7 4 1

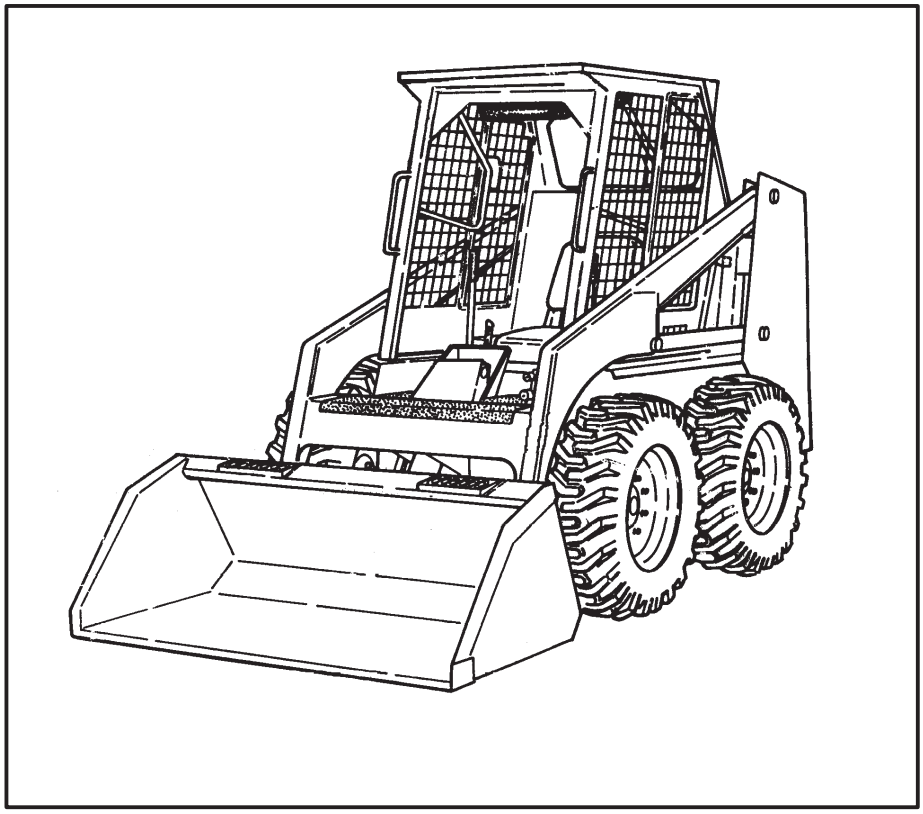
7 4 2

7 4 3

7 4 3 DS

Service Manual

741 (S/N 501720001 & Above),
742 (S/N 501820001 – 501822999),
743 (S/N 501920001 & Above) &
743DS (S/N 502551001 & Above)



MELROE
INGERSOLL-RAND

bobcat®

6566109 (4–88) Printed in U.S.A.

SERIAL NUMBER LOCATIONS

Always use the serial number of the loader 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.

LOADER SERIAL NUMBER

The loader serial number plate is located on the inside of the left upright, above the grill **[A]**.

Explanation of loader Serial Number:

XXXX XXXXX

- XXXXX – Module 2. – Production Sequence (Series)
- XXXX – Module 1. – Model/Engine Combination

1. The four digit Model/Engine Combination Module number identifies the model number and engine combination.
2. The five digit Production Sequence Number identifies the order which the loader is produced.

ENGINE SERIAL NUMBER

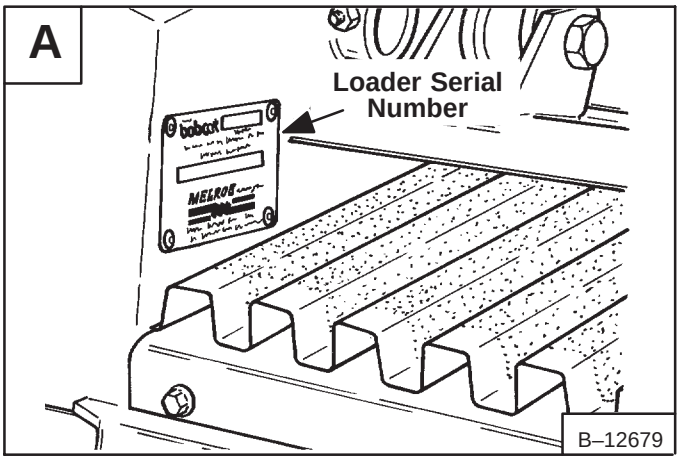
741 – The engine serial number is on the blower housing on the right side of the engine **[B]**.

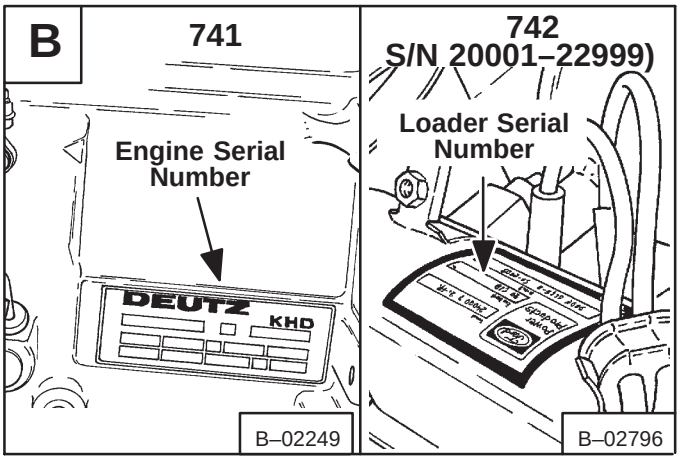
742 – The engine serial number is on top of the valve cover of the engine **[B]**.

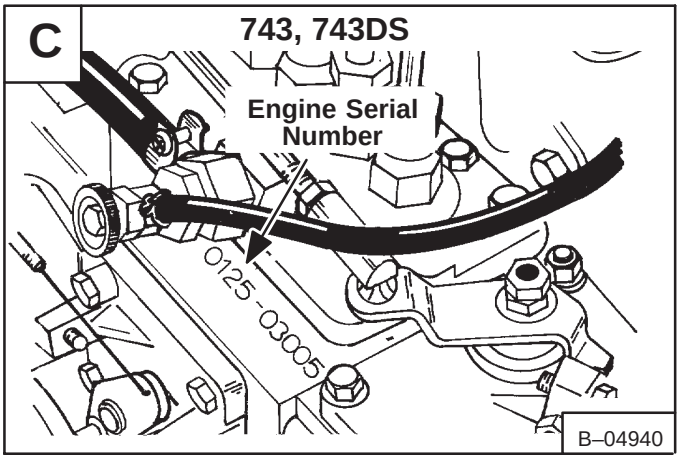
743, 743DS – The engine serial number is on the left side of the engine block, near the fuel injection pump **[C]**.

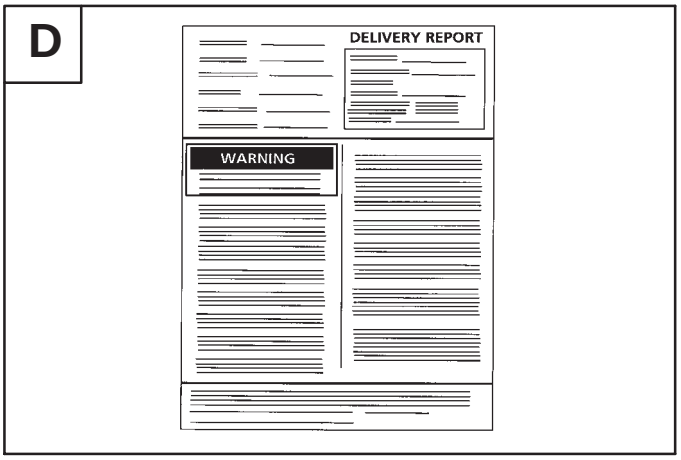
DELIVERY REPORT

The Delivery Report must be filled out by the dealer and signed by the owner or operator when the Bobcat loader is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely **[D]**.









Seat Bar Description

The seat bar system has a pivoting seat bar with arm rests and has spring loaded latches for the lift and tilt control pedals.

The operator controls the use of the seat bar. The seat bar in the down position helps to keep the operator in the seat and unlocks the foot pedals.

When the seat bar is up, lift and tilt pedals are locked in neutral position.

⚠ WARNING

AVOID INJURY OR DEATH

The seat bar system must lock the lift and tilt control pedals in neutral when the seat bar is up. Service the system if pedals do not lock correctly.

W–2105–1285

Seat Bar Inspection

Sit in the seat and fasten the seat belt. Engage the parking brake.

Pull the seat bar all the way down. Start the engine.

Operate each foot pedal to check both the lift and tilt functions. Raise the lift arms until the bucket is about 2 feet (600 mm) off the ground.

Raise the seat bar. Try to move each foot pedal. Pedals must be firmly locked in neutral position **[B]**. There must be no motion of the lift arms or tilt (bucket) when the pedals are pushed.

Pull the seat bar down, lower the lift arms fully and place the bucket flat on the ground.

Stop the engine. Raise the seat bar and operate the foot pedals to be sure that the pedals are firmly locked in the neutral position **[B]**. Unfasten the seat belt.

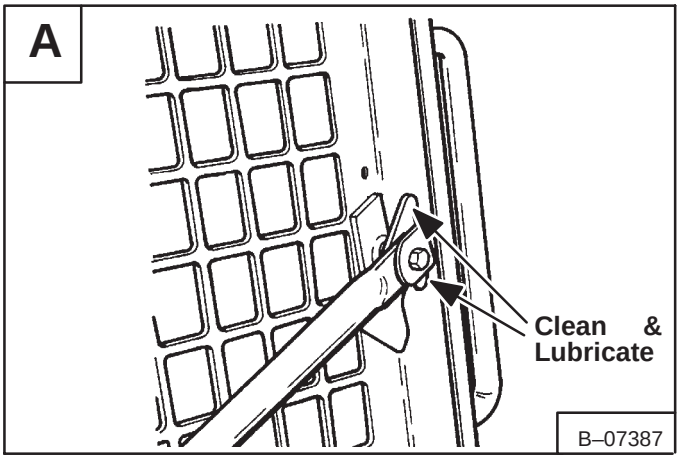
Seat Bar Maintenance

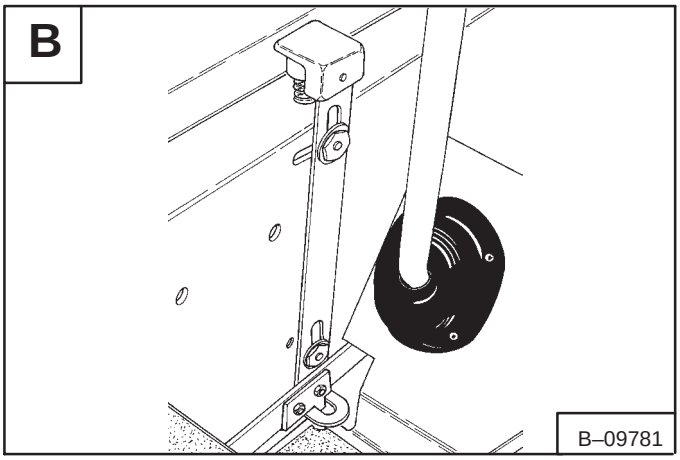
Clean any debris or dirt from the moving parts **[A]** & **[B]**.

Inspect the linkage bolts and nuts for tightness. The correct torque is 25–28 ft.–lbs. (34–38 Nm).

Use general purpose grease to lubricate the seat bar pivot points at each side of the cab **[A]**.

If the seat bar system does not function correctly, check for free movement of each linkage part. Check for excessive wear. Adjust pedal control linkages. Replace parts that are worn or damaged. Use only genuine Melroe replacement parts.





and the fluid is forced out of the pressure side of the hydrostatic pumps (23) and to the hydrostatic motors (2) . This flow of fluid is called "drive pressure". Drive pressure is much higher than charge pressure causing the replenishing valves (25) or (26) to close, allowing the flow of the fluid to go to the motors (2) . There are four replenishing valves (25) and (26) , two for each hydrostatic pump (23) . One is for forward travel and one for reverse travel. When the loader is driven with the bucket down, into a pile of material, there is resistance causing high pressure fluid in the drive loop. There is a relief valve built into the high pressure replenishing/relief valves (25) (for forward travel). This relief valve releases the high pressure fluid in the drive loop. When the relief valve opens, the extra fluid goes from the drive loop to the charge loop to be used again.

The hydrostatic motors (2) are a "roller-geroler type". The case drain fluid from the motors (2) is controlled by the case drain relief valve (19) in the port block (18) .

The filter (14) has a by-pass valve (16) to allow fluid flow when the fluid will not go through the filter element (plugged).

The cooler by-pass valve (21) will open when the lift arms are lowered quickly with a heavy load in the bucket. This happens because a large amount of fluid is pushed out of the lift cylinders (7) through the control valve (13) and into the port block (18) . The by-pass valve (21) will also open when the fluid is cold and is too thick for fluid flow to go through the oil cooler (17) and filter (14) .

HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Models

742B, 743B

(With 3-Spool Melroe Control Valve)

Chart # 6722141 (Printed January 1992)

CHART LEGEND

1. **RESERVOIR,** . . . . . 3.5 Gals. (13,2 L)
2. **FILL CAP**
3. **SCREEN,** . . . . . 60 Mesh
4. **HYDROSTATIC MOTOR**
5. **HYDRAULIC PUMP,** Rated @ 2500 RPM
   742B (S/N 11251 & Above);
   743B (S/N 13888 & Above)
   Gear Type . . . 12.1 GPM (45,8 L/min.)
   742B (S/N 11250 & Below);
   743B (S/N 13887 & Below)
   Vane Type . . . 12.1 GPM (45,8 L/min)
6. **HYDROSTATIC PUMPS**
7. **REPLENISHING VALVES (2)**
8. **CHARGE RELIEF VALVE** . . . 95-115 PSI (655-793 kPa)
9. **HIGH PRESSURE RELIEF/REPLENISHING VALVES (2):** . . 3500 PSI (24133 kPa)
10. **CHARGE PRESSURE SWITCH** 17-23 PSI (117-159 kPa)
11. **OIL COOLER BY-PASS** . . . 117-228 PSI (1220-1265 kPa)
12. **PORT BLOCK**
13. **TEMPERATURE SWITCH**. 225-232°F (106-112°C)
14. **CASE DRAIN RELIEF VALVE** 45-55 PSI (310-379 kPa)
15. **AUXILIARY QUICK COUPLERS (OPT.)**
16. **TILT CYLINDER**
17. **LIFT CYLINDERS**
18. **FLOW RETURN SPOOL**
19. **RELIEF VALVE** . . . . . 500-600 PSI (3448-4136 kPa)
20. **CHECK POPPET VALVE**
21. **BUCKET POSITIONING VALVE (OPT.)**
22. **FLOW DIVIDER SPOOL**
23. **RESTRICTOR (ONE WAY)** 0.125'' (3,2 mm) Dia. Orifice
24. **MAIN RELIEF VALVE,** 2250-2400 PSI (15513-16548 kPa)
25. **PORT RELIEF VALVE** . . . . . 3500 PSI (24132 kPa)
26. **ANTI-CAVITATION VALVE (2)**
27. **HYDRAULIC CONTROL VALVE**
28. **LOAD CHECK VALVES (3)**
29. **HYDRAULIC/HYDROSTATIC FILTER** #3 Element
30. **DIFFERENTIAL PRESSURE SWITCH** 40 PSI (276 kPa)
31. **FILTER BY-PASS VALVE** . . . . . 50 PSI (345 kPa)
32. **OIL COOLER**

TILT CYLINDER

Checking

Remove the bucket. Stop the engine. Move the tilt pedal to release the hydraulic pressure.

Disconnect the hose that goes to the base end of the tilt cylinder **[A]**.

⚠ WARNING

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–2072–0496

Put a plug in the hose.

Start the engine. Push the bottom (heel) of the tilt pedal. If there is leakage from the open port, remove the tilt cylinder for repair.

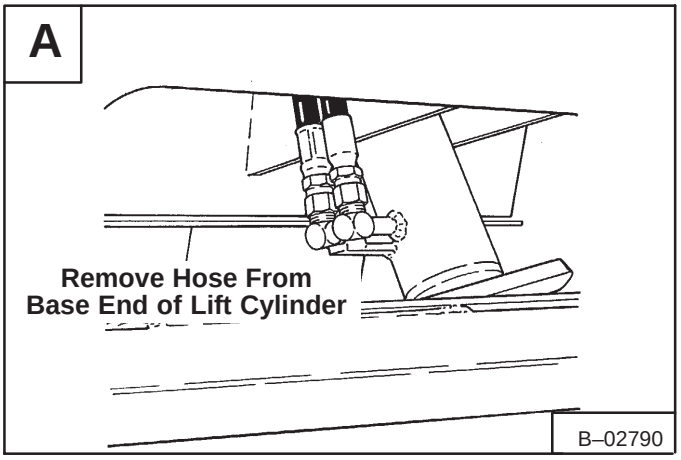
Removal And Installation

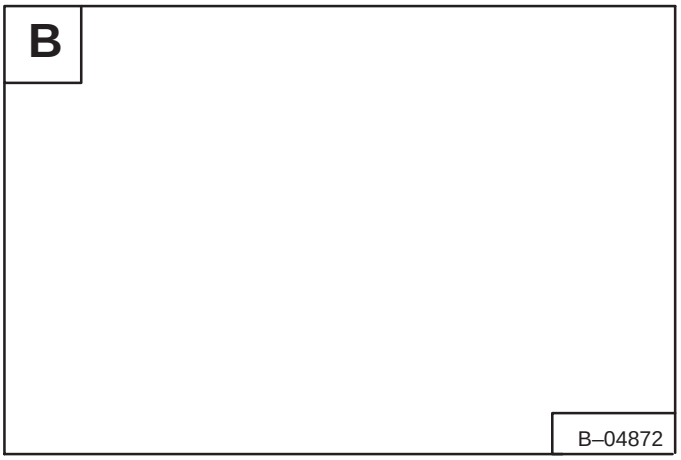
Stop the engine. Remove the bucket. Move the tilt pedal to release the hydraulic pressure.

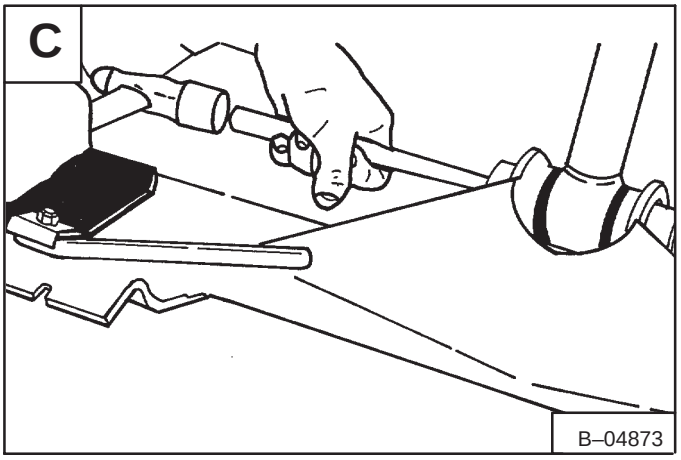
Remove the locknut and bolt from the pin at the rod end of the cylinder **[B]**.

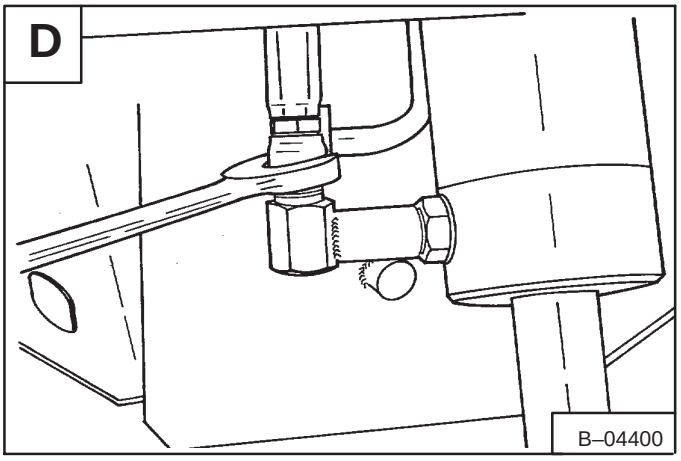
Remove the pin at the rod end **[C]**.

Disconnect the hoses from the tilt cylinder **[D]**.





