

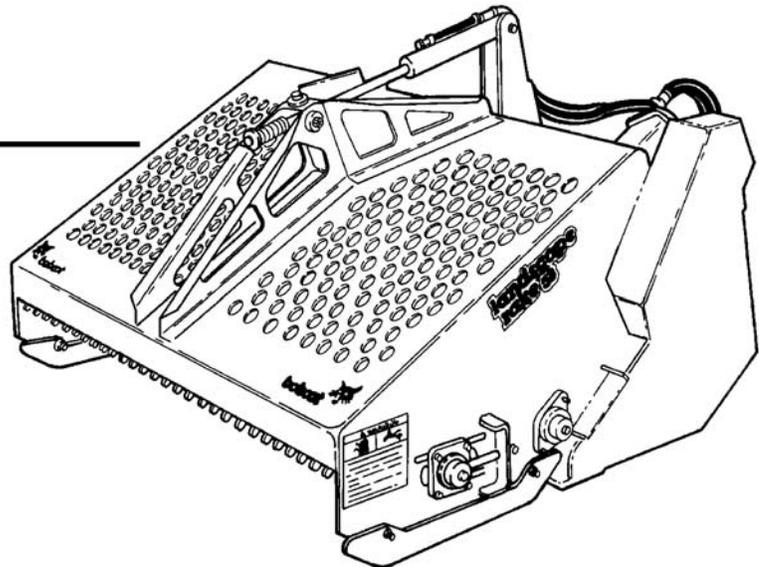
**Landscape  
Rake**



**Bobcat**®

**Service  
Manual**

- 4A S/N 440000101 & Above
- 4A3 S/N 450000101 & Above
- 5A S/N 460000101 & Above
- 5A3 S/N 460600101 & Above
- 5B S/N 910700101 & Above
- 5B3 S/N 062700101 & Above
- 6A S/N 470000101 & Above
- 6A3 S/N 470600101 & Above
- 6B S/N 063000101 & Above
- 6B3 S/N 062500101 & Above



Product: Bobcat Landscape Rake Service Repair Workshop Manual  
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# MAINTENANCE SAFETY



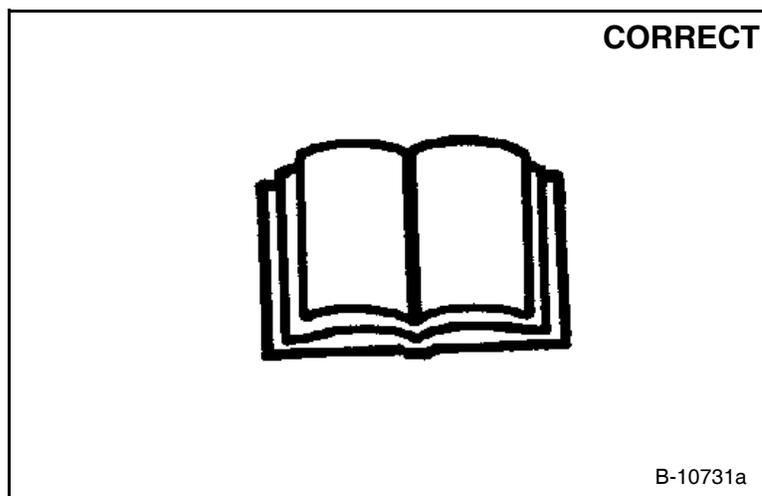
## WARNING

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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**PREVENTIVE  
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

Figure 1

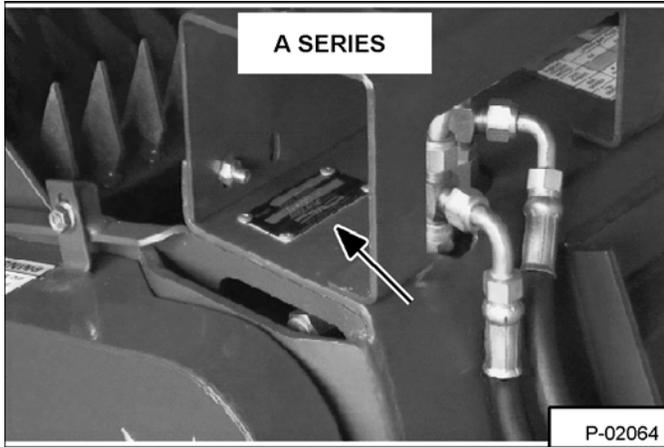
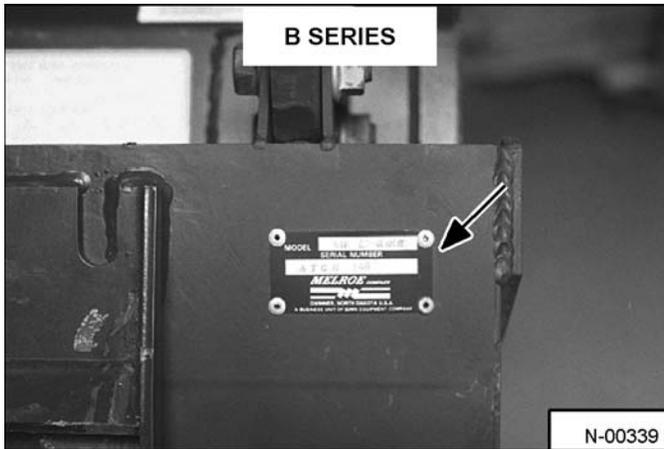


