraulic flow.	Activate VersaHANDLER secondary auxiliary hydraulic switch.
	No hydraulic flow.	Check quick couplers connection. Check for damaged hose ends and fittings.
	No hydraulic flow.	Bleed valve in the bleed position, return valve to the operating position.
Angle Broom angles when broom is rotating.	Secondary auxiliary switch activated.	Move the VersaHANDLER secondary auxiliary switch to the off position.
Angle Broom does not rotate.	No hydraulic flow.	Activate VersaHANDLER hydraulic on/off switch
	No hydraulic flow.	Activate VersaHANDLER front auxiliary hydraulic detent switch.
	No hydraulic flow.	Check quick couplers connection. Check for damaged hose ends and fittings.
	No hydraulic flow.	Bleed valve in the bleed position, return valve to the operating position.

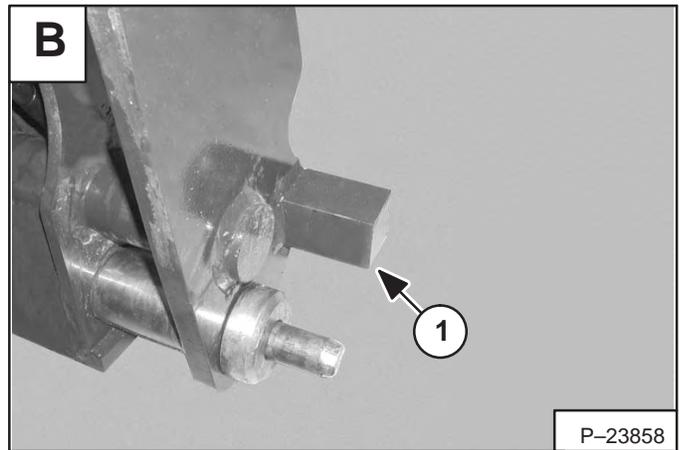
## INSPECTION

### VersaHANDLER Mounting Frame Inspection

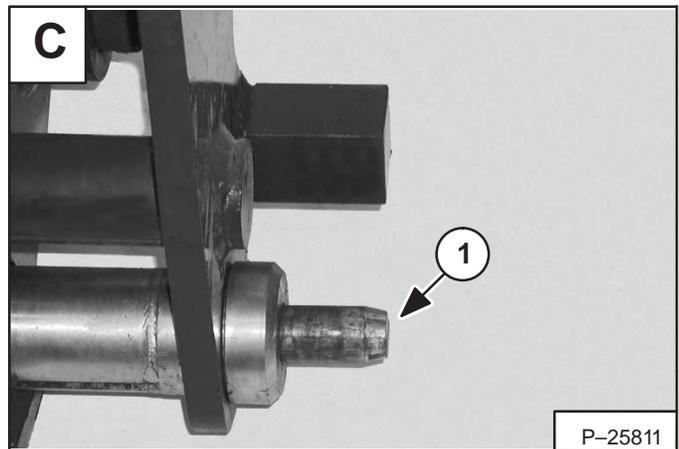
The VersaHANDLER mounting hooks (Item 1) **[A]** must not be damaged. Check for cracked or broken hooks.



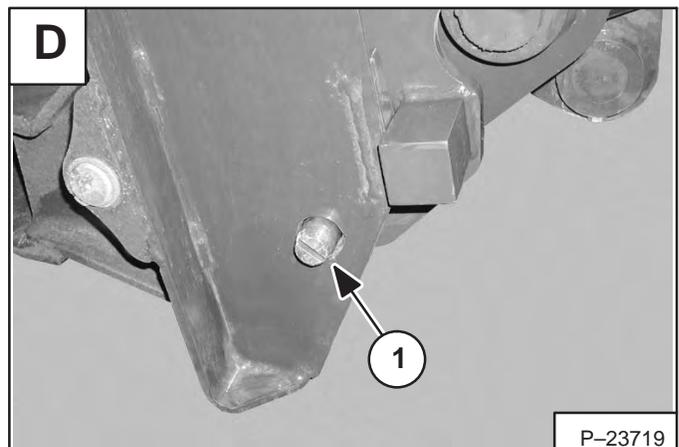
The stop blocks (Item 1) **[B]** must not be damaged. Check for bent or broken stop blocks.



Move the VersaHANDLER locking pins to engage the pins (Item 1) **[C]**. The pins must move freely. The pins must not be bent or the ends mushroomed.



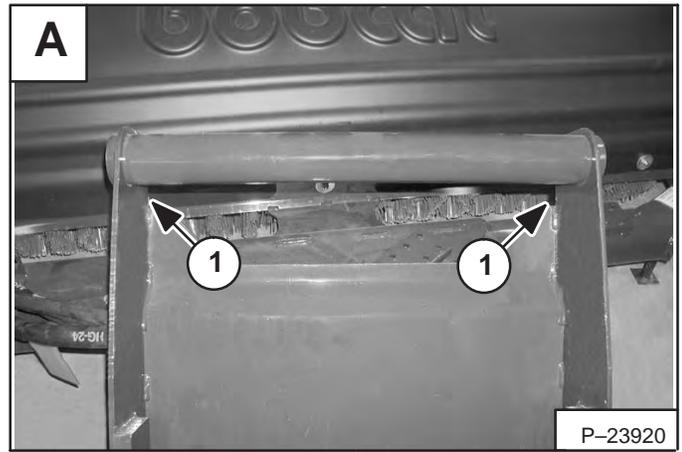
The pins must extend through the holes in the attachment mounting frame (Item 1) **[D]**.



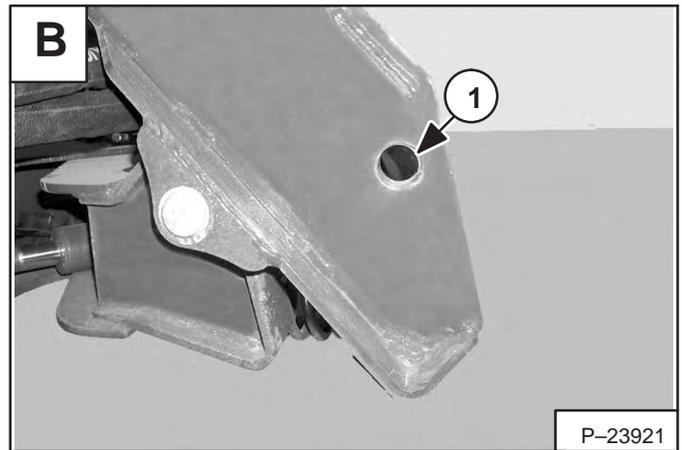
## INSPECTION (Cont'd)

### Angle Broom Mount Inspection

Inspect the Angle Broom mounting tube (Item 1) [A] and all welds on the Angle Broom mount for wear and damage each time the attachment is removed from the VersaHANDLER.

