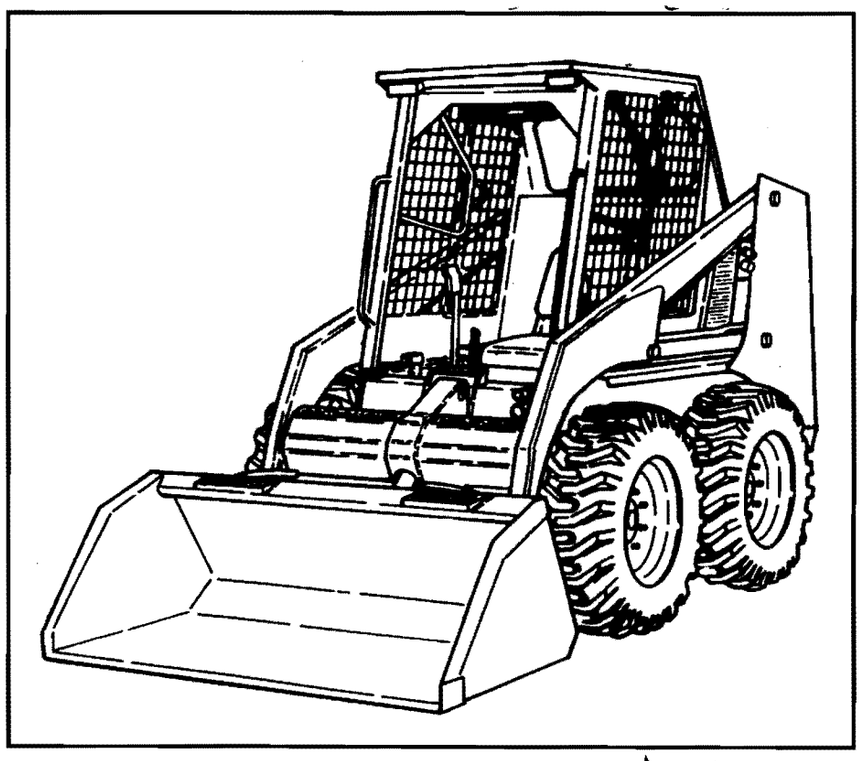
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753

Service Manual



MELROE
INGERSOLL-RAND

6720326 (8–90)

Printed in U.S.A.

bobcat®

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MAINTENANCE SAFETY

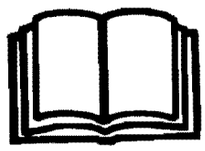
⚠ WARNING

Instructions are necessary before operating or servicing machine. Read and understand the 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. Untrained operators and failure to follow instructions can cause injury or death.

W–2003–0199

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

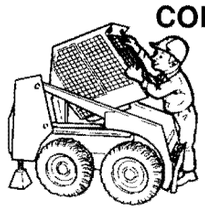
CORRECT



B–10731

⚠ **Never service the Bobcat® Skid Steer Loader without instructions.**

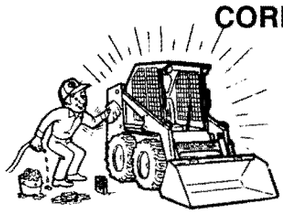
CORRECT



B–12365

⚠ **Use the correct procedure to lift or lower operator cab.**

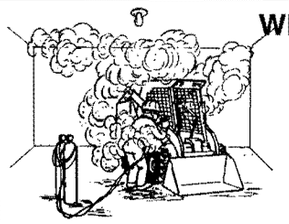
CORRECT



B–7469

⚠ **Cleaning and maintenance are required daily.**

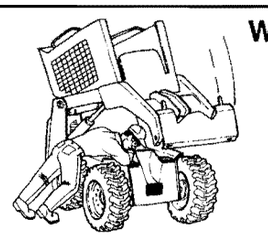
WRONG



B–11799

⚠ **Have good ventilation when welding or grinding painted parts.**
⚠ **Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.**
⚠ **Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.**

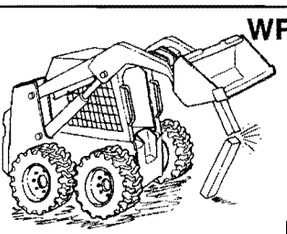
WRONG



B–15231

⚠ **Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace if damaged.**

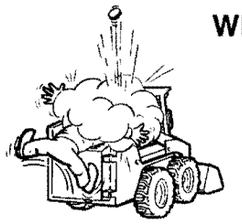
WRONG



B–15280

⚠ **Never work on loader with lift arms up unless lift arms are held by an approved lift arm support device. Replace if damaged.**
⚠ **Never modify equipment or add attachments not approved by Bobcat Company.**

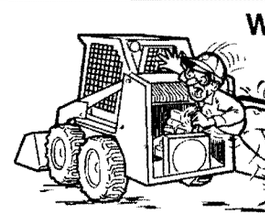
WRONG



B–6590

⚠ **Stop, cool and clean engine of flammable materials before checking fluids.**
⚠ **Never service or adjust loader with the engine running unless instructed to do so in the manual.**
⚠ **Avoid contact with leaking hydraulic fluid or diesel fuel under pressure. It can penetrate the skin or eyes.**
⚠ **Never fill fuel tank with engine running, while smoking or when near open flame.**

WRONG



B–6580

⚠ **Keep body, jewelry and clothing away from moving parts, electrical contacts, hot parts and exhaust.**
⚠ **Wear eye protection to guard from battery acid, compressed springs, fluids under pressure and flying debris when engines are running or tools are used. Use eye protection approved for type of welding.**
⚠ **Keep rear door closed except for service. Close and latch door before operating the loader.**

WRONG



B–6589

⚠ **Lead–acid batteries produce flammable and explosive gases.**
⚠ **Keep arcs, sparks, flames and lighted tobacco away from batteries.**
⚠ **Batteries contain acid which burns eyes or skin on contact. Wear protective clothing. If acid contacts body, flush well with water. For eye contact flush well and get immediate medical attention.**

Maintenance procedures which are given in the Operation & Maintenance Manual can be performed by the owner/operator without any specific technical training. Maintenance procedures which are **not** in the Operation & Maintenance Manual must be performed **ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL. Always use genuine Bobcat replacement parts.** The Service Safety Training Course is available from your Bobcat dealer.

MSW01–0600

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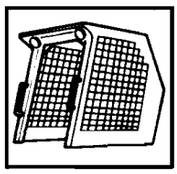
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FOREWORD

This manual is for the Bobcat loader mechanic. It provides necessary servicing and adjustment procedures for the Bobcat loader and its component parts and systems. Refer to the Operation & Maintenance Manual for operating instructions, starting procedure, daily checks, etc.

A general inspection of the following items must be made after the loader has had service or repair:

1. Check that the ROPS/FOPS (Including sidescreens) is in good condition and is not modified.



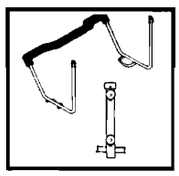
2. Check that ROPS mounting hardware is tightened and is Melroe approved.



3. The seat belt must be correctly installed, functional and in good condition.



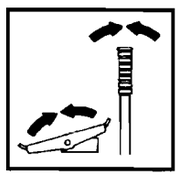
4. The seat bar and pedal interlocks must be correctly adjusted, clean and lubricated.



5. Machine signs must be legible and in the correct location.



6. Steering levers and foot pedals must return to neutral.



7. Check for correct function of the work lights and travel lights.



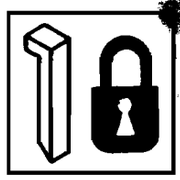
8. The parking brake must function correctly.



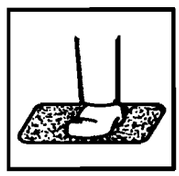
9. Enclosure door latches must open and close freely.



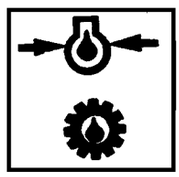
10. Bob–Tach wedges and linkages must function correctly and be in good condition.



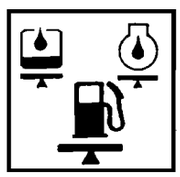
11. Safety treads must in good condition.



12. Check for correct function of indicator lamps (Optional on some models).



13. Check hydraulic fluid level, engine oil level and fuel supply.



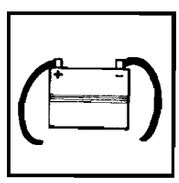
14. Inspect for fuel, oil or hydraulic fluid leaks.



15. Lubricate the loader.

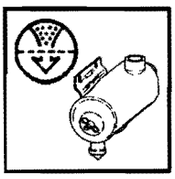


16. Check the condition of the battery and cables.

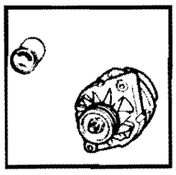


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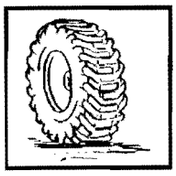
17. Inspect the air cleaner for damage or leaks. Check the condition of the element.



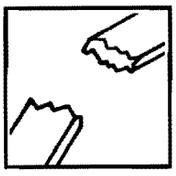
18. Check the electrical charging system.



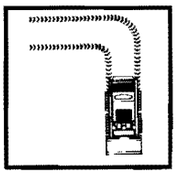
19. Check tires for wear and pressure.



20. Inspect for loose or broken parts or connections.



21. Operate the loader and check all functions.



22. Check for any field modification not completed.



Recommend to the owner that all necessary corrections be made before the machine is returned to service.



Revised Dec. 92

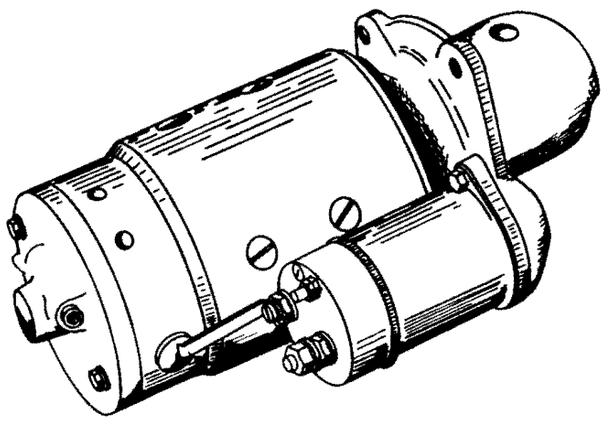
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Both new and rebuilt starters are available from Melroe.



Available at your local Bobcat Dealer.

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SAFETY INSTRUCTIONS

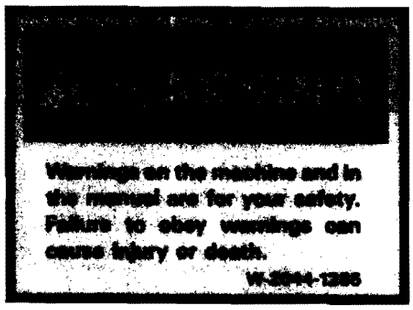
⚠ WARNING

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-2003-1289

The following publications provide information on the safe use of the loader and attachments:

1. 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.
2. The Operation & Maintenance Manual delivered with the loader gives operating information as well as routine maintenance and service procedures. It is a part of the loader and must stay with the machine when it is sold.
3. The loader has machine signs (decals) which instruct on the safe care and operation. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from Bobcat loader dealers.
4. The FIEI Manual delivered with the loader gives general safety information.
5. The Service Manual and Parts Manual are available from Bobcat loader dealers for use by mechanics to do shop type service and repair work.



IMPORTANT

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

⚠ This symbol is used for important safety messages. When you see this symbol, follow the safety message to avoid personal injury.

- Wear tight fitting clothing and any other required safety apparel when operating or servicing the loader.
- Wear safety glasses when maintaining or servicing the loader.
- Exhaust gases can kill, vent engine exhaust outdoors.
- Know where fire extinguishers and first aid kits are located and how to use them.
- Do not run the Bobcat loader where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.
- Check fuel and hydraulic tubes, hoses and fittings for damage and leakage. Never use open flame or bare skin to check for leaks. Tighten or replace any parts that show leakage. Always clean fluid spills. DO NOT use gasoline or diesel fuel for cleaning parts. Use commercial nonflammable solvents.
- Clean the loader before doing any welding. Cover rubber hoses, battery and all other flammable parts. Keep a fire extinguisher near the loader when welding.
- Have good ventilation when welding or grinding painted parts. Wear a dust mask when grinding painted parts. Toxic dust and gas can be produced.
- Stop the engine and let it cool before adding fuel. No smoking.
- Use the procedure in this manual for connecting battery.
- Use the procedure in this manual for cleaning the spark arrestor muffler after each 100 hours of operation.

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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.

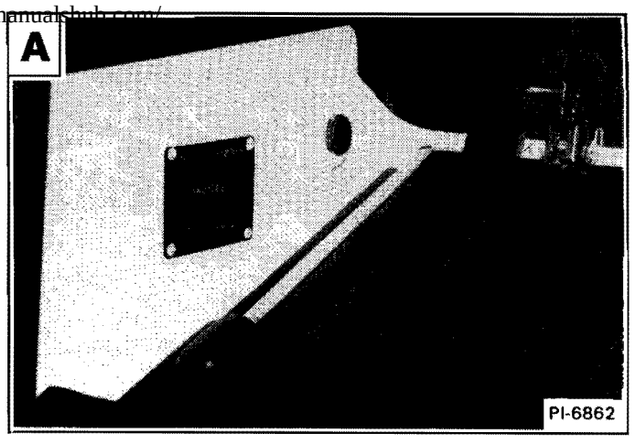
LOADER SERIAL NUMBER

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

Explanation of loader Serial Number:

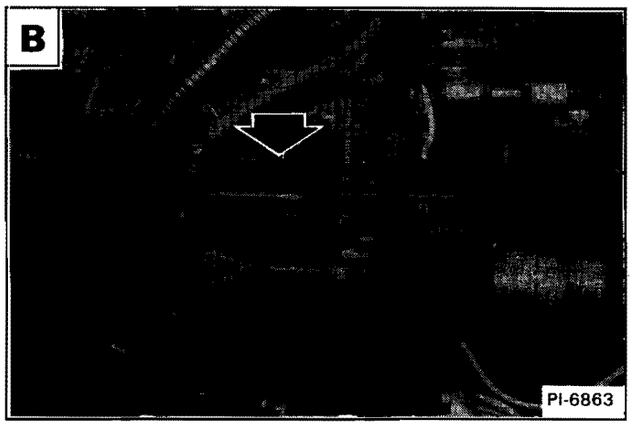
XXXXX XXXX

- XXXX — Production Sequence (Series)
- XXXXX — **Model, Engine** Version



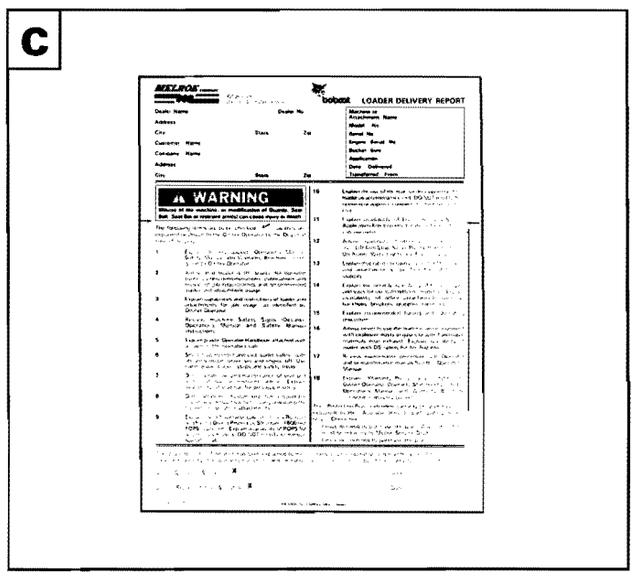
ENGINE SERIAL NUMBER LOCATION

The serial number is near the fuel injection pump on the engine block [B].



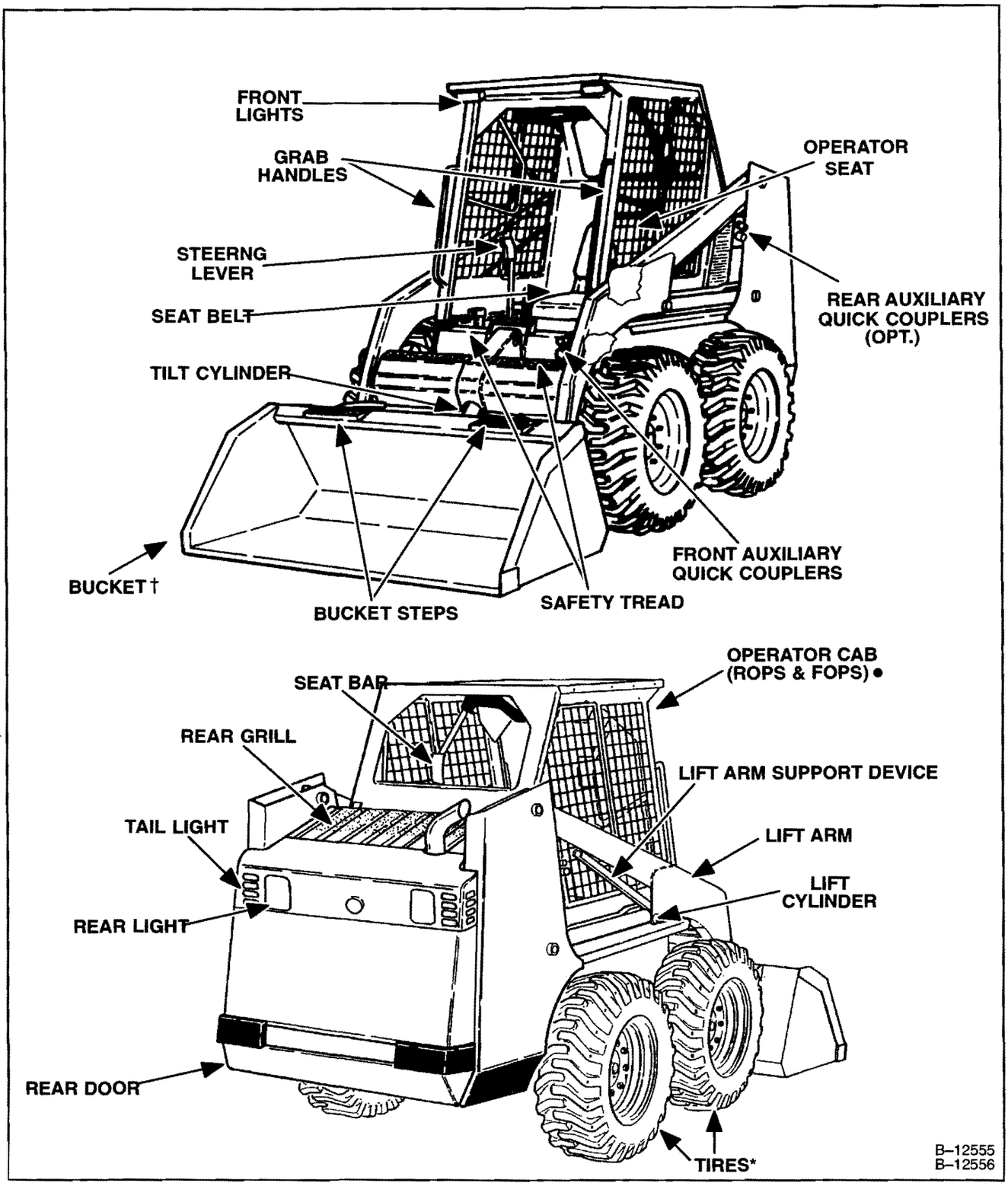
DELIVERY REPORT

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 [C].



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V. BOBCAT LOADER IDENTIFICATION



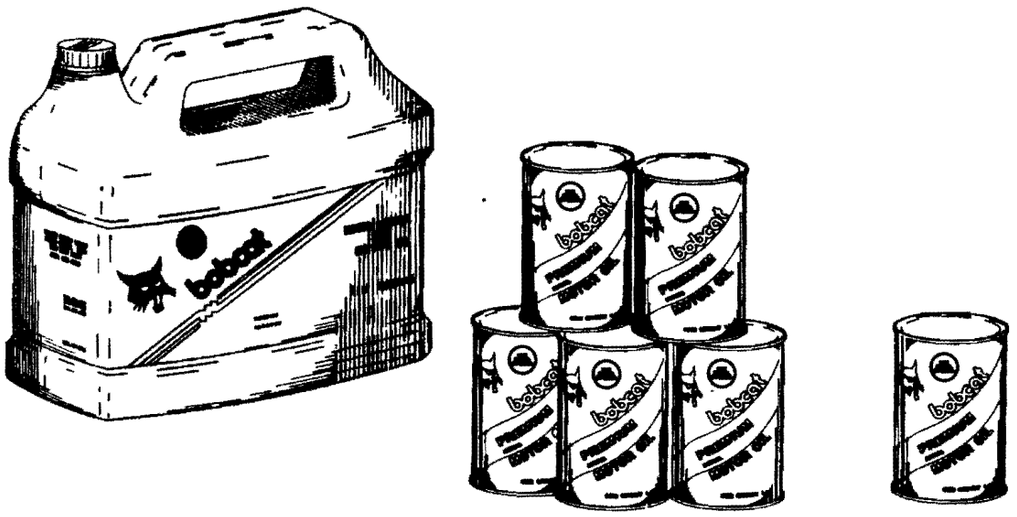
* TIRES – Flotation tires are shown. The Bobcat loader is base–equipped with standard tires.

† BUCKET – Several different buckets and other attachments are available for the Bobcat loader.

• ROPS, FOPS – Roll–Over Protective Structure, Falling Object Protective Structure, per SAE J1040 and SAE J1043. The Bobcat loader is base–equipped with standard operator cab as shown.

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Melroe has engine oil
blended to our specifications
which meet or exceed the highest
demands of your engine.



Available at your local Bobcat Dealer.

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SERVICE SCHEDULE

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Bobcat loader.

⚠ WARNING

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W–2003–1289

SERVICE SCHEDULE		HOURS				
ITEM	**SERVICE REQUIRED**	8–10	50	100	250	■ 1000
Engine Oil	Check the oil level & add oil as needed.					
Air Cleaner	Check display. Service only when required.					
Engine Cooling System	Clean debris from oil cooler, radiator & grill. Check coolant level cold in recovery tank. Add 50/50 ethylene glycol & water as needed.					
Lift Arms. Cyl., Bob–Tach Pivot Pins & Wedges	Lubricate with multi–purpose lithium based grease (20 places).					
Engine Air System	Check for leaks & damaged components.					
Tires	Check for damaged tires & correct air pressure.					
Seat Belt, Seat Bar & Pedal Interlocks	Check the condition of seat belt. Check the seat bar & pedal interlocks correct operation. Clean dirt & debris from moving parts.					
Safety Signs & Safety	Check for damaged signs (decals) & safety tread. Replace any signs or safety treads that are damaged or worn.					
Operator Cab	Check the fastening bolts, washers & nuts. Check the condition of cab.					
Fuel Filter	Remove the trapped water.					
Hyd. Fluid, Hoses & Tubelines	Check fluid level & add as needed. Check for damage & leaks. Repair & replace as needed.					
Final Drive Trans. (Chaincase)	Check oil level.					
Battery	Check cables & electrolite level.					
Control Pedals & Steering	Check for correct operation. Repair or adjust as needed.					
Wheel Nuts	★ Check for loose wheel nuts & tighten to 105–115 ft.–lbs. (142–156 Nm) torque.					
Parking Brake	Check operation & adjust as needed.					
Alternator Belt	Check tension & adjust as needed.					
Engine Oil & Filter	Replace oil & filter.					
Spark Arrestor Muffler	Clean the spark chamber.					
Engine/Hydro. Drive Belt	✻ Check for wear or damage. Make adjustment as needed.					
Fuel Filter	Replace filter element.					
Seat Bar	Grease pivots as needed.					
Steering Shaft	Grease two fittings.					
Hyd./Hydro. Filter	● Replace the filter element.					
Hyd. Reservoir Breather Cap	Replace the reservoir breather cap.					
Fan Drive Gearbox	Check gear lube level.					
Final Drive Trans.	Replace the oil in the chaincase.					
Hyd. Reservoir	Replace the fluid.					
Case Drain Filters	Replace the filters.					

★ Check wheel nut torque every 8 hours for the first 24 hours.
● Also replace hydraulic/hydrostatic filter element when the transmission warning light comes "ON".
■ Or Every 12 Months.
✻ Inspect the new belt after first 50 hours.

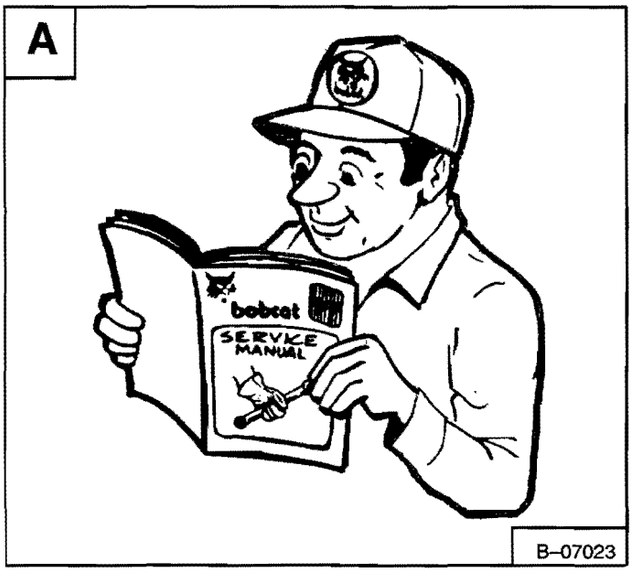
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1 PREVENTIVE MAINTENANCE

⚠ 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



LIFTING AND BLOCKING THE LOADER

Procedure

Always park the loader on a level surface.

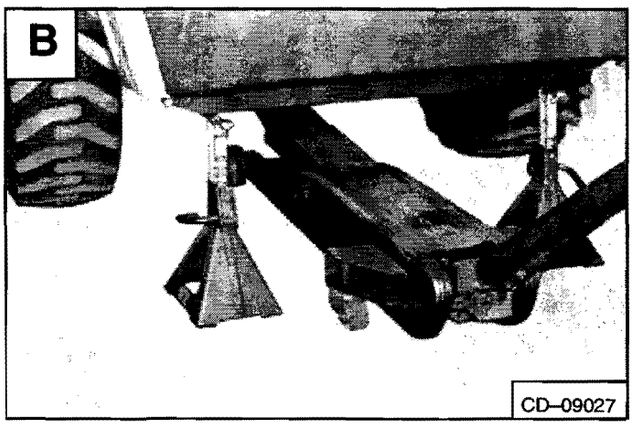
⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W-2017-0286

Put floor jack under the rear of the loader **[B]**.

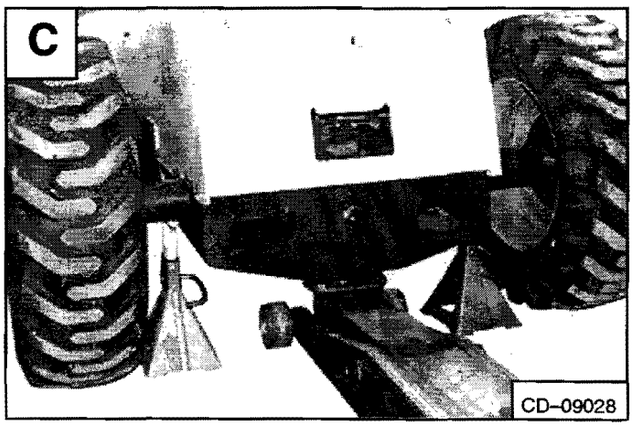
Lift the rear of the loader and install jackstands **[B]**.



Put the floor jack under the front of the loader **[C]**.

Lift the front of the loader and put jackstands under the axle tubes **[C]**.

NOTE: Make sure the jackstands do not touch the tires.



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TRANSPORTING THE LOADER

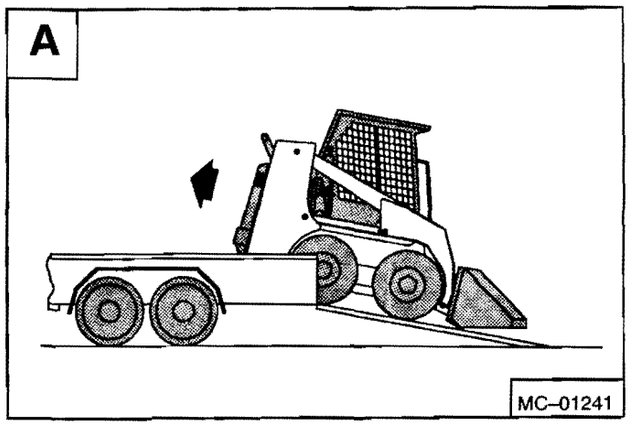
Procedure

⚠ WARNING

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.

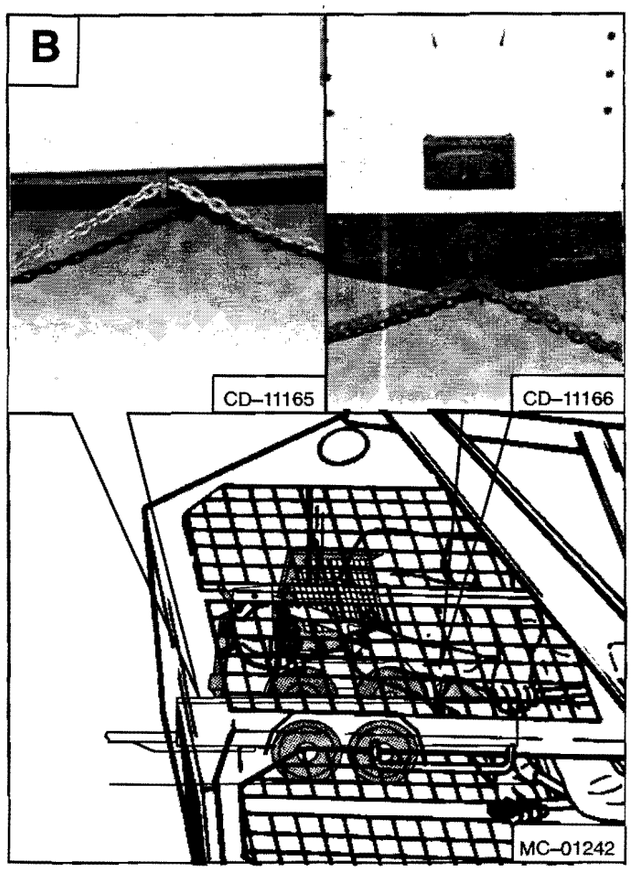
W–2058–0494

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



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 or down slopes **[B]**:

1. Lower the bucket or attachment to the floor. Stop the engine.
2. Engage the parking brake.
3. Install chains at the front and rear of the loader.



LIFTING THE LOADER

Procedure

⚠ WARNING

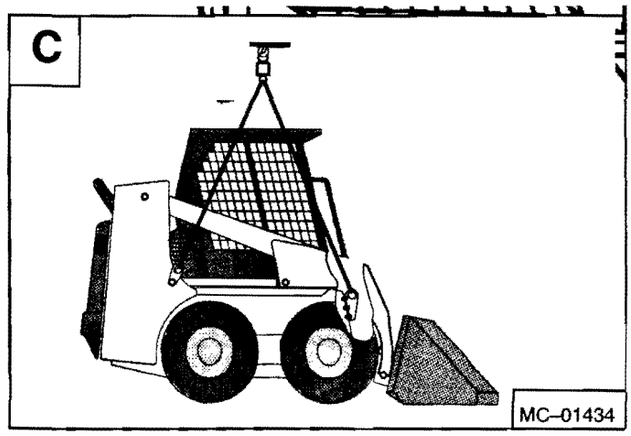
AVOID INJURY OR DEATH

- **Before lifting, check fasteners on four point lift.**
- **Never allow riders in the cab or bystanders within 15 feet (5 meters) while lifting the machine.**

W–2160–0694

The loader can be lifted with the four point lift which is available as a kit from your Bobcat loader dealer.

Install the lift eyes in the kit as shown in Fig. **[C]**.



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LIFT ARM SUPPORT DEVICE

To Engage Lift Arm Support Device

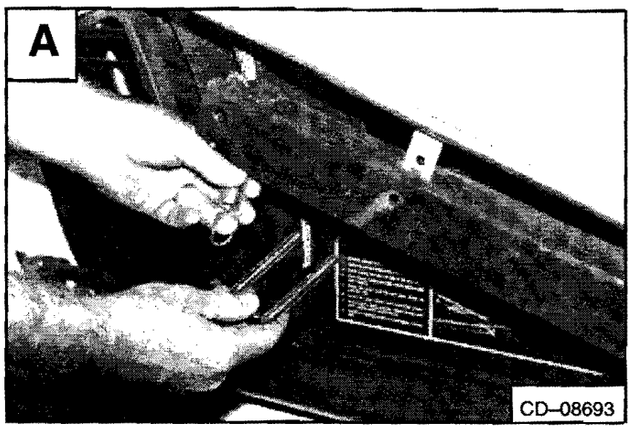
⚠ WARNING

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. W–2059–0598

Maintenance and service work can be done with the lift arms lowered. If the lift arms are raised, use the following procedure:

Put jackstands under the rear corners of the loader.

Disconnect the spring from the lift arm support device retaining pin, hold onto the support device and remove the retaining pin **[A]**.



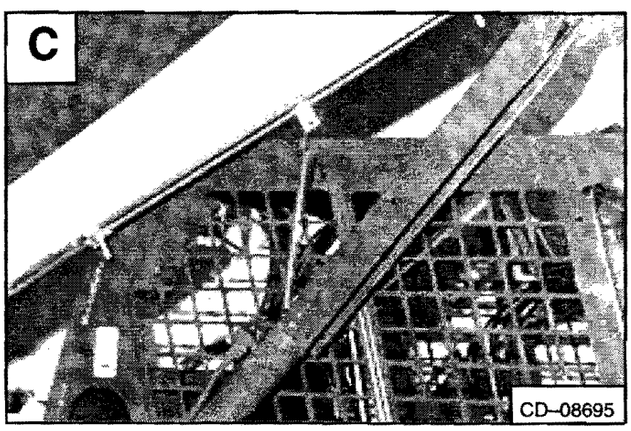
Lower the lift arm support device on top of the lift cylinder. Hook the free end of the spring to the lift arm support device so there will be no interference with the support device installation. With the operator in the seat, seat belt fastened and seat bar lowered, start the engine.

Raise the lift arms, until the lift arm support device drops onto the lift cylinder rod **[B]**.



Lower the lift arms slowly until the support device is held between the lift arm and the lift cylinder. Stop the engine. Raise the seat bar and unfasten the seat belt.

Install pin into the rear of the lift arm support device below the cylinder rod.



To Disengage Lift Arm Support Device

Remove the pin from the lift arm support device.

Connect the spring from the lift arm support device to the retainer plate on the lift arms **[C]**.

With the operator in the seat, seat belt fastened and seat bar lowered, start the engine. Raise the lift arms a small amount and the spring will lift the support device off the lift cylinder rod. Lower the lift arms. Stop the engine.

Lift the support device into the storage position and install the retaining pin and connect the spring **[A]**.

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OPERATOR CAB

Description

The Bobcat loader has an operator cab (ROPS and FOPS) as standard equipment to protect the operator from rollover and falling objects. Replace the operator cab if it has been damaged.

⚠ WARNING

Never modify operator cab by welding, grinding, drilling holes or adding attachments unless instructed to do so by Melroe Company. Changes to the cab can cause loss of operator protection from rollover and falling objects, and result in injury or death.

W–2069–1285

Raising the Operator Cab

Stop the loader on a level surface. Lower the lift arms, if the lift arms must be up while raising the operator cab, install the lift arm support device (Page 1–4).

⚠ WARNING

Before the cab or the lift arms are raised for service, jackstands must be put under the rear corners of the frame. Failure to use jackstands can allow the machine to tip backward causing injury or death.

W–2014–0895

Loosen the nut (both sides) at the front corner of the operator cab **[A]**.

Remove the nut and plate (both sides) **[B]**.

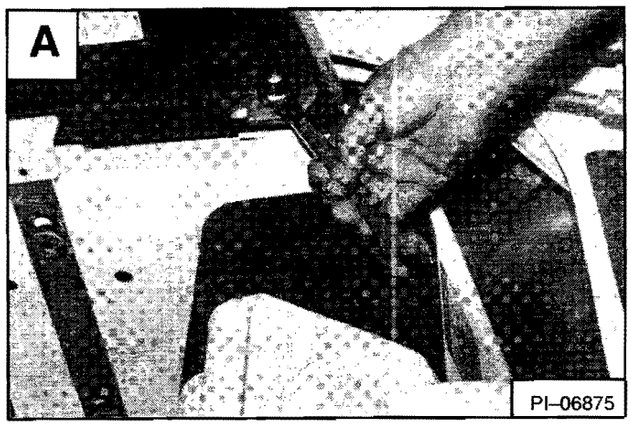
Lift on the grab handle and bottom of the operator cab slowly until the cab latching mechanism engages and the cab is all the way up **[C]**.

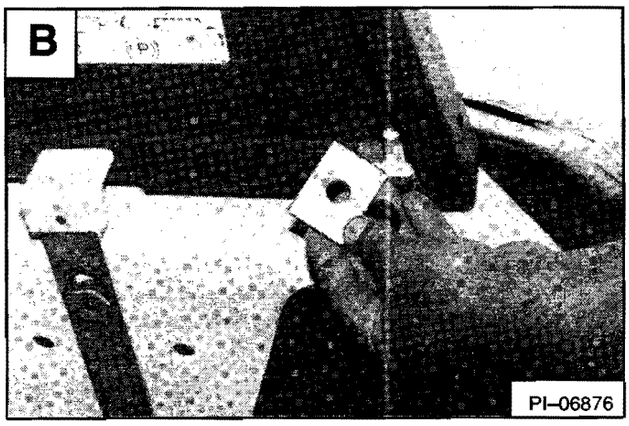
Lowering the Operator Cab

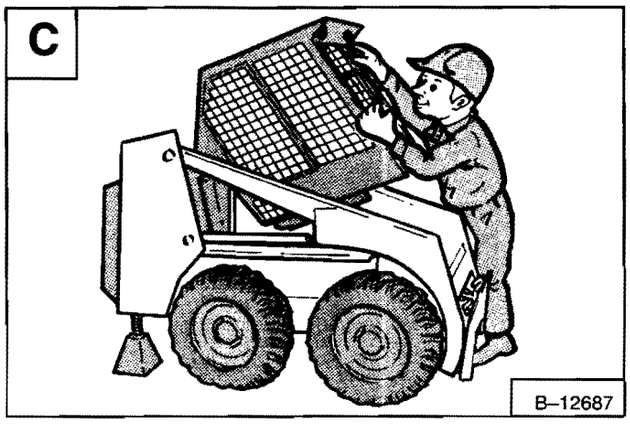
Pull down on the bottom of the operator cab until it is stopped by the latching mechanism. Release the latching mechanism and pull the cab all the way down **[D]**.

