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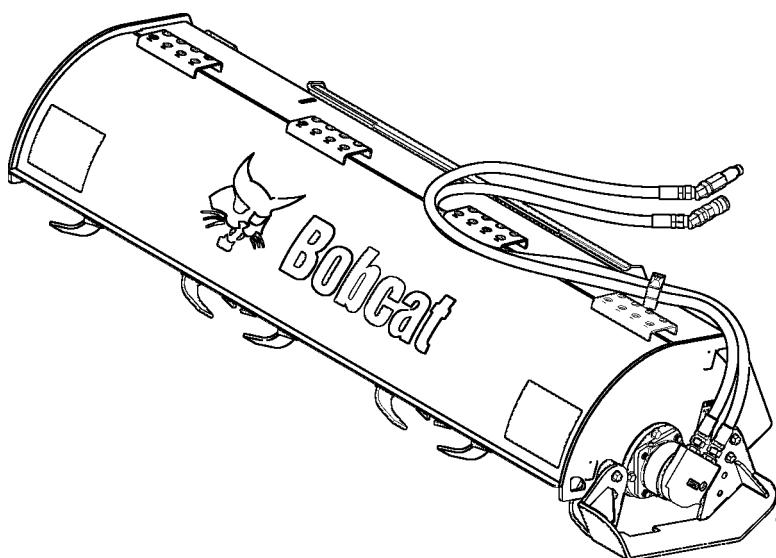


Bobcat®

Service Manual

Tiller

(62 Tiller) S/N 055200101 & Above
(76 Tiller) S/N 055100101 & Above



Sample of manual. Download All 72 pages at:

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6903130 (10-10)

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MAINTENANCE SAFETY



WARNING

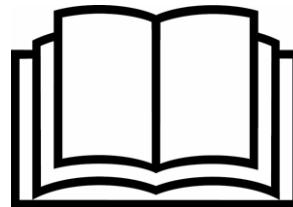
Instructions are necessary before operating or servicing machine. Read and understand the Operation & Maintenance Manual, Operator's Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after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

W-2003-0807



Safety Alert Symbol: This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.

CORRECT



P-90216

- ⚠ Never service attachments / implements without instructions. See Operation & Maintenance Manual and Attachment / Implement Service Manual.
- ⚠ Cleaning and maintenance are required daily.
- ⚠ Never service or adjust attachment / implement with the engine running unless instructed to do so in manual.
- ⚠ Always lower the attachment / implement to the ground before lubricating or servicing.
- ⚠ Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate skin or eyes.
- ⚠ Stop, cool and clean engine of flammable materials before checking fluids.
- ⚠ Keep body, loose objects and clothing away from moving parts, electrical contacts, hot parts and exhaust.
- ⚠ Safety glasses are needed for eye protection from electrical arcs, battery acid, compressed springs, fluids under pressure and flying debris or when tools are used. Use eye protection approved for type of welding.

MSW30-0409



Bobcat®

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Bobcat[®]

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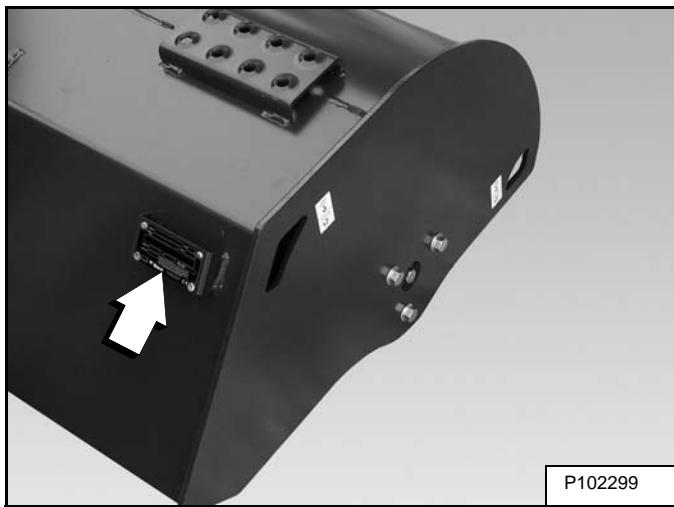


Bobcat[®]

SERIAL NUMBER LOCATION

Attachment Serial Number

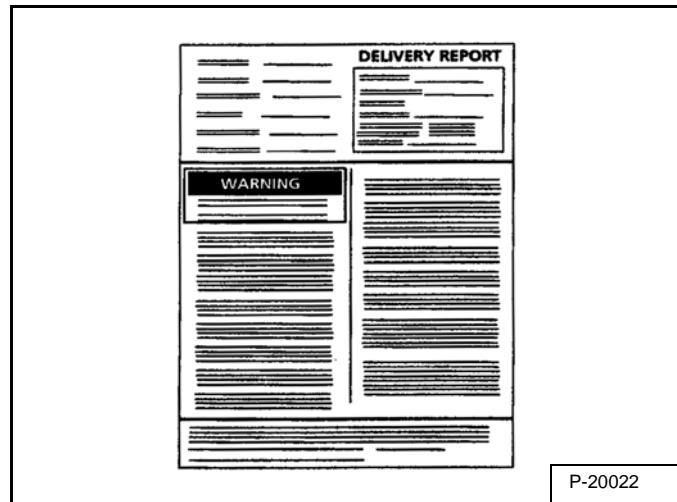
Figure 1



Always use the serial number of the tiller 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

