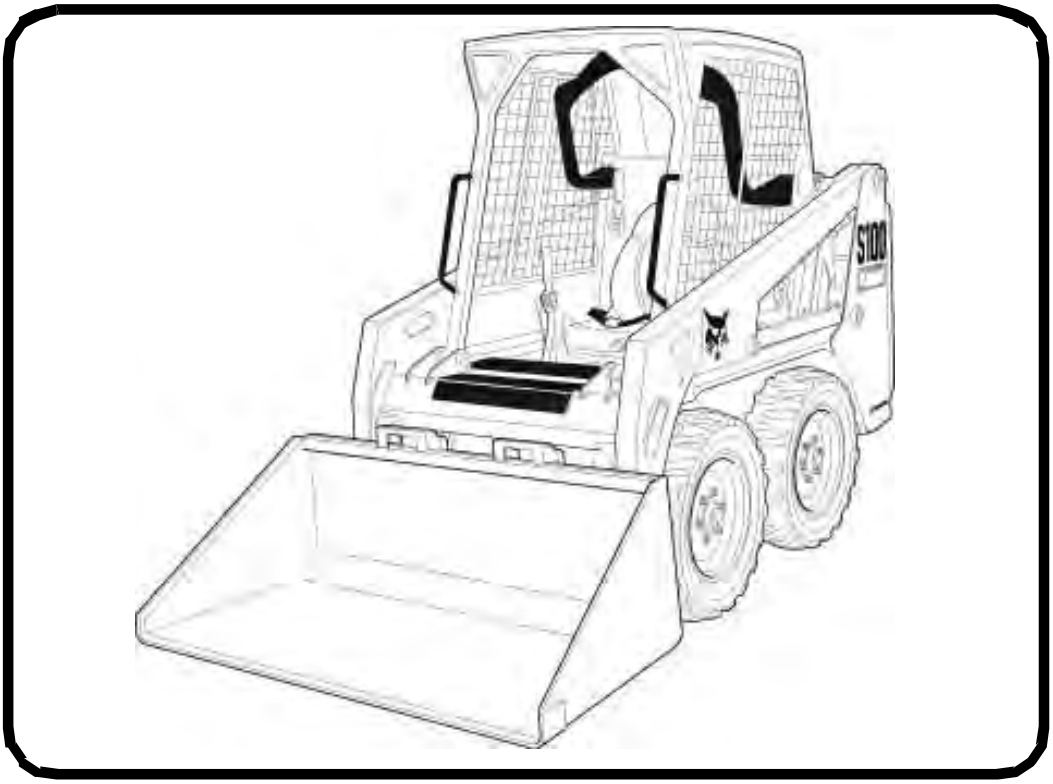
Bobcat®

Service Manual
S100 Skid-Steer Loader

S/N A2G711001 & Above
S/N A89L11001 & Above



EQUIPPED WITH BOBCAT INTERLOCK CONTROL SYSTEM (BICS™)

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SAFETY INSTRUCTIONS

Safety Alert Symbol

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

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

IMPORTANT

This notice identifies procedures which must be followed to avoid damage to the machine.

I-2019-0284

DANGER

The signal word DANGER on the machine and in the manuals indicates a hazardous situation which, if not avoided, will result in death or serious injury.

D-1002-1107

WARNING

The signal word WARNING on the machine and in the manuals indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

W-2044-1107

The following publications provide information on the safe use and maintenance of the Bobcat machine and attachments:

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine is in safe operating condition.
- The Operation & Maintenance Manual delivered with the machine or attachment contains operating information as well as routine maintenance and service procedures. It is a part of the machine and can be stored in a container provided on the machine. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat dealer.
- Machine signs (decals) instruct on the safe operation and care of your Bobcat machine or attachment. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat dealer.
- An Operator's Handbook fastened to the operator cab. It's brief instructions are convenient to the operator. The handbook is available from your dealer in an English edition or one of many other languages. See your Bobcat dealer for more information on translated versions.
- The AEM Safety Manual delivered with the machine gives general safety information.
- The Service Manual and Parts Manual are available from your dealer for use by mechanics to do shop-type service and repair work.
- The Skid-Steer Loader Operator Training Course is available through your local dealer or at **www.training.bobcat.com** or **www.bobcat.com**. This course is intended to provide rules and practices of correct operation of the Skid-Steer Loader. The course is available in English and Spanish versions.
- Service Safety Training Courses are available from your Bobcat dealer or at **www.training.bobcat.com** or **www.bobcat.com**. They provide information for safe and correct service procedures.
- The Skid-Steer Loader Safety Video is available from your Bobcat dealer or at **www.training.bobcat.com** or **www.bobcat.com**.

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TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION SPEC-01) UNLESS OTHERWISE SPECIFIED.

TRANSPORTING THE LOADER ON A TRAILER

Loading And Unloading

⚠ WARNING

AVOID SERIOUS INJURY OR DEATH

Adequately designed ramps of sufficient strength are needed to support the weight of the machine when loading onto a transport vehicle. Wood ramps can break and cause personal injury.

W-2058-0807

Be sure the transport and towing vehicles are of adequate size and capacity for the weight of the loader. (See Performance on Page SPEC-10-2.)

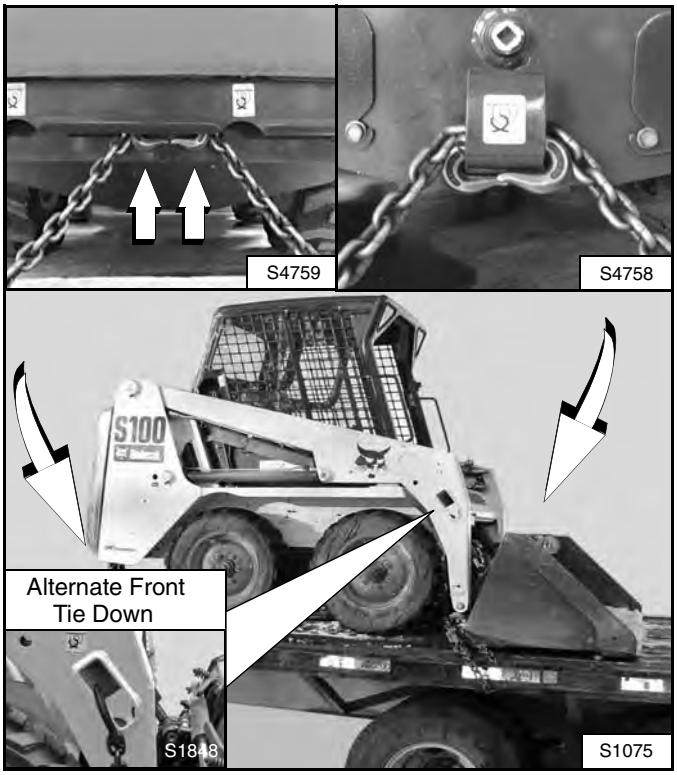
Figure 10-40-1

A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle **[Figure 10-40-1]**.

The rear of the tr ailer must be blocked or supported **[Figure 10-40-1]** when loading or unloading the loader to prevent the front end of the trailer from raising up.

Fastening

Figure 10-40-2



Use the following procedure to fasten the Bobcat Loader to the transport vehicle to prevent the loader from moving during sudden stops or when going up o r down slopes **[Figure 10-40-2]**.

- Lower the bucket or attachment to the floor.
- Stop the engine.
- Engage the parking brake.
- Install chains at the front and rear loader tie down positions **[Figure 10-40-2]**.
- Fasten each end of the chain to the transport vehicle.

REMOTE START TOOL (SERVICE TOOL) KIT - 7003031

Description

The Remote Start Tool (Service Tool) Kit is a replacement tool for MEL 1563 Remote Start Tool and MEL 1400B - BOSS® Diagnostic Tool.

The Remote Start Tool (Service Tool) Kit, P/N 7003031, can be used to service older loaders with the BOSS® system using the supplied BOSS® Service Tool Harness P/N 6689745.

The Remote Start Tool (Service Tool) Kit, P/N 7003031, can be used to service newer loaders using the supplied harness P/N 6689747.

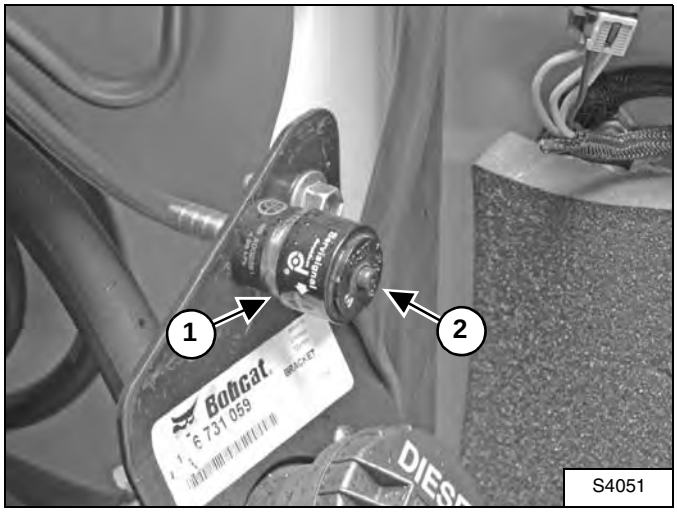
A computer can be connected to the Remote Start Tool (Service Tool) for diagnostics and software updates using the computer harness P/N 6689746 in conjunction with the loader harness.

AIR CLEANER SERVICE

Replacing Filter Elements

Figure 10-80-1

Figure 10-80-1

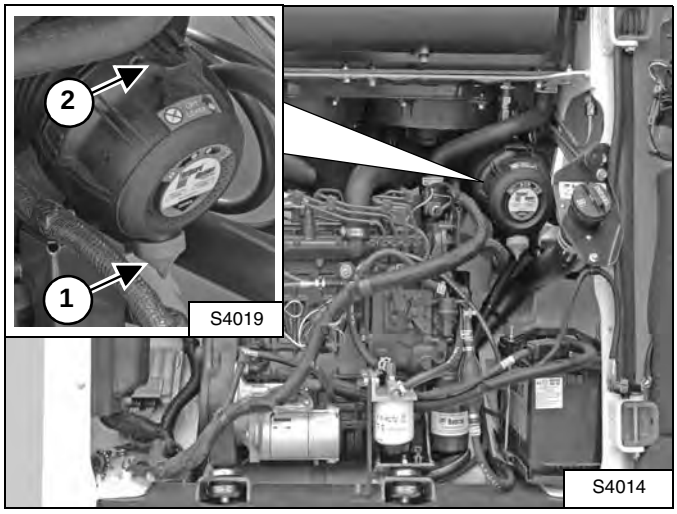


Replace the large (outer) filter element only when the red ring shows in the window of the condition indicator (Item 1) **[Figure 10-80-1]**.

NOTE: Before replacing the filter element, push the button on the condition indicator (Item 2) [Figure 10-80-1]. Start the engine. If the red ring does not show, do not replace the filter element.

Outer Filter

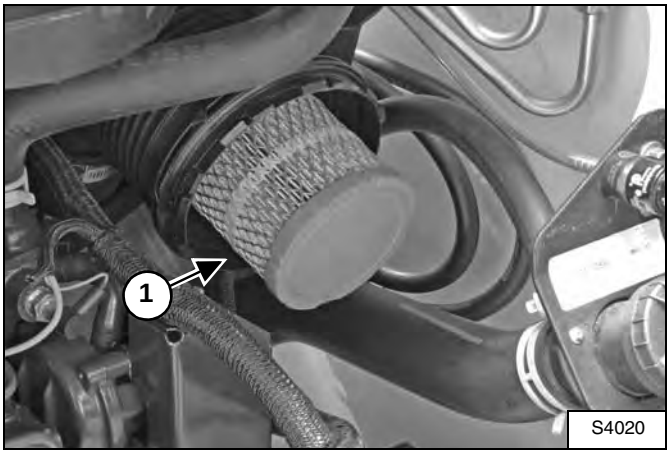
Figure 10-80-2



Open the evacuator valve (Item 1) **[Figure 10-80-2]** to get rid of large particles of dust and dirt.

Remove the dust cover by li fting the le ver (Item 2) **[Figure 10-80-2]**.

Figure 10-80-3



Pull the element straight out (Item 1) **[Figure 10-80-3]**.

Install a new outer element.

Install the dust cover (Item 2) **[Figure 10-80-2]**.

Check the air intake hose and the air cleaner housing for damage. Make sure all connections are tight.

Inner Filter

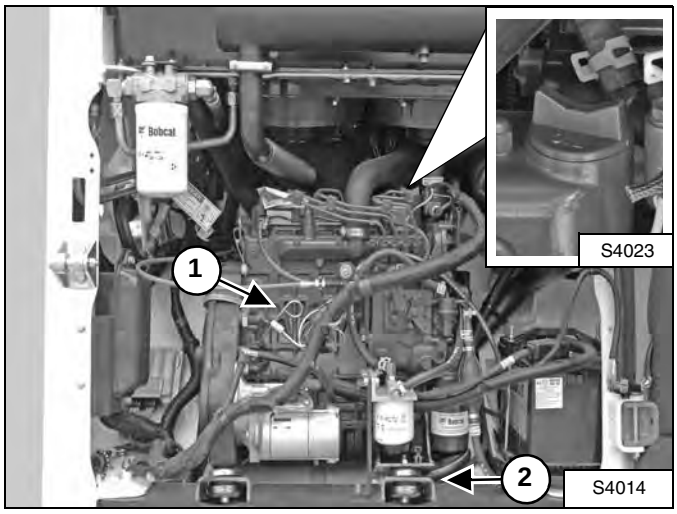
Replace the inner filter every third time the outer filter is replaced or when the red ring still shows in the indicator window after the outer filter has been replaced.

ENGINE LUBRICATION SYSTEM

Checking And Adding Engine Oil

Check the engine oil level every day before starting the engine for the work shift.

Figure 10-110-1

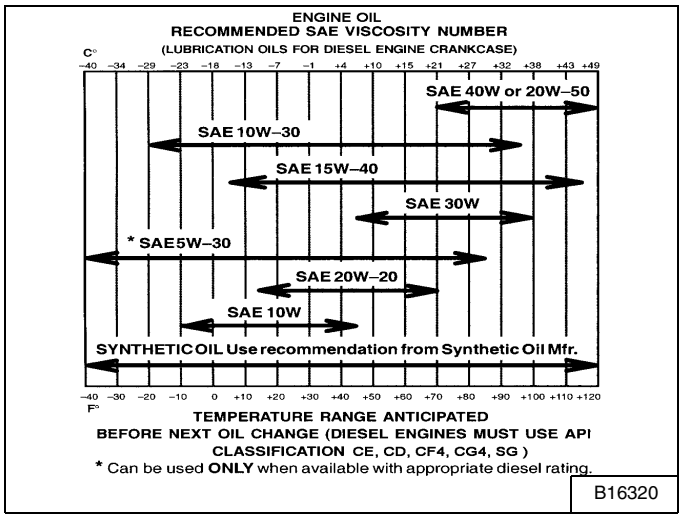


Open the rear door and remove the dipstick (Item 1) **[Figure 10-110-1]**.

Keep the oil level between the marks on the dipstick.

Engine Oil Chart

Figure 10-110-2



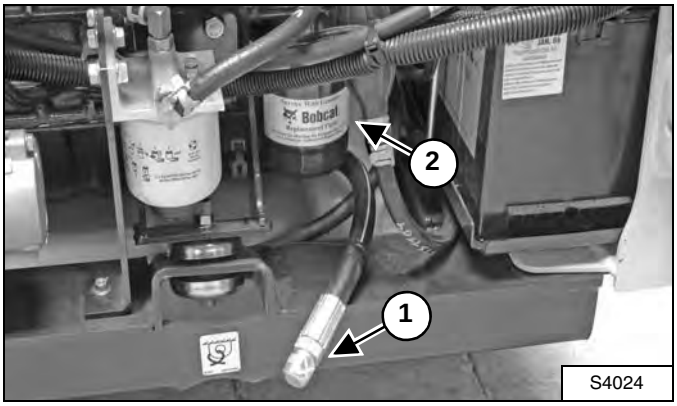
Use a good quality motor oil that meets API Service Classification of CD or better. (See Engine Oil Chart **[Figure 10-110-2]**.)

Removing And Replacing Oil And Filter

For the service interval for replacing the engine oil and filter (See SERVICE SCHEDULE on Page 10-70-1.)

Run the engine until it is at operating temperature. Stop the engine.

Figure 10-110-3



Open the rear door.

Remove the drain hose from its storage position. Remove the drain plug (Item 1) **[Figure 10-110-3]**.

Drain the oil into a container and dispose of used oil in an environmentally safe manner.

Remove the oil filter (Item 2) **[Figure 10-110-3]**.

Clean the filter housing surface.

Put clean oil on the new oil filter gasket.

Install the filter and hand tighten.

Install and tighten the drain plug.

Add engine oil.

⚠ WARNING

AVOID INJURY OR DEATH

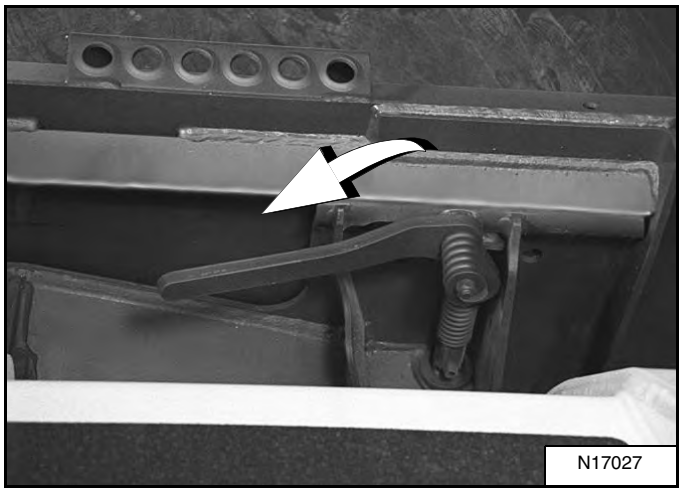
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-0807

BOB-TACH (HAND LEVER)

Inspection And Maintenance

Figure 10-140-1



Move the Bob-Tach levers down to engage the wedges **[Figure 10-140-1]**.

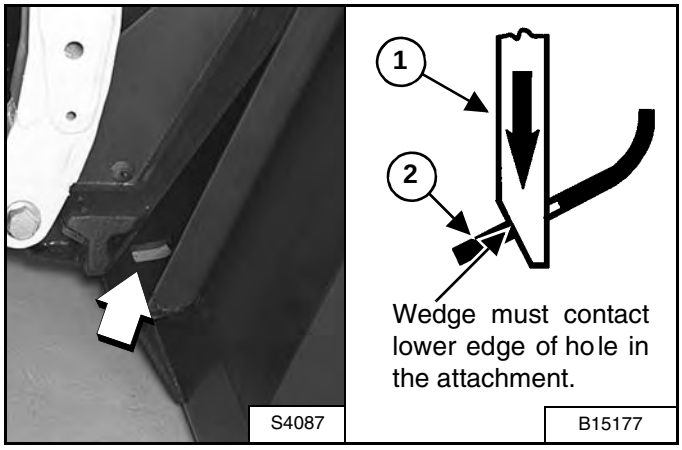
The levers and wedges must move freely.

⚠ WARNING

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

W-2102-0497

Figure 10-140-2

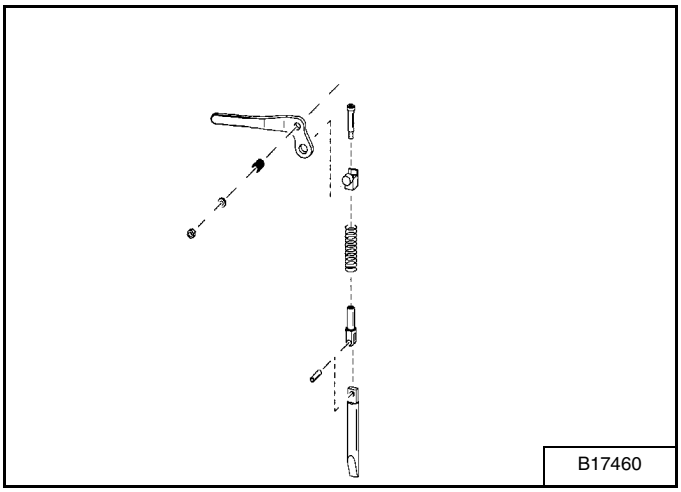


The wedges (Item 1) must extend through the holes in the attachment mounting frame (Item 2) **[Figure 10-140-2]**.