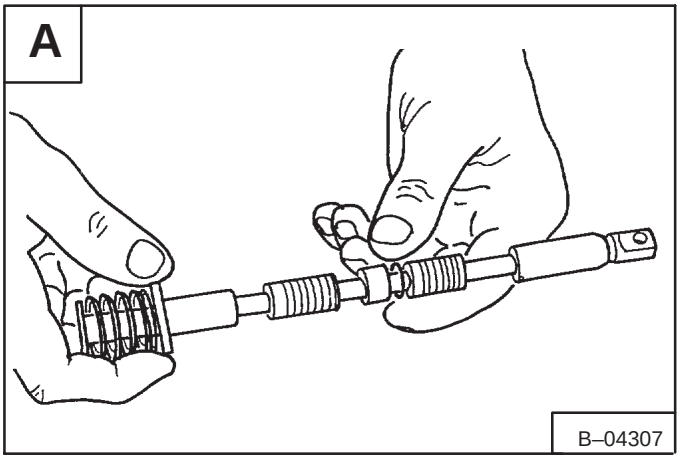




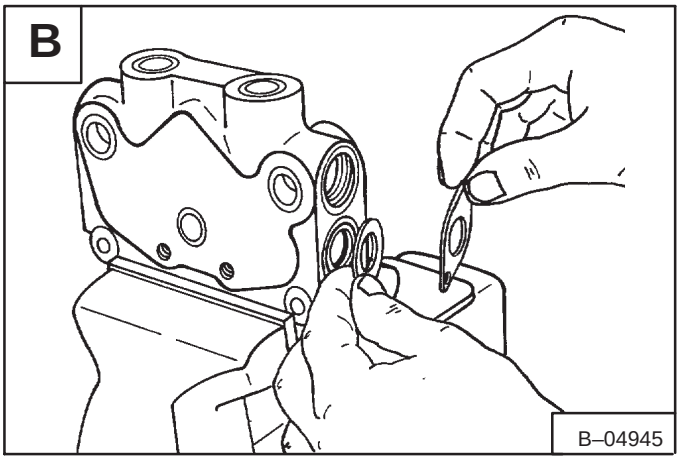
HYDRAULIC CONTROL VALVE (Gresen) (Cont'd)

Lift Section (Cont'd)

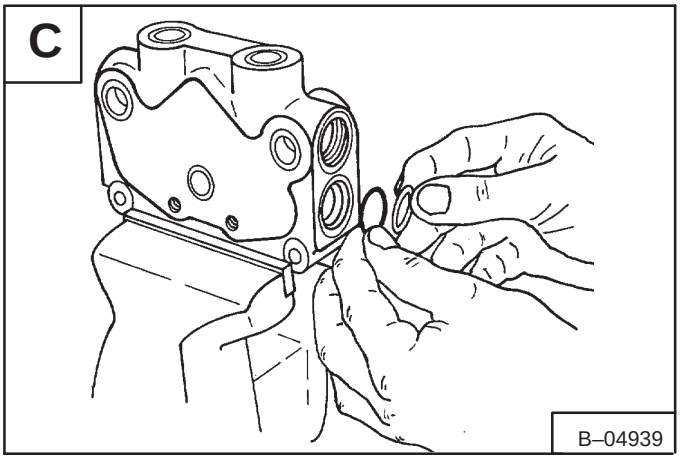
Remove and discard the O–ring from the valve spool **[A]**.



Remove the screws from the seal plate. Remove the seal plate and the retainer washer **[B]**.



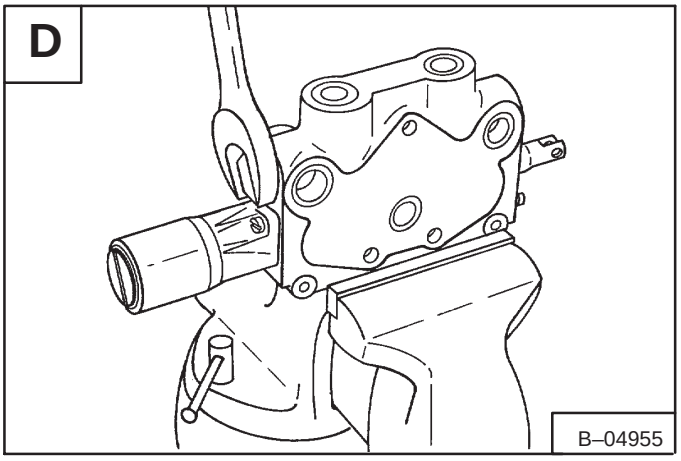
Remove the back–up washer and the O–ring **[C]**.



Auxiliary Section

Remove the load check from the auxiliary section **[D]**.

Remove the other load check.

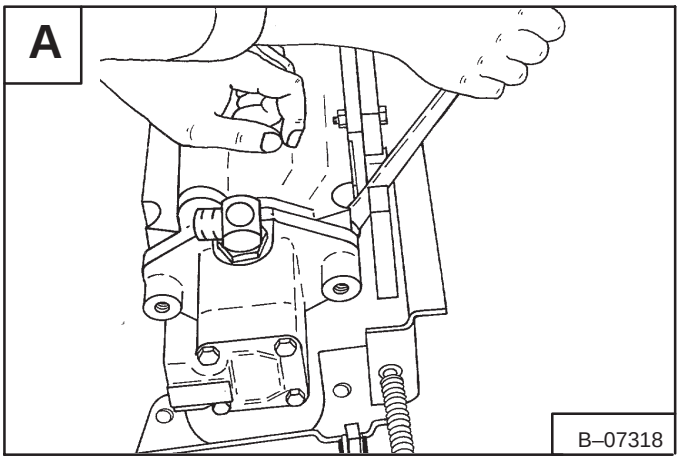


HYDRAULIC PUMP (S/N 15001 & Above) (Cont'd)

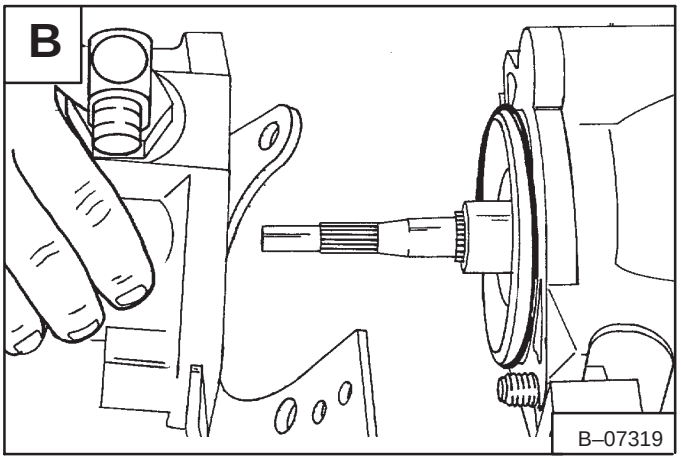
Removal And Installation (Cont'd)

Remove the hydraulic pump mounting bolts **[A]**.

Installation: Tighten the bolts to 65–70 ft.–lbs. (98–94 Nm) torque.

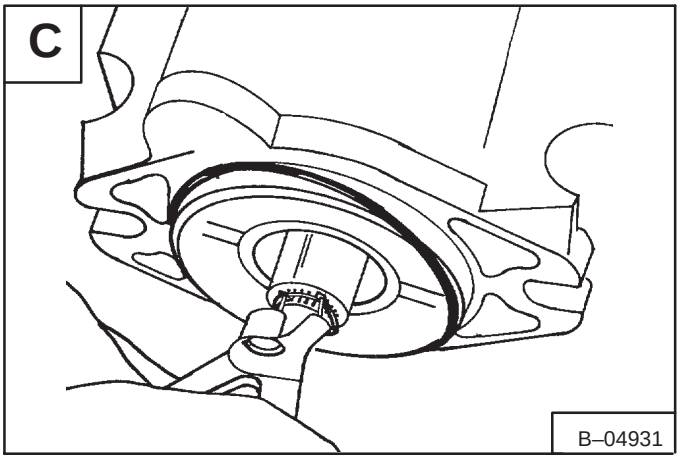


Remove the hydraulic pump **[B]**.

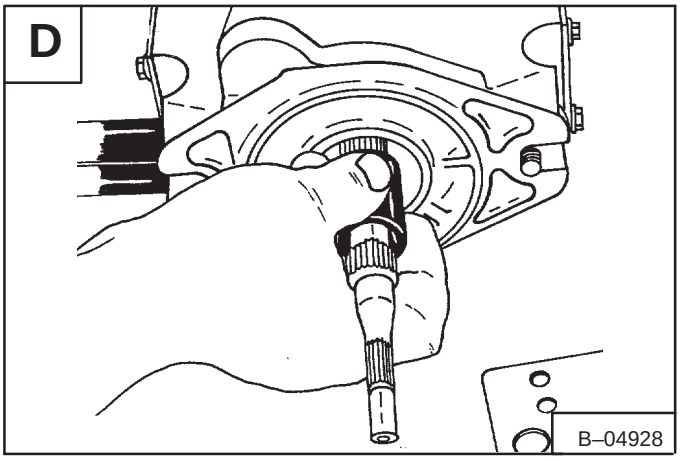


Vane Pump Drive Shaft Removal And Checking

Remove the snap ring **[C]**.



Remove the coupler **[D]**.



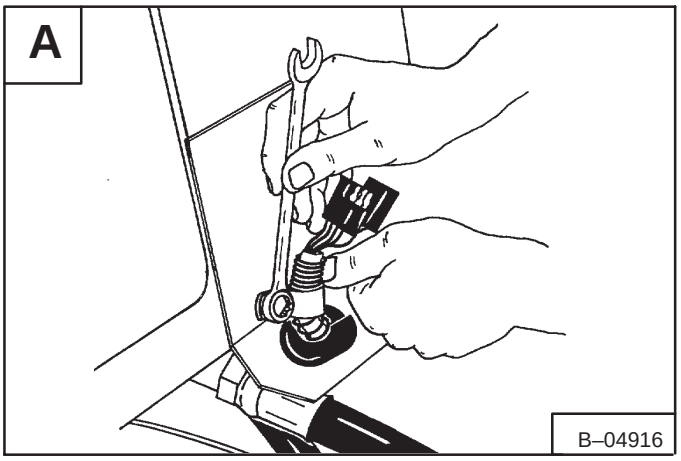
HYDRAULIC/HYDROSTATIC RESERVOIR (Cont'd)

Removal And Installation

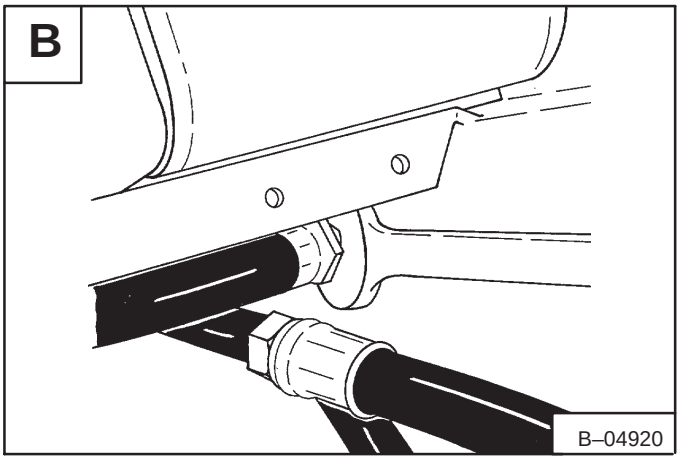
Raise the operator cab. (See *PREVENTIVE MAINTENANCE* Section 1.)

Remove the harness bracket **[A]**.

Drain the hydraulic reservoir. (See Page 2–34.)



Remove the reservoir hose **[B]**.



Remove the bolt holding the tank strap in position **[C]**.

Remove the reservoir.

Installation: Install the reservoir with the strap and bolt.

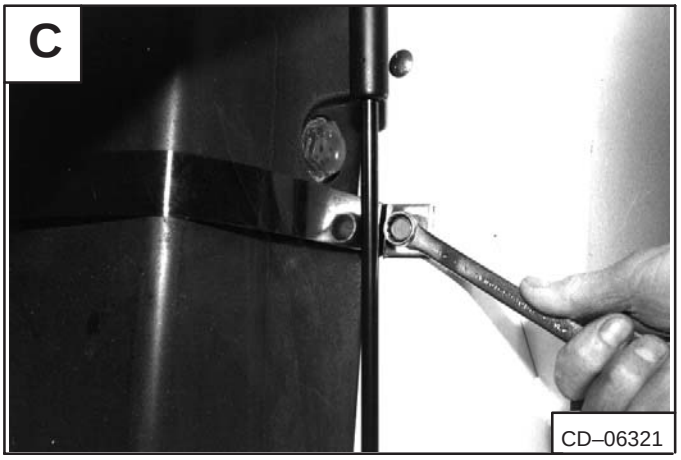
Install the reservoir hose and the harness bracket.

Fill the reservoir with the specified oil. (See Page 2–34.)

Lower the operator cab.

Start the engine and operate the hydraulic controls. Stop the engine and check for leaks.

Check the reservoir oil level and add oil as needed.



STEERING LEVERS

Removal And Installation

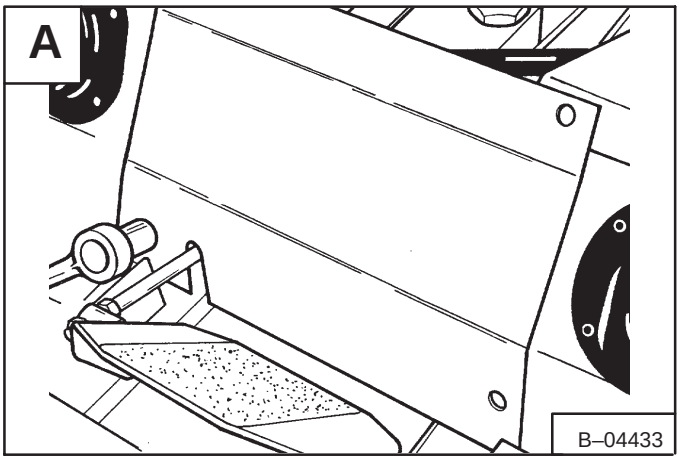
NOTE: Early production machines used 3–piece assembly. Current production machines use 1–piece shield which must be removed as a unit.

Remove the front panel **[A]**.

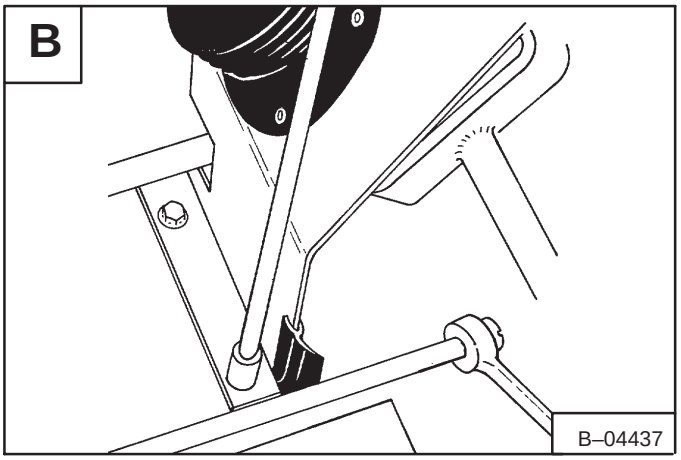
IMPORTANT

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.

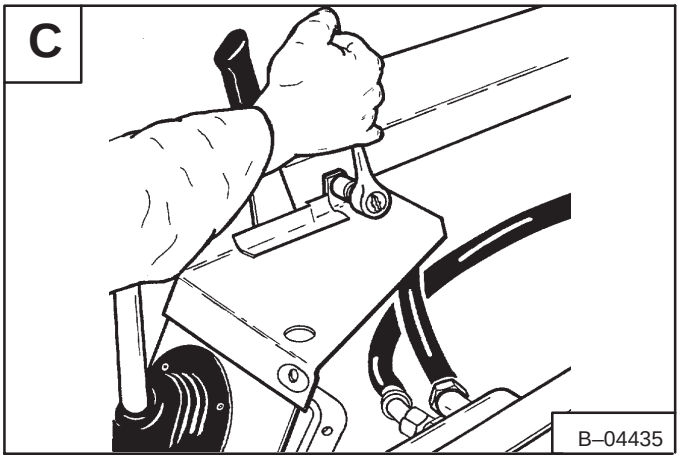
I–2003–0888

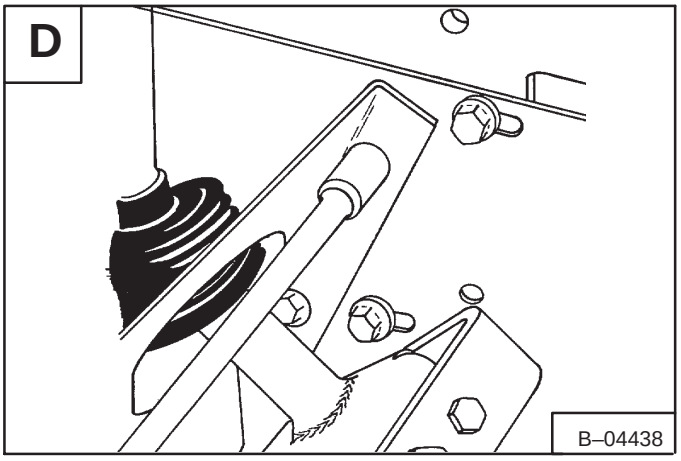


Remove the bolts and remove both side shields **[B]**.



Remove the bolts from the steering lever shield **[C]** & **[D]**.





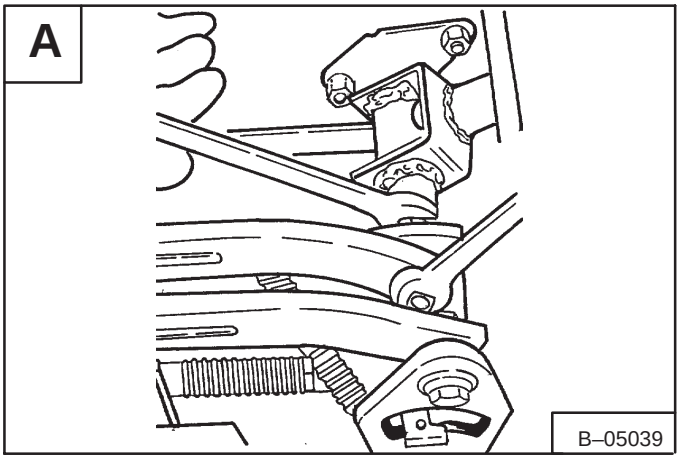
HYDROSTATIC PUMP (Cont'd)

Removal

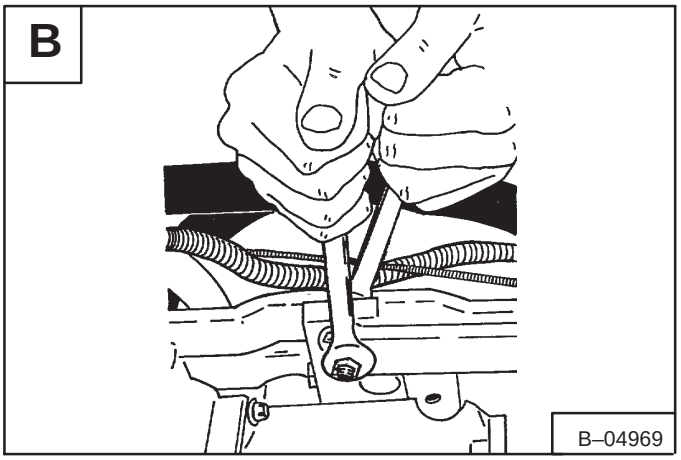
Drain the hydraulic/hydrostatic reservoir. (See *HYDRAULIC SYSTEM* Section 2.)

Remove the front panel and side shields. (See Page 3–3.)

Remove the detent linkage **[A]**.



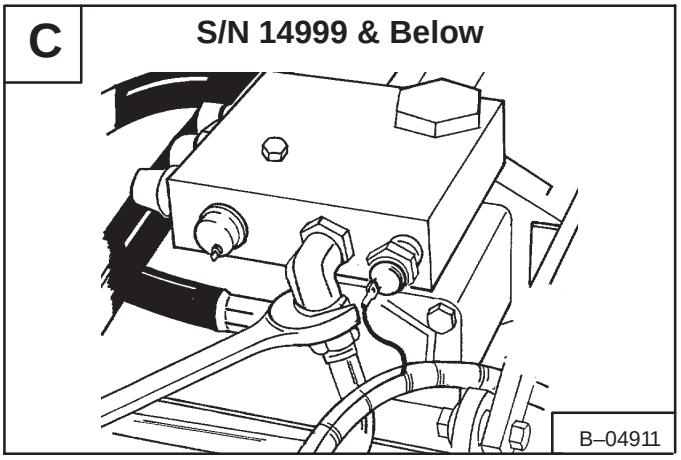
Remove the steering linkage at the steering levers **[B]**.



S/N 14999 & Below

Remove the hoses from the port block **[C]**.

Disconnect the hose from the port block to the hydraulic/hydrostatic reservoir.

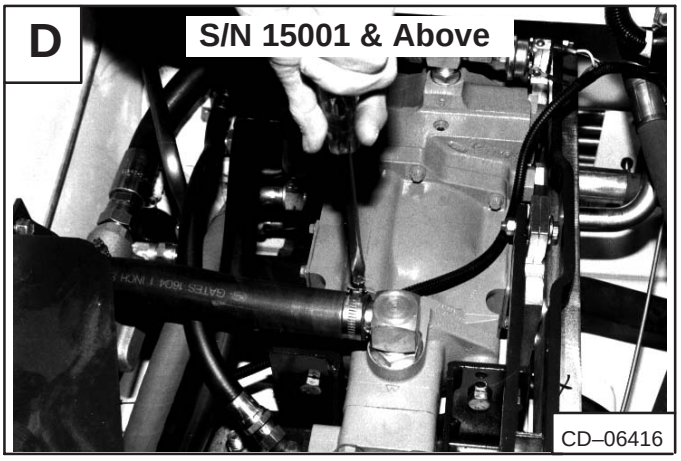


S/N 15001 & Above

Remove the suction hose from the hydraulic pump **[D]**.