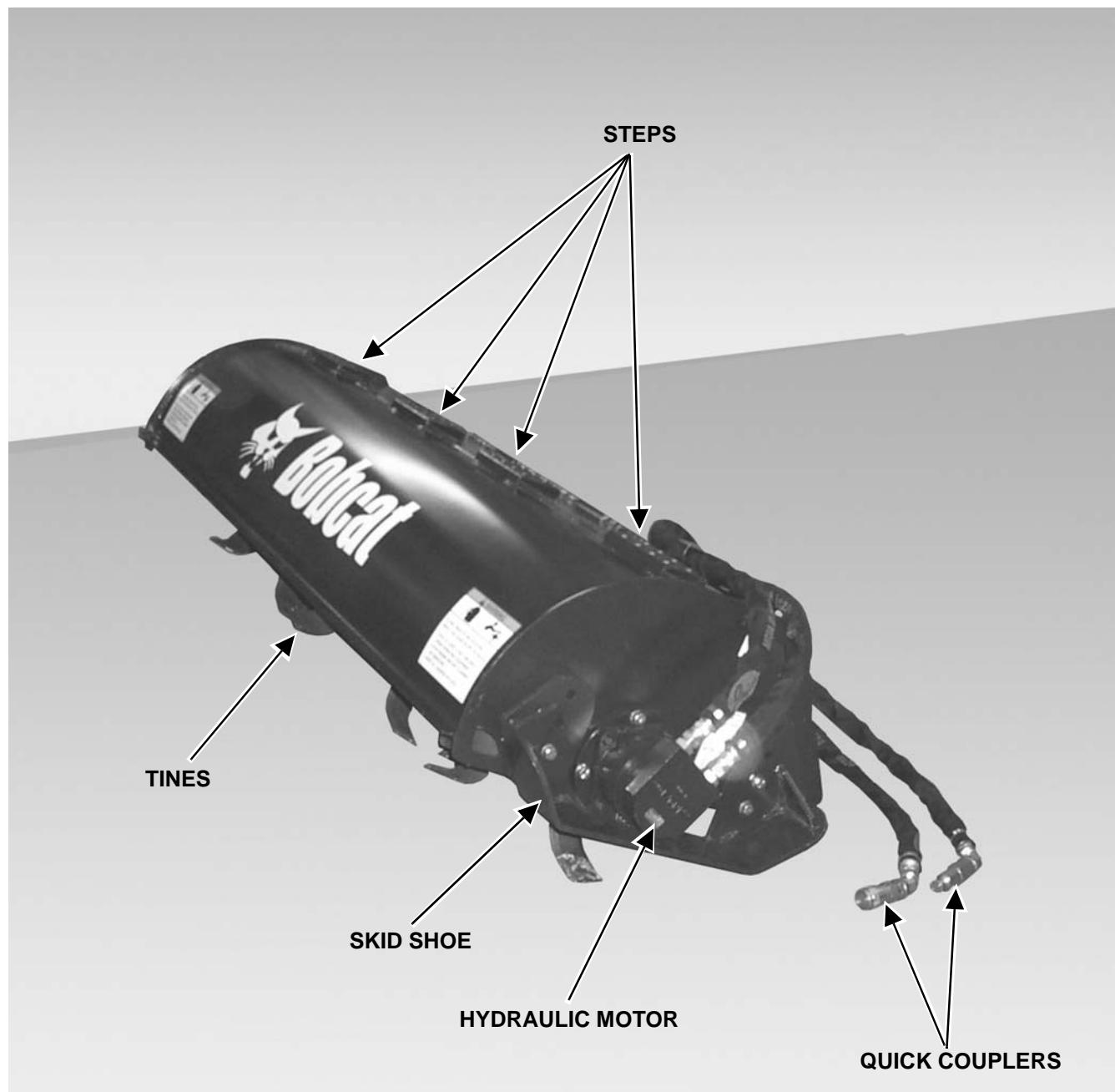
Figure 2



P-20022

The delivery report **[Figure 2]** must be completed by the dealer and signed by the owner or operator when the Bobcat tiller is delivered. An explanation of the form must be given to the owner.

ATTACHMENT IDENTIFICATION



P-57091

SAFETY & MAINTENANCE

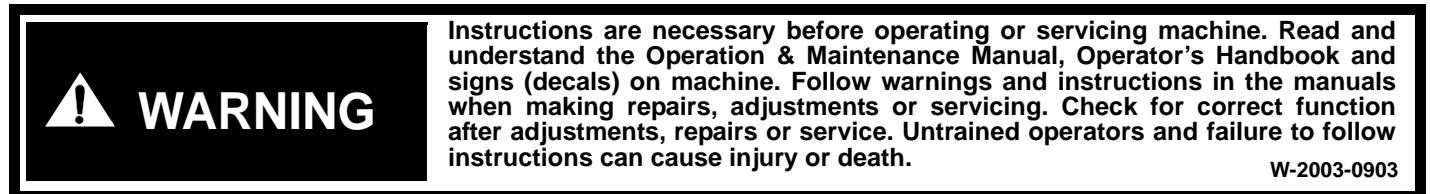
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Bobcat[®]

TROUBLESHOOTING

Chart



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

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

PROBLEM	CAUSE	CORRECTION
Tiller will not function.	Hydraulics hoses improperly connected.	Check the hydraulic quick couplers to make sure they are connected properly.
	Auxiliary hydraulics not engaged.	Engage auxiliary hydraulics. (See the machine's Operation & Maintenance Manual and Operator's Handbook for correct procedure.)
Tiller leaves an uneven finish (half smooth, half rough).	Tiller tines are either missing, or are worn.	Replace broken tines. Be sure all tines are present.
Tiller leaves a rough finish.	Tiller is being operated at low rpm's.	Increase machine rpm's.
	Tiller tines are either missing, or are worn.	Replace broken tines. Be sure all tines are present.
	Tiller is traveling too fast.	Decrease the rate of travel.
Tiller operation causes the machine to vibrate roughly.	Tiller is operating in the wrong direction.	Check to make sure tiller shaft is rotating in the opposite direction of travel.
	Tiller is traveling to fast.	Decrease the rate of travel.
	Machine arms / boom not positioned in cradle.	Lower machine arms / boom fully.

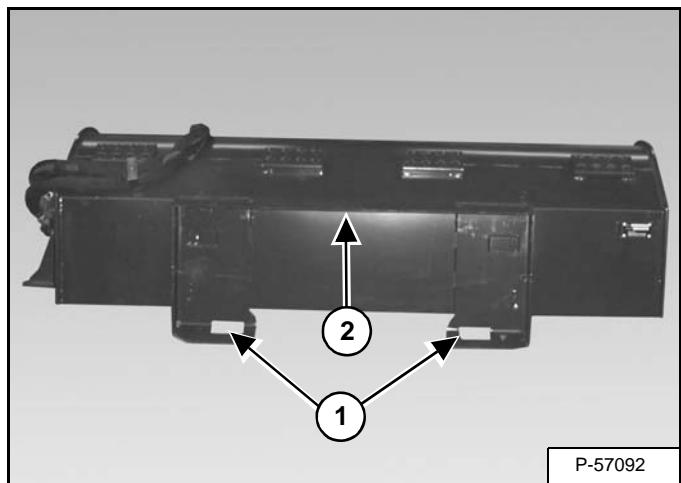


Bobcat®

DAILY INSPECTION

Attachment Mounting Frame

Figure 10-20-1



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

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

Bob-Tach

Hand Lever Bob-Tach



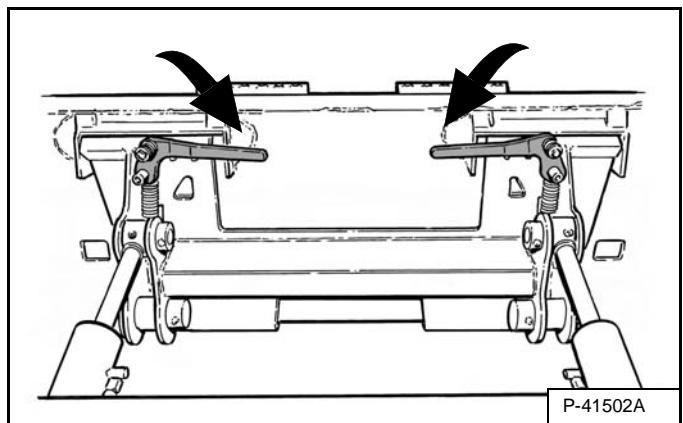
WARNING

AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

W-2715-0208

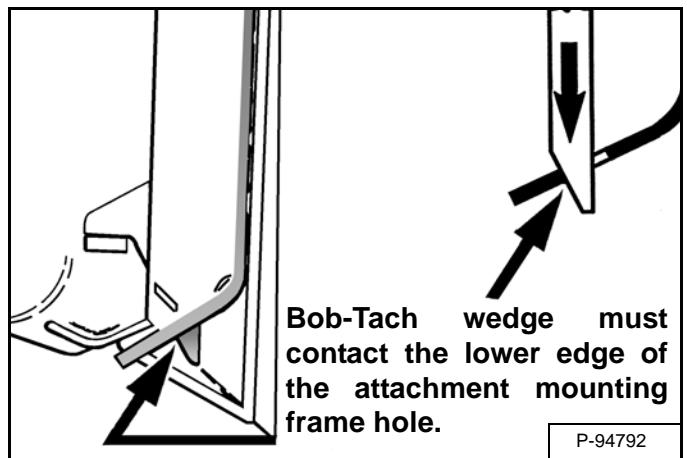
Figure 10-20-2



Push down on the Bob-Tach levers until they are fully engaged in the locked position [Figure 10-20-2] (wedges fully extended through the attachment mounting frame holes).

The levers and wedges must move freely [Figure 10-20-2].

Figure 10-20-3



The wedges must extend through the holes in the attachment mounting frame, securely fastening the attachment to the Bob-Tach [Figure 10-20-3].

NOTE: If the wedge does not contact the lower edge of the hole, the attachment will be loose and can come off the Bob-Tach.

Inspect the mounting frame on the attachment. (See the machine's Operation & Maintenance Manual for inspecting the Bob-Tach). Replace any parts that are damaged, bent or missing. Keep all fasteners tight. Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See the machine's Operation & Maintenance Manual for the correct procedure.)