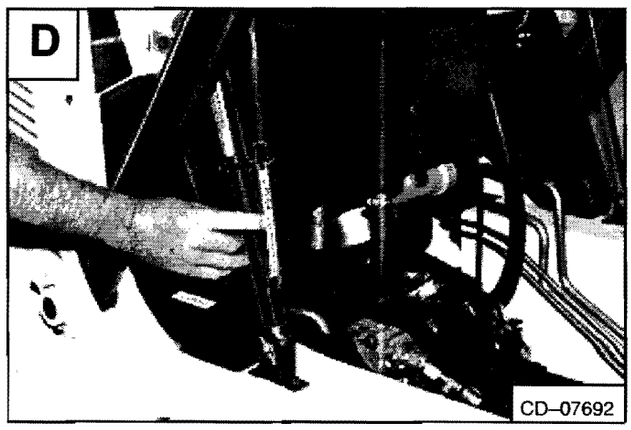
Install the nut and plate (both sides) **[B]**.

Tighten the nuts to 40–50 ft.–lbs. (54–68 Nm) torque.









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OPERATOR CAB (Cont'd)

Raising the Operator Cab (W/Hand Controls)

Stop the loader on a level surface. Lower the lift arms. Shut engine off. If the lift arms must be up while raising the operator cab, install the lift arm support device (Page 1–4).

⚠ WARNING

Before the cab or the lift arms are raised for service, jackstands must be put under the rear corners of the frame. Failure to use jackstands can allow the machine to tip backward causing injury or death.

W–2014–0895

Disconnect the control linkage joint from the bottom hole (work position) and move to the TOP hole on the control handle (both sides) **[A]**.

Both control handles must be in the vertical position so there will be no cab interference with the steering levers when the operator cab is raised or lowered **[B]**.

⚠ WARNING

AVOID INJURY OR DEATH

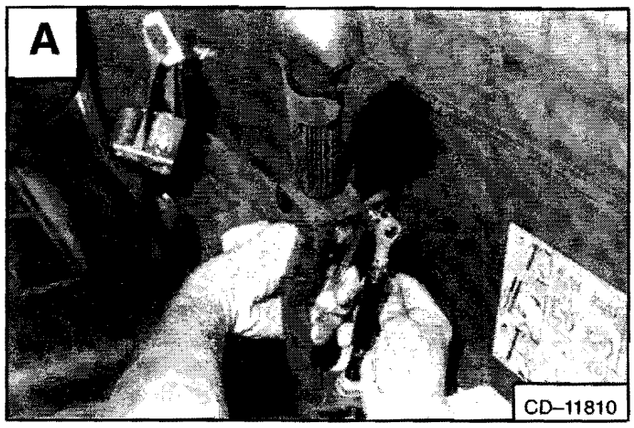
Accidental movement of the loader, the lift arms or the attachment can occur if the lift or tilt control handles are not positioned correctly before lifting or lowering the cab.

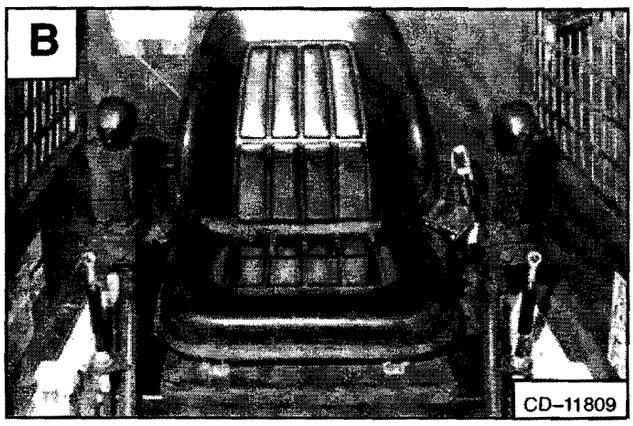
Move control linkage to top hole in handles as shown, so cab does not hit handles when being lifted or lowered.

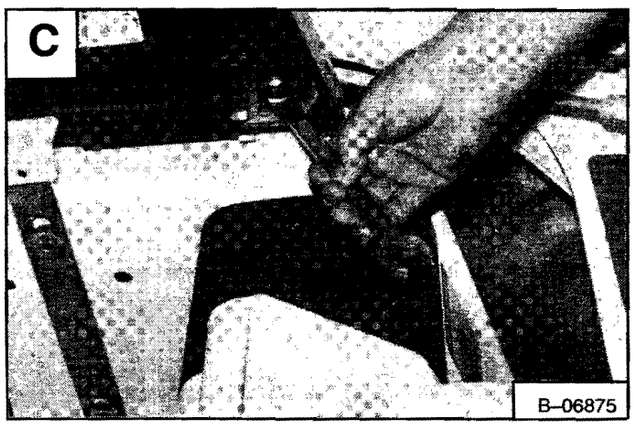
W–2157–0594

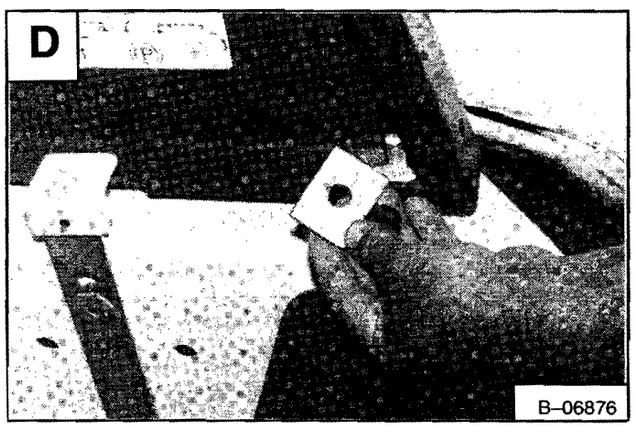
Loosen the nut (both sides) at the front corner of the operator cab **[C]**.

Remove the nut and plate (both sides) **[D]**.



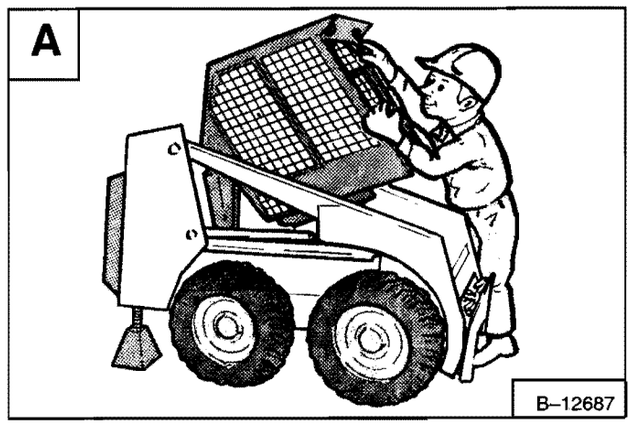






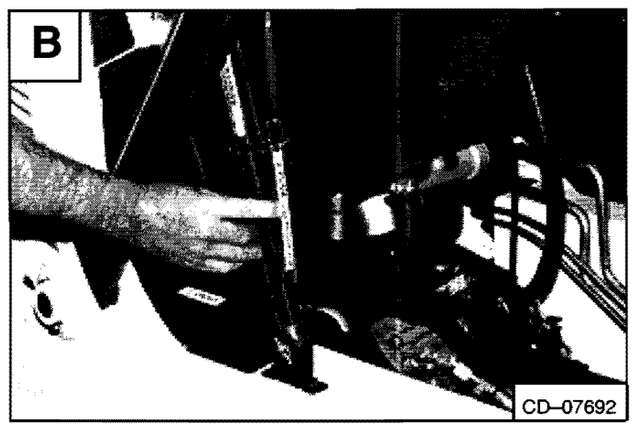
https://truckmanualshub.com/

Lift on the grab handle and bottom of the loader cab slowly until the cab latching mechanism engages and the cab is all the way up **[A]**.



Lowering the Operator Cab (W/Hand Controls)

Pull down on the bottom of the operator cab until it stops at the latching mechanism. Release the latching mechanism and pull the cab all the way down **[B]**.



Install the plate and nut (both sides).

Tighten the nuts to 40–50 ft.–lbs. (54–68 Nm) torque **[C]**.



Move the control linkage from the top hole to the BOTTOM hole (work position) on the control handle (both sides) **[D]**.



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SEAT BAR SYSTEM

Description

The seat bar system has a pivoting seat bar with arm rests and has spring loaded interlocks 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, also the interlocks require the operator to lower the seat bar in order to operate the foot pedal controls. When the seat bar is up, the lift and tilt pedals are locked when returned to the 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 seal 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. 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 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. Un–buckle the seat belt.

Seat Bar Maintenance

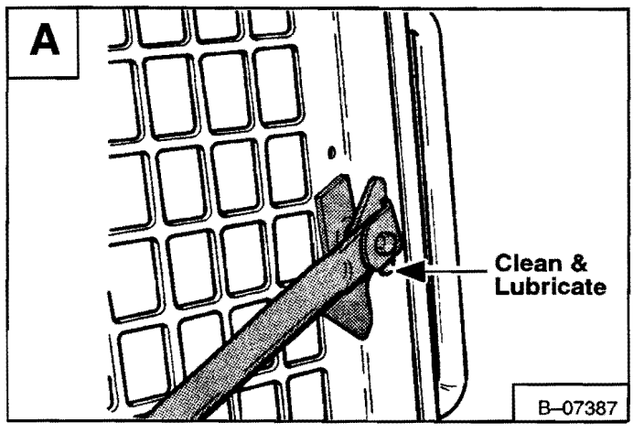
See the Service Schedule (Page 1–1) for the correct service interval.

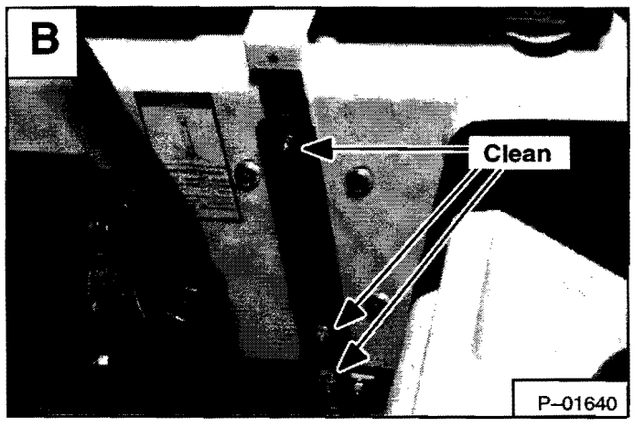
Clean any debris or dirt from the moving parts **[A]** & **[B]**.

Inspect the linkage bolts and nuts for tightness.

Use a general purpose grease to lubricate the seat bar pivot points on 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 linkage. Replace parts that are worn or damaged. Use only genuine Melroe replacement parts.



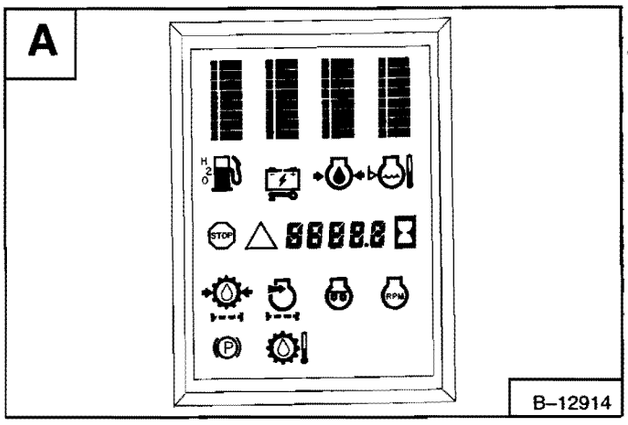


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AIR CLEANER

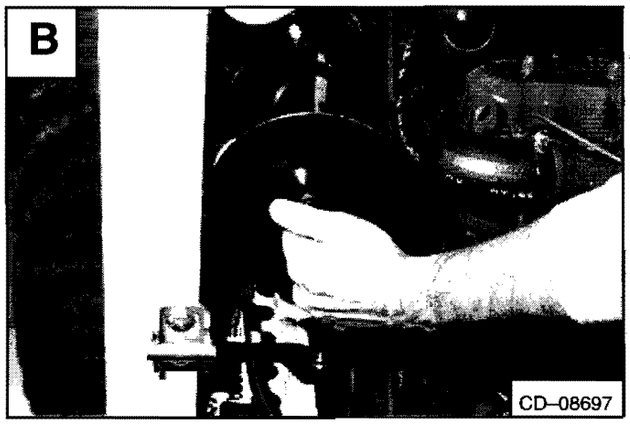
Replacement of the Filter Element

It is important to change the air filter element only when the service code (on the instrument panel) shows the symbol as shown in figure **[A]**.

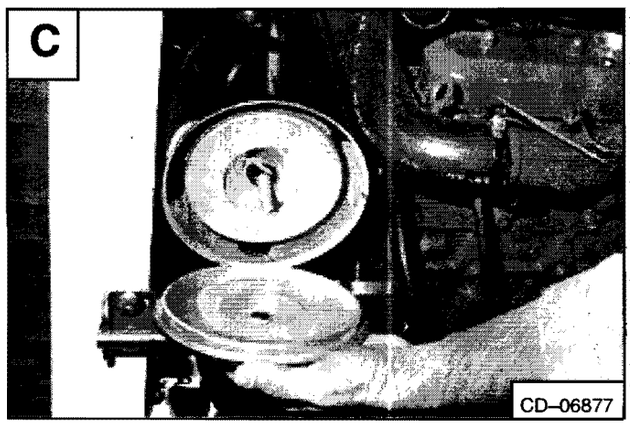


Service the air cleaner as follows:

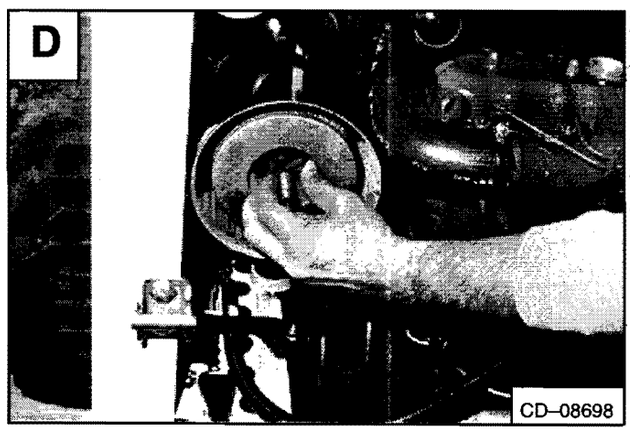
Remove the dust cover wing nut **[B]**.



Remove the dust cover **[C]**.



Remove the wing nut holding the large air filter element **[D]**.



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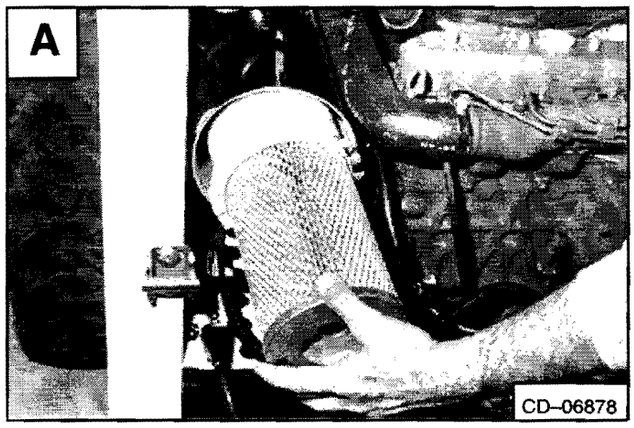
AIR CLEANER (Cont'd)

Remove the large filter element **[A]**.

NOTE: Make sure all sealing surfaces are free of dirt and debris.

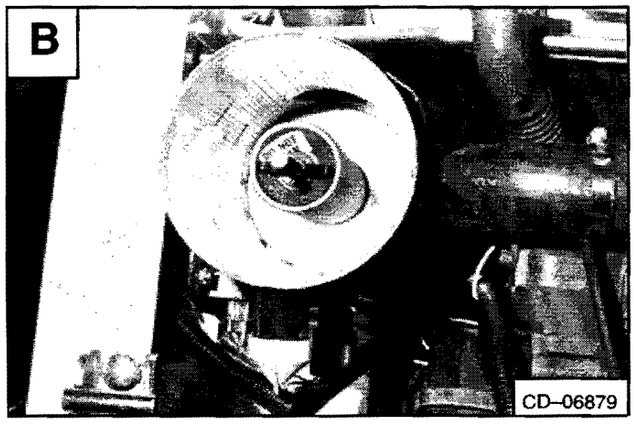
Install the new filter element and tighten the wing nut. Install the dust cover and tighten the wing nut.

Check the air intake hose for damage. Check the air cleaner housing for damage. Check to make sure all connections are tight.



Only replace the inner filter element under the following conditions **[B]**:

1. Every third time the outer filter is replaced.
2. When the service code shows the symbol (Page 1–7, Figure **[A]**), only after the outer filter element has been changed and the engine speed is at full RPM.



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FUEL SYSTEM

Fuel Specifications

Use only clean, high quality fuel. Use Grade No. 2 fuel above 40°F (4°C). Use Grade No. 1 fuel at temperatures below 40°F (4°C).

Filling the Fuel Tank

⚠ WARNING

Stop and cool the engine before adding fuel. NO SMOKING! Failure to obey warnings can cause an explosion or fire.

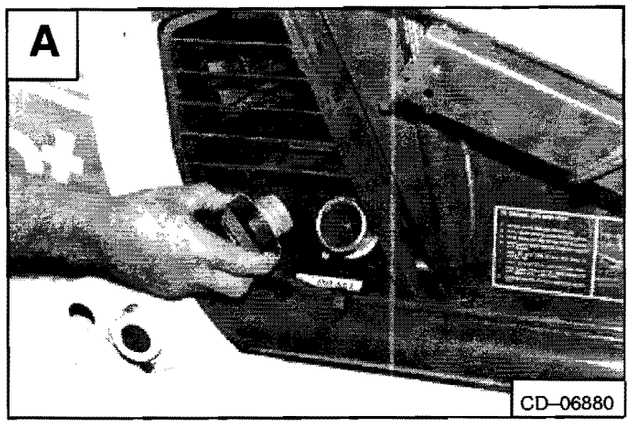
W–2063–0887

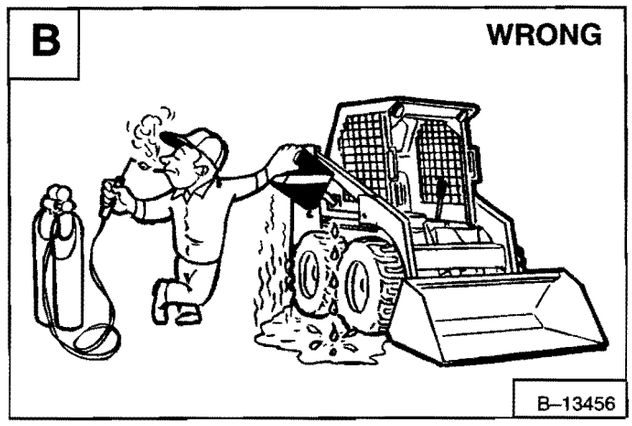
Remove the fuel fill cap **[A]**.

Use a clean, approved safety container to add fuel of the correct specifications.

Add fuel only in an area that has free movement of air and no open flames or sparks. NO SMOKING! **[B]**.

Install and tighten the fuel fill cap **[A]**.





Fuel Filter

⚠ 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.

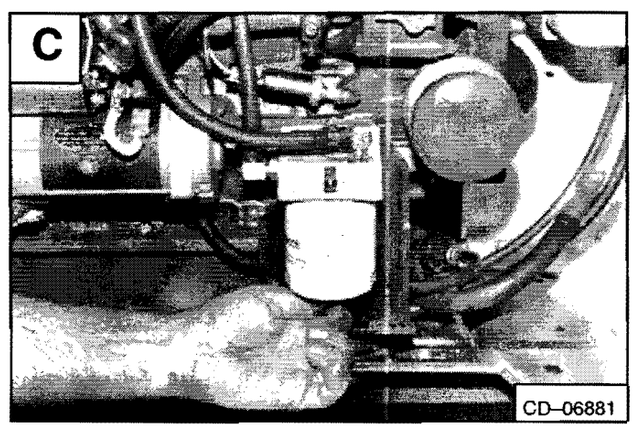
W–2103–1285

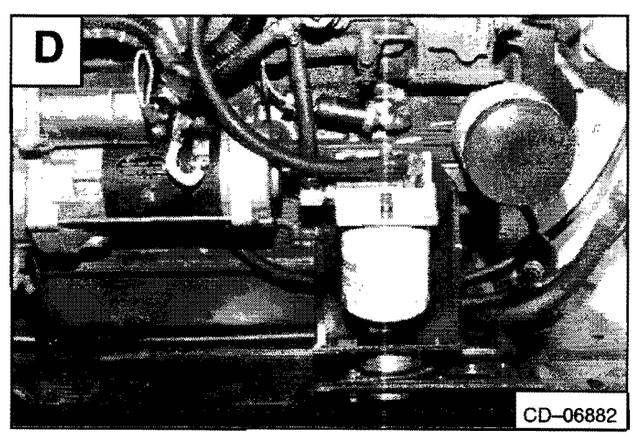
See the Service Schedule (Page 1–1) for the service interval when to remove the water from the fuel filter.

Loosen the drain at the bottom of the filter element to drain the water from the filter **[C]**.

See the Service Schedule (Page 1–1) for the service interval when to replace the fuel filter.

Use a filter wrench to remove the filter element (Item 1) **[D]**.





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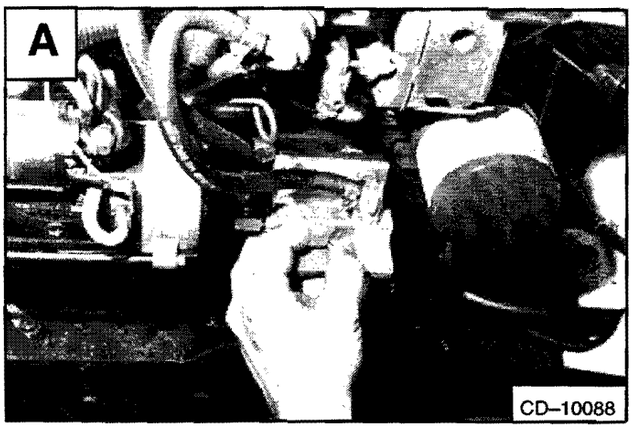
Clean the area around the filter housing. Put oil on the seal of the new filter element. Install the fuel filter.

Remove the air from the fuel system (See Below).

Removing Air from the Fuel System

After replacing the fuel filter element or when the fuel tank has run out of fuel, the air must be removed from the fuel system to start the engine.

Open the vent on the fuel filter housing **[A]**.



Operate the hand pump (priming bulb) until fuel flows from the vent with no air bubbles **[B]**.

Close the vent on the fuel filter housing **[A]**.

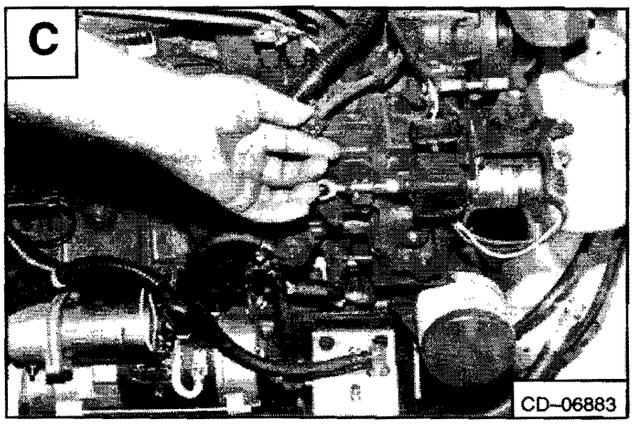


Open the vent on the fuel injection pump **[C]**.

Operate the hand pump (priming bulb) until the pump feels solid **[B]**.

Tighten the vent plug **[C]**.

Start the engine. It may be necessary to open the vent plug (at the injection pump) briefly until the engine runs smoothly.



⚠ 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

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ENGINE LUBRICATION SYSTEM

Checking Engine Oil

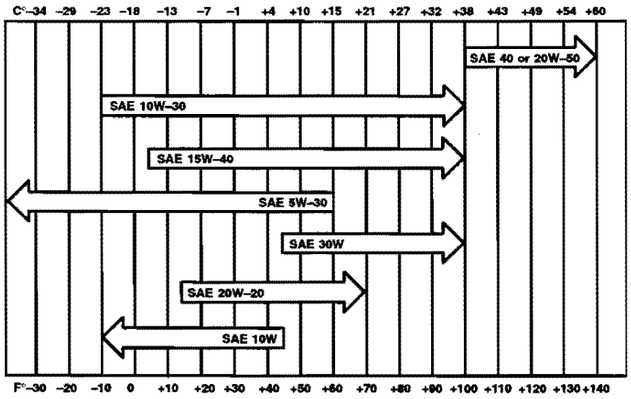
Check the oil level every day.

Before starting the engine for the work shift. Open the rear door. Remove the dipstick **[A]**.

Keep the oil level between the marks on the dipstick.

Use a good quality motor oil that meets API Service Classification of CC, CD or CE (See Oil Chart below).

RECOMMENDED SAE VISCOSITY NUMBER (LUBRICATION OILS FOR ENGINE CRANKCASE)

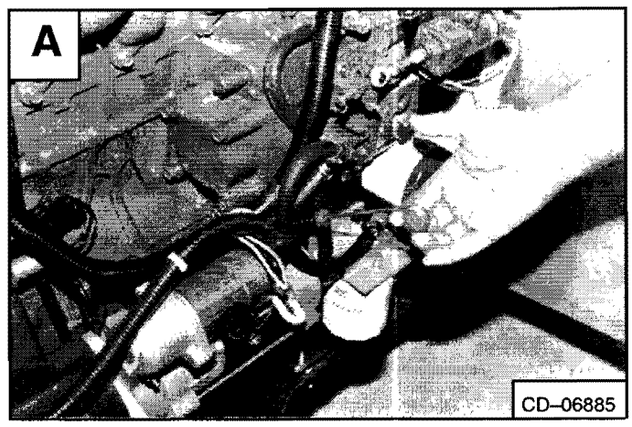


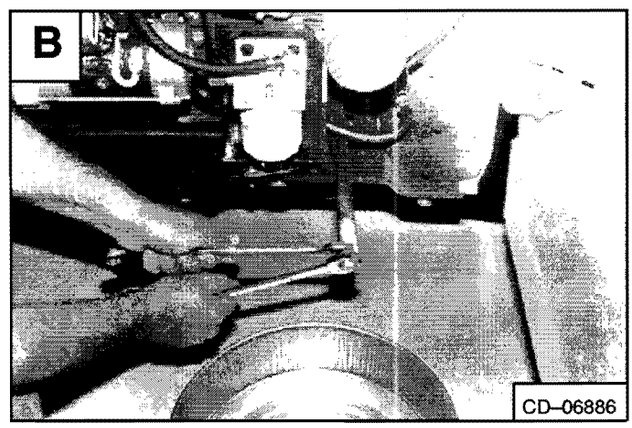
TEMPERATURE RANGE ANTICIPATED BEFORE NEXT OIL CHANGE (DIESEL: USE API CLASSIFICATION CC, CD OR CE)

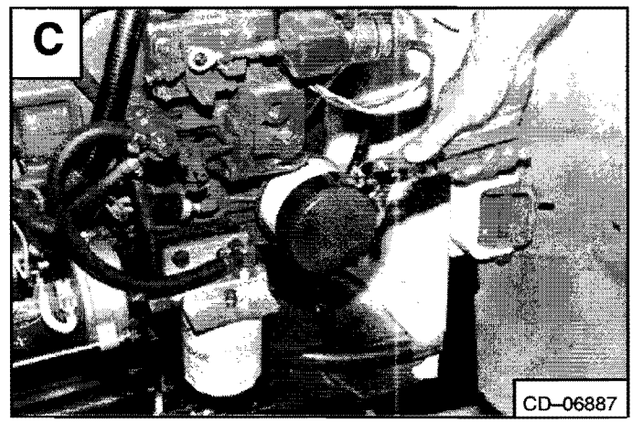
Replacement of Oil and Filter

See the Service Schedule (Page 1–1) for the service interval for replacing the engine oil and filter.

1. Run the engine until it is at operating temperature. Stop the engine.
2. Open the rear door. Remove the drain plug **[B]**. Drain the oil into a container.
3. Remove the oil filter **[C]**.
4. Clean the filter housing surface. Put clean oil on the new oil filter gasket. Install the filter and hand tighten only.
5. Install and tighten the drain plug **[B]**.

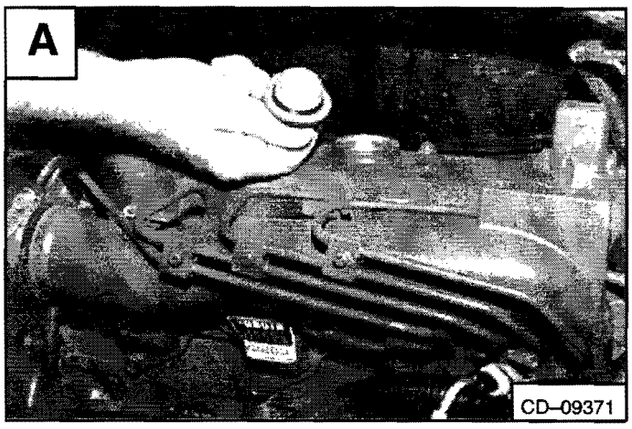






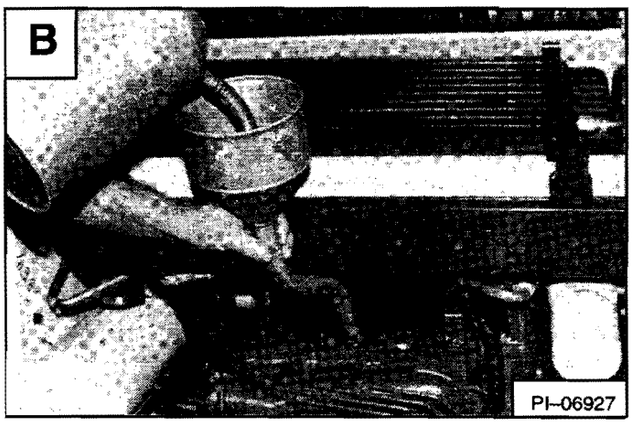
https://truckmanualshub.com/

6. Remove the filler cap from the valve cover **[A]**.



7. Put 7.5 qts (7,1 L) of oil in the engine (See Oil Chart, Page 1–11) **[B]**.

8. Start the engine and let it run for several minutes. Stop the engine. Check for leaks and check the oil level. Add oil as needed if it is not at the top mark on the dipstick.



⚠ 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

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ENGINE COOLING SYSTEM

Cleaning the Cooling System

Check the cooling system every day to prevent over–heating, loss of performance or engine damage.

⚠ WARNING

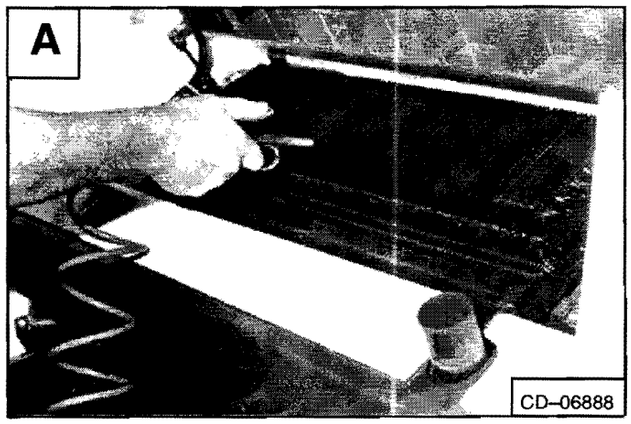
Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

W–2019–1285

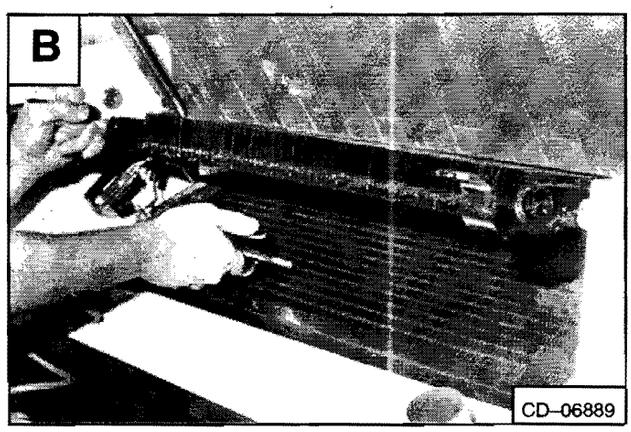
Raise the rear grill.

Use air pressure or water pressure to clean the top of the oil cooler **[A]**.



Raise the oil cooler and clean the top of the radiator **[B]**.

Check the cooling system for leaks.

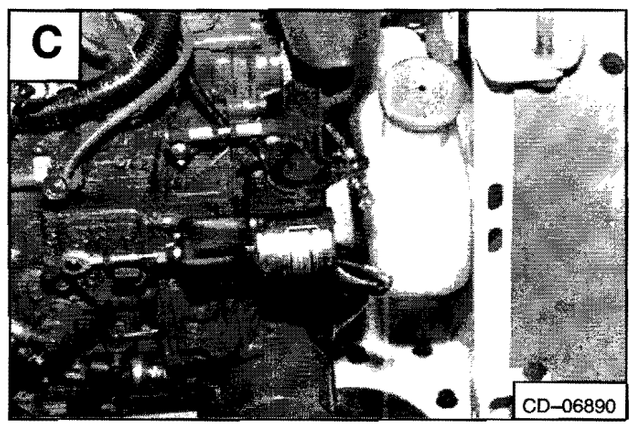


Coolant Level

Open the rear door. Check the coolant level in the coolant recovery tank on the right side of the engine **[C]**.

The coolant recovery tank must be 1/3 full.

Add pre–mixed coolant, 50% water and 50% ethylene glycol to the recovery tank if the coolant level is low.



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Removing Coolant from the Cooling System

⚠ WARNING

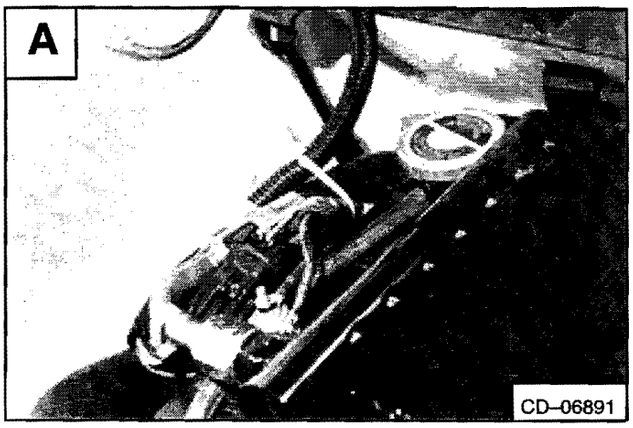
Do not remove radiator cap when the engine is hot. You can be seriously burned.

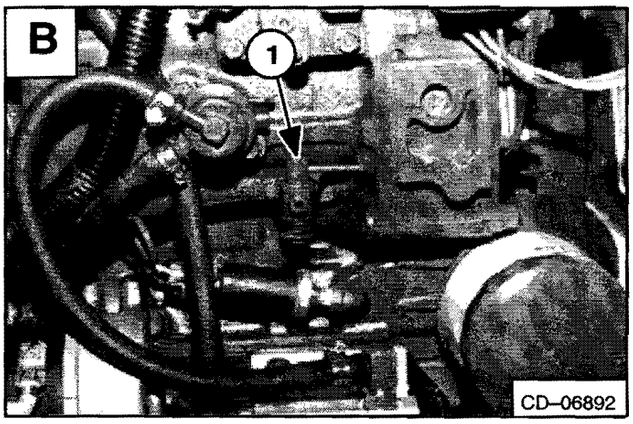
W–2070–1285

1. Open the rear door. Open the rear grill.
2. Remove the radiator cap **[A]**.
3. Connect a hose to the engine block drain valve (Item 1) **[B]**. Open the drain valve and drain the coolant into a container.
4. After all the coolant is removed, close the drain valve.

NOTE: Protect the cooling system by adding pre–mixed 50% ethylene glycol and 50% water to the system. This mixture will protect the cooling system to –34°F (–36°C).

5. Mix the coolant in separate container (See Specifications, Section 8 for correct capacity).
6. Fill the radiator with the pre–mixed coolant. Install the radiator cap.
7. Fill the coolant recovery tank 1/3 full.
8. Run the engine until it is at operating temperature. Stop the engine. Check the coolant level in the recovery tank when cool. Add coolant to the recovery tank as needed.





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ALTERNATOR BELT

Adjusting the Alternator Belt

To adjust the belt tension for the alternator, use the following procedure:

Stop the engine.

Raise the operator cab (Page 1–5).

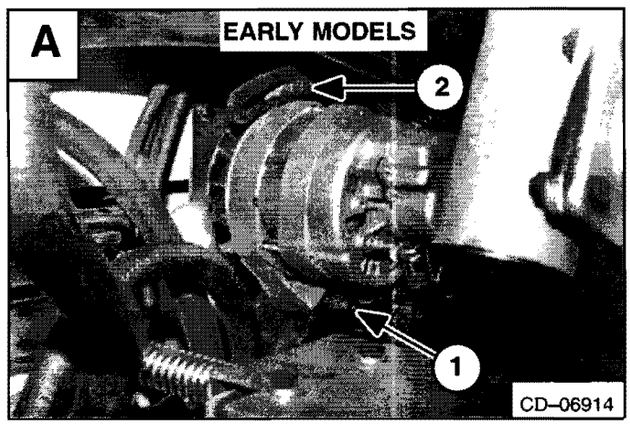
Loosen the alternator mounting bolt (Item 1) **[A]** & **[B]**.

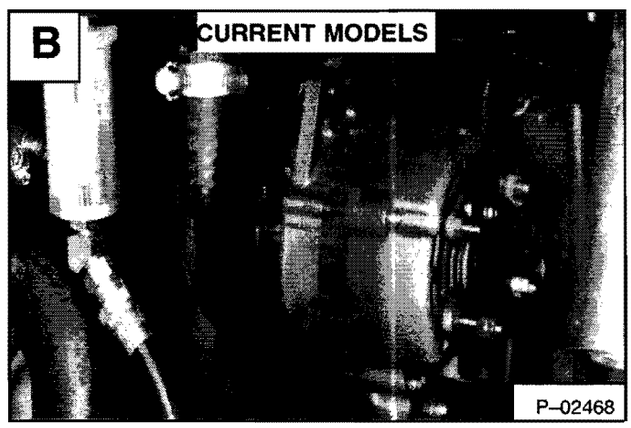
Loosen the adjusting bolt (Item 2) **[A]** & **[B]**.

Move the alternator until the belt has 5/16" (8,0 mm) movement at the middle of the belt span with 15 lbs. (66 N) of force.

Tighten the adjustment bolt and mounting bolt.

Lower the operator cab. Close the rear door.





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USING A BOOSTER BATTERY (JUMP STARTING)

Procedure

⚠ WARNING

Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W–2065–1296

If it is necessary to use a booster battery to start the engine, BE CAREFUL! There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

The ignition switch must be in the "OFF" position. The booster battery to be used must be 12 volt.