Loosen the suction hose fitting at the port block.

Move the hose for ease of pump removal and installation.



AXLES, SEALS AND BEARINGS

Removal

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

MEL1202B – Axle Bearing Service Set

Slide Hammer (Fabricate locally)

Lift and block the loader.

Remove the seat assembly.

Remove the wheel and tire assembly.

Remove the steering levers.

Remove the chaincase covers and brake assembly. (See Page 4–2.)

Loosen the gearcase mounting bolts to allow clearance to remove the sprocket.

Installation: Tighten the bolts to 220–245 ft.–lbs. (300–330 Nm) torque.

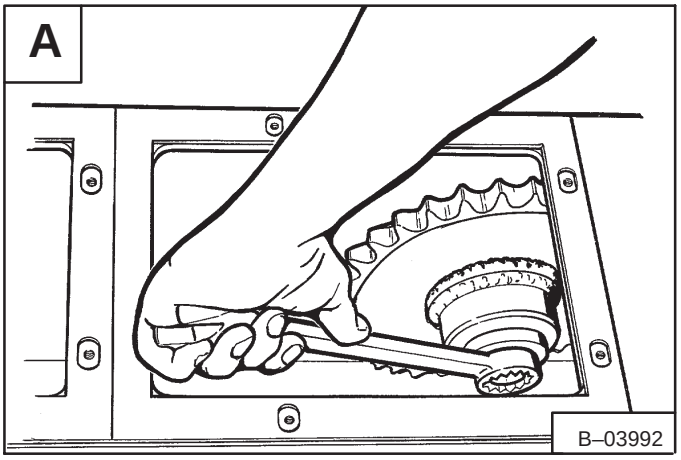
Loosen the bolt in the end of the axle by turning the axle hub **[A]**.

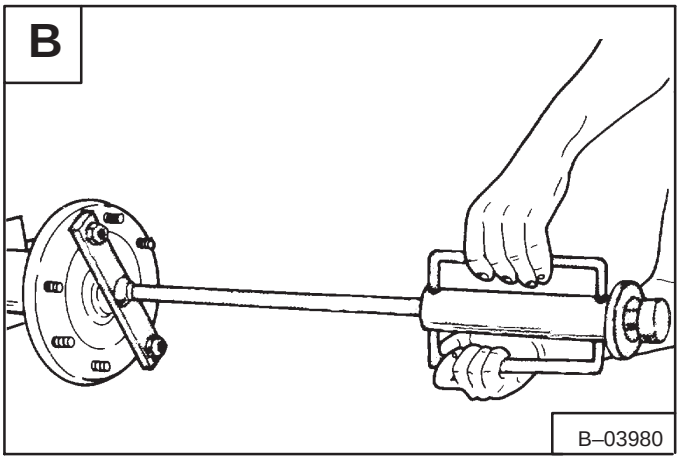
Installation: Put LOCTITE #242 on the bolt threads and tighten to 475–515 ft.–lbs. (644–712 Nm) torque.

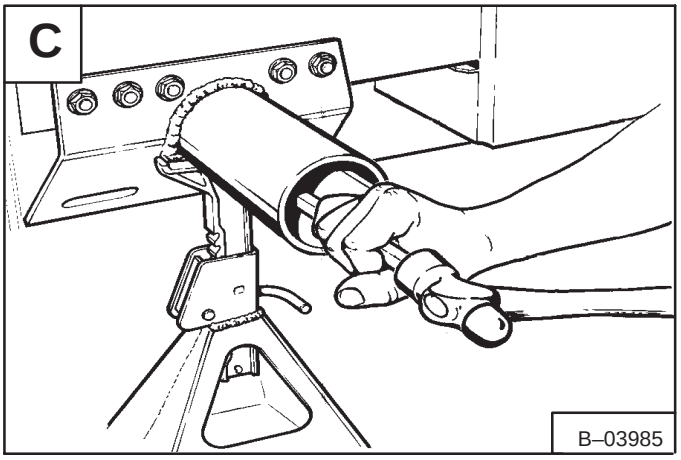
Use a slide hammer to remove the axle from the inner bearing **[B]**.

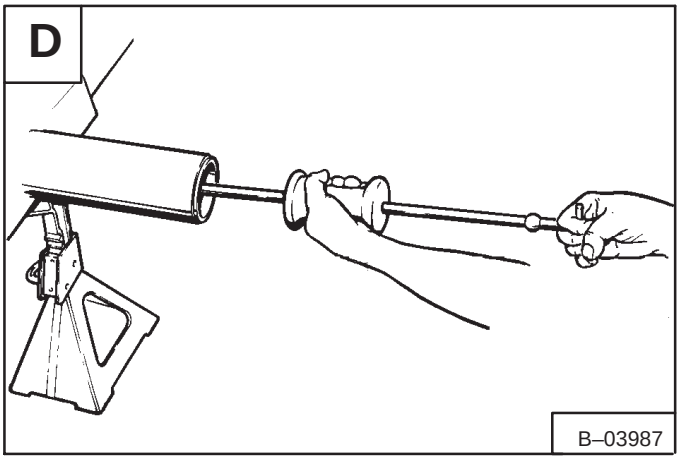
Move the sprocket away from the inner axle bearing and remove the inside bearing cup using a long punch **[C]**.

Use a bearing puller tool and slide hammer to remove the outer bearing cup **[D]**.







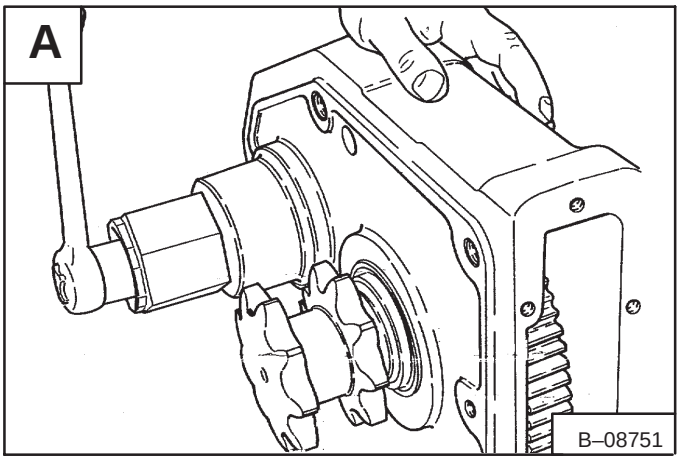


REDUCTION GEARCASE (Cont'd)

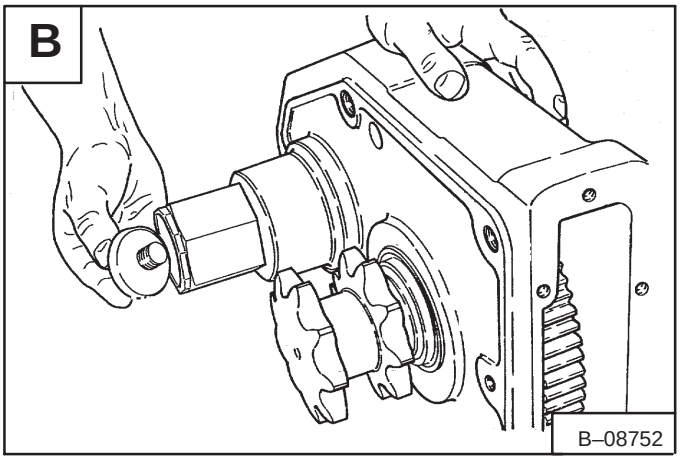
Disassembly and Assembly (Cont'd)

Remove the bolt at the disc hub **[A]**.

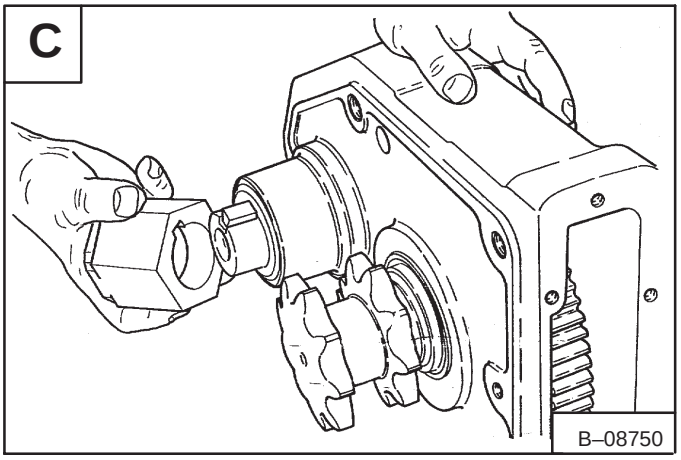
Installation: Put LOCTITE #242 on the bolt and tighten to 210–235 ft.–lbs. (285–305 Nm) torque.



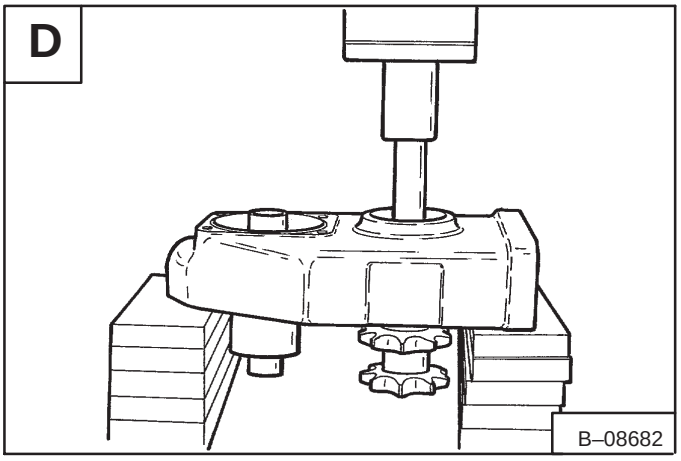
Remove the bolt and washer **[B]**.



Remove the disc hub and key **[C]**.



Put the gearcase housing in the press and remove the output shaft **[D]**.



OPERATOR CAB (S/N 20001 & Above)

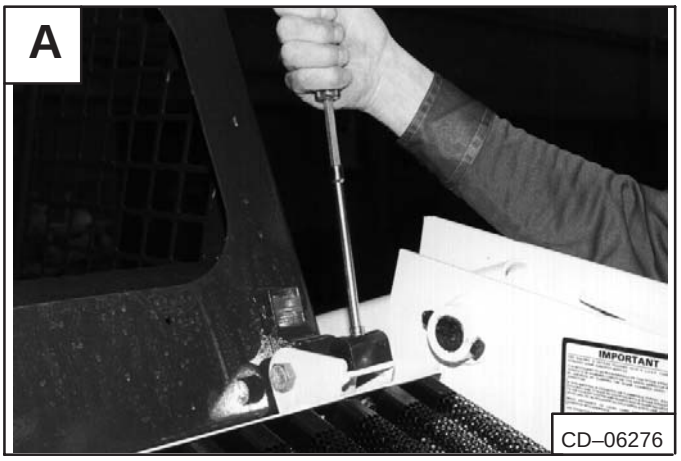
Removal And Installation

Remove the stop blocks at the rear of the operator cab **[A]**.

IMPORTANT

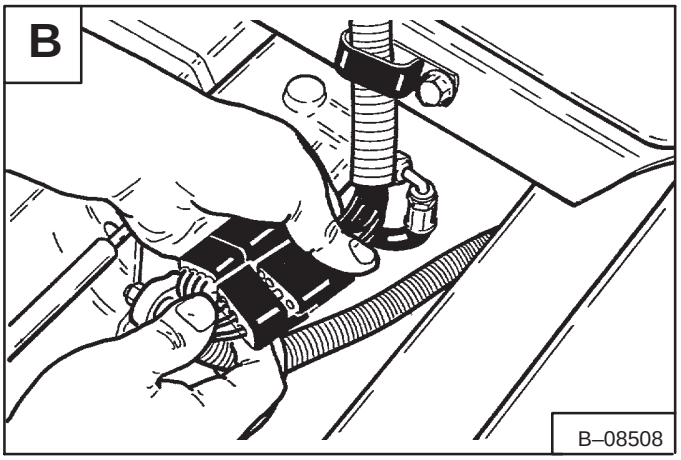
After the stop blocks are removed and the operator cab has a rear window, REMOVE THE REAR WINDOW to prevent damage to the rear window.

I–2120–0297

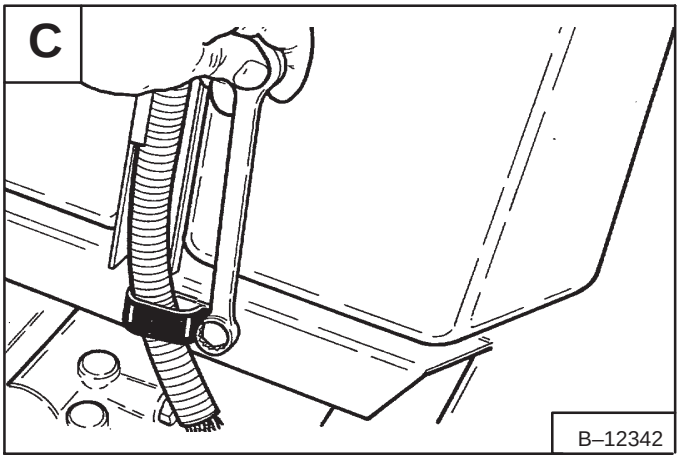


Raise the operator cab. (See *PREVENTIVE MAINTENANCE* Section 1 for the correct procedure.)

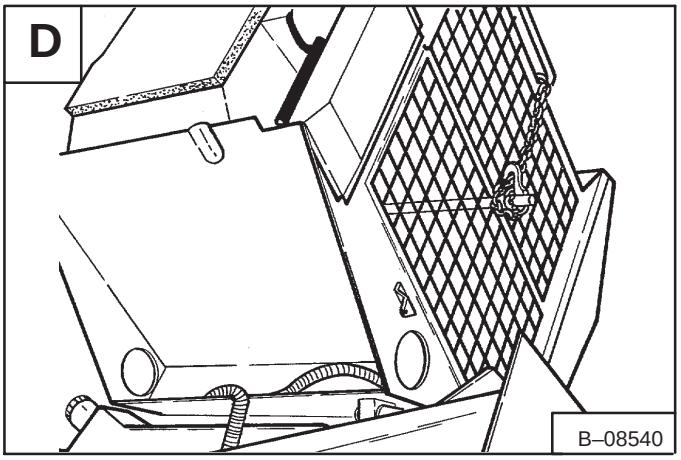
Disconnect the electrical harness **[B]**.



Remove the electrical harness clamp **[C]**.



Install a bar through the operator cab balance point. Install a chain and chain hoist **[D]**.



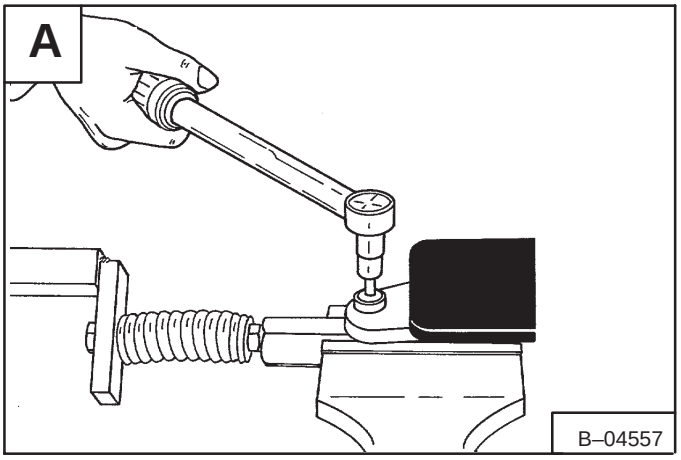
BOB–TACH (Cont'd)

Disassembly And Assembly (Cont'd)

Put the wedge and lever assembly in the vise.

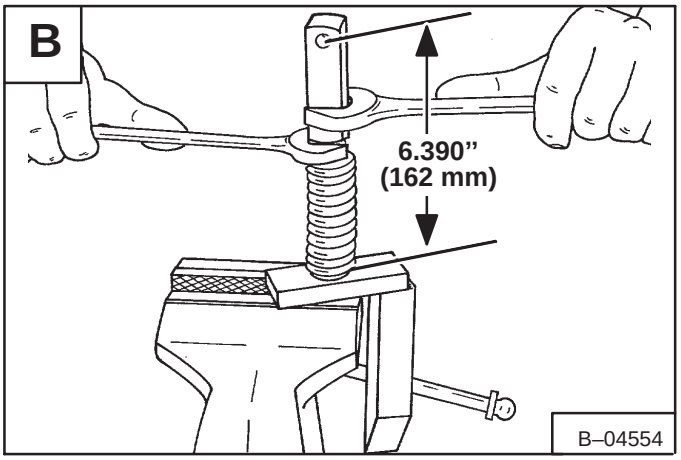
Remove the bolt at the lever **[A]**.

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

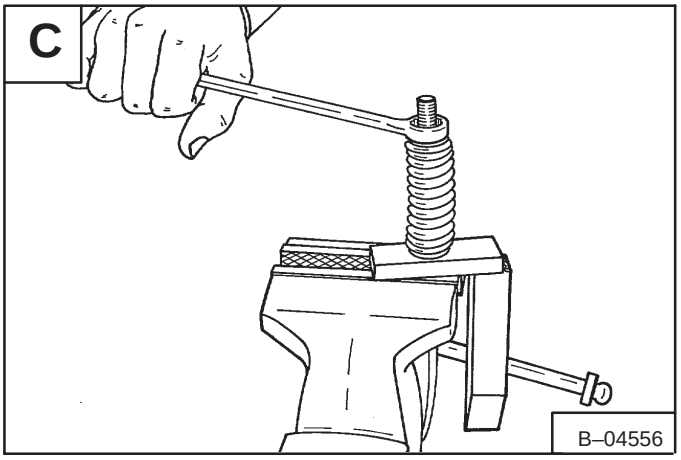


Remove the block from the wedge bolt **[B]**.

Assemble: Turn the block down until there is 6.390'' (162 mm) from the center of the hole to the top of the wedge spring seat **[B]**.

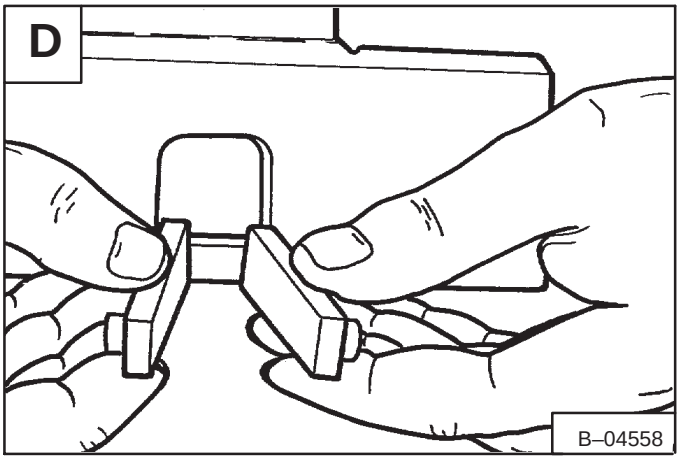


Remove the nut and the spring from the bolt **[C]**.



Remove the plastic guides from the Bob–Tach frame **[D]**.

Clean and inspect all the parts for wear and damage, replace the parts as needed.