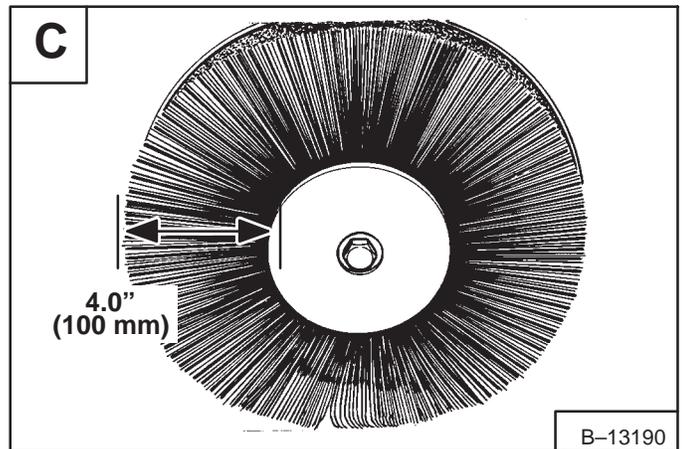


Inspect the mounting holes (Item 1) [B].



### Angle Broom Bristle Minimum Length

For efficient operation of the Angle Broom, the broom bristles should be replaced when four inches (100 mm) of length is reached [C].



## LUBRICATION

Always use a good quality lithium base multi-purpose grease when lubricating the Angle Broom. Apply the lubricant until extra grease shows.

### IMPORTANT

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

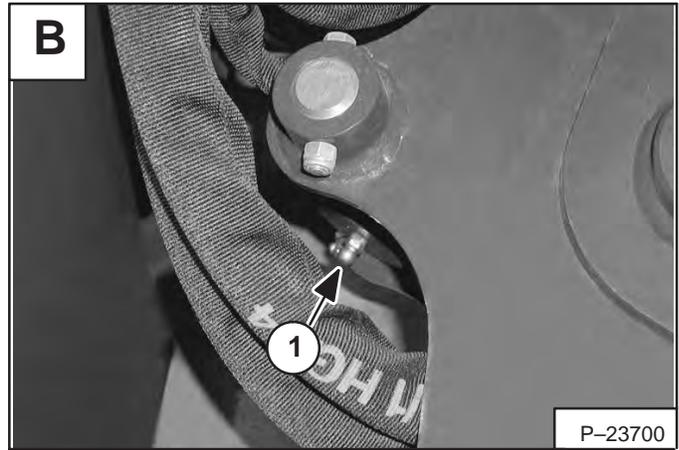
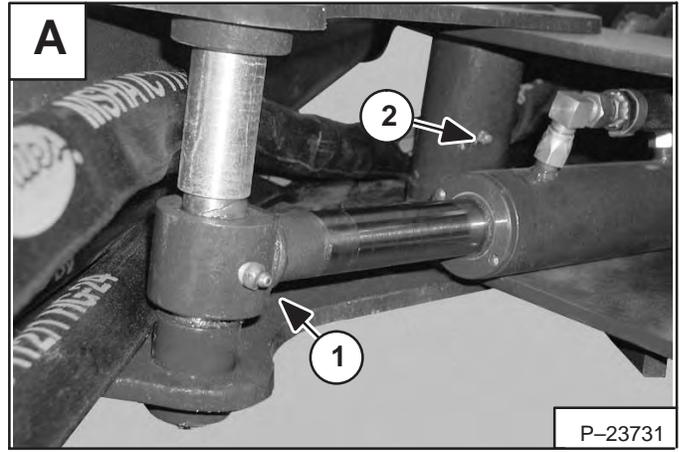
I-2067-0499

Lubricate the three grease fittings, **EVERY 20 hours**:

Cylinder rod end (Item 1) [A].

Center pivot pin (Item 2) [A].

Cylinder base end (Item 1) [B].



## BRISTLE REPLACEMENT

### Bristle Removal

With the Angle Broom attached to the VersaHANDLER lower the broom to the sweep position **[A]**.

Stop the VersaHANDLER engine, engage the parking brake, unfasten the seat belt and exit the VersaHANDLER.

Remove the two bolts (Item 1) **[A]** from the end of the broom.

Enter and start the VersaHANDLER. Tilt the Angle Broom back towards the VersaHANDLER until the broom assembly is clear from the broom shroud.

Drop the broom assembly down and pull the broom bristle assembly forward of the bearing mount. Slide the broom assembly away from the hydraulic motor **[B]**.

Lower the angle broom down.

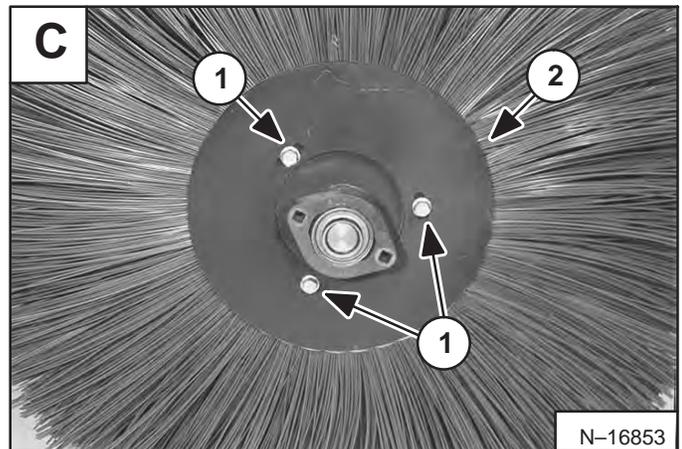
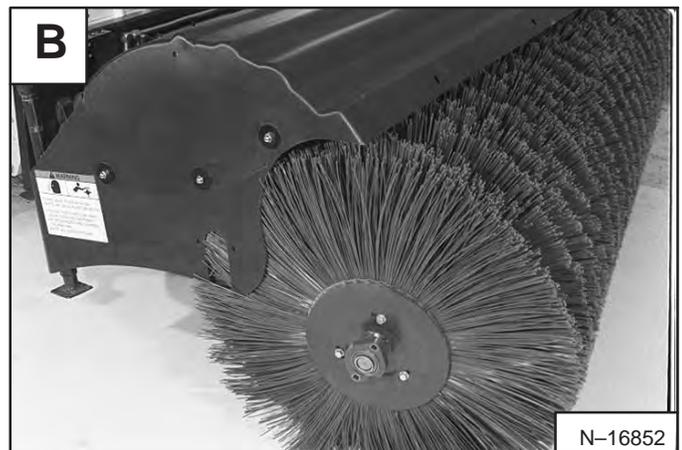
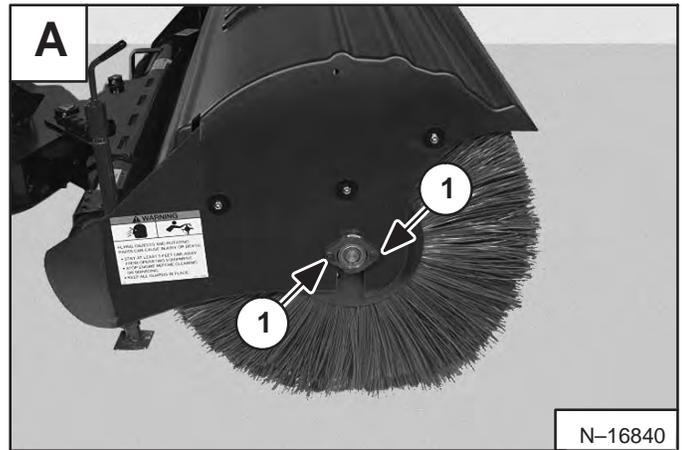
Stop the VersaHANDLER engine, engage the parking brake, unfasten the seat belt and exit the VersaHANDLER.

Remove the three bolts (Item 1) **[C]** from the retaining plate.

Remove the retaining plate (Item 2) **[C]**.