Connect the end of the first cable (Item 1) to the positive (+) terminal of the booster battery. Connect the other end of the same cable (Item 2) to the starter **[A]**.

Connect the end of the second cable (Item 3) to the negative (–) terminal of the booster battery. Connect the other end of the same cable (Item 4) to the engine **[A]**.

Keep cables away from moving parts. Start the engine (Also See "Pre–Heat Condition" in the Operation & Maintenance Manual).

After the engine has started, remove the ground (–) cable (Item 4) first **[A]**. Remove the cable from the starter.

Close the rear door.

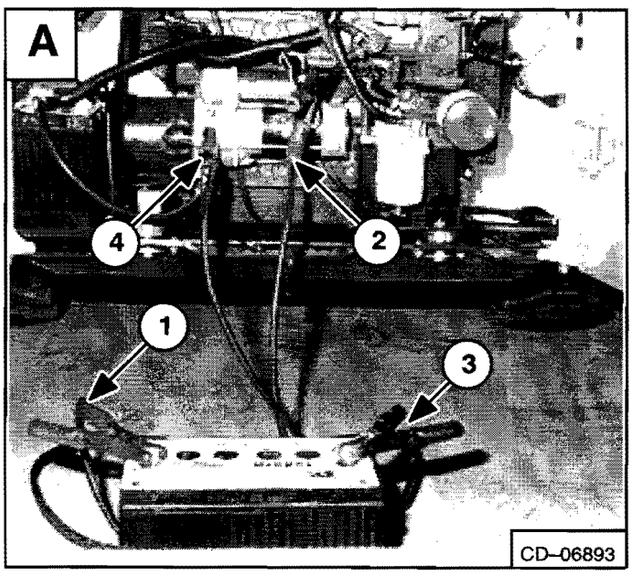
⚠ WARNING

Keep arcs, sparks, flames and lighted tobacco away from batteries. When *jumping* from booster battery make final connection (negative) at engine frame.

Do not jump start or charge a frozen or damaged battery. Warm battery to 60°F. (16°C.) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.

Battery gas can explode and cause serious injury.

W–2066–1296



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HYDRAULIC/HYDROSTATIC SYSTEM

Checking and Adding Fluid

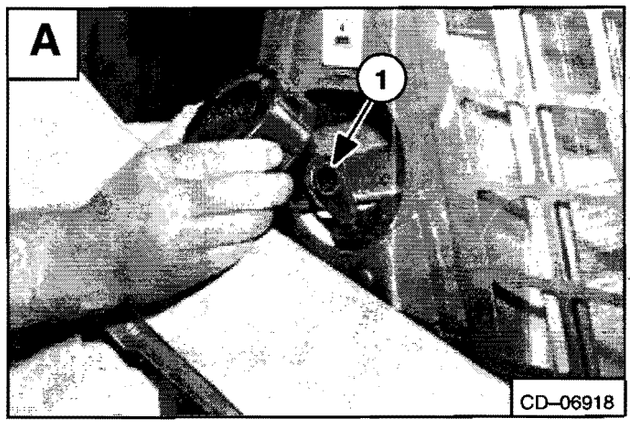
Use only recommended fluid in the hydraulic system (See Specifications, Section 8 for the correct fluid).

To check the reservoir, use the following procedure:

With the loader on a level surface. Lower the lift arms and tilt the Bob–Tach fully back. Stop the engine.

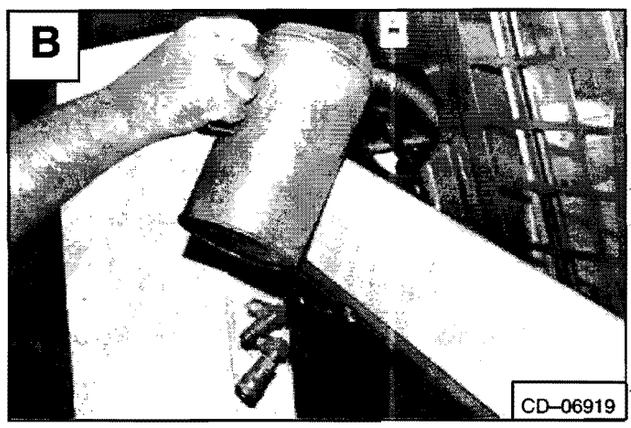
Remove the dipstick (Item 1) **[A]**.

The fluid level must be between the marks on the dipstick. If fluid is needed, remove the fill cap **[A]**.



Add the fluid as needed to bring the level to the top mark on the dipstick **[B]**.

Install the fill cap.



Hydraulic/Hydrostatic Filter Replacement

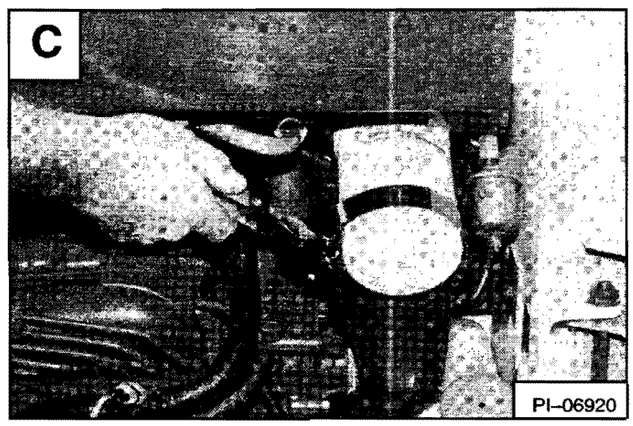
See the Service Schedule (Page 1–1) for the correct service interval.

Open the rear door.

Use a filter wrench and remove the filter element **[C]**.

Clean the surface of the filter housing where the element seal contacts the housing. Put clean oil on the rubber seal of the filter element.

Install and hand tighten the filter element.

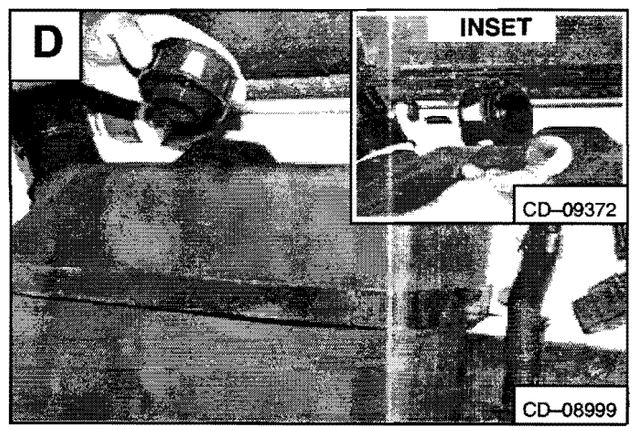


Hydraulic Reservoir Breather Cap

See Service Schedule (Page 1–1) for the correct service interval.

Remove the breather cap and replace it with a new cap **[D]**.

Make sure the baffle washer and rubber gasket (Inset) are installed in the hydraulic reservoir **[D]**.



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SPARK ARRESTOR MUFFLER

Cleaning Procedure

See the Service Schedule (Page 1–1) for the service interval for cleaning the spark arrestor muffler.

Do not operate the loader with a defective exhaust system.

IMPORTANT

This loader is factory equipped with a U.S.D.A. Forestry Service approved spark arrestor muffler. It is necessary to do maintenance on this spark arrestor muffler to keep it in working condition. The spark arrestor muffler must be serviced by dumping the spark chamber every 100 hours of operation.

If this machine is operated on flammable forest, brush or grass covered land, it must be equipped with a spark arrestor attached to the exhaust system and maintained in working order. Failure to do so will be in violation of California State Law, Section 4442 PRC.

Make reference to local laws and regulations for spark arrestor requirements.

I–2022–0595

Stop the engine. Open the rear door and rear grill.

Remove the plug at the bottom of the muffler **[A]**.

⚠ WARNING

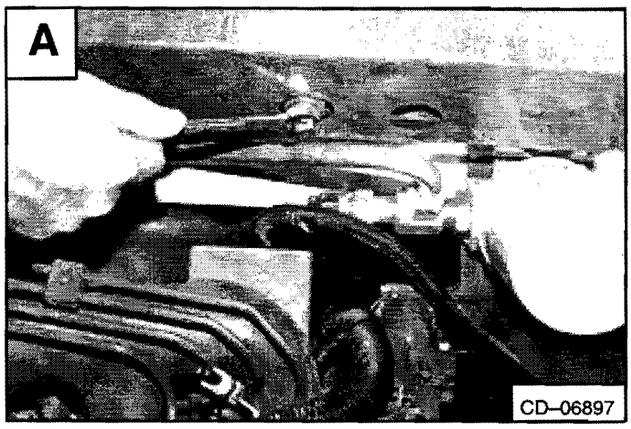
When the engine is running during service, the steering levers must be in neutral and the parking brake engaged. Failure to do so can cause injury or death.

W–2006–0284

Start the engine and run for about 10 seconds while a second person, wearing safety glasses, holds a piece of wood over the outlet of the muffler.

Stop the engine. Install and tighten the plug.

Lower the rear grill and close the rear door.



⚠ WARNING

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W–2050–1285

Stop engine and allow the muffler to cool before cleaning the spark chamber. Wear safety goggles. Failure to obey can cause serious injury.

W–2011–1285

Never use machine in atmosphere with explosive dust or gases or where exhaust can contact flammable material. Failure to obey warnings can cause injury or death.

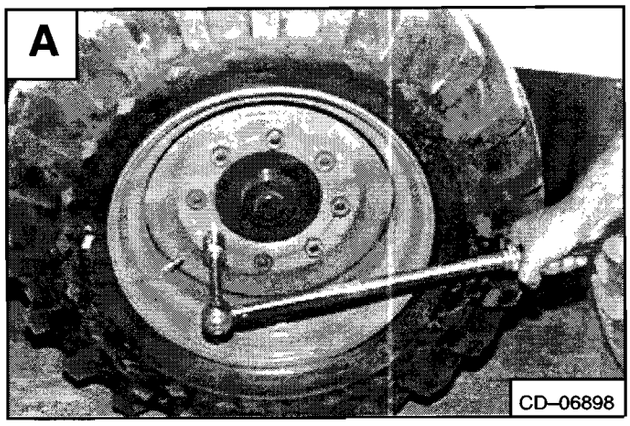
W–2068–1285

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TIRE MAINTENANCE

Wheel Nuts

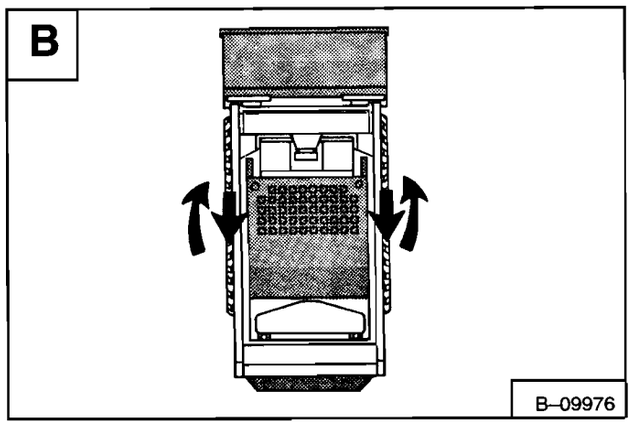
See the Service Schedule (Page 1–1) for the service interval to check the wheel nuts. The correct torque is 105–115 ft.–lbs. (142–156 Nm) **[A]**.



Tire Rotation

Check the tires regularly for wear, damage and pressure (See Specifications, Section 8 for the correct tire pressure).

Rear tires usually wear faster than front tires. To keep tire wear even, move the front tires to the rear and the rear tires to the front **[B]**.



It is important to keep the same size tires on each side of the loader. If different sizes are used, each tire will be turning at a different speed and cause excessive wear. The tread bars of all the tires must face the same direction.

Recommended tire pressure must be maintained to avoid excessive tire wear and loss of stability and handling capability.

Tire Mounting

Tires are to be repaired only by an authorized person using the proper procedures and safety equipment. Tires and rims must always be checked for correct size before mounting. Check rim and tire bead for damage.

The rim flange must be cleaned and free of rust. The tire bead and rim flange must be lubricated with a rubber lubricant before mounting the tire, avoid excessive pressure which can rupture the tire and cause serious injury or death. During inflation of the tire, check the tire pressure frequently to avoid over–inflation.

⚠ WARNING

Do not inflate tires above specified pressure. Failure to use correct tire mounting procedure can cause an explosion which can result in injury or death.

W–2078–1285

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FINAL DRIVE TRANSMISSION (CHAINCASE)

Checking and Adding Oil

The chaincase uses the same type of oil as the hydraulic/hydrostatic system (See Specifications, Section 8 for the correct oil).

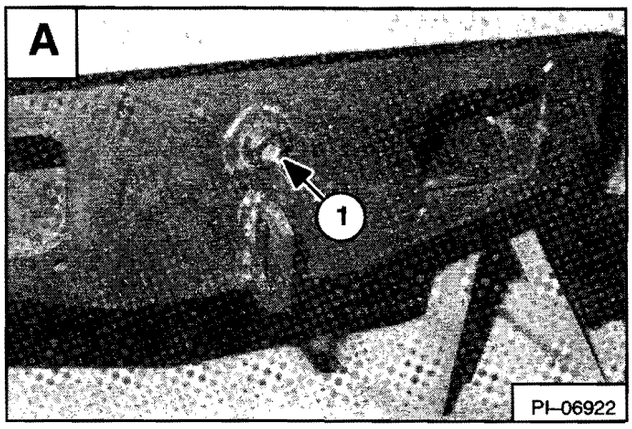
To check the chaincase oil level, use the following procedure:

Drive the loader on a level surface. Stop the engine.

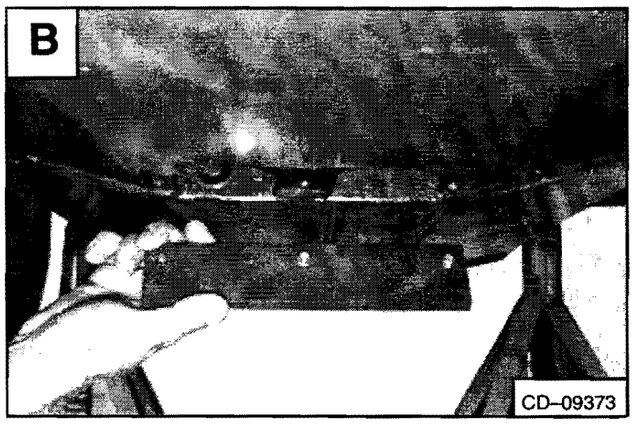
Remove the plug (Item 1) from the front of the chaincase housing **[A]**.

If oil can be reached with the tip of the finger through the hole the oil level is correct.

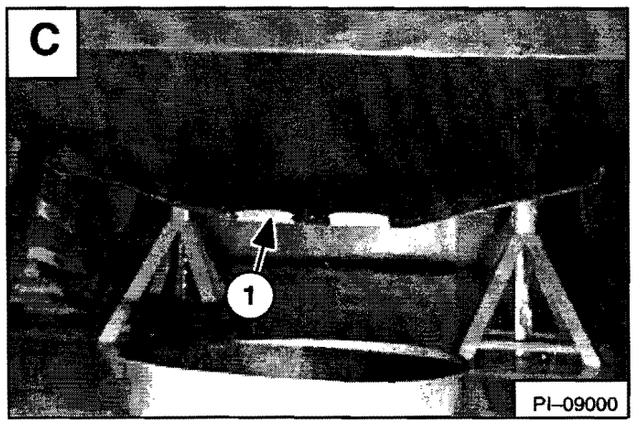
If the level is low, add oil through the check plug hole until the oil flows from the hole. Install and tighten the plug.



To drain the oil from the chaincase, remove the cover which is installed over the drain plug **[B]**.



Remove the drain plug (Item 1) at the rear of the chaincase and drain the oil into a container **[C]**.



FAN GEARBOX

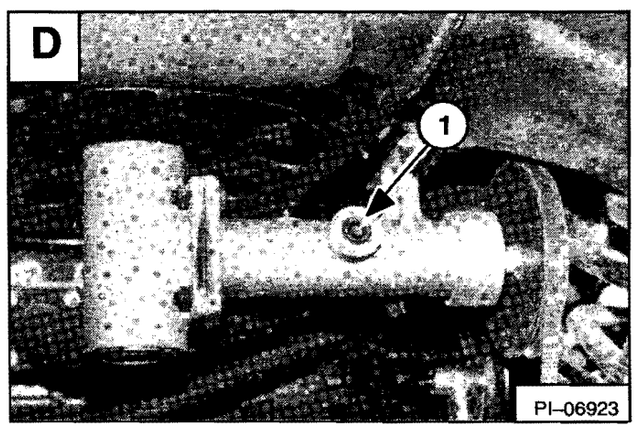
Checking Grease Level

See the Service Schedule (Page 1–1) for the correct service interval.

Raise the operator cab (Page 1–5).

Remove the plug (Item 1) to check the lubricant level **[D]**.

If the level is low, add 90W gear lube through the check plug hole until the lubricant flows from the hole. Install and tighten the plug.



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DRIVE BELT

Adjustment

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

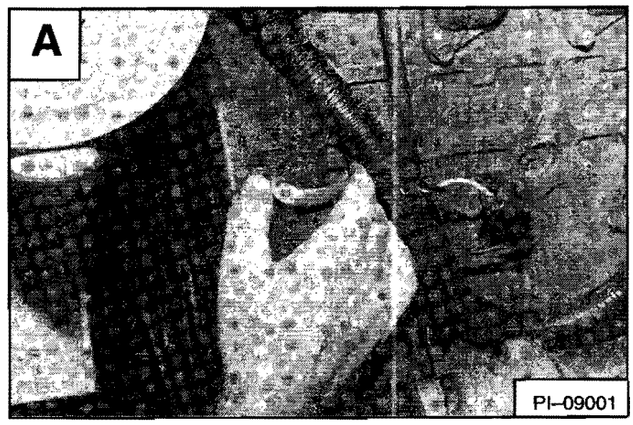
MEL–1405 – Bar
MEL–1406 – Spring Scale

See the Service Schedule (Page 1–1) for the service interval.
To adjust the drive belt between the engine flywheel and hydrostatic pump pulley, use the following procedure:

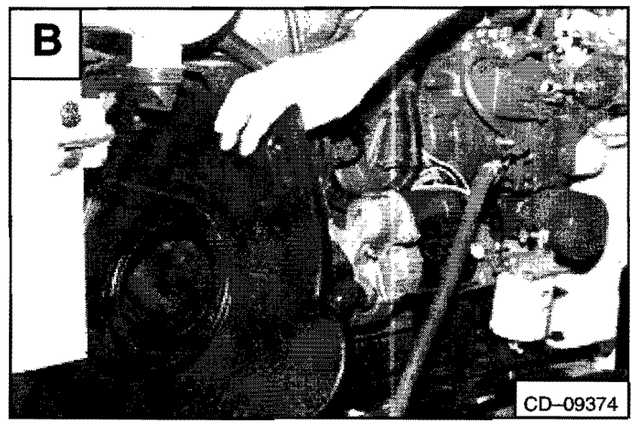
Stop the engine. Open the rear door.

Disconnect the negative (–) cable from the battery.

Remove the belt shield holddown clips **[A]**.

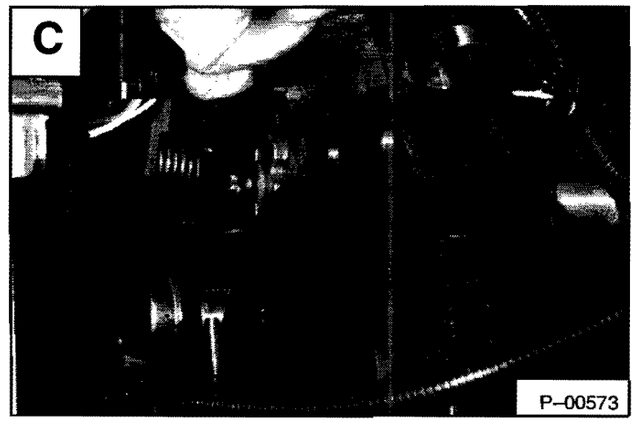


Remove the belt shield **[B]**.



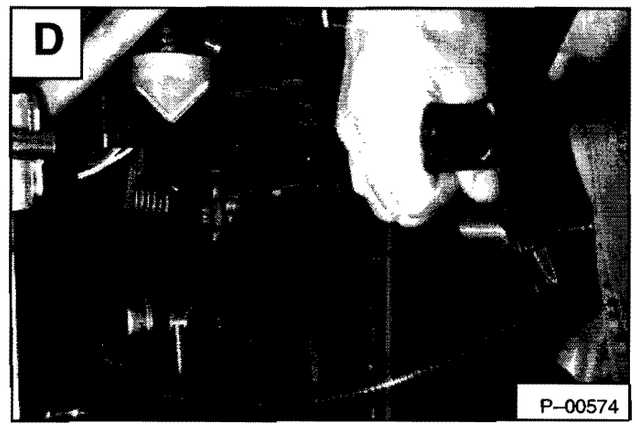
The pulley tensioner is located between the flywheel and pump pulley.

Loosen the bolt at the pulley tensioner **[C]**.



Use tool to move the tension pulley down **[D]**. See Page 1–22 for correct procedure to adjust the drive belt.

Tighten the bolt at the pulley tension bracket **[C]**.



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DRIVE BELT (Cont'd)

Use the tools to check the belt tension.

1. Install the tool on the drive belt. The pin (Item 1) must be pulled tight against the engine drive pulley **[A]**.

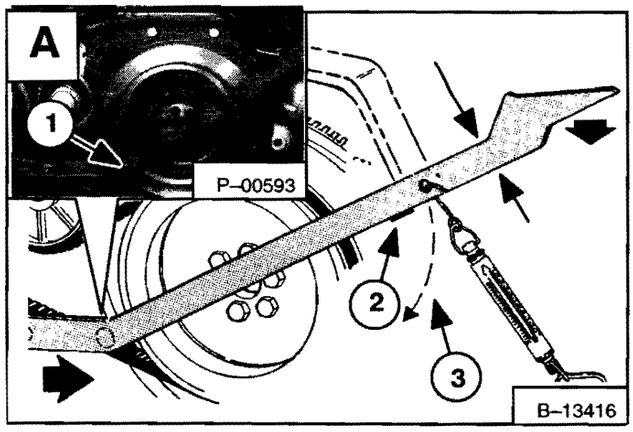
2. Make a mark (Item 2) on the cast flange just below the tool handle **[A]**.

3. Use a spring scale and install on the tool handle. The line of pull (Item 3) on the spring scale must follow the arrowed line **[A]**.

NEW BELT: A new belt is one with a 1/2 hour or less of operating time. With 15 lbs. (67 N) of force the tool should move 1.25" (32 mm) (the width of the tool handle).

NOTE: When a NEW belt is installed, run the engine for approximately 5 minutes. Then the belt tension must be checked and re–adjusted as needed, to 15 lbs. (67 N) spring scale force.

USED BELT: With 12 lbs. (53 N) of force, the tool should move 1.25" (32 mm) (the width of the tool handle), if not, re–adjust pulley tensioner.



Drive Belt Replacement

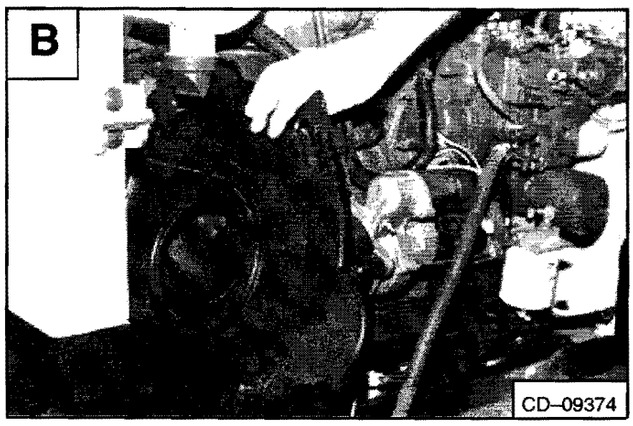
Stop the engine. Open the rear door.

Raise the operator cab (Page 1–5).

Disconnect the negative (–) cable from the battery.

Remove the belt shield holddown clips.

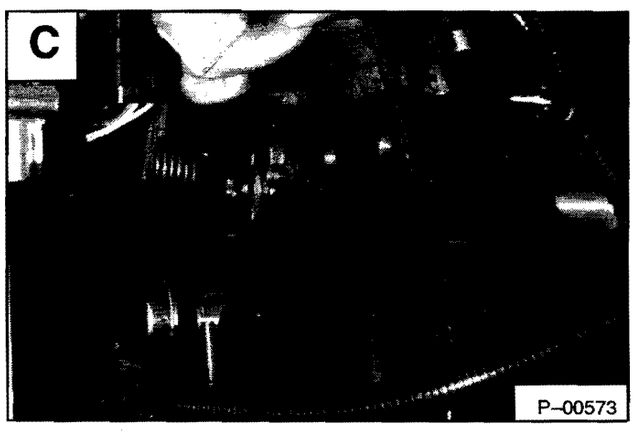
Remove the belt shield **[B]**.



Remove the fan drive belt.

The pulley tensioner is located between the flywheel and pump pulley. Loosen and remove the bolt from the pulley tensioner **[C]**.

Remove the pulley tensioner assembly.



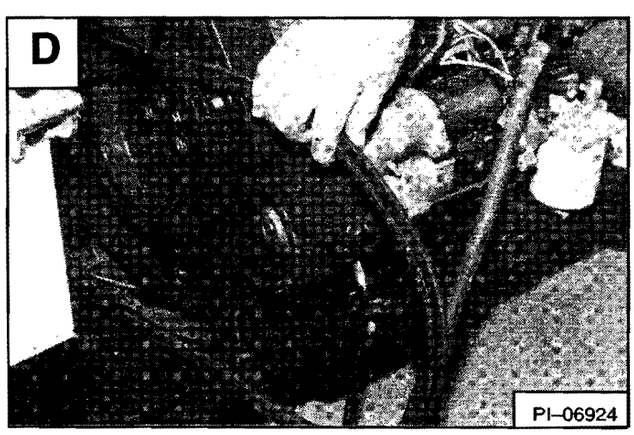
Remove the drive belt from the pump pulley and flywheel. Remove the drive belt from the loader **[D]**.

Install the new drive belt. Install the pulley tensioner assembly.

Install the fan drive belt.

Adjust the drive belt (See the above procedure).

Connect the negative (–) cable to the battery.



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LUBRICATION OF THE LOADER

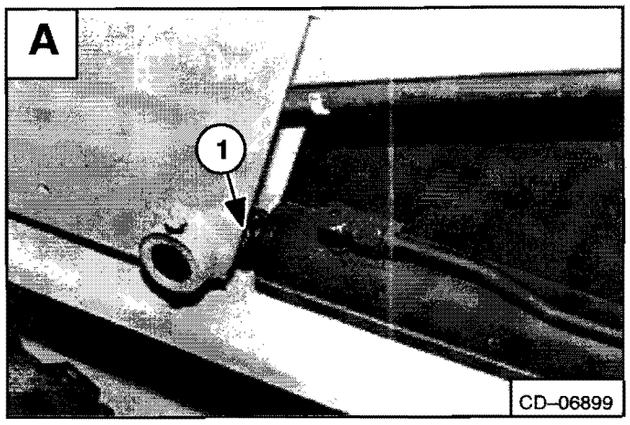
Procedure

Lubricate the loader as specified in the Service Schedule (Page 1–1) for the best performance of the loader.

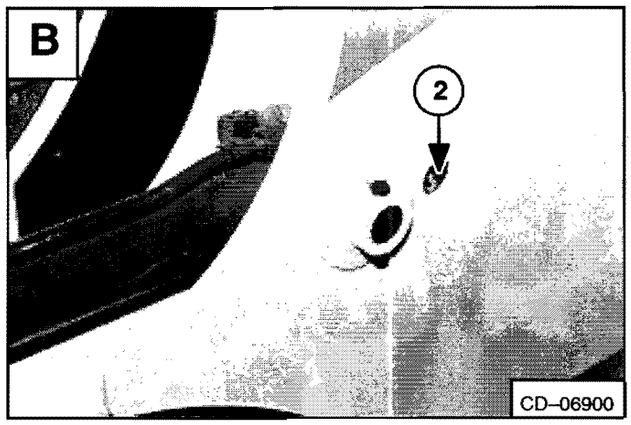
Always use a good quality lithium based multi–purpose grease when you lubricate the loader. Apply the lubricant until extra grease shows.

Lubricate the following locations on the loader:

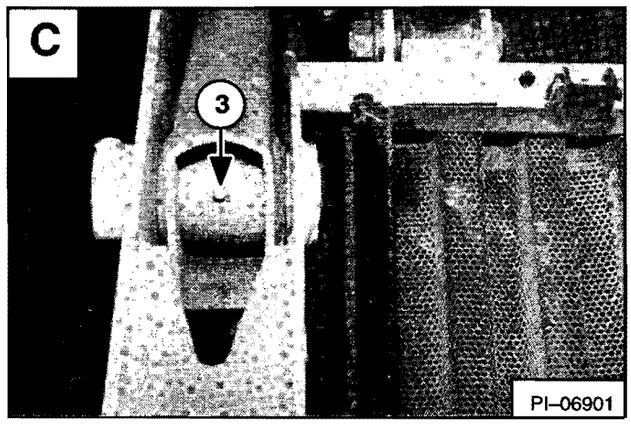
1. Rod End Lift Cylinder (both sides) **[A]**.



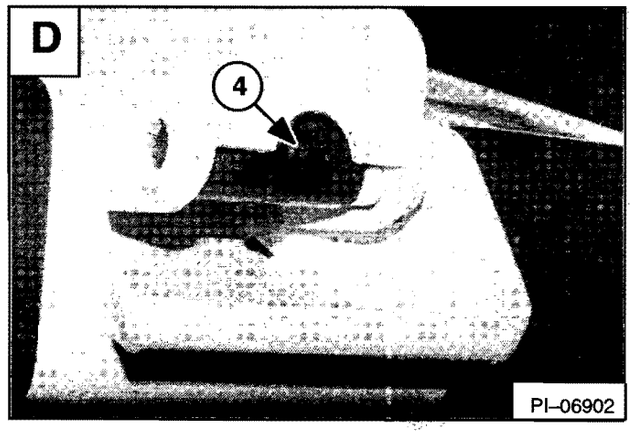
2. Base End Lift Cylinder (both sides) **[B]**.



3. Lift Arm Pivot Pin (both sides) **[C]**.



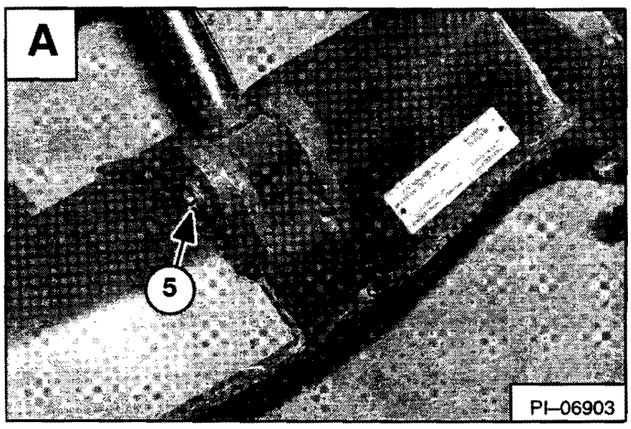
4. Base End Tilt Cylinder **[D]**.



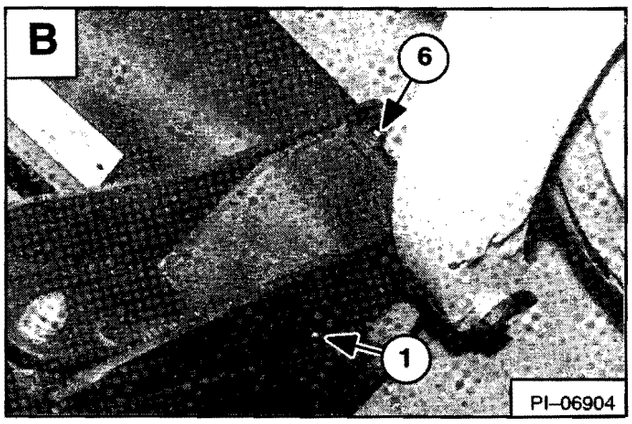
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LUBRICATION OF THE LOADER (Cont'd)

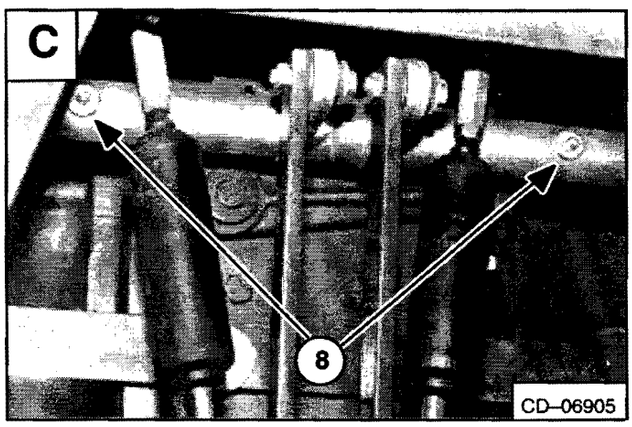
5. Rod End Tilt Cylinder **[A]**.



6. Bob–Tach Pivot Pin (both sides) **[B]**.
7. Bob–Tach Wedge (both sides) **[B]**.



8. **250 HOURS:** Steering Lever Shaft (2) **[C]**.



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REMOTE START SWITCH

Procedure

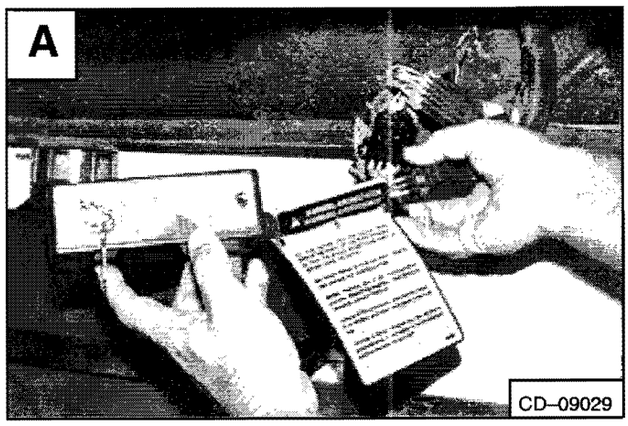
The tool listed will be needed to do the following procedure:

MEL–1398 – Remote Start Switch

The short wire harness assembly is required when the operator cab is in the raised position for service and the serviceman needs to start the engine. The operator cab wire harness connectors must be separated from the engine wiring harness connector in the cab.

Connect the remote start switch to these connectors **[A]**.

This remote start switch is required when the serviceman is adjusting the steering linkage, checking the hydraulic/hydrostatic system.



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DIAGNOSTIC TOOL

Procedure

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

MEL–1400 – Diagnostic Tool

Stop the engine.

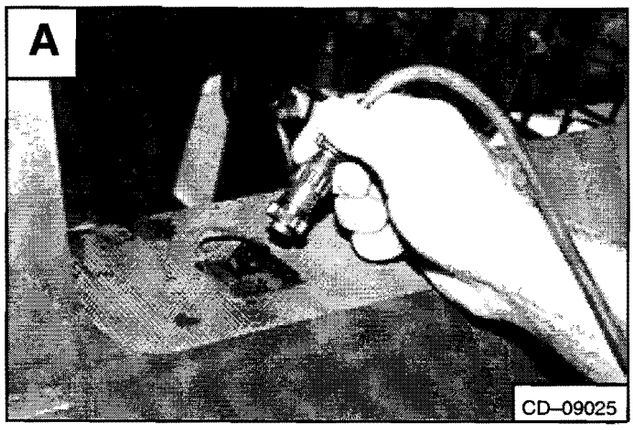
Lift and block the loader (Page 1–2).

Remove the dust cap from the diagnostic connector plug. Connect the diagnostic tool plug into the loader connector;

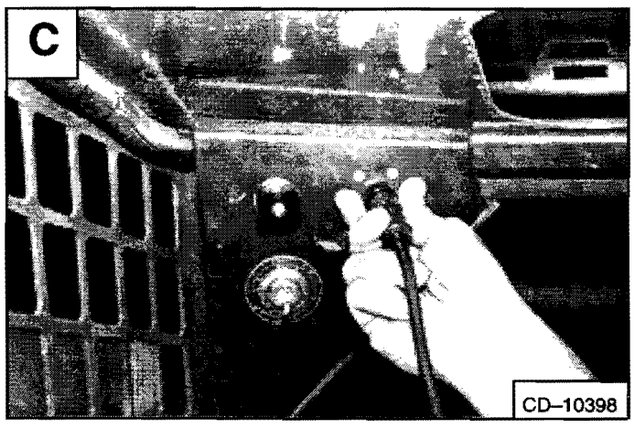
S/N 11078 & Below **[A]**
S/N 11079 & Above **[C]**

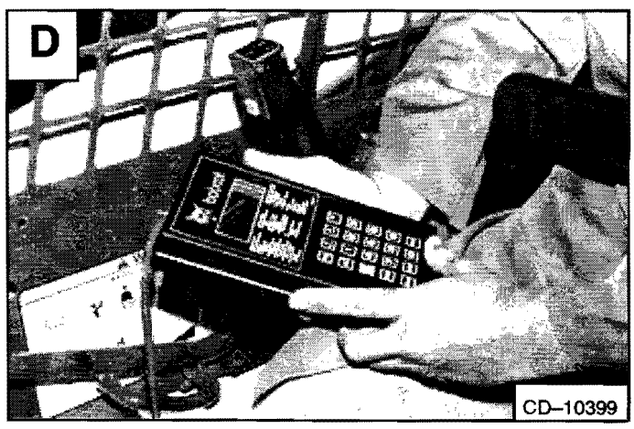
Use the diagnostic tool as instructed by the instructions on the tool and owners manual to make service checks of the system operating unit and other components;

S/N 11078 & Below **[B]**
S/N 11079 & Above **[D]**









SENDER AND SENSOR

Service Checks

Use the following information when checking the senders and sensor with a volt/ohmmeter.

Component

TEMPERATURE SENDER
70 degree F. (21 degree C.) ..... 970 ohms
80 degree F. (27 degree C.) ..... 1013 ohms

ENGINE OIL PRESSURE SENDER
0 PSI 3 ohms Max.
6 PSI (41 kPa) ..... 7 ohms Min.
50 PSI (345 kPa) ..... 45 ohms
70 PSI (483 kPa) ..... 59 ohms

TRANSMISSION CHARGE PRESSURE SENDER
0 PSI 0–5 ohms
100 PSI (690 kPa) ..... 58 ohms
130 PSI (896 kPa) ..... 75 ohms
150 PSI (1034 kPa) ..... 87 ohms

FUEL SENDER
Full 30 ohms
Empty 270 ohms

RPM SENSOR
Continuity Resistance of 250–550 ohms.
Set clearance as follows from the flywheel:
Without Plastic Tip–0.05" (1,27 mm)
*With Plastic Tip–Plastic Tip to Touch Flywheel

Continuity Resistance of 3000–3500 ohms.
Set clearance as follows from the flywheel:
Without Plastic Tip–0.10" (2,54 mm)
With Plastic Tip–0.05" (1,27 mm)

*The plastic tip is used as a gauge to set the RPM SENSOR, the plastic tip is designed to come off after the engine is started.