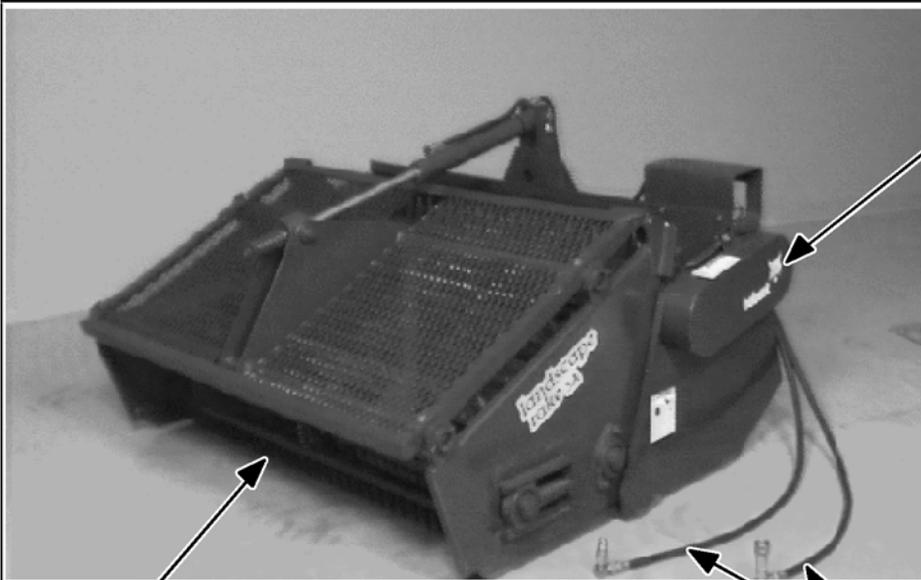
Figure 2



It is important to make the correct reference to the Serial Number of the Landscape Rake when making repairs or ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use different procedures in doing a specific operation [Figure 1] & [Figure 2].

# IDENTIFICATION

## A Series



Rake Teeth

Drive Motor

Quick Couplers

APPROVED AND NON-APPROVED LOADER-RAKE COMBINATIONS			
BOBCAT LOADER MODEL	ANDSCAPE RAKE MODEL		
	4A	5A	6A
500 SERIES			
600 SERIES	* Lift Restriction		
700 SERIES		* Lift Restriction	
7753			* Lift Restriction
800 SERIES AND 1500			* Lift Restriction
2000 2400			

**WARNING**

**AVOID INJURY OR DEATH**

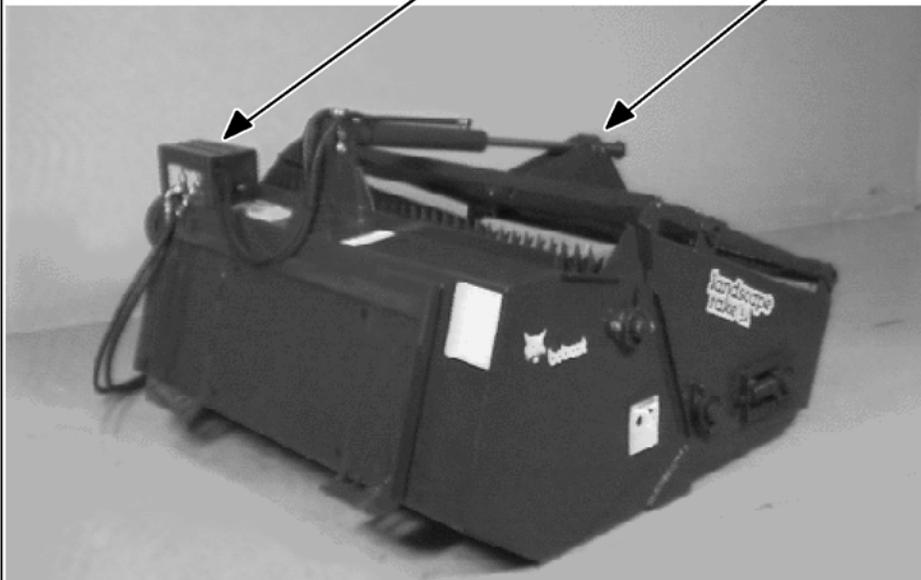
- \* DO NOT LIFT LOADED RAKE MORE THAN 3 FEET (1.0 m). TIPPING CAN RESULT.
- RAKE MUST ONLY BE OPERATED FROM THE OPERATOR'S SEAT.
- RAKE MUST BE LOWERED TO THE GROUND AND ENGINE STOPPED BEFORE CLEANING, SERVICING OR REPAIRING.