Remove the bristle sections from the carrier **[D]**.

**NOTE: The first section on each end of the broom has a flat bristle retaining ring.**



## BRISTLE REPLACEMENT (Cont'd)

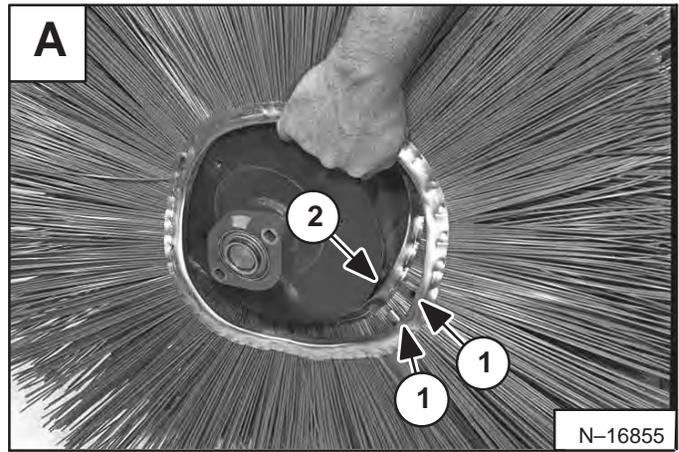
### Bristle Removal (Cont'd)

Continue removing all the bristle sections [A].

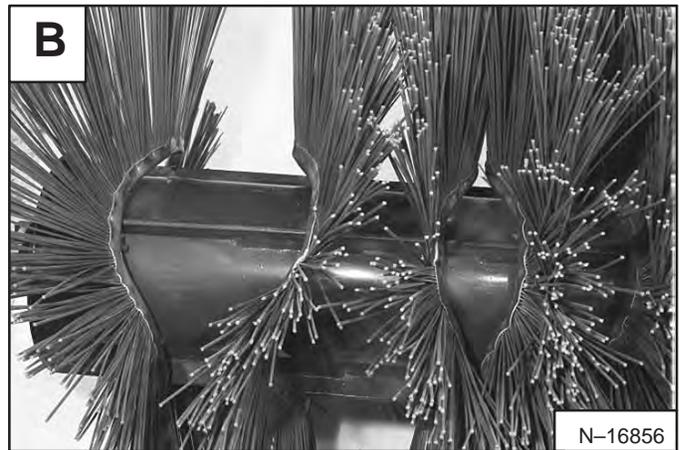
### Bristle Installation

The bristle retaining ring is a wave design. Install the bristles so the two retaining pins (Item 1) [A] are on each side of one of the bristle retainers (Item 2) [A].

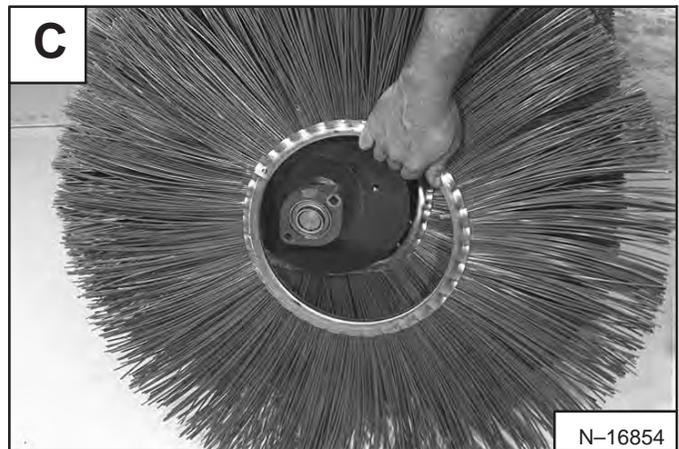
**NOTE:** The first bristle section on each end of the broom has a flat bristle retaining ring.



Install the bristle rings as shown in [B] to provide the correct bristle spacing.

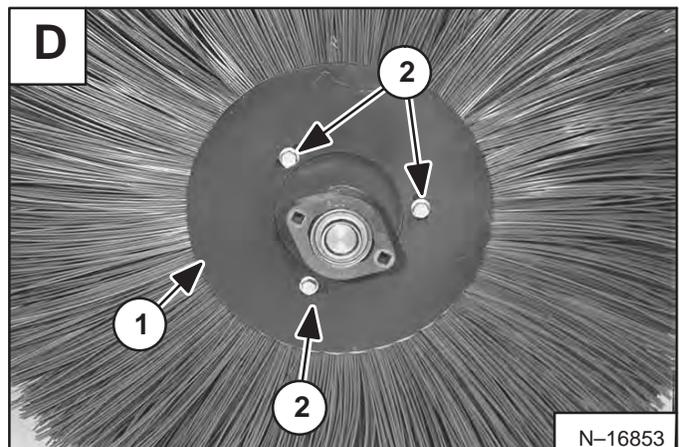


Install the flat bristle ring on the end [C].



Install the retaining plate (Item 1) [D] and three bolts (Item 2) [D].

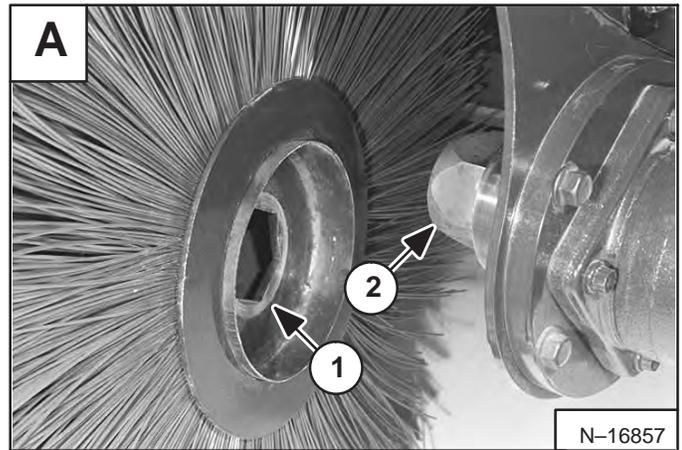
**Installation:** Tighten the bolt to 25–28 ft.-lbs. (34–38 Nm) torque.



## BRISTLE REPLACEMENT (CONT'D)

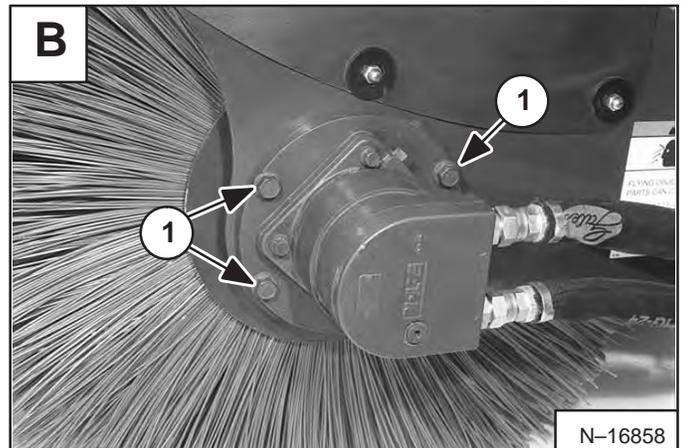
### Bristle Removal (Cont'd)

Install the drive end of the broom assembly (Item 1) [A] on the hex coupling of the hydraulic motor (Item 2) [A].