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MONITOR SERVICE CODES

One of the following Alphabetic Codes may appear on your monitor.

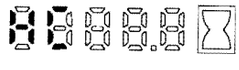

Engine Coolant Level


Engine Coolant Temperature

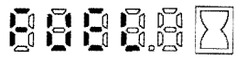

Engine Oil Pressure


Engine Speed

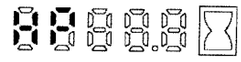

Air Filter


Hydrostatic Fluid Temperature

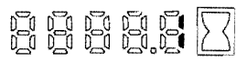

battery

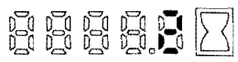

FUEL Level


Hydraulic Filter


Hydraulic Fluid Pressure

One of the following Numeric Codes will appear following one of the above Alphabetic Codes. Example: 

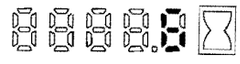

Shut Down


Warning


Wiring Not Connected


Wiring Shorted


High Sensor Voltage


Sensor No Signal


Sensor Out of Range

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MONITOR SERVICE CODES

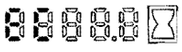
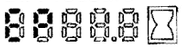
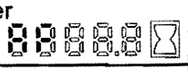
The following list references the defect codes that are transmitted to the instrument panel display which can occur. Some service procedures for correcting the problems can be found in this manual and other procedures must be performed ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL.

⚠ WARNING

Instructions are necessary before operating or servicing machine. Read and understand the 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–2003–1298

SERVICE CODES

SUBJECT	DISPLAY READS	CONDITION
Engine Coolant Level 	ECL 1	SHUTDOWN, No Coolant
Engine Coolant Temp. 	EC–1.1	SHUTDOWN, Engine Temperature
	EC–2.1	WARNING, Engine Temperature
	EC 3	Wiring Not Connected
	EC 4	Wiring Shorted
	EC 5	High Sensor Voltage
	EC 7	Sensor Out Of Range
Engine Oil Pressure 	EP 1	SHUTDOWN, Pressure
	EP 2	WARNING, Pressure
	EP 3	Wiring Not Connected
	EP 4	Wiring Shorted
	EP 5	High Sensor Voltage
	EP 7	Sensor Out Of Range
Engine Speed 	ES 1	SHUTDOWN, Engine Speed Too High
	ES–2.1	WARNING, Engine Speed Slightly High
	ES–6	Sensor No Signal
	ES–7	Sensor Out Of Range
Air Filter 	AF 2	WARNING, Restriction Too High
	AF 6	Sensor No Signal
Battery 	b–2.1	WARNING, Bad Battery
	b–2.2	WARNING, Battery Voltage Low
Fuel Level 	FUEL2	WARNING, Low Level
	FUEL3	Wiring Not Connected
	FUEL4	Wiring Shorted
	FUEL5	High Sensor Voltage
	FUEL7	Sensor Out Of Range

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SERVICE CODES		
SUBJECT	**DISPLAY READS**	**CONDITION**
Hydrostatic Charge Filter Condition 88888	HF1–2	WARNING, High Restriction
	HF1–6	Sensor No Signal
Hydrostatic Fluid Pressure 88888	HP 1	SHUTDOWN, Pressure
	HP 2	WARNING, Pressure
	HP 3	Wiring Not Connected
	HP 4	Wiring Shorted
	HP 5	High Sensor Voltage
	HP 7	Sensor Out Of Range
Hydrostatic Fluid Temperature 88888	HC 1	SHUTDOWN, Temperature
	HC 2	WARNING, Temperature
	HC 3	Wiring Not Connected
	HC 4	Wiring Shorted
	HC 5	High Sensor Voltage
	HC 6	Sensor No Signal
	HC 7	Sensor Out Of Range

TILT CYLINDER
Checking the Tilt Cylinder 2–5
Removal and Installation 2–5
Rod End Seal 2–5

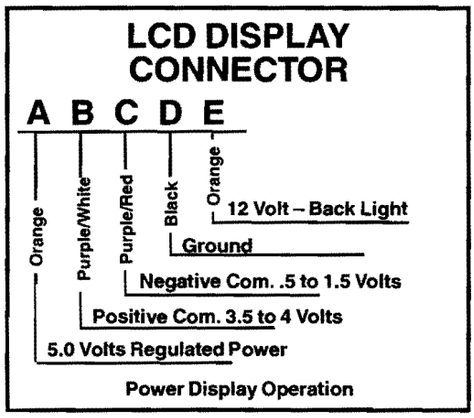
TROUBLESHOOTING
Chart 2–5

TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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TROUBLESHOOTING THE BOSS® & LCD DISPLAY

SUBJECT	SYMPTOM	INDICATES	TO CORRECT SYMPTOM
BOSS	Temperature related shutdown codes when no heating occurs.	12 volt supply and BOSS failure.	1. Check stored defects with the BOSS tool. *2. If defect list has EC1, HC1, EC2.1, HC2. EP3, EP7, HP7, B2.2, low fuel, Fuel 7 and last occurrence hr. readings are within a hundredth, the BOSS is defective and must be replaced. 3. Using a voltmeter, check the alternator output.
	*** NOTE: You may have some or all of the codes listed. You will have high temps, high press, low voltage and low fuel.**		
LCD Display	Intermittent code of ES6 while engine running.	Sensor No Signal or No RPM's.	1. ES6 will occur if the loader is stalled or shutdown during run cycle. The code is generated due to the lack of RPM and the existence of residual pressure in the system.
	Display is dead – No Icons, Bar Graphs, Hourmeter.	Lack of 5.0 volts regulated power.	1. Check pin "A" for 5.0 volts. If 5.0 volts is present replace the display. 2. If no power exists at pin "A", install BOSS back–up to confirm the BOSS system. 3. If the problem still exists, check the harness for continuity.
	During an active WARNING display, reset occurs and the hourmeter becomes all zero's.	Low voltage (5.0) triggered reset.	1. Turn the ignition switch "OFF". Re–starting will return hourmeter reading. 2. If re–starting will not return hourmeter reading, check pins "B" & "C" as stated in Step 5 below.
	Garbled message, missing segments, etc.	The display is not fault tolerant. Also can be an indication of poor internal connections.	1. Turn the ignition switch "OFF" and re–start. A fault is an invalid message that the display tries to display. Generally a fault occurs if communications of two messages are combined on the display.
	After glow sequence or after a WARNING goes away, the Icon remains "ON".		1. Turn the key "OFF" and re–start.
	No Bar Graphs, No Hours.	Bad display or BOSS is not communicating.	1. Plug in the BOSS tool and start the engine. 2. If data is being received by the BOSS tool, the BOSS unit is not the cause of the problem. 3. If no data is received at the BOSS tool. disconnect the LCD display. *4. If messages are now received at the tool, the display is the problem. If problem still exists go to Step 5. 5. Check pins "B" & "C" for signal. 6. If there is no signal, install BOSS back–up unit. 7. If the problem still exists, check the harness for continuity.
	*** NOTE: The display has caused the problem by locking the communication lines and stopping communications from the BOSS.**		



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HYDRAULIC SYSTEM

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Removal and Installation 2–16

DIVERTER VALVE (OPT.)
Removal and Installation 2–18

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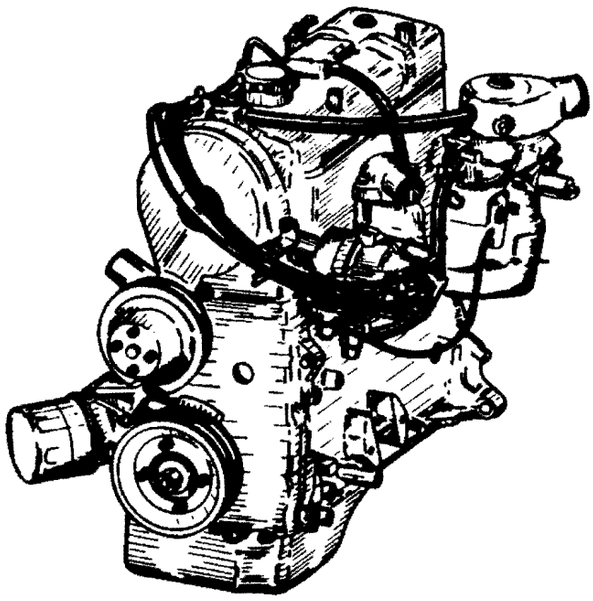
TILT CYLINDER
Checking the Tilt Cylinder 2–5
Removal and Installation 2–5
Rod End Seal 2–5

TROUBLESHOOTING
Chart 2–5

TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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bobcat

HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753

Chart #6720316 (Printed May 1990)

CHART LEGEND

1. **FLUID RESERVOIR:**
   Cap.: . . . . . 14 Qts. (13,2 L)
2. **BREATHER**
3. **FILL CAP**
4. **SCREEN,** . . . . . 60 Mesh
5. **DIVERTER VALVE (OPTIONAL)**
   a. Diverter Valve Diagram—Solenoid Not Energized (Front Auxiliaries)
   b. Diverter Valve Diagram—Solenoid Energized (Rear Auxiliaries)
   c. Electrical Solenoid
   d. Filter
6. **REAR AUXILIARY QUICK COUPLERS (OPTIONAL)**
7. **FRONT AUXILIARY QUICK COUPLERS**
8. **IN-LINE FILTER**
9. **HYDROSTATIC MOTOR**
10. **LIFT CYLINDERS**
11. **MAIN RELIEF VALVE:**
    2550-2600 PSI (17582-17927 kPa) @ Front Quick Couplers
12. **HYDRAULIC CONTROL VALVE**
13. **LOAD CHECK VALVES (3)**
14. **PORT RELIEF VALVE,** . . . . . 3500 PSI (24132 kPa)
15. **ANTI-CAVITATION VALVE**
16. **ELECTRICAL AUXILIARY SOLENOIDS**
17. **PORT RELIEF VALVE,** . . . . . 2500 PSI (17238 kPa)
18. **OIL COOLER BY-PASS,** . . . . . 400 PSI (2758 kPa)
19. **TILT CYLINDER**
20. **CHECK VALVE**
21. **UN-LOADING SPOOL**
22. **PRESSURE RELIEF VALVE**
23. **FLOW CONTROL SPOOL**
24. **BUCKET POSITION VALVE (OPTIONAL)**
25. **FLOW ADJUSTMENT VALVE**
26. **CHARGE PRESSURE SENDER**
27. **HYDRAULIC/HYDROSTATIC FILTER:**
    #4 Synthetic Media
28. **TEMPERATURE SENSOR**
29. **DIFFERENTIAL PRESSURE SWITCH:**
    (Normally Closed)
    34-44 PSI (234-303 kPa)
30. **FILTER BY-PASS VALVE:**
    45-55 PSI (311-379 kPa)
31. **OIL COOLER**
32. **HYDRAULIC PUMP,** Gear Type
    13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
33. **HYDROSTATIC PUMPS**
34. **REPLENISHING VALVES**
35. **CHARGE IN-LET RELIEF,** 155-165 PSI (1069-1138 kPa) @ 13.0 GPM (49,2 L/min.) @ 2480 RPM W/120° F. (49° C.) Fluid

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FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir (1) to the hydraulic pump (32). The hydraulic pump (32) is a "gear type" pump and is driven by a shaft through the hydrostatic pumps (33). The fluid from the hydraulic pump (32) goes to the hydraulic control valve (12).

The hydraulic control valve (12) has an adjustable relief valve (11). When all spools of the control valve (12) are in the neutral position, the fluid goes through the control valve (12) and to the oil cooler (31). If one of the spools is activated, the fluid goes out the respective port and to either the base end, or rod end of the cylinder(s) (10) (19). As the fluid goes into one end of the cylinder(s) (10) (19) the fluid from the other side of the cylinder flows back into the control valve (12).

ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).

When the cylinder(s) (10) (19) reaches the end of the stroke, the fluid attains the setting of the main relief valve (11), it will open and let the fluid by-pass the hydraulic circuit (internally) and go back to the oil cooler (31) which becomes "charge supply fluid" for the hydrostatic pumps (33).

When the spool goes back to neutral position, then there is fluid available for the other sections of the control valve (12). Two sections of the control valve (12) can be used at the same time if the main relief valve (11) is not open.

The fluid flows from the oil cooler (31) through the #4 synthetic media filter (27) to the hydrostatic pumps (33). This fluid is called "charge supply fluid". In the hydrostatic pumps (33) the fluid is against the charge relief valve (35) and four replenishing valves (34). The hydrostatic pumps (33) do not need the full volume of fluid flow so there is extra fluid. This extra fluid goes to the charge relief valve (35). The replenishing valves (34) open and let fluid into the pumps (33) for replenishing, lubrication and cooling.

With the replenishing valves (34) open this flow of fluid becomes "drive loop fluid". When the steering levers are in neutral, the pumps (33) and the motors (9) are not working, but do have charge pressure fluid. When the steering levers are moved, the swashplates in the pumps (33) are angled and the fluid is forced out of the pressure side of the pumps (33) and to the motors (9). This flow of fluid is called "drive pressure". Drive pressure is much higher than charge pressure causing the replenishing valves (34) to close, allowing the flow of the fluid to go to the motors (9).

There are two hydrostatic pumps (33) and two hydrostatic motors (9). One pump and one motor work together as a pair to drive on one side of the loader. The other pump and motor work as a pair to drive the opposite side of the loader.

The hydrostatic motors (9) are a "roller-geroler" type. The case drain fluid from the right motor (9) goes to the hydrostatic pump (33). Case drain fluid from the left motor (9) joins

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return fluid from the auxiliary section of the control valve (12) and goes to the reservoir (1).

The filter (27) has a by-pass valve (30) to allow fluid flow when the fluid will not go through the filter element (plugged).

The oil cooler by-pass (18) 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 arm cylinders (10) through the control valve (12) and into the oil cooler (31). The by-pass valve (18) will also open when the fluid is cold and is too thick for fluid flow to go through the oil cooler (31) and filter (27).

BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL)

The lift section and tilt section of the control valve (12) work together to position the bucket as the lift arms, of the loader, are being raised. When the lift arms are being raised, the hydraulic pump (32) fluid flow is directed to the base end of the lift cylinders (10). The fluid from the rod end of the lift cylinders (10) returns to the bucket position valve (24) and is directed to the center of the flow-control spool (23). The flow-control spool (23) and adjustable metering orifice (25) directs this flow. A percentage of the fluid is directed over the adjustable metering orifice (25) to level the bucket. The rest of the fluid is directed through the orifice in the flow-control spool (23) and on to the return port of the control valve (12) (lift section).

The fluid flow from the flow-control spool (23) and adjustable metering orifice (25) are against the un-loading spool (21). The un-loading spool (21) moves to allow extension of the tilt cylinder (19) as the lift cylinders (10) raise the lift arms.

The pressure relief valve (22) is to relief fluid from the base end of the tilt cylinder (19) if the bucket is fully rolled out and the lift cylinders (10) are still extending.

DIVERTER VALVE SYSTEM OPERATION (OPTIONAL)

NOT ENERGIZED

The fluid under pressure from the hydraulic pump (32) goes to the pilot line to the diverter valve block (5). This fluid is called "pilot pressure" fluid. When the electrical solenoid (5c) is NOT ENERGIZED, the pilot pressure fluid will have no function. When the electrical solenoid (16), at the control valve (12) is energized the fluid will flow into the diverter valve (5) "**P1**" port, and through to the "**D1**" port (front quick coupler (7)). Return fluid comes from the "**D2**" port (front quick coupler (7)), and returns through the "**P2**" port and back to the control valve (12). When the electrical solenoid (16) is energized in the opposite direction, the fluid flow will change to the opposite direction.

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ENERGIZED

When the electrical solenoid ❺c is ENERGIZED, the pilot pressure fluid will put the check valves for "**D1 & D2**" ports on their seats and open the check valves for "**F1 & F2**" ports. With the electrical solenoid ⓰ , at the control valve ⓬ , energized at the same time the fluid will flow into the diverter valve ❺ "**P1**" port, and through to the "**F1**" port (rear auxiliary quick couplers ❻). Return fluid comes from the "**F2** port (rear auxiliary quick couplers ❻), and returns through the "**P2**" port and back to the control valve ⓬ . When the electrical solenoid ⓰ is energized in the oposite direction (with electrical solenoid ❺c still energized), the fluid flow will change to the opposite diection.

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HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753

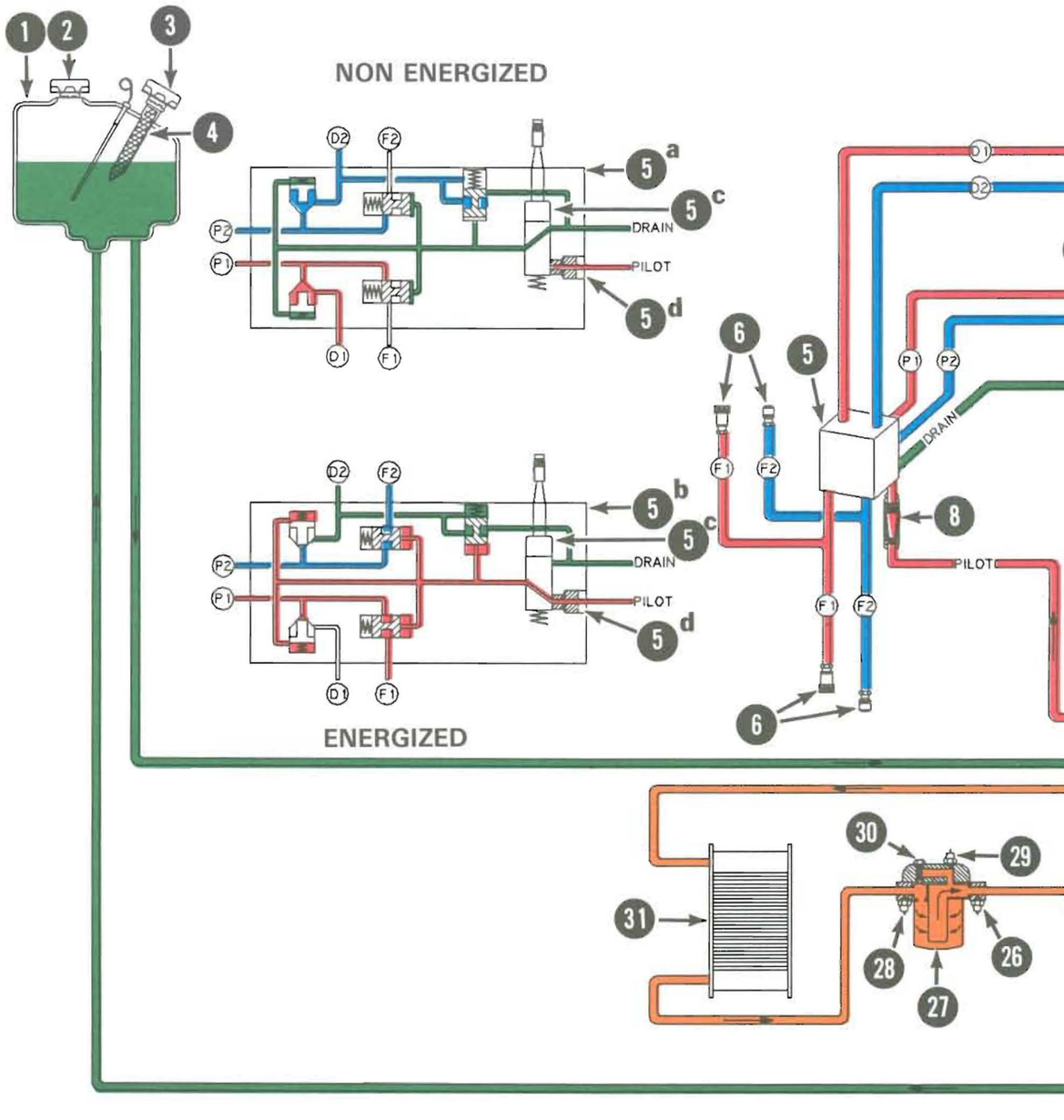
Chart #6720316 (Printed May 1990)

NOTE

Chart shows oil flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.

NOTE

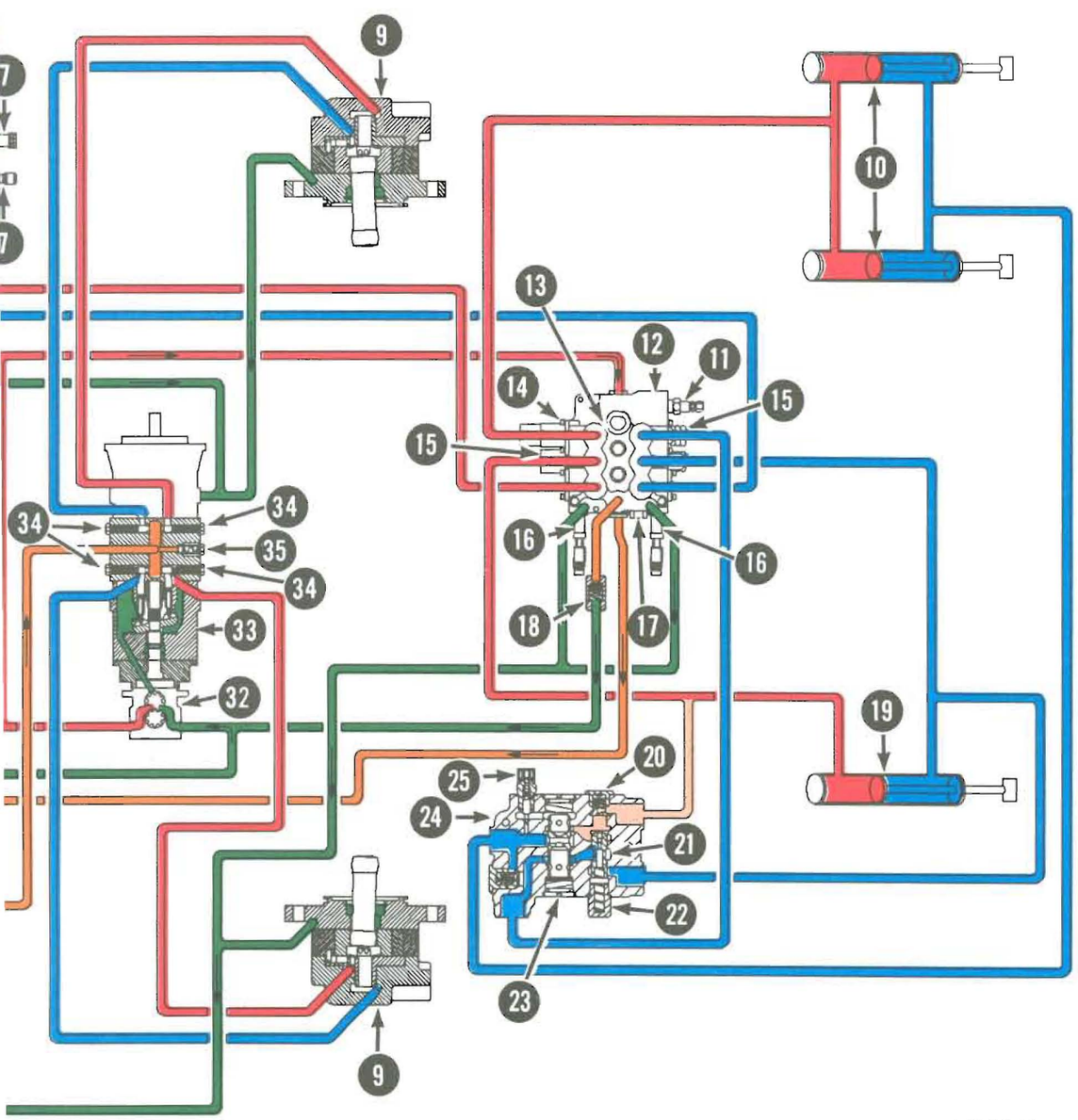
Chart shows fluid flo
Position and with the E
Valve in operation.



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RED - - - - - - - High Pressure
BLUE - - - - - - Low Pressure
GREEN - - - - - Case Drain & Reservoir
ORANGE - - - - Charge Pressure
LT. ORANGE - Bucket Positioning Fluid

v in the Lifting
ucket Postioning



MC 1118

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HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753 (S/N 19227 & Above)

Chart #6722406 (Printed November 1993)

CHART LEGEND

1. **FLUID RESERVOIR:**
   Cap.: . . . . . 14 Qts. (13,2 L)
2. **BREATHER**
3. **FILL CAP**
4. **SCREEN,** . . . . . 60 Mesh
5. **DIVERTER VALVE (OPTIONAL)**
   a. Diverter Valve Diagram—Solenoid Not Energized (Front Auxiliaries)
   b. Diverter Valve Diagram—Solenoid Energized (Rear Auxiliaries)
   c. Electrical Solenoid
   d. Filter
6. **REAR AUXILIARY QUICK COUPLERS (OPTIONAL)**
7. **FRONT AUXILIARY QUICK COUPLERS**
8. **CASE DRAIN FILTER** . . Sintered Bronze
9. **HYDROSTATIC MOTOR**
10. **LIFT CYLINDERS**
11. **MAIN RELIEF VALVE:**
    2550-2600 PSI (17582-17927 kPa) @ Front Quick Couplers
12. **HYDRAULIC CONTROL VALVE**
13. **LOAD CHECK VALVES (2)**
14. **PORT RELIEF VALVE,** . . . . . 3500 PSI (24132 kPa)
15. **ANTI-CAVITATION VALVE**
16. **ELECTRICAL AUXILIARY SOLENOIDS**
17. **PORT RELIEF VALVE,** . . . . . 2500 PSI (17238 kPa)
18. **TILT CYLINDER**
19. **CHECK VALVE**
20. **UN-LOADING SPOOL**
21. **PRESSURE RELIEF VALVE**
22. **FLOW CONTROL SPOOL**
23. **BUCKET POSITION VALVE (OPTIONAL)**
24. **FLOW ADJUSTMENT VALVE**
25. **CHARGE PRESSURE SENDER**
26. **HYDRAULIC/HYDROSTATIC FILTER:**
    #4 Synthetic Media
27. **TEMPERATURE SENSOR**
28. **DIFFERENTIAL PRESSURE SWITCH:**
    (Normally Closed)
    34-44 PSI (234-303 kPa)
29. **FILTER BY-PASS VALVE:**
    45-55 PSI (311-379 kPa)
30. **OIL COOLER**
31. **HYDRAULIC PUMP,** Gear Type
    13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
32. **HYDROSTATIC PUMPS**
33. **HIGH PRESSURE RELIEF/REPLENISHING VALVES** . . . . . 5000PSI (34475 kPa)
34. **CHARGE IN-LET RELIEF,** 155-165 PSI (1069-1138 kPa) @ 13.0 GPM (49,2 L/min.) @ 2480 RPM W/120° F. (49° C.) Fluid
35. **REPLENISHING VALVES**

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FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir (1) to the hydraulic pump (31). The hydraulic pump (31) is a "gear type" pump and is driven by a shaft through the hydrostatic pumps (32). The fluid from the hydraulic pump (31) goes to the hydraulic control valve (12).

The hydraulic control valve (12) has an adjustable relief valve (11). When all spools of the control valve (12) are in the neutral position, the fluid goes through the control valve (12) and to the oil cooler (30). If one of the spools is activated, the fluid goes out the respective port and to either the base end, or rod end of the cylinder(s) (10) (18). As the fluid goes into one end of the cylinder(s) (10) (18) the fluid from the other side of the cylinder flows back into the control valve (12).

ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).

When the cylinder(s) (10) (18) reaches the end of the stroke, the fluid attains the setting of the main relief valve (11), it will open and let the fluid by-pass the hydraulic circuit (internally) and go back to the oil cooler (30) which becomes "charge supply fluid" for the hydrostatic pumps (32).

When the spool goes back to neutral position, then there is fluid available for the other sections of the control valve (12). Two sections of the control valve (12) can be used at the same time if the main relief valve (11) is not open.

The fluid flows from the oil cooler (30) through the #4 synthetic media filter (26) to the hydrostatic pumps (32). This fluid is called "charge supply fluid". In the hydrostatic pumps (32) the fluid is against the charge relief valve (34) and four replenishing valves (33). The hydrostatic pumps (32) do not need the full volume of fluid flow so there is extra fluid. This extra fluid goes to the charge relief valve (34). The replenishing valves (33) open and let fluid into the pumps (32) for replenishing, lubrication and cooling.

With the replenishing valves (33) open this flow of fluid becomes "drive loop fluid". When the steering levers are in neutral, the pumps (32) and the motors (9) are not working, but do have charge pressure fluid. When the steering levers are moved, the swashplates in the pumps (32) are angled and the fluid is forced out of the pressure side of the pumps (32) and to the motors (9). This flow of fluid is called "drive pressure". Drive pressure is much higher than charge pressure causing the replenishing valves (33) to close, allowing the flow of the fluid to go to the motors (9).

There are two hydrostatic pumps (32) and two hydrostatic motors (9). One pump and one motor work together as a pair to drive on one side of the loader. The other pump and motor work as a pair to drive the opposite side of the loader.

The hydrostatic motors (9) are a "roller-geroler" type. The case drain fluid from the right motor (9) goes to the hydrostatic pump (32). Case drain fluid from the left motor (9) joins

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return fluid from the auxiliary section of the control valve (12) and goes to the reservoir (1).

The filter (26) has a by-pass valve (29) to allow fluid flow when the fluid will not go through the filter element (plugged).

BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL)

The lift section and tilt section of the control valve (12) work together to position the bucket as the lift arms, of the loader, are being raised. When the lift arms are being raised, the hydraulic pump (31) fluid flow is directed to the base end of the lift cylinders (10). The fluid from the rod end of the lift cylinders (10) returns to the bucket position valve (23) and is directed to the center of the flow-control spool (22). The flow-control spool (22) and adjustable metering orifice (24) directs this flow. A percentage of the fluid is directed over the adjustable metering orifice (24) to level the bucket. The rest of the fluid is directed through the orifice in the flow-control spool (22) and on to the return port of the control valve (12) (lift section).

The fluid flow from the flow-control spool (22) and adjustable metering orifice (24) are against the un-loading spool (20). The un-loading spool (20) moves to allow extension of the tilt cylinder (18) as the lift cylinders (10) raise the lift arms.

The pressure relief valve (21) is to relief fluid from the base end of the tilt cylinder (18) if the bucket is fully rolled out and the lift cylinders (10) are still extending.

DIVERTER VALVE SYSTEM OPERATION (OPTIONAL)

NOT ENERGIZED

The fluid under pressure from the hydraulic pump (31) goes to the pilot line to the diverter valve block (5). This fluid is called "pilot pressure" fluid. When the electrical solenoid (5c) is NOT ENERGIZED, the pilot pressure fluid will have no function. When the electrical solenoid (16), at the control valve (12) is energized the fluid will flow into the diverter valve (5) **"P1"** port, and through to the **"D1"** port (front quick coupler (7)). Return fluid comes from the **"D2"** port (front quick coupler (7)), and returns through the **"P2"** port and back to the control valve (12). When the electrical solenoid (16) is energized in the opposite direction, the fluid flow will change to the opposite direction.

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ENERGIZED

When the electrical solenoid ❺c is ENERGIZED, the pilot pressure fluid will put the check valves for "**D1 & D2**" ports on their seats and open the check valves for "**F1 & F2**" ports. With the electrical solenoid ⓰ , at the control valve ⓬ , energized at the same time the fluid will flow into the diverter valve ❺ "**P1**" port, and through to the "**F1**" port (rear auxiliary quick couplers ❻). Return fluid comes from the "**F2** port (rear auxiliary quick couplers ❻), and returns through the "**P2**" port and back to the control valve ⓬ . When the electrical solenoid ⓰ is energized in the oposite direction (with electrical solenoid ❺c still energized), the fluid flow will change to the opposite diection.

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HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753 (S/N 19227 & Above)

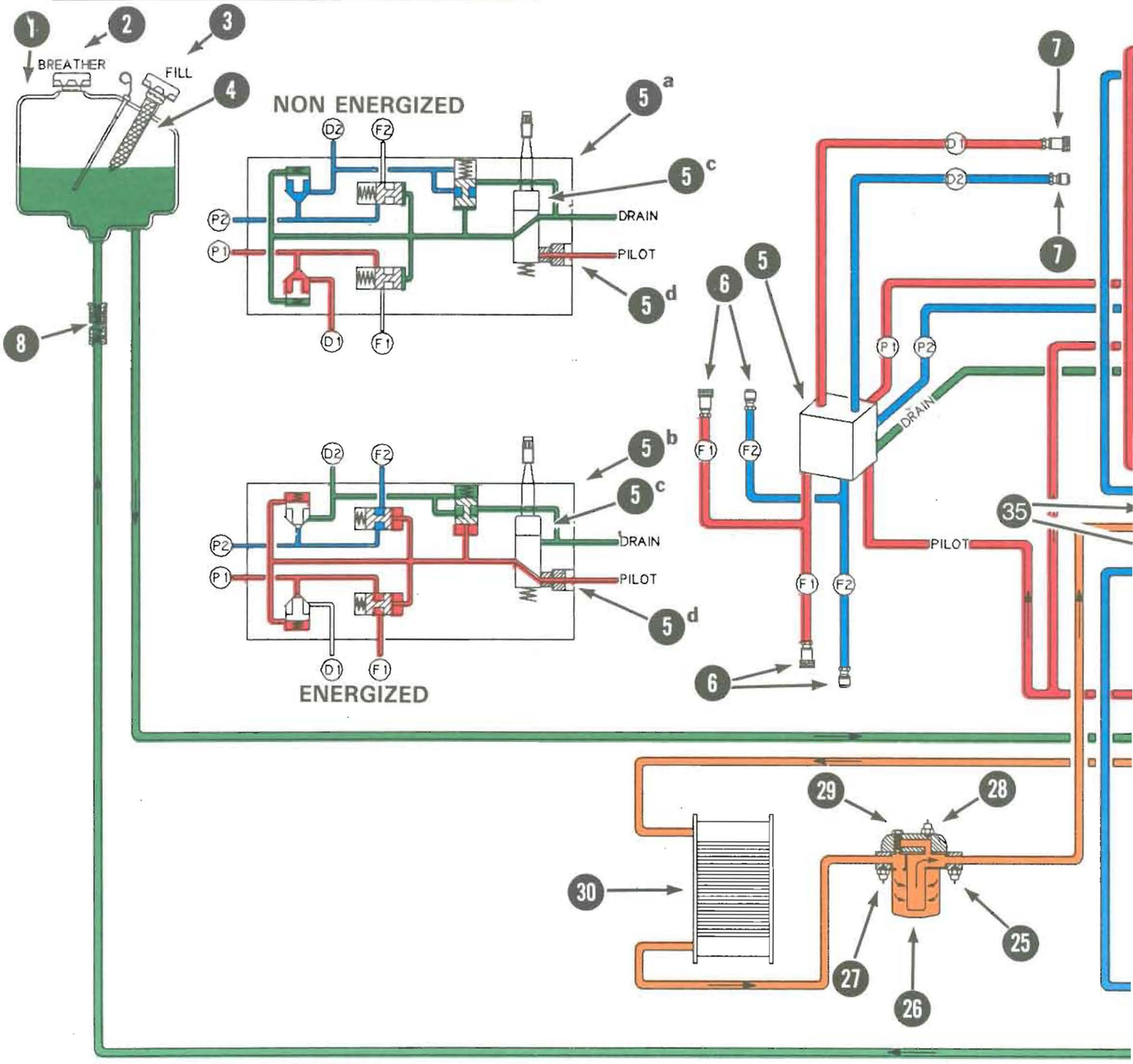
Chart #6722406 (Printed November 1993)

NOTE

Chart shows fluid flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.

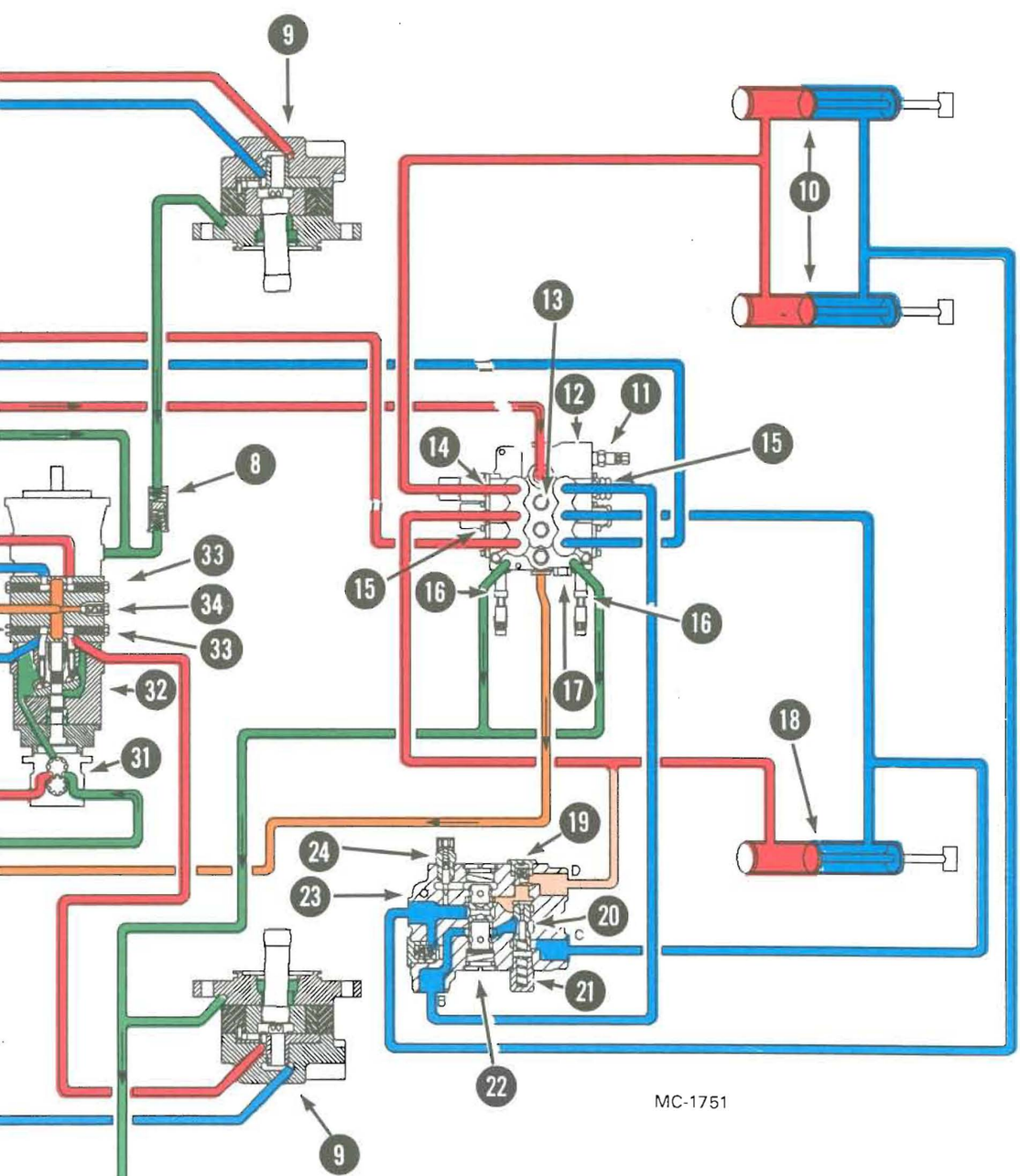
NOTE

Chart shows fluid flow in the Lifting Position and with the Bucket Postioning Valve in operation.