DAILY INSPECTION (CONT'D)

Bob-Tach (Cont'd)

Power Bob-Tach

WARNING

AVOID INJURY OR DEATH

The Bob-Tach wedges must extend through the holes in the attachment mounting frame. Levers must be fully down and locked. Failure to secure wedges can allow attachment to come off.

W-2715-0208

Figure 10-20-4

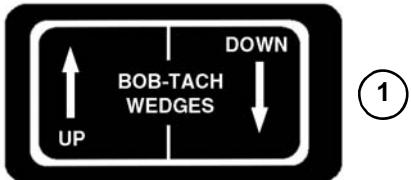
Loader Switch



B-15993A

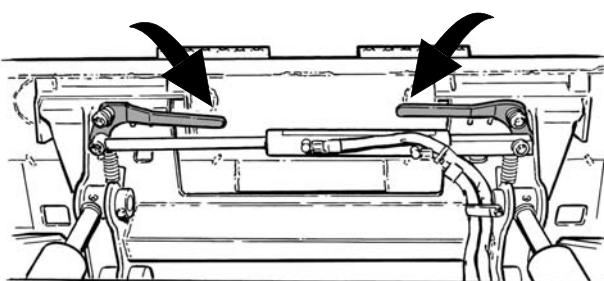
Figure 10-20-5

Work Machine Switch



P-88124

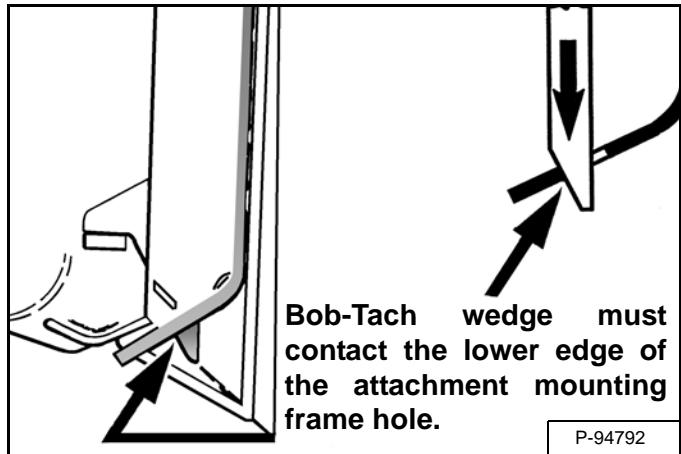
Figure 10-20-6



P-41500A

Push and hold the BOB-TACH "WEDGES DOWN" switch (Item 1) [Figure 10-20-4] or [Figure 10-20-5] until the levers are fully engaged in the locked position [Figure 10-20-6] (wedges fully extended through the attachment mounting frame holes).

Figure 10-20-7



P-94792

The wedges must extend through the holes in the attachment mounting frame, securely fastening the attachment to the Bob-Tach [Figure 10-20-7].

NOTE: If the wedge does not contact the lower edge of the hole, the attachment will be loose and can come off the Bob-Tach.

Inspect the mounting frame on the attachment. (See the machine's Operation and Maintenance Manual for inspecting the Bob-Tach). Replace any parts that are damaged, bent or missing. Keep all fasteners tight. Look for cracked welds. Contact your Bobcat dealer for repair or replacement parts.

Lubricate the wedges. (See the machine's Operation & Maintenance Manual for the correct procedure.)

HYDRAULIC SYSTEM

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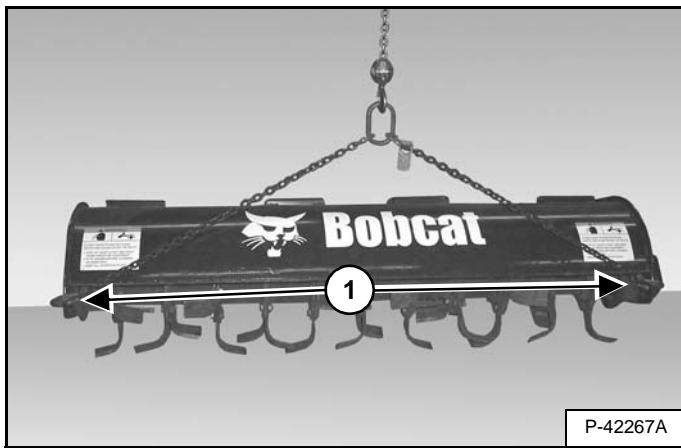


Bobcat®

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW)

Removal And Installation

Figure 20-10-1

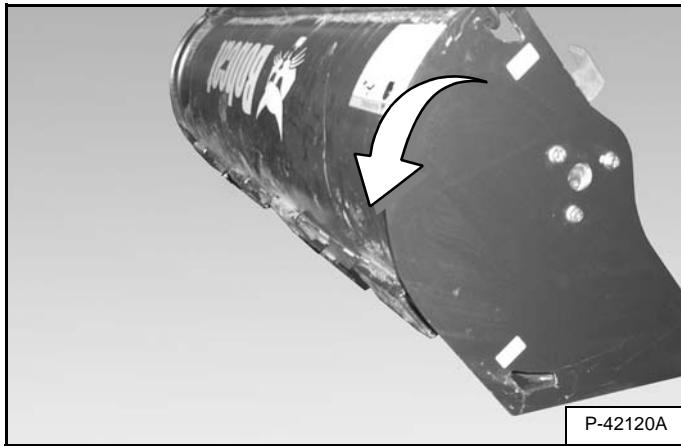


Attach chains to the front tie down locations (Item 1) [Figure 20-10-1].

NOTE: Use chains that are in good condition and of adequate size to lift the attachment.

Raise the tiller slowly, keeping the mounting frame in contact with the ground.

Figure 20-10-2



Raise the tiller until the mounting frame moves slightly forward [Figure 20-10-2].

Figure 20-10-3

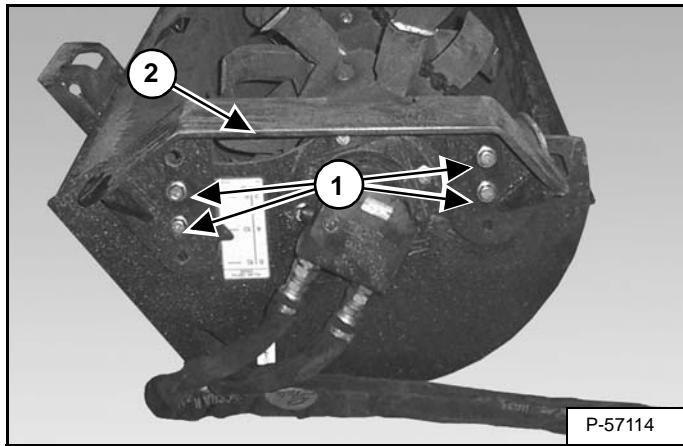


Lower the tiller to the ground until the top of the tiller is flat on the ground [Figure 20-10-3].

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Removal And Installation (Cont'd)

Figure 20-10-4

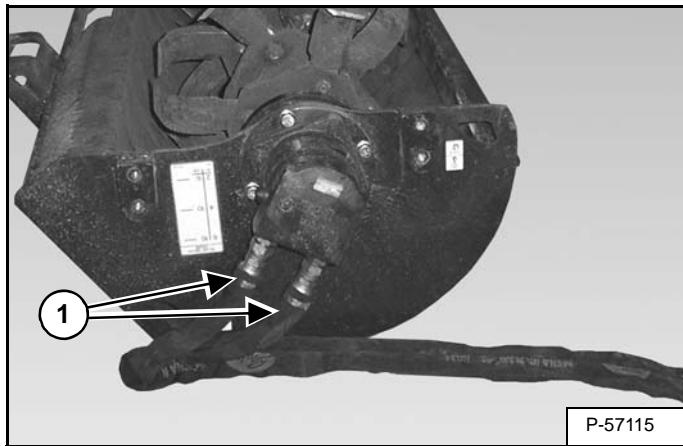


Remove the four bolts (Item 1) [Figure 20-10-4].