XXXX 6529335

6529335

Control Valve

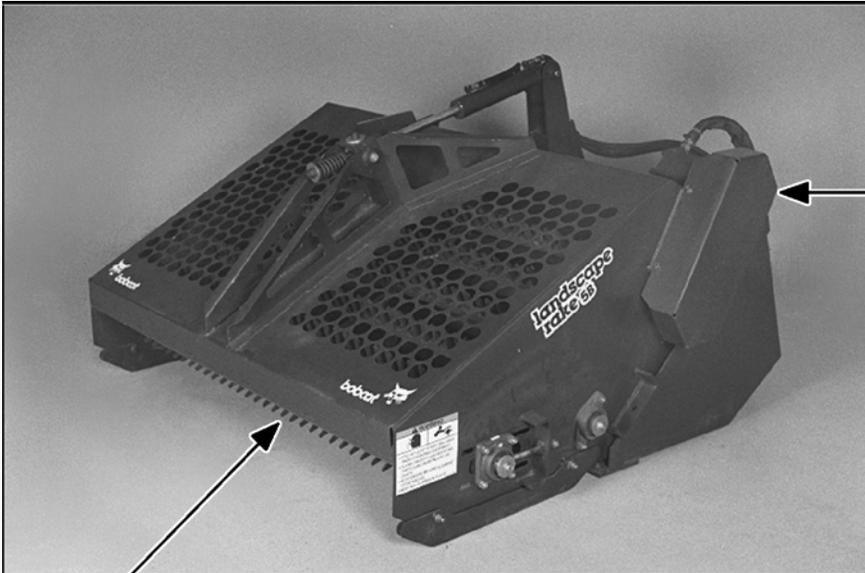
Hydraulic Cylinder



P-02073  
P-02070

IDENTIFICATION (CONT'D)

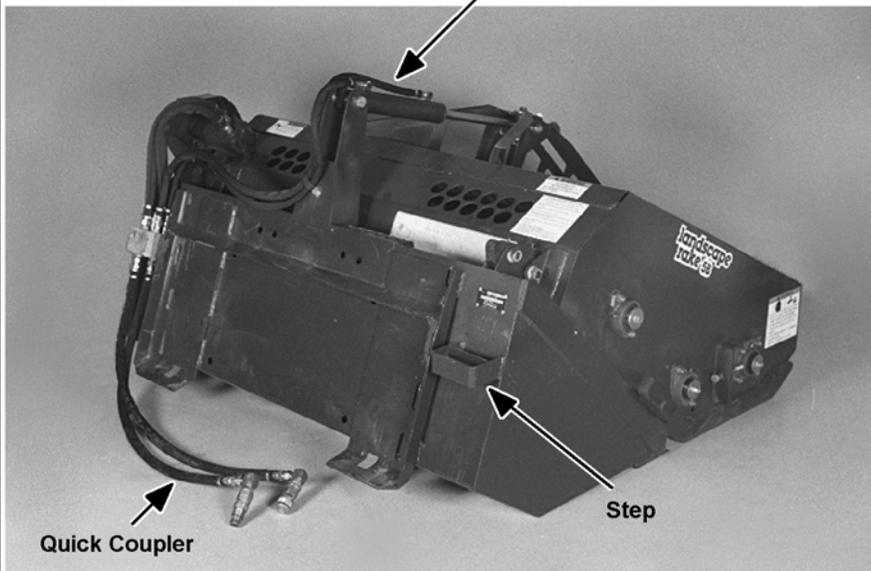
B Series



Drive Motor

Rake Teeth

* 	 <b>WARNING</b>		APPROVED AND NON-APPROVED LOADER-RAKE COMBINATION				
	<b>AVOID INJURY OR DEATH</b> *LIFT RESTRICTION REQUIRES THAT LOADED RAKE NOT BE LIFTED MORE THAN 1 m (3 FEET). TIPPING CAN RESULT. LOWER RAKE TO GROUND AND STOP ENGINE BEFORE CLEANING, SERVICING OR REPAIRING. <small>XXXXX 6711389</small>		APPROVED		NON-APPROVED		
	LANDSCAPE RAKE MODEL	BOBCAT LOADER MODEL					
	500 / 600 SERIES	700 SERIES	760 SERIES	770 / 850 SERIES	870 SERIES		
5B	/	* LIFT RESTRICTION	/	/	/	/	
6B	/	/	* LIFT RESTRICTION	* LIFT RESTRICTION	/	/	



Hydraulic  
Cylinder

Quick Coupler

Step

MC-02243  
N-00359  
N-00360



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## PREVENTIVE MAINTENANCE

**PREVENTIVE  
MAINTENANCE**

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## TROUBLESHOOTING



### AVOID INJURY OR DEATH

Before cleaning, servicing or repairing the Landscape Rake attachment:

- Level and lower the attachment to the ground.
- Stop the engine.
- Release pressure in all hydraulic circuits.

W-2237-0496

### Chart

PROBLEM	CAUSE	CORRECTION
Rake chain does not turn in either direction.	Drive chain on hydraulic motor is broken or loose.	Replace the chain or adjust as needed.
	Drive sprocket is off the shaft.	Install the drive sprocket and tighten set screws.
	Auxiliary hydraulics are not activated.	Activate auxiliary hydraulics
	Faulty loader valve.	Repair loader valve.
Rake chain comes off sprocket.	Rake chain is too loose.	Adjust the rake chain tension.
Rake chain jumps irregularly.	Rock in link of chain.	Remove the rock.
	Sprockets are loose or out of alignment.	Check alignment & tighten set screws.
Excessive heat is being created by the hydraulics.	Rake attachment has been mounted on a loader with too much hydraulic flow.	Install the correct sprockets, chain & drive kit. Run at slower engine speed.



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### **AVOID INJURY OR DEATH**

**Instructions are necessary before doing service on the Landscape Rake attachment. See warnings and instructions both at beginning and throughout this manual. After servicing, repairing or adjusting, always check for correct function of Landscape Rake.**

W-2238-0496

---

Maintenance work must be done at regular intervals. Failure to do so can result in damage to the rake attachment. This service schedule is a guide for correct maintenance of the rake attachment.

### **Daily Inspection**

1. Clean the rake attachment to keep it free of material build up.
2. Lubricate the 10 grease fittings (one fitting located under the chain guard).
3. Check all nuts, bolts, and guards for tightness.
4. Check safety signs (decals) and safety treads for damage. Replace if damaged, clean if soiled.
5. Check all hydraulic hoses and fittings.
6. Check for loose or damaged parts.