CAB HARNESS

641 (S/N 11001—12999)
642 (S/N 11001—13002)
643 (S/N 11001—12999)

741 (S/N 11001—11886)
742 (S/N 11001—12164)
743 (S/N 11001—14084)

WIRE LEGEND

NO.'s	COLOR	GAUGE
10A	Black	16
10B	Black	16
11	Orange	16
11A	White/Orange	16
12	Orange	16
12A	Orange	18
12B	Orange	16
12C	Orange	18
12F	Orange	18
12H	Orange	18
14	Orange	12
19	Orange/Dk. Blue	16
19C	Orange/Yellow	16
19F	Orange/Dk. Blue	16
19L	Orange/Dk. Blue	16
19W	Orange/Black	16
21	White	16
26	Lt. Blue	16
28	Lt. Blue/Black	18
31P	Purple	18
31PT	Purple	18
31T	White/Purple	18
32P	Yellow	18
32PT	Yellow	18
32T	Yellow/Black	18

NO.'s	COLOR	GAUGE
36	Dk. Green/Yellow	16
40FL	Black	16
40FR	Dk. Blue	16
40H	Black	16
40R	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
60W	Black	16
63	Orange/Black	16
66	Orange/Green	16
A	Yellow	16
B	Purple	16
C	White	16
D	Lt. Blue	16
E	Red	16
F	Orange (Not Used)	16
G	Grey (Not Used)	16
H	Brown (Not Used)	16
I	Black	16

PARTS LEGEND

1. Operator Cab Harness Connector
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Optional)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Optional)
8. Left Front Lamp
9. Wiper Motor (Optional)
10. Flasher (Optional)
11. Right Front Lamp
12. Right Flasher Lamp (Optional)
13. Hourmeter
14. Light Switch
15. Accessory Fuse
16. Wiper Switch (Optional)
17. Fuel Gauge
18. "Trans" Warning Lamp
19. "Eng" Warning Lamp
20. Voltmeter
21. Ignition Fuse
22. Ignition Switch
23. Glow Plug Indicator (543 Only)
24. Shut-Down Module (Optional)

● Tee splice

○ Butt splice

ENGINE HARNESS

642 (S/N 11001—13002)
741 (S/N 11001—12164)

WIRE LEGEND

NO.'s	COLOR	GAUGE
1	Red	12
10A	Black	16
10B	Black	16
12C	White/Orange	16
14	Orange	12
14C	Orange	12
14F	Light Green	16
14R	White/Lt. Green	16
19C	Orange/Yellow	16
21	White	16
21A	White	16
21S	White/Green	16
23F	White/Black	16
26	Optional (1.3-1.4 OHMS Resistance)	
26A	Light Blue	16
28	Lt. Blue/Black	16
28S	White/Green	16
29	White/Red	18
31P	Purple	16
31T	White/Purple	16
32P	Yellow	16
32T	Yellow/Black	16
60B	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Operator Cab Harness Connector
2. Chassis Harness Connector
3. Back-Up Alarm Switch (Optional)
4. Trans. Oil Temperature
5. Trans. Charge Pressure
6. Brake Switch (Future Switch)
7. Fused & Switched Feed
8. Unfused Feed
9. Fuel Tank Solenoid
10. Battery
11. Starter
12. Coil
13. Distributor
14. Power Relay
15. Carburetor Fuel Solenoid
16. Engine Water Temp.
17. Engine Oil Pressure
18. Alternator
19. Engine to Frame Ground Diode (Keeps engine from running after ignition is turned off)

ENGINE HARNESS

743DS (S/N 50157 thru 51377)

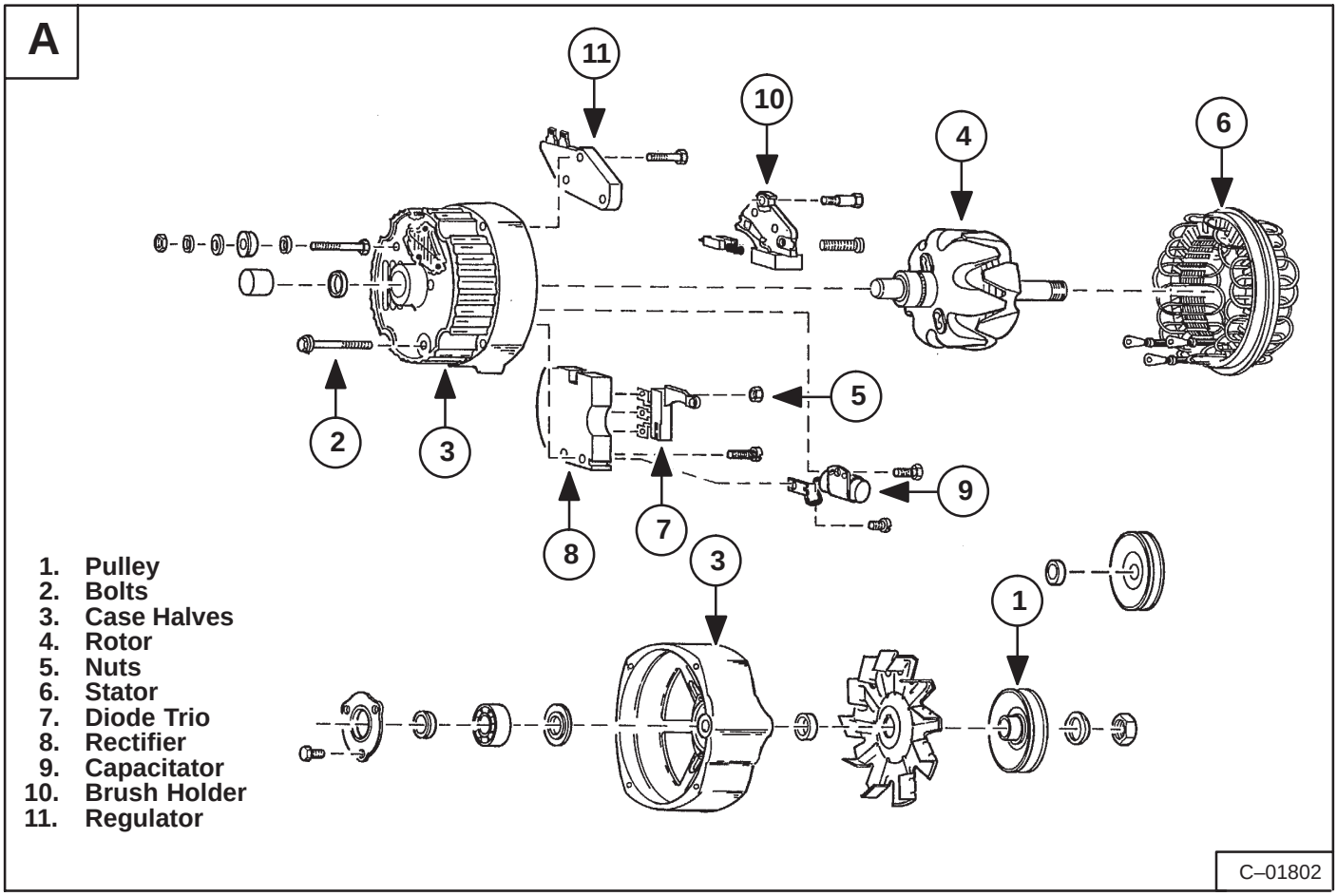
WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	8
1B	Red	12
1C	Red	12
1D	Red	12
10A	Black	12
12C	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	12
21R	White	16
21S	White/Lt. Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	10
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32PT	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16

NO.'s	COLOR	GAUGE
60B	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Operator Cab Harness Connector
2. Fused & Switch Accessory
3. Open, Fused & Live Accessory
4. Back-Up Alarm Switch (Optional)
5. Battery Disconnect Switch
6. Trans. Oil Temperature Switch
7. Trans. Charge Pressure Switch
8. Starter
9. Alternator
10. Battery
11. Engine Oil Pressure Switch
12. Engine Coolant Temp. Sender
13. Engine Glow Plugs
14. Hyd. Fluid Filter Condition Switch
15. Engine Connector
16. Pre-Heat Relay
17. Starter Relay
18. Diode
19. Frame Ground
20. Engine Ground
21. Fuel Shut-Off Solenoid (Optional)



ALTERNATOR (Cont'd)

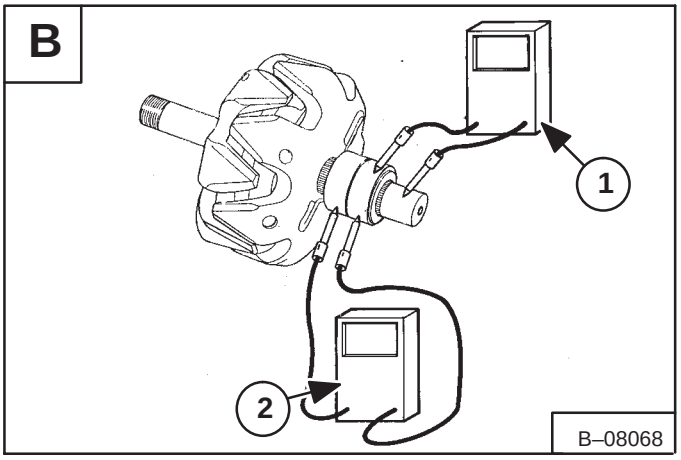
Disassembly And Assembly

Disassemble the alternator as shown **[A]**.

Connect an ohmmeter as follows to check the rotor **[B]**.

Between one slip ring and the shaft (Item 1) **[B]**. Check the other slip ring. There must be maximum resistance.

Between both slip rings (Item 2) **[B]**. there must be 2.4 to 3.0 ohms. resistance.

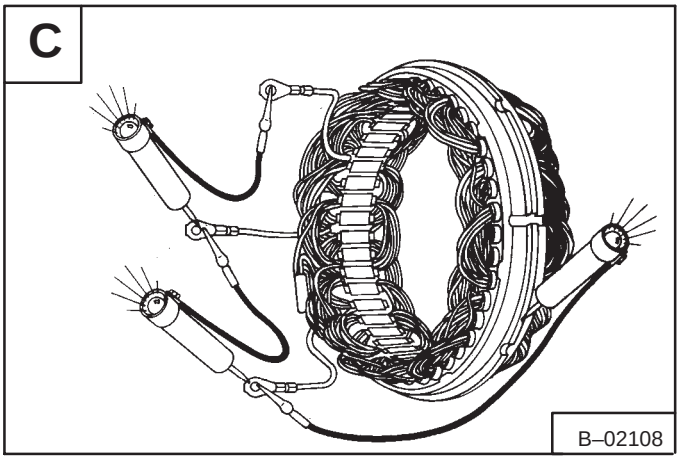


Connect a battery powered test light as follows to check the stator **[C]**.

Between the center wire and an outside wire. Light must come ON.

Between center wire and the other outside wire. Light must come ON.

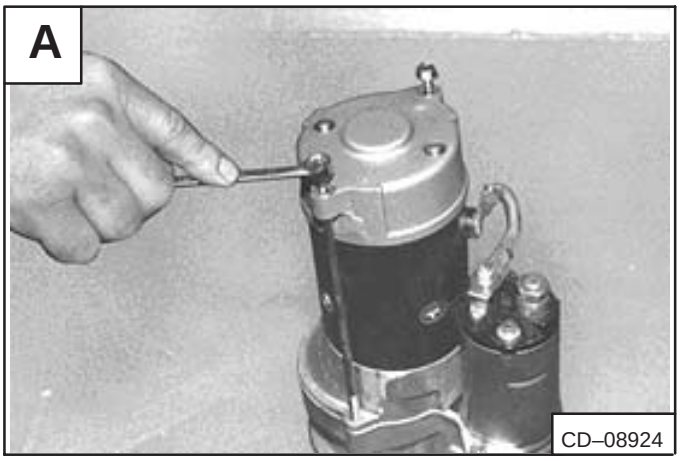
Between one of the wires and frame. Light must NOT come ON.



STARTER (Cont'd)

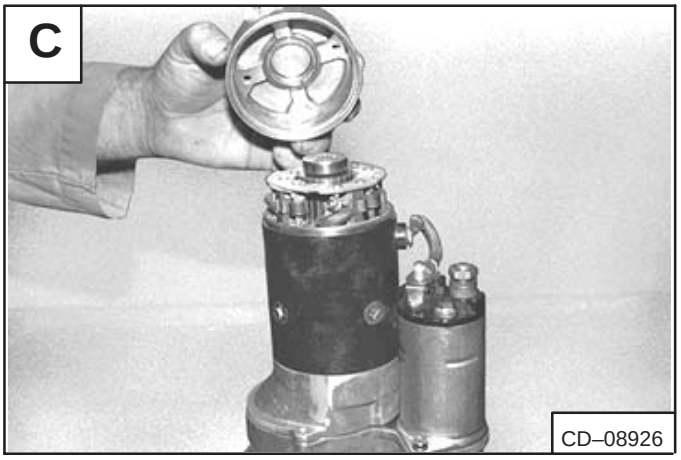
Disassembly And Assembly (Gear Reduction)

Remove the starter thru–bolts **[A]**.

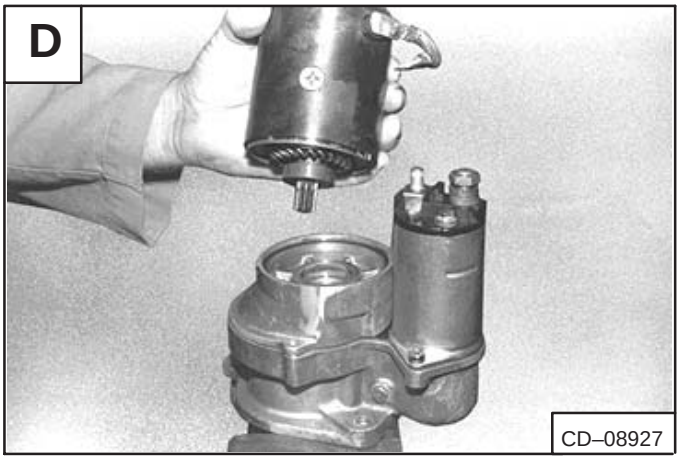


Remove the screws for the brush holders **[B]**.

Remove the starter end cap **[C]**.



Remove the starter housing/armature assembly from the reduction gear drive **[D]**.



FUEL SYSTEM (Cont'd)

Venting Air From The Fuel System (Cont'd)

Loosen the injector fittings **[A]**.

Turn the engine with the starter until no air bubbles come from the loose fitting.

Tighten the fittings.

NOTE: DO NOT over tighten the fittings.

⚠ WARNING

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–2103–1285

Fuel Filters

There are two fuel filters used in the fuel system.

Fuel pump strainer **[B]**.

To clean the fuel pump strainer remove the cover on the top of the pump. Strainer and gasket can be removed and cleaned with compressed air.

IMPORTANT

Keep the fuel system clean.

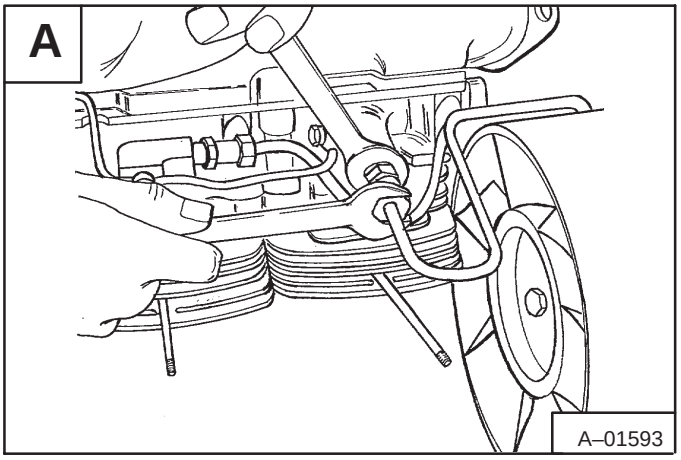
I–2128–0697

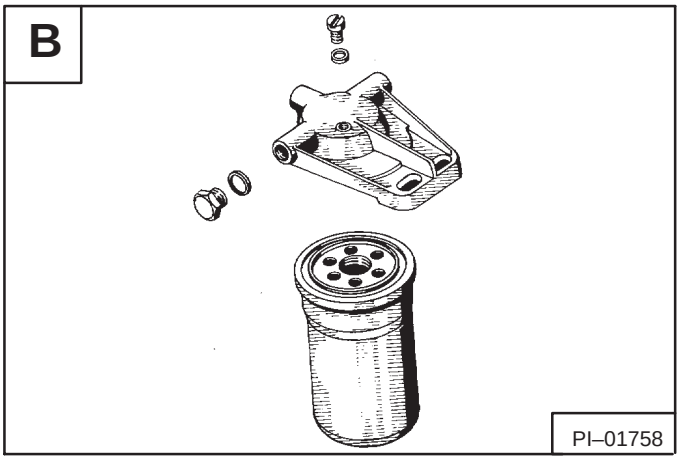
Filter element **[C]**.

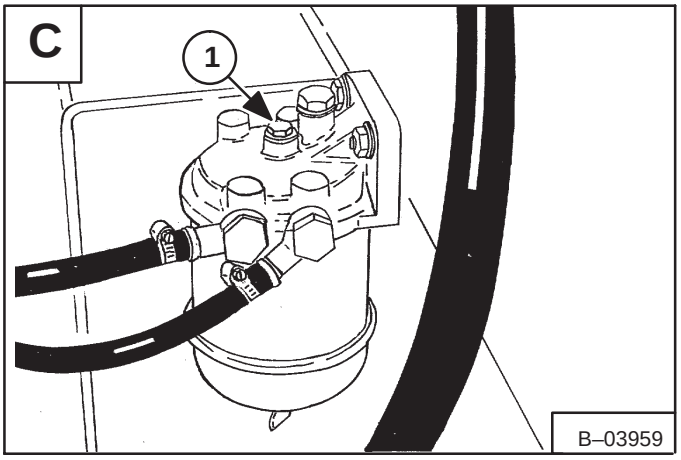
To install a new cartridge, loosen the bolt (Item 1) **[C]**.

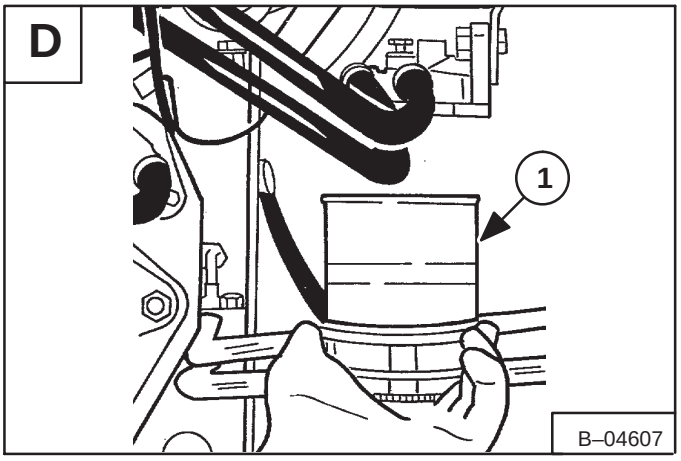
Remove the filter (Item 1) **[D]** and install the new filter.

NOTE: When the filters are removed or if the engine runs out of fuel, air enters the fuel system and venting of the fuel system is necessary.



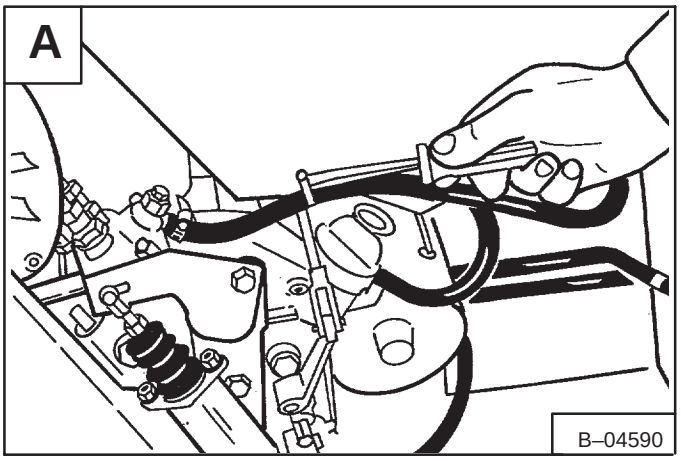




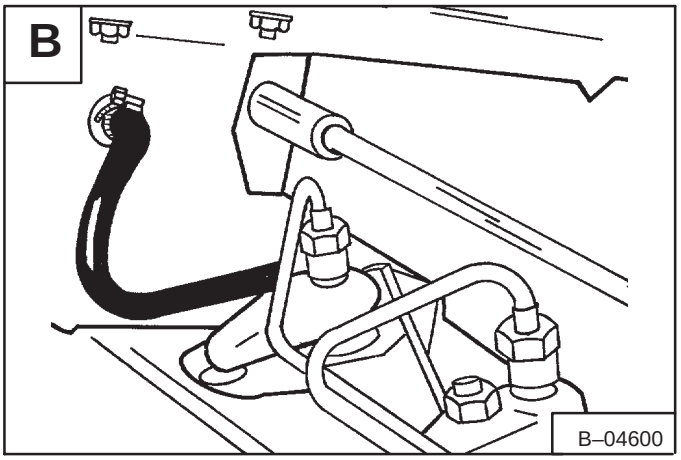


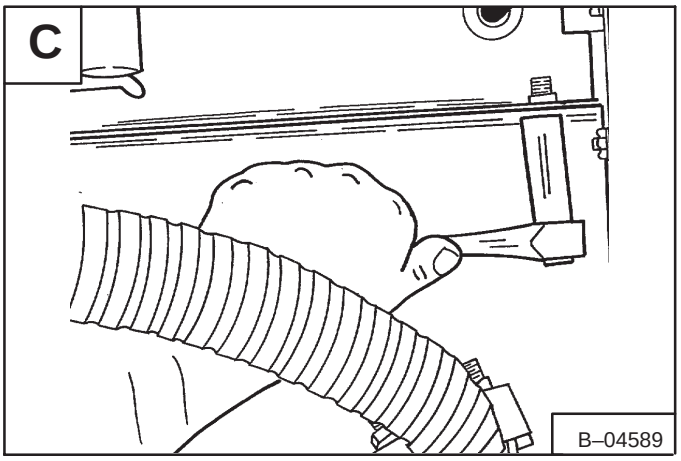
Engine Removal (Cont'd)

Release the tie clamp holding the fuel line to the shield **[A]**.

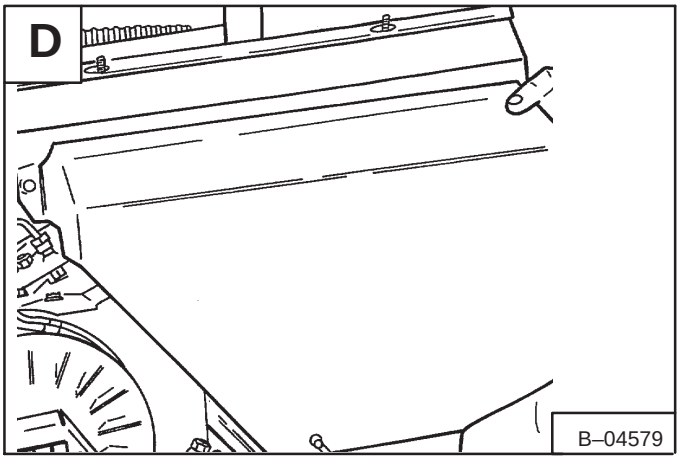


Remove the bolts holding the engine shield in position **[B]** & **[C]**.