The spring loaded wedge (Item 1) must contact the lower edge of the hole in the attachment (Item 2) **[Figure 10-140-2]**.

If the wedge does not contact the lower edge of the hole **[Figure 10-140-2]**, the attachment will be loose and can come off the Bob-Tach.

Figure 10-140-3



Inspect the mounting frame on the attachment and Bob-Tach, linkages and wedges for excessive wear or damage **[Figure 10-140-3]**. 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 SERVICE SCHEDULE on Page 10-70-1.) and (See LUBRICATING THE LOADER on Page 10-150-1.)

LOADER STORAGE AND RETURN TO SERVICE

Storage

Sometimes it may be necessary to store your Bobcat Loader for an extend period of time. Below is a list of items to perform before storage.

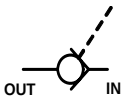
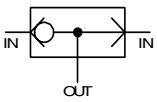
- Thoroughly clean the loader including the engine compartment.
- Lubricate the loader.
- Replace worn or damaged parts.
- Park the loader in a dry protected shelter.
- Lower the lift arms all the way and put the bucket flat on the ground.
- Put blocks under the frame to remove weight from the tires.
- Put grease on any exposed cylinder rods.
- Put fuel stabilizer in the fuel tank and run the engine a few minutes to circulate the stabilizer to the pump and fuel injectors.
- Drain and flush the cooling system. Refill with premixed coolant.
- Replace all fluids and filters (engine, hyd. / hydro.).
- Replace air cleaner, heater and air conditioning filters.
- Put all controls in neutral position.
- Remove the battery. Be sure the electrolyte level is correct then charge the battery. Store it in a cool dry place above freezing temperatures and charge it periodically during storage.
- Cover the exhaust pipe opening.
- Tag the machine to indicate that it is in storage condition.

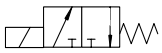
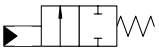
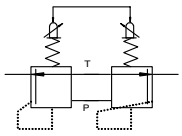
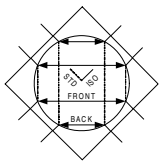
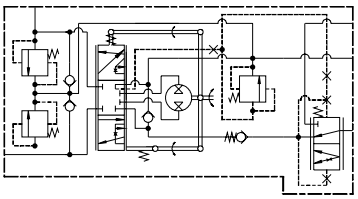
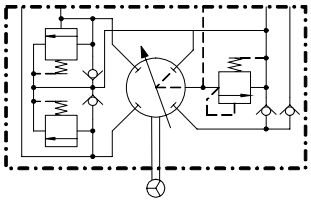
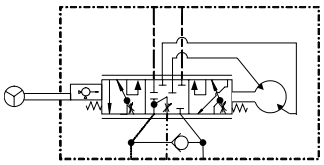
Return To Service

After the Bobcat Loader has been in storage, it is necessary to follow a list of items to return the loader to service.

- Check the engine and hydraulic oil levels; check coolant level.
- Install a fully charged battery.
- Remove grease from exposed cylinder rods.
- Check all belt tensions.
- Be sure all shields and guards are in place.
- Lubricate the loader.
- Check tire inflation and remove blocks from under frame.
- Remove cover from exhaust pipe opening.
- Start the engine and let run for a few minutes while observing the instrument panels and systems for correct operation.
- Operate machine, check for correct function.
- Stop the engine and check for leaks. Repair as needed.

Glossary Of Hydraulic / Hydrostatic Symbols (Cont'd)

SYMBOL	DESCRIPTION
	NON-RETURN VALVE, SHUTTLE VALVE: Valve which allows free flow in one direction only.
	NON-RETURN VALVE (Check Valve) - Used as Replenishing Valve, Lock 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.
	SPRING LOADED VALVE (bypass Valve) - Opens if the Inlet pressure is greater than the Outlet pressure plus the spring pressure.
	PILOT CONTROLLED NON-RETURN VALVE- It is possible to open the valve by pilot pressure.
	SHUTTLE VALVE - The Inlet port connected to the higher pressure is automatically connected to the Outlet port while the other Inlet port is closed.

SYMBOL	DESCRIPTION
	DIRECTIONAL CONTROL VALVE: Valve providing for the opening (fully or restricted) or the closing of one or more flow paths (represented by several squares).
	TWO PORTS and CLOSED FLOW PATHS
	SOLENOID ACTIVATED DIRECTIONAL CONTROL VALVE (Two Position) - controlled by an electric solenoid (with return spring).
	PILOT ACTIVATED DIRECTIONAL CONTROL VALVE (Two Position) - controlled by pressure (with return spring).
	MANUALLY ACTIVATED DIRECTION CONTROL VALVE (Variable Position) Joystick Controlled, variable pressure to shift the pilot activated directional control valve spool.
	MANUALLY ACTIVATED FLOW CONTROL VALVE (Two Position) allows for changing pilot flow to control switching joystick functions for STD / ISO Control (Excavators Only).
	STEERING CONTROL VALVE (Variable Position) - Used for controlling the hydraulic flow for the steering cylinders in relationship to the amount the steering wheel is rotated.
	
	

CYLINDER (TILT)

Testing

Remove the attachment. Roll the Bob-Tach fully back. Stop the engine. Raise the seat bar.

⚠ 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 possible death if proper medical treatment by a physician familiar with this injury is not received immediately.

W-2145-0290

Figure 20-21-1

Disconnect the hose which goes to the base end of the tilt cylinder (Item 1) **[Figure 20-21-1]**.

Install a cap on the hose fitting and tighten.

Engage the parking brake. Lower the seat bar.

Start the engine and push the Press to Operate button. Push the bottom (heel) of the tilt pedal.

If there is leakage from the open port, remove the tilt cylinder for repair.

Removal And Installation

⚠ WARNING

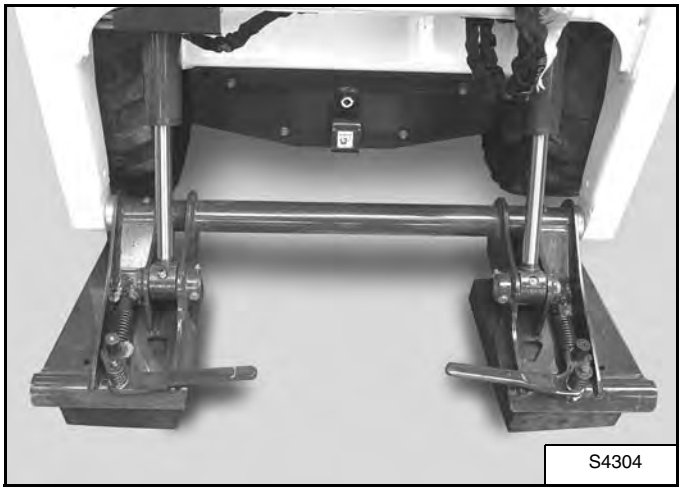
AVOID INJURY OR DEATH

Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-0807

Removal procedure will be explained for the right tilt cylinder. Removal procedure for the left cylinder is similar.

Figure 20-21-2



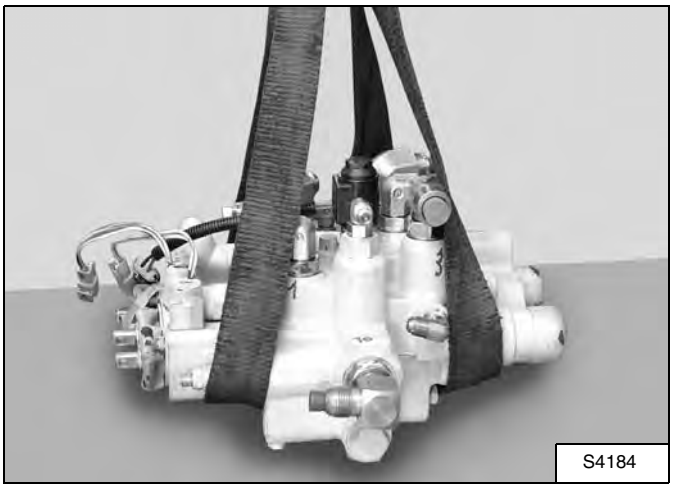
Remove the attachment. Roll the Bob-Tach forward and lower the lift arms.

Place the Bob-Tach flat on a pallet to allow the tilt cylinder base end pin enough clearance to be removed **[Figure 20-21-2]**.

Stop the engine. Move the tilt pedal to release the hydraulic pressure. Raise the seat bar.

Removal And Installation (Cont'd)

Figure 20-40-6

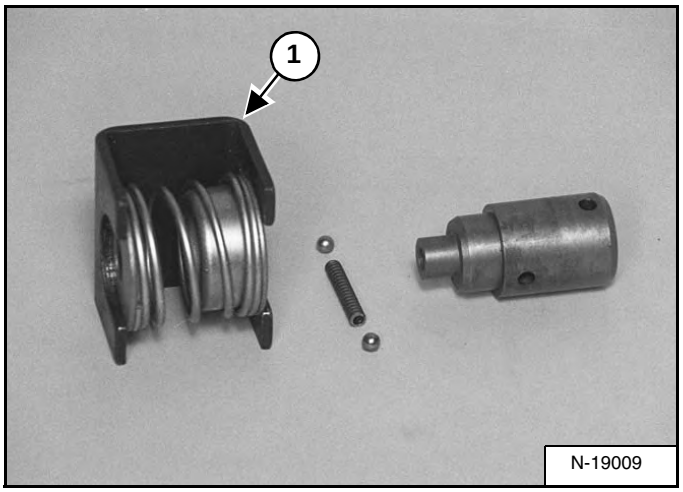


Remove the hydraulic control valve from the loader by means of a hoist **[Figure 20-40-6]**.

NOTE: Make sure the hydraulic control valve is well supported when putting it down.

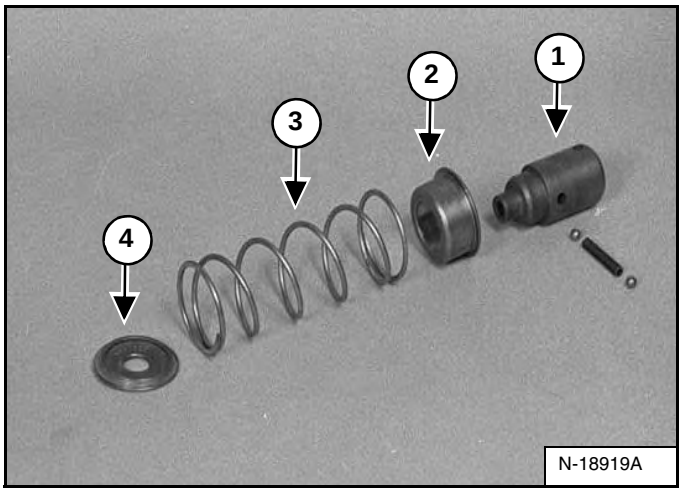
Lift Spool And Detent Removal And Installation (Cont'd)

Figure 20-40-35



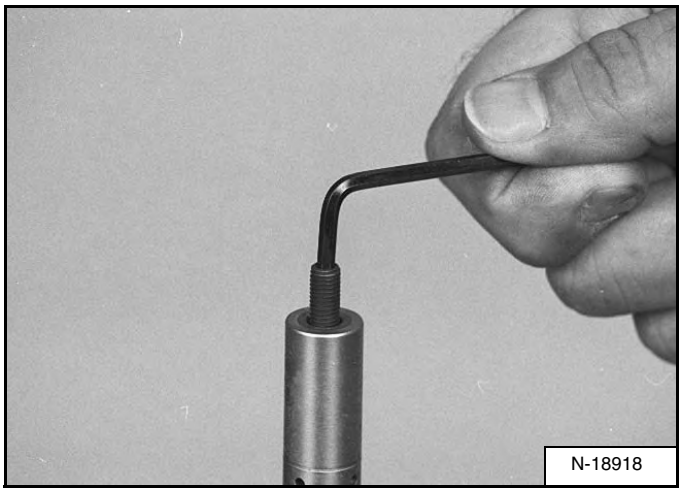
Remove spring tool (Item 1) **[Figure 20-40-35]** from the spring assembly.

Figure 20-40-36



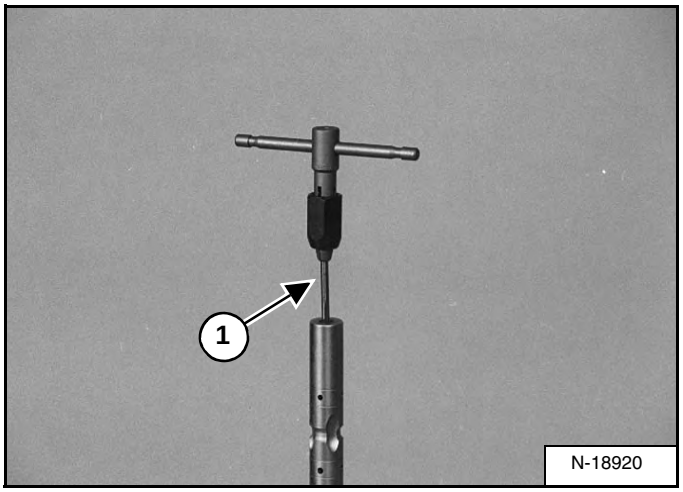
Inspect the adapter (Item 1), collar (Item 2), spring (Item 3) and washer (Item 4) **[Figure 20-40-36]**.

Figure 20-40-37



Remove the stud from the end of the spool **[Figure 20-40-37]**.

Figure 20-40-38



Removal of the plastic plug:

Make a center point in the plug using a 1/16 inch drill.

Drill a hole all the way through the plug using a 7/64 inch tap drill

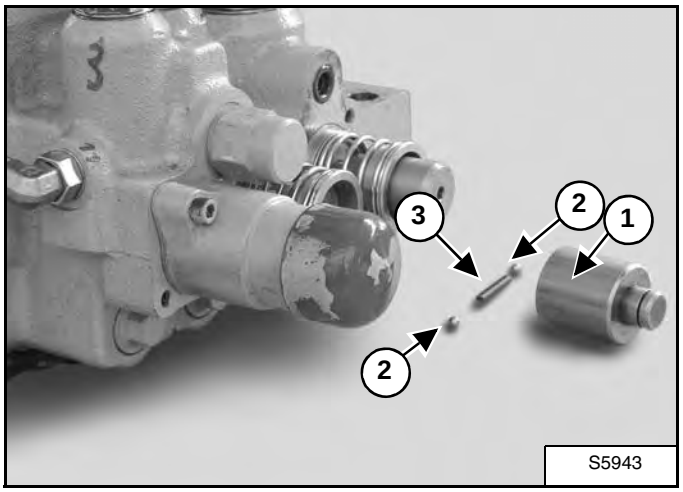
Turn a 6-32 tap (Item 1) **[Figure 20-40-38]** into the plug. Pull the tap and plug out of the spool. Be careful, do not break the tap.

Clean all the debris from inside the spool bore.

NOTE: DO NOT USE LOCTITE ON THE STUD THREADS.

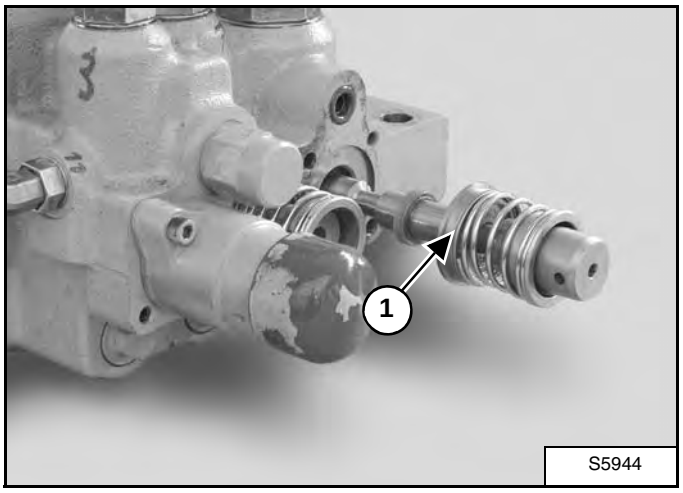
Auxiliary Spool Removal And Installation (Cont'd)

Figure 20-40-75



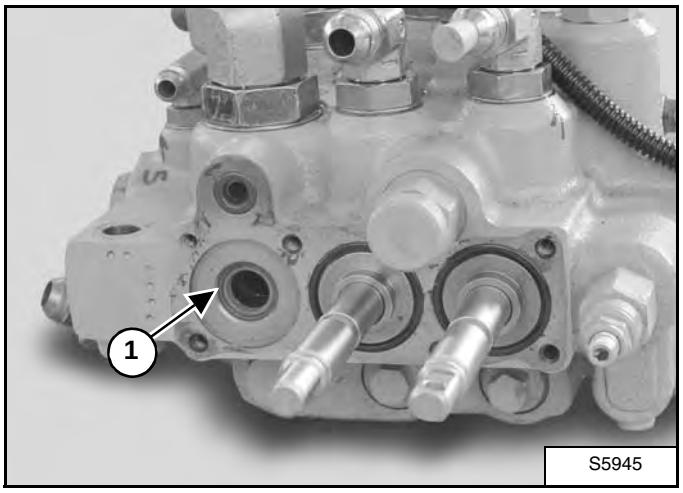
Remove the detent sleeve (Item 1), detent balls (Item 2) and spring (Item 3) **[Figure 20-40-75]**.

Figure 20-40-76



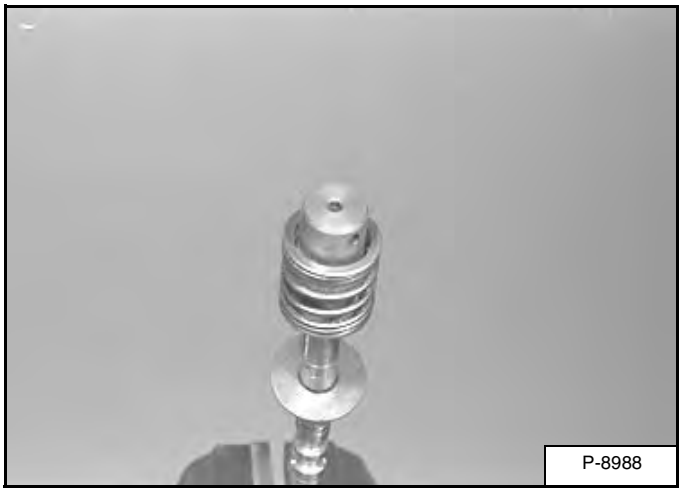
Remove the auxiliary spool assembly and seal (Item 1) **[Figure 20-40-76]** from the control valve.

Figure 20-40-77



Remove the auxiliary spool seal (Item 1) **[Figure 20-40-77]** from the linkage end of the valve.

Figure 20-40-78



Clamp the linkage end of the spool in a vise **[Figure 20-40-78]**.

NOTE: Protect spool before clamping in vise.

LIFT ARM BYPASS CONTROL VALVE

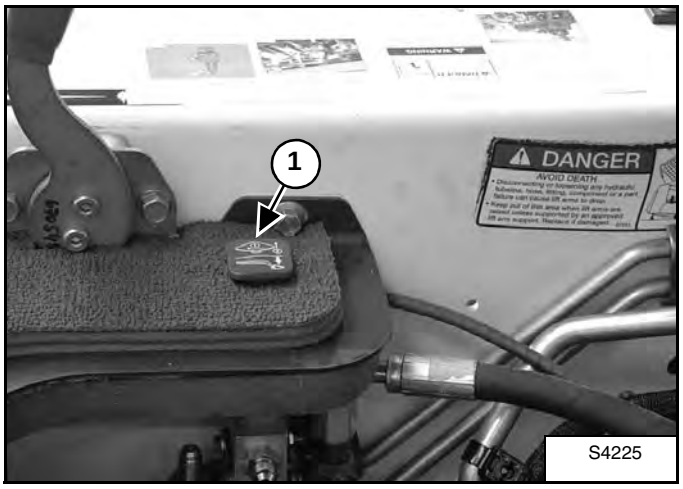
Description

The lift arm bypass control valve is located on the right side of the machine close to the engine speed control.