### **25 Hour Inspection**

1. Remove the bolt on the chain guard, wipe clean and lubricate the chain. Check the chain for the correct tension (a half link can be removed). Install chain guard before operation.
2. Adjust the tension of the rake chain. (See Adjustment on Page 30-10-2.) or (See Adjustment on Page 30-20-7.)
3. Check idler alignment to make sure the rake chain is traveling on the center of each idler.

### **300 Hour Inspection**

1. Check the rake teeth. The rake teeth are 3 inches (76 mm) long when new, if the rake teeth show wear of 1/4 inch (6,35 mm) or more, the rake tooth should be hard surfaced with a hard surface welding rod.
2. Check for bent rake teeth. Bent rake teeth can usually be straightened. Do not use heat to straighten teeth. Heat will cause the hardened teeth to become soft.
3. Check chain and sprocket for wear. Replace the parts as needed.

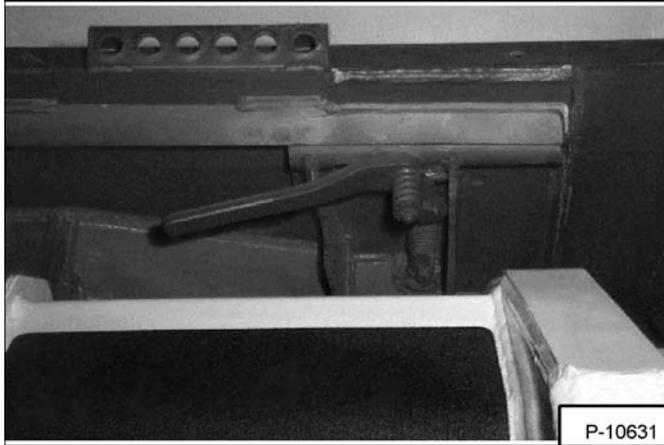


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## INSPECTION

### Bob-Tach Inspection

Figure 10-30-1



Move the Bob-Tach levers to engage the wedges [Figure 10-30-1]. The levers and wedges must move freely.

Figure 10-30-2

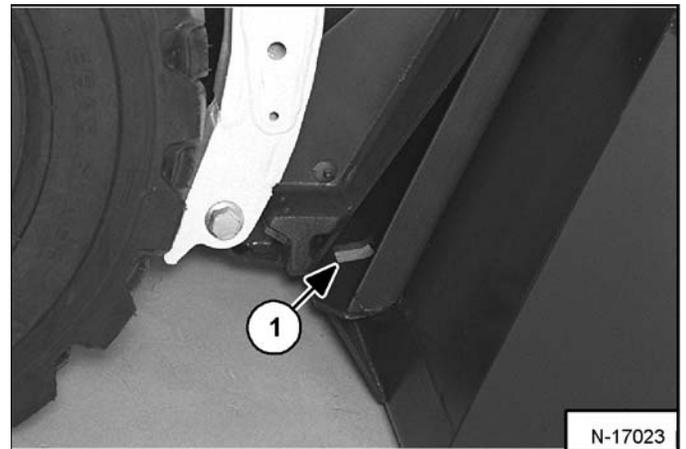
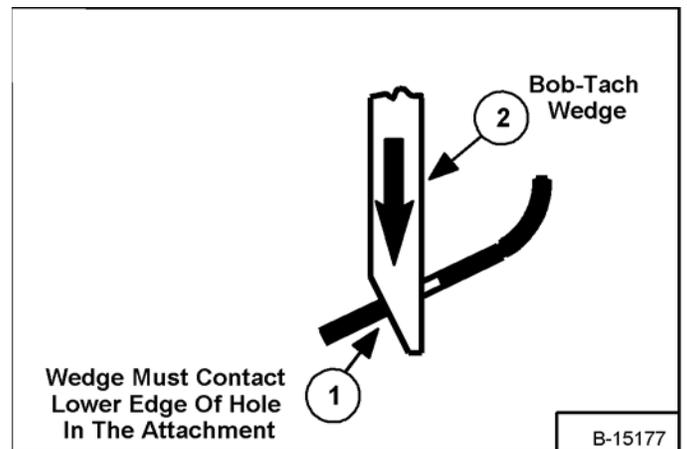


Figure 10-30-3



The wedges must extend through the holes in the attachment mounting frame (Item 1) [Figure 10-30-2] & [Figure 10-30-3].

## WARNING

**Bob-Tach wedges must extend through the holes in attachment. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off and cause injury or death.**

W-2102-0588

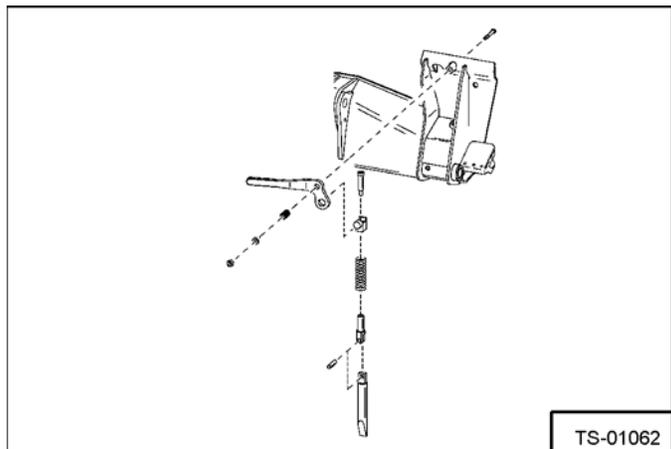
The spring loaded wedge (Item 2) must contact the lower edge of the hole in the attachment (Item 1) [Figure 10-30-2] and [Figure 10-30-3].