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RED - - - - - - - High Pressure
BLUE - - - - - - Low Pressure
GREEN - - - - - Case Drain & Reservoir
ORANGE - - - - Charge Pressure
LT. ORANGE - Bucket Positioning Fluid



MC-1751

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HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

753H

Chart #6722833 (Printed November 1993)

CHART LEGEND

1. **FLUID RESERVOIR:**
   Cap.: . . . . . 14 Qts. (13,2 L)
2. **BREATHER**
3. **FILL CAP**
4. **SCREEN,** . . . . . 60 Mesh
5. **SELECT VALVE**
   a. Select Valve—"Hi Flow" detent or momentary mode.
   b. Select Valve—Male Secondary and Rear Auxiliary Couplers Pressurized.
   c. Select Valve—Female Secondary and Rear Auxiliary Couplers Pressurized.
6. **REAR AUXILIARY QUICK COUPLERS (OPTIONAL)**
7. **FRONT AUXILIARY QUICK COUPLERS**
8. **CASE DRAIN FILTER** . . Sintered Bronze (90 Micron)
9. **HYDROSTATIC MOTOR**
10. **LIFT CYLINDERS**
11. **DUAL PRESSURE MAIN RELIEF VALVE:**
    Low setting - 2300 PSI (15900 kPa) @ Front Quick Couplers
    High setting - 3300 PSI (22700 kPa) @ Front Quick Couplers
12. **HYDRAULIC CONTROL VALVE**
13. **LOAD CHECK VALVES (2)**
14. **PORT RELIEF VALVE,** . . . . . 3500 PSI (24100 kPa)
15. **ANTI-CAVITATION VALVE**
16. **ELECTRICAL AUXILIARY SOLENOIDS**
17. **PORT RELIEF VALVE (Optional):** 2500 PSI (17238 kPa)
18. **TILT CYLINDER**
19. **CHECK VALVE**
20. **UN-LOADING SPOOL**
21. **PRESSURE RELIEF VALVE**
22. **FLOW CONTROL SPOOL**
23. **BUCKET POSITION VALVE (OPTIONAL)**
24. **FLOW ADJUSTMENT VALVE**
25. **CHARGE PRESSURE SENDER**
26. **HYDRAULIC/HYDROSTATIC FILTER:** #3 Synthetic Media
27. **TEMPERATURE SENSOR**
28. **DIFFERENTIAL PRESSURE SWITCH:** (Normally Closed) 36-44 PSI (250-300 kPa)
29. **FILTER BY-PASS VALVE:** 45-55 PSI (315-375 kPa)
30. **OIL COOLER**
31. **HYDRAULIC PUMP,** Gear Type 13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
32. **HYDROSTATIC PUMPS**
33. **HIGH PRESSURE RELIEF/REPLENISHING VALVES** . . . . . 5000 PSI (34475 kPa)
34. **CHARGE IN-LET RELIEF (Normal Flow), 155-165 PSI (1069-1138 kPa) @ 13.0 GPM (49,2 L/min.) @ 2480 RPM W/120° F. (49° C.) Fluid**
35. **CASE DRAIN QUICK COUPLER**
36. **SECONDARY FRONT AUXILIARY QUICK COUPLER**
37. **HI FLOW HYDRAULIC PUMP,** Gear Type 8.7 GPM (32,9 l/Min.) @ 2480 RPM 1150 PSI (7930 kPa)
38. **HI FLOW MAIN RELIEF VALVE,** 3250-3300 PSI (22400 - 23100 kPa) @ Secondary Front Quick Couplers
39. **ORIFICE**
40. **SOLENOID VALVE (Two Coil)**
41. **CHECK VALVE**
42. **PILOT-to-OPEN CHECK VALVE**
43. **SOLENOID VALVE**
44. **INTERNAL ORIFICE**
45. **REPLENISHING VALVES**

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FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir (1) to the hydraulic pump (31). The hydraulic pump (31) is a "gear type" pump and is driven by a shaft through the hydrostatic pumps (32). The fluid from the hydraulic pump (31) goes to the hydraulic control valve (12).

The hydraulic control valve (12) has an adjustable relief valve (11). When all spools of the control valve (12) are in the neutral position, the fluid goes through the control valve (12) and to the oil cooler (30). If one of the spools is activated, the fluid goes out the respective port and to either the base end, or rod end of the cylinder(s) (10) (18). As the fluid goes into one end of the cylinder(s) (10) (18) the fluid from the other side of the cylinder flows back into the control valve (12).

ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).

When the cylinder(s) (10) (18) reaches the end of the stroke, the fluid attains the low pressure setting of the dual pressure main relief valve (11), it will open and let the fluid by-pass the hydraulic circuit (internally) and go back to the oil cooler (30) which becomes "charge supply fluid" for the hydrostatic pumps (32).

When the spool goes back to neutral position, fluid is then available for the other sections of the control valve (12). Two sections of the control valve (12) can be used at the same time if the dual pressure main relief valve (11) is not open.

The fluid flows from the oil cooler (30) through the #3 synthetic media filter (26) to the hydrostatic pumps (32). This fluid is called "charge supply fluid". In the hydrostatic pumps (32) the fluid is against the charge relief valve (34) and four replenishing valves (33). The hydrostatic pumps (32) do not need the full volume of fluid flow so there is extra fluid. This extra fluid goes to the charge relief valve (34). The replenishing valves (33) open and let fluid into the pumps (32) for replenishing, lubrication and cooling.

With the replenishing valves (33) open this flow of fluid becomes "drive loop fluid". When the steering levers are in neutral, the pumps (32) and the motors (9) are not working, but do have charge pressure fluid. When the steering levers are moved, the swashplates in the pumps (32) are angled and the fluid is forced out of the pressure side of the pumps (32) and to the motors (9). This flow of fluid is called "drive pressure". Drive pressure is much higher than charge pressure causing the replenishing valves (33) to close, allowing the flow of the fluid to go to the motors (9).

There are two hydrostatic pumps (32) and two hydrostatic motors (9). One pump and one motor work together as a pair to drive on one side of the loader. The other pump and motor work as a pair to drive the opposite side of the loader.

The hydrostatic motors (9) are a "roller-geroler" type. The case drain fluid from the right motor (9) goes to the hydrostatic pump (32). Case drain fluid from the left motor (9) joins

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return fluid from the auxiliary section of the control valve (12) and goes to the reservoir (1).

The filter (26) has a by-pass valve (29) to allow fluid flow when the fluid will not go through the filter element (plugged).

BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL)

The lift section and tilt section of the control valve (12) work together to position the bucket as the lift arms, of the loader, are being raised. When the lift arms are being raised, the hydraulic pump (31) fluid flow is directed to the base end of the lift cylinders (10). The fluid from the rod end of the lift cylinders (10) returns to the bucket position valve (23) and is directed to the center of the flow-control spool (22). The flow-control spool (22) and adjustable metering orifice (24) directs this flow. A percentage of the fluid is directed over the adjustable metering orifice (24) to level the bucket. The rest of the fluid is directed through the orifice in the flow-control spool (22) and on to the return port of the control valve (12) (lift section).

The fluid flow from the flow-control spool (22) and adjustable metering orifice (24) are against the un-loading spool (20). The un-loading spool (20) moves to allow extension of the tilt cylinder (18) as the lift cylinders (10) raise the lift arms.

The pressure relief valve (21) is to relief fluid from the base end of the tilt cylinder (18) if the bucket is fully rolled out and the lift cylinders (10) are still extending.

HI FLOW OPERATION

The "High Horsepower" 753 loaders have an additional "High Flow" gear pump (37) driven by the engine crankshaft. The flow from this extra pump can be directed through the select valve (5) to join with the "normal" auxiliary flow exiting the main hydraulic control valve (12), to produce addtional flow for an auxiliary attachment. This flow can also be used for cylinder control from the secondary front auxiliary couplers (36) and the rear auxiliary couplers (6).

Flow from the high flow pump (37) is allowed to return to the suction side of the "normal flow" gear pump system when not in use. Whenever this flow is put to use, a solenoid valve (43) is energized to block the flow from its path to the suction side. The high flow pump (37) is protected at all times by a relief valve (38). When the high flow mode is selected, flow will pass through the check valve (41), which prevents any reverse flow when operating in the "normal" flow mode.

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When the high flow pump pressure exceeds 1200 PSI for any reason, the dual pressure relief valve (11) in the main control valve (12) will be piloted to its high pressure setting.

Flow from the high flow pump (37) can also be directed to the secondary front auxiliary couplers (36) or the optional rear auxiliary couplers (6) . These functions are connected in parallel, so if the loader is equipped with both, only the function that is in use can be attached to the associated quick couplers (Example - When the rear stabilizer (rear auxiliary) function is used, the side shift (secondary front auxiliary) function should be disabled). Flow of these functions is bi-directional and is controlled by a solenoid valve (40) with two coils. Whenever either of these coils is energized, the solenoid valve (40) that blocks the oil from its path to the suction side is also energized.

Flow to the secondary front auxiliary couplers (36) or the optional rear auxiliary couplers (6) passes through a pilot-to-open check valve (lock valve) (42) . These check valves prevent drift of any attachment. Just ahead of the pilot-to-open check valve is an orifice (39) that drains any leakage (from the two coil solenoid valve (40)) to the suction side (tank port) to prevent constant creep of the secondary front auxiliary attachment (Example - side shift).

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HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

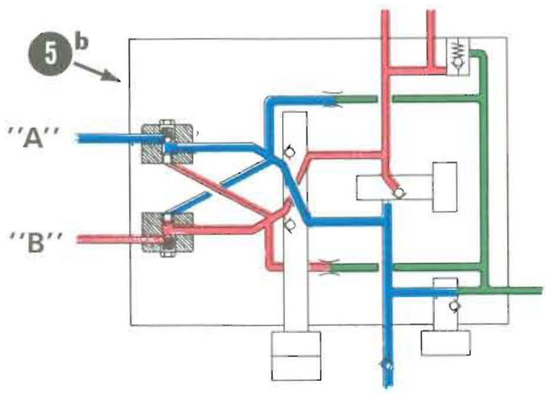
753H (S/N 511011001 & Above)

Chart #6722833 (Printed November 1993)

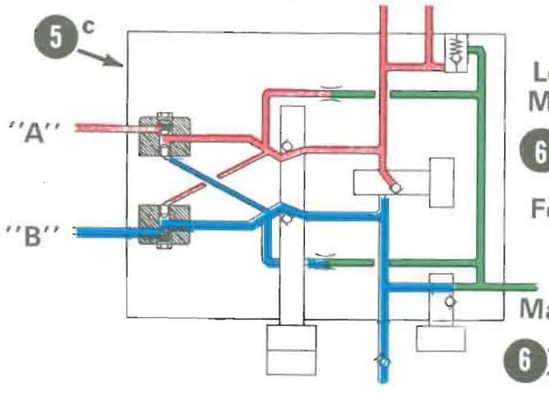
NOTE
Chart shows fluid flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.

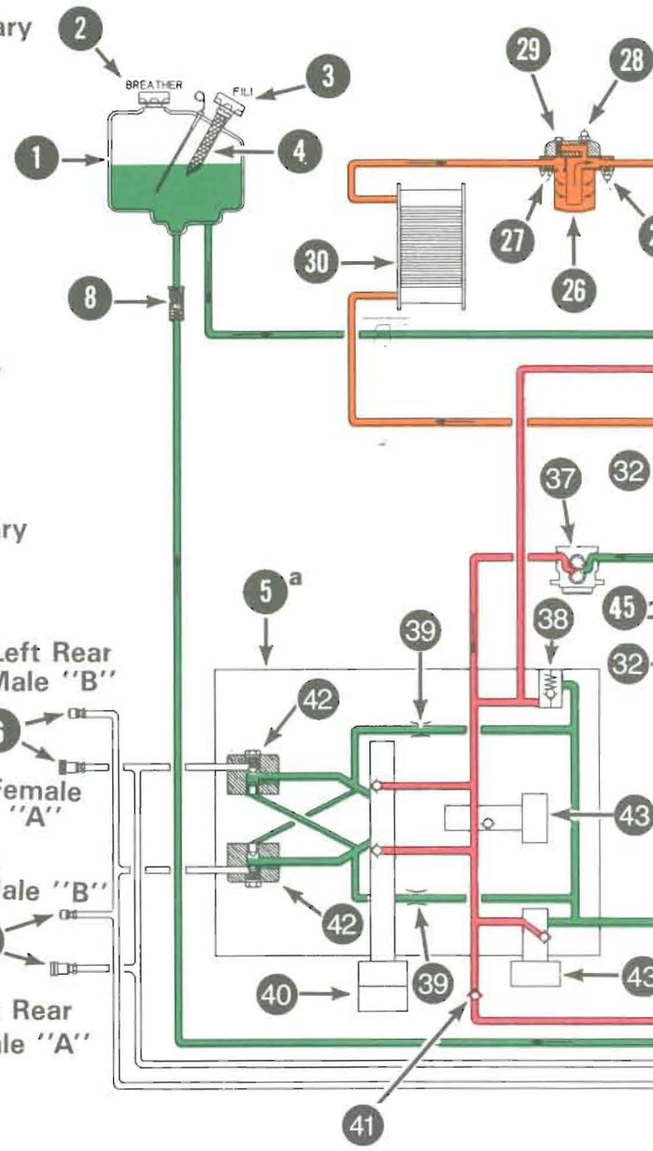
NOTE
Chart shows fluid flow in the Lifting Position and with the Bucket Postioning Valve in operation.

5b. Rear and Second Front Auxiliary
(Male Couplers Pressurized)



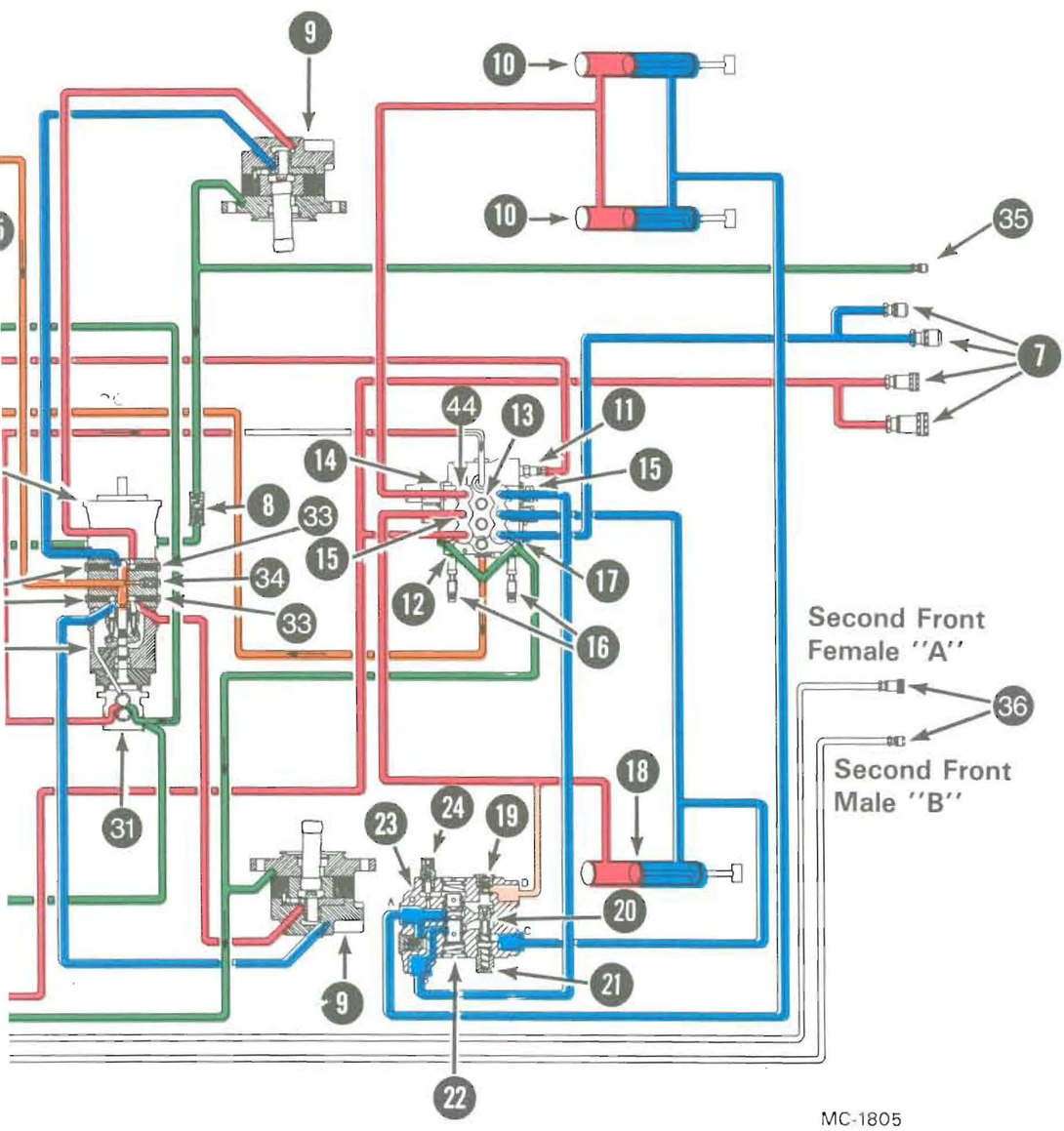
5c. Rear and Second Front Auxiliary
(Female Couplers Pressurized)





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RED - - - - - - - High Pressure
BLUE - - - - - - Low Pressure
GREEN - - - - - Case Drain & Reservoir
ORANGE - - - - Charge Pressure
LT. ORANGE - Bucket Positioning Fluid



MC-1805

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2 HYDRAULIC SYSTEM

TROUBLESHOOTING

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.

⚠ 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	CAUSE
The hydraulic system will not operate.	1, 2, 3, 5, 8
Light comes "ON" when hydraulics are activated.	1, 3
Slow hydraulic system action.	1, 3, 4, 5, 6, 8
Hydraulic action is not smooth.	1, 4, 5, 6, 7
Lift arms go up slowly at full engine RPM.	1, 3, 4, 5, 6, 7, 8,9
The lift arms or Bob–Tach will move the pedal in neutral position.	4
The lift arms come down with the pedal in the neutral position.	4, 9, 10, 11

KEY TO CORRECT THE CAUSE

1. The fluid level is not correct.
2. The pedal linkage is disconnected.
3. The hydraulic pump has damage.
4. The pedal linkage is not adjusted correctly.
5. Relief valve is not at the correct pressure.
6. Suction leak on the inlet side of the hydraulic pump.
7. Fluid is cold. Wrong viscosity fluid (See Section 8).
8. Using the loader for more than its rated capacity.
9. Internal leak in the lift cylinder(s).
10. External leak from the lift cylinder(s).
11. Damaged lift spool.

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HYDRAULIC SYSTEM INFORMATION

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

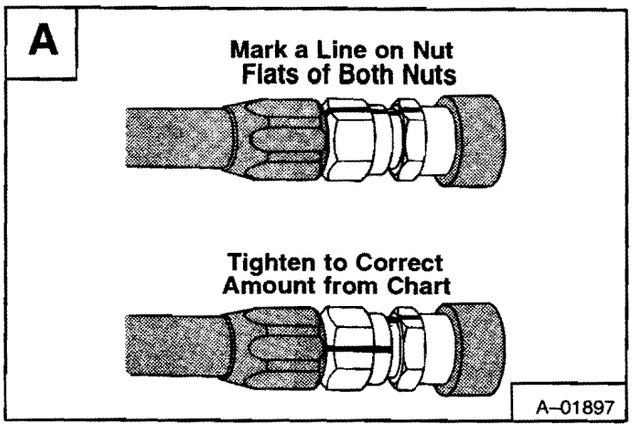
Flare Connections

Use the following procedures to tighten the flare fitting:

Tighten the nut until it makes contact with the seat. Make a mark across the "flats" of both the male and female parts of the connection **[A]**.

Use the chart to find the correct tightness needed **[B]**. If the fitting leaks after tightening, disconnect it and inspect the seat area for damage.

A



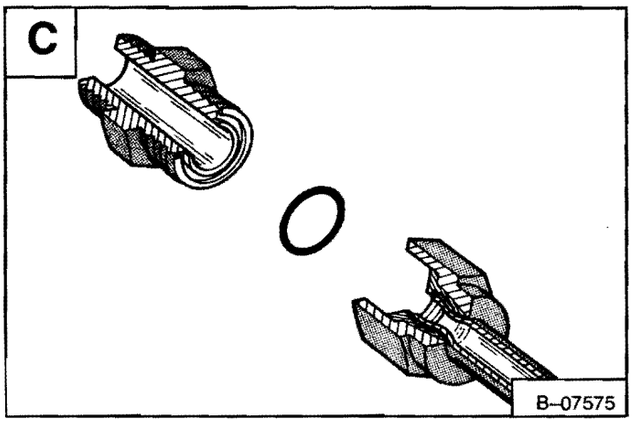
B

Wrench Size	Tube Size Outside Dia.	Thread Size	Rotate No. of Hex Flats
5/8"	5/16"	1/2" – 20	2–1/2
11/16"	3/8"	9/16" – 18	2
7/8"	1/2"	3/4" – 16	2
1"	5/8"	7/8" – 14	1–1/2 – 2
1–1/4"	3/4"	1–1/16" – 12	1
1–3/8"	1"	1–5/16" – 12	3/4 – 1
2"	1–1/4"	1–5/8" – 12	3/4 – 1
2–1/4"	1–1/2"	1–7/8" – 12	1/2 – 3/4

O–ring Face Seal Connection

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 **[C]**.

C



Straight Thread O–Ring Fitting

Lubricate the O–ring before installing the fitting. Loosen the jam nut and install the fitting. Tighten the jam nut until the washer is tight against the surface **[D]**.

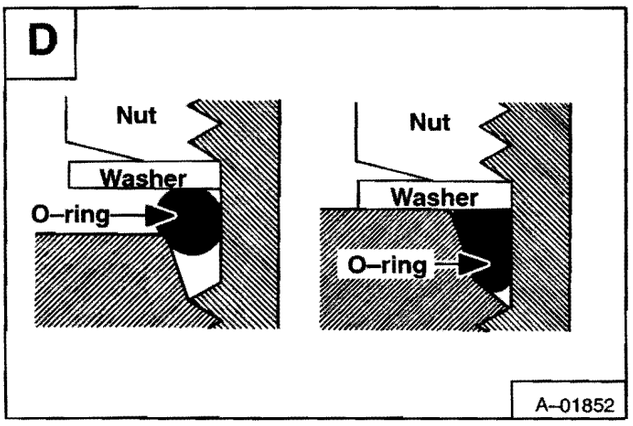
Tubelines and Hoses

Replace any tubelines that are bent or flattened. They will restrict flow, which will slow hydraulic action and cause heat.

Replace hoses which show signs of wear, damage or weather cracked rubber.

Always use two wrenches when loosening and tightening hose or tubeline fittings.

D



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LIFT CYLINDER(S)

Checking the Lift Cylinder(s)

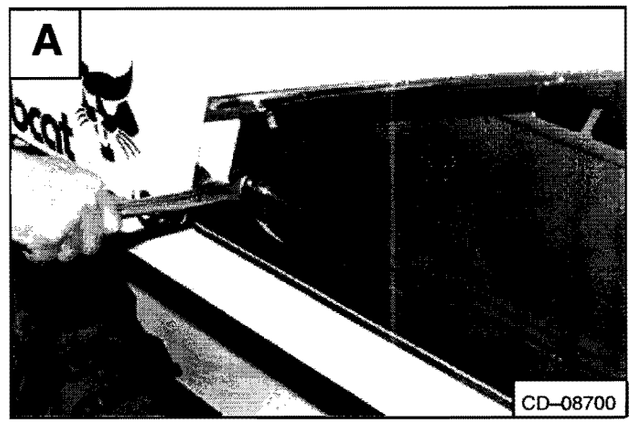
Lower the lift arms. Stop the engine. Move the lift pedal to release the hydraulic pressure. Raise the seat bar.

⚠ WARNING

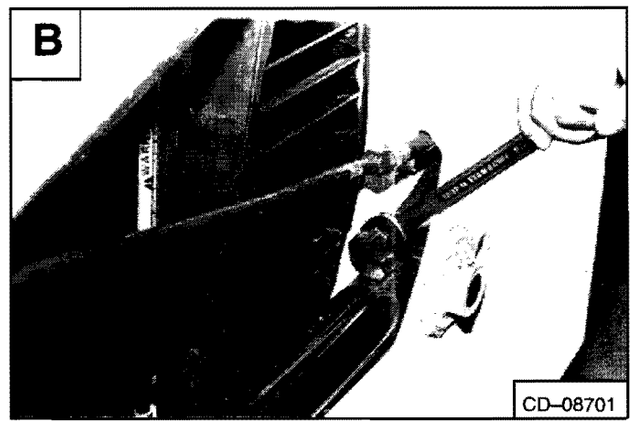
Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical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

W–2072–0496

Check only one cylinder at a time. Disconnect the tubeline which goes to the rod end of the lift cylinder **[A]**.



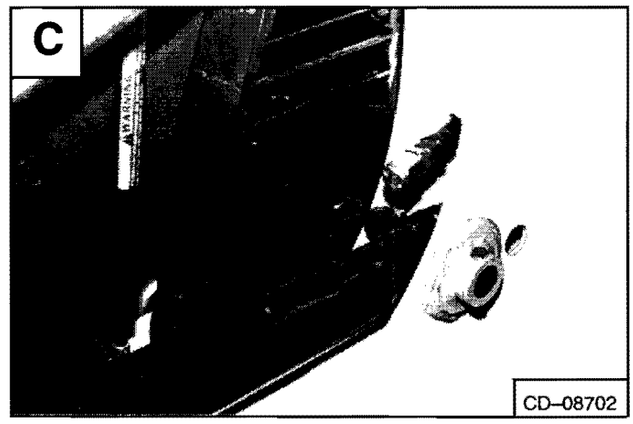
Lift the tubeline up for clearance. Disconnect the hose from the base end of the cylinder **[B]**.



Install a plug in the hose and tighten **[C]**.

Connect the tubeline to the port at the rod end of the cylinder. Engage the parking brake. Lower the seat bar. Start the engine and push the top (toe) of the lift pedal.

It there is any leakage from the open port, remove the lift cylinder for repair. Repeat the procedure to check the other lift cylinder.



Removal and Installation

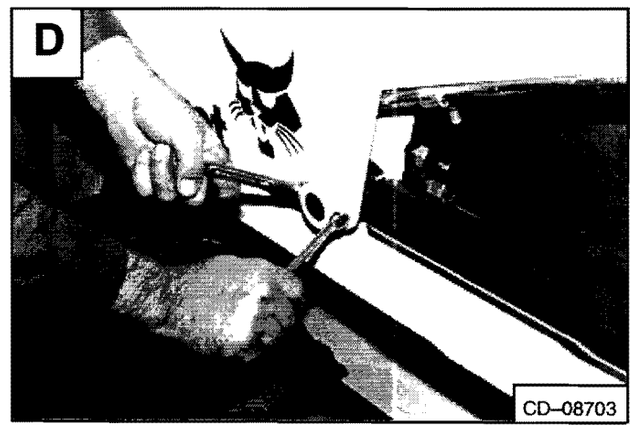
Stop the engine. Move the lift pedal to release the hydraulic pressure. Raise the seat bar. Raise the operator cab (Page 1–5).

Disconnect the tubeline at the rod end of the cylinder **[A]**.

Disconnect the hose at the base end of the cylinder **[B]**.

Remove the retainer bolt and nut **[D]**.

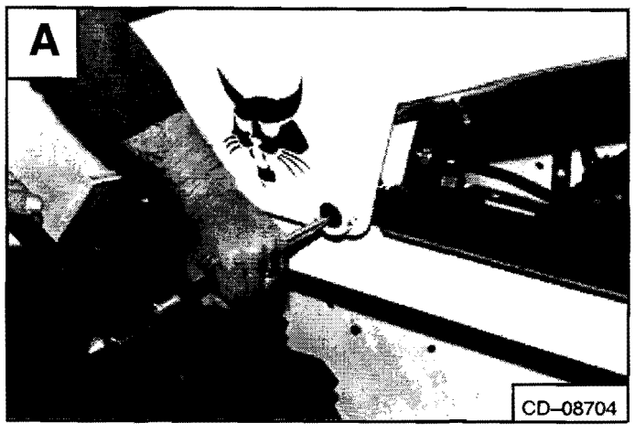
Installation: Tighten the retainer bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.



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LIFT CYLINDER(S) (Cont'd)

Remove the rod end pin **[A]**.

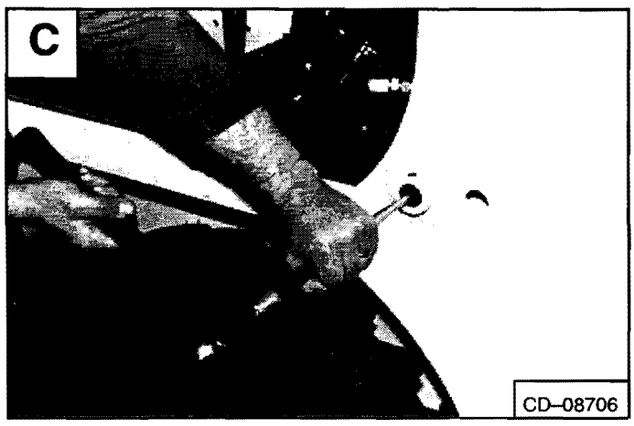


Remove the retainer bolt and nut from the base end pivot pin **[B]**.

Installation: Tighten the retainer bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.



Remove the base end pin **[C]**.



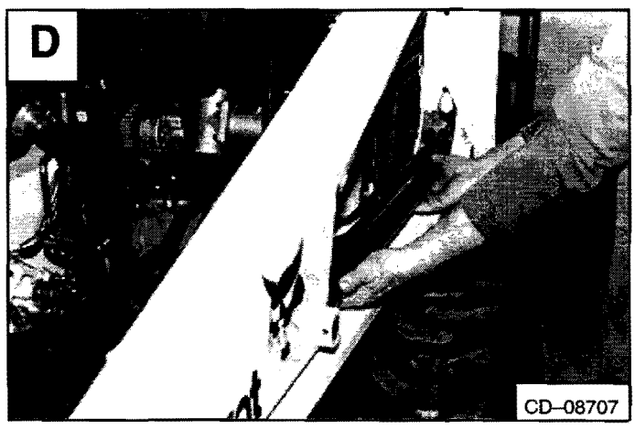
Slide the lift cylinder forward and remove it from the loader **[D]**.

⚠ 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

SEE THE COMPONENT REPAIR MANUAL FOR HYDRAULIC CYLINDERS FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.



https://truckmanualshub.com/

TILT CYLINDER

Checking the Tilt Cylinder

Remove the attachment. Roll the Bob–Tach fully back. Stop the engine. Move the tilt pedal to release the hydraulic pressure. 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 possibly death if proper medical treatment by a physician familiar with this injury is not received immediately.

W–2145–0290

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

Put a plug in the hose and tighten.

Engage the parking brake. Lower the seat bar. Start the engine and 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

Remove the attachment. Roll the Bob–Tach fully forward **[B]**.

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

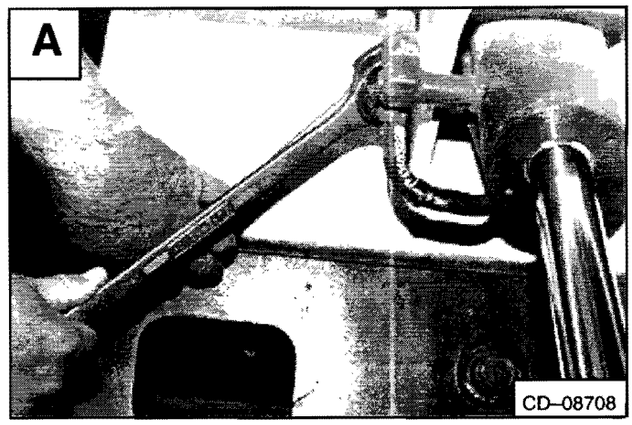
Disconnect both hydraulic hoses **[A]**.

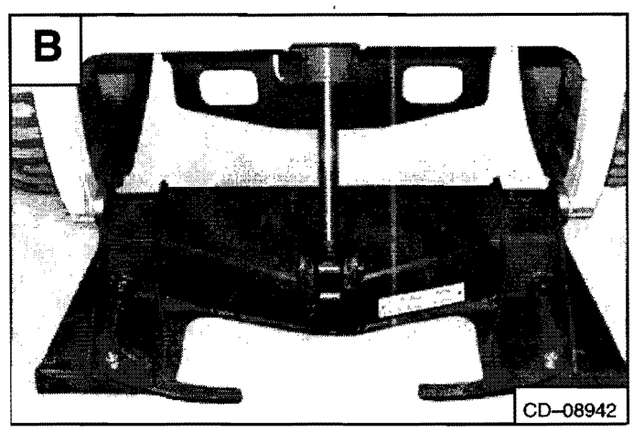
Remove the retainer bolt from the rod end pivot pin **[C]**.

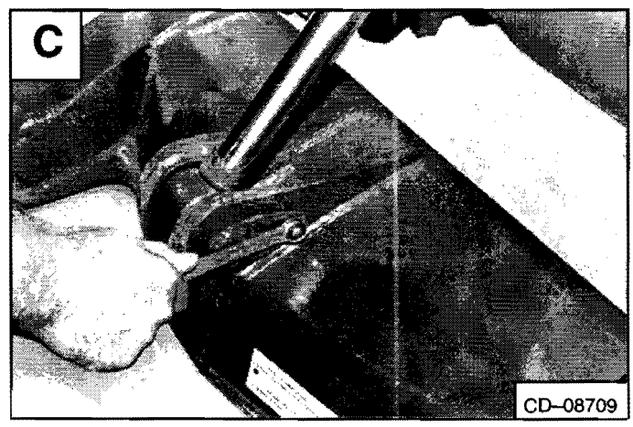
Installation: Tighten the retainer bolt to 18–20 ft.–lbs. (24–27 Nm) torque.

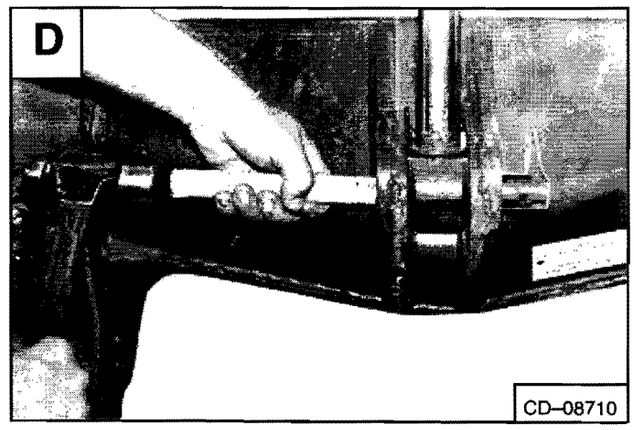
Remove the grease fitting from the rod end pivot pin.

Remove the rod end pivot pin **[D]**.







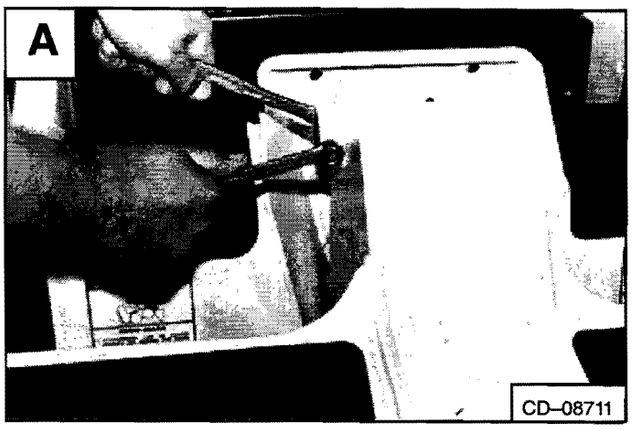


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TILT CYLINDER (Cont'd)

Remove the retainer bolt and nut from the base end pivot pin **[A]**.

Installation: Tighten the retainer bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.



⚠ WARNING

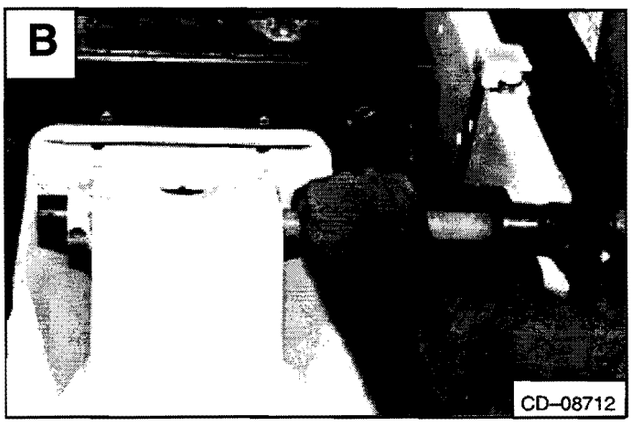
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W–2103–1285

Remove the base end pivot pin **[B]**.

Remove the tilt cylinder from the loader.

SEE THE COMPONENT REPAIR MANUAL FOR HYDRAULIC CYLINDERS FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.



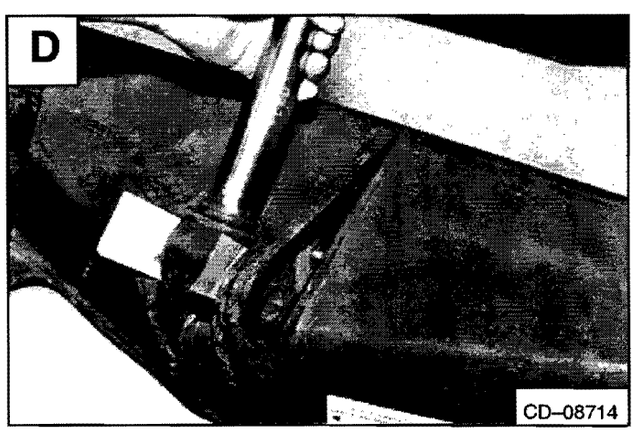
Rod End Seal

Remove the old seal (both sides) from the rod end of the tilt cylinder.

Install the new seals with the lip facing in **[C]**.



Use two pieces of shim stock, install the rod end of the tilt cylinder into the Bob–Tach so there is no damage to the seals **[D]**.



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HYDRAULIC CONTROL VALVE

Checking the Main Relief Valve

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

MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

Turn the key switch to the "OFF" position, as the engine stops running, turn the key switch all the way to the left to release the hydraulic pressure at the front auxiliary quick couplers.

Lift and block the loader (Page 1–2).

Connect the hydraulic tester to the auxiliary quick couplers **[A]**.