Installation: Tighten bolts to 88 - 95 N·m (65 - 70 ft-lb) torque.

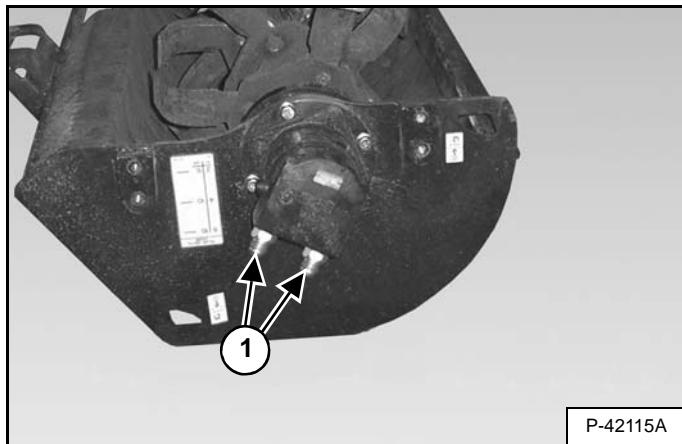
Remove the skid shoe (Item 2) [Figure 20-10-4].

Figure 20-10-5



Remove hoses (Item 1) [Figure 20-10-5].

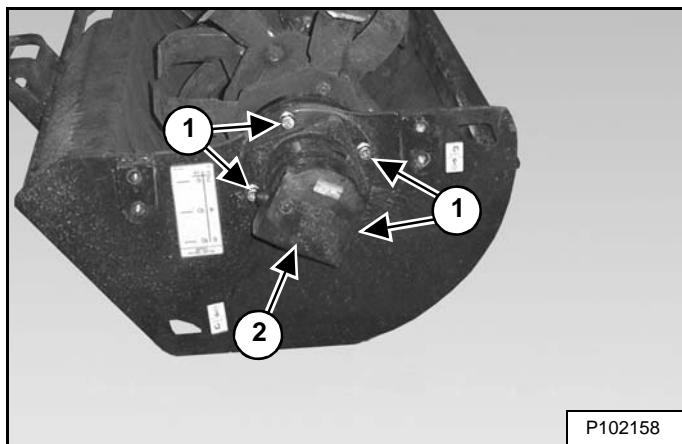
Figure 20-10-6



Remove the fittings (Item 1) [Figure 20-10-6].

Installation: Tighten fittings to specified torque. (See HYDRAULIC CONNECTION SPECIFICATIONS on Page SPEC-40-1.)

Figure 20-10-7



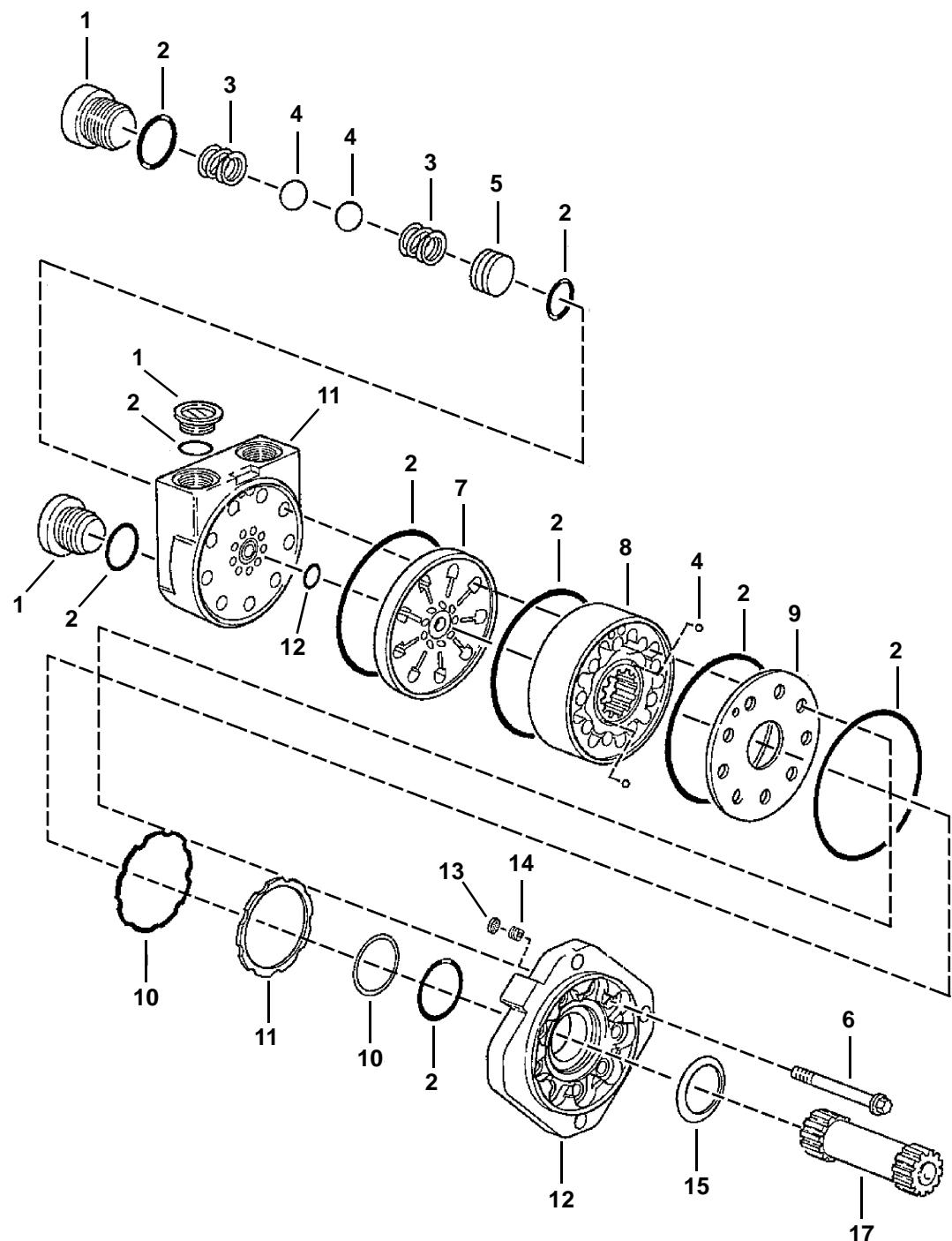
Remove the four bolts (Item 1), then remove the motor (Item 2) [Figure 20-10-7].

Installation: Tighten bolts to 88 - 95 N·m (65 - 70 ft-lb) torque.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Parts Identification

1. Plug
2. O-ring
3. Spring
4. Ball
5. Seat
6. Housing
7. Valve
8. Geroler®
9. Plate
10. Back-up Ring
11. Seal
12. Flange
13. Screen
14. Orifice
15. Face Seal
16. Bolt
17. Drive Shaft



C-03426

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.

I-2003-0888

IMPORTANT

Contain and dispose of any oil leakage in an environmentally safe manner.

I-2066-0395

WARNING

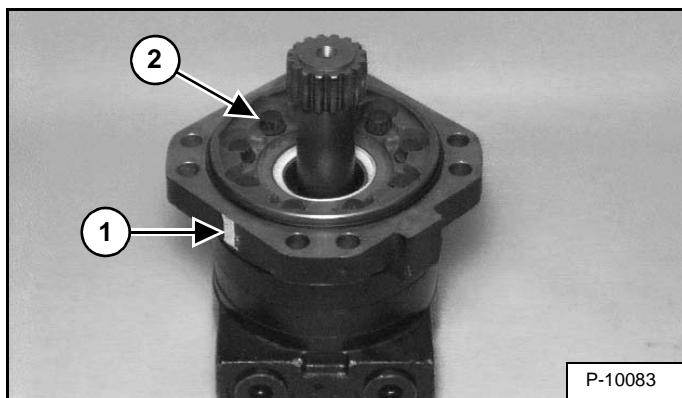
AVOID INJURY OR DEATH

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

Figure 20-10-8



Put a mark (Item 1) [Figure 20-10-8] across the motor sections for correct assembly.