The lift arm bypass control valve is manually operated by pulling up on the Control Knob (Item 1) **[Figure 20-50-1]** and turning the knob clockwise a 1 /4 turn. The valve releases the hydraulic fluid from the base end of the lift cylinder(s) which allows the lift arm to slowly lower to the transport position.

Testing

Figure 20-50-1



Raise the lift arms 6 feet (2 m) off the ground. Stop the engine. Turn the Lift Arm bypass Control Knob (Item 1) **[Figure 20-50-1]** clockwise 1/4 turn. Then pull up and hold the Lift Arm bypass Control Knob until the lift arms slowly lower.

The knob should return to its initial position.

Removal and Installation

WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

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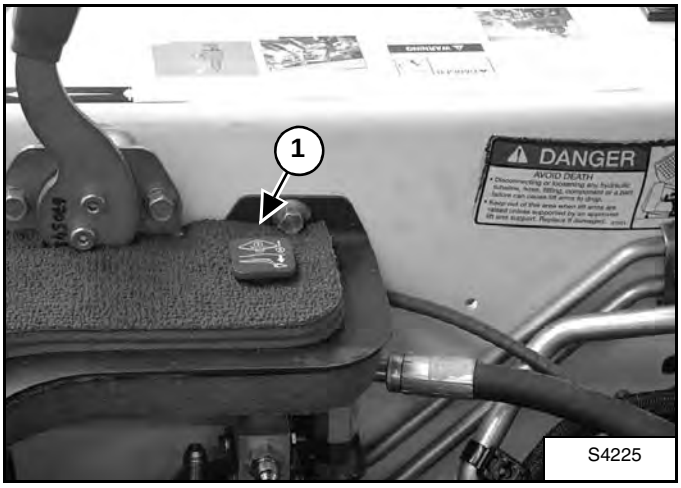
Install jack stands under the rear corners of the loader.

Start the engine. Raise the lift arms and install an approved lift arm support device (See LIFT ARM SUPPORT DEVICE on Page 10-20-1.)

Raise the operator cab (See Raising on Page 10-30-1.)

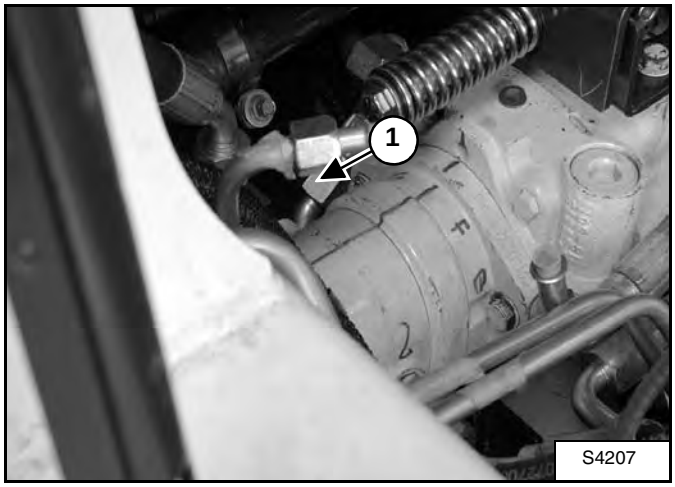
Figure 20-50-2



Hold the Lift Arm bypass Control knob (Item 1) **[Figure 20-50-2]** and loosen the jam nut on the Lift Arm bypass valve shaft.

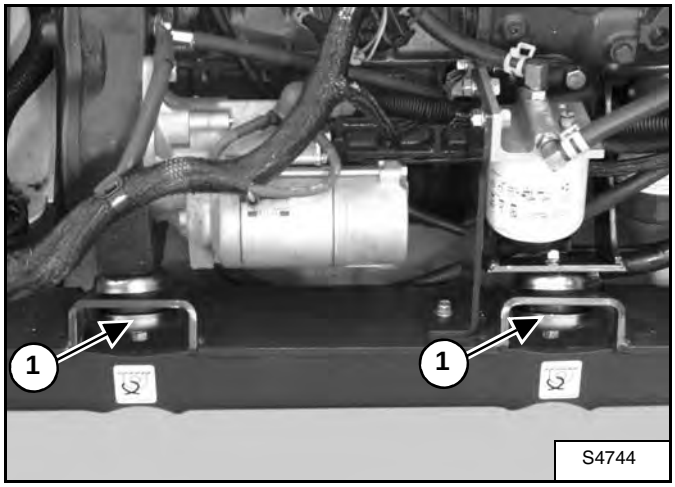
Removal And Installation (Cont'd)

Figure 20-60-13



Disconnect the inlet tubeline (Item 1) **[Figure 20-60-13]** between the engine and the pump assembly from the hydraulic pump.

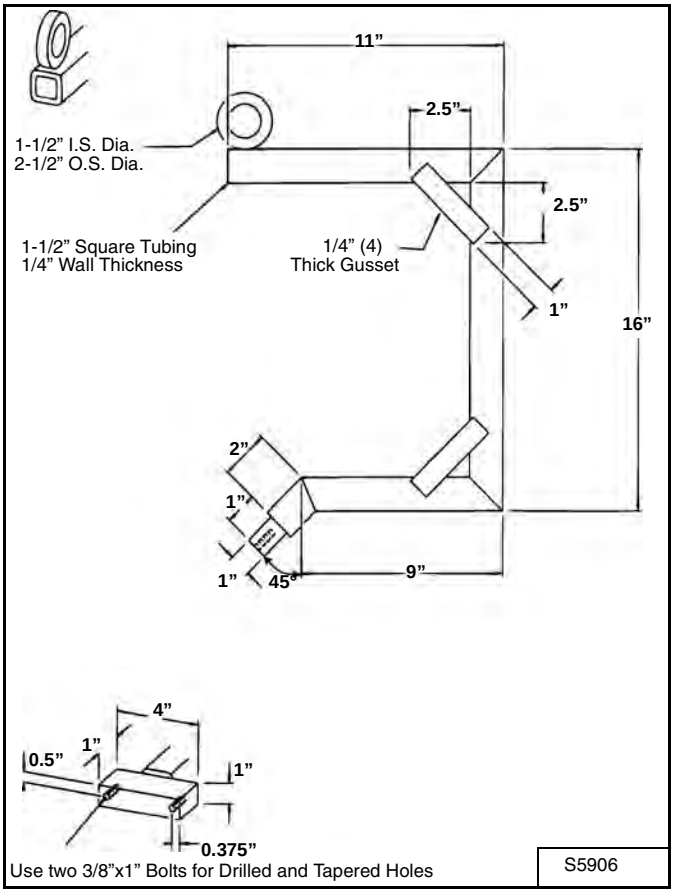
Figure 20-60-14



Remove the four engine mounts (Item 1) **[Figure 20-60-14]**.

Installation: Tighten the engine mount bolts to 70 ft.-lb. (95 N•m) torque.

Figure 20-60-15



A tool needs to be fabricated to use in the removal procedure. This tool allows the engine / hydrostatic pump assembly to be lifted evenly for easier removal. Use the dimensions shown in **[Figure 20-60-15]** to mak e the engine removal tool. (See Engine Removal And Installation on Page 70-10-9.)

Figure 20-60-16

Install the chain on the engine as shown in **[Figure 20-60-16]**.

NOTE: You may need to adjust the chain which fastens to the engine a couple of times to reach the correct lifting position.

HYDRAULIC FLUID RESERVOIR

Description

The hydraulic fluid reservoir is a storage container for the loaders hydraulic / hydrostatic fluid. The reservoir contains a vented fill cap with a fluid screen to prevent contaminants from entering the reservoir while adding fluid.

The hydraulic fluid reservoir is secured to the main frame behind the operators cab.

Removal And Installation

Lift and block the loader (See LIFTING AND BLOCKING THE LOADER on Page 10-10-1.)

Start the engine. Raise the lift arms and install an approved lift arm support device (See LIFT ARM SUPPORT DEVICE on Page 10-20-1.)

WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

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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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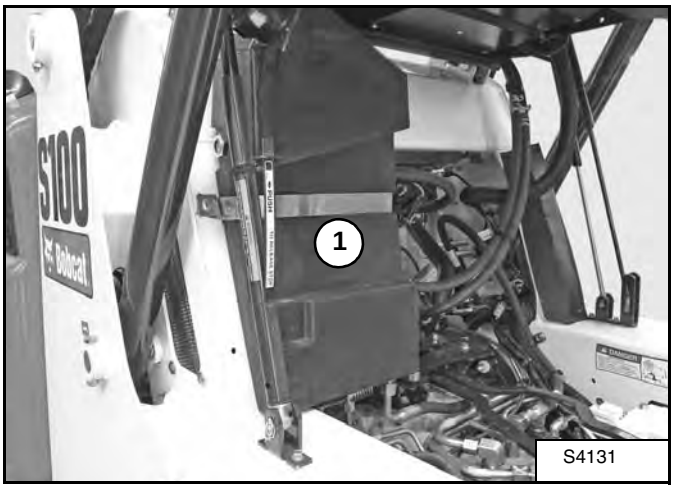
Stop the engine.

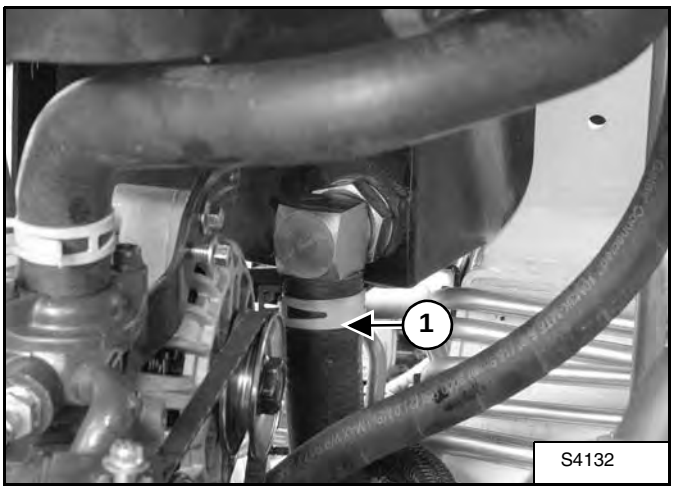
Raise the operator cab (See Raising on Page 10-30-1.)

Figure 20-80-1



Drain the hydraulic reservoir (Item 1) **[Figure 20-80-1]** by means of a hose. Make sure the reservoir is as empty as possible.

Figure 20-80-2



Disconnect the hose (Item 1) **[Figure 20-80-2]** from the hydraulic reservoir by loosening the strap.

FRONT AUXILIARY HYDRAULIC COUPLERS

Description

The front auxiliary hydraulic couplers supply hydraulic flow for various attachments.

The front auxiliary hydraulic couplers are located at the front of the machine on the left side arm.

Removal And Installation

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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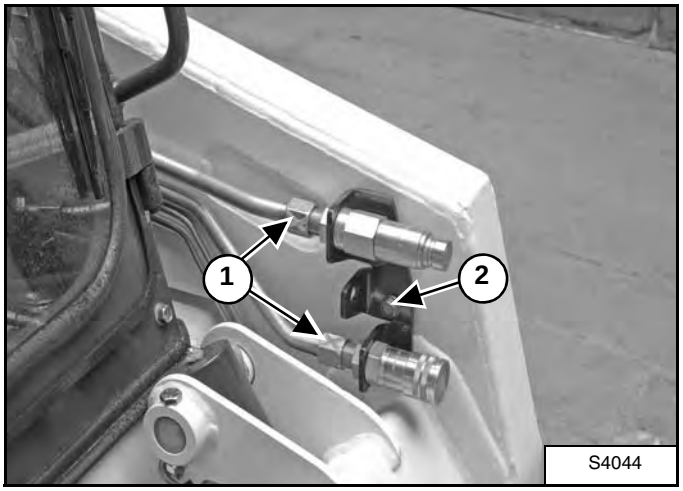
Figure 20-110-1

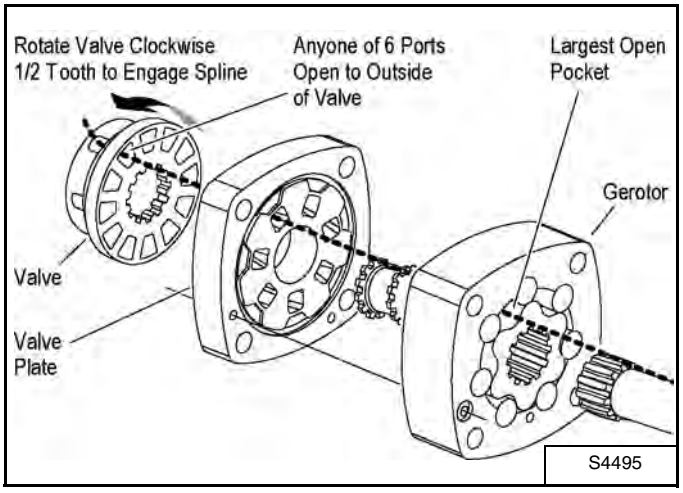


Disconnect the auxiliary tubelines (Item 1) **[Figure 20-110-1]** from the coupler frame.

Remove the mounting bolt (Item 2) **[Figure 20-110-1]**.

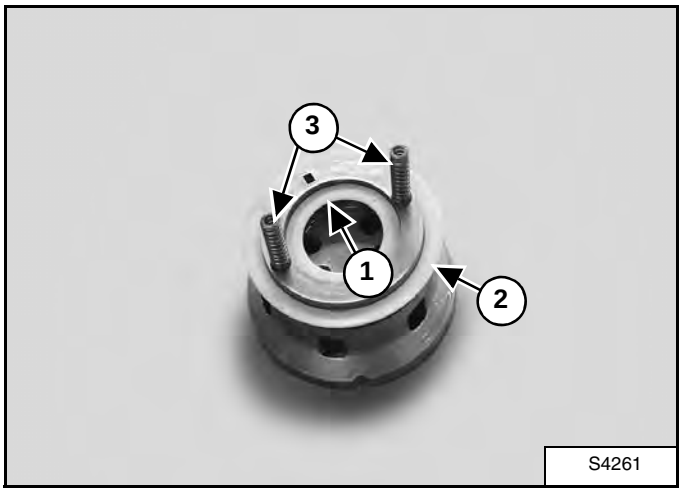
Disassembly And Assembly (Cont'd)

Figure 30-20-9



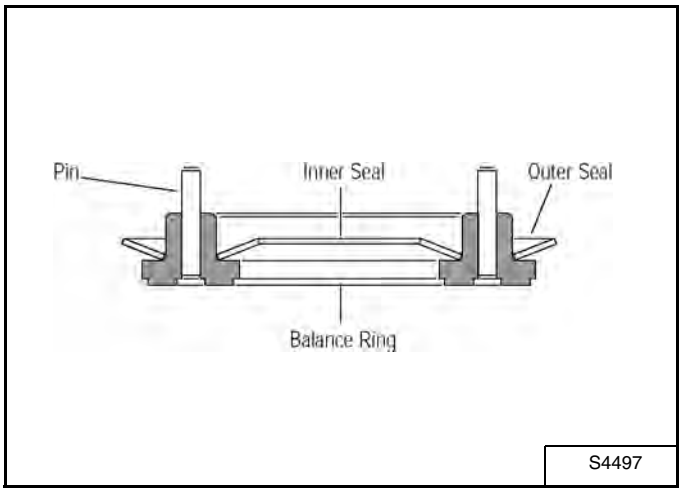
Installation: The motor needs proper timing when reassembling. The timing alignment should be as shown above **[Figure 30-20-9]**. Wrong timing results in reverse rotation of the motor.

Figure 30-20-10



Remove both inner and outer seals (Items 1 and 2) and the two springs (Item 3) **[Figure 30-20-10]** from the cone.

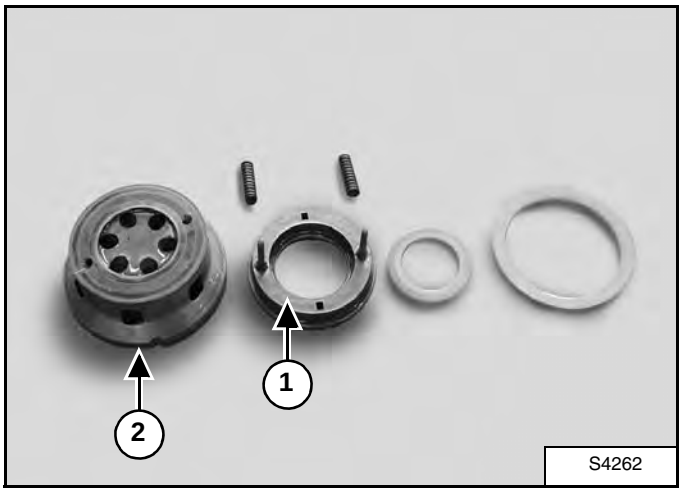
Figure 30-20-11



Installation: Install the inner and outer seals as shown in **[Figure 30-20-9]**. Apply grease on the inner and outer seals.

NOTE:

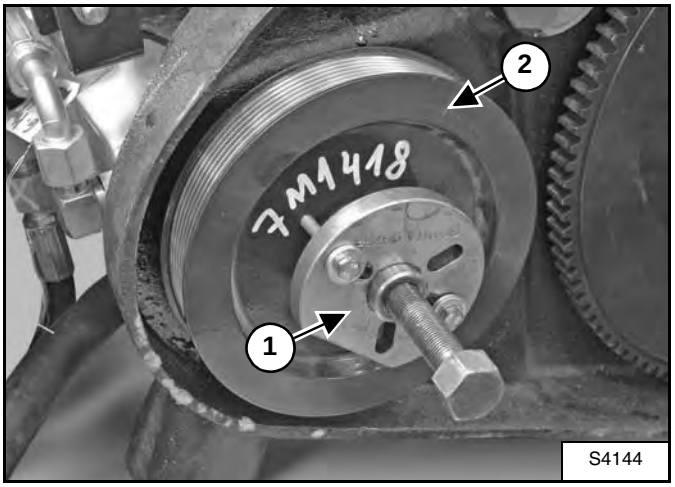
Figure 30-20-12



Remove the balance ring (Item 1) from the valve (Item 2) **[Figure 30-20-9]**.

Removal And Installation (Cont'd)

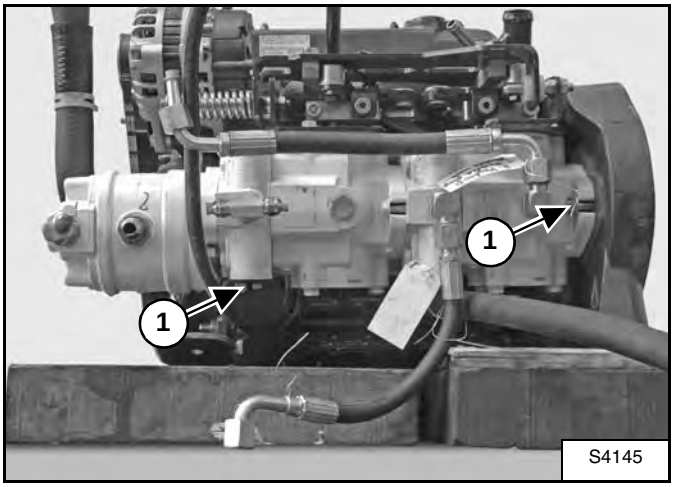
Figure 30-40-6



Install the puller (Item 1) on the hydrostatic pump drive pulley. Remove the drive pulley (Item 2) **[Figure 30-40-6]** from the pump shaft.