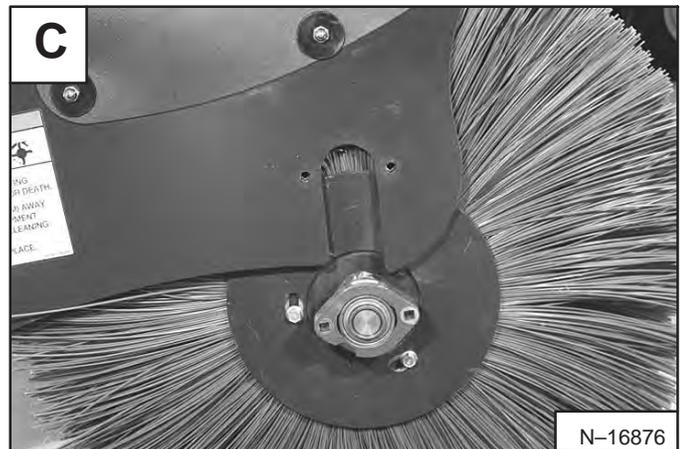
**NOTE:** If the drive end will not align with the hydraulic motor, loosen the four hydraulic motor carrier bolts (Item 1) [B] to align the carrier to the broom to ease installation.

**Installation:** Tighten the bolts to 90–100 ft.-lbs. (122–136 Nm) torque.



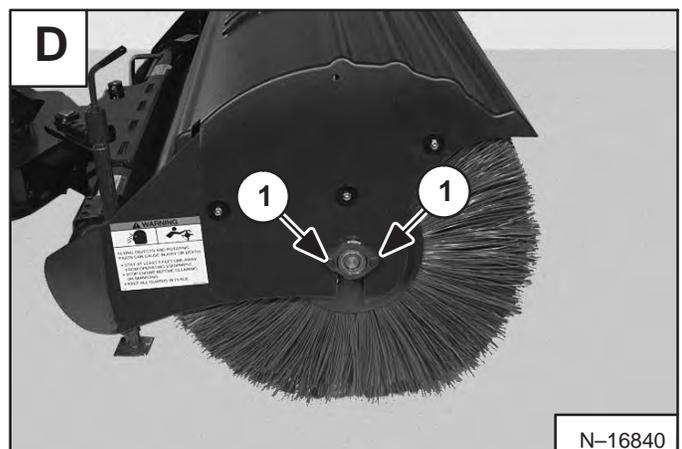
Align the right end of the broom assembly shaft with the slot in the broom frame.

Enter the VersaHANDLER and lower the Angle Broom frame over the broom assembly [C].



Install the two bolts (Item 1) [D].

**Installation:** Tighten the bolt to 35–40 ft.-lbs. (47–54 Nm) torque.





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## HYDRAULIC SYSTEM

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## HYDRAULIC SYSTEM



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## HYDRAULIC CYLINDER

### Checking

# ! 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

Lower the angle broom to the work surface.

Stop the VersaHANDLER engine, engage the parking brake, unfasten the seat belt and exit the VersaHANDLER.

Remove the bolt and lock nut (Item 1) [A] from the rod end cylinder pin (Item 2) [A].

**Installation:** Tighten the bolts to 25–28 ft.-lbs. (34–38 Nm) torque.

Remove the pin (Item 1) [B].

Enter the VersaHANDLER, fasten the seat belt, and start the engine.

Retract the cylinder (Item 2) [B].

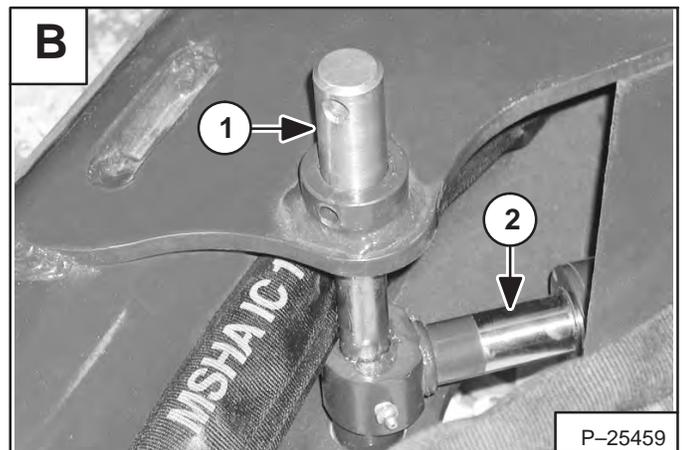
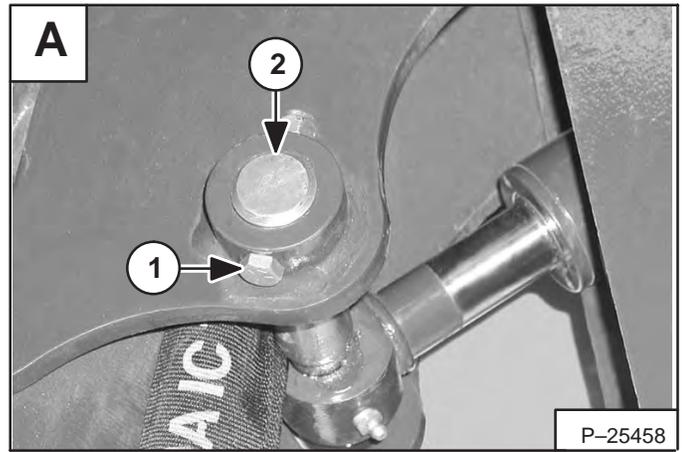
Stop the VersaHANDLER engine, engage the parking brake, unfasten the seat belt and exit the VersaHANDLER.

Release the auxiliary hydraulic pressure.

Remove the hose (Item 1) [C] from the base end of the cylinder. Install a plug on the hose.

Enter the VersaHANDLER, fasten the seat belt and start the engine.

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



## HYDRAULIC CYLINDER (Cont'd)

### 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

Install a hoist (Item 1) [A] and raise the mount frame to relieve tension on the springs.