Loosen and remove the nine bolts (Item 2) [Figure 20-10-8] from the motor mount flange.

Figure 20-10-9



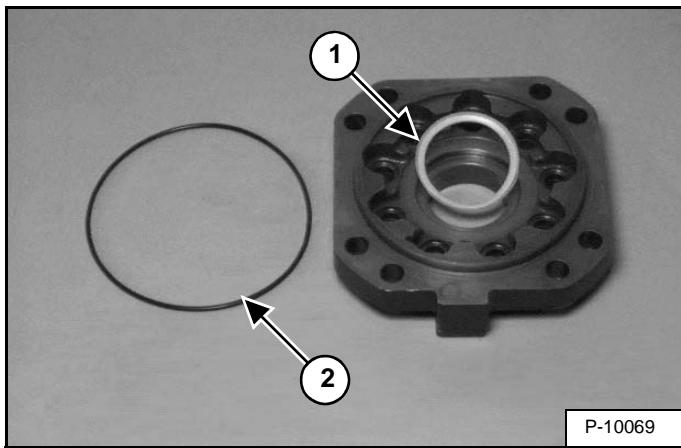
Remove the mounting flange from the balance plate [Figure 20-10-9].

NOTE: DO NOT scratch or damage the surfaces of the motor sections. Always put them on a soft surface.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

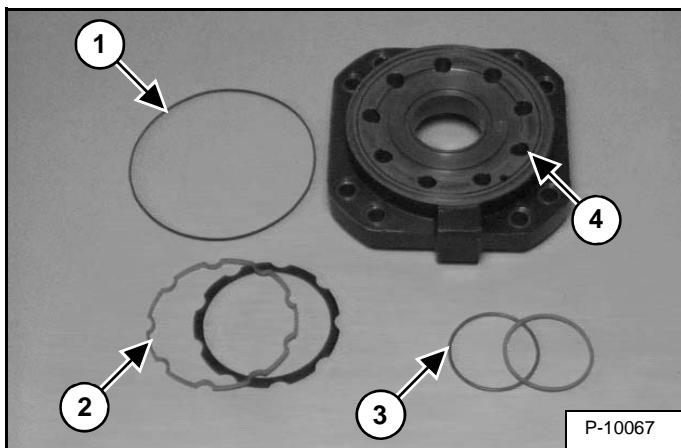
Disassembly (Cont'd)

Figure 20-10-10



Remove the seal (Item 1) and O-ring (Item 2) [Figure 20-10-10] from the mounting flange.

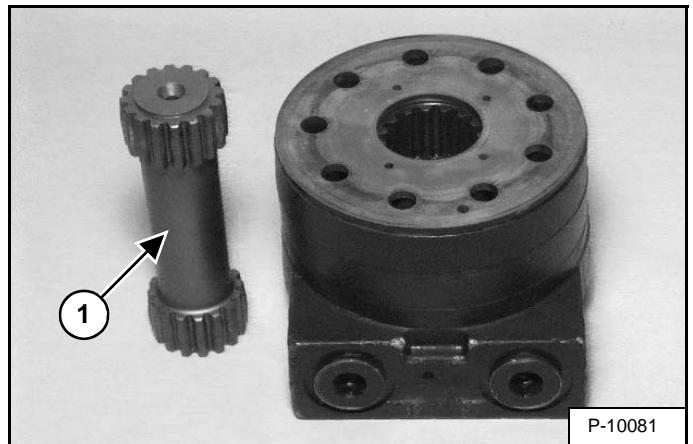
Figure 20-10-11



Turn the mounting flange over. Remove the large O-ring (Item 1), the seal and back-up ring (Item 2), and the small O-ring and back-up ring (Item 3) [Figure 20-10-11].

Remove the screen and orifice (Item 4) [Figure 20-10-11] from the mounting flange.

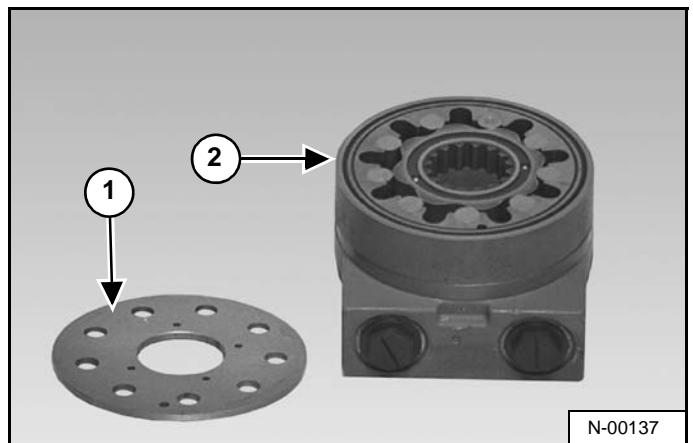
Figure 20-10-12



Remove the center shaft (Item 1) [Figure 20-10-12].

NOTE: The center shaft is built up at one end and recessed at the other end. The recessed end has a mating area in the Geroler®. Be sure to install the center shaft correctly during assembly.

Figure 20-10-13



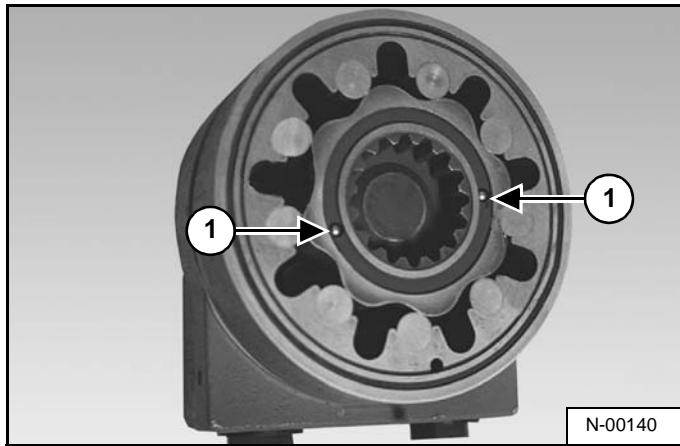
Remove the balance plate (Item 1) [Figure 20-10-13] from the Geroler®.

Remove the O-ring (Item 2) [Figure 20-10-13] from the Geroler®.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

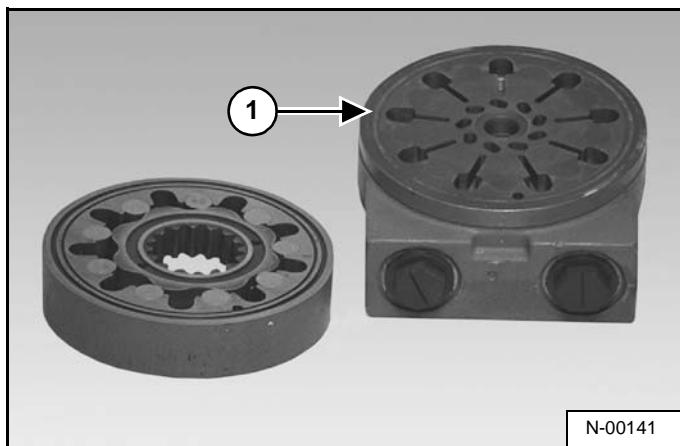
Disassembly (Cont'd)

Figure 20-10-14



Remove the two steel balls (Item 1) [Figure 20-10-14] from the Geroler®.