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

I–2024–0284

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Start the engine and run at low idle RPM. Push the mode switch (Item 1) twice (on the instrument panel) to engage the front auxiliary hydraulics "detent", the light (Item 3) will come "ON" **[B]**.

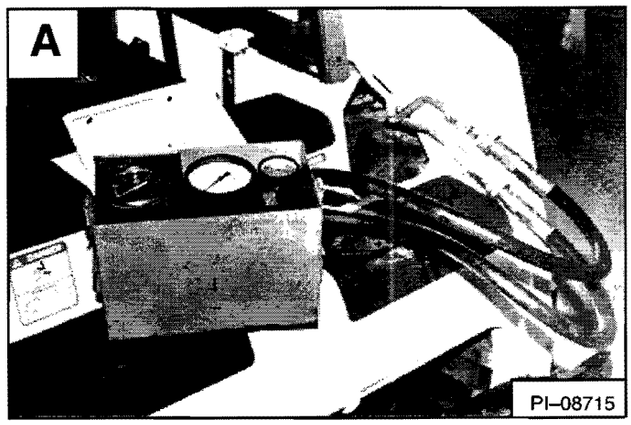
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

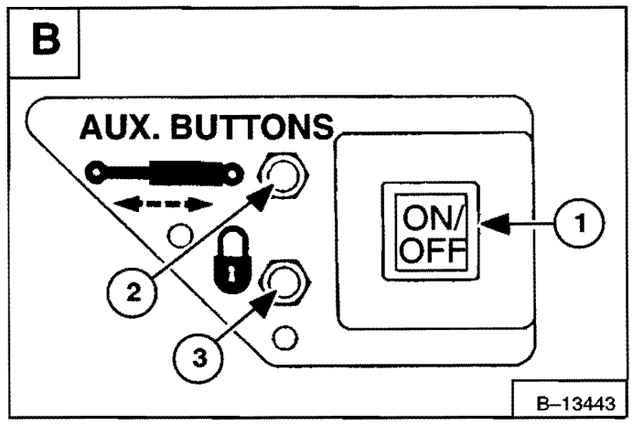
Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

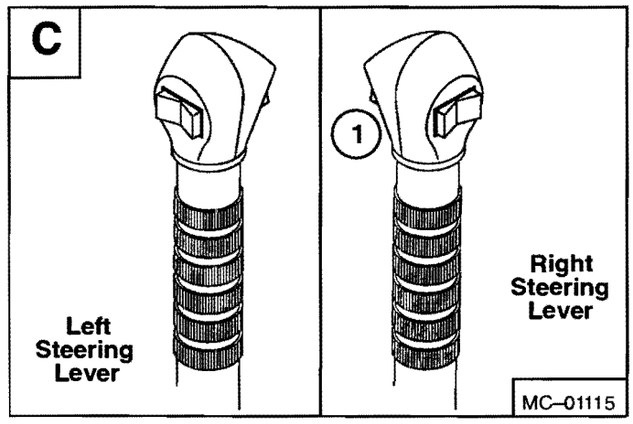
There should be 13 GPM (49 L/min.) free flow. Turn the restrictor control, on the tester, until the main relief valve opens. The correct pressure for the main relief is 2550–2600 PSI (17582–17927 kPa).

Push the button (Item 1) to disengage the "detent" position to the front quick couplers **[C]**.

If the relief pressure is not correct, stop the engine. Replace or adjust the main relief valve (Page 2–8).







⚠ 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

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HYDRAULIC CONTROL VALVE (Cont'd)

Main Relief Valve Removal and Installation

Raise the operator cab (Page 1–5).

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

Clean the area around the control valve. Loosen the main relief valve **[A]**.

Installation: Tighten the main relief valve to 35–40 ft.–lbs. (47–54 Nm) torque.

Remove the main relief valve **[B]**.

Remove the O–rings and back–up washers **[C]**.

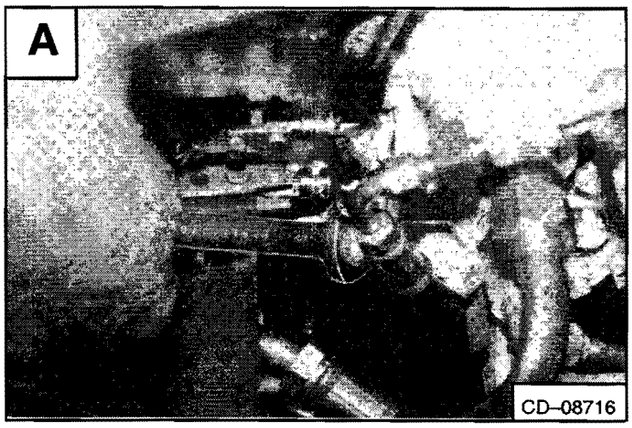
Clean the main relief valve in clean solvent. Use air pressure to dry the valve.

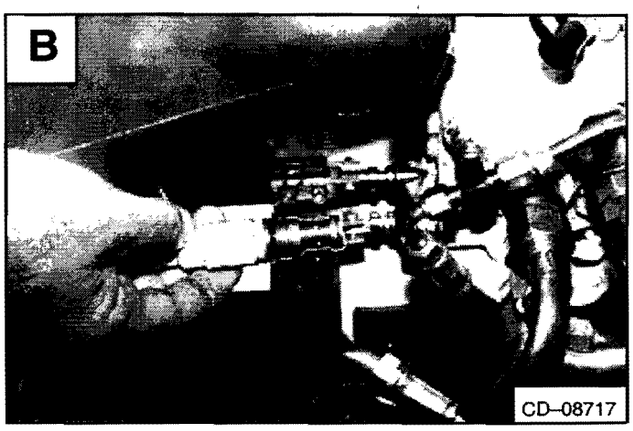
Install new O–rings and back–up washers. Install the main relief valve and tighten **[A]**. Check the pressure again (Page 2–7).

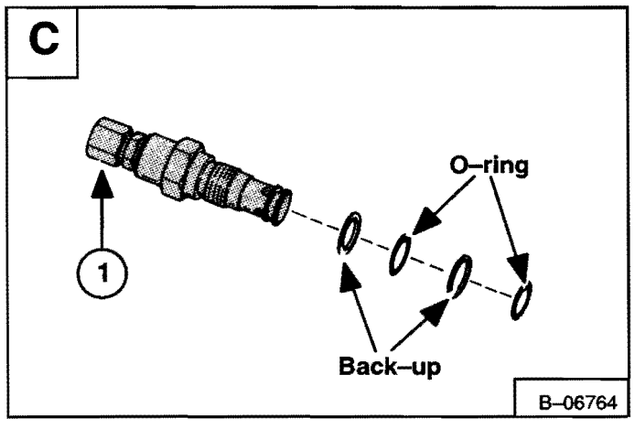
If the pressure is not correct, adjust the main relief valve. Remove the end cap (Item 1) **[C]**.

Turn the adjusting screw in or out until the pressure is correct.

NOTE: If the correct pressure can not be reached, replace the main relief valve. Check the pressure setting of the new relief valve.







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Checking the Dual Pressure Main Relief Valve (Low Setting)

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

MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

Turn the key switch to the "OFF" position. Before the engine stops running, turn the key switch all the way to the left to release the hydraulic pressure at the front auxiliary quick couplers.

Lift and block the loader (Page 1–2).

Connect the hydraulic tester to the auxiliary quick couplers **[A]**.

NOTE: Flow will be out from the female coupler on the loader.

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

I–2024–0284

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

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

Start the engine and run at low idle RPM. Push the mode switch (Item 1) twice (on the instrument panel) to engage the front auxiliary hydraulics "detent", both lights (Item 2 & 3) will come "ON" **[B]**.

NOTE: High horsepower switch should be in the "OFF" position.

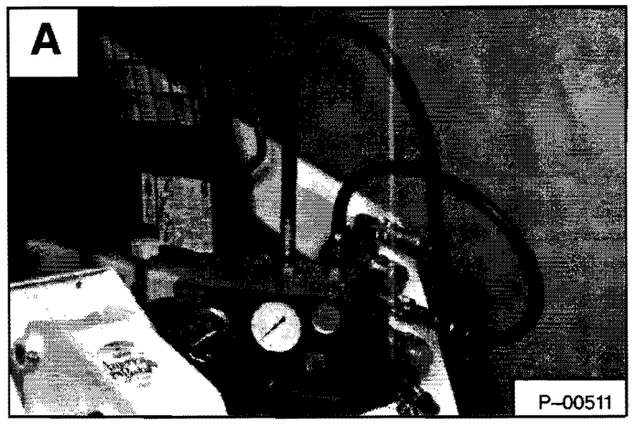
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

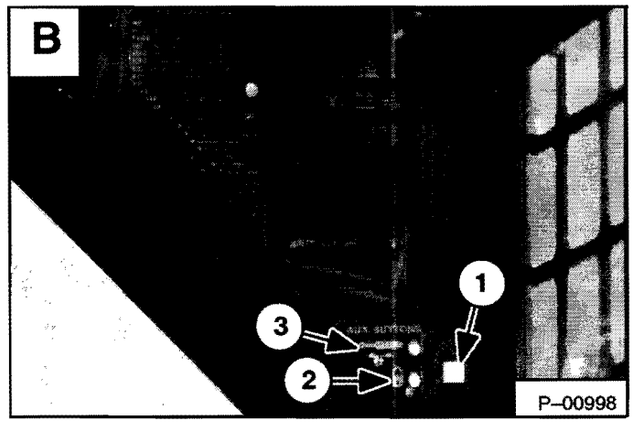
Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

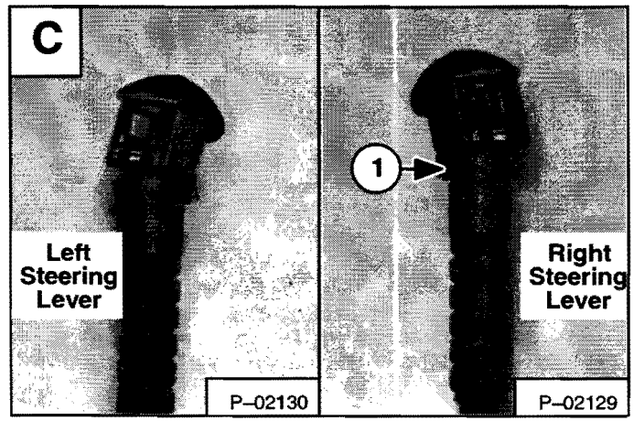
There should be approximately 13 GPM (49 L/min.) free flow. Turn the restrictor control, on the tester, until the main relief valve opens. The correct pressure for the main relief is 2550–2600 PSI (17582–17927 kPa).

Push the button (Item 1) to disengage the "detent" position to the front quick couplers **[C]**.

If the relief pressure is not correct, stop the engine. Adjust or replace the main relief valve (Page 2–8).







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HYDRAULIC CONTROL VALVE (753H) (Cont'd)

Checking the Dual Pressure Main Relief Valve (High Setting)

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

MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

Turn the key switch to the "OFF" position. Before the engine stops running, turn the key switch all the way to the left to release the hydraulic pressure at the front auxiliary quick couplers.

Lift and block the loader (Page 1–2).

Raise the operator cab (Page 1–5).

Connect the remote start switch (Page 1–24).

Connect the hydraulic tester to the auxiliary quick couplers **[A]**.

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

I–2024–0284

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

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

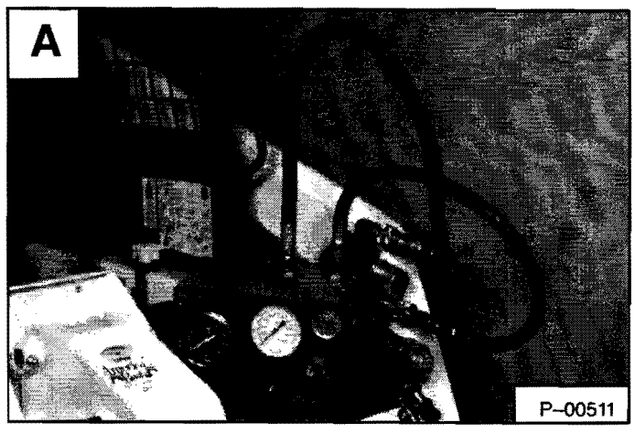
Remove the plug from the center of the auxiliary section on the main control valve (Item 1) **[B]** & **[C]**.

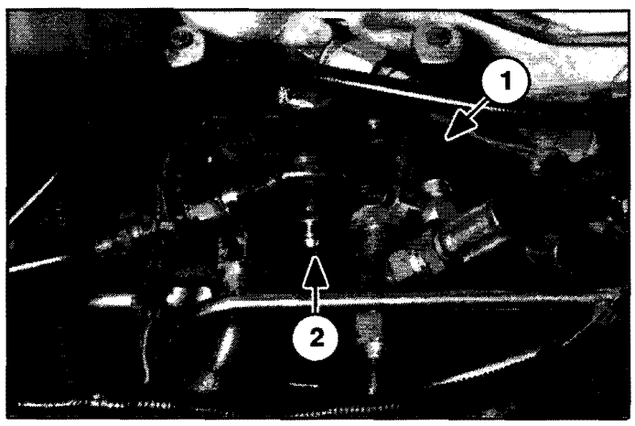
Install a straight fitting (15K–6) (Item 2) into the open port of the auxiliary section **[B]**. Temporarily cap the open port.

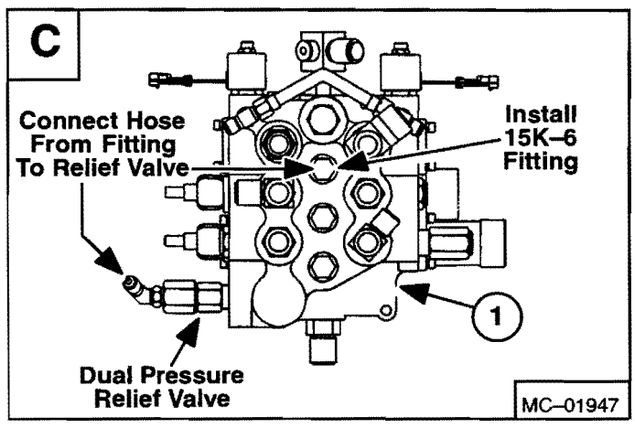
Disconnect the pilot hose (Item 1) from the dual pressure relief valve **[D]**. Plug the pilot hose and cap the relief valve temporarily.

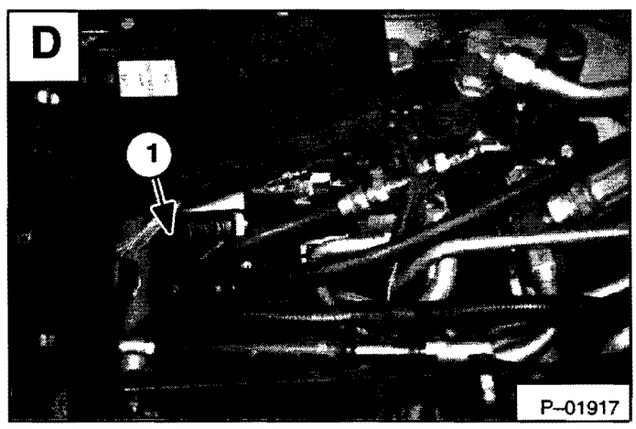
Obtain a 3/8" (9.5 mm) I.D. hose with a 3300 PSI (22754 kPa) or above rating locally.

The hose should be a minimum length of 29" (737 mm) with .5625–18UNF–28 37° flare female swivel hose ends.



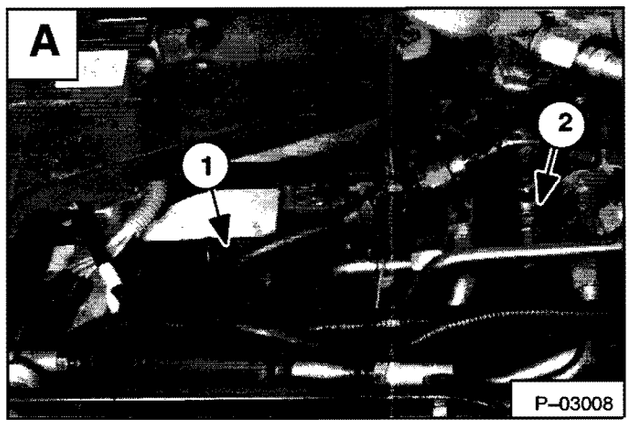






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Connect one end of the hose (Item 1) **[A]** on the dual pressure relief valve. Connect the other end of the hose (Item 2) **[A]** on the straight fitting which was installed in the main control valve. See figure **[C]** Page 2–8B also.



Start the engine and run at low idle RPM. Push the mode switch (Item 1) twice (on the instrument panel) to engage the front auxiliary hydraulics "detent", the lights (Item 2 & 3) will come "ON" **[B]**.

NOTE: The High Horsepower switch should be in the "OFF" position.

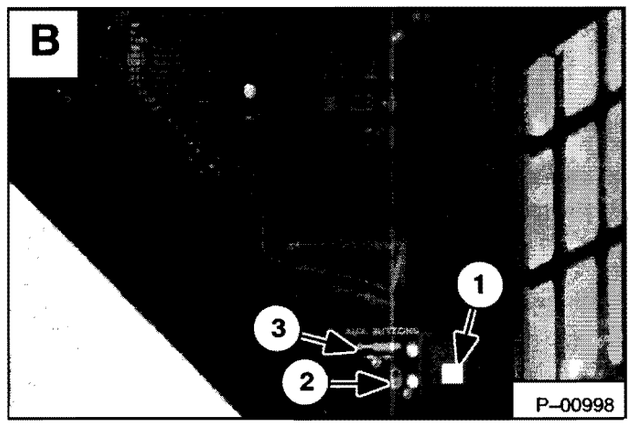
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

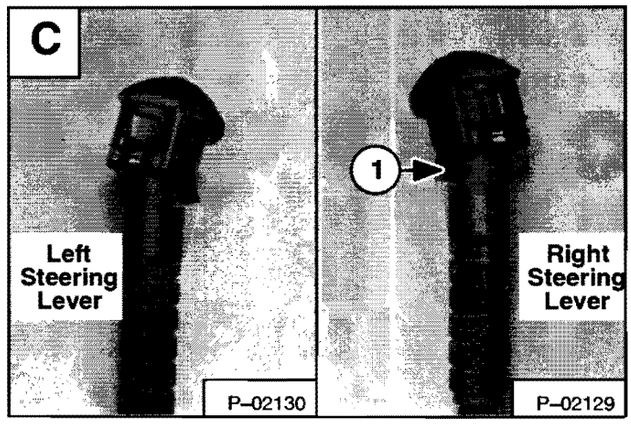
Watch the flow meter on the hydraulic tester to be sure the flow is correct. Increase the engine speed to full RPM.

There should be approximately 13 GPM (49 L/min.) free flow. Turn the restrictor control on the tester, until the main relief valve opens. The correct pressure for the main relief is 3300 PSI (2254 kPa).

Push the button (Item 1) to disengage the "detent" position to the front quick couplers **[C]**.

If the relief pressure is not correct, stop the engine. Replace or adjust the main relief valve (Page 2–8D or 2–8E).





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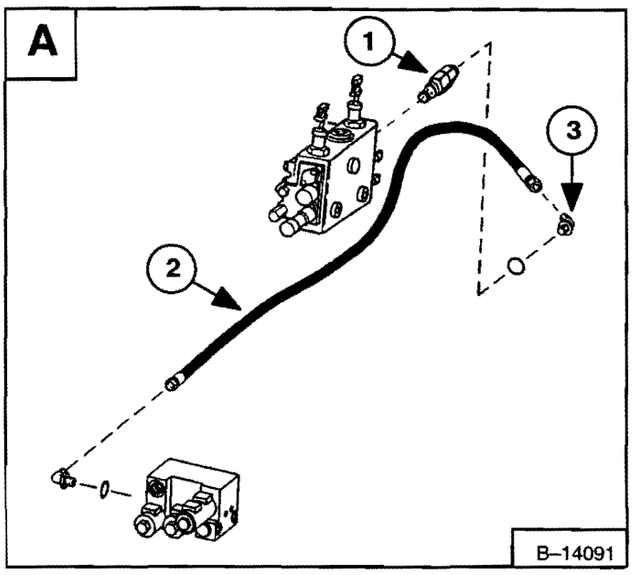
Adjusting the Dual Pressure Main Relief Valve (Low Setting)

NOTE: Adjust the low pressure setting before adjusting the high pressure setting.

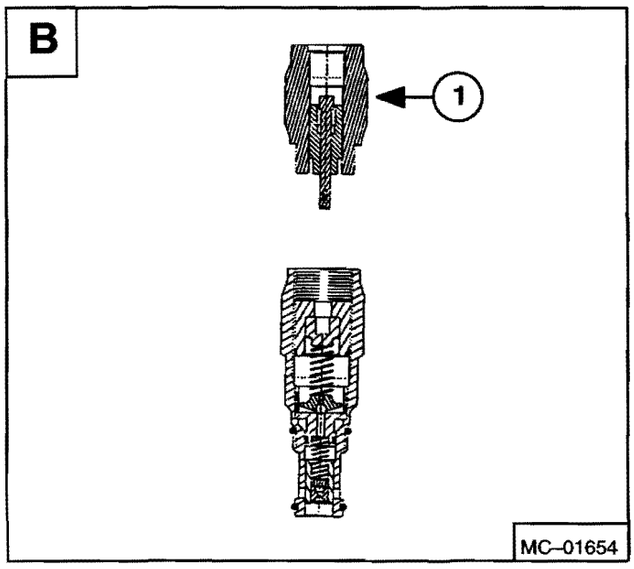
Correct pressure for the low setting is 2550–2600 PSI (17582–17927 kPa). See Page 2–8A for the correct procedure to check the setting.

To adjust the low pressure setting on the main relief valve, (Item 1) disconnect the pilot hose (Item 2) from the adapter fitting (Item 3) **[A]**.

Remove the adapter fitting (Item 3) **[A]**.



Remove the high pressure adjustment housing (Item 1) from the main relief valve **[B]**.



Use a 1/4" allen wrench (Item 1) to turn the adjusting screw (Item 2) in to increase or out to decrease pressure **[C]**.

One turn is equal to approximately 490 PSI (3379 kPa).

Reinstall the high pressure adjustment housing and adapter.

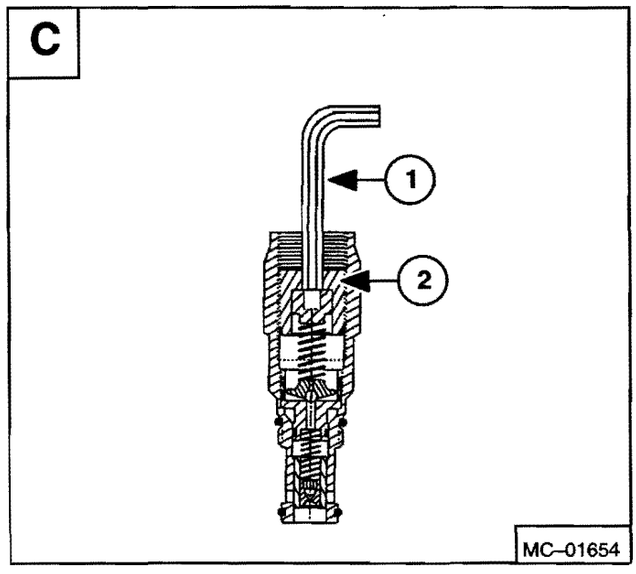
Reconnect the pilot hose.

Start the engine and increase the engine speed to full RPM. Check the correct pressure setting.

Repeat the procedure until the pressure setting is approximately 2550–2600 PSI (17582–17927 kPa).

When the correct pressure setting is reached, the next step is to set the high pressure adjustment on the main relief valve. (See Page 2–8E for correct procedure).

Stop the engine.



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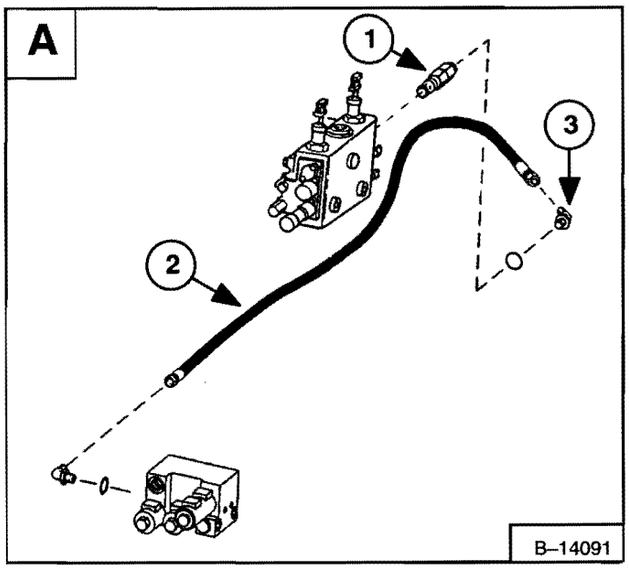
Adjusting the Dual Pressure Main Relief Valve (High Setting)

NOTE: Adjust the low pressure setting before adjusting the high pressure setting.

Correct pressure for the high setting is 3250–3300 PSI (22409–22754 kPa). See Page 2–8B for the correct procedure to check the setting.

To adjust the high pressure setting on the main relief valve, (Item 1) disconnect the pilot hose (Item 2) from the adapter fitting (Item 3) **[A]**.

Remove the adapter fitting (Item 3) **[A]**.



Use a 1/4" allen wrench (Item 1) to press the push pin (Item 2) in until it bottoms out against the shoulder stop (Item 3) **[B]**.

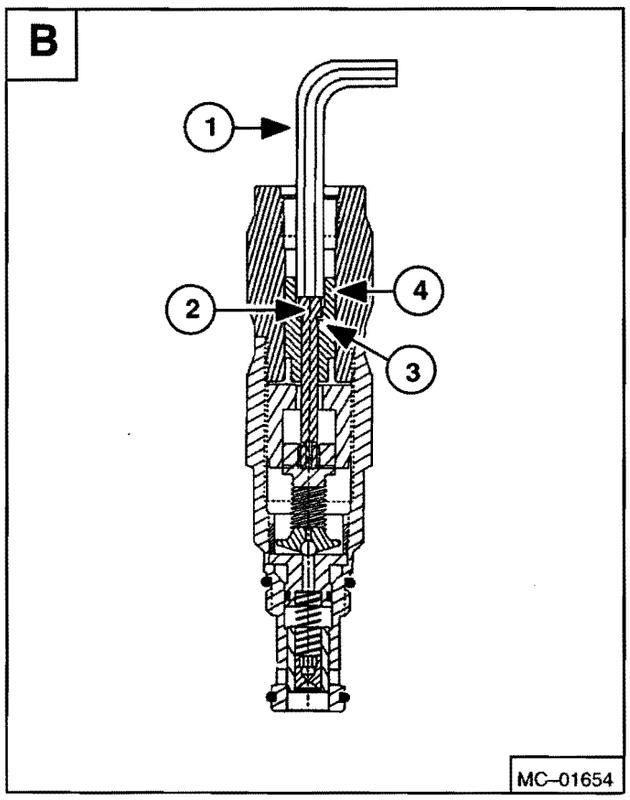
Turn the adjusting guide (Item 4) in to increase pressure or out to decrease pressure **[B]**.

One turn is equal to approximately 390 PSI (2689 kPa).

Reinstall the adapter fitting.

See Pages 2–8B and 2–8C for the proper procedure to check the high pressure setting.

Reconfirm the correct adjustment.



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SELECT VALVE (753H)

Checking the Main Relief Valve in High Horsepower Select Valve

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

MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

Lift and block the loader (Page 1–2).

Connect the hydraulic tester to the secondary auxiliary quick couplers (right side) (Item 1) **[A]**.

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

I–2024–0284

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

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

Start the engine and run at low idle RPM. Push the mode switch (Item 1) once (on the instrument panel) to engage the front auxiliary hydraulics momentary, the light (Item 2) will come "ON" **[B]**.

Push the rocker switch (Item 1) for fluid pressure to the secondary quick couplers **[C]**.

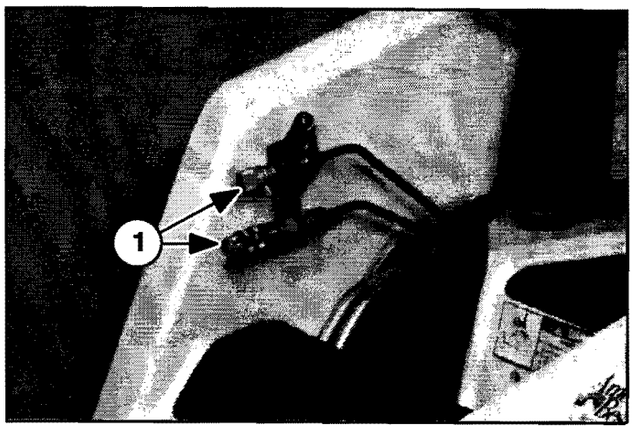
Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

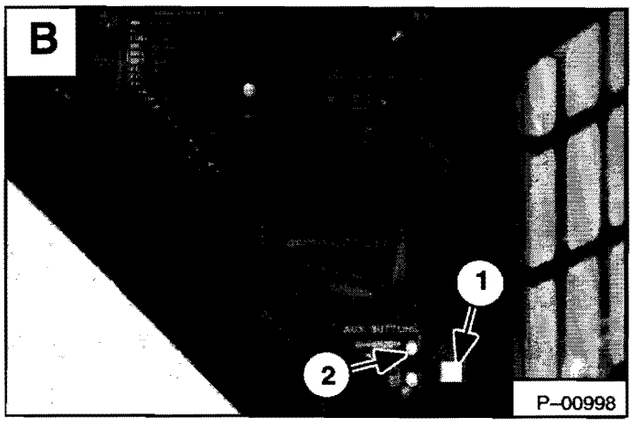
The free flow should be approximately 8.7 GPM (32,9 L/min.). Turn the restrictor control, on the tester, until the main relief valve opens. The correct pressure for the main relief is approximately 3250–3300 PSI (22409–22754 kPa).

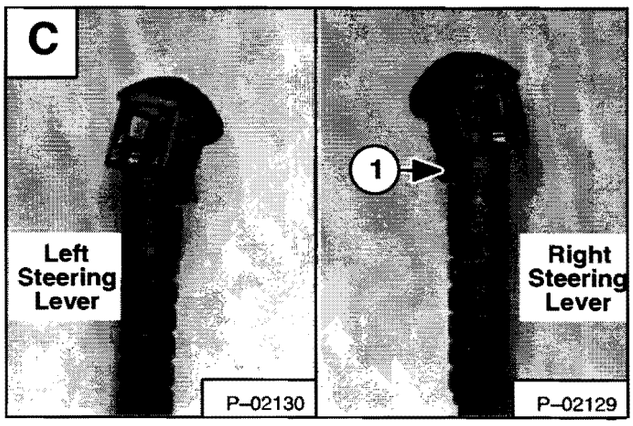
Release the rocker switch (Item 1) to disengage the flow to the secondary quick couplers **[C]**.

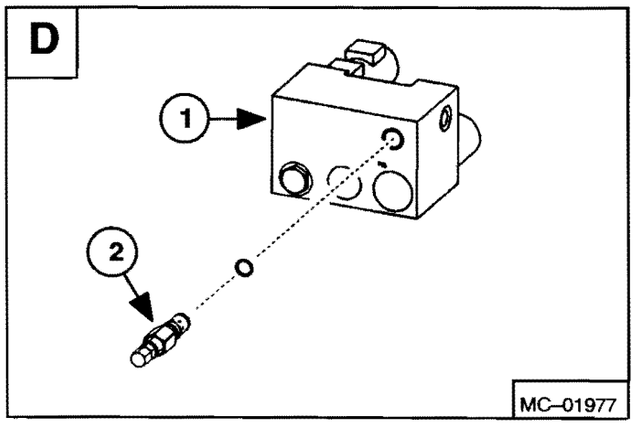
If the relief pressure is not correct, stop the engine. Adjust or replace the main relief valve in the select valve (Item 1) **[D]** located in the right rear.

Remove the cap from the relief valve (Item 2) and turn the adjusting screw in or out until the correct pressure is reached **[D]**.









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HYDRAULIC CONTROL VALVE (Cont'd)

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.

I–2003–0888

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

Lift and block the loader (Page 1–2).

Raise the operator cab (Page 1–5).

Clean the area around the control valve.

Assembly: Note the location of the hoses and tubelines before removal.

Disconnect the wiring harness from the two solenoids on the control valve **[A]**.

Disconnect the hose (Item 1) which goes to the hydraulic reservoir **[B]**.

When this hose is disconnected it will drain the fluid from the reservoir. Install a plug in the hose or drain the fluid into a container.

Disconnect the tilt and lift foot pedal linkages from the valve spools **[C]**.

Disconnect all the hoses and tubelines from the control valve.

Remove the two mounting bolts.

Installation: Tighten the mounting bolts to 15–16 ft.–lbs. (21–23 Nm) torque.

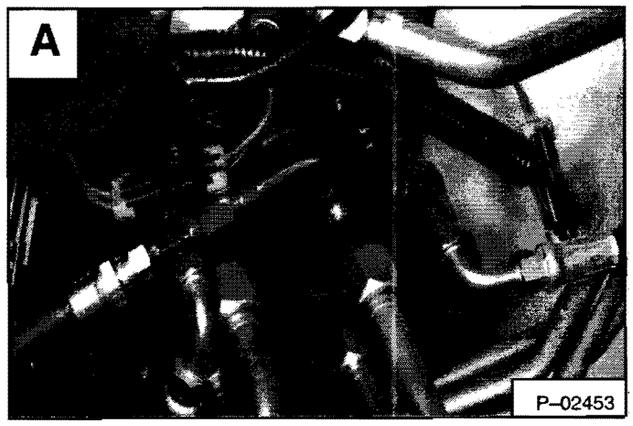
Remove the control valve.

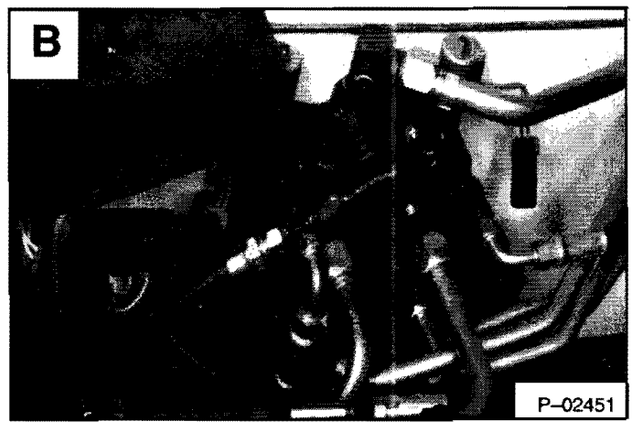
⚠ WARNING

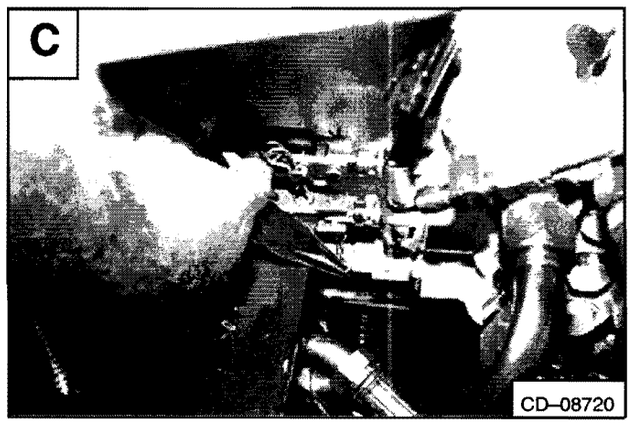
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W–2103–1285

SEE THE COMPONENT REPAIR MANUAL FOR THE HYDRAULIC CONTROL VALVE DISASSEMBLY AND ASSEMBLY PROCEDURE.







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HYDRAULIC PUMP

Checking the Output of the Pump

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

MEL– – Remote Start Switch
MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

NOTE: Remove all air from the hydraulic system before beginning the test. Air in the system can give an inaccurate test.

***Relief pressure must be per specification before the test is done.**

NOTE: Early model pumps were rotate 180° with pressure (outlet) side to the rear. Connections to the tester are the same from either pump mounting.

Sample tester connection shown [C].

Lift and block the loader (Page 1–2).

Raise the operator cab (Page 1–5).

Connect the remote start switch (Page 1–24).

Disconnect the OUTLET tubeline from the pump **[A]**.

Connect the INLET hose (Item 1) from the tester to the OUTLET of the pump. Connect the OUTLET hose (Item 2) from the tester to the tubeline which was disconnected from the pump **[B]**.

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Start the engine and run at low idle RPM. Make sure the tester is connected correctly. If no flow is indicated on the tester, the hoses are connected wrong. With the hoses connected correctly, increase the engine speed to full RPM*.

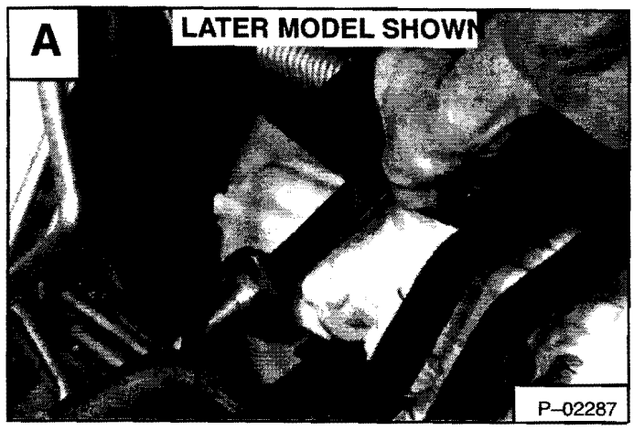
Warm the fluid to 140°F. (60°C.) by turning the restrictor control (Item 1) **[C]** on the tester to about 1000 PSI (6895 kPa). DO NOT exceed system relief pressure. Open the restrictor control and record the free flow (GPM) at full RPM.

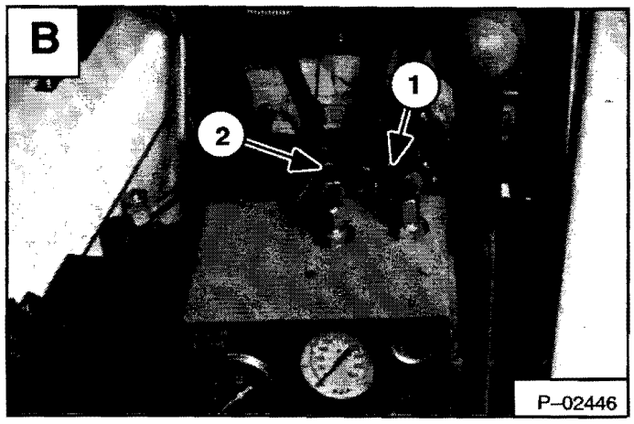
Push the mode switch (on the remote start switch) to engage the front auxiliary hydraulics, the light will come "ON". Push the button (on the right steering lever) for fluid flow to the quick coupler (fluid pressure will go over main relief). Record the highest pressure (PSI) and flow (GPM). The high pressure flow must be at least 80% of free flow.