Installation: Install the key in the hydrostatic pump shaft before installing the pump drive pulley.

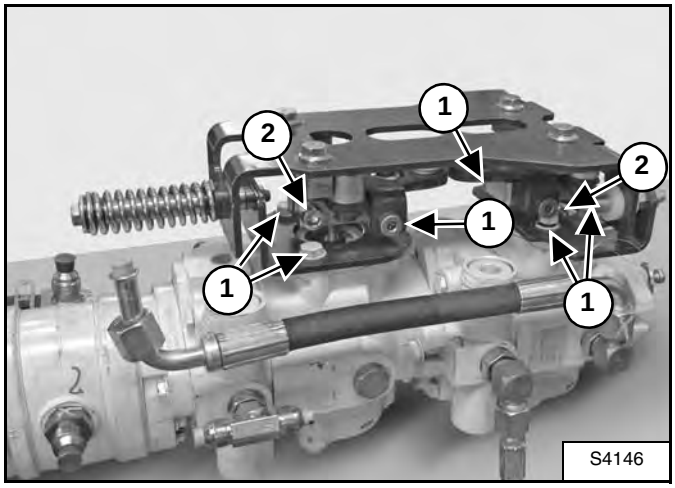
Figure 30-40-7



Remove the three hydrostatic pump mounting bolts (Item 1) **[Figure 30-40-7]** from the pump and drive belt housing. The pump assembly (one hydraulic and two hydrostatic) is now loose from the drive belt housing.

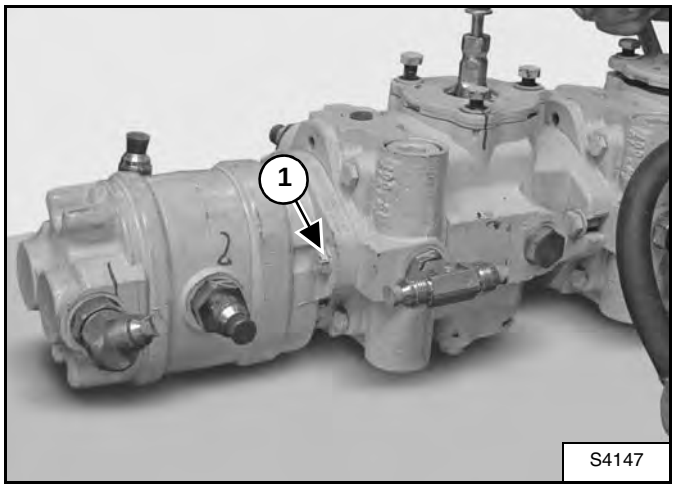
Installation: Tighten to 90-100 ft.lb. (125-135 N•m) torque.

Figure 30-40-8



Remove the black cover from the pump assembly by removing the six screws (Item 1) and loosening the two bolts (Item 2) **[Figure 30-40-8]**.

Figure 30-40-9

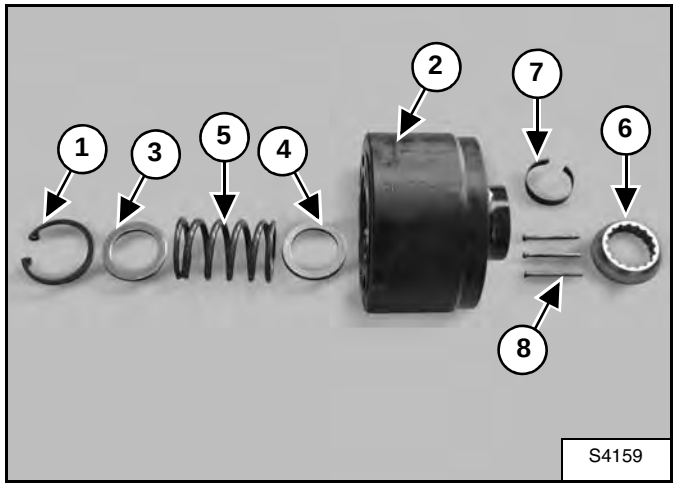


Remove the hydraulic pump from the pump assembly by removing the two screws (Item 1) **[Figure 30-40-9]**.

Installation: Tighten to 90-100 ft.lb. (125-135 N•m) torque.

Assembly (Cont'd)

Figure 30-40-37



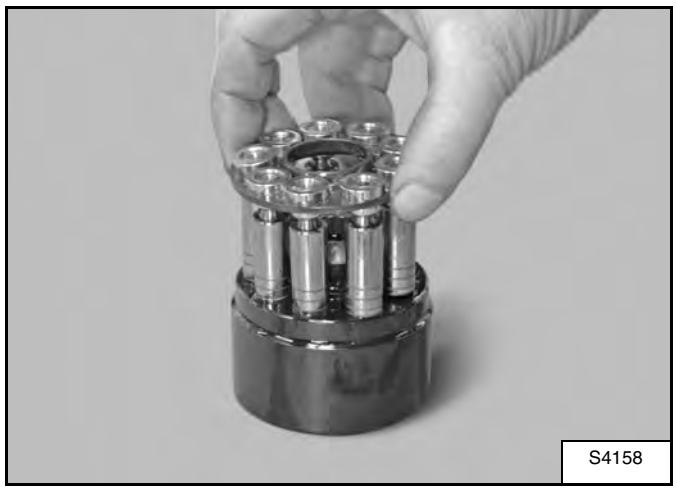
Install the two rings (Items 3 and 4) and the spring (Item 5) **[Figure 30-40-37]** into the cylinder block.

Install the retaining ring (Item 1) **[Figure 30-40-37]** into the cylinder block.

Install the three pins (Item 8) into the cylinder block and put the tension ring (Item 7) **[Figure 30-40-37]** in it s place.

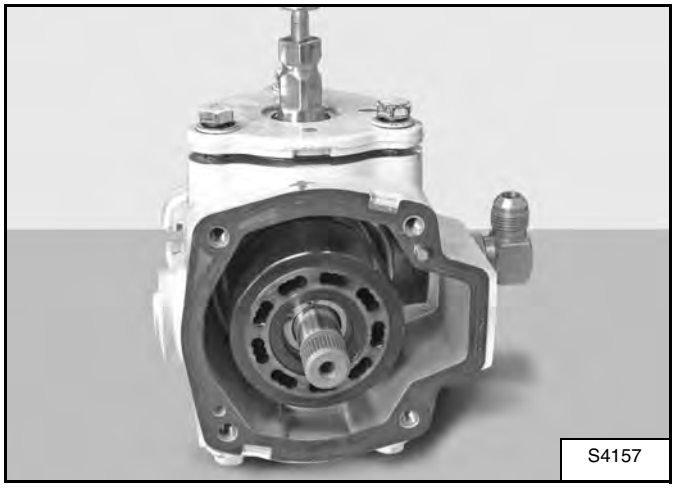
Install the ball guide retainer (Item 6) **[Figure 30-40-37]** into the cylinder block.

Figure 30-40-38



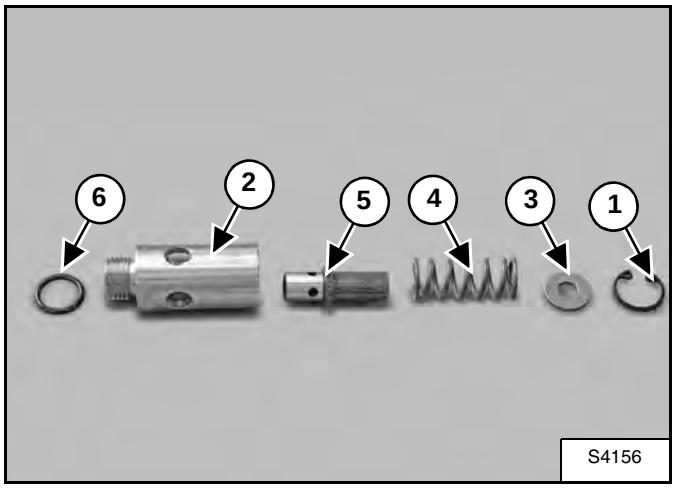
Install the ring and pistons into the cylinder block **[Figure 30-40-38]**.

Figure 30-40-39



Install the r otating group into the pump as shown in **[Figure 30-40-39]**.

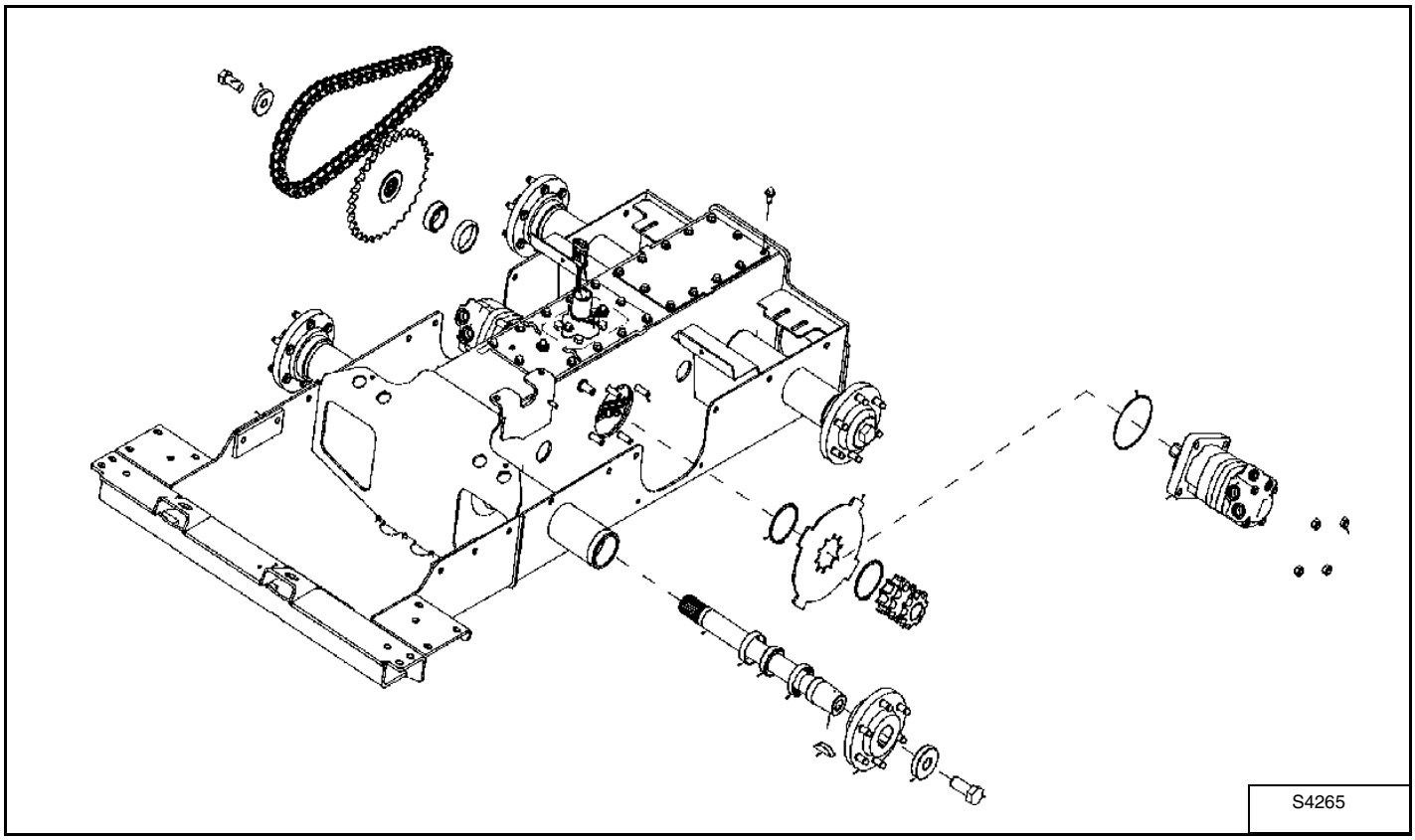
Figure 30-40-40



Install the cylindric part (Item 5), the spring (Item 4), the the ring (Item 3) and the retaining ring (Item 1) into the valve housing (Item 2) **[Figure 30-40-40]**.

DRIVE COMPONENTS

Description



The drive components consist of a chaincase, drive chains, sprockets, axleshafts, hubs and a brake.

The chaincase is partially filled with hydraulic fluid to lubricate the chains and bearings.

On the bottom of the chaincase, these is a cover for access to the fuel tank drain plug.

CHAINCASE

Description

The chaincase contains the drive components.

Front Cover Removal And Installation

Raise the loader lift arms and install an approved lift arm support device (See LIFT ARM SUPPORT DEVICE on Page 10-20-1)

Raise the operator cab (See Raising on Page 10-30-1)

WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by an approved lift arm support device. Failure to use an approved lift arm support device can allow the lift arms or attachment to fall and cause injury or death.

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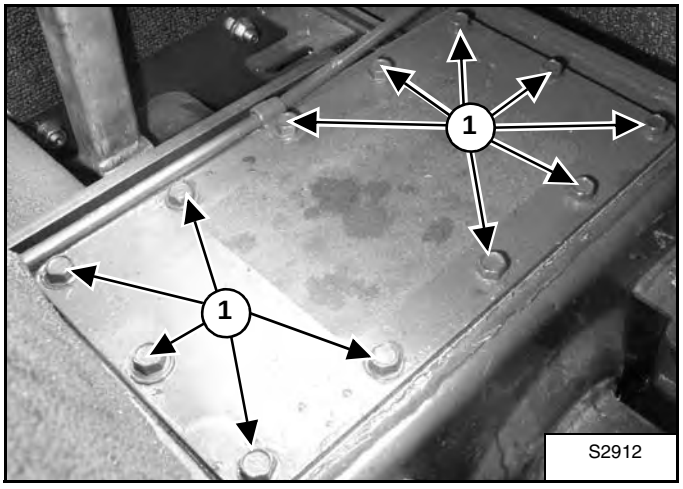
Figure 20-20-1



Remove the 12 front chaincase cover mounting screws (Item 1) **[Figure 20-20-1]**.

Remove the front chaincase cover from the loader.

Installation: Apply polyurethane sealant to mating surfaces. Polyurethane sealant should be applied to the screw threads to stop oil leakage.

Disassembly And Assembly

Figure 50-10-7

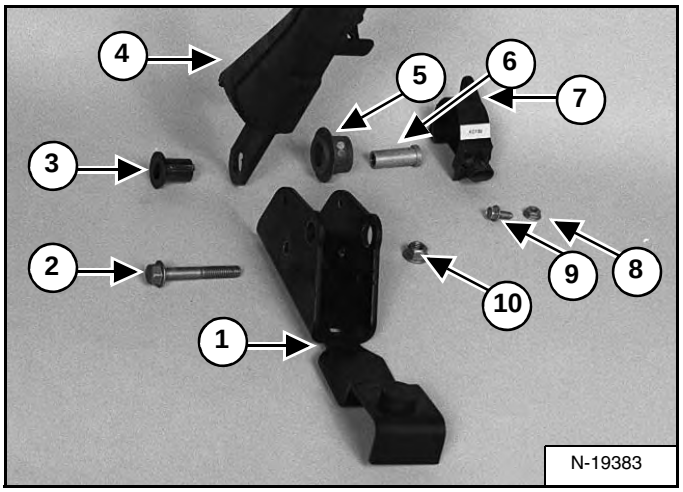
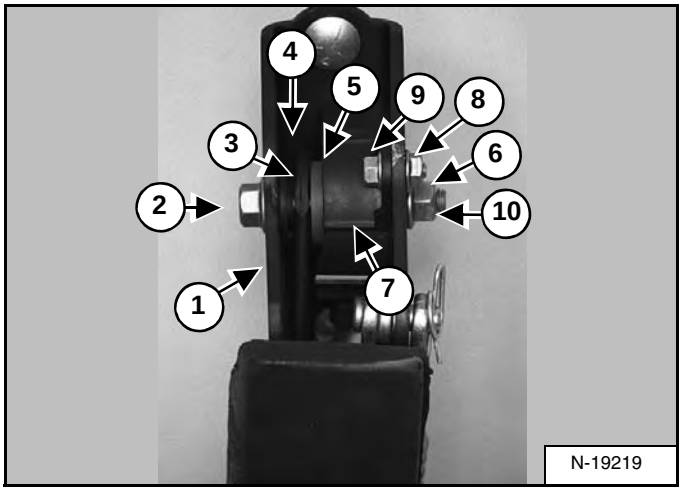


Figure 50-10-8



Assemble the parts as shown for the left side of the seat bar pivot assembly **[Figure 50-10-7]** and **[Figure 50-10-8]**.

Seat Bar Mount (Item 1)
Mounting Bolt (Item 2)
Keyed Plastic Bushing (Item 3)
Seat Bar (Item 4)
Magnetic Bushing Assembly (Item 5)
Pivot Bushing (Item 6)
Sensor Bracket (Item 7)
Sensor Mounting Nut (Item 8)
Sensor Mounting Bolt (Item 9)
Mounting Nut (Item 10)

Installation: Tighten the mounting bolt (Item 2) **[Figure 50-10-7]** and **[Figure 50-10-8]** to 50-70 in.-lb. (5,6-7,9 N•m) torque.

Figure 50-10-9

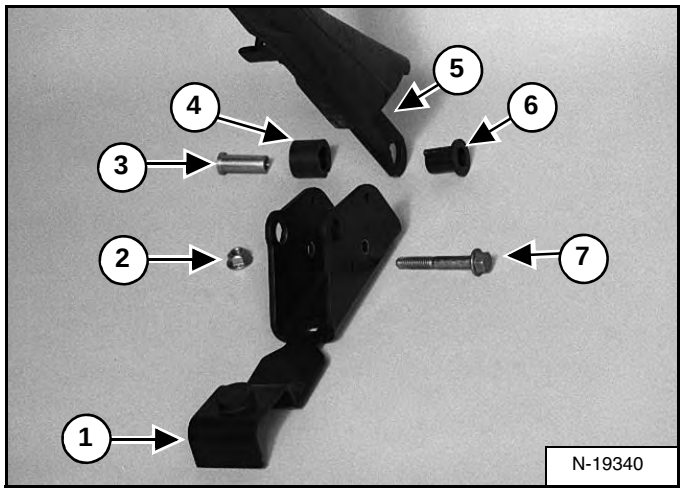
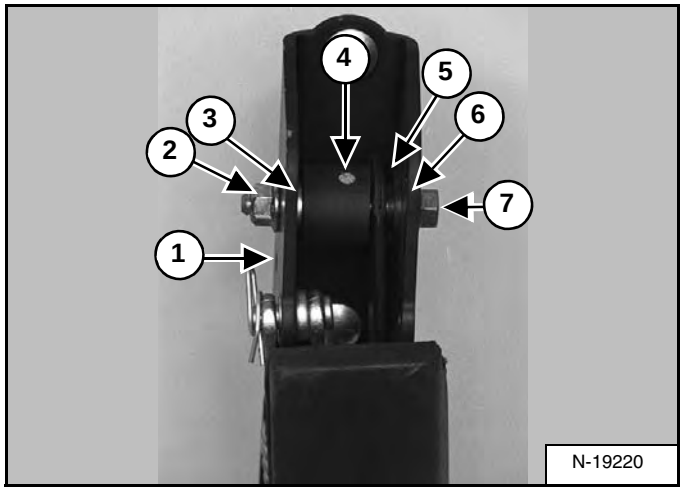


Figure 50-10-10



Assemble the parts as shown for the right side of the seat bar pivot assembly **[Figure 50-10-9]** and **[Figure 50-10-10]**.