If the wedge does not contact the lower edge of the hole [Figure 10-30-2] and [Figure 10-30-3], the attachment will be loose and can come off the Bob-Tach.

## INSPECTION (CONT'D)

### Bob-Tach Inspection (Cont'd)

Figure 10-30-4



Inspect the mounting frame on the attachment and the bob-Tach, linkages and wedges for excessive wear or damage [Figure 10-30-4]. 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 & Maintenance Manual for *LUBRICATION OF THE BOBCAT LOADER.*)

## LUBRICATION

### A Series

Always use a good quality lithium based multipurpose grease when lubricating the Landscape Rake. Apply the lubricant until extra grease shows.

Figure 10-40-1

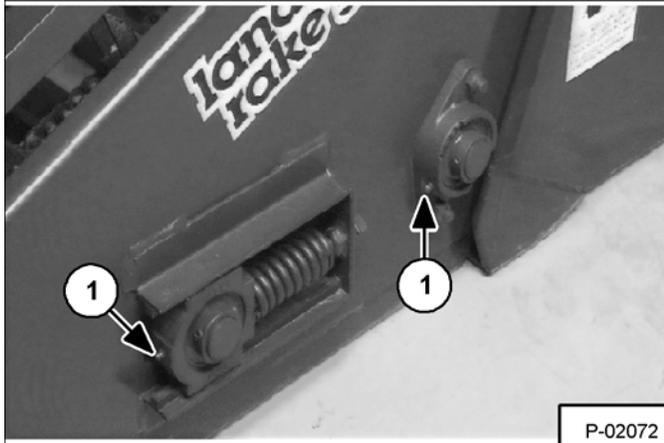
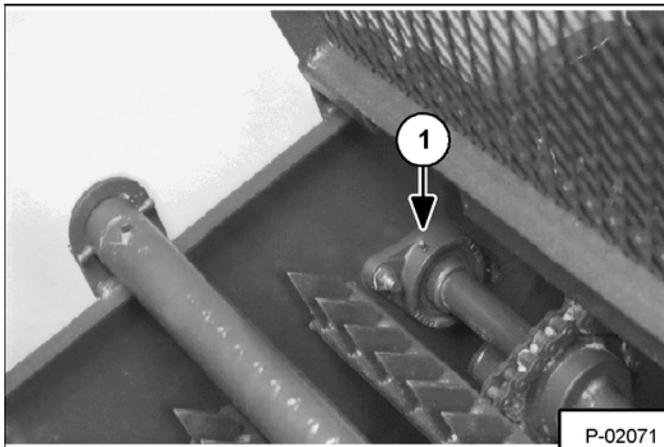


Figure 10-40-2



Lubricate the rake chain mounting bearings (Item 1) [Figure 10-40-1] & [Figure 10-40-2].

### B Series

Figure 10-40-3

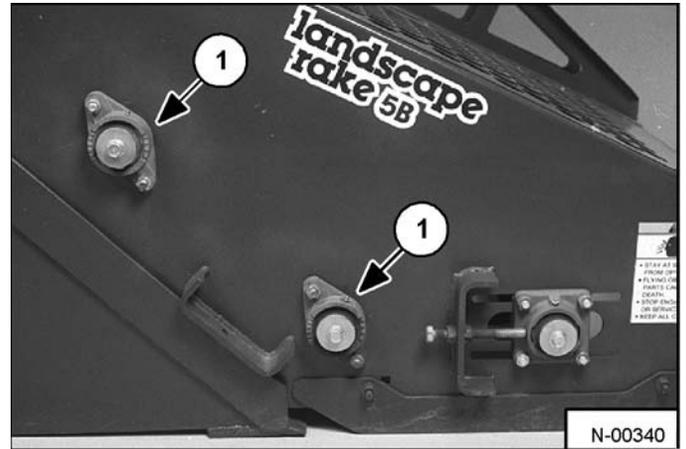
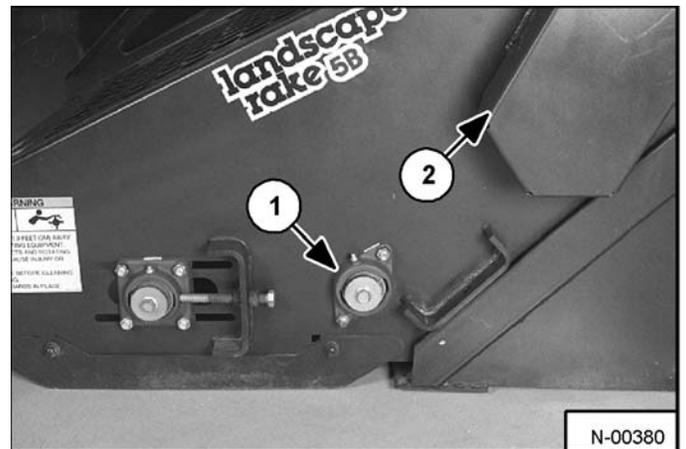