Remove the engine shield **[D]**.



CYLINDER, PISTONS AND CONNECTING RODS

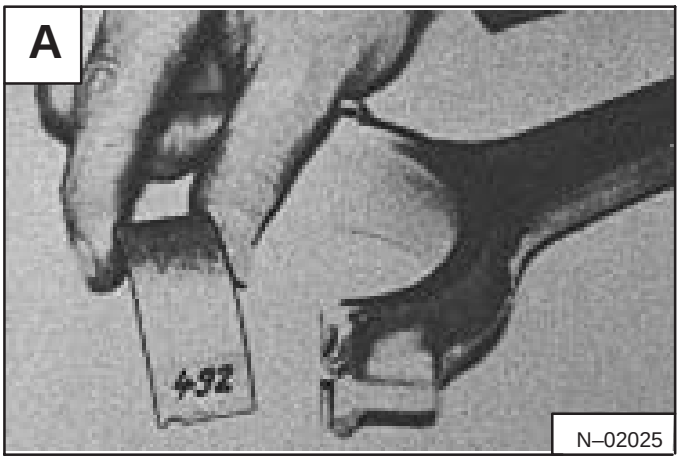
Disassembly And Assembly

NOTE: Cylinders may be removed with the piston and connecting rod in position it is best to remove and install the piston rod and cylinder together to prevent damage to parts.

Remove the cylinder head. (See Page 7A–13.)

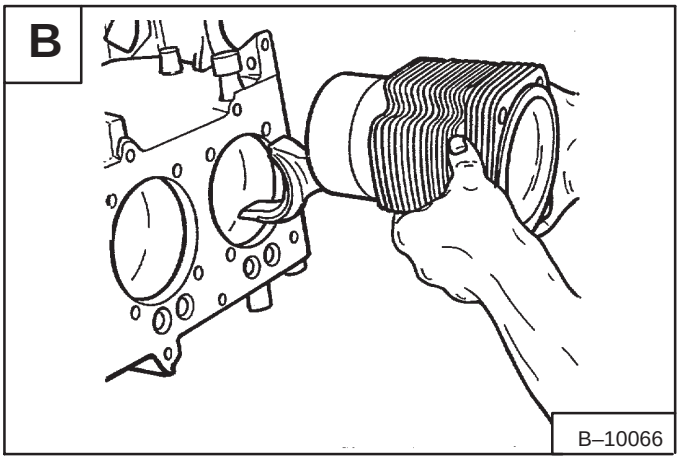
Remove the oil pan.

Remove the bolts that hold the cap to the connecting rod. Mark the bearings to the correct connecting rod if they are to be used again **[A]**.



Lift out the cylinder, piston and rod together **[B]**.

NOTE: Count the number of shims under the cylinder.



Remove the piston from the cylinder and remove the snap rings holding the piston wrist pins in position.

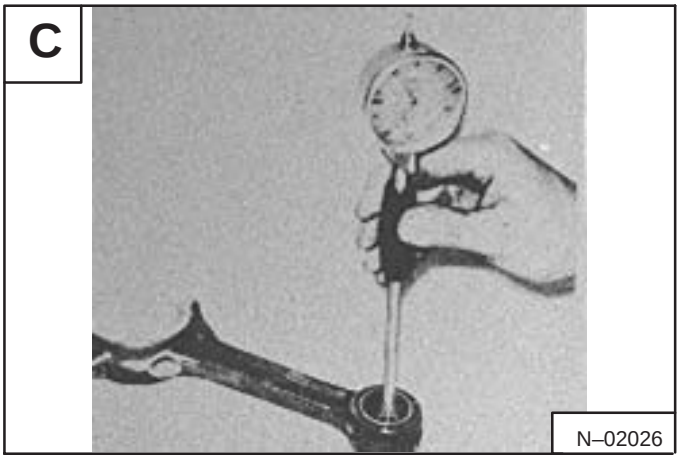
It may be necessary to heat the piston and to remove the piston wrist pin.

Remove the piston rings and clean the piston. Check the following for wear or damage.

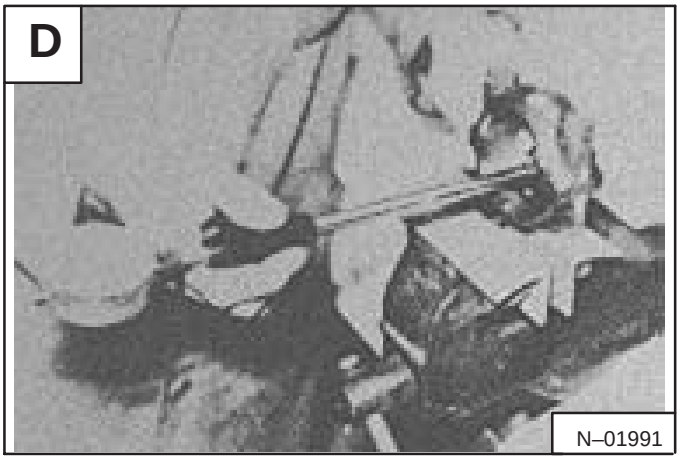
Piston and ring grooves.

Piston wrist pin.

Connecting rod wrist pin bores **[C]**.



Connecting rod bearing bore **[D]**.



CRANKSHAFT

Removal

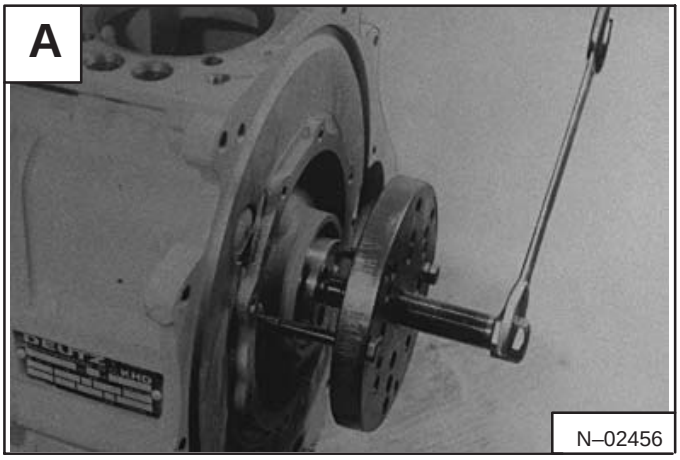
Remove the cylinder heads. (See Page 7A–13.)

Remove the pistons and rods. (See Page 7A–19.)

Remove the front cover. (See Page 7A–23.) Remove the crankshaft gear.

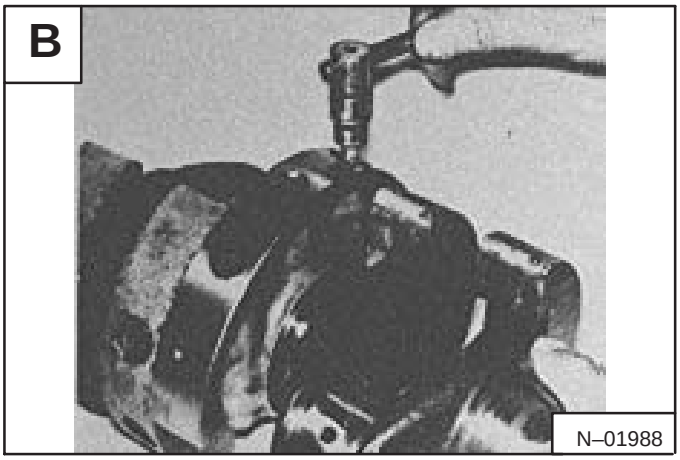
Remove the oil pan and the oil pump.

Remove the flywheel and end cover **[A]**.



Remove the bolt from the center main bearing. Remove the crankshaft from the engine block.

Remove the center main bearing from the crankshaft **[B]**.



Inspection

Clean all the parts and check them for wear or damage.

Replace the crankshaft or have it ground as needed. (See Section 8A for *SPECIFICATIONS*.)

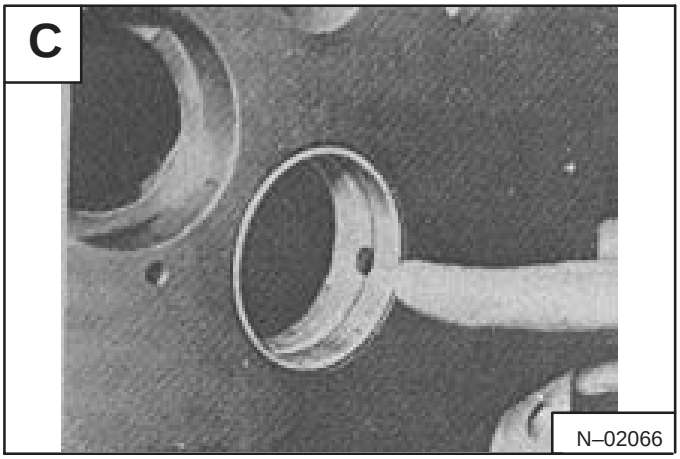
Install the correct bearing shell in the center main bearing.

Check the thrust washers for wear and damage. (See Section 8A for *SPECIFICATIONS*.)

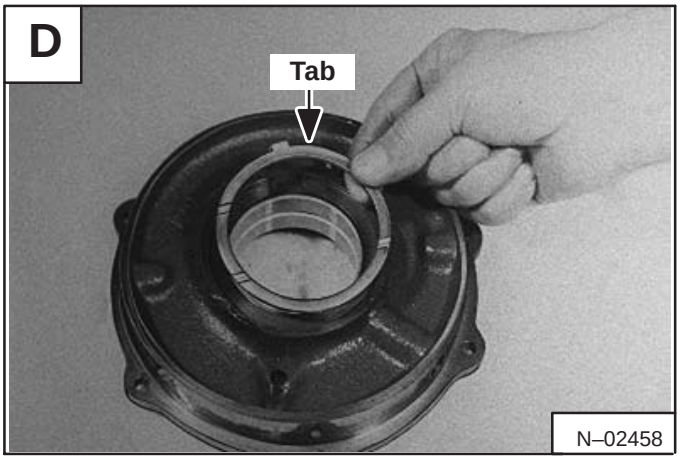
Assembly

Install the correct bushing into the block and end plate. The oil holes in the bushings must be in alignment with the holes in the block and end plate **[C]**.

NOTE: After installation the bearing must extend 0.055–0.067 inch (1,4–1,7 mm) outside the front of the block.



Put grease on the thrust washer in the crankcase to hold it in position. The tab on the washer must align with the slot **[D]**.



Continued On Next Page

CHECKS AND ADJUSTMENTS (Cont'd)

Ignition System Tests (Cont'd)

Battery To Coil Voltmeter Test (Cont'd)

If the voltmeter reading is more than 6.9 volts, check the following:

The battery and cables for loose connections or corrosion.

The primary insulation, broken wires and loose or corroded connections.

If the voltmeter reading is less than 4.5 volts, the ignition resistor must be replaced.

Check the start relay to the ignition switch for damage.

Starting Ignition Circuit Voltmeter Test

Connect the voltmeter wires. (See Page 7B–3.)

Disconnect and ground the coil to distributor high voltage wire at the distributor.

With the ignition switch in the OFF position turn the engine with an auxiliary starter switch while reading the voltage loss.

If the voltage loss is 0.4 volt or less, the starting ignition circuit is good.

If the voltage loss is more than 0.4 volts clean and tighten the connections in the circuit or make replacement of the wiring as needed.

Breaker Point Gap Adjustment

Turn the engine over until the points are fully opened.

Put the correct thickness blade of a clean feeler gauge between the breaker points **[A]** & **[B]**. Make adjustment of the points to correct gap and tighten the screws.

Clean the cam area, then put a small amount of cam lubricant on the cam when new points are installed. Do not use engine oil as a lubricant.

Ignition Timing

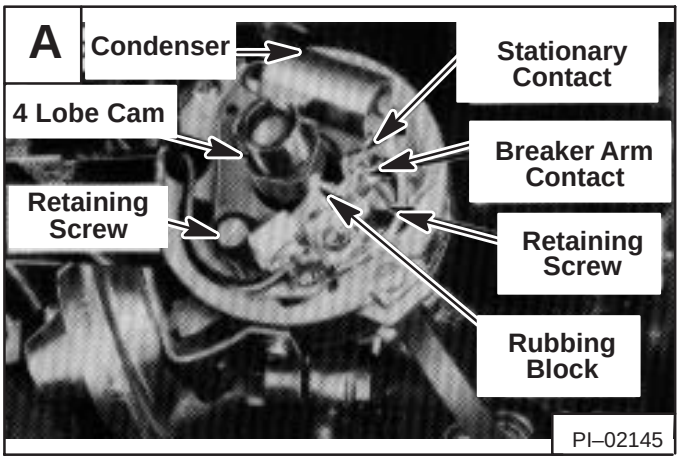
When installing distributor (Brown Cap) do the following:

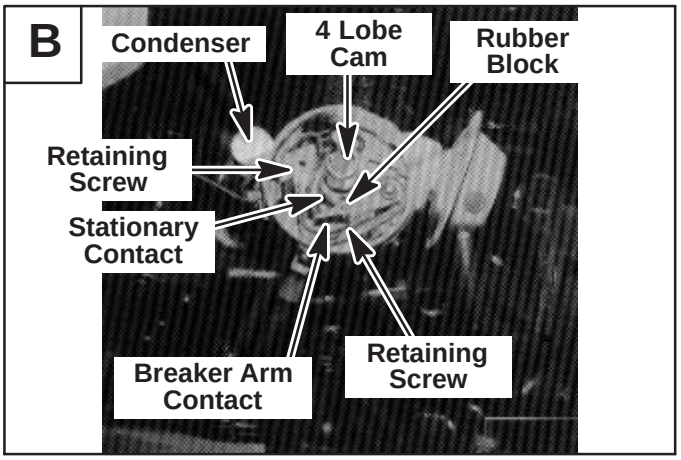
Align the timing marks as shown **[D]**.

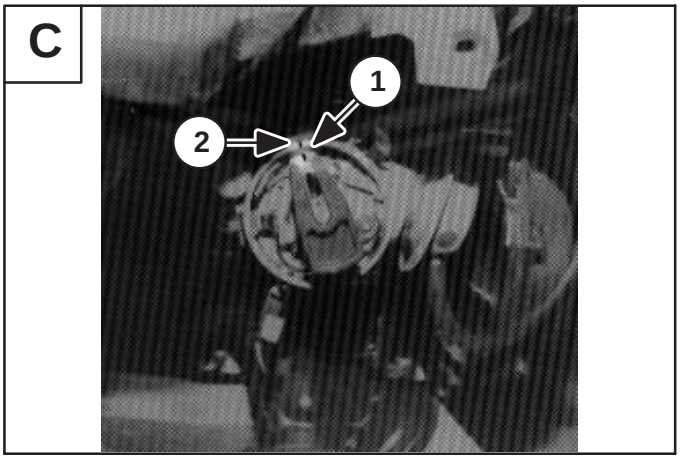
Install the distributor and rotor marks (Item 1) **[C]** and housing marks (Item 2) **[C]** in alignment.

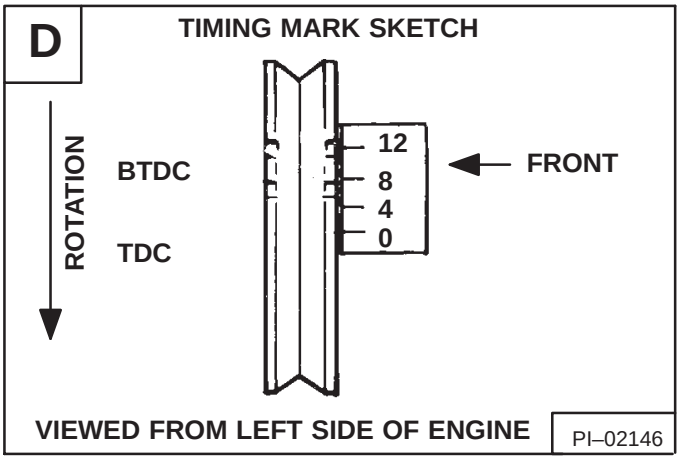
Timing Marks Location

The timing mark locations are shown in **[D]**.









Installing Piston Rings

The piston uses two compression rings and one oil control ring. the lower compression ring is stepped on the bottom outer edge and the upper ring is chrome plated and tapered on the outside diameter. Both rings are marked top and must be installed correctly. The upper ring, when new, has a red and brown compound on the outer edge. This compound must not be removed. The oil control rings have narrow ring cases and can be installed either way.

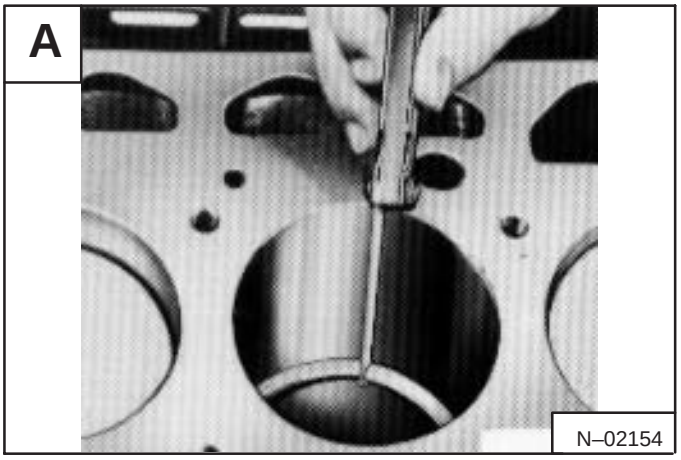
Use the correct size ring for the size of cylinder bore you have.

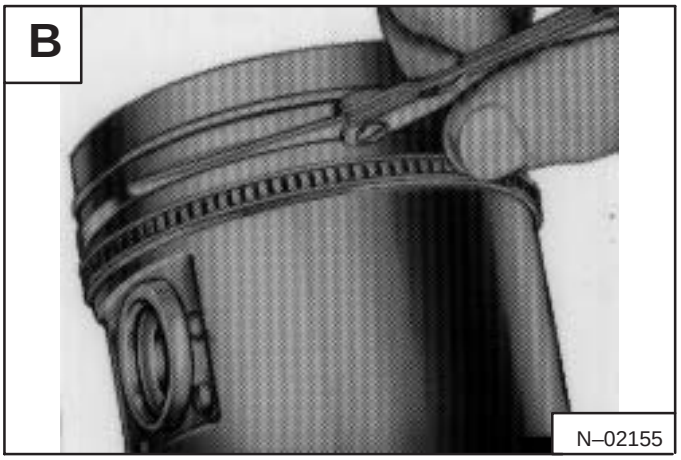
Put the ring in the cylinder bore it is going to be used in.

Use the head of a piston to push the ring in the bore about 1 inch (25,4 mm) so that the ring is square with the cylinder wall. Be careful not to damage the ring or the cylinder bore.

Measure the gap between the ends of the ring with a feel gauge **[A]**. If the ring gap is not in the specified limits, use another ring set.

Check the side clearance of the compression rings with a feeler gauge installed between the ring and its lower edge **[B]**. The gauge must move easily around the ring circumference. If the grooves are worn, make replacement of the piston.





Installing The Piston Pins

Pistons and piston pins are available as a unit only and cannot be purchased as individual parts. Keep the correct pins and pistons together.

Valve Rocker Arm And Shaft Assembly

Use a hone to remove small surface damage to the rocker arm shaft and to the rocker arm bore.

If the valve end of the rocker arm has a grooved radius replace the rocker arm. You cannot grind this surface.

Push Rods

Make sure the push rods are straight.

If the push rod is not in specification replace the push rod.

CYLINDER BLOCK

Finishing The Cylinder Walls

Before any cylinder is machined all main bearing caps must be positioned and tightened to the correct torque. Finish only the cylinder or cylinders that need to be finished. All pistons are the same weight, both standard and oversize; and various sizes of pistons can be used without changing the engine balance. Finish the cylinder with the most wear first to find the maximum oversize.

WATER PUMP

Removal

Remove the coolant from the cooling system.

If a new water pump is being installed, move the water hose connection to the new water pump.

Put the water pump and the gasket on the cylinder block and fasten with the bolts.

Connect the manifold water hose the water pump and tighten the clamp.

Connect the lower hose on the water pump and tighten the clamp.

Install the sheave and the fan. Install the bolts and tighten to the correct torque specifications.

Install the drive belt over the crankshaft, fan and governor sheave and make adjustment of the belt tension to specifications. Tighten the governor fasten fastening and adjusting bolt to specifications.

Adjust the governor.

Fill the radiator and install the radiator cap. Start the engine and check for leaks

CYLINDER FRONT COVER, TIMING CHAIN AND CRANKSHAFT SPROCKETS

Removal

Remove the engine coolant by opening the drain valve on the radiator and removing the drain plug in the cylinder block.

Disconnect the radiator hoses from the engine.

Remove the governor belt and remove the water pump sheave.

Remove the water pump.

Remove the crankshaft sheave, using a puller.

Remove the four bolts that hold the oil pan to the timing chain cover. Remove the six bolts that hold the timing cover to the cylinder block.

NOTE: Be careful not to cause damage to the oil pan gasket. If the gasket becomes damaged it will be necessary to remove the oil pan and replace the gasket. A damaged gasket will cause an oil leak.