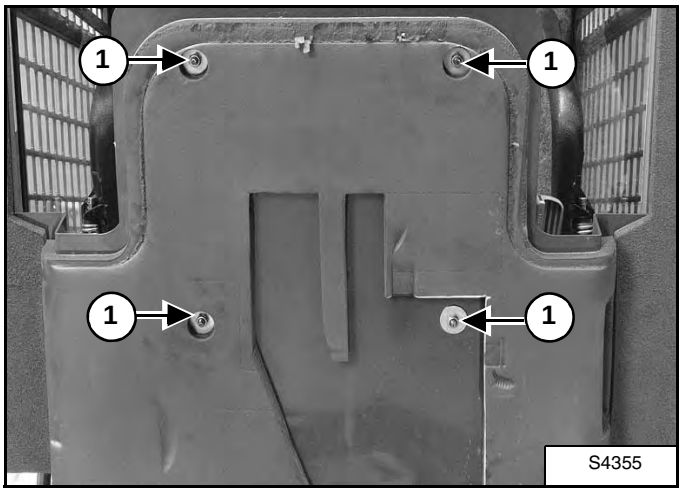
Seat Bar Mount (Item 1)
Mounting Nut (Item 2)
Pivot Bushing (Item 3)
Spacer Bushing (Item 4)
Seat Bar (Item 5)
Keyed Plastic Bushing (Item 6)
Mounting Bolt (Item 7)

Installation: Tighten the mounting bolt (Item 7) **[Figure 50-10-9]** and **[Figure 50-10-10]** to 50-70 in.-lb. (5,6-7,9 N•m) torque.

OPERATOR SEAT (SUSPENSION)

Removal And Installation

Figure 50-31-1

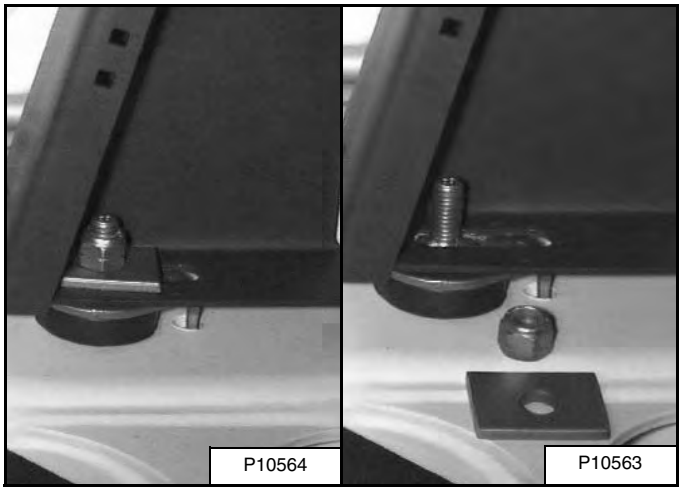


Raise the operator cab. (See Raising on Page 10-30-1.)

Remove the four seat mounting nuts (Item 1) **[Figure 50-31-1]** and washers from the operator seat mounting studs.

Installation: Tighten the mounting nuts to 20 ft.-lb. (27 N•m) torque.

Figure 50-31-2



Lower the cab and install one of the mounting washers and a nut **[Figure 50-31-2]**.

NOTE: With the seat removed, the cab will raise.

Reverse the removal procedure to install the operator seat.

Figure 50-31-3

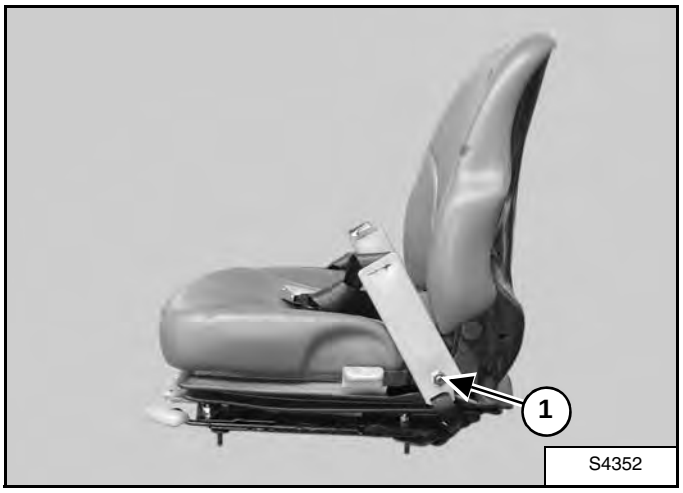
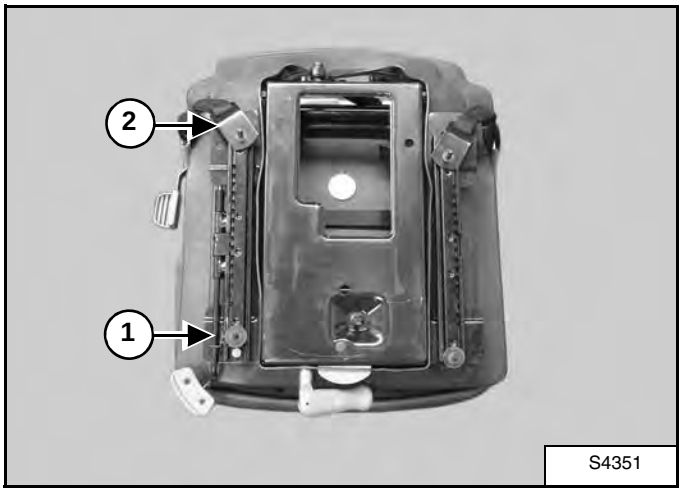


Figure 50-31-4



NOTE: Assure seat tethers are securely fastened to the seatbelt studs (Item 1) [Figure 50-31-3] and the seat rail studs (Item 2) [Figure 50-31-4].

NOTE: Verify the front two seat rail studs have washers attached (Item 1) [Figure 50-31-4].

LIFT ARMS

Removal And Installation

Figure 50-50-1

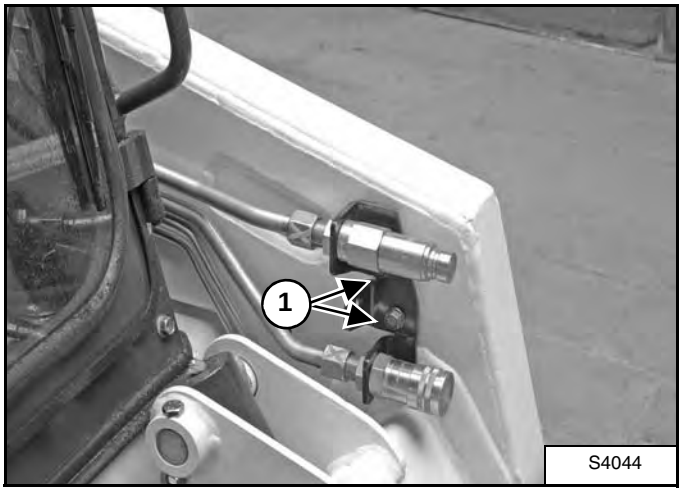
Roll the Bob-Tach fully forward. Stop the engine.

Remove the Bob-Tach frame from the lift arms. (See Removal And Installation on Page 50-40-1.)

Install jackstands under the rear of the loader **[Figure 50-50-1]**.

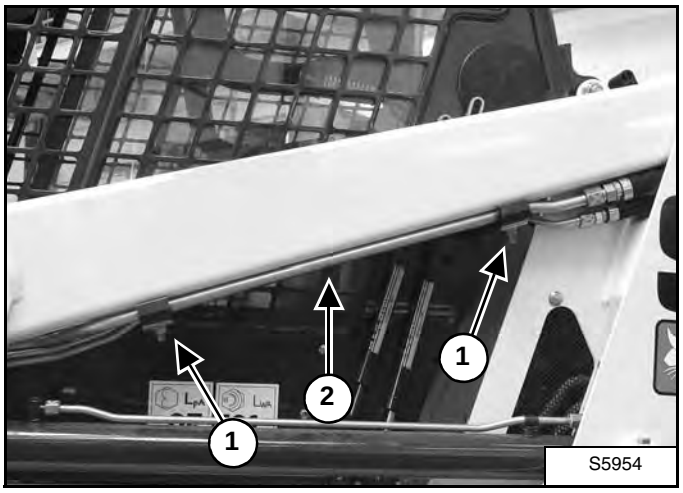
Left Side

Figure 50-50-2



Remove the front auxiliary block mounting bolts (Item 1) **[Figure 50-50-2]**.

Figure 50-50-3

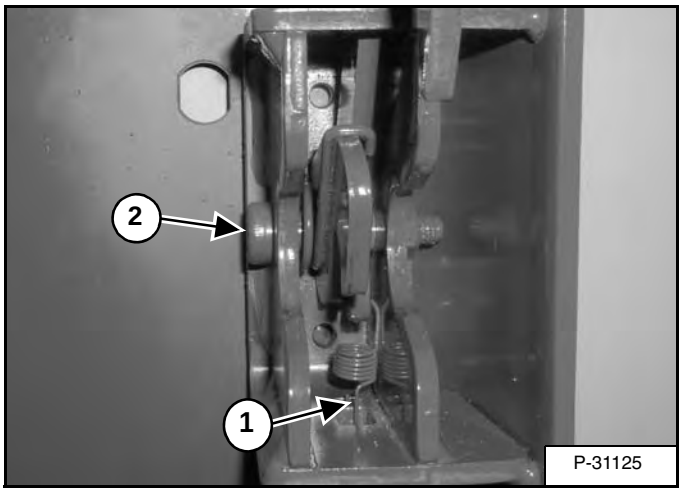


Remove the tubeline clamps (Item 1) **[Figure 50-50-3]** under the lift arms.

Pull the tubelines (Item 2) **[Figure 50-50-3]** down.

Latch Removal And Installation

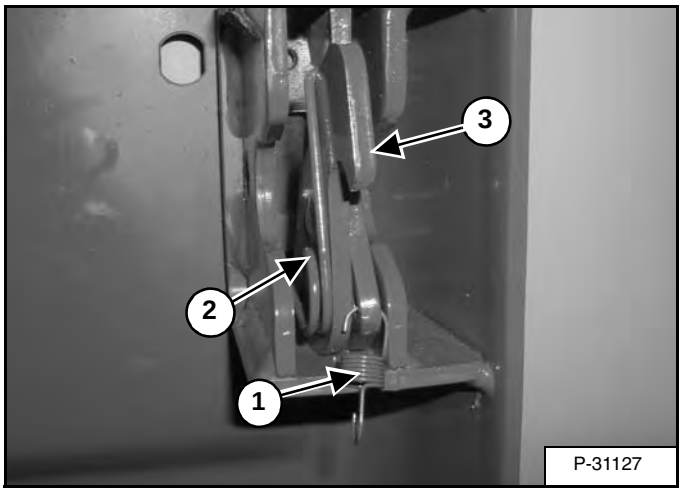
Figure 50-70-7



Disconnect the spring (Item 1) **[Figure 50-70-7]** from the rear door.

Remove the bolt and nut (Item 2) **[Figure 50-70-7]** from the latch.

Figure 50-70-8

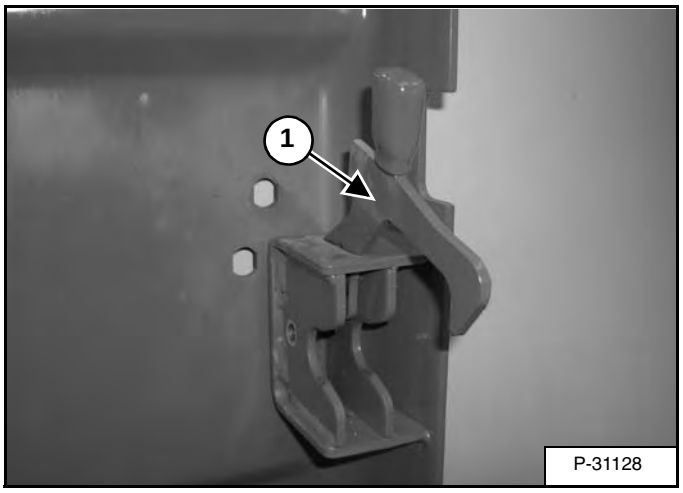


Remove the spring (Item 1) **[Figure 50-70-8]** from the door handle.

Remove the spring (Item 2) **[Figure 50-70-8]** from the door latch.

Remove the door latch (Item 3) **[Figure 50-70-8]** from the door handle.

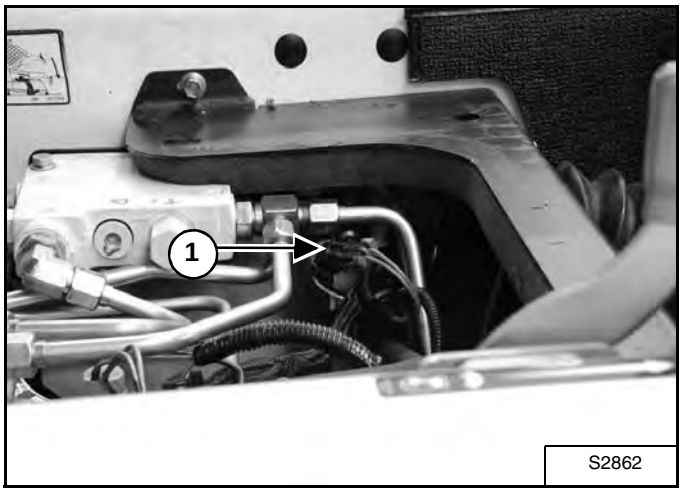
Figure 50-70-9



Remove the door handle (Item 1) **[Figure 50-70-9]** from the rear door.

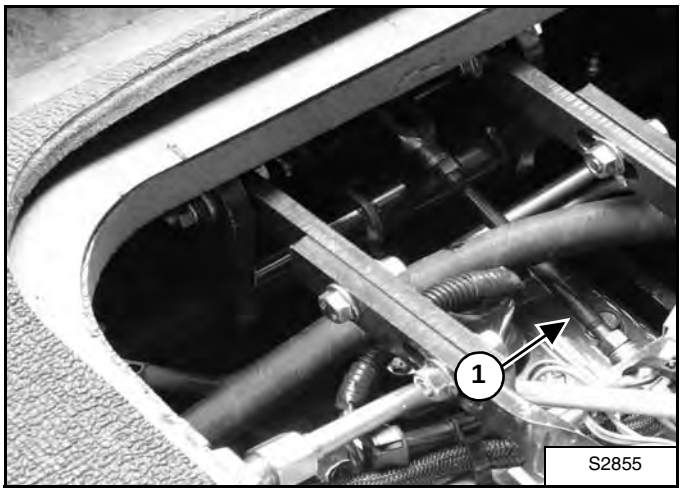
Removal and Installation (Cont'd)

Figure 50-100-4



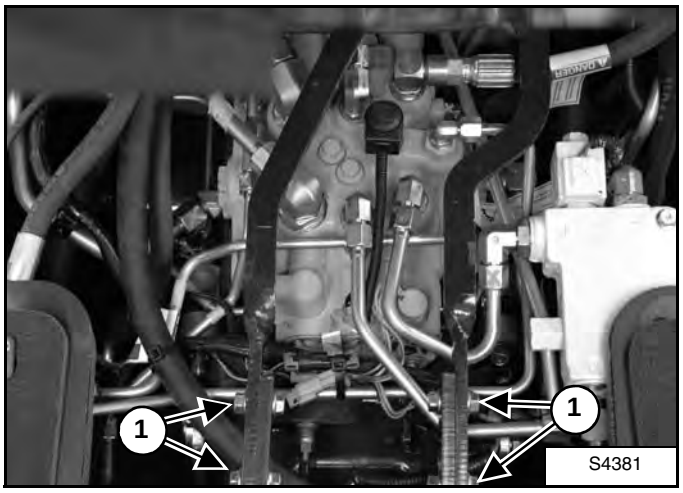
Disconnect the control harness connector (Item 1) **[Figure 50-100-4]** from the control levers.

Figure 50-100-5



Remove the linkage (Item 1) **[Figure 50-100-5]** by disconnecting it from the control valve and the shaft.

Figure 50-100-6



Scribe a mark across the top of the steering linkage bars which are connected to the steering shaft on the control panel.

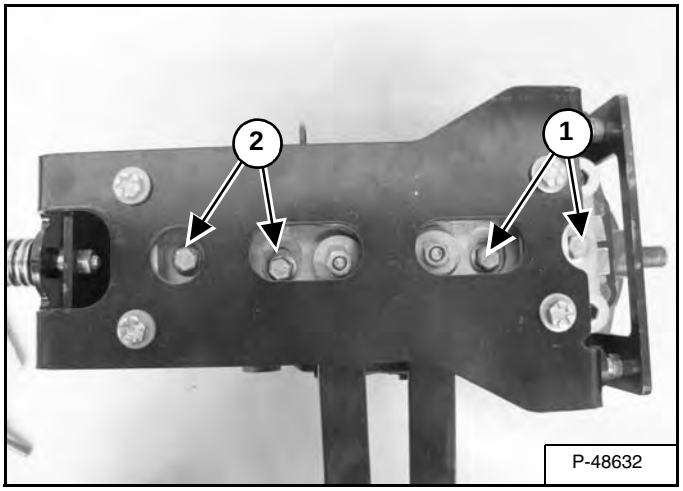
Remove the four steering linkage mounting bolts (Item 1) **[Figure 50-100-6]**.

Installation: Align the m arks on the steering linkage bars. Tighten the steering linkage mounting bolts to 35-40 ft.-lb. (47,5-54,2 N•m) torque.

Linkage Neutral Adjusting (Cont'd)

Start the neutral adjustment procedure with the left pump first and complete the neutral adjustment for the left pump before adjusting the right pump.

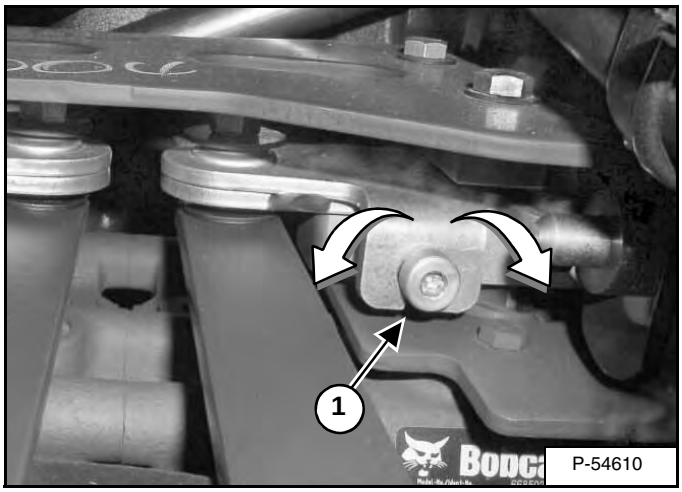
Figure 50-100-33



Loosen the left pump pintle adjustment lock bolts (Item 1). (The right pump pintle adjustment lock bolts are (Item 2) **[Figure 50-100-33]**.) Loosen the bolts enough to allow free movement between the pintle arm and the pintle base.

NOTE: If the bolts are too loose or too tight, the neutral adjustment may be affected.

Figure 50-100-34



Move the engine speed control to high idle.

NOTE: The neutral range (dead-band) will vary between the hydrostatic pumps.

NOTE: This procedure is shown for neutral adjustment on the left side of the loader. The procedure is the same for the right side neutral adjustment.

Turn the adjustment screw (Item 1) **[Figure 50-100-34]** counterclockwise until forward creep is seen.

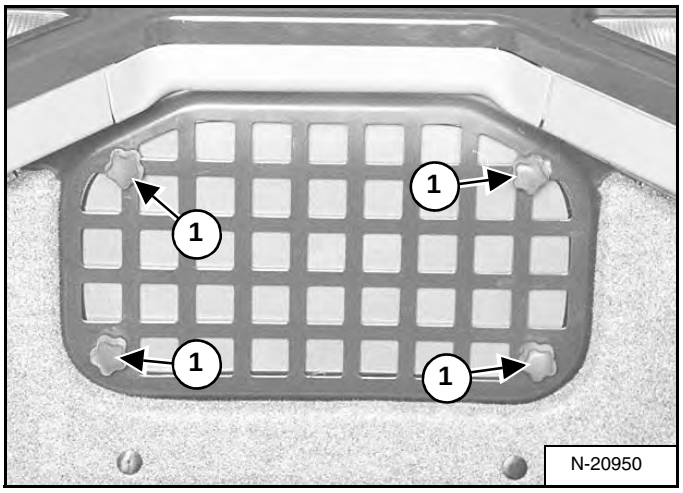
Turn the adjustment screw (Item 1) **[Figure 50-100-34]** counterclockwise to a point between forward and reverse where there is **zero** creep.