Figure 10-40-4



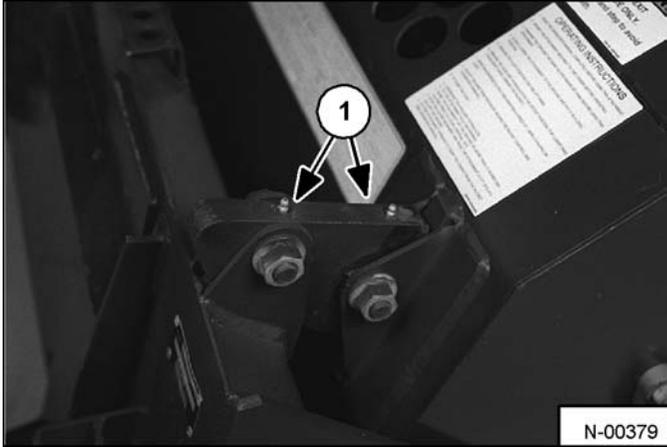
Lubricate the grease fittings on the rake chain mounting bearings (Item 1) [Figure 10-40-3] & [Figure 10-40-4] every 8 hours.

**NOTE:** The grease fitting on the drive sprocket bearing is located under the drive motor shield (Item 2) [Figure 10-40-4].

## LUBRICATION (CONT'D)

### B Series (Cont'd)

Figure 10-40-5



Lubricate the grease fittings (Item 1) [Figure 10-40-5] on the rake hinges.

## HYDRAULIC SYSTEM

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Removal and Installation .....	20-40-1

**HYDRAULIC  
SYSTEM**



**Bobcat®**

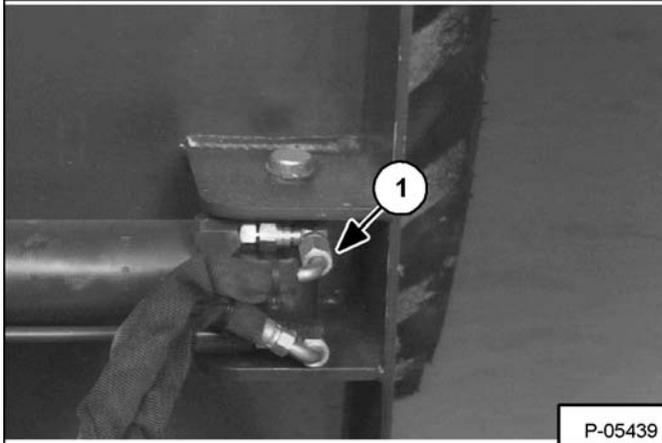
## HYDRAULIC CYLINDER

### Checking For Internal Leakage

**NOTE:** Be sure to retract the cylinder rod fully when pressuring the rod end.

Check only one cylinder at a time.

**Figure 20-10-1**



Disconnect the hose (Item 1) [Figure 20-10-1] from the cylinder base end port.

Install a plug in the hose and tighten the plug.

Get in the operator seat.

Lower the seat bar, engage the parking brake and start the engine.

Engage the auxiliary hydraulics and pressurize the rod end of the cylinder until system relief pressure is reached. Hold for one minute over the system relief pressure.

There should be no leaks at the base end port.

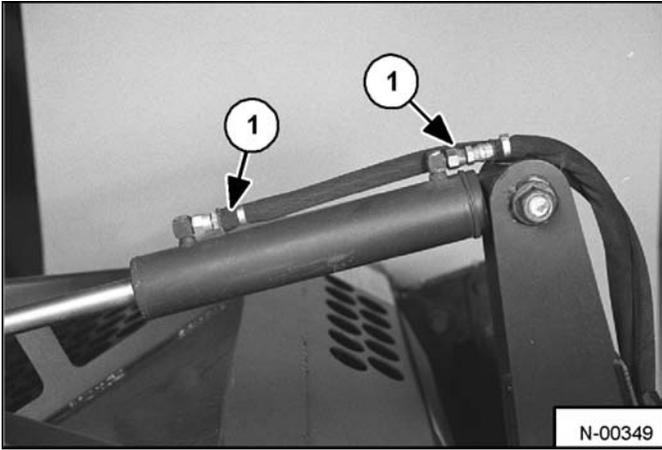
If there is leakage from the open base end port of the lift cylinder, remove the lift cylinder for repair.

## HYDRAULIC CYLINDER (CONT'D)

### Removal And Installation

**NOTE:** Be sure to fully extend the cylinder before stopping the loader engine.

Figure 20-10-2

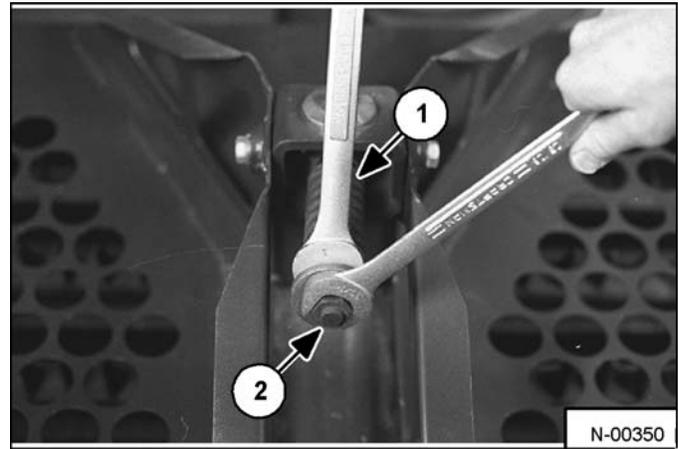


Disconnect the hydraulic hoses (Item 1) [Figure 20-10-2] from the cylinder.