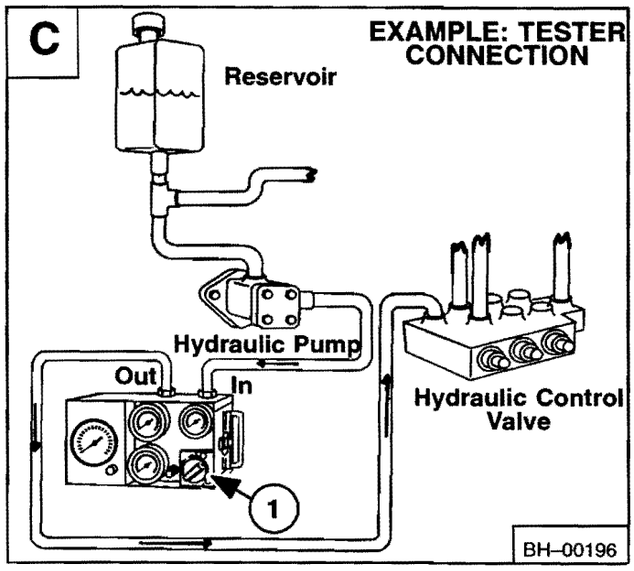
$$\% = \frac{\text{HIGH PRESSURE FLOW (GPM)}}{\text{FREE FLOW (GPM)}} \times 100$$

A low percentage may indicate a failed pump.

*Refer to specifications (Section 8) for system relief pressure and full RPM.







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HYDRAULIC PUMP (753 H) (Cont'd)

Checking the Output of the High Flow Pump

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

MEL–1238 – Hydraulic Tester
MEL–10006 – Hydraulic Test Kit

NOTE: Remove all the air from the hydraulic system before beginning the test. Air in the system can give an inaccurate test.

***Relief pressure must be per specification before the test is done.**

Sample tester connections shown [A].

Lift and block the loader (Page 1–2).

Raise the operator cab (Page 1–5).

Connect the remote start switch (Page 1–24).

Disconnect the OUTLET tubeline from the pump.

Connect the INLET hose (Item 1) from the tester to the OUTLET of the pump. Connect the OUTLET hose (Item 2) from the tester to the tubeline which was disconnected from the pump **[B]**.

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

IMPORTANT

The hydraulic tester must be in the fully open position before you start the engine.

I–2024–0284

Start the engine and run at low idle RPM. Make sure the tester is connected correctly. If no flow is indicated on the tester, the hoses are connected wrong. With the hoses connected correctly, increase the engine speed to full RPM*.

Warm the fluid to 140°F (60°C) by turning the restrictor control (Item 1) **[A]** on the tester to about 1000 PSI (6895 kPa). DO NOT exceed system relief pressure. Open the restrictor control and record the free flow (GPM) at full RPM.

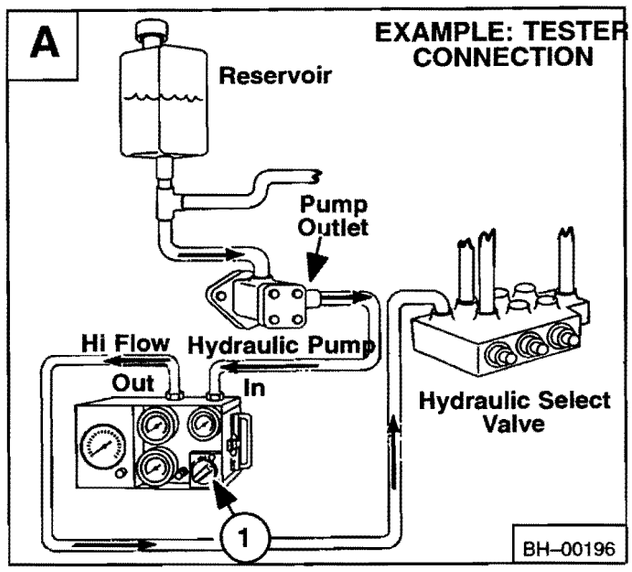
Turn the restrictor control knob (Item 1) **[A]** slowly to relief and record the high pressure flow (GPM). **DO NOT** exceed 3250–3300 PSI (22409–22754 kPa) when turning the restrictor knob. Excessive pressure will cause permanent damage to the hydraulic pump. The high pressure flow (GPM) must be at least 80% of free flow (GPM).

$$\% \quad \frac{\text{HIGH PRESSURE FLOW (GPM)}}{\text{FREE FLOW (GPM)}} \times 100$$

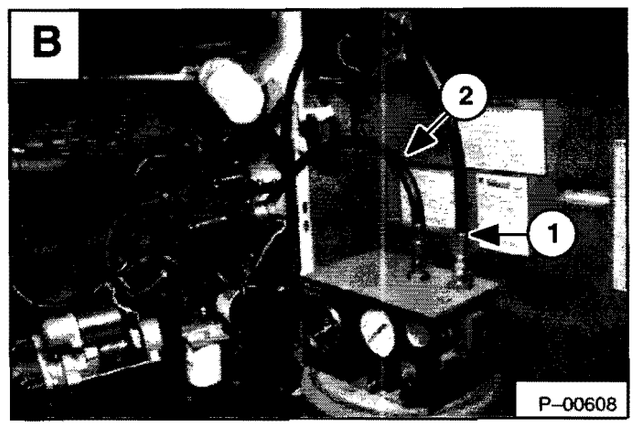
A low percentage may indicate a failed pump.

*Refer to specifications (Section 8) for system relief pressure at full RPM.

A



B



https://truckmanualshub.com/



bobcat

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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.

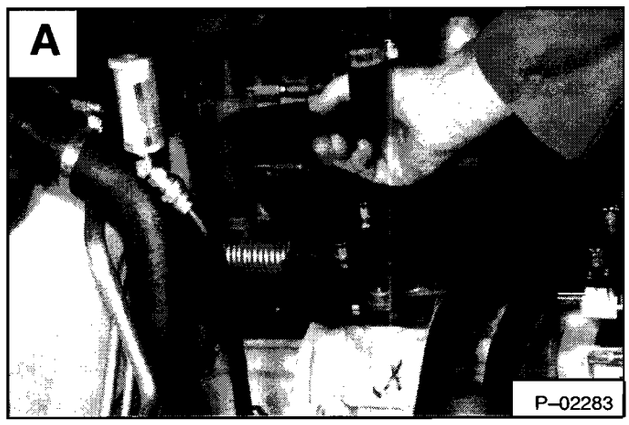
I–2003–0888

Raise the operator cab (Page 1–15).

Disconnect the suxtion hose **[A]**.

NOTE: Drain the hydraulic fluid into a container.

Disconnect the outlet tubeline **[B]**.





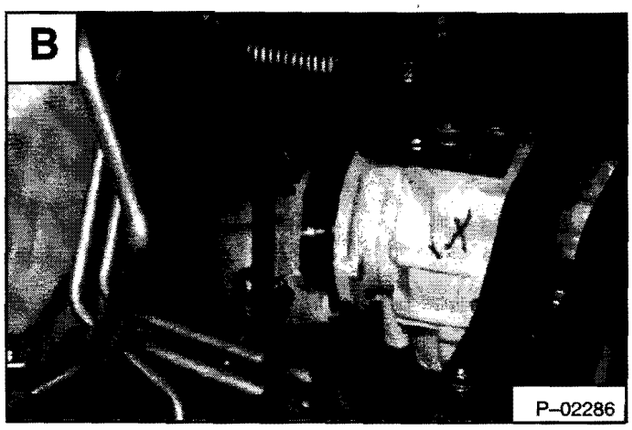
https://truckmanualshub.com/

HYDRAULIC PUMP (Cont'd)

Remove the two mounting bolts **[A]**.



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



Disconnect the small hose from the outlet fitting (if equipped with optional rear auxiliaries) **[C]**.

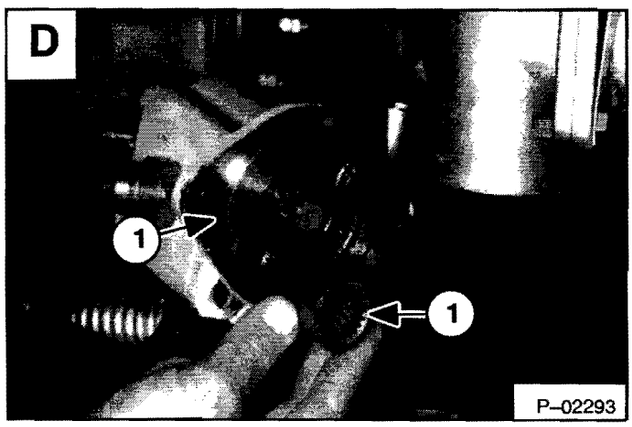
Remove the hydraulic pump from the loader.



Remove the coupler (Item 1) from the hydraulic pump shaft **[D]**.

Remove the large O–ring (Item 2) **[D]**.

Installation: Always use a new O–ring when installing the hydraulic pump.



⚠ 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

SEE THE COMPONENT REPAIR MANUAL FOR THE HYDRAULIC PUMP DISASSEMBLY AND ASSEMBLY PROCEDURE.

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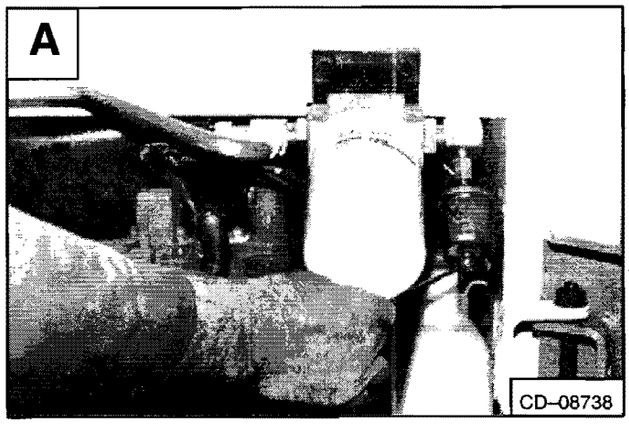
HYDRAULIC FILTER HOUSING

Removal and Installation

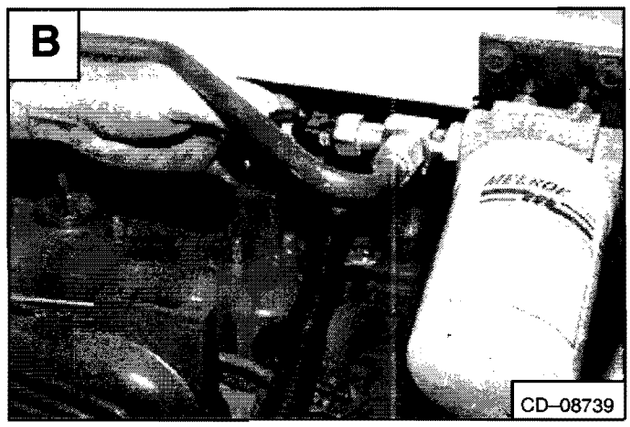
IMPORTANT

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.

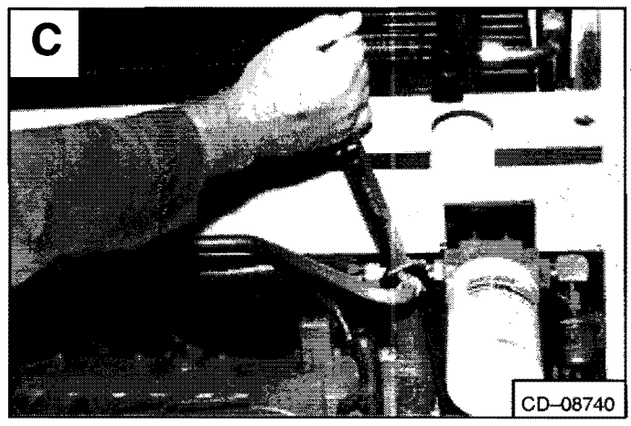
I–2003–0888



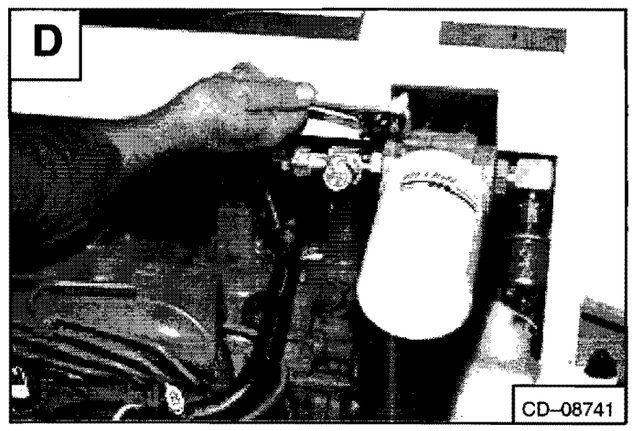
Disconnect the wires from the sender **[A]**.



Disconnect the wiring harness connector **[B]**.



Remove the tubeline **[C]**.



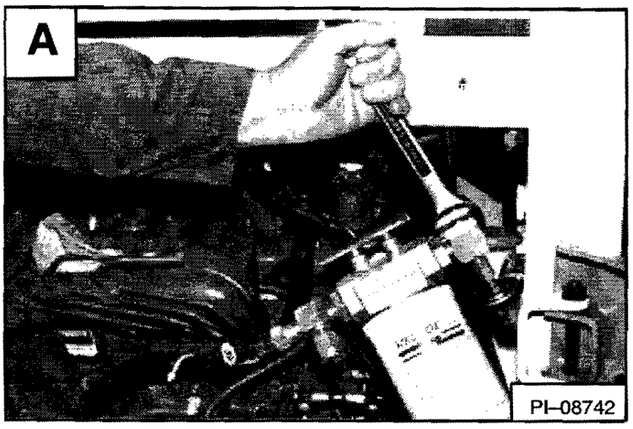
Remove the two mounting bolts **[D]**.

Installation: Tighten the mounting bolts to 25 ft.–lbs. (34 Nm) torque.

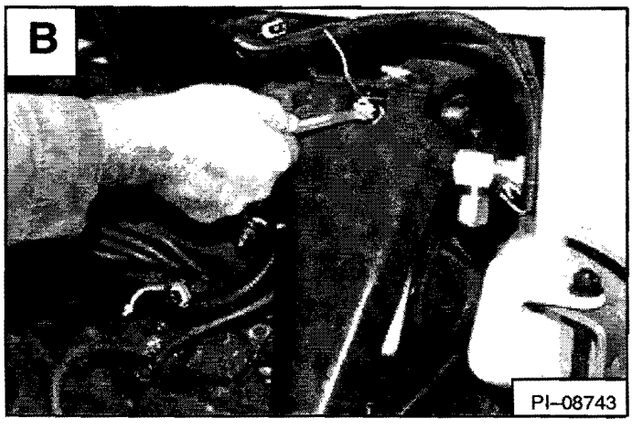
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HYDRAULIC FILTER HOUSING (Cont'd)

Disconnect the hose **[A]**.



Disconnect the wire (Item 1) from the sender **[B]**.



⚠ 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

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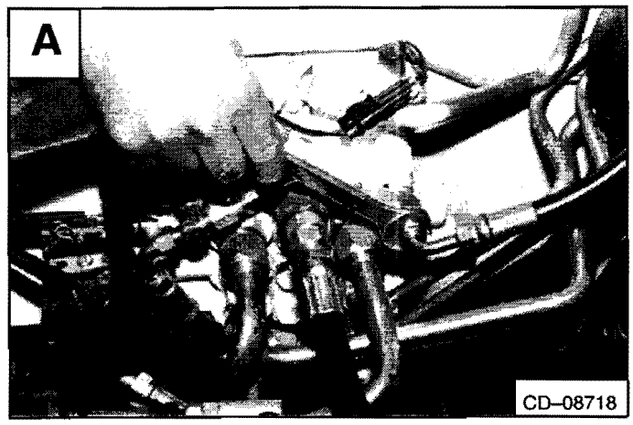
HYDRAULIC FLUID RESERVOIR

Removal and Installation

Raise the operator cab (Page 1–5).

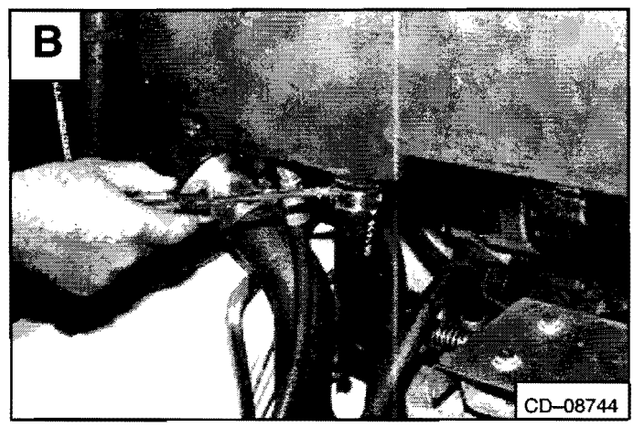
Disconnect the hose which goes from the control valve to the hydraulic reservoir **[A]**.

When this hose is disconnected it will drain the fluid from the reservoir. Drain the fluid into a container.



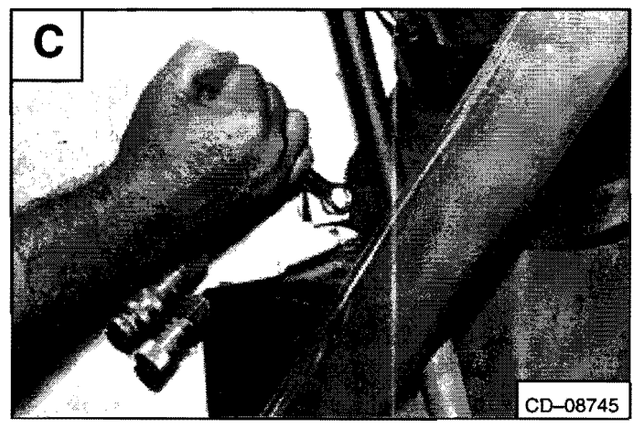
Loosen the hose clamps on the inlet hose to the hydraulic pump **[B]**.

Remove the hose.

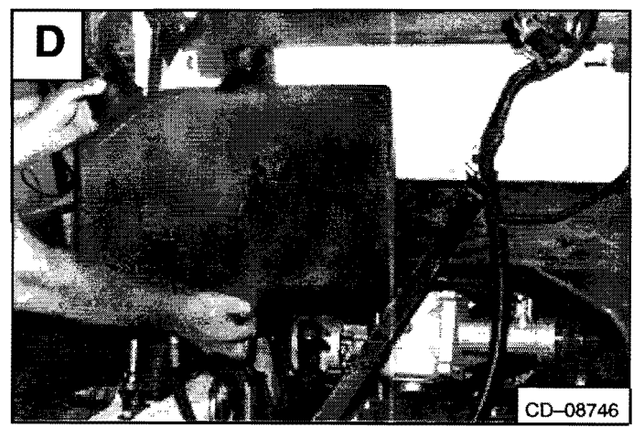


Remove the bolt and plate from the mounting strap **[C]**.

Installation: Tighten the bolt to 16–20 ft.–lbs. (22–27 Nm) torque.



Remove the hydraulic reservoir from the loader **[D]**.



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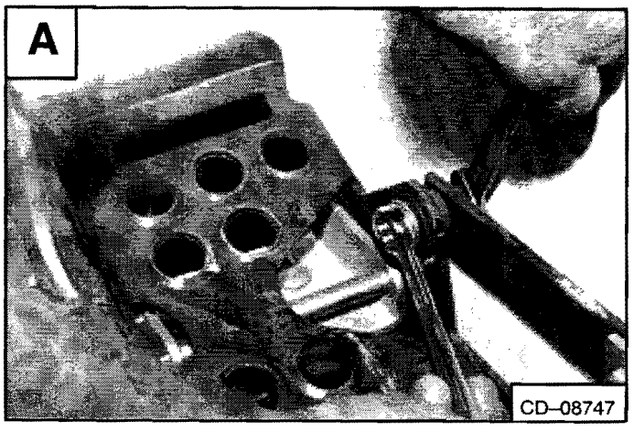
CONTROL PEDALS

Removal and Installation

Remove the bolt and nut from the pedal linkage **[A]**.

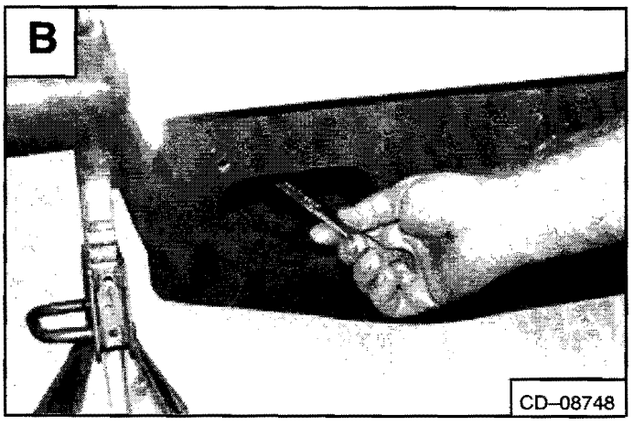
Installation: Tighten the bolt and nut to 21–25 ft.–lbs. (28–34 Nm) torque.

Check the rubber bushing in the pedal for wear and replace as needed.



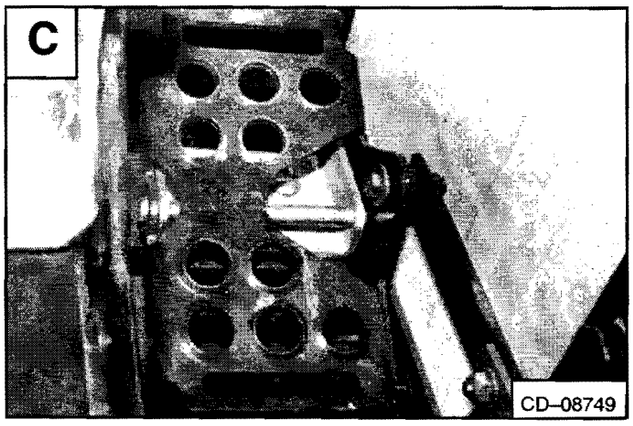
Remove the two mounting bolts **[B]**.

Remove the pedal assembly from the loader.



Adjustment

After installing the pedal, adjust the pedal so that there is clearance under the rear of the pedal **[C]**. The valve spool must travel full stroke without the pedal hitting the floor panel.



⚠ WARNING

AVOID INJURY OR DEATH

Adjust locking tabs on pedal control linkage so that lift and tilt control pedals are locked in neutral when the seat bar is up.

W–2104–1285

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PEDAL INTERLOCK LINKAGE

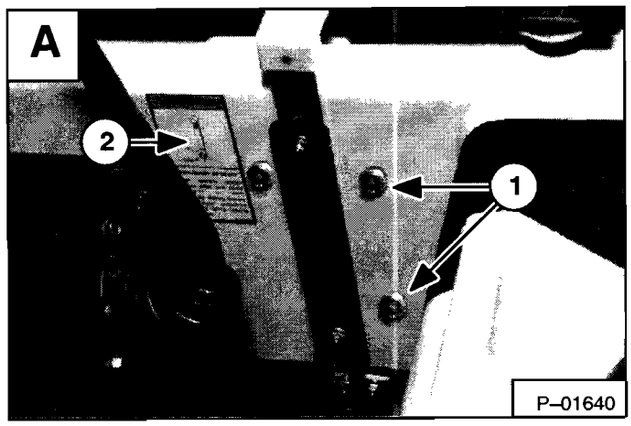
Removal and Installation

Remove the lock nuts (Item 1) from the interlock shield **[A]**.

Installation: Tighten the lock nuts to 25–28 ft.–lbs. (34–38 Nm) torque.

NOTE: Be sure the decal (Item 2) is in good condition and in the location shown [A].

Remove the interlock shield from the interlock.



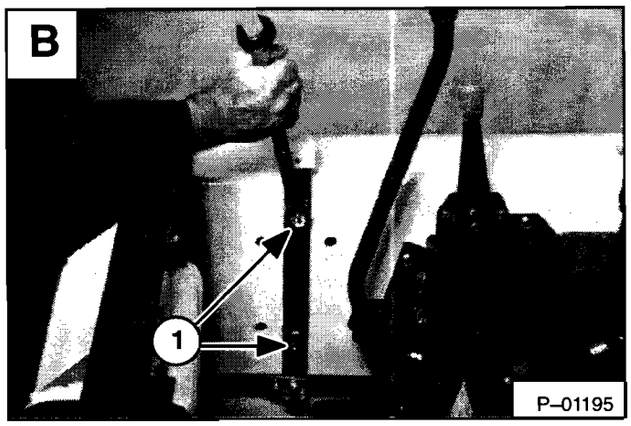
Loosen the lock nut (Item 1) from the interlock bolts **[B]**.

Remove the spring from under the interlock block.

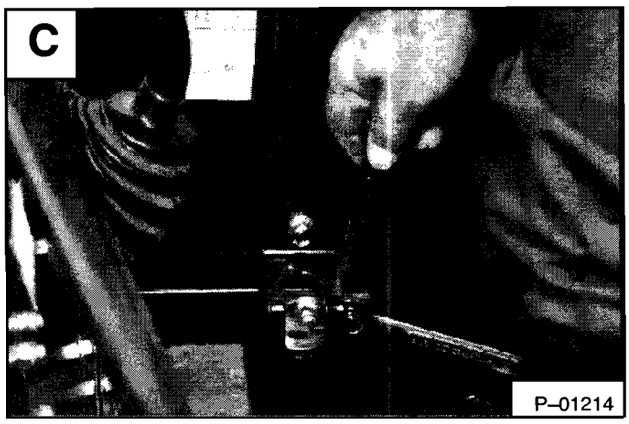
Installation: Tighten the interlock nut to 84–96 in.–lbs. (9,5–10,8 Nm) torque.

Remove the interlock.

Remove the plastic washers between the interlock and the fender. Remove the bolts.



Installation: During installation be sure to keep the interlock pressed against the loader frame so the plastic washers on each side of the interlock (top and bottom) do not fall out. It may be necessary to hold the plastic washers with an O–ring pick or small screwdriver.



Adjustment

Check the pedal interlock linkage so it is free and locks both pedals.

Check that the tab on the linkage goes into the slot on the interlocks and holds the pedal in neutral position **[C]**.

If not, loosen the bolts and adjust the tab for correct engagement **[C]**.

Tighten the bolts to 25 ft.–lbs. (34 Nm) torque.

⚠ WARNING

AVOID INJURY OR DEATH

Adjust locking tabs on pedal control linkage so that lift and tilt control pedals are locked in neutral when the seat bar is up.

W–2104–1285

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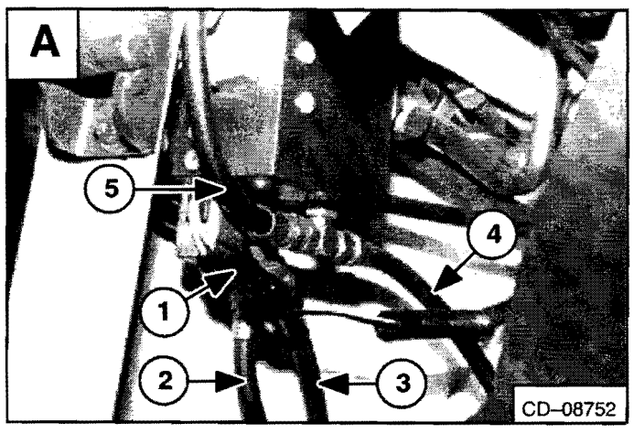
DIVERTER VALVE (OPT.)

Removal and Installation

Open the rear door.

Disconnect the wiring harness connector (Item 1) **[A]**.

Disconnect the hoses (Item 2 thru 5) **[A]**.



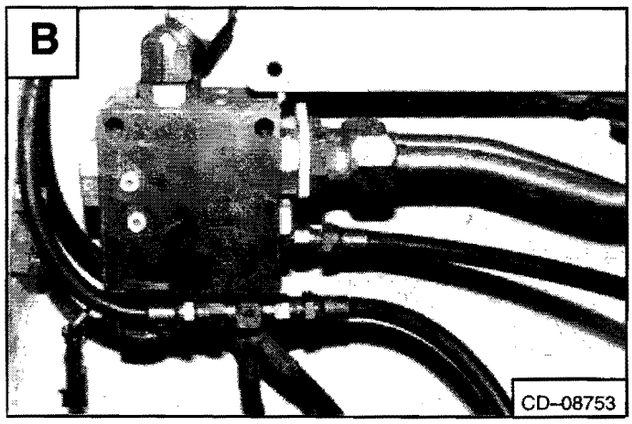
Disconnect the hose (Item 1) **[B]**.

Disconnect the tubelines (Item 2) **[B]**.

Remove the bulkhead fittings (Item 3) **[B]**.

Pull the diverter valve away for clearance and disconnect the top tubelines (Item 4) **[B]**.

Remove the diverter valve from the loader.



⚠ 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

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HAND CONTROLS

Adjustment

Raise the operator cab (Page 1–5a).

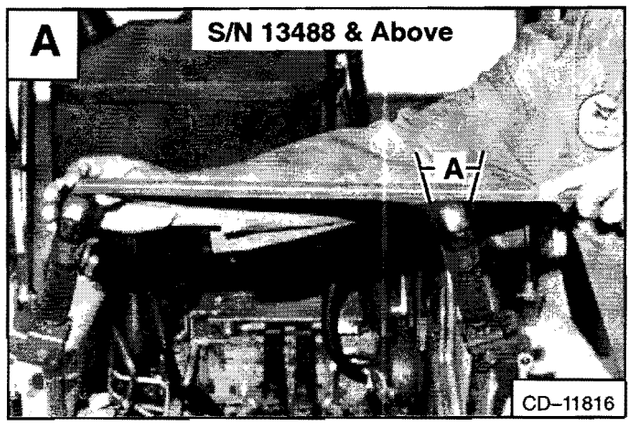
Adjust the tilt and lift control handles for following functions:

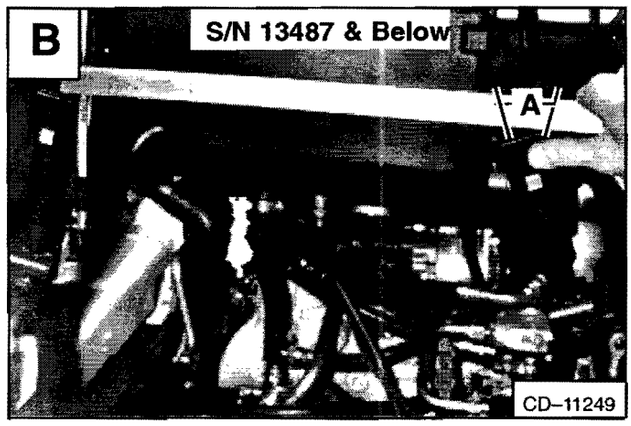
a. Make sure there is 16.0–16.5" (406–419 mm) between the two control handles (as measured from the center of the handle) and that they are setting at approximately 15 degree angle (Item A) **[A]** or **[B]**.

b. Make sure the control valve spools reach their full stroke both directions.

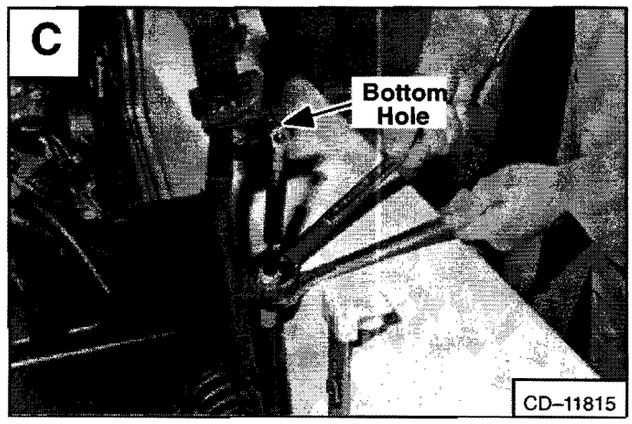
c. Make sure the left control handle goes into "detent" position for float position.

d. Be sure the tilt and lift controls return to neutral when released (except for "detent" position).

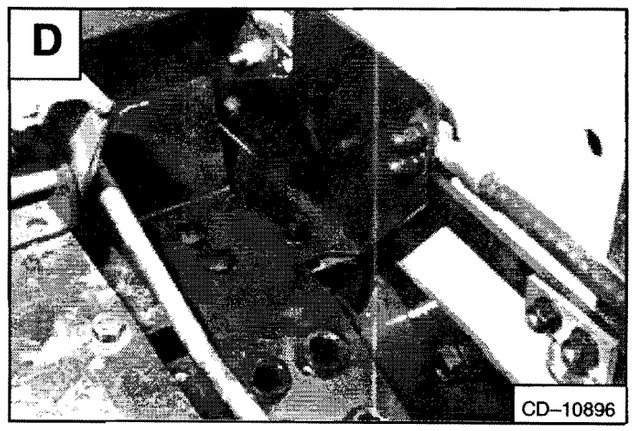




Adjust the cable mounting nuts **[C]** or the control cable mounting brackets to adjust the handles **[D]**.



See Page 2–17 to adjust the pedal lock linkage.



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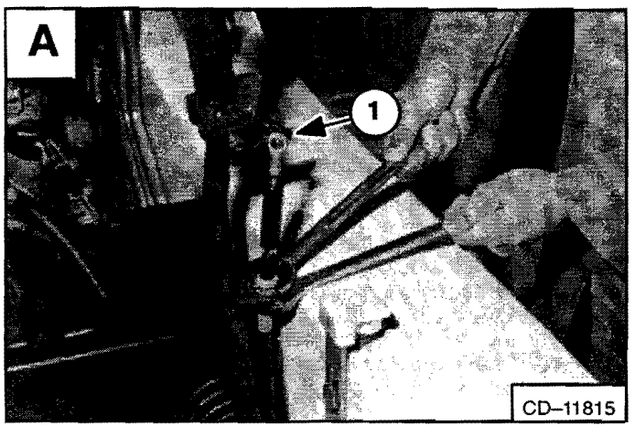
HAND CONTROLS (Cont'd)

Removal and Installation

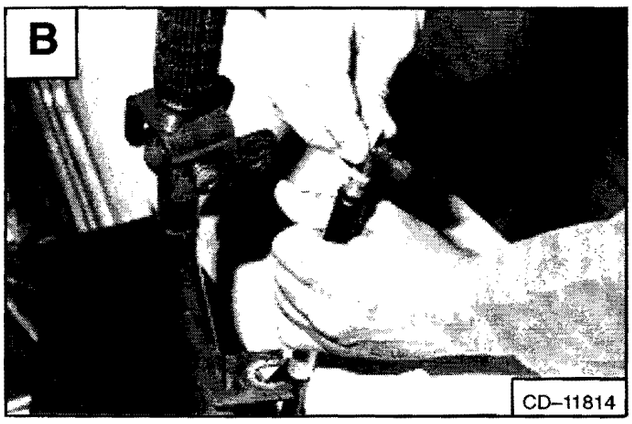
Raise the operator cab (Page 1–5a).

Disconnect the ball joint (Item 1) from the control handle (both sides) **[A]**.

Loosen the control cable mounting nuts (both sides) **[A]**.



Installation: If the ball joint end is removed, turn the ball joint onto the cable end no less than 5–6 turns **[B]**.

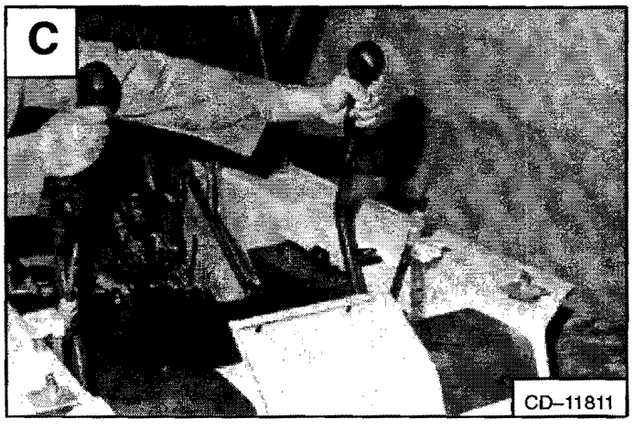


Remove the front panel/steering lever assembly (Page 3–3) **[C]**.

Installation: Make sure the grommets on the linkage bars are installed correctly and that the tilt and lift linkage bars will not bind due to interference between the panel and linkage bars.

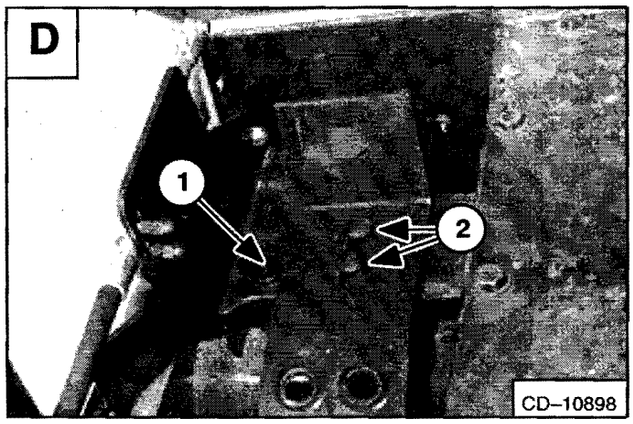
NOTE: S/N 13487 & Below; For disassembly of the control handle and switches, See Page 3–7.

S/N 13488 & Above; The control handle/switches cannot be disassembled and must be replaced as an assembly.



Remove the bolt and nut (Item 1) from the mounting bracket (both sides) **[D]**.

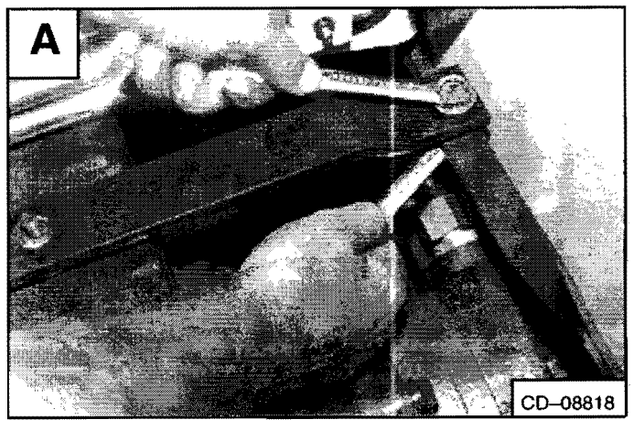
Remove the carriage bolts (Item 2), nuts and foot rest (both sides) **[D]**.



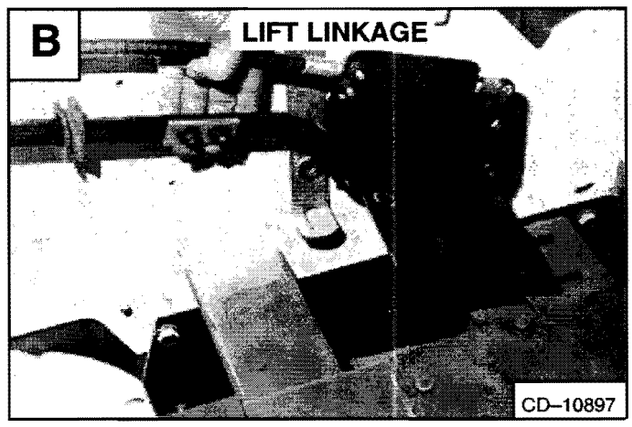
https://truckmanualshub.com/

Disconnect the lift linkage bar from the crossbar **[A]**.