Figure 20-10-15

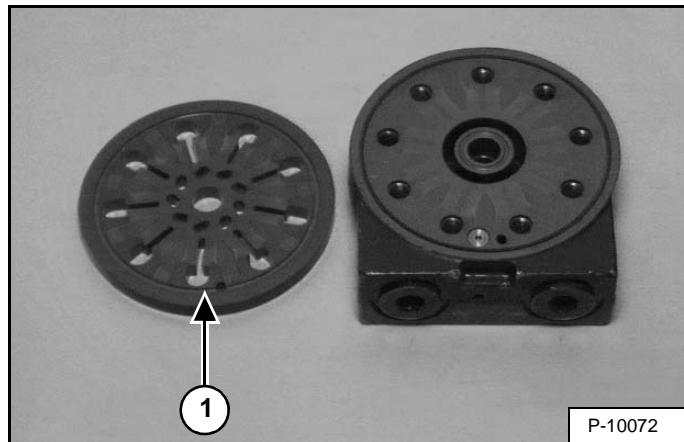


Remove the Geroler® from the valve plate [Figure 20-10-15].

Remove the O-ring (Item 1) [Figure 20-10-15] from the valve plate.

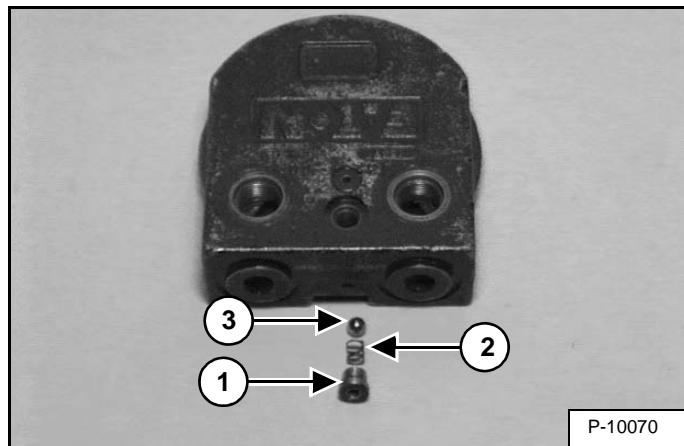
NOTE: Do not disassemble the Geroler®.

Figure 20-10-16



Remove the valve plate (Item 1) [Figure 20-10-16] from the end housing.

Figure 20-10-17



Remove the plug (Item 1), spring (Item 2), and ball (Item 3) [Figure 20-10-17] from the outside of the end housing.

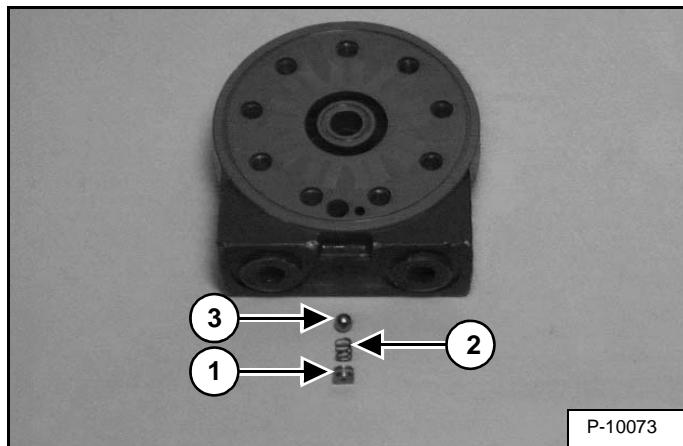
Replace the O-ring on the plug.

Check the condition of the balls and springs [Figure 20-10-17]. Replace as needed.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Disassembly (Cont'd)

Figure 20-10-18



Using a punch, tap from the outside of the housing to remove the plug (Item 1), spring (Item 2), and ball (Item 3) [Figure 20-10-18].

Replace the O-ring on the plug.

Check the condition of the balls and springs [Figure 20-10-18]. Replace as needed.

Check the condition of the seating surface in the end housing. If the surface is damaged, replace the end housing.

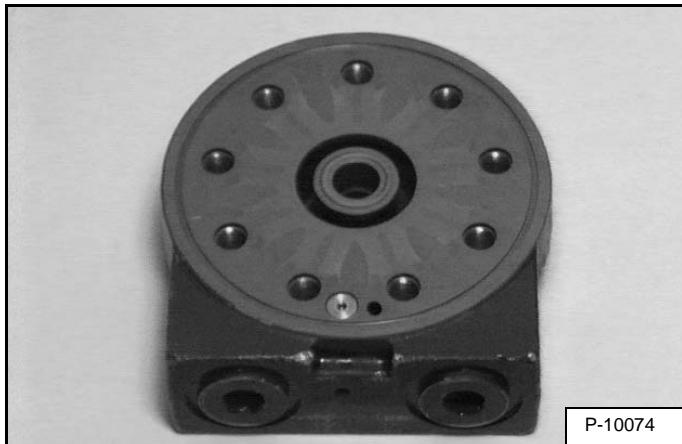
HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Inspection

Clean all the parts in solvent and dry with compressed air. DO NOT use cloth or paper to dry the parts. Small pieces of material can get into the system and cause damage.

Check the following parts before assembly.

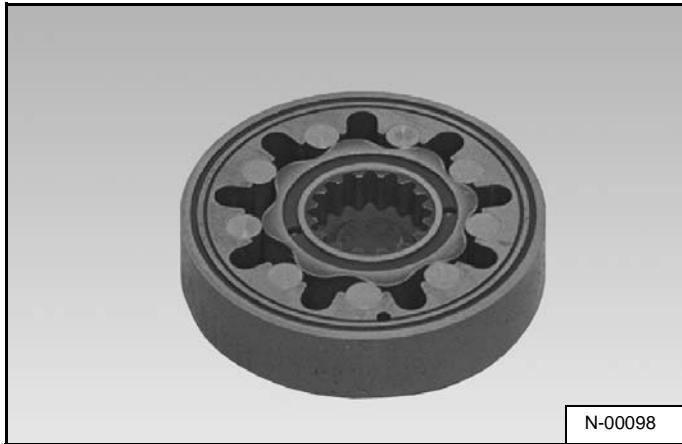
Figure 20-10-19



Check the end housing surface for scratches [Figure 20-10-19].

NOTE: Inspect and clean the motor case drain filters during motor repair or replacement.

Figure 20-10-20



Check the Geroler® rollers and rotor for wear and scratches [Figure 20-10-20].

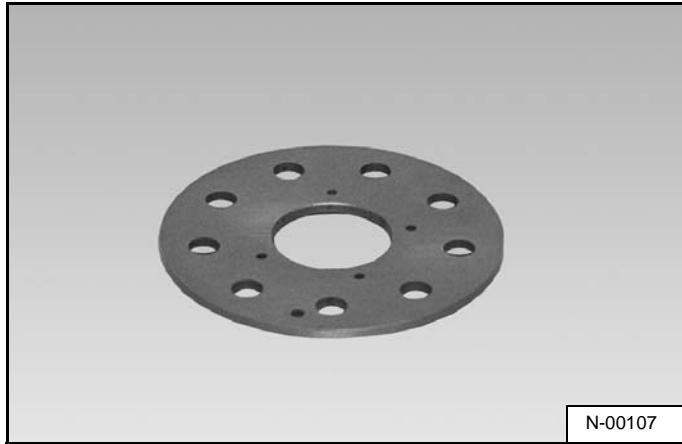
NOTE: Do not disassemble the Geroler®. If rollers come out, put them back in their original bore.

Figure 20-10-21



Check the valve plate surface for scratches (both sides) [Figure 20-10-21].

Figure 20-10-22



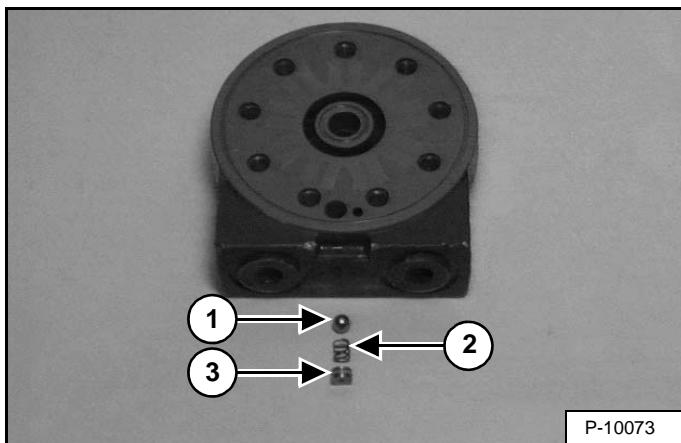
Check the balance plate surface for scratches (both sides) [Figure 20-10-22].