CRANKSHAFT (Cont'd)

Installation (Cont'd)

Check the connecting rod bearings using the Plastigage method. (See Page 7B–13.)

Install the rod bearings and the correct connecting rod caps in the correct locations and tighten the cap bolts to specifications.

Install the oil inlet tube and the screen.

Install the crankshaft sprocket and timing chain making sure that the timing marks are in alignment.

Install the oil thrower timing chain tightener and timing chain tightener and timing chain cover. Install the crankshaft sheave.

Install the oil pan and new gaskets. Tighten the oil pan fastening bolts to specifications. (See Page 7B–31.)

Turn the engine over again and install the governor drive belt. Make belt adjustment to specified tension. Install the flywheel.

Install the engine in the Bobcat loader.

Fill the crankcase and the cooling system to the correct level with the specified oil and coolant. Start the engine and check for oil and water leaks.

UNIVERSAL JOINT

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

MEL1187 – Socket

Removal

Remove the engine. (See Page 7B–8.)

Remove the bolts (Item 1) **[A]**, holding the u–joint on the flywheel. Remove the u–joint assembly.

Installation

Put LOCTITE on the four bolts. Install the u–joint.

Install the bolts and tighten to 270–300 in.–lbs. (31–34 Nm) torque. Put spline lube (MEL1121) on the splines before installation.

FLYWHEEL

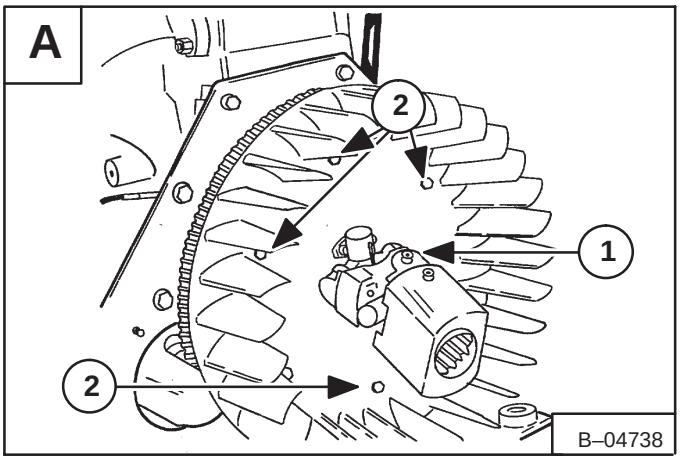
Removal

Remove the bolts that attach the blower fan to the flywheel (Item 2) **[A]**. Remove the blower fan.

Remove the bolts holding the flywheel onto the crankshaft.

Installation: Tighten the bolts to 45–50 ft.–lbs. (61–68 Nm) torque.

Remove the flywheel. Installation is the reverse of removal.



FUEL INJECTION PUMP

The injection pump contains parts which have a very close tolerance and its operation has a direct effect on the performance of the engine.

IMPORTANT

Do not attempt to maintain or adjust unless you are trained and have the correct equipment.

I–2028–0289

Removal and Installation

Clean the area around the injection pump. Disconnect the fuel shut–off linkage (Item 1) **[A]**

Disconnect the fuel inlet hoses (Item 2) **[A]**.

Disconnect the high pressure tubelines (Item 3) **[A]**.

Installation: Tighten the delivery valve nuts to 29–36 ft.–lbs. (39–48 Nm) torque.

IMPORTANT

Do not bend the high pressure fuel injection tubes when removing or installing them.

I–2029–0289

Remove the side cover (Item 4) **[A]**.

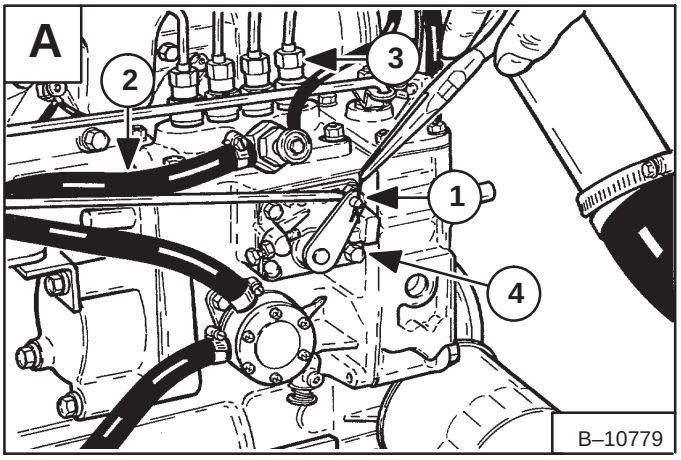
Remove the four mounting nuts.

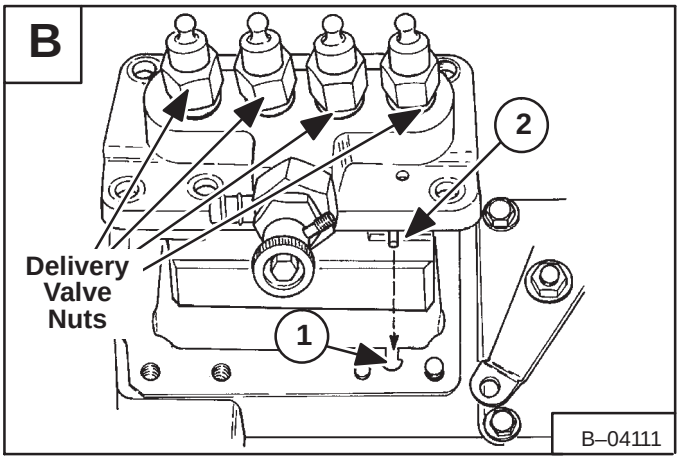
Installation: Tighten the nuts to 17–20 ft.–lbs. (23–27 Nm) torque.

Put the pin in the control rack in alignment with the slot in the engine block (Item 1) **[B]**. Remove the injection pump.

NOTE: Make sure the same number of shims are installed under the injection pump. The shims are used for engine timing.

Installation: When the injection pump is installed, make sure the pin (Item 2) **[B]** on the control rack is correctly installed on the fork lever. If the slot is not installed correctly, the engine will run over maximum speed and serious damage can result.

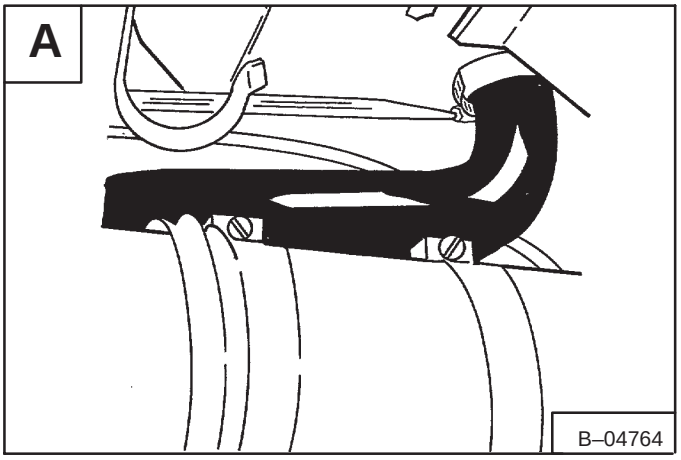




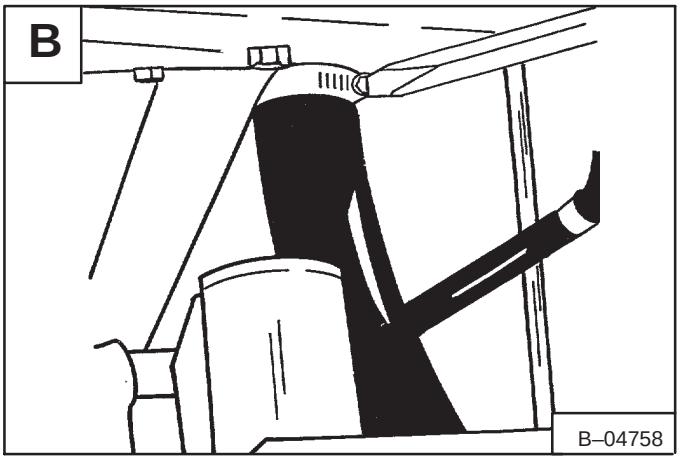
RADIATOR AND OIL COOLER (Cont'd)

Removal And Installation (Cont'd)

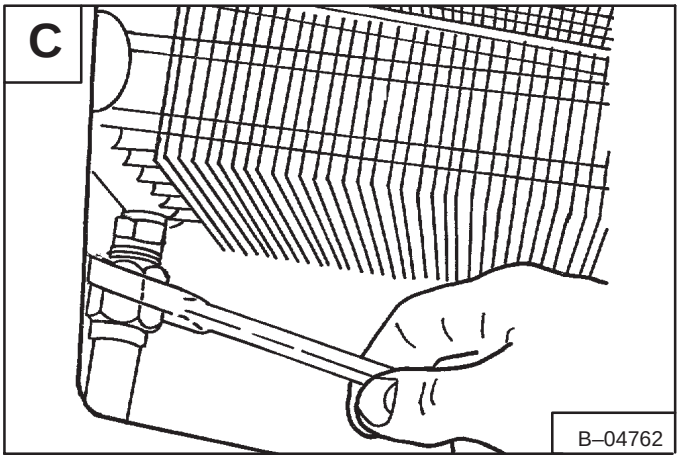
Drain the coolant and remove the inlet radiator hose **[A]**.



Remove the outlet radiator hose **[B]**.

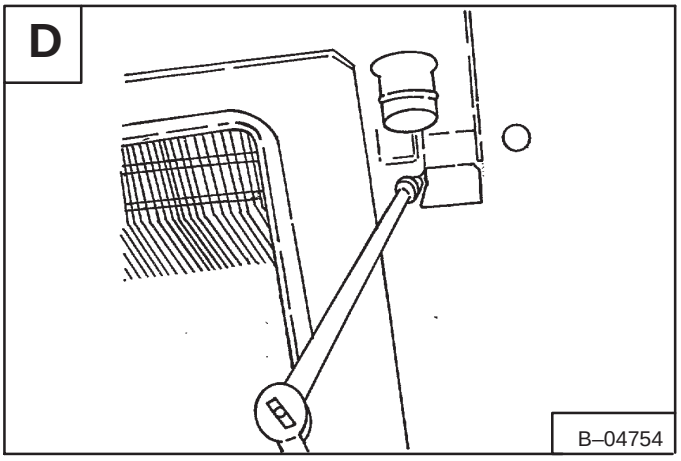


Remove both the inlet and the outlet tubelines from the oil cooler **[C]**.



Remove the mounting bolts for the radiator assembly **[D]**.

Installation: Tighten the bolts to 180–200 in–lbs. (21–23 Nm) torque.



CYLINDER HEAD (Cont'd)

Assembly

Install the valves.

Put oil in the valve seal and install the seal on the valve.

Install the valve spring and retainer.

Install the spring collet and the valve cap.

Install the thermostat.

NOTE: If a new cylinder head is installed be sure to install the screw plugs which are shipped with the new cylinder head.

Installation

Install a new gasket and O–ring. Install a shim if there was one removed.

Install the cylinder head on the engine block.

Put oil on the bolts and nuts and tighten to the following torque:

Flange Head Bolt . . . . . 65–68 ft.–lbs. (88–92 Nm)
Bolt W/Washer . . . . . 58–61 ft.–lbs. (79–83 Nm)

Use the tightening sequence as shown **[A]**.

Lower the piston which is to be measured for the clearance, between the cylinder head and the piston.

Put a piece of solder in the injector port.

Make sure the solder does not touch the valves **[B]**.

Turn the engine manually.

Remove the solder and measure it. The thickness must be 0.028–0.035 inch (0,7–0,9 mm).

If the measurement is not in the specifications, remove the cylinder head and add the correct shim between the cylinder head the engine block.

Install the cylinder head and tighten the bolts and nut **[A]**.

NOTE: Be sure to torque the bolts and nuts again after the engine has been operated for 30 minutes.

Install the push rods.

Install the water return pipe.

Install the rocker arms.

Tighten the rocker arm holding nuts to 15 ft.–lbs. (20 Nm) torque.

Install the alternator, belt and shield.

Install the intake manifold.

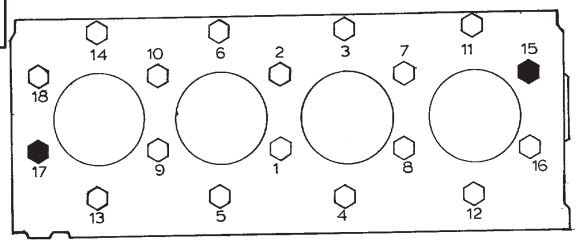
Install the injector nozzle with a new copper gasket. Tighten to 22–36 ft.–lbs. (30–49 mm) torque.

Install the injector tubelines.

Adjust the valve clearance. Make sure the piston is at T.D.C. when making the adjustment **[C]**.

Install the valve cover.

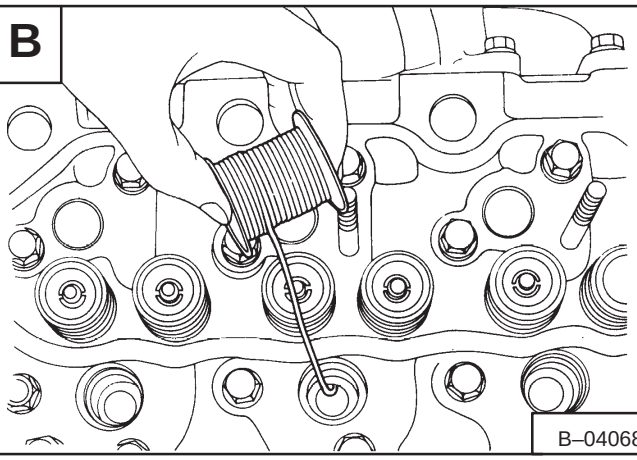
A



BOLT ⬡
NUT ⬢

B–03624

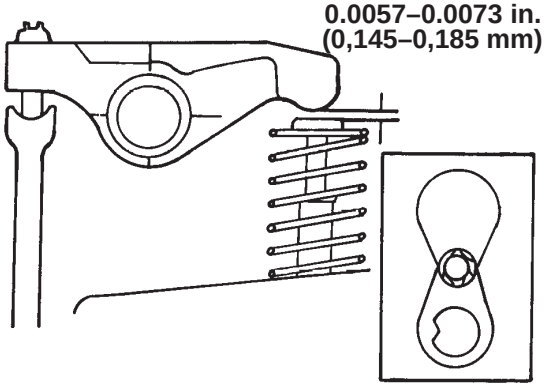
B



B–04068

C

0.0057–0.0073 in. (0,145–0,185 mm)



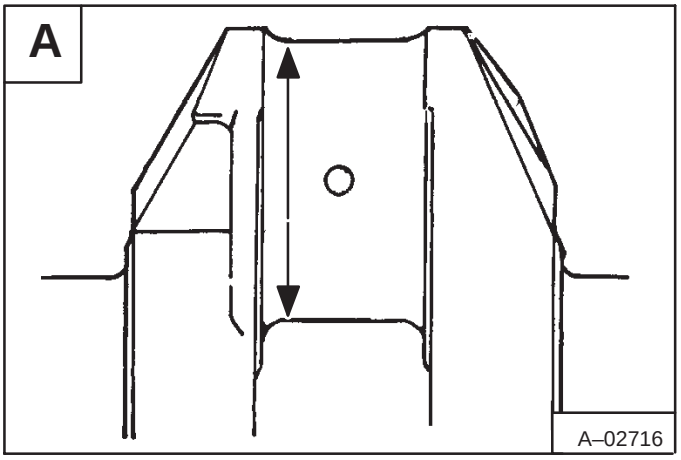
A–02730

ENGINE REPAIR (Cont'd)

Crankshaft Service (Cont'd)

Check the connecting rod journals **[A]**.

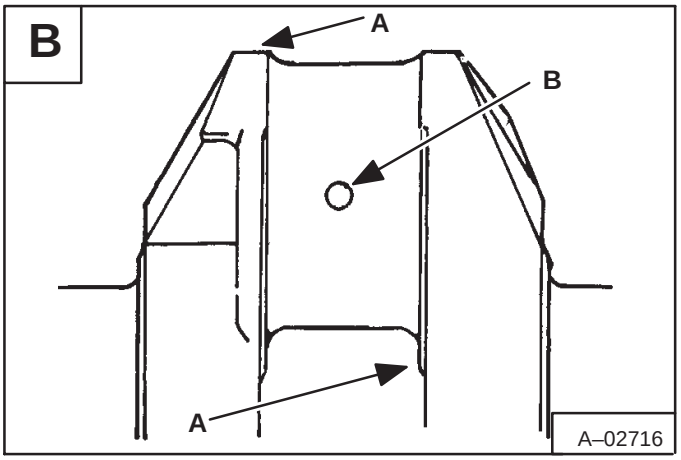
The specifications are 1.7307–1.7313 inches (43,959–43,975 mm). The wear limit is 0.0079 inch (0,2 mm).



If the connecting rod journals are not within specifications grind the journals as follows **[B]**.

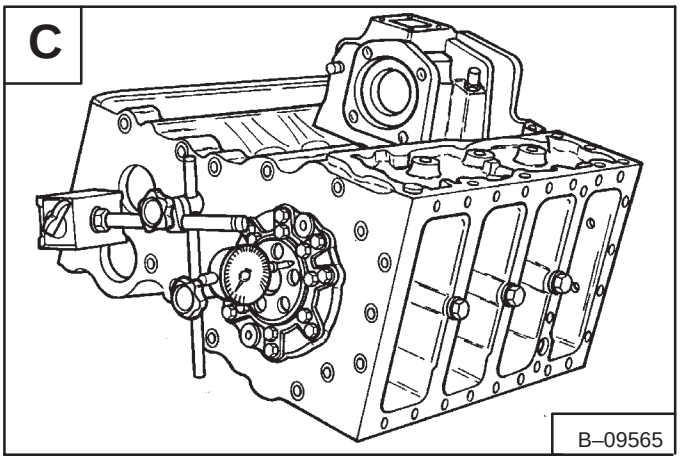
a. Crankshaft corner radius must be 0.127R inch ± .0079 inch (3,5R ± 0,2 mm).

b. The oil hole must be chamfered to 0.0394–0.0591R inch (1,0–1,5R mm).



Install the crankshaft and check the end play **[C]**.

Normal end play is 0.0059–0.0122 inch (0,15–0,31 mm). Replace the thrust bearings on the main bearing if end play exceeds 0.020 inch (0,5 mm).

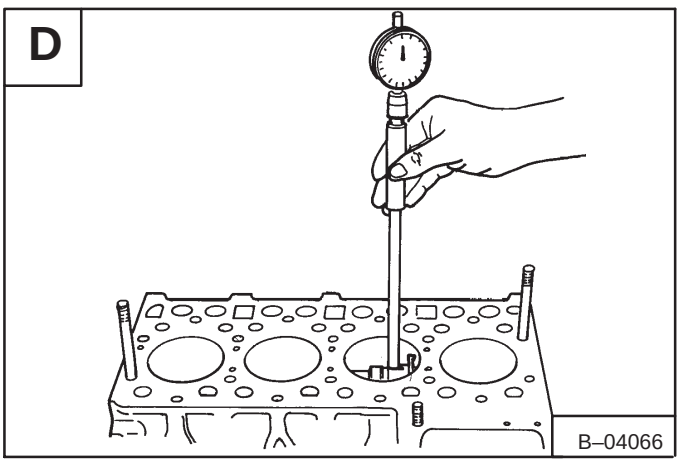


Cylinder Liner Service

Check the inside diameter of the cylinder liner **[D]**.

The tools listed will be used for the following procedure:

MEL1060 – Ridge Reamer
MEL1180 – Dry Liner Puller



TROUBLESHOOTING

Chart

The following troubleshooting chart is provided for assistance in locating and correcting problems which are most common. Many of the recommended procedures must be done by authorized Bobcat Service Personnel only.

PROBLEM	CAUSE
Slow cranking speed.	1, 2, 3, 4
Engine will not start.	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Rough idle.	9, 13, 14, 15, 16
Abnormal combustion.	9, 11, 14, 17, 18, 19, 20, 21
Engine noise.	8, 14, 22, 23, 24, 25, 26, 27, 28, 29
Acceleration insufficient.	5, 9, 11, 31, 32
Power insufficient.	5, 8, 9, 11, 12, 13, 14, 15, 17, 18, 21, 26, 31, 33, 34
Too much fuel consumption.	8, 9, 11, 12, 13, 14, 15, 16, 18, 26, 32
Too much engine oil. consumption.	26, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45
Excessive engine vibration.	9, 11, 17, 31, 34, 45, 46
Overheating.	9, 11, 13, 20, 30, 47, 48, 49, 50
High Oil Pressure.	4, 51, 52

KEY TO CORRECT THE CAUSE

1. Battery capacity low.
2. Bad electrical connections.
3. Faulty starter motor.
4. Incorrect grade of oil.
5. Burnt valve.
6. Intake manifold gasket leaking.
7. Carburetor mounting loose.
8. Piston, rings & cylinder worn.
9. Cylinder head gasket leaking.
10. Faulty electrical wiring.
11. Faulty ignition system.
12. Fuel system problem.
13. Restriction in the air cleaner.
14. Valve clearance not correct.
15. Worn valves and seats.
16. Worn valve stems or guides.
17. Vale stuck.
18. Weak valve springs.
19. Carbon accumulated in combustion chamber.
20. Restriction in the water jacket
21. Carburetor mixture too lean.
22. Worn or damaged bearings.
23. Connecting rod bent.
24. Piston or piston pin worn.
25. Burnt piston.
26. Piston rings damaged.
27. Excessive camshaft end play.
28. Crankshaft thrust bearing worn.
29. Timing belt worn.
30. Water pump or fan belt faulty.
31. Poor compression.
32. Carburetor accelerator pump faulty.
33. Overheating.
34. Cold running.
35. Oil pan drain plug is loose.
36. Oil pan bolts are loose.
37. Oil pan gasket is faulty.
38. Timing gear cover is loose or gasket is broken.
39. Crankshaft front seal leaking.
40. Crankshaft rear seal leaking.
41. Valve cover gasket is leaking.
42. Fuel pump loose or faulty gasket.
43. Oil filter mounting loose.
44. Plugged oil return hole.
45. Piston rings stuck.
46. Faulty engine mounting.
47. Exhaust pipe restriction.
48. Faulty thermostat.
49. Plugged radiator.
50. Coolant level low.
51. Switch is defective.
52. Pressure relief sticking closed.