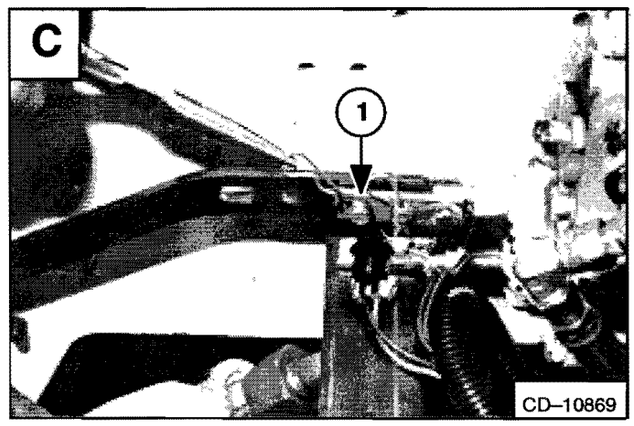
Installation: Put the lift linkage bar UNDER the crossbar.



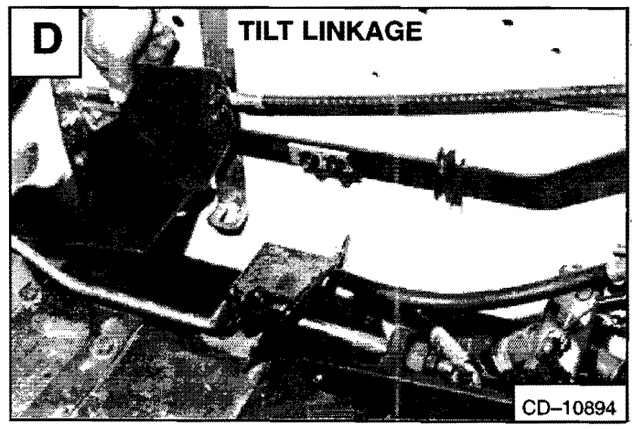
Remove the lift control cable/linkage assembly from the loader **[B]**.



Disconnect the tilt linkage (Item 1) from the control valve **[C]**.

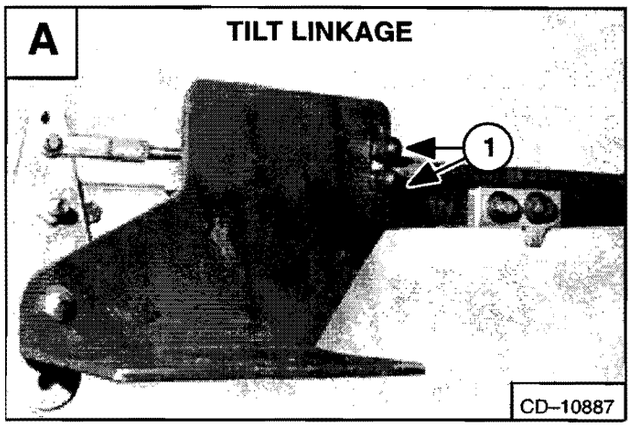


Remove the tilt control cable/linkage assembly from the loader **[D]**.



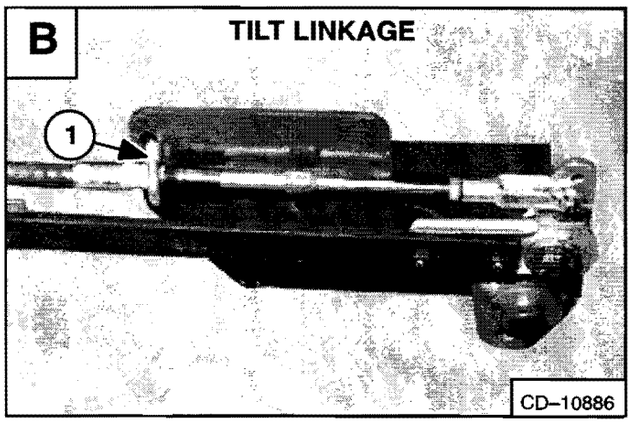
https://truckmanualshub.com/

Remove the acorn nuts (Item 1) from the u–bolt **[A]**.

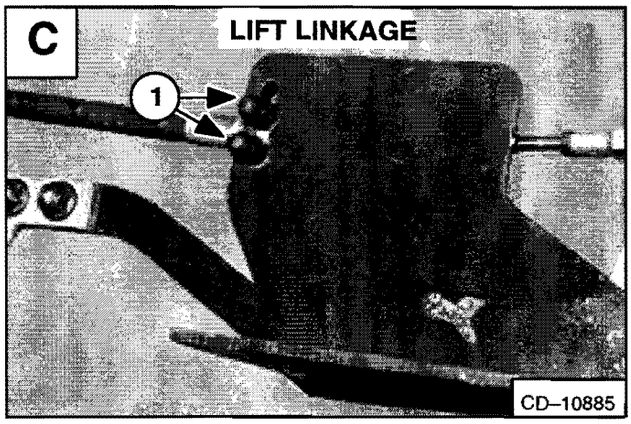


Remove the nuts and u–bolt (Item 1) **[B]**.

Installation: Make sure to install the u–bolt over the notch on the tilt control cable.

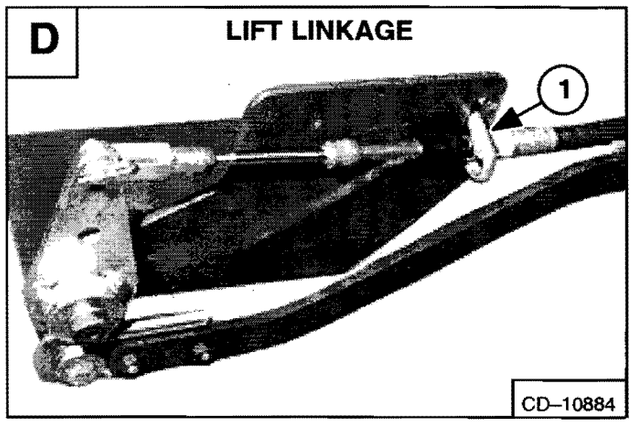


Remove the acorn nuts (Item 1) **[C]**.



Remove the nuts and u–bolts (Item 1) **[D]**.

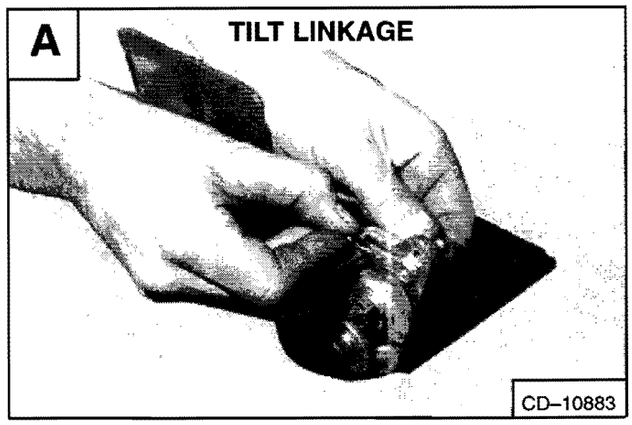
Installation: Make sure to install the u–bolt over the notch on the lift control cable.



https://truckmanualshub.com/

Disconnect the control cable clevis from the bellcrank **[A]**.

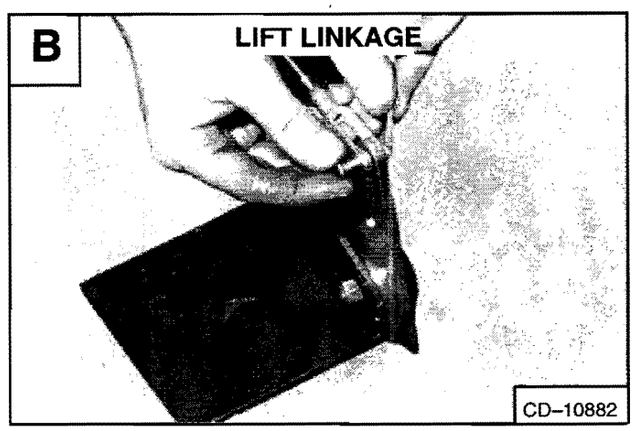
Installation: Install the clevis in the second hole from the top on the bellcrank for the tilt linkage.



Disconnect the control cable clevis from the bellcrank **[B]**.

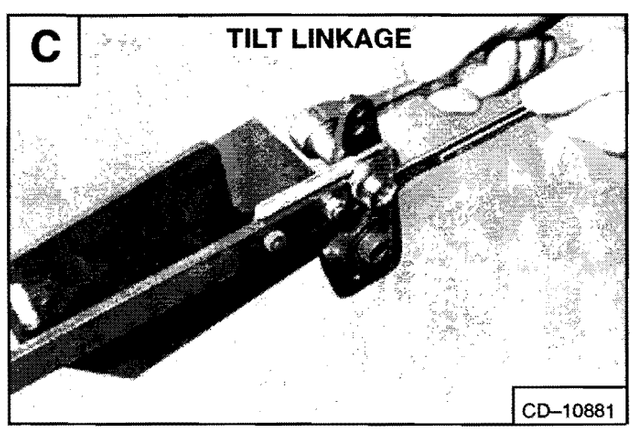
Installation: Install the clevis in the top hole on the bellcrank for the lift linkage.

NOTE: If the clevis is removed from the control cable, turn the clevis onto the end of the cable no less than 5–6 turns.

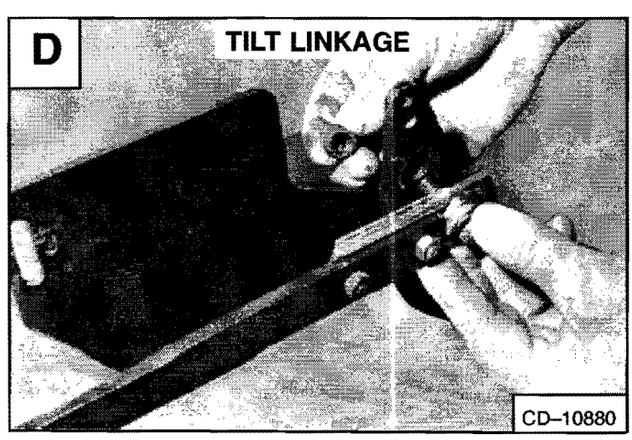


Loosen the bolt and nut on the tilt linkage bar **[C]**.

Installation: DO NOT overtighten the nut because this will distort the swivel bearing and could cause interference in operation of the controls.



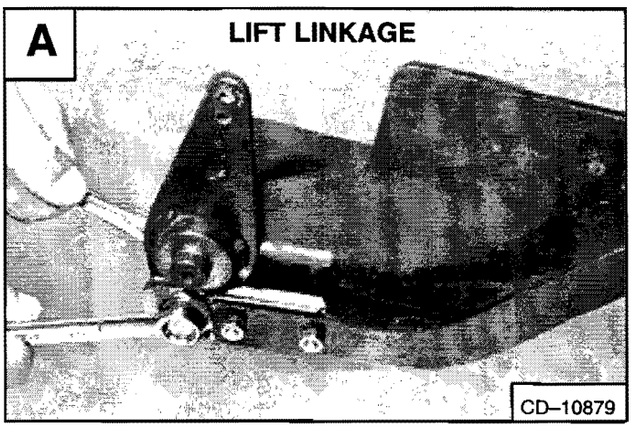
Disconnect the tilt linkage from the middle hole on the bellcrank **[D]**.



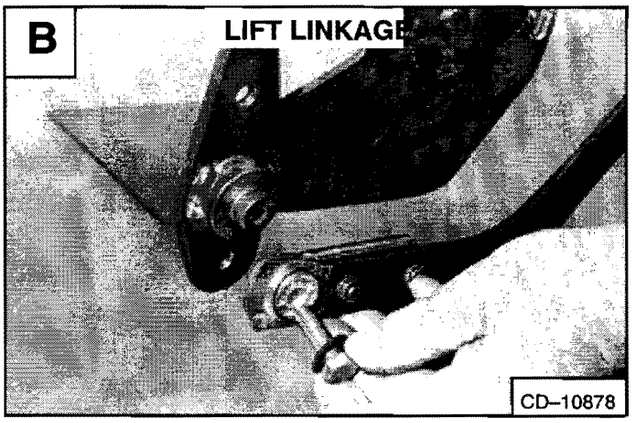
https://truckmanualshub.com/

Loosen the bolt and nut on the lift linkage bar **[A]**.

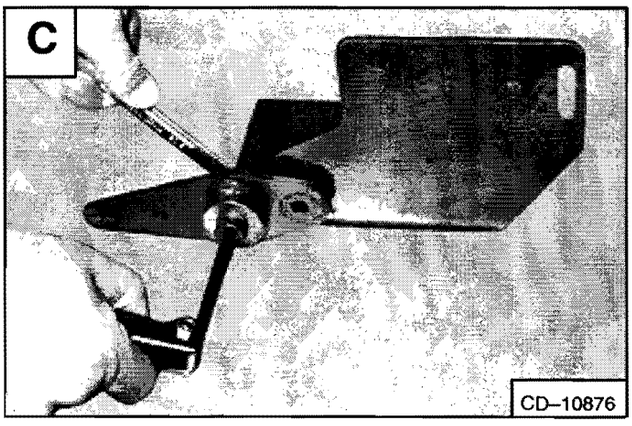
Installation: DO NOT over–tighten the nut because this will distort the swivel bearing and could cause interference in operation of the controls.



Disconnect the lift linkage from the bottom hole on the bellcrank **[B]**.

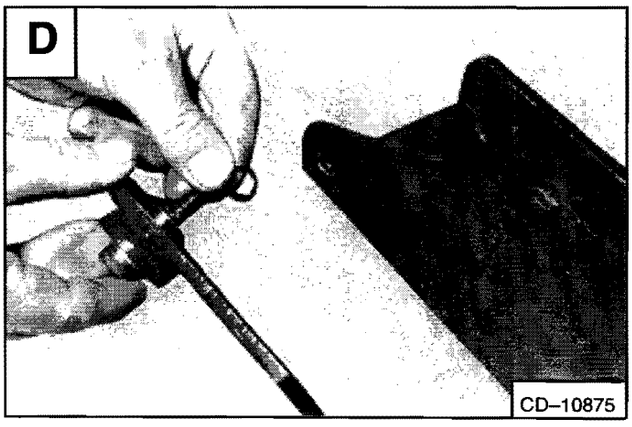


Remove the nut from the bellcrank pivot bolt **[C]**.



Remove the bellcrank/pivot bolt from the mounting bracket **[D]**.

Remove the O–ring from the pivot bolt **[D]**.



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HAND CONTROLS (Cont'd)

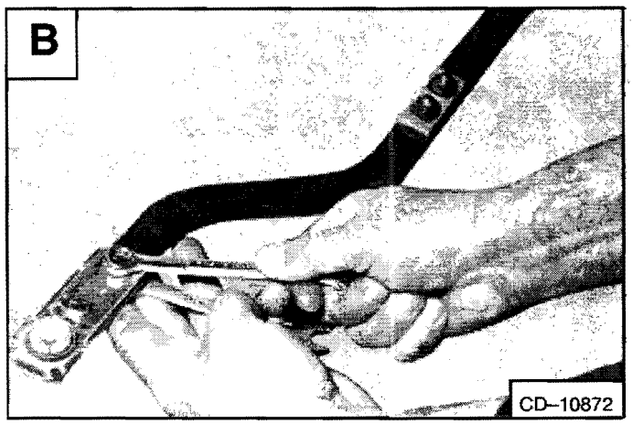
Remove the pivot bolt, washer and O–ring from the bellcrank **[A]**.



Remove the bolts and nuts from the swivel bearing **[B]**.

Remove the swivel bearing from the linkage bar.

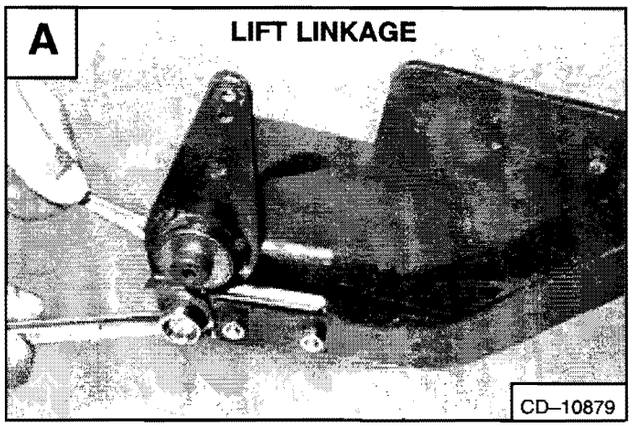
Check all parts for wear or damage. Replace the parts only with genuine Melroe parts.



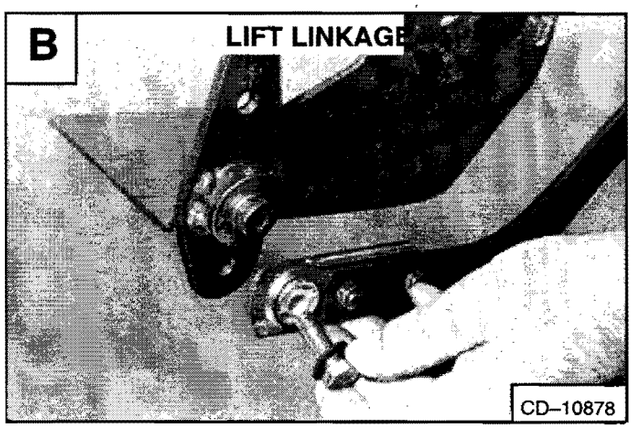
https://truckmanualshub.com/

Loosen the bolt and nut on the lift linkage bar **[A]**.

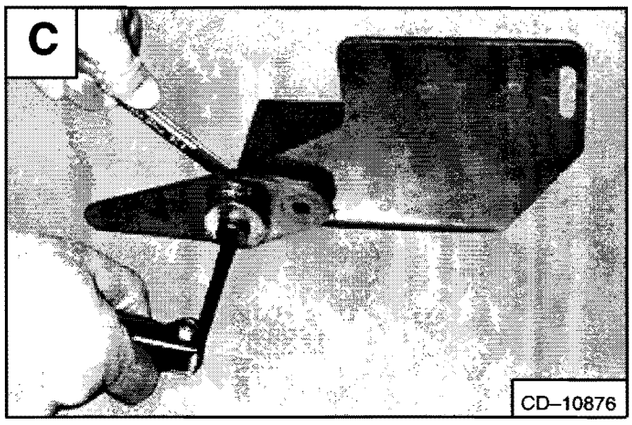
Installation: DO NOT over–tighten the nut because this will distort the swivel bearing and could cause interference in operation of the controls.



Disconnect the lift linkage from the bottom hole on the bellcrank **[B]**.

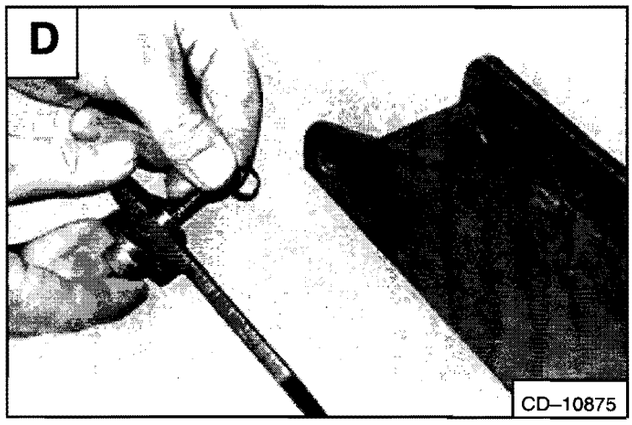


Remove the nut from the bellcrank pivot bolt **[C]**.



Remove the bellcrank/pivot bolt from the mounting bracket **[D]**.

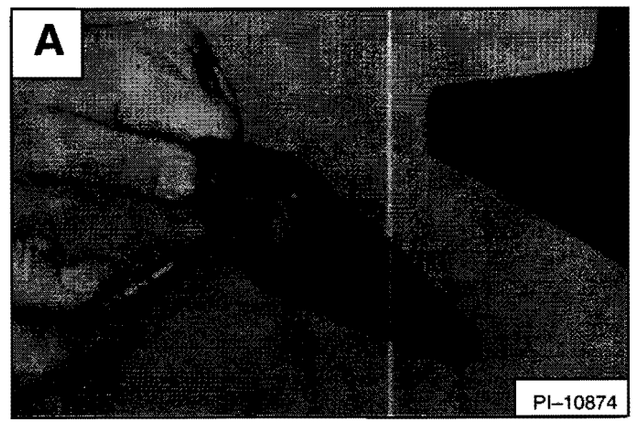
Remove the O–ring from the pivot bolt **[D]**.



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HAND CONTROLS (Cont'd)

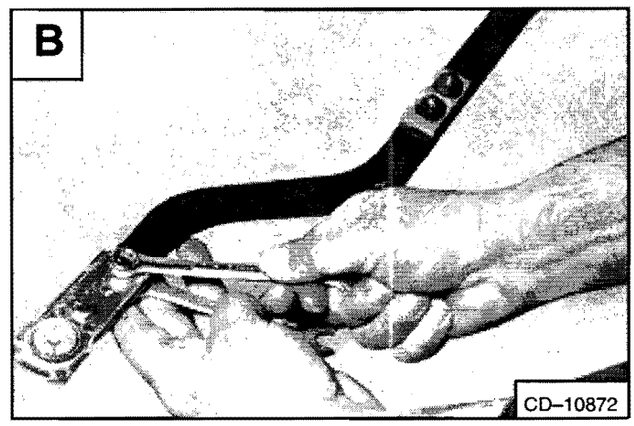
Remove the pivot bolt, washer and O–ring form the bellcrank **[A]**.



Remove the bolts and nuts from the swivel bearing **[B]**.

Remove the swivel bearing from the linkage bar.

Check all parts for wear or being damaged. Replace the parts only with genuine Melroe parts.



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TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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HYDROSTATIC SYSTEM

TROUBLESHOOTING

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.

⚠ 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	CAUSE
No drive on one side, in one direction.	1, 2
No drive on one side in both directions.	2, 3, 4, 5
The loader does not move in a straight line.	2, 3, 5, 6, 7
The hydrostatic system is overheating.	8, 9, 10, 11
Service code **HP 2** appears (Warnings, low charge pressure).	8, 11, 12, 13, 14

KEY TO CORRECT THE CAUSE

1. The hydrostatic pump replenishing valves not seating.
2. The steering linkage needs adjustment.
3. The hydrostatic pumps have damage.
4. The final drive chain is broken.
5. The hydrostatic motor has damage.
6. The tires do not have the correct tire pressure.
7. The tires are not the same size.
8. The hydrostatic fluid is not at the correct level.
9. The oil cooler has a restriction.
10. The temperature sending switch is not operating correctly.
11. The loader is not being operated at the correct RPM.
12. The sender is defective.
13. Pump is defective or worn hydrostatics.
14. Hydraulic filter is plugged.

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HYDROSTATIC SYSTEM INFORMATION

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.

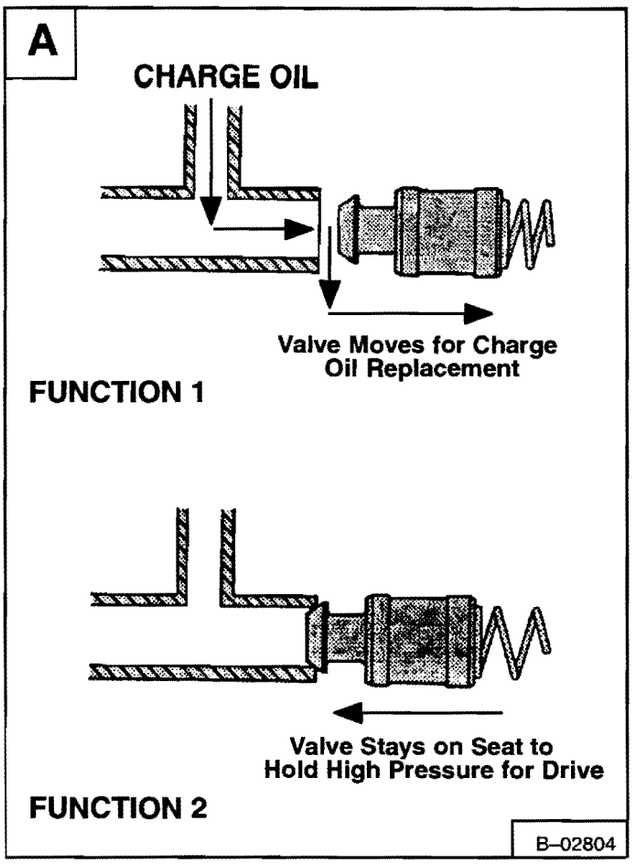
I–2003–0888

Replenishing Valve Function

The functions of the replenishing valves are:

1. To give replacement fluid to the low pressure side of the hydrostatic circuit. Replacement fluid is needed because of normal internal leakage and the controlled flow to the oil cooler for cooling. Function 1 **[A]**.

2. To keep high pressure fluid out of the low pressure side of the hydrostatic circuitry; Function 2 **[A]**.



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FRONT PANEL

Removal and Installation

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Raise the lift arms. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Remove the mounting bolts (Item 1) **[A]** from the throttle.

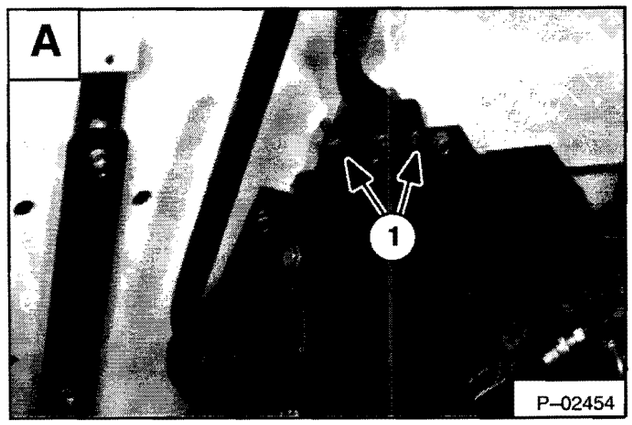
Disconnect the linkage from the throttle lever and remove the lever.

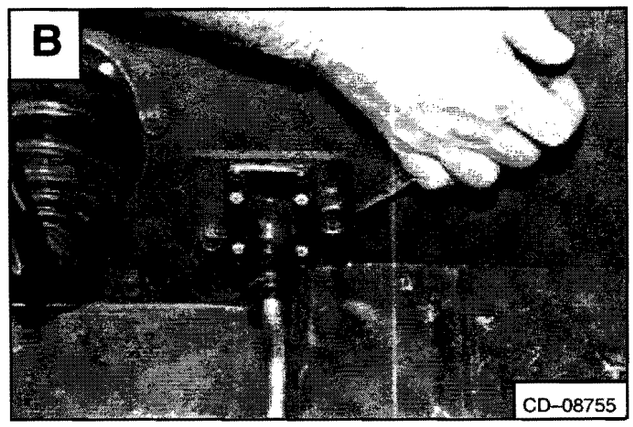
Remove the bolts from the rubber boot retainer plate for the parking brake boot **[B]**.

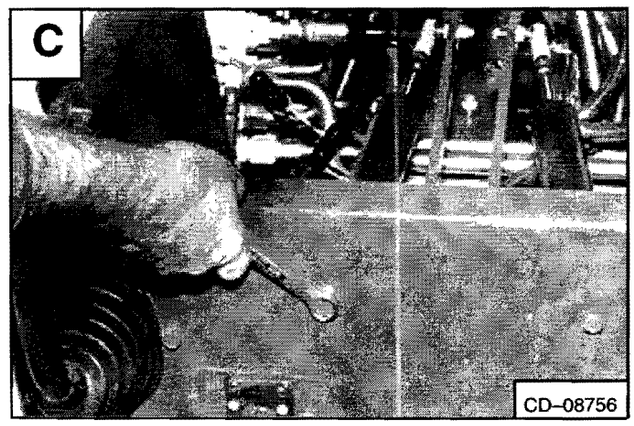
Remove the bolt from the steering shock (both sides) **[C]**.

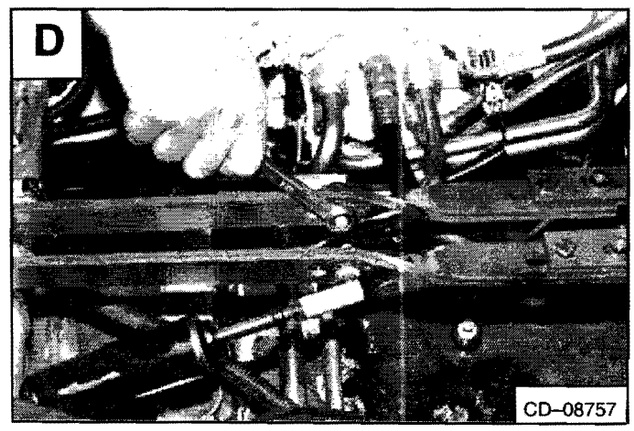
Disconnect the steering shock from the steering linkage (both sides) **[D]**.

Remove the steering shock (both sides).







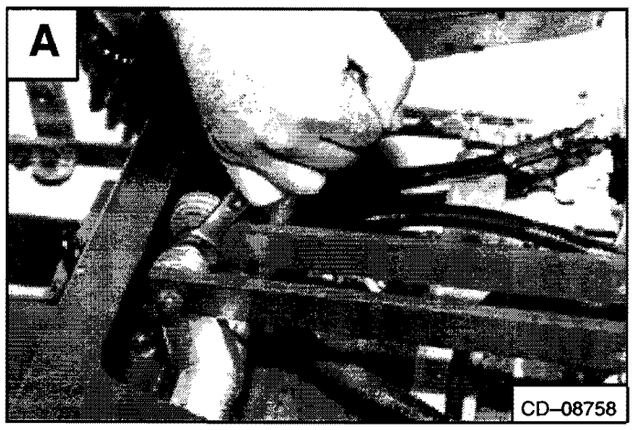


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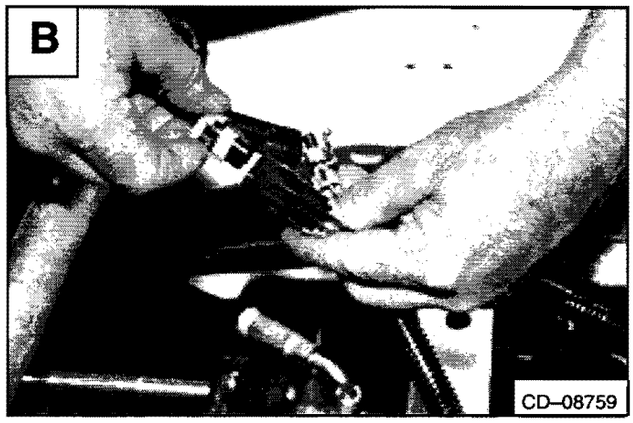
FRONT PANEL (Cont'd)

Remove the bolt and nut from the steering linkage (both sides) **[A]**.

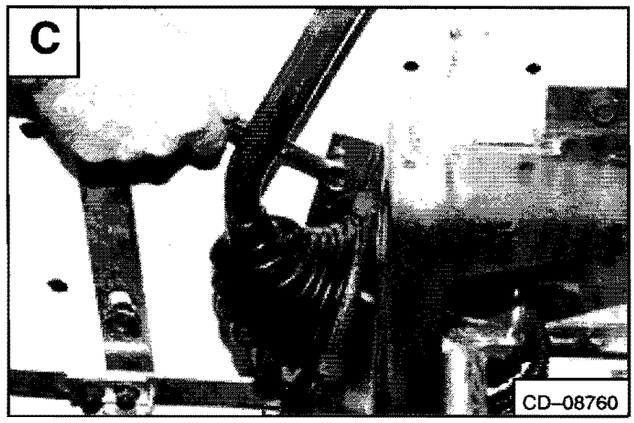
Installation: Install a NEW lock nut and tighten the bolt and nut to 23 ft.–lbs. (31 Nm) torque.



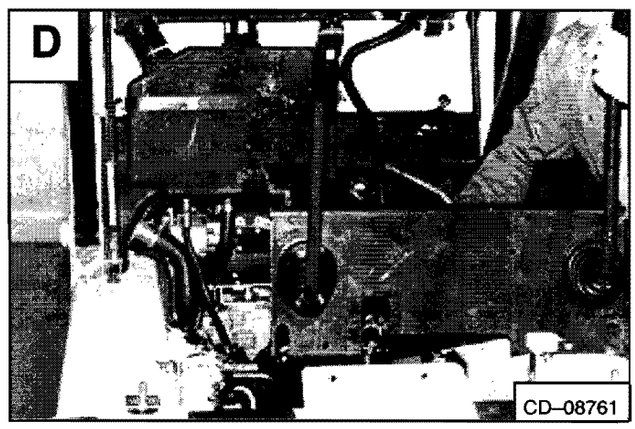
Disconnect the wiring harness from the steering lever (both sides) **[B]**.



Remove all the bolts from the front panel **[C]**.



Remove the front panel/steering lever assembly from the loader **[D]**.



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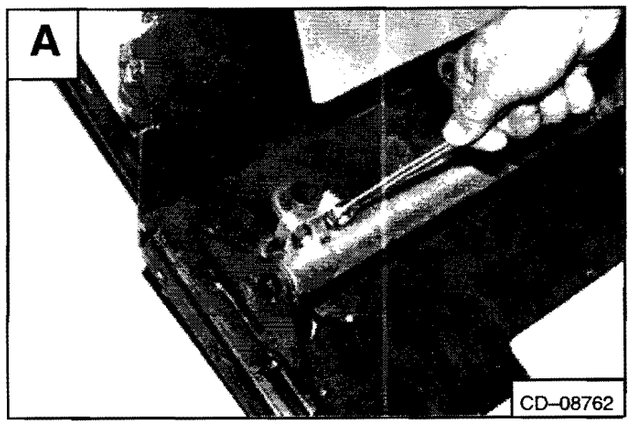
STEERING LEVERS

Disassembly and Assembly

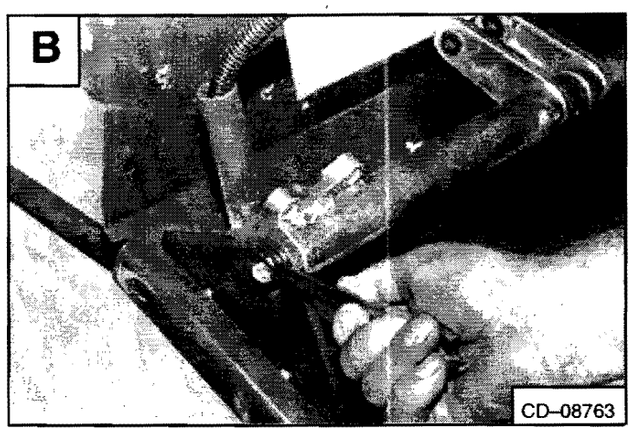
Remove the front panel/steering lever assembly from the loader. (See Page 3–5.)

Remove the four nuts from the steering lever clamp (both sides) **[A]**.

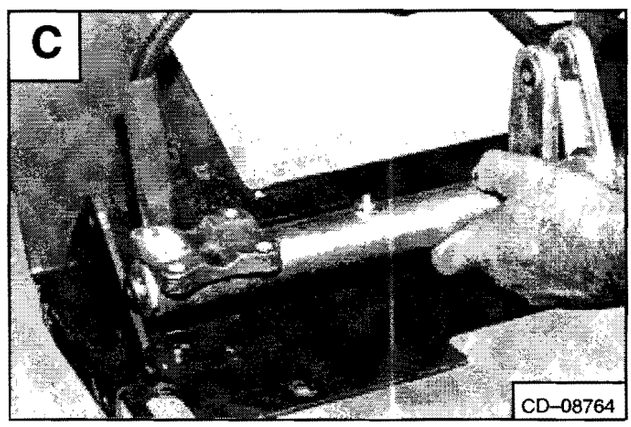
Remove the top half of the clamp.



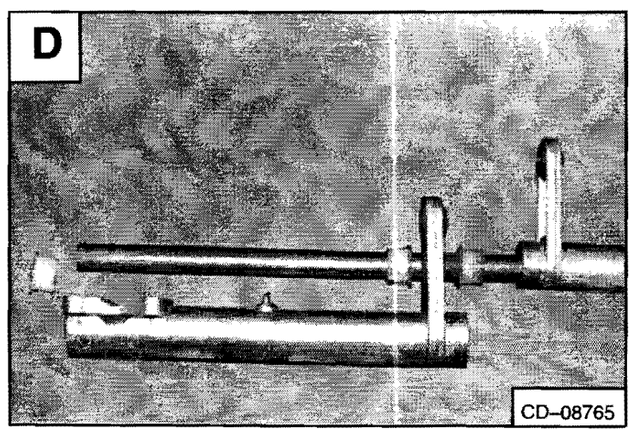
Remove the steering shaft pivot bolt (both sides) **[B]**.



Remove the steering shaft assembly **[C]**.



Disassemble the right and left steering shaft from the cross shaft assembly. Install the new nylon bushings, as needed when assembling the steering shaft **[D]**.

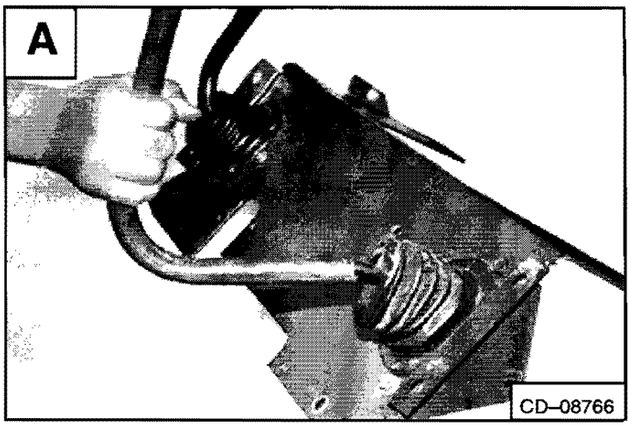


https://truckmanualshub.com/

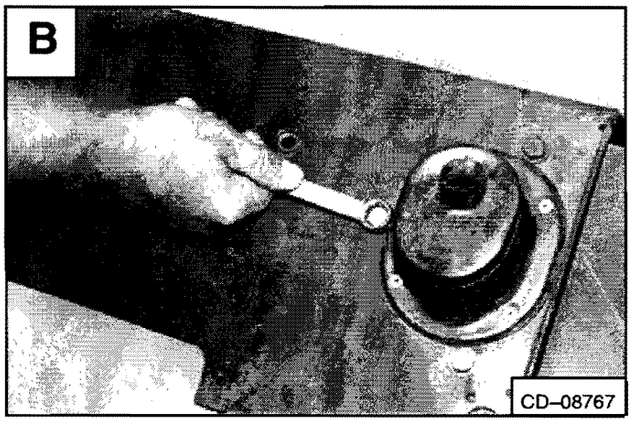
STEERING LEVERS (Cont'd)

Disassembly and Assembly (Cont'd)