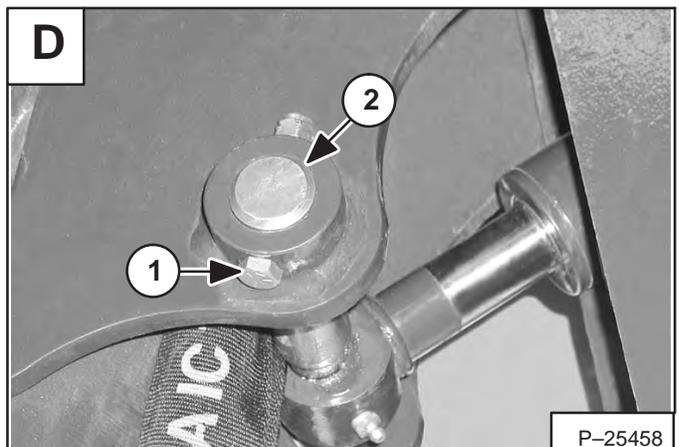
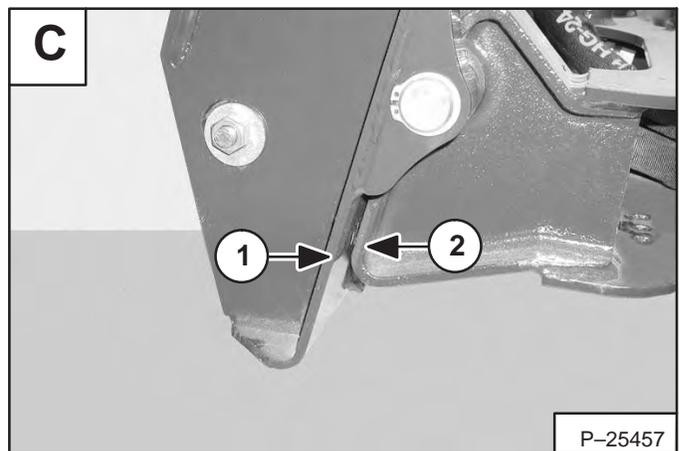
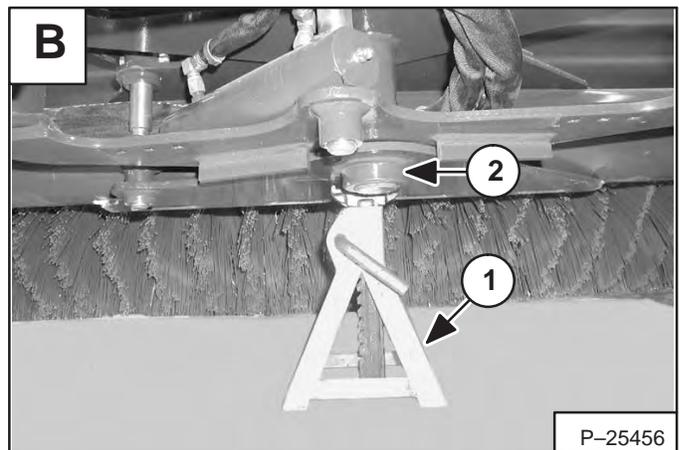
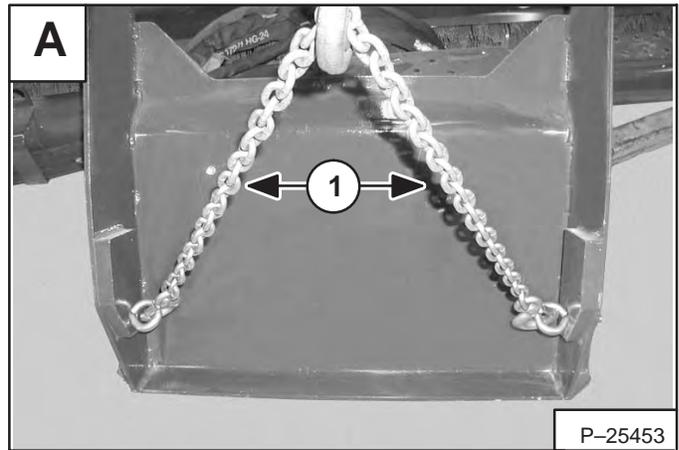
Remove the springs. (See Page 30-01.)

Raise the hoist and install a stand (Item 1) [B] in front of the pivot pin (Item 2) [B].

Lower the hoist and tilt the mount frame (Item 1) [C] back to the stops (Item 2) [C].

Remove the bolt and lock nut (Item 1) [D] from the pin (Item 1) [D].

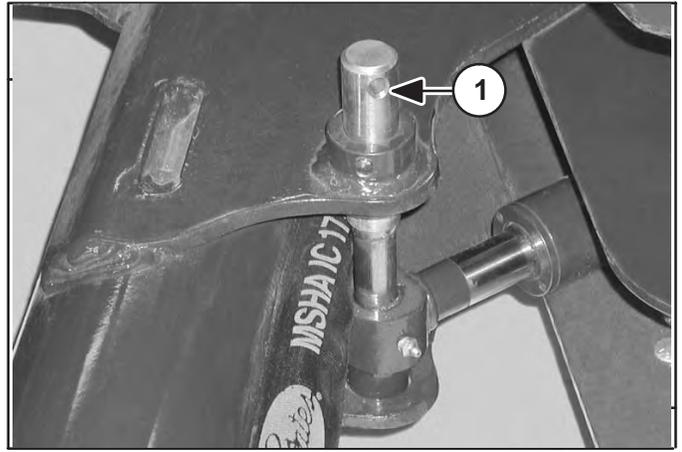
**Installation:** Tighten the bolt to 25–28 ft.-lbs. (34–38 Nm) torque.



## HYDRAULIC CYLINDER (Cont'd)

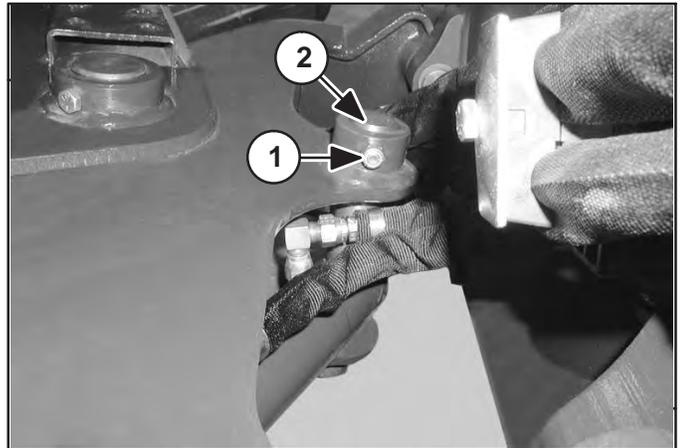
### Removal And Installation (Cont'd)

Remove the pin (Item 1) [A].



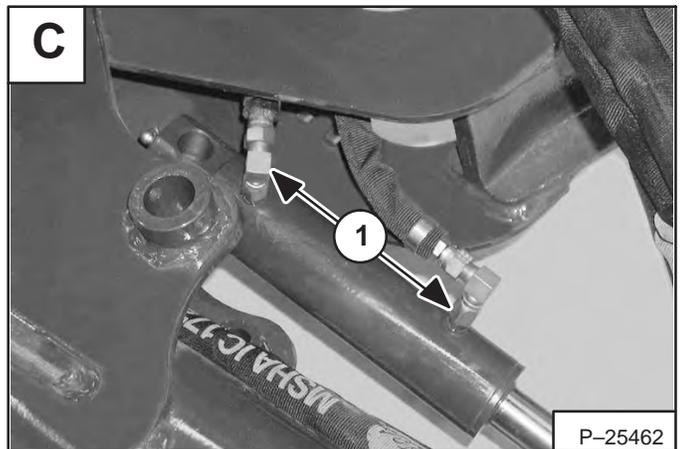
Remove the bolt and lock nut (Item 1) [B] from the base end cylinder pin (Item 2) [B]. Remove the pin.

**Installation:** Tighten the bolt to 25–28 ft.-lbs. (34–38 Nm) torque.



Move the cylinder out and remove the hoses (Item 1) [C]. Install caps and plugs.