CARBURETOR (Cont'd)

Disassembly And Assembly

Disassemble and assemble the carburetor as shown **[A]**.

Use the correct tools to prevent burrs or scratches.

Keep the parts neatly and in order to prevent wrong assembly.

Do not remove the inner venturi unless it is necessary.

Do not remove the by–pass screw unless it is necessary.

Do not disassemble the throttle shaft or remove the plug in the throttle plate.

Inspection

Clean the parts thoroughly with carburetor solvent.

Use air pressure to blow fuel passages and other parts dry.

Check the needle valves for correct contact, replace as needed.

Check the screen diaphragm and pilot screw seats for damage.

Check the throttle valve for wear and damage and be sure the plug in the throttle plate is tight.

Check the linkage for correct function.

Check the acceleration pump for correct function as follows:

Fill the pump chamber with fuel, operate the throttle lever and check for fuel spraying condition from the accelerator nozzle.

Push the connecting rod of the depression chamber, plug the vacuum passage with a finger, release the connecting rod and check for leakage from the diaphragm.

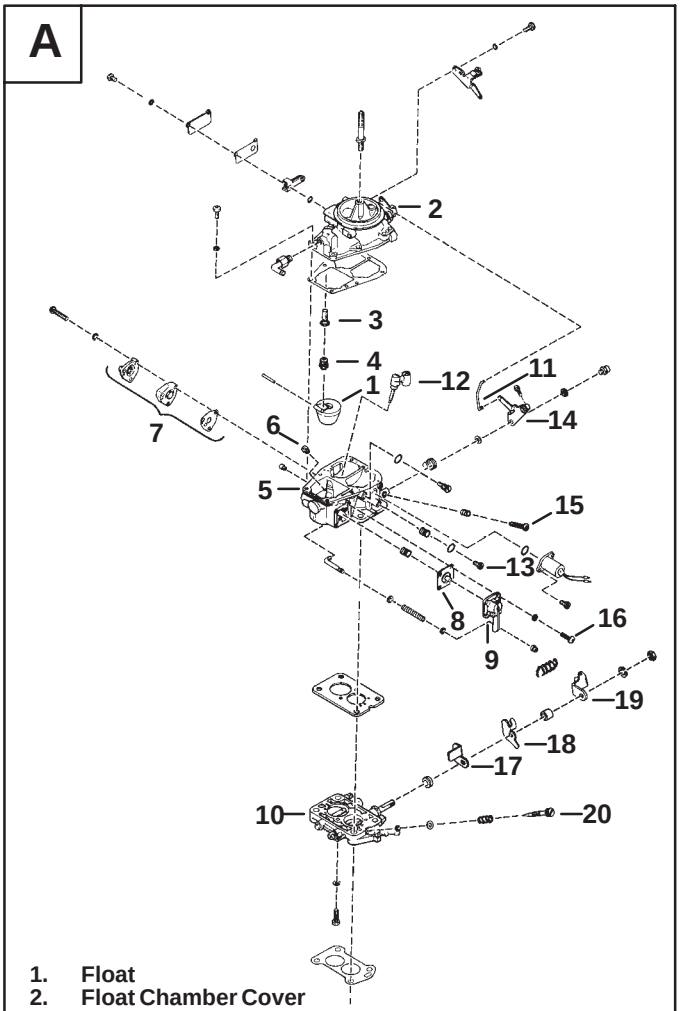
Check the float for being deformed, leakage, damage to the lip, wear of the float lever pin hole and the float lever bracket.

Adjustment

If the float level is out of alignment with the level mark, adjust the float by adding or removing the number of packings at the needle valve seat **[A]**.

a slight difference of the float level from the level mark does not effect the carburetor or engine performance, it is normal if the float is in the circle of the level mark.

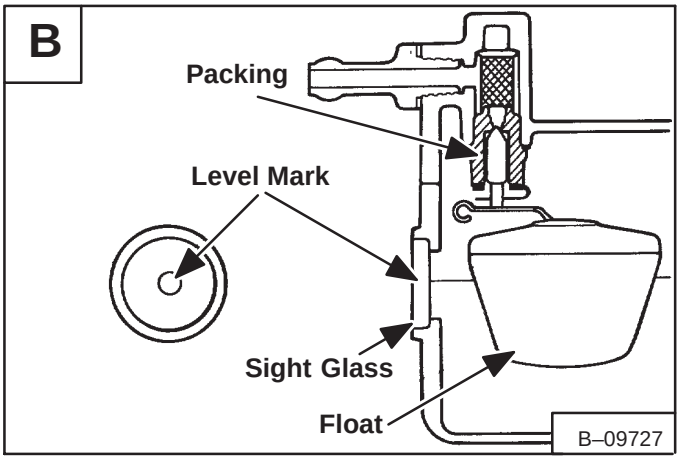
A



1. Float
2. Float Chamber Cover
3. Screen
4. Needle
5. Main Body
6. Main Jet
7. Enrichment Body Assembly
8. Diaphragm
9. Pump Cover
10. Throttle Body
11. Choke Connecting Rod
12. Inner Venturi
13. Pilot Jet
14. Choke Operating Lever
15. Speed Adjustment Screw
16. By–pass Screw
17. throttle Stop Lever
18. Abutment Plate
19. Throttle Lever
20. Mixture Adjustment Screw

D–01771

B



B–09727

⚠ WARNING

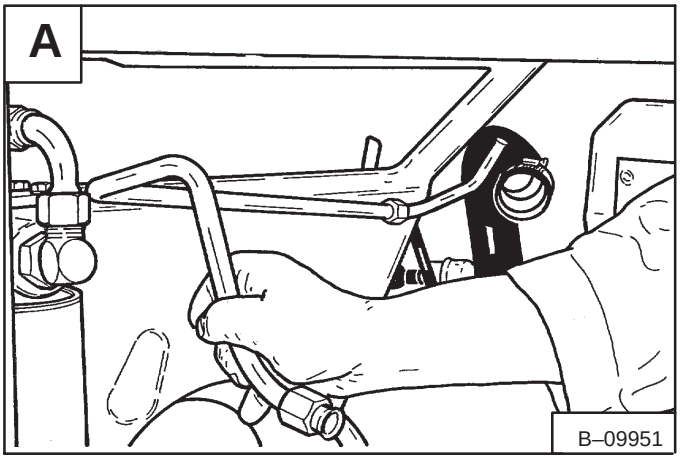
When the engine is running during service, the steering levers must be in neutral and the parking brake engaged. Failure to do so can cause injury or death.

W–2006–0284

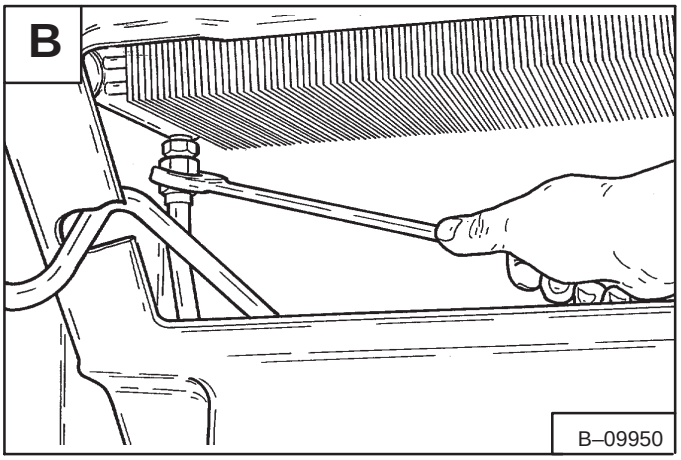
OIL COOLER AND BLOWER HOUSING (Cont'd)

Removal And Installation (Cont'd)

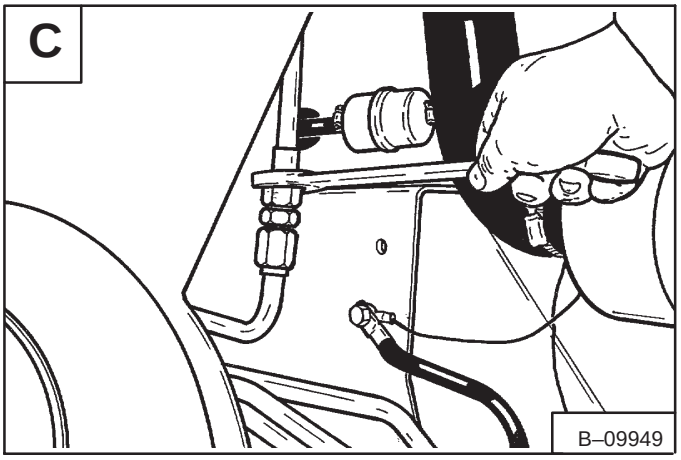
Remove the tubeline from the blower housing **[A]**.



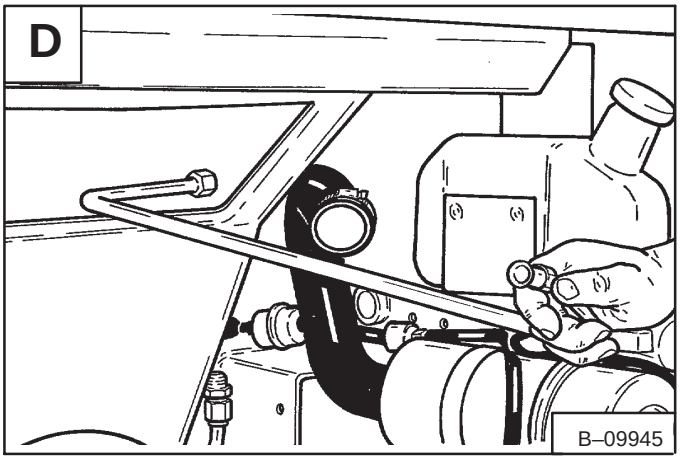
Disconnect the other tubeline from the oil cooler **[B]**.

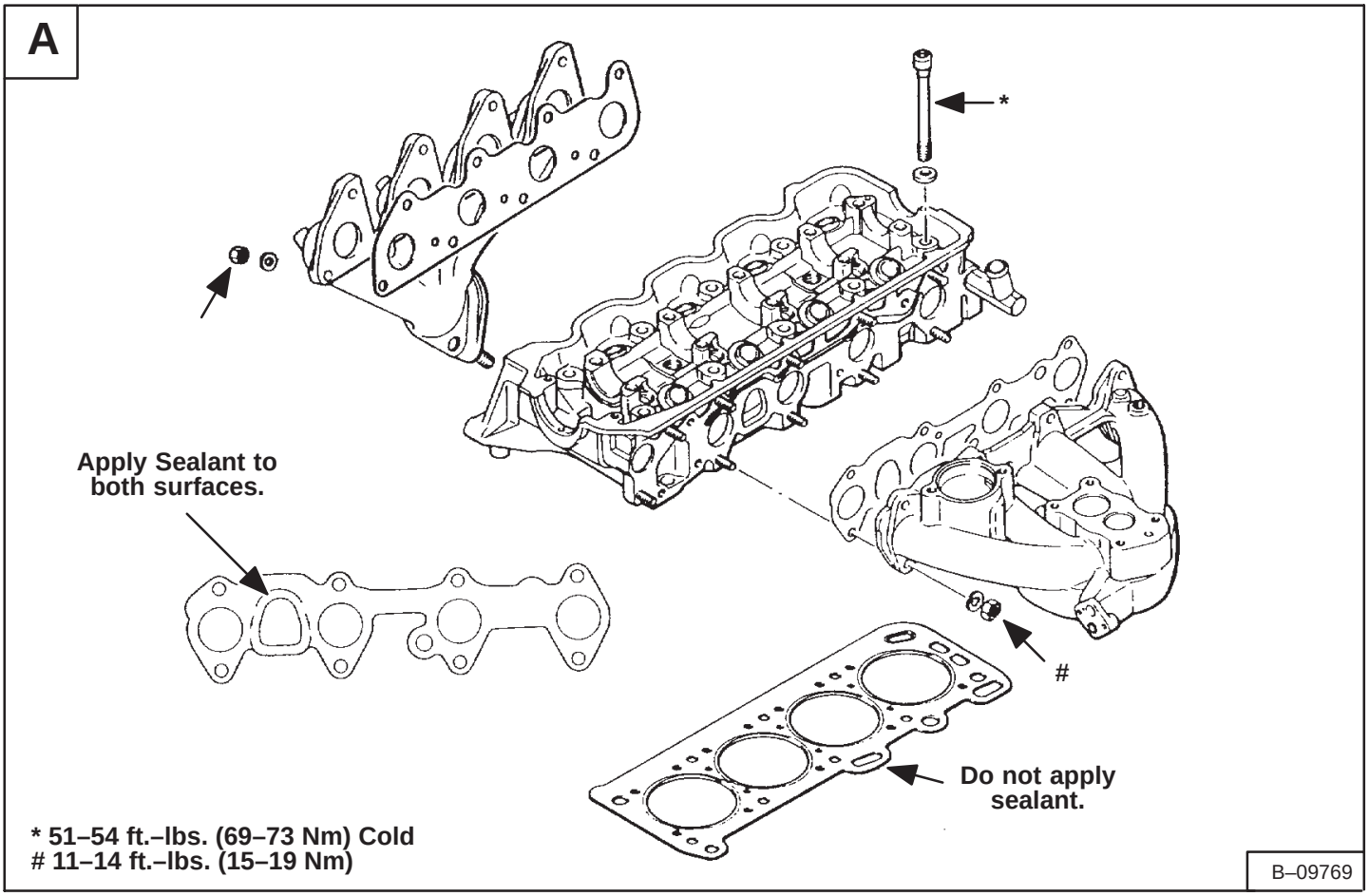


Disconnect the tubeline beside the blower housing **[C]**.



Remove the tubeline from the blower housing **[D]**.





CYLINDER HEAD

Removal And Installation

The tool will be needed to do the following procedure:

MEL1297 – Head Bolt Tool

Remove the coolant from the coolant system.

Disconnect the radiator hose. Remove the spark plug wires.

Remove the distributor. (See Page 7D–5.)

Remove the fuel pump. (See Page 7D–13.)

Remove the exhaust manifold.

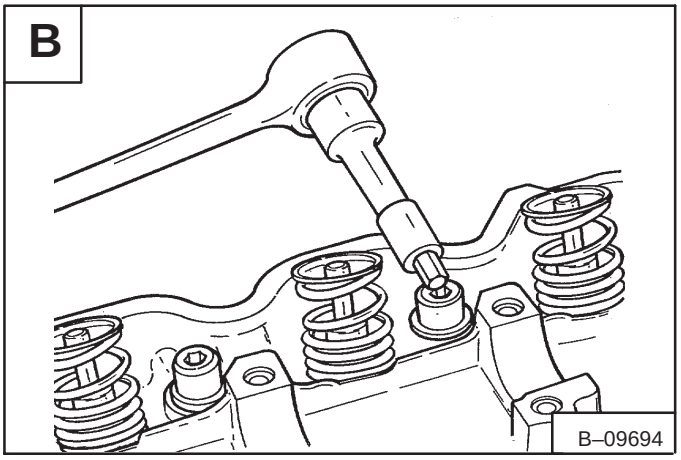
Remove the intake manifold and carburetor.

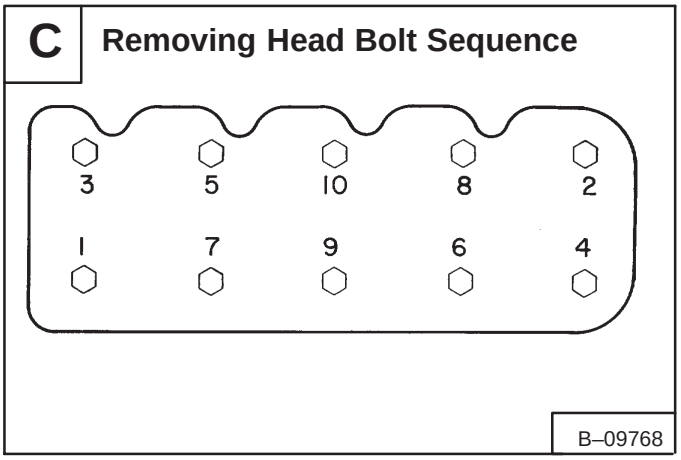
Installation: Put sealant on both surfaces around the water hole **[A]**.

Remove the rocker arms, rocker shaft, bearing caps and camshaft. (See Page 7D–27.)

Use the special tool to remove the cylinder head bolts **[B]**.

Remove the cylinder head bolts in the sequence shown to prevent cylinder head warpage **[C]**.





PISTON PIN

Assembly Of The Tool

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

MEL1286 – Piston Pin Tool Set

Install the retaining ring (Item 1) **[A]** on the tube (Item 2) **[A]** (MEL1290).

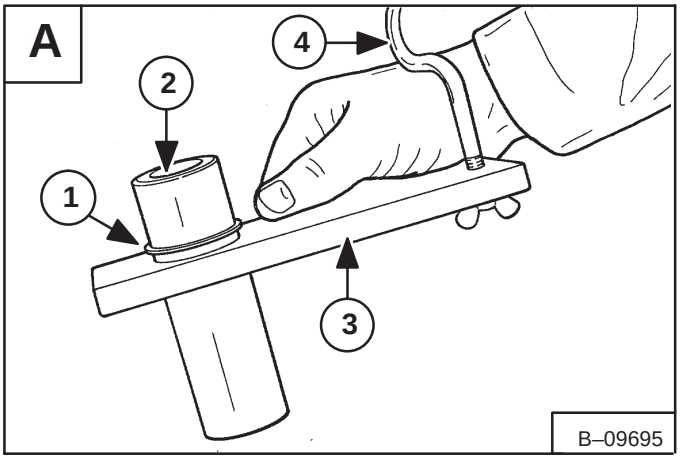
Drive or press the tube into the base (Item 3) **[A]** (MEL1291).

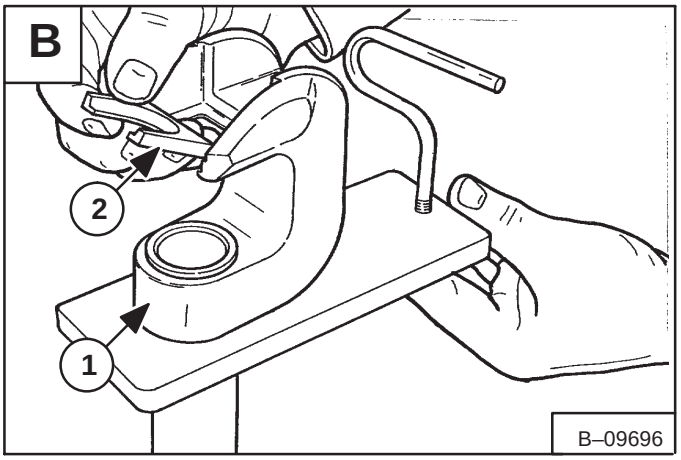
Install the rear support (Item 4) **[A]** and wing nut (MEL1289).

NOTE: The rear support will have to be adjusted so the piston and connecting rod assembly are level in the anvil.

Install the anvil (Item 1) **[B]** on the tube (MEL1293).

Install the insert (Item 2) **[B]** on the anvil (MEL1294–1).