Stroke the left steering lever to forward and allow the lever to return to neutral. Stroke the left steering lever to reverse and allow the lever to return to neutral. Check that there is zero creep when the lever returns from either direction, on the left side. Turn the adjustment screw (if necessary) until zero creep is obtained.

WINDOW (TOP)

Removal And Installation

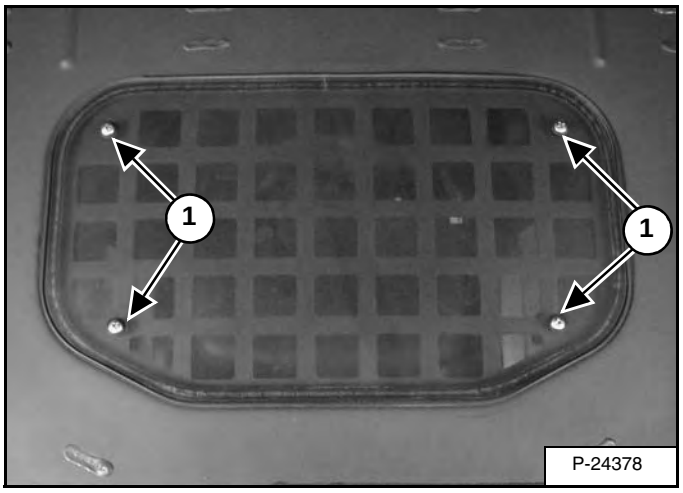
Figure 50-121-1



Loosen the knobs (Item 1) **[Figure 50-121-1]**.

Installation: do not overtighten the knobs. This may damage the window.

Figure 50-121-2



Remove the bolts (item 1) **[Figure 50-121-2]**, lift the window and remove the bushings.

install the bolts (Item 1) **[Figure 50-121-2]** through the window grommels, the nylon bushings and through the cab holes.

SERVICE PC (LAPTOP COMPUTER) 60-120-1
Connecting To The Remote Start Tool 60-120-1
Connecting Remote Start Tool (Service Tool) 60-120-1

STARTER 60-40-1
Parts Identification 60-40-3
Removal And Installation 60-40-2
Testing 60-40-1

TRACTION LOCK 60-110-1
Description 60-110-1
Inspecting. 60-110-5
Removal And Installation 60-110-2
Troubleshooting 60-110-1

TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION SPEC-01) UNLESS OTHERWISE SPECIFIED.

Troubleshooting

The following troubleshooting chart is provided for assistance in locating and correcting BICS system problems. It is recommended that these procedures be done by authorized Bobcat Service Personnel only.

WARNING

AVOID INJURY OR DEATH

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.

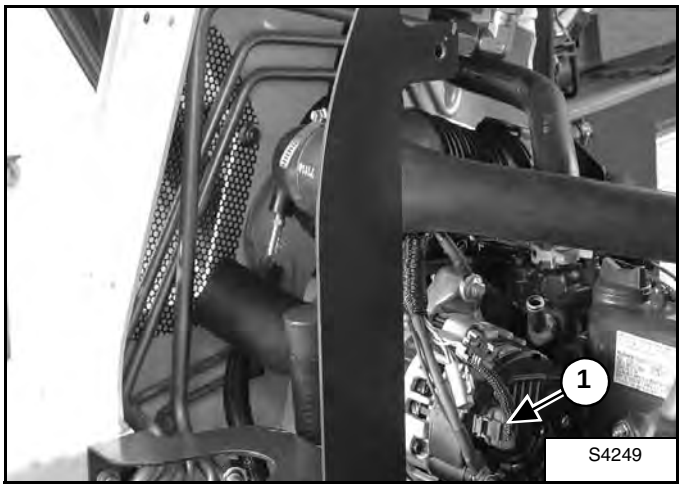
W-2003-0807

PROBLEM	CAUSE
Battery will not take a charge.	1, 2, 3, 4, 5
Alternator will not charge.	1, 2, 5
Starter will not turn the engine.	2, 3, 4, 6, 7, 8, 9

KEY TO CORRECT THE CAUSE
1. Alternator belt is loose or damaged.
2. Battery connections are dirty or loose.
3. Battery is damaged.
4. The cable and wire connection are not making a good contact.
5. The alternator is damaged.
6. The engine is locked.
7. The starter is damaged.
8. The wiring or the solenoid is damaged.
9. Check the fuses.

Low Voltage Testing

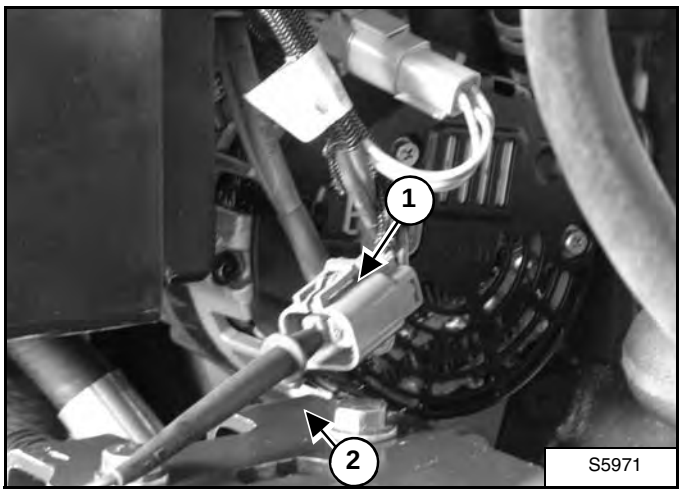
Figure 60-30-4



Turn engine OFF and remove the L&S-terminal connector (Item 1) **[Figure 60-30-4]** from the alternator.

Turn the remote start tool key to the ON position.

Figure 60-30-5

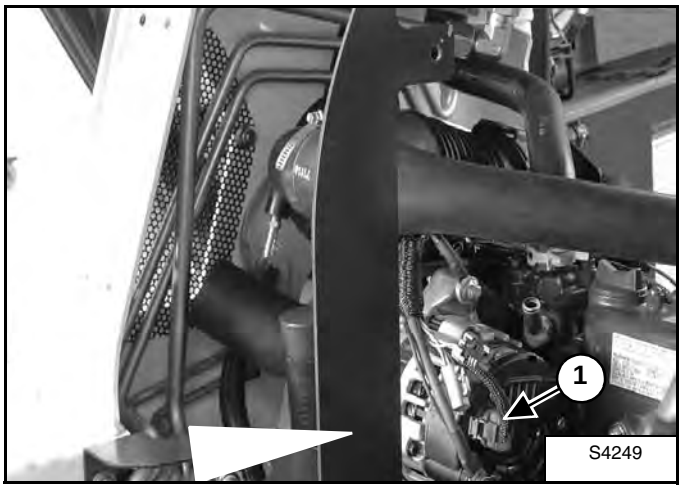


Check the voltage across the L&S-terminal (Item 1) and a good ground source (Item 2) **[Figure 60-30-5]**. The voltage should be what the battery voltage is. If no t, check wire harness, relay and fuses.

If the wire harness, relay and fuses are good then remove the alternator for replacement or repair. To repair, (See Alternator Voltage Testing on Page 60-30-2.) for further component testing.

High Voltage Testing

Figure 60-30-6



Turn engine OFF and remove the L&S-terminal connector (Item 1) **[Figure 60-30-6]** from the alternator.

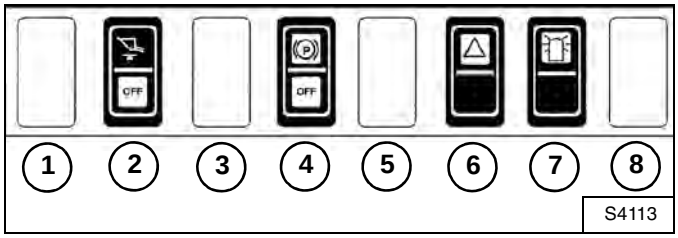
NOTE: Check the continuity between the "S" terminal and the positive (+) terminal on the battery or starter. There should be continuity. If no continuity, replace wire harness.

If the voltage is still above 14.7 volts at 70°F (21° C) (Alternator Temperature), then remove alternator for replacement or repair. To repair, (See Alternator Voltage Testing on Page 60-30-2.). for further component testing.

Option And Field Accessory Panels

The front accessory panel is shown in **[Figure 60-50-4]**:

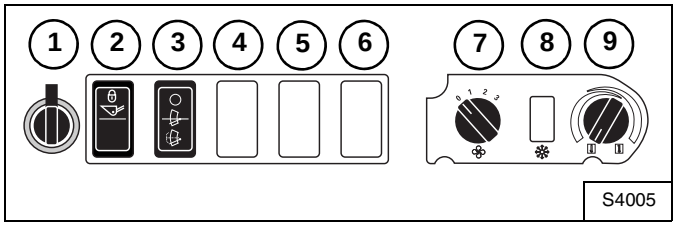
Figure 60-50-4



REF. NO.	DESC.	FUNCTION / OPERATION
1	NOT USED	- - - -
2	BUCKET POSITION	Press the top of the switch to retain the bucket fixed in its relative position to the ground. Press the bottom to return to normal operation.
3	NOT USED	- - - -
4	PARKING BRAKE	Press the top of the switch to engage the parking brake. Press the bottom to disengage the parking brake.
5	NOT USED	- - - -
6	HAZARD LIGHTS (Option)	Press the top of the switch to turn the hazard lights ON. Press the bottom to turn the hazard lights OFF.
7	ROTATING BEACON (Option)	Press the top of the switch to turn the rotating beacon ON. Press the bottom to turn the rotating beacon OFF.
8	NOT USED	- - - -

The side accessory panel is shown in **[Figure 60-50-5]**:

Figure 60-50-5

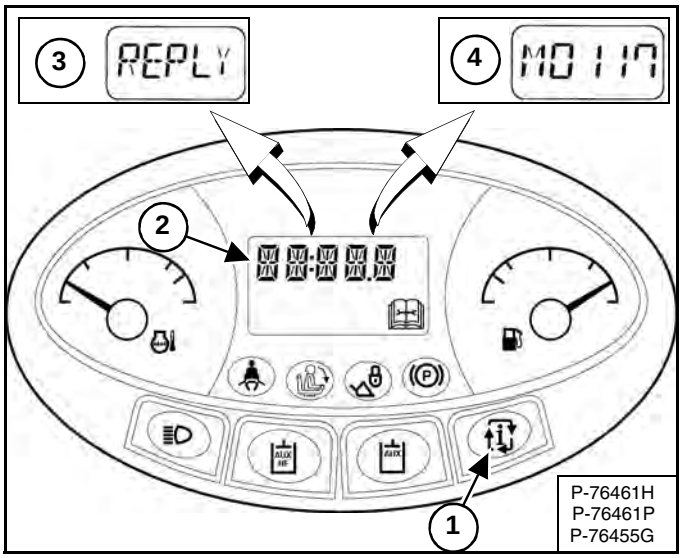


REF. NO.	DESC.	FUNCTION / OPERATION
1	POWER PLUG	Provides a 12 V receptacle for accessories.
2	NOT USED	- - - -
3	FRONT WIPER	Press the top of the switch to start the front wiper (press and hold for washer fluid). Press the bottom to stop the wiper.
4	NOT USED	- - - -
5	NOT USED	- - - -
6	NOT USED	- - - -
7	FAN MOTOR	Turn the knob clockwise to increase fan speed. Turn counterclockwise to decrease. There are four positions; OFF-1-2-3.
8	NOT USED	- - - -
9	TEMPERATURE CONTROL	Turn the knob clockwise to increase the temperature. Turn counterclockwise to decrease.

DIAGNOSTIC SERVICE CODES

Viewing Service Codes (Standard Key Panel)

Figure 60-80-1



Press the INFORMATION button (Item 1) to cycle the DATA DISPLAY (Item 2) **[Figure 60-80-1]** until the service code screen is displayed. If more than one SERVICE CODE is present, the codes will scroll on the DATA DISPLAY.

NOTE: Corroded or loose grounds can cause multiple service codes and / or abnormal symptoms. All instrument panel lights flashing, alarm sounding, headlights and taillights flashing, could indicate a bad ground. The same symptoms could apply if the voltage is low, such as loose or corroded battery cables. If you observe these symptoms, check grounds and positive leads first.

Service Codes may be either a word (Item 3) or a number (Item 4) **[Figure 60-80-1]**. (See following pages for service codes.)

The following word errors may be displayed:

[REPLY] One or both instrument panel(s) not communicating with the controller.

[CODE] The controller is asking for a password. (Deluxe Instrumentation Panel only.)

[ERROR] The wrong password was entered. (Deluxe Instrumentation Panel only.)

[SHTDN] A shutdown condition exists.

[DOOR] Operator cab door is open. (Lift and Tilt functions will not operate.)

SEAT BAR SENSOR

Description

The seat bar sensor is part of the BICS system. The seat bar sensor sends a signal that indicates whether the seat bar is in the down or up position.

The sensor is located on the left side of the seat bar.

Troubleshooting

The following troubleshooting chart is provided for assistance in locating and correcting BICS system problems. It is recommended that these procedures be done by authorized Bobcat Service Personnel only.

WARNING

Check for correct function after adjustments, repairs or service. Failure to make correct repairs or adjustments can cause injury or death.

W-2004-1285

PROBLEM	SOLUTION #
Indicator light does not come ON when seat bar is lowered.	1, 2, 3, 4, 5

SOLUTION SUGGESTIONS

1. Check sensor wire connection.
2. Use the BICS sensor tester MEL1428 with seat bar adapter MEL1567 to check sensor and controller.
3. Check for loose hardware.
4. Check keyed bushing to make sure magnet collar rotates with seat bar.
5. Check magnet collar magnets for contamination such as metal particles.

Removal And Installation (Cont'd)

Lower operator cab (See Lowering on Page 10-30-2.)

Perform the BICS inspection procedure (See Inspecting The BICS Controller (Engine STOPPED - Key ON) on Page 60-90-1.)

Inspecting

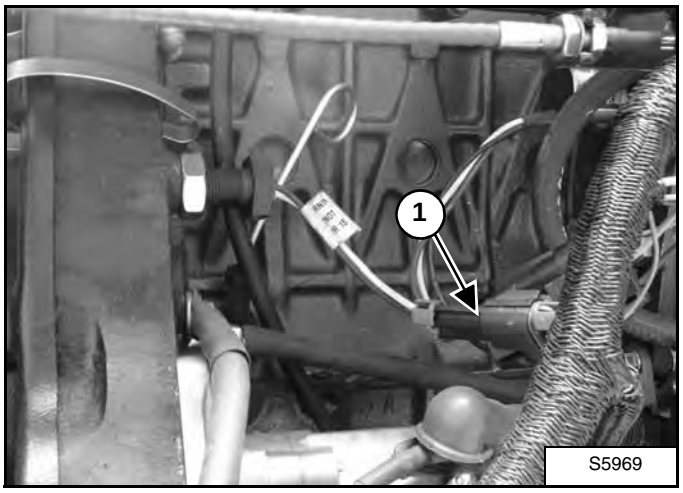
Figure 60-110-11

Fasten the seat belt, disengage the parking brake button, press the PRESS TO OPERATE LOADER Button (Item 1) **[Figure 60-110-11]** and raise the Seat Bar fully. Move the steering levers slowly forward and backward. The TRACTION lock (Item 2) **[Figure 60-110-11]** should be engaged. Lower the Seat Bar. Press the PRESS TO OPERATE LOADER Button (Item 1) **[Figure 60-110-11]**.

Engage the parking brake pedal and move the steering levers slowly forward and backward. The TRACTION lock should be engaged.

NOTE: The TRACTION light on the left instrument panel will remain OFF until the engine is started, the PRESS TO OPERATE LOADER Button is pressed and the parking brake is disengaged.

Figure 60-110-12



Check the wire connections at the engine flywheel RPM speed sensor (Item 1) **[Figure 60-110-12]**.

NOTE: When the Traction Lock Override Button is activated, the Traction Lock Override Control System will NOT engage the Traction Lock if the engine stops.

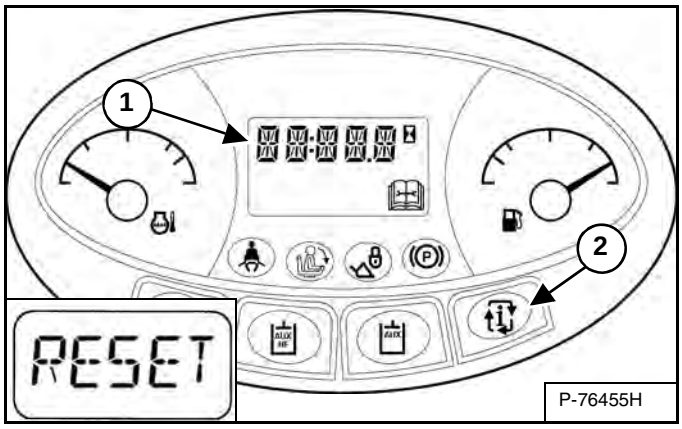
See Adjusting on P age 60-130-1 for Flywheel RPM sensor adjustment.

Fasten the seat belt, disengage the parking brake pedal, press the green *PRESS TO OPERATE* Button and raise the Seat Bar fully. Move the control levers slowly forward and backward. The Traction lock should be engaged. Lower the Seat Bar. Press the green *PRESS TO OPERATE* Button.

Engage the parking brake pedal and move the control levers slowly forward and backward. The Traction lock should be engaged.

Reset

Figure 60-140-15



Press the information button (Item 2) until the display screen (Item 1) **[Figure 60-140-15]** shows the maintenance clock.

Press and hold the information button (Item 2) for seven seconds until **[RESET]** appears in the display screen (Item 1) **[Figure 60-140-15]**.

The maintenance clock can also be reset by clicking **Set / Reset** (Item 4) **[Figure 60-140-10]** in service analyzer.

NOTE: If the interval is set to 10 hours or less, the maintenance clock will reset and log a reset time but the wrench icon, alternating hour interval and [SEr] will NOT be removed from the left and right instrument panel display screens.

ENGINE INFORMATION

Description

The S100 has a Kubota V1505-E2B diesel engine with a displacement of 91.4 cu.in. (1,50 L). The engine is rated at an SAE Net 26.4 HP (19,7 kW) and has a closed crankcase ventilation system.

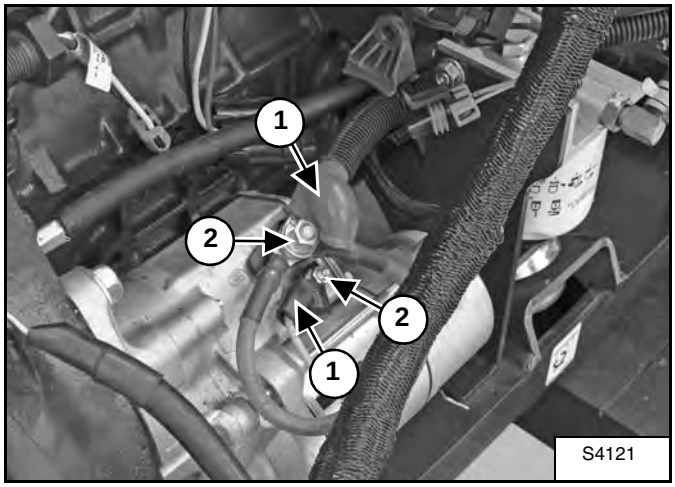
The engine has 4 cylinders and the rotation is counter-clockwise (viewed from the flywheel side). It is equipped with glow plugs for assisting in cold starts. Engine block heaters are also available from Bobcat Parts.

The engine serial number is stamped on the engine and is located near the injection pump. The model number is located on the valve cover. Use these numbers to obtain the correct service parts.

The engine is liquid cooled with a propylene glycol / water mixture in a radiator. Coolant flow is controlled by a thermostat. The cooling fan is belt driven off the crank shaft.