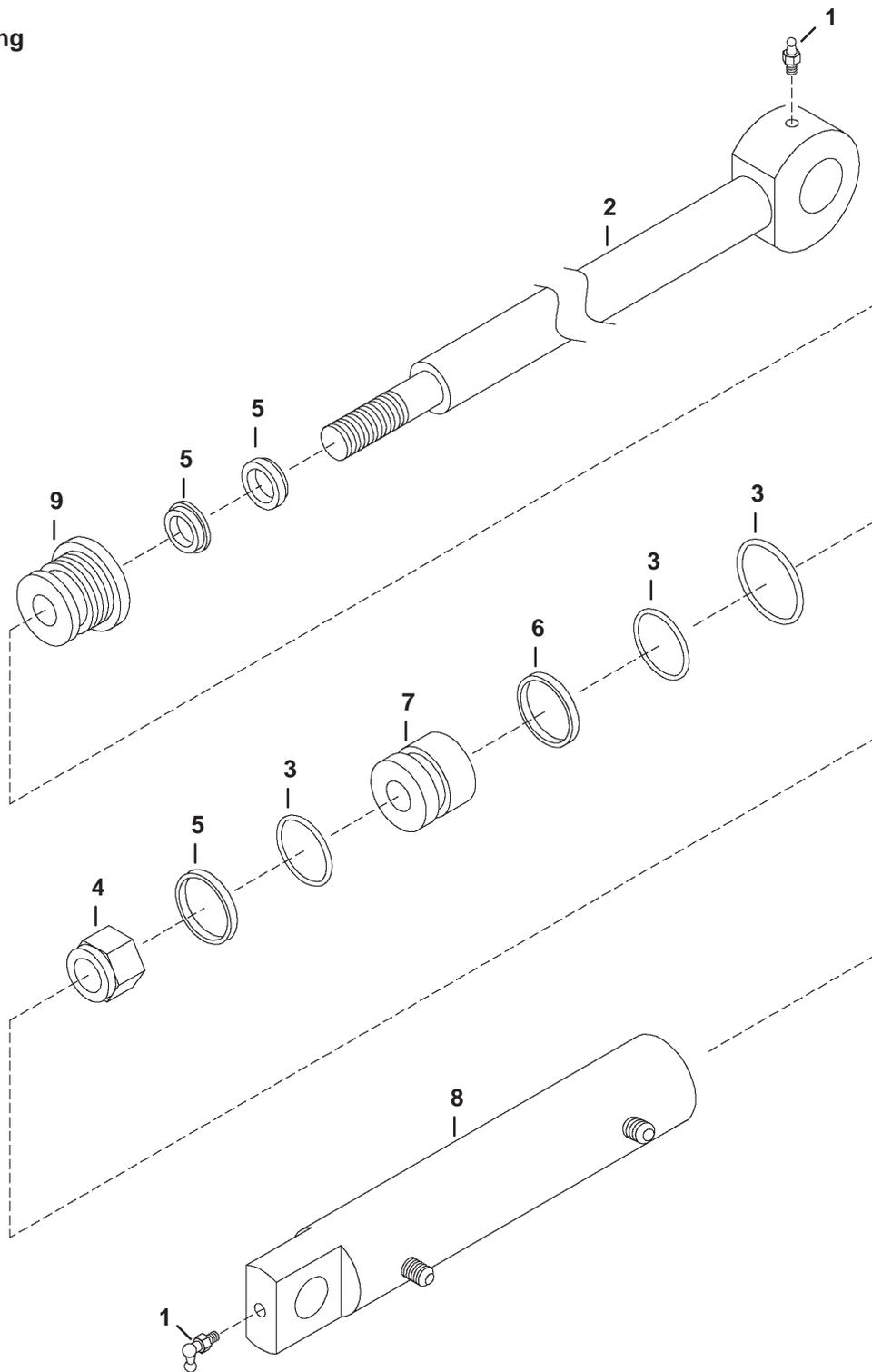
Remove the cylinder.



# HYDRAULIC CYLINDER (Cont'd)

## Parts Identification

1. Grease Fitting
2. Rod
3. O-ring
4. Nut
5. Seal
6. Backup Ring
7. Piston
8. Housing
9. Head



MS-01195

## HYDRAULIC CYLINDER (Cont'd)

### Disassembly

Use the following tools to disassemble the cylinder.

MEL1074—O-ring Seal Hook

Hold the hydraulic cylinder over a drain pan and move the rod in and out slowly 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.

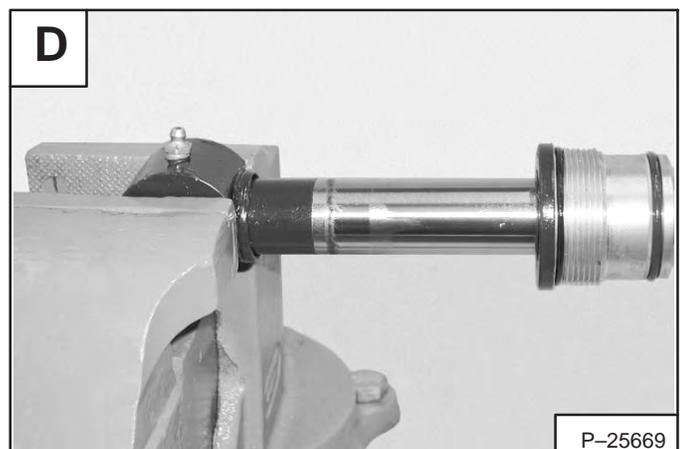
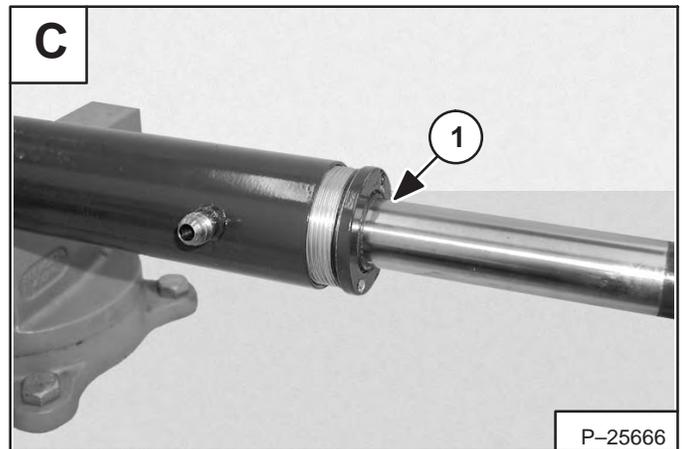
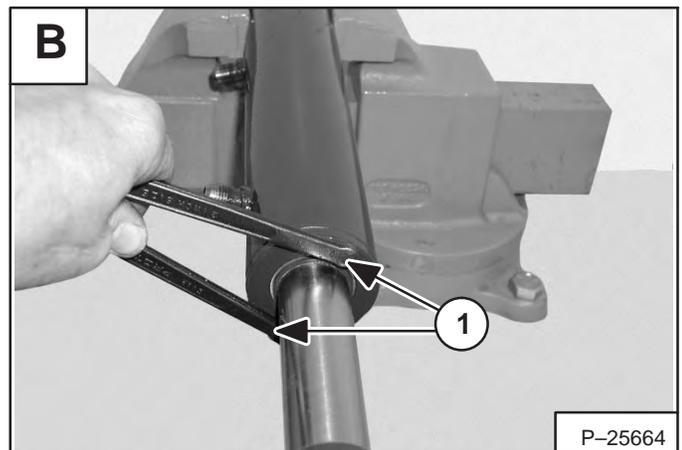
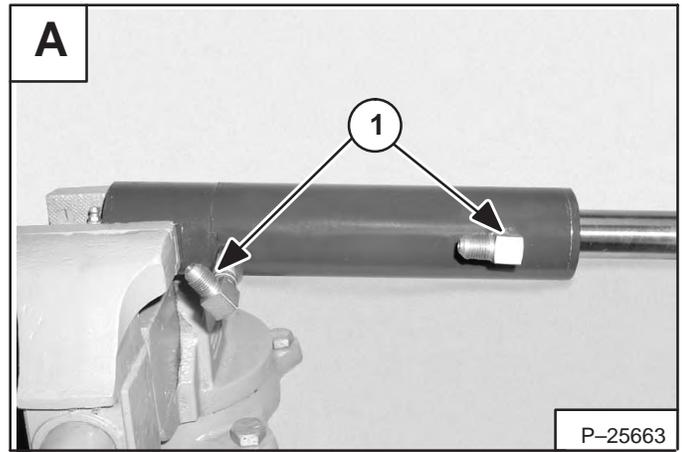
Remove the fittings (Item 1) [A] from the housing.