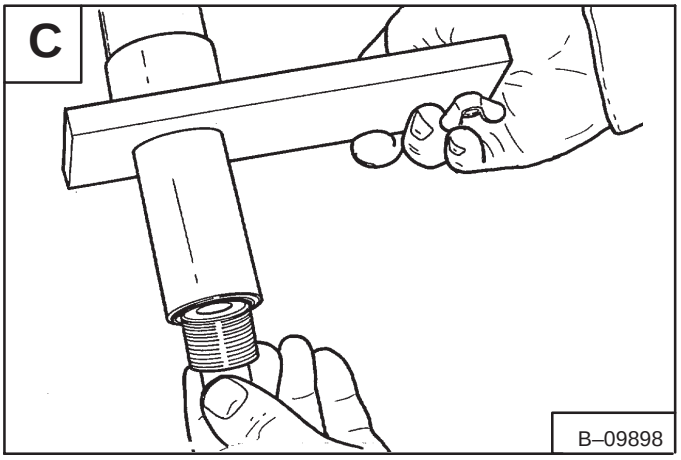




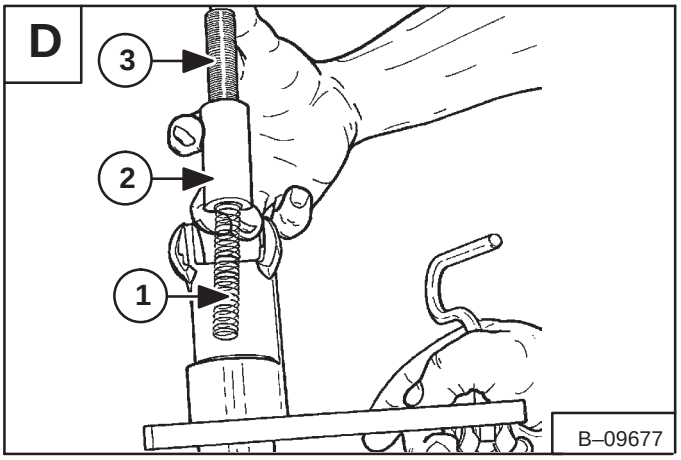
Removal

Before pressing the old pin from the piston and connecting rod assembly do the following, this will correctly set up the tool:

Install the stop plug (MEL1287) into the tube **[C]**.



Install the spring (MEL1288) (Item 1) **[D]**, spacer (MEL1294–3) (Item 2) **[D]** and pin guide (MEL1292) (Item 3) **[D]** into the tube.



TIMING BELT (Cont'd)

Assembly (Cont'd)

Install the timing belt, use the following procedure:

Put the belt on the crankshaft sprocket.

Install on the oil pump sprocket.

Then on the camshaft sprocket.

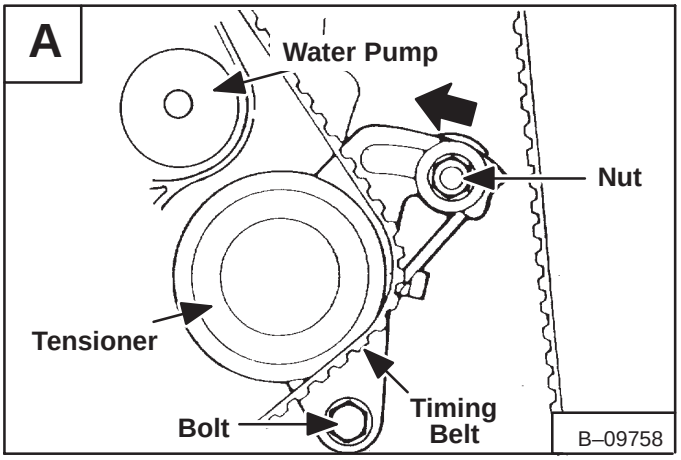
Make sure that all the timing marks are in alignment.

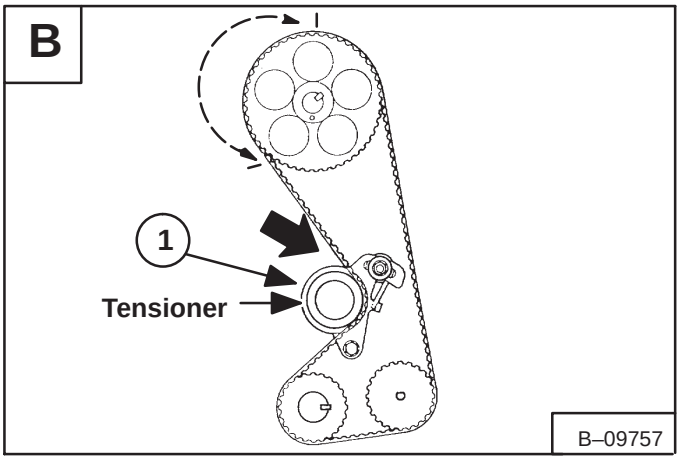
Move the belt tensioner to apply pressure to the belt **[A]**.

NOTE: Do not turn the crankshaft in a reverse direction. DO NOT push or twist the belt or try to test the tension. This will result incorrect belt tension.

Push the tensioner, with your hand a small amount to make sure the belt comes in complete mesh with the sprockets. If this is neglected and the belt tension adjusted with the belt out of mesh with the sprocket (Item 1) **[B]**, the belt tension will not be correct.

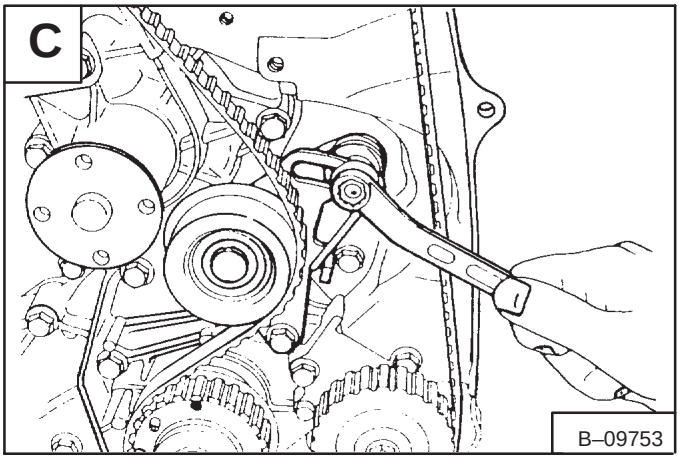
Turn the engine through one revolution in normal direction, to remove all slack at the timing belt.





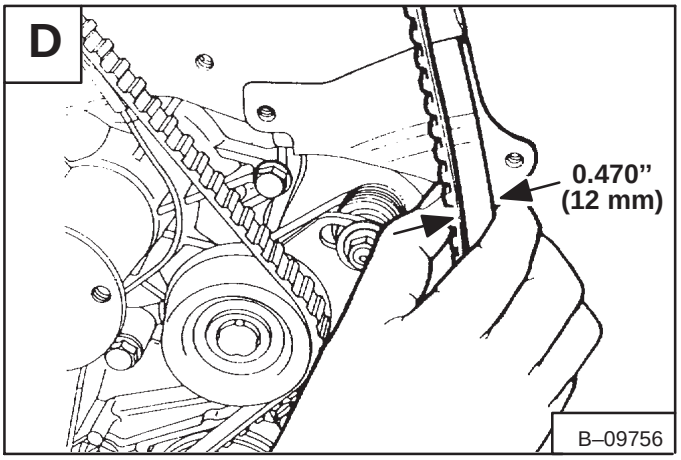
Tighten the tensioner mounting nut first and then the bolt **[C]**.

Tighten the nut and bolt to 16–21 ft.–lbs. (22–28 Nm) torque.



Check the tension side of the timing belt, the clearance between the belt and the seal line is 0.470 inch (12 mm) **[D]**.

If specifications are not correct, readjust the belt.



SPECIFICATIONS (741)

⚠ WARNING

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

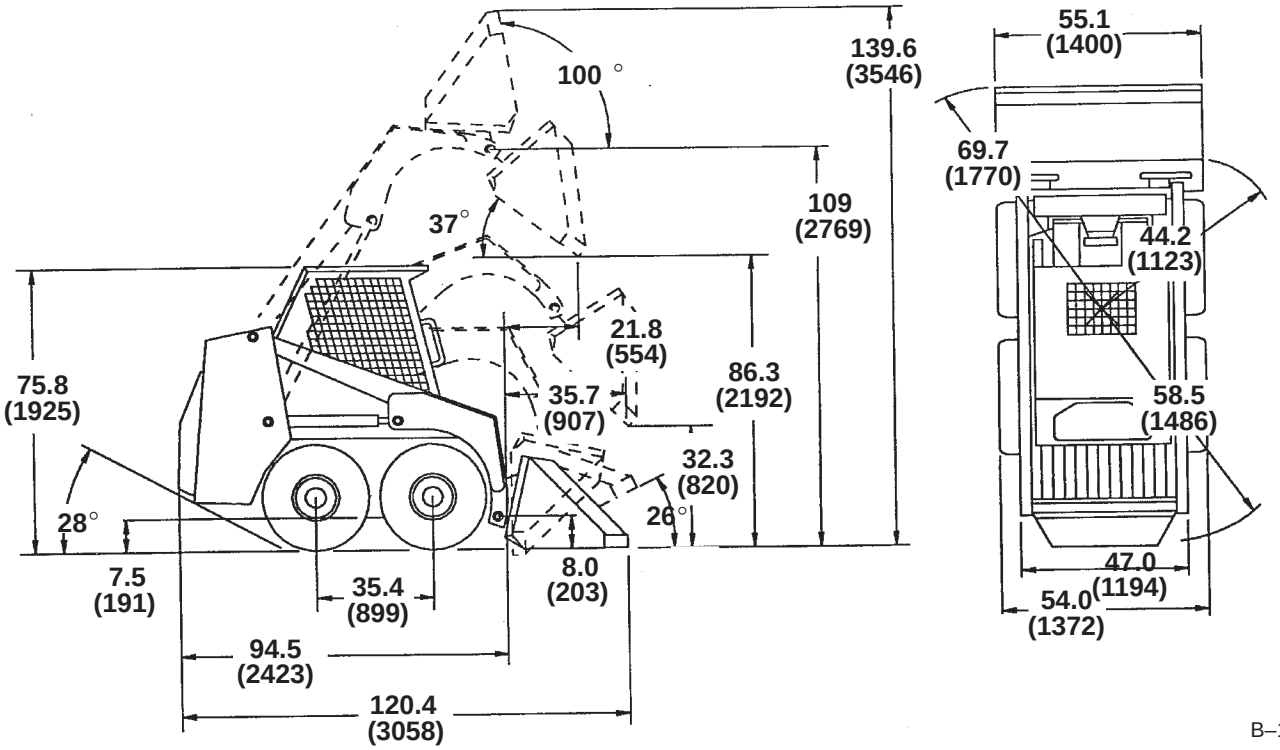
W–2003–0797

741 DEUTZ

LOADER SPECIFICATIONS

742

- Dimensions are given for loader equipped with standard tires and dirt bucket. Dimensions may vary with other types. All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.
- Where applicable, specifications conform to SAE standards and are subject to change without notice.



B–12596

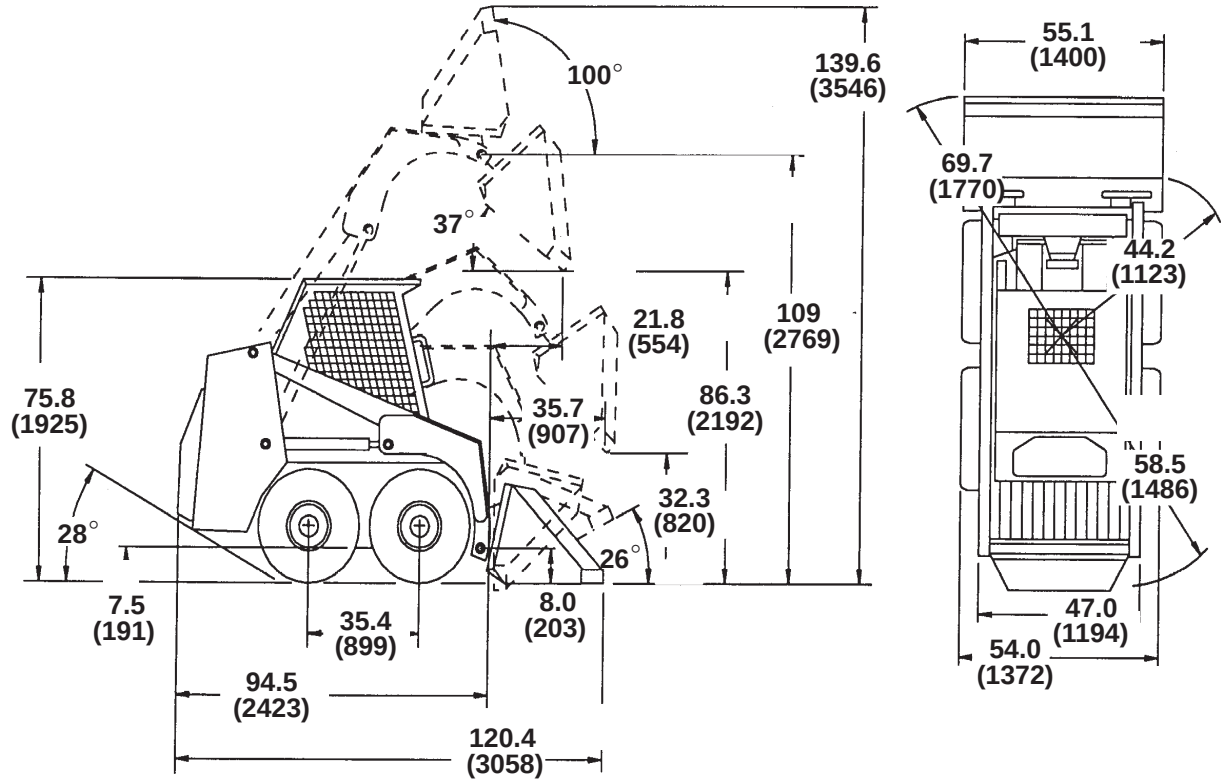
This loader was designed without counterweights or ballasts. Changes of structure or weight distribution of the loader can cause changes in control and steering response and can cause failure of the loader parts.

OPERATIONS & PERFORMANCE	742 (S/N 20001–22999)
Weights	
Operating Weight	4730 lbs. (2145 kg)
Rated Operating Capacity (Melroe)	1300 lbs. (590 kg)
Tipping Load (SAE)	2600 lbs. (1179 kg)
Travel Speed	0.0 to 06.0 MPH (9,7 km/hr.)
Controls	
Vehicle	Direction & speed controlled by two hand levers.
Loader Function	Lift & Tilt Function: Controlled by separate foot pedals. Front Auxiliary Function: Controlled by the right steering lever. Rear auxiliary function controlled by the left steering lever.
Engine	Hand lever throttle; pull cable choke; key–type starter switch;
Main Drive	Hydrostatic
Parking Brake	Mechanical disc, foot operated pedal
ENGINE	
Make	Ford
Model	1498
Fuel	Gas
Horsepower	34 HP (25,4 kW)
Maximum Governed RPM	2800 RPM
Torque	72.8 ft.–lbs. (98,7 Nm) @ 1600 RPM
Number of Cylinders	Four
Bore/Stroke	3.19 (81)/3.06 (77,6)
Displacement	98 cu. in. (1606 cm^3)
Cooling System	Liquid
Lubrication	Pressure System W/Filter
Crankcase Ventilation	Open
Air Cleaner	Dry replaceable paper cartridge (With safety element – Diesel Only)
Ignition	12 volt, battery ignition W/breaker points & coil
Compression (Max.)	N/A
(Min.)	N/A

LOADER SPECIFICATIONS

743 & 743DS

- Dimensions are given for loader equipped with standard tires and dirt bucket. Dimensions may vary with other types. All dimensions are shown in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.
- Where applicable, specifications conform to SAE standards and are subject to change without notice.



PI–2206

This loader was designed without counterweights or ballasts. Changes of structure or weight distribution of the loader can cause changes in control and steering response and can cause failure of the loader parts.

OPERATIONS & PERFORMANCE	743 & 743DS
Weights	
Operating Weight	4720 lbs. (2141 kg)
Rated Operating Capacity (Melroe)	1300 lbs. (590 kg)
Tipping Load (SAE)	2600 lbs. (1179 kg)
Travel Speed	0.0 to 6.0 MPH (9,7 km/hr.)
Controls	
Vehicle	Direction & speed controlled by two hand levers.
Loader Function	Lift & Tilt Function: Controlled by separate foot pedals. Front Auxiliary Function: Controlled by the right steering lever. Rear auxiliary function controlled by the left steering lever.
Engine	Hand lever throttle & key–type starter switch;
Main Drive	Hydrostatic
Parking Brake	Mechanical disc, foot operated pedal
ENGINE	
Make	Kubota
Model	V1702–BA
Fuel	Diesel
Horsepower	36 HP (26,8 kW)
Maximum Governed RPM	2800 RPM
Torque	80 ft.–lbs. (108 Nm) @ 1600 RPM
Number of Cylinders	Four
Bore/Stroke	3.23 (82)/3.23 (82)
Displacement	105.7 cu.–in. (1732 cm^3)
Cooling System	Liquid
Lubrication	Pressure System W/Filter
Crankcase Ventilation	Open
Air Cleaner	Dry replaceable paper cartridge (With safety element–Diesel Only)
Ignition	Compression – Diesel
Compression (Max.)	427–469 PSI (2944–3234 kPa)
(Min.)	320–352 PSI (2206–2427 kPa)

ENGINE SPECIFICATIONS

All dimensions are given in inches. Respective metric dimensions are given in millimeters enclosed by parentheses.

General

Compression PSI @ 250 RPM	150 PSI (1034 kPa)
Difference between Cylinders	Within 10%
Ignition Timing (BTDC–with Vacuum Line Off)	5° @ 700–750 RPM

Cylinder Head

Flatness of Head	0.002 (0,05) or less
Flatness of Manifold Mounting Surface Service Limit	0.012 (0,3)
Oversize Valve Seat Hole	
Intake 0.012 (0,3) O.S.	1.547–1.548 (39,300–39,325)
0.024 (0,6) O.S.	1.559–1.560 (39,600–39,625)
Exhaust 0.012 (0,3) O.S.	1.350–1.351 (34,300–34,325)
0.24 (0,6) O.S.	1.362–1.363 (34,600–34,625)
Camshaft cap to Camshaft Clearance	0.002–0.004 (0,05–0,9)
Service Limit	0.006 (0,15)
Valve Guide Hole Oversize (Both Intake & Exhaust)	
0.002 (0,05) O.S.	0.5138–0.5145 (13,05–13,068)
0.010 (0,25) O.S.	0.5216–0.5224 (13,25–13,268)
0.020 (0,50) O.S.	0.5315–0.5322 (13,50–13,518)
Valve Seat Contact Width	0.035–0.051 (0,9–1,3)
Valve Seat Angle	45°

Cylinder Block

Flatness of Cylinder Block	0.002 (0,05) or less
Cylinder Bore	3.0276 (76,90)
Wear Limit	0.008” (0,20)
Service Limit (Maximum Oversize)	+0.047 (+1,2)
Cylindrical Within Bore	0.0004 (0,01) or less
Cylinder to Piston Clearance	0.0008–0.0016 (0,02–0,04)

Piston

Piston O.D. @ Skirt	3.0276 (76,90)
Piston Pin Hole I.D.	0.748 (19,0)
Piston O.S.	0.010 (0,25); 0.020 (0,50); 0.030 (0,75); 0.039 (1,0)
Piston Ring to Groove Clearance	
Compression No. 1	0.0011–0.0027 (0,3–0,07)
Service Limit	0.006 (0,15)
Compression No. 2	0.0008–0.0024 (0,02–0,06)
Service Limit	0.006 (0,15)
Compression Ring Gap	0.0098–0.0177 (0,25–0,45)
Service Limit	0.039 (1,0)
Oil Ring Gap	0.0008–0.028 (0,2–0,7)
Service Limit	0.039 (1,0)
Piston Ring O.S.	0.010 (0,25); 0.020 (0,50); 0.030 (0,75); 0.039 (1,0)

Piston Pin

Piston Pin O.D.	0.748 (19,)
Piston to Piston Pin Clearance	0.00004–0.0005 (0,001–0,013)
Service Limit	0.0011 (0,03)
Interference to Connecting Rod:	
Press Fit Load (Normal Temp.)	1101–3304 lbs. (500–1500 kg)

TORQUE FOR GENERAL METRIC BOLTS

Thread Size (Dia. x Pitch)	Material		
	Head Mark 4	Head Mark 7	Head Mark 10
M 5 x 0,8		3–4 ft.–lbs. (4–5 Nm)	
M 6 x 1,0		6–7 ft.–lbs. (8–9 Nm)	6–9 ft.–lbs. (8–12 Nm)
M 8 x 1,25	6–6 ft.–lbs. (8–12 Nm)	11–16 ft.–lbs. (15–22 Nm)	18–25 ft.–lbs. (24–34 Nm)
M 10 x 1,25	13–18 ft.–lbs. (18–24 Nm)	22–30 ft.–lbs. (30–41 Nm)	36–50 ft.lbs. 49–68 Nm)
M 12 x 1,25	22–30 ft.–lbs. (30–41 Nm)	40–54 ft.–lbs. (54–73 Nm)	69–87 ft.–lbs. (94–118 Nm)
M 14 x 1,5	36–50 ft.–lbs. (49–68 Nm)	58–80 ft.–lbs. (79–108 Nm)	116–137 ft.–lbs. (157–186 Nm)

MELROE
INGERSOLL-RAND

bobcat®

740–5
Revision Number

28 November 1990
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☒
SALES MANAGER	☐

AFFECTING:

Product BOBCAT LOADER

Model 741, 742, 743 & 743DS

Manual No. 6566109 (4–88)

NOTICE **Insert This Sheet With The Appropriate Manual For Future Reference.**

The following pages are a revision to the 741, 742, 743 & 743DS Service Manual P/N 6566109 (4–88).

Take out and put in the revised pages as listed below:

TAKE OUT	PUT IN
2–39, 2–40	2–39, 2–40 (Revised Nov. 90)