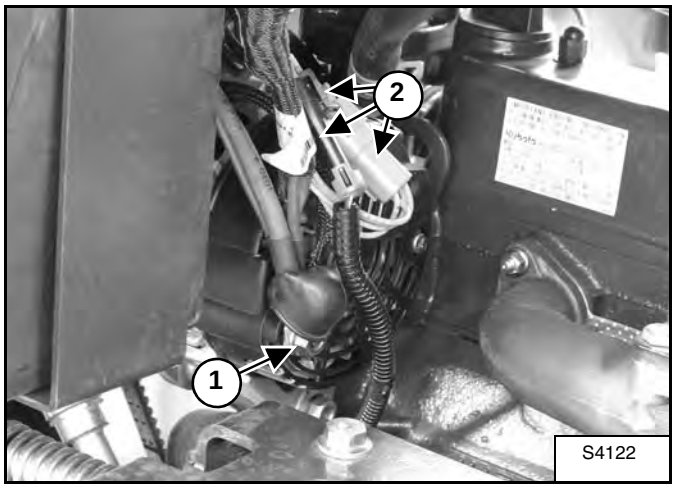
Engine Removal And Installation (Cont'd)

Figure 70-10-7



Remove the red and the black covering (Item 1) and loosen the two screws (Item 2) **[Figure 70-10-7]** to release the wires and cables from the starter.

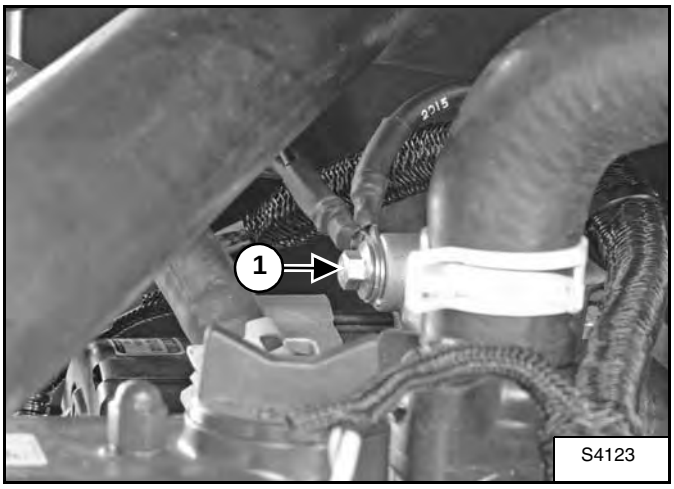
Figure 70-10-8



Remove the black covering and loosen the screw (Item 1) **[Figure 70-10-8]** to release the red cables from the alternator.

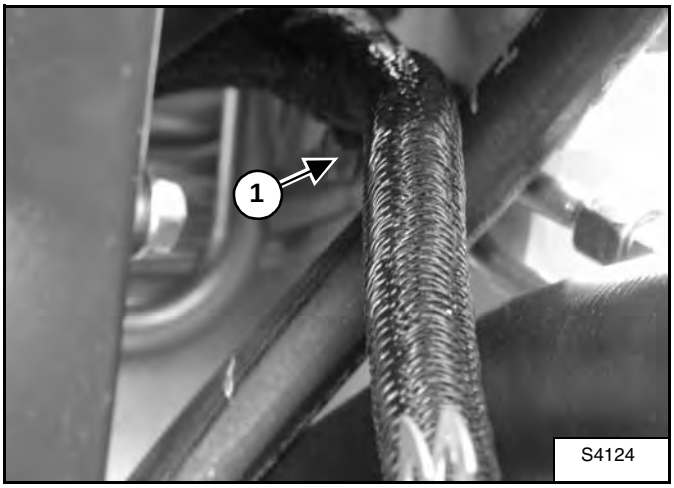
Disconnect the three connectors (Item 2) **[Figure 70-10-8]**.

Figure 70-10-9



Loosen the screw (Item 1) **[Figure 70-10-9]** to release the two black cables.

Figure 70-10-10



Remove the s crew (Item 1) **[Figure 70-10-10]** on the right side of the engine storage room to release the wire harness.

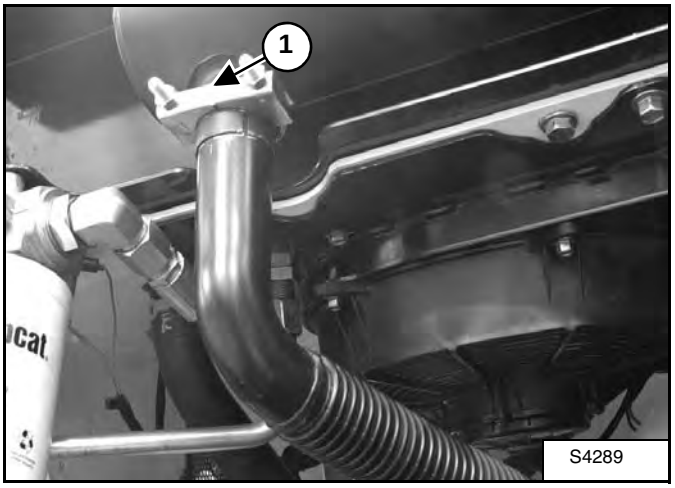
MUFFLER

Removal And Installation

Stop the engine and open the rear door.

Remove the rear grill (See Removal And Installation on Page 50-60-1.)

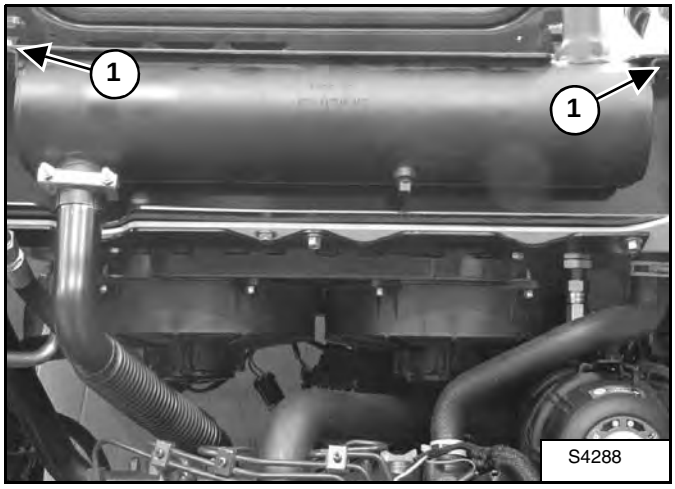
Figure 70-30-1



Remove the exhaust pipe clamp (Item 1) **[Figure 70-30-1]** from the muffler.

Disconnect the exhaust pipe from the muffler.

Figure 70-30-2



Remove the five mounting bolts (Item 1) **[Figure 70-30-2]** from the muffler.

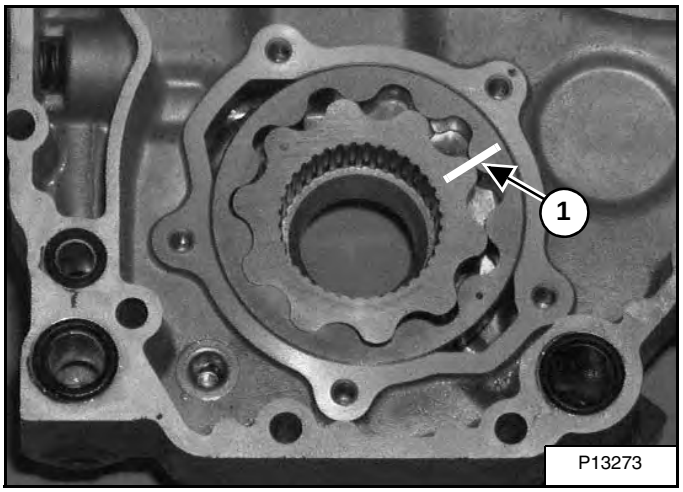
Installation: Tighten the muffler mounting bolts to 25-28 ft.-lb. (34-38 N•m) torque.

Remove the muffler from the loader.

Reverse the removal procedure to install the spark arrestor muffler.

Oil Pump Inspection (Cont'd)

Figure 20-20-9



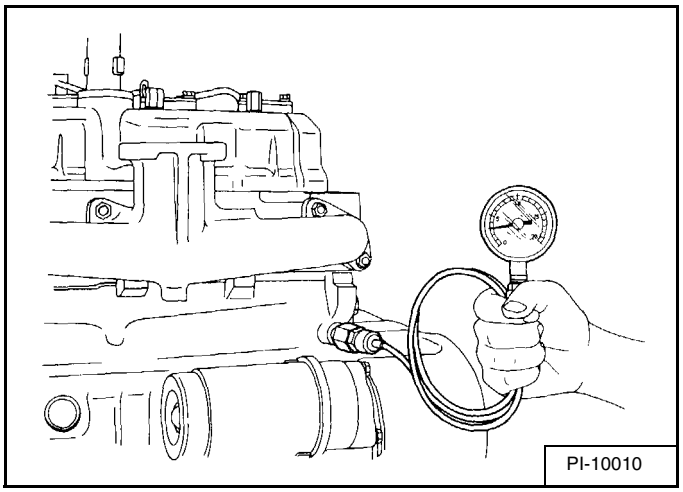
Remove the cover and measure the width of the pressed plastigauge (Item 1) **[Figure 20-20-9]**.

End Clearance	0.0010 - 0.0030 in (0,025 - 0,075 mm)

Engine Oil Pressure - Testing

Remove the oil pressure sender.

Figure 70-60-10



Install a pressure gauge **[Figure 70-60-10]**.

Start the engine and run until it is at operating temperature.

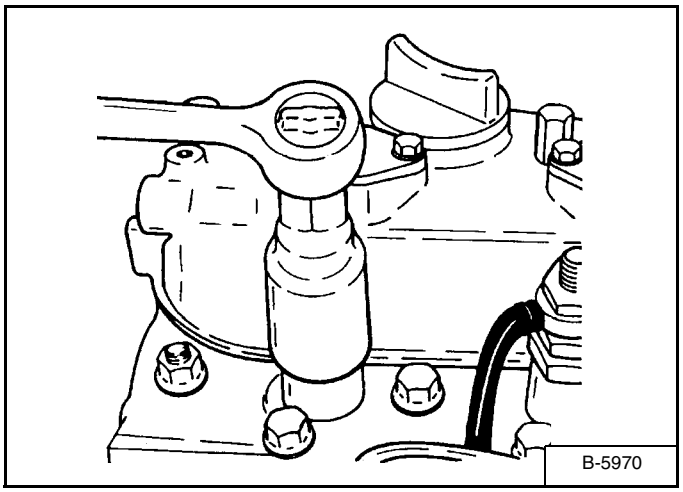
If the oil pressure is less than the allowable limit, check the following Items:

* Engine Oil Level Low
* Oil Pump Defective
* Oil Galley Plugged
* Oil Strainer Plugged
* Excessive Clearance at the Rod and Main Bearings
* Oil Pump Relief Valve Stuck

At Idle Speed Allowable Limit	7 PSI (0,50 bar)
At Rated Speed	28 - 64 PSI (1,96 - 4,41 bar)
Allowable Limit	21 PSI (1,47 bar)

Fuel Injector Removal And Installation (Cont'd)

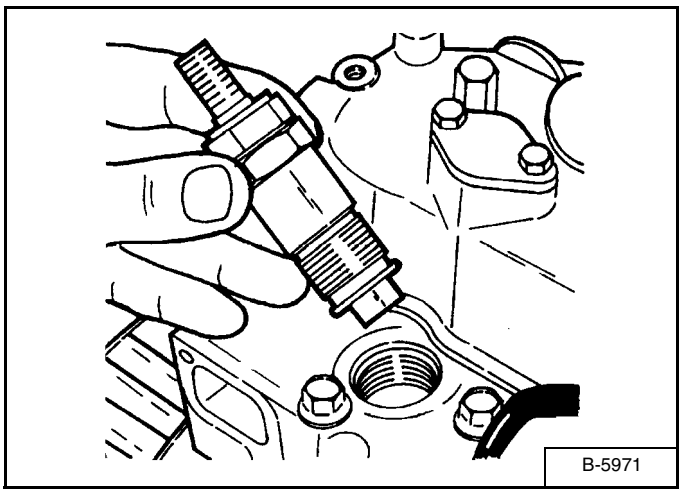
Figure 20-20-23



Loosen the fuel injector with a special socket (MEL-1485) **[Figure 20-20-23]**.

Installation: Tighten the injectors to 36-50 ft.lb. (49-68 N•m) torque.

Figure 70-70-24



Remove the fuel injector nozzle from the engine **[Figure 70-70-24]**.

IMPORTANT

Do not disassemble or test the fuel injector nozzles unless you have the correct service and testing tools.

I-2027-0284

Fuel Injector Nozzles Pressure - Checking

Remove the fuel lines and injectors.

⚠ WARNING

AVOID INJURY OR DEATH

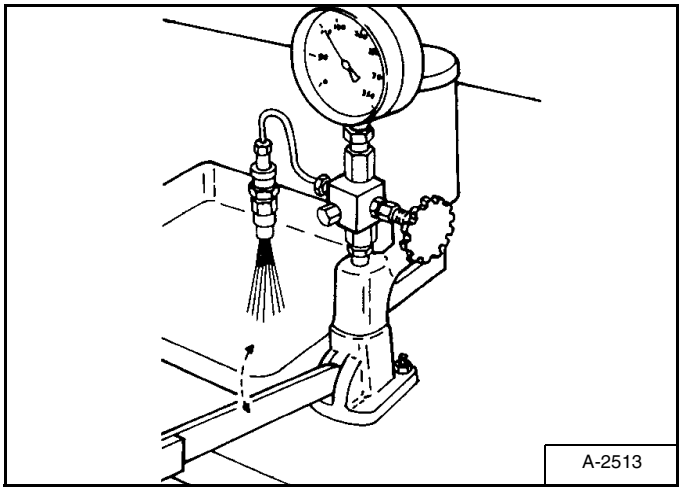
Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical attention from a physician familiar with this injury.

W-2072-0807

The tool listed will be needed to do the following procedure:

MEL 10018 - Injector Nozzle Tester

Figure 70-70-25



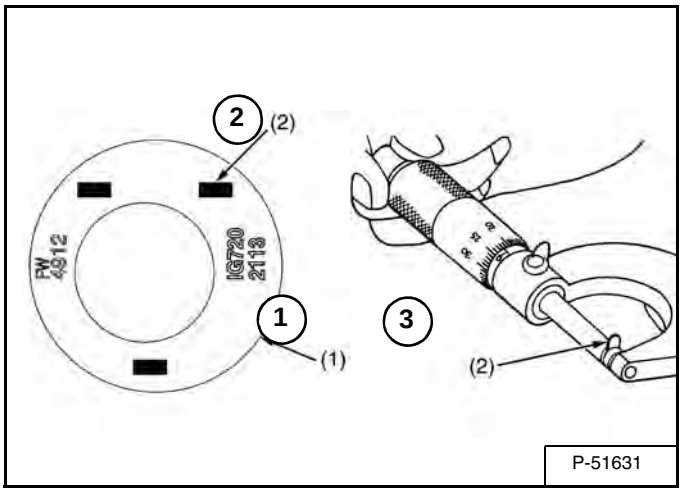
Connect the nozzle to the tester with the nozzle down **[Figure 70-70-25]**.

Operate the hand lever at a slow rate and record the opening pressure. If the pressure is not correct, replace the adjusting spacer.

Fuel Injection Pressure	1991-2134 PSI (137-147 bar)

Cylinder Head Top Clearance

Figure 70-80-22



Install the cylinder head gasket. Put the piston (Item 1) **[Figure 70-80-22]** being checked at T.D.C.

Put three pieces of 0.06 inch (1,5 mm) diameter solder (Item 2) **[Figure 70-80-22]** on the top of the piston. Use grease to hold them in position.

NOTE: Put the solder in position so they do not touch the valves.

Turn the piston to bottom dead center.

Install the cylinder head. (See "Cylinder Head Removal And Installation" on page 4.)

Turn the crankshaft until the piston exceeds T.D.C. Remove the cylinder head.

Remove the solder wire (Item 3) **[Figure 70-80-22]** and measure it.

If the measurement exceeds the specifications, check the oil clearance of the crank pin journal or the piston pin.

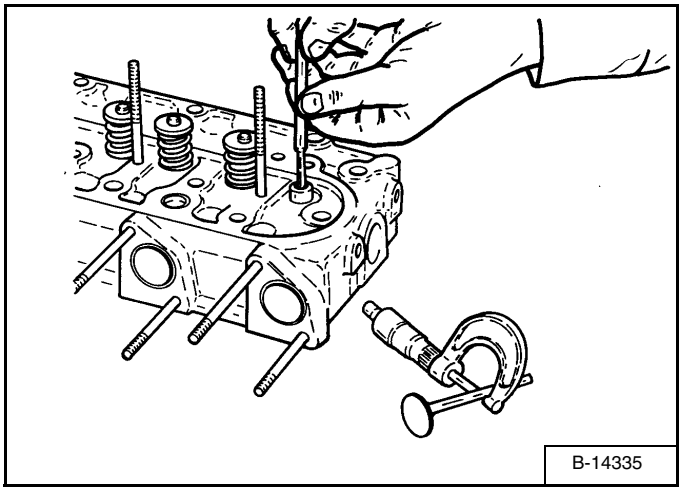
Top Clearance 0.0217-0.0276 inch (0,55-0,7 mm)

Valve Guide - Checking

Remove the valve and spring from the cylinder head.

Remove the carbon from the valve guide.

Figure 70-80-23



Measure the valve stem O.D. **[Figure 70-80-23]**.

Measure the valve guide I.D. **[Figure 70-80-23]**.

Calculate the clearance. If the clearance exceeds the allowable limit, replace the valve and / or valve guide.

Valve Guide I.D	0.2760-0.2765 inch (7,01-7,025 mm)
Valve Stem O.D	0.2741-0.2764 inch (6,960-6,975 mm)
Clearance Between Valve Stem and guide	0.0014-0.0025 inch (0,035-0,065 mm)
Allowable Limit	0.0039 inch (0,1 mm)

Connecting Rod Alignment

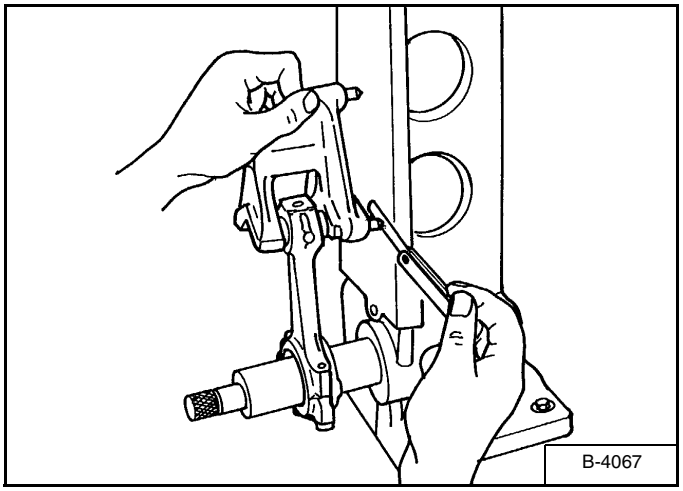
NOTE: The small end bushing is the basis of this check, check the bushing for wear before doing this check.

Install the piston pin into the connecting rod.

Install the connecting rod on an alignment tool.

Put the gauge over the piston pin and move it against the face plate.

Figure 70-90-14



If the gauge does not fit squarely against the face plate, measure the space between the gauge and face plate **[Figure 70-90-14]**.