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Assembly

NOTE: Always use new O-rings and seals when assembling the motor. Put a small amount of grease on all the O-rings and seals for easier installation.

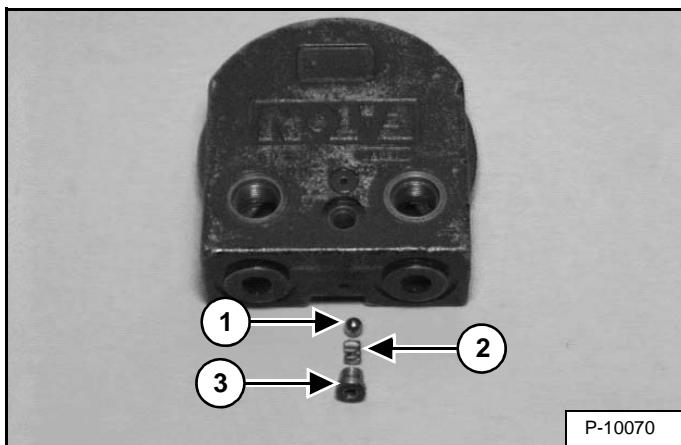
Figure 20-10-23



From the inside of the end housing, install the ball (Item 1), spring (Item 2), and plug (Item 3) [Figure 20-10-23].

Install the plug until it is flush with the surface of the end housing.

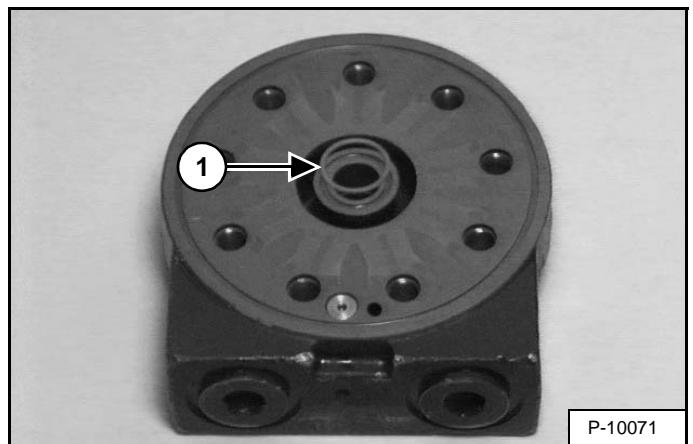
Figure 20-10-24



From the outside of the end housing, install the ball (Item 1), spring (Item 2), and plug (Item 3) [Figure 20-10-24].

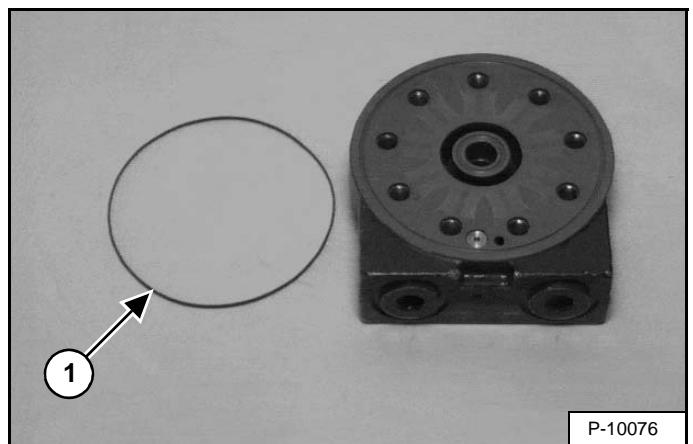
Installation: Tighten the plug to 41 N·m (30 ft-lb) torque.

Figure 20-10-25



Install the small O-ring (Item 1) [Figure 20-10-25] in the groove in the end housing.

Figure 20-10-26

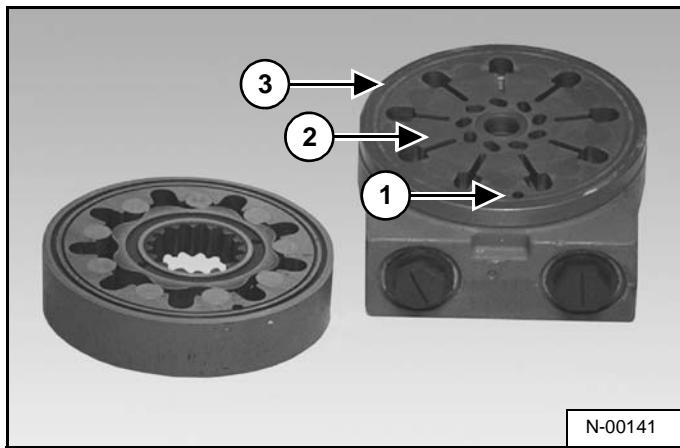


Install the large O-ring (Item 1) [Figure 20-10-26] on the end housing.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

Assembly (Cont'd)

Figure 20-10-27

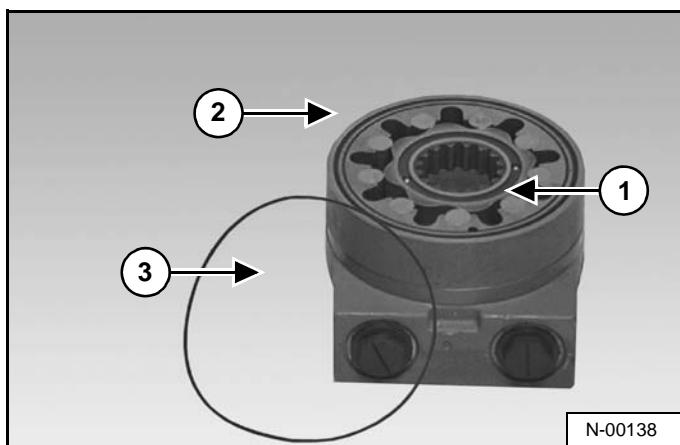


Align the case drain hole (Item 1) [Figure 20-10-27] in the valve plate with the case drain hole in the end housing.

Install the valve plate (Item 2) [Figure 20-10-27] on the end housing.

Install the large O-ring (Item 3) [Figure 20-10-27] on the valve plate.

Figure 20-10-28

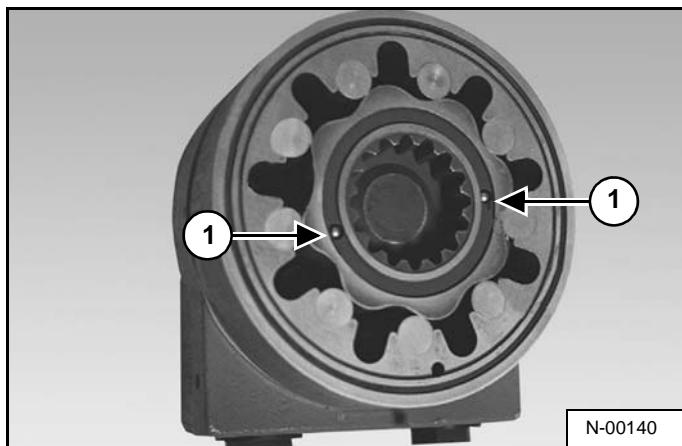


Align the case drain hole (Item 1) [Figure 20-10-28] in the Geroler® with the case drain hole in the valve plate.

Install the Geroler® (Item 2) [Figure 20-10-28] on the valve plate.