Insert a spanner wrench into the two holes (Item 1) [B] to loosen the head.

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

Clamp the rod end in a vise [D].

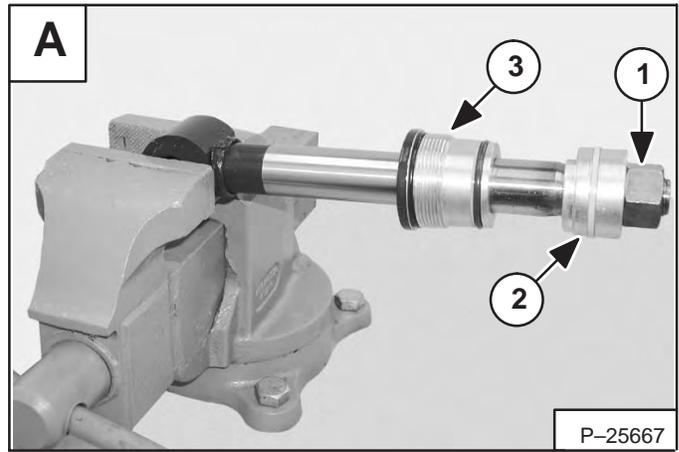
Be careful not to damage the rod.



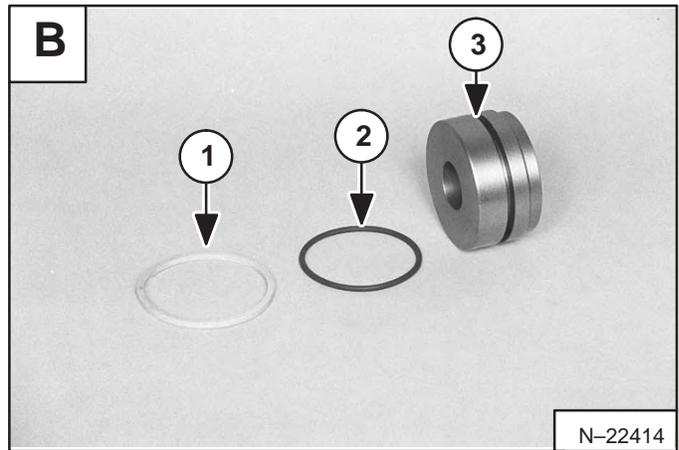
## HYDRAULIC CYLINDER (Cont'd)

### Disassembly (Cont'd)

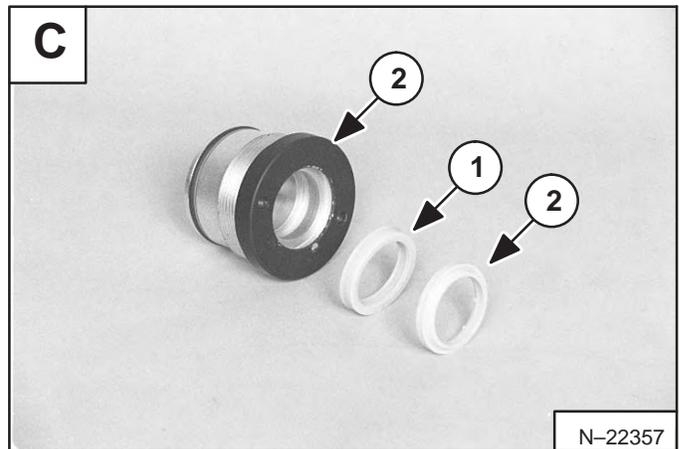
Remove the nut (Item 1) [A], piston (Item 2) [A] and head (Item 3) [A]. Discard the nut.



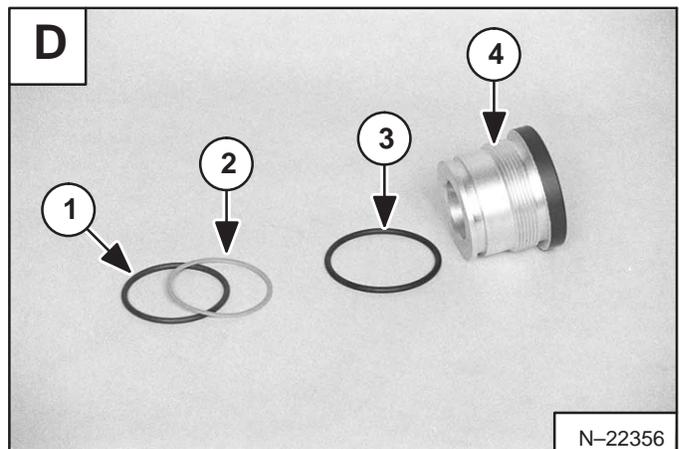
Remove the seal (Item 1) [B] and O-ring (Item 2) [B] from the piston (Item 3) [B].



Remove the wiper seal (Item 1) [C] and rod seal (Item 2) [C] from the inside of the head (Item 3) [C].



Remove the O-ring (Item 1) [D], backup ring (Item 2) [D] and thin O-ring (Item 3) [D] from the head (Item 4) [D].



## HYDRAULIC CYLINDER (Cont'd)

### Assembly

Use the following tools to assemble the cylinder.

MEL1396—Universal Seal expander  
MEL1033—Rod Seal Installation Tool  
Piston Ring Compressor

Wash the cylinder parts in solvent and dry with compressed air.

Inspect the cylinder parts for nicks, scratches or other damage. Replace any damaged parts.

Always install new O-rings, seals and nut during assembly.

Lubricate all O-rings and seals with hydraulic oil during installation.

Install the new seal on the tool and slowly stretch it until it fits the piston **[A]**.