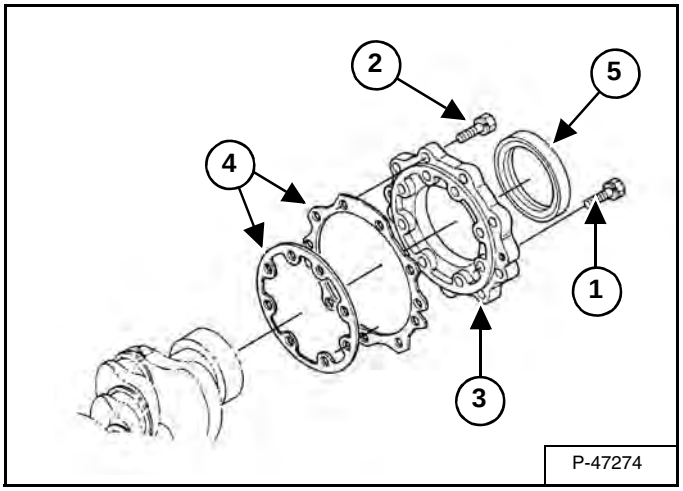
If the measurement exceeds the allowable limit, replace the connecting rod.

Rod Alignment	0.002 in. (0,05 mm)

Crankshaft And Bearings Removal And Installation

Remove the piston and connecting rod assemblies (See Piston And Connecting Rod Removal And Installation on Page 70-90-1)

Figure 70-90-15



Mark and remove the inside screws (Item 1) first, then remove the outside screws (Item 2) **[Figure 70-90-15]**.

NOTE: The inside bolts are different length than the outside bolts.

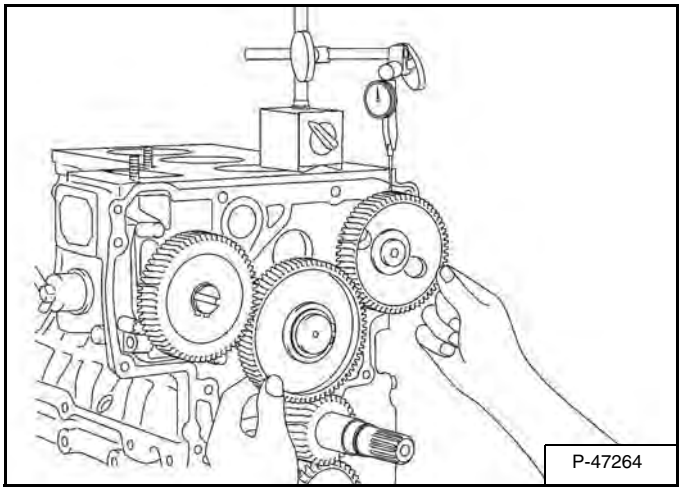
Install two screws in the bearing case cover and remove the cover (Item 3) **[Figure 70-90-15]**.

Remove the two gaskets (Item 4) and oil seal (Item 5) **[Figure 70-90-15]** from the cover.

Timing Gears Backlash - Checking

When the gears are installed, check the backlash of the gears.

Figure 70-100-9



Install a dial indicator **[Figure 70-100-9]**.

Hold one gear while turning the other gear **[Figure 70-100-9]**.

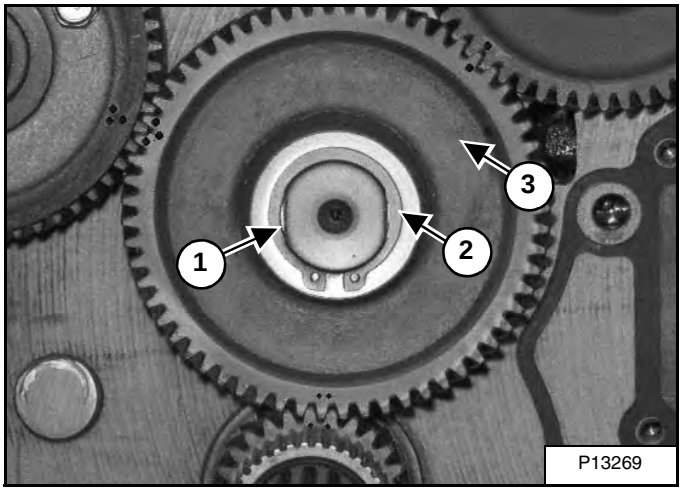
If the backlash exceeds the allowable limit, check the oil clearance of the shaft and gear. If the oil clearance is correct, replace the gear.

Crank Gear and Idler Gear 1	0.0013 - 0.0045 in. (0,032 - 0,115 mm)
Allowable Limit	0.0059 in. (0,15 mm)
Cam Gear and Idler Gear 1	0.0014 - 0.0045 in. (0,036 - 0,114 mm)
Allowable Limit	0.0059 in. (0,15 mm)
Injection Pump Gear and Idler Gear 1	0.0013 - 0.0046 in. (0,034 - 0,116 mm)
Allowable Limit	0.0059 in. (0,15 mm)
Injection Pump Gear and Governor Gear	0.0012 - 0.0046 in. (0,030 - 0,117mm)
Allowable Limit	0.0059 in. (0,15 mm)

Idler Gear And Shaft Removal And Installation

Remove the timing gearcase cover (See Timing Gearcase Cover Removal And Installation on Page 70-100-1)

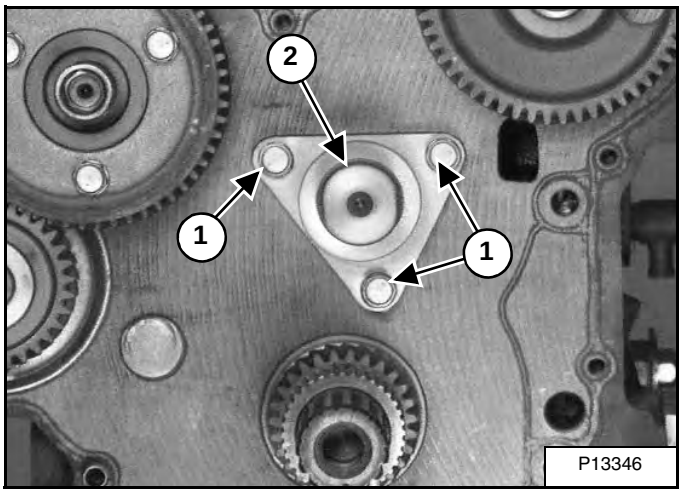
Figure 70-100-10



Remove the snap ring (Item 1) and flat washer (Item 2) from the idler gear shaft **[Figure 70-100-10]**.

Remove the idler gear (Item 3) **[Figure 70-100-10]**.

Figure 70-100-11



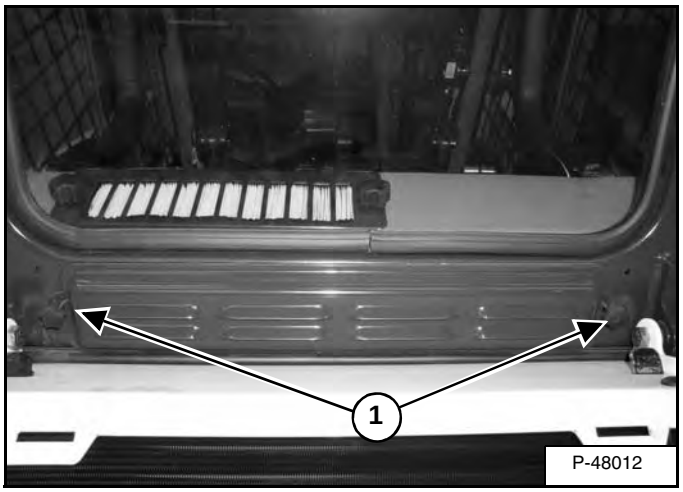
Remove the mounting bolts (Item 1) **[Figure 70-100-11]** from the idler shaft.

Remove the idler shaft (Item 2) **[Figure 70-100-11]**.

Installation: Tighten the camshaft retainer bolts to 14-15 ft.-lb. (18-21 N•m) torque.

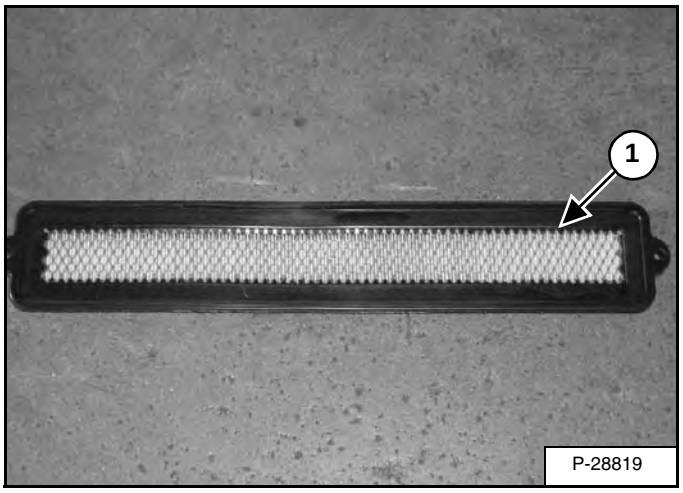
Filter Elements Removal And Installation

Figure 80-20-1



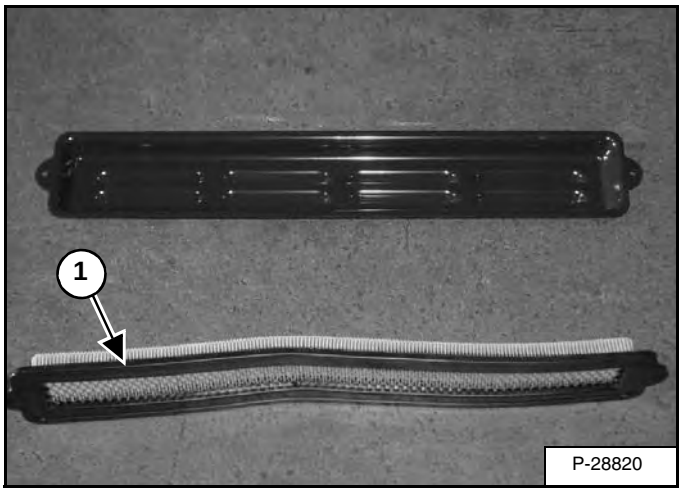
Remove the two mount bolts (Item 1) **[Figure 80-20-1]** from the fresh air filter cover at the rear of the loader cab.

Figure 80-20-2



Remove the filter cover and filter (Item 1) **[Figure 80-20-2]** from the loader.

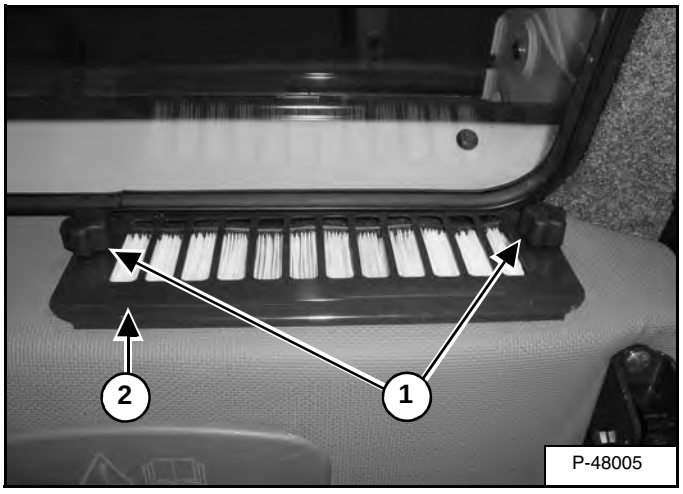
Figure 80-20-3



Remove the filter (Item 1) **[Figure 80-20-3]** from the cover.

The fresh air filter must be cleaned sometimes as often as twice a day, depending on the operating environment. The filter can be cleaned by removing and shaking it. A small amount of air pressure can be used to clean the filter. However the fresh air filter should be changed at least 2-4 times per year in normal conditions. In extremely dusty conditions the fresh air filter may need to be changed weekly.

Figure 80-20-4



Remove the two retaining knobs (Item 1) **[Figure 80-20-4]** from the recirculating air filter cover, at the back of the cab.

Remove the retaining cover (Item 2) **[Figure 80-20-4]** from the loader cab.

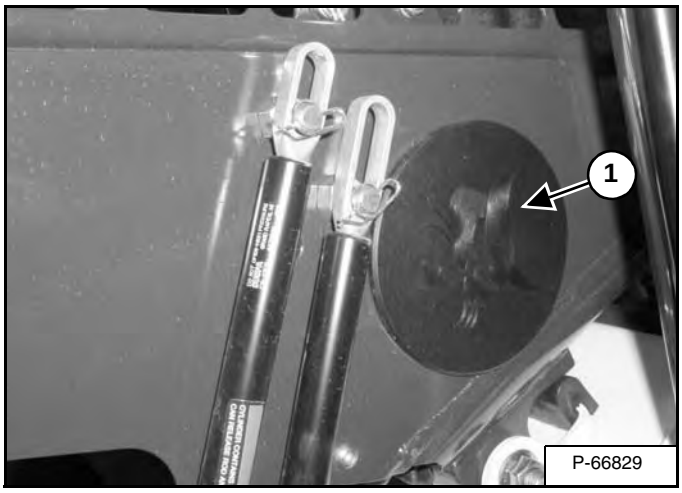
HEATER UNIT

Removal And Installation

Raise the lift arms and install an approved lift arm support device. (See LIFT ARM SUPPORT DEVICE on Page 10-20-1.)

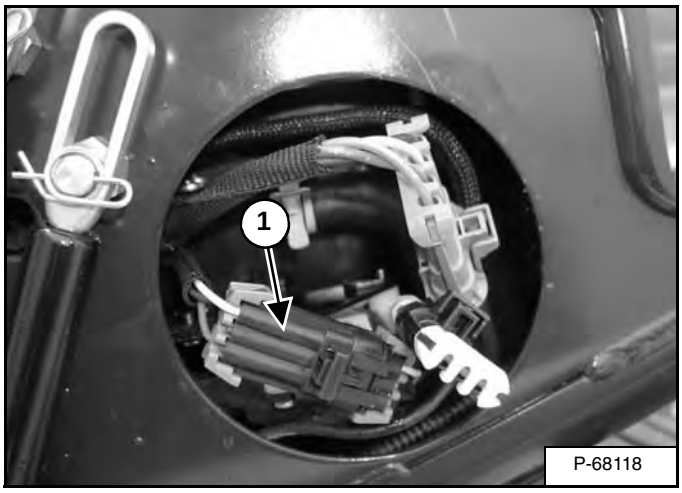
Raise the operator cab. (See Raising on Page 10-30-1.)

Figure 80-40-1



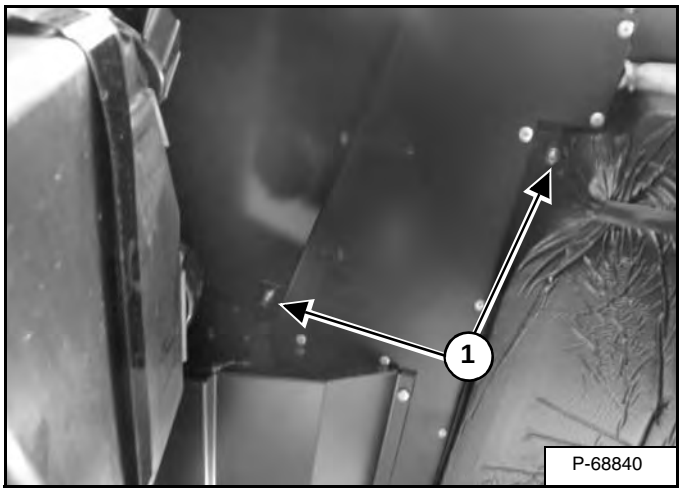
Remove the access cover (Item 2) **[Figure 80-40-1]** from the operator cab.

Figure 80-40-2



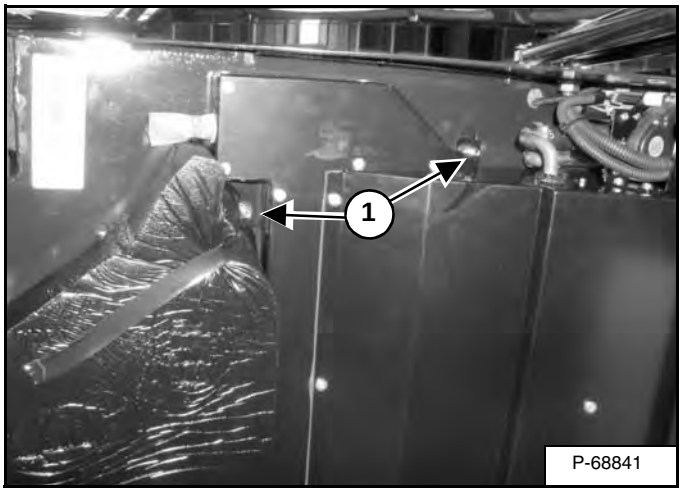
Disconnect the blower fan wiring connector (Item 1) **[Figure 80-40-2]** from the loader wiring harness.

Figure 80-40-3



Remove the two mounting nuts (Item 1) **[Figure 80-40-3]** at the right side.

Figure 80-40-4



Remove the two mounting nuts (Item 1) **[Figure 80-40-4]** at the left side.

SPECIFICATIONS

CONVERSIONS SPEC-50-1
Decimal And Millimeter Equivalent Chart. SPEC-50-1
U.S. To Metric Conversion Chart SPEC-50-1

HYDRAULIC CONNECTION SPECIFICATIONS SPEC-30-1
Flare Fitting SPEC-30-2
O-ring Face Seal Connection. SPEC-30-1
Port Seal Fitting SPEC-30-3
Straight Thread O-ring Fitting SPEC-30-2
Tubelines And Hoses. SPEC-30-2

HYDRAULIC / HYDROSTATIC FLUID SPECIFICATIONS SPEC-40-1
Specifications. SPEC-40-1

(S100) LOADER SPECIFICATIONS. SPEC-10-1
Capacities SPEC-10-5
Controls SPEC-10-2
Drive System SPEC-10-4
Electrical SPEC-10-4
Engine SPEC-10-3
Hydraulic System. SPEC-10-3
Dimensions SPEC-10-1
Performance SPEC-10-2
Tires. SPEC-10-5

TORQUE SPECIFICATIONS FOR BOLTS. SPEC-20-1
Torque For General Metric Bolts SPEC-20-2
Torque For General SAE Bolts. SPEC-20-1

HYDRAULIC CONNECTION SPECIFICATIONS

O-ring Face Seal Connection

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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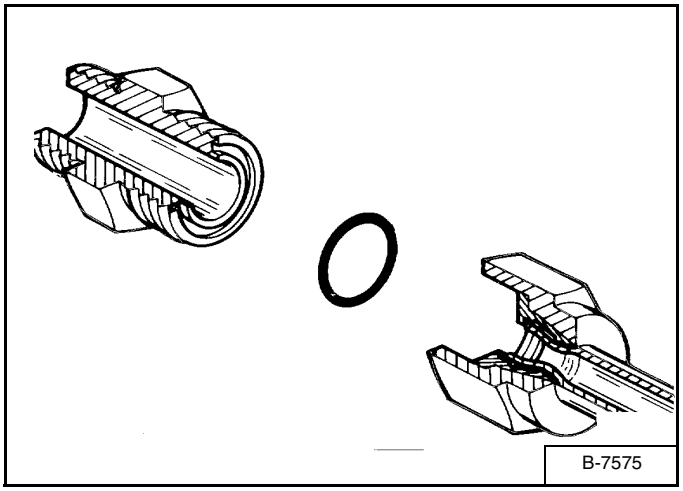
Figure SPEC-30-1



When the fitting is tightened, you can feel when the fitting is tight to eliminate leakage caused by under or over torqued fittings. Use vaseline petroleum jelly to hold the O-ring in position until the fittings are assembled **[Figure SPEC-30-1]**.

Figure SPEC-30-2

O-ring Face Seal Tightening Torque		
Tubeline Outside Diameter	**Thread Size**	**TORQUE ft.-lb. (N•m)**
1/4”	9/16” - 18	13 (18)
3/8”	11/16” - 16	22 (30)
1/2”	13/16” - 16	40 (54)
5/8”	1” - 14	60 (81)
3/4”	1-3/16” - 12	84 (114)
7/8”	1-3/16” - 12	98 (133)
1”	1-7/16” - 12	118 (160)
1-1/4”	1-11/16” - 12	154 (209)
1-1/2”	2” - 12	163 (221)