Remove the mounting nut (Item 2) [Figure 20-10-2] and bolt from the cylinder base end mounting bracket.

**NOTE:** Apply anti-seize compound to the pivot bolt shank and nut during assembly.

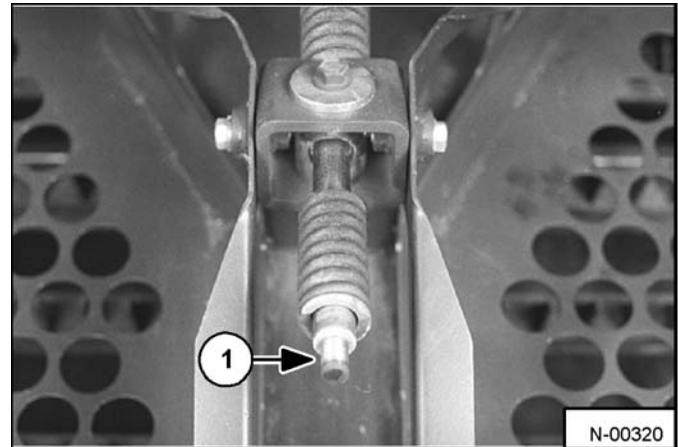
Figure 20-10-3



Install a wrench (Item 1) on the cylinder rod flats while removing the nut (Item 2) [Figure 20-10-3] and washer.

**Installation:** Tighten the nut to 125-140 ft.-lb. (170-190 N•m) torque.

Figure 20-10-4



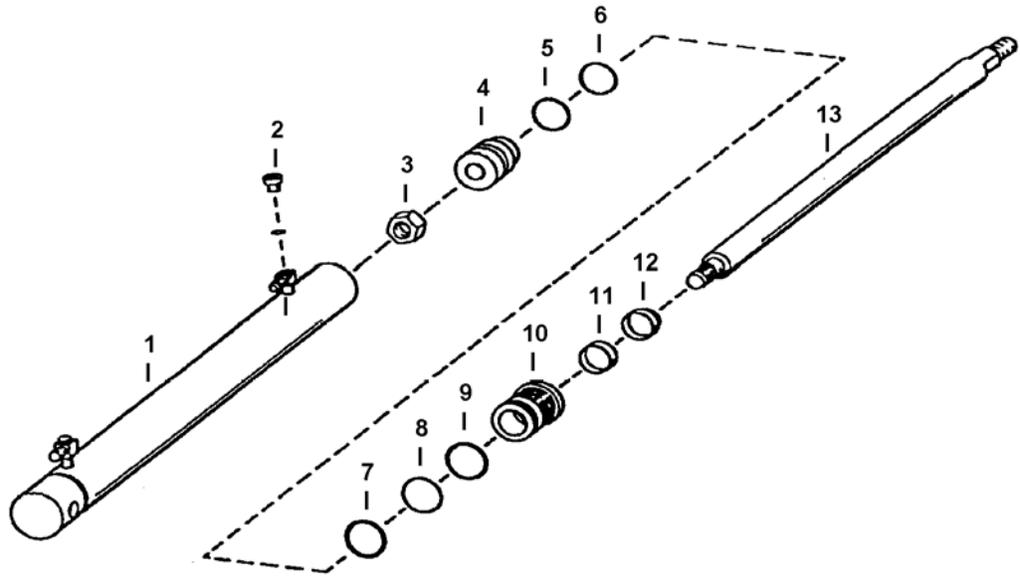
Remove the spring, slide the rod from the rod guide (Item 1) [Figure 20-10-4] remove the spring on the cylinder side of the rod guide, and remove the cylinder from the attachment.

Inspect the cylinder for wear or damage and replace if necessary.

## HYDRAULIC CYLINDER (CONT'D)

### Parts Identification

1. Case
2. Plug
3. Nut
4. Piston
5. Seal
6. O-ring
7. O-ring
8. Back-Up Washer
9. O-ring
10. Head
11. Seal
12. Rod Wiper
13. Rod



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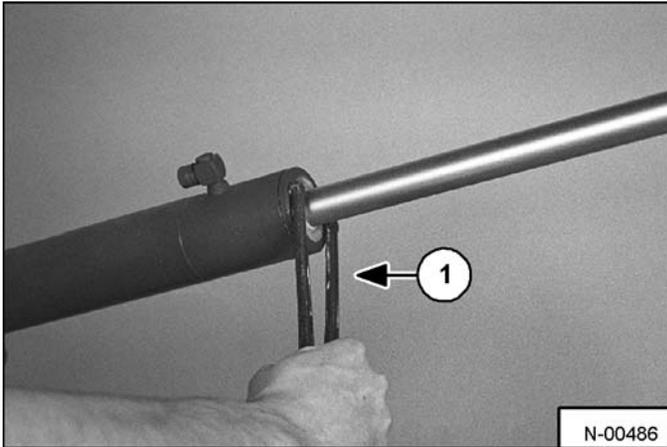
## HYDRAULIC CYLINDER (CONT'D)

### Disassembly And Assembly

Put the base end of the cylinder in a drain pan. Move the rod slowly in and out to remove the fluid from the cylinder.

Put the base end of the cylinder in a vise.