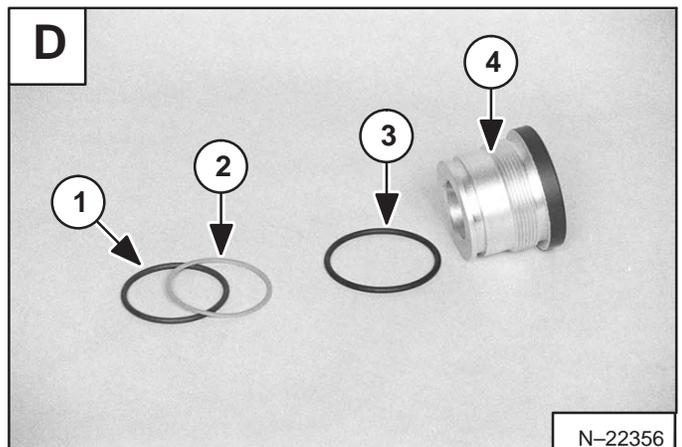
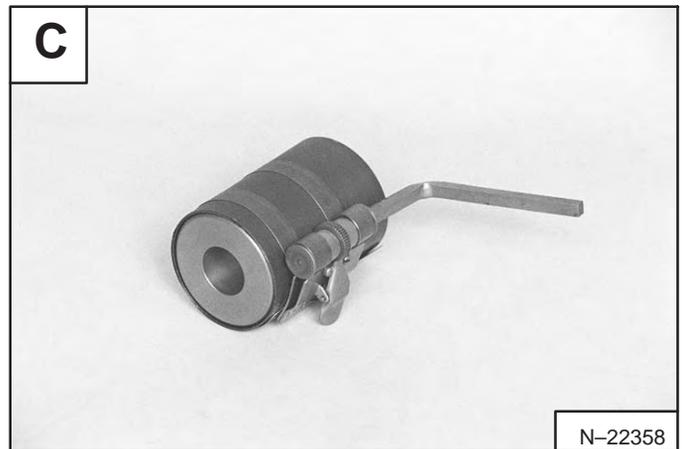
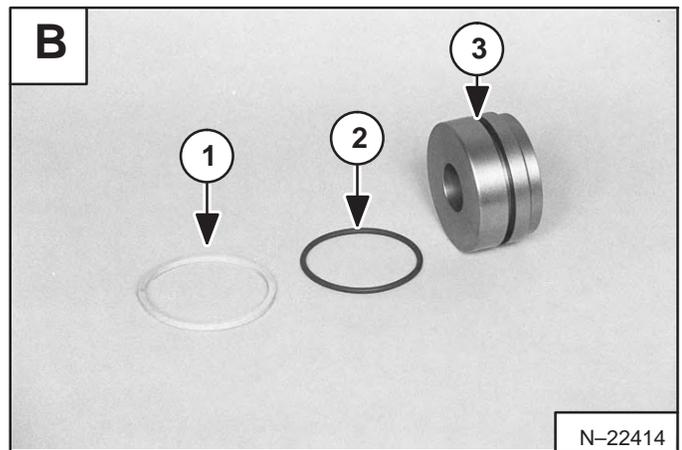
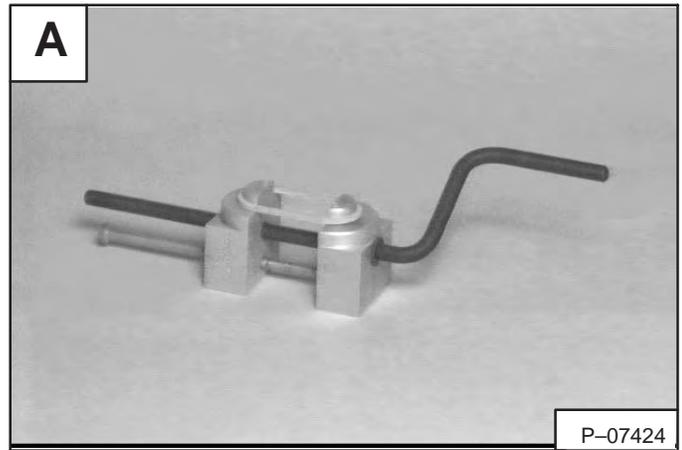
Allow the seal to stretch for 30 seconds before installing it on the piston.

Install the O-ring (Item 1) **[B]** and backup ring (Item 2) **[B]** on the piston (Item 3) **[B]**.

Use a ring compressor to compress the seal to the correct size. Leave the piston in the compressor for about three minutes **[C]**.

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

Install the backup ring (Item 2) **[D]** and O-ring (Item 3) **[D]** on the head (Item 4) **[D]**.



## HYDRAULIC CYLINDER (Cont'd)

Product: Bobcat Angle Broom 84. Service Repair Workshop Manual

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### Assembly (Cont'd)

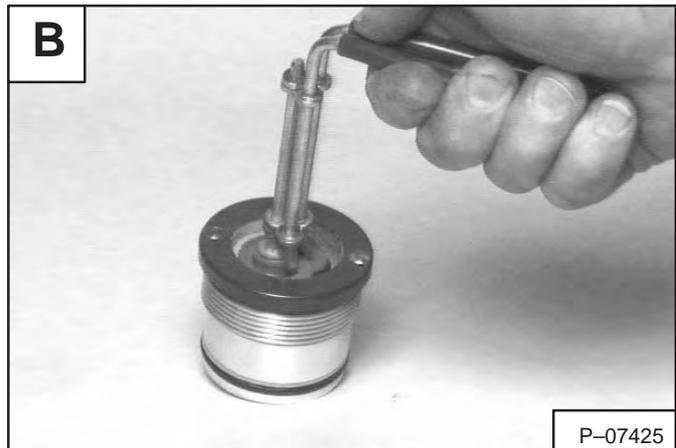
Install the rod seal on the rod seal tool [A].

**NOTE:** During installation, the spring side of the seal must be toward the inside of the cylinder.

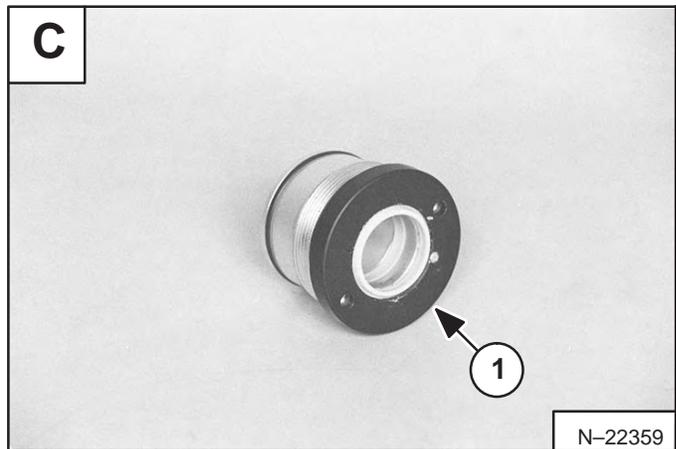
Rotate the handles to collapse the rod seal [A].



Install the rod seal in the head [B].



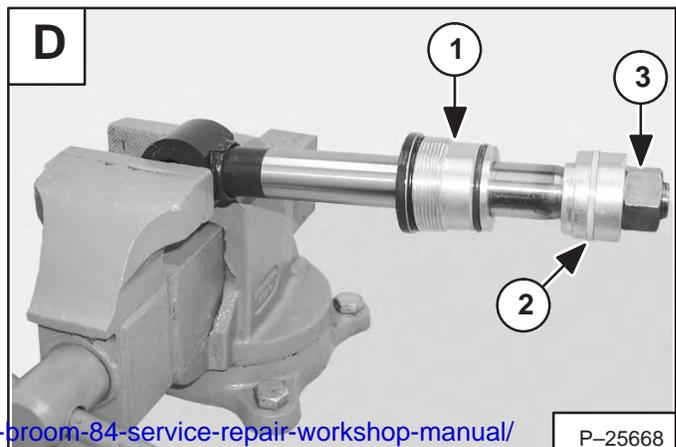
Install the wiper seal with the wiper (Item 1) [C] toward the outside of the head.



Clamp the rod end in a vise [D].

Install the head (Item 1) [D], piston (Item 2) [D] and nut (Item 3) [D] on the rod.

Tighten the nut to \_\_\_\_.



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