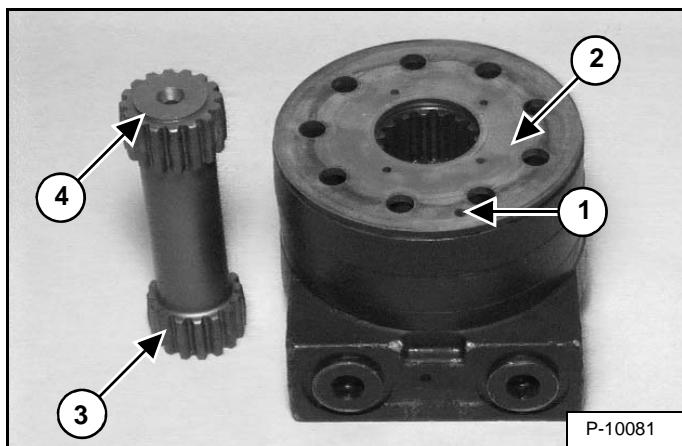
Install the large O-ring (Item 3) [Figure 20-10-28] on the Geroler®.

Figure 20-10-29



Install the two steel balls (Item 1) [Figure 20-10-29] in the Geroler® holes.

Figure 20-10-30



Align the case drain hole (Item 1) [Figure 20-10-30] in the balance plate with the case drain hole in the Geroler®.

Install the balance plate (Item 2) [Figure 20-10-30] on the Geroler®.

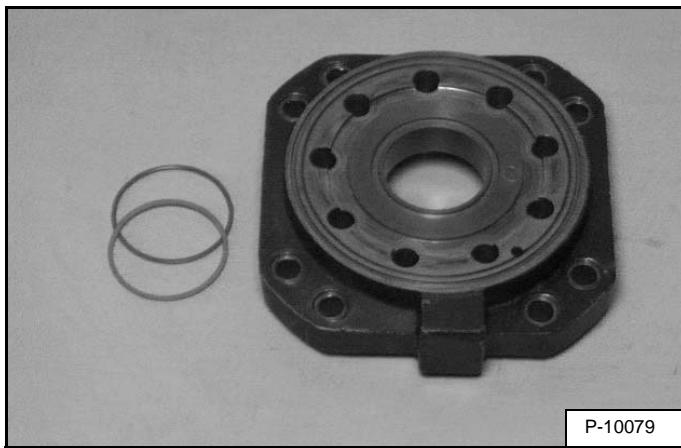
Install the center shaft (Item 3) [Figure 20-10-30] in the Geroler® splines.

NOTE: Install the center shaft so the built up end (Item 4) [Figure 20-10-30] is up. The recessed end will fit in a mating area in the Geroler®.

HYDRAULIC MOTOR (S/N 055200855 & BELOW, S/N 055100947 & BELOW) (CONT'D)

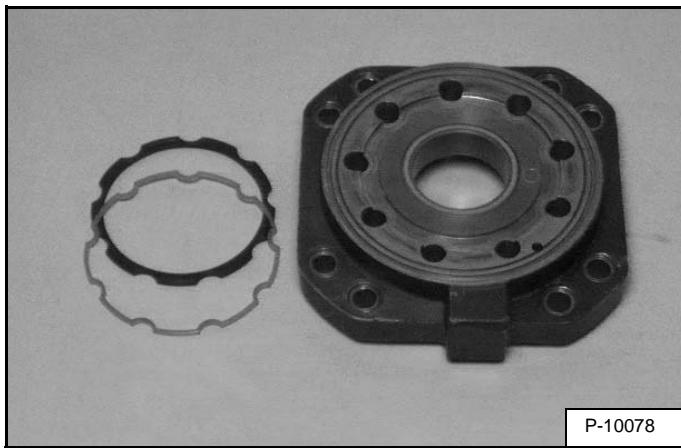
Assembly (Cont'd)

Figure 20-10-31



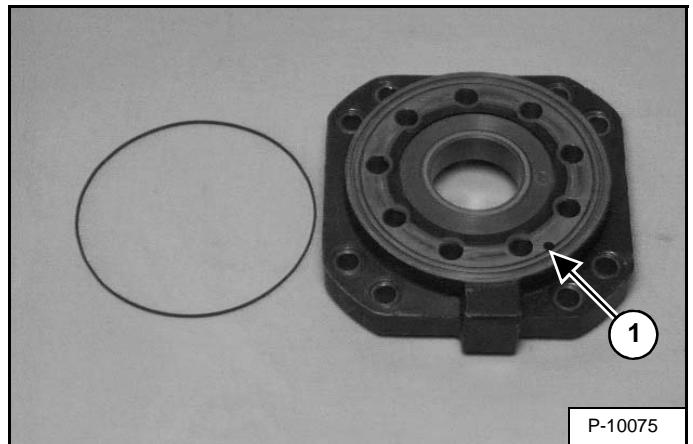
Install the O-ring and back-up ring in the mounting flange **[Figure 20-10-31]**.

Figure 20-10-32



Install the seal and back-up ring in the mounting flange **[Figure 20-10-32]**.

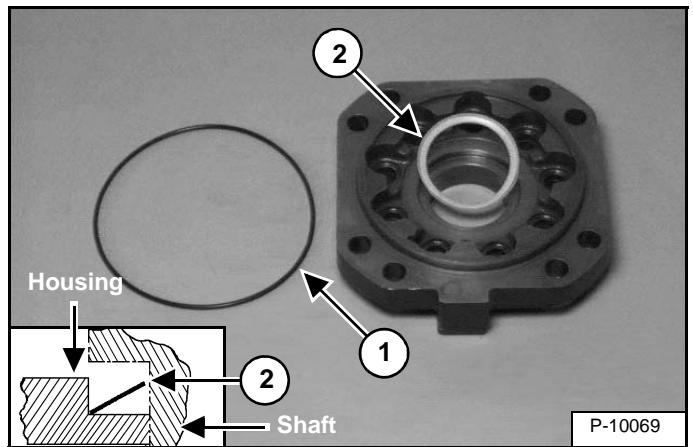
Figure 20-10-33



Install the large O-ring in the mounting flange **[Figure 20-10-33]**.

Install the orifice and screen (Item 1) **[Figure 20-10-33]**.

Figure 20-10-34



Carefully turn the mounting flange over and install the O-ring (Item 1) and the seal (Item 2) **[Figure 20-10-34]**.

Position the seal (Item 2) as shown in the housing bore (inset) **[Figure 20-10-34]**.

Assembly (Cont'd)

Align the case drain hole in the mounting flange with the case drain hole in the balance plate.

Figure 20-10-35

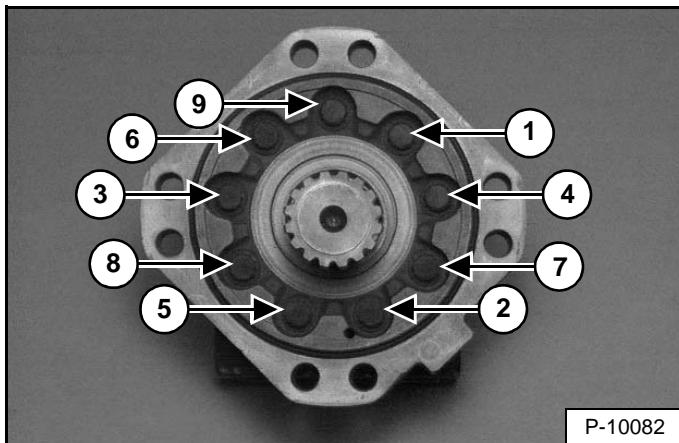


Install the mounting flange on the balance plate [Figure 20-10-35].

Be careful not to displace the O-rings, seals, or back-up rings.

Install the nine bolts in the motor.

Figure 20-10-36



Step one: In the sequence shown [Figure 20-10-36] first tighten the bolts to 41 N•m (30 ft-lb) torque.

Step two: In the sequence shown [Figure 20-10-36] tighten the bolts to 81 N•m (60 ft-lb) torque.

NOTE: To prevent damage to the balance plate, never lift or support the motor by the center shaft.

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