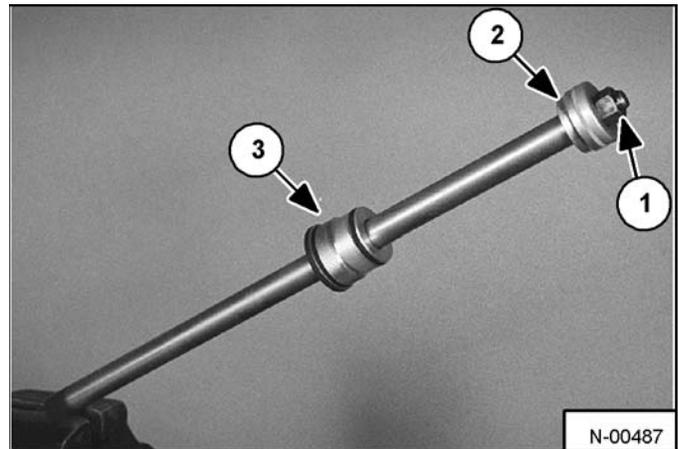
**Figure 20-10-5**



Use a spanner wrench (Item 1) [Figure 20-10-5] to remove the head from the cylinder case.

Remove the rod assembly from the cylinder case.

**Figure 20-10-6**

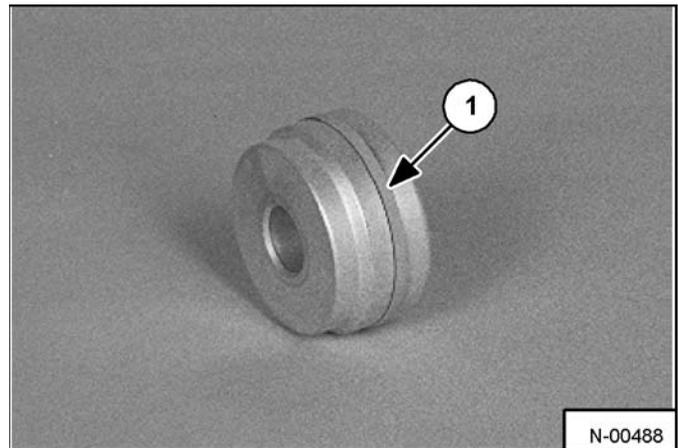


Put the rod flats in a vise [Figure 20-10-6].

Remove the nut (Item 1), the piston (Item 2) and the head (Item 3) [Figure 20-10-6] from the rod.

**NOTE:** Be sure the cushion area of the piston is installed on the rod first and facing toward the head during assembly.

**Figure 20-10-7**



Remove the seal (Item 1) [Figure 20-10-7] and O-ring (located under the seal) from the piston.

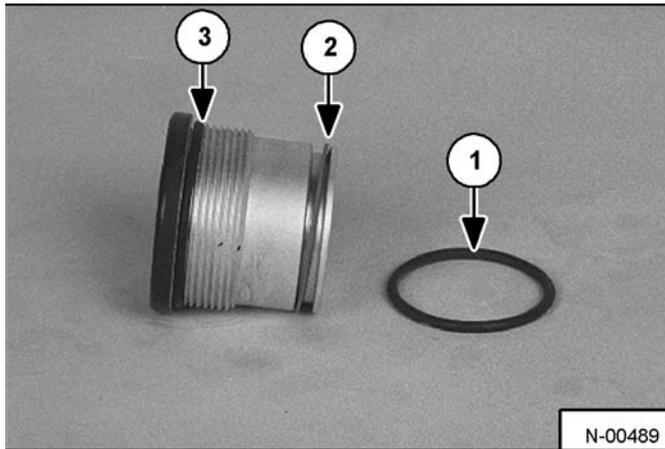
**Installation:** If the cylinder rod has a 0.6250 inch (15,88 mm) nut, tighten to 90 ft.-lb. (122 N•m) torque. If the cylinder rod has a 0.750 inch (19,05 mm) nut, tighten to 180 ft.-lb. (244 N•m) torque.

Check the condition of the piston, replace if needed.

## HYDRAULIC CYLINDER (CONT'D)

### Disassembly And Assembly (Cont'd)

Figure 20-10-8



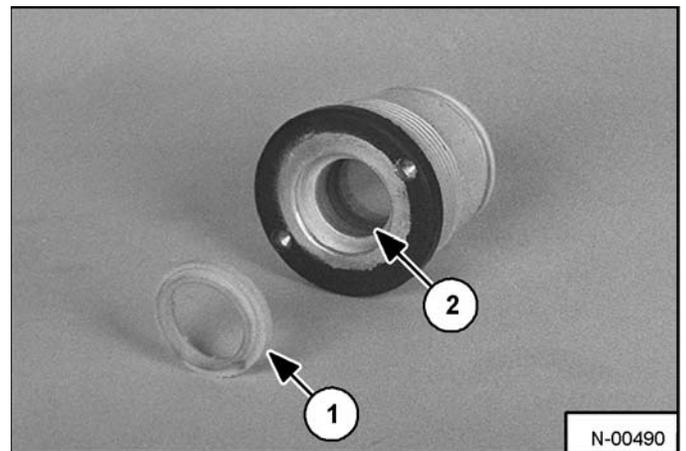
Remove the O-ring (Item 1) and back-up washer (Item 2) [Figure 20-10-8] from the head.

The back-up washer must be located toward the spanner wrench holes in the head.

Remove the O-ring (Item 3) [Figure 20-10-8] (located against the outside shoulder of the head).

Check the condition of the head, replace if needed.

Figure 20-10-9



Remove the rod wiper (Item 1) and the inner seal (Item 2) [Figure 20-10-9].

The lip of the rod wiper must face toward the outside of the head.

Assemble the cylinder in the reverse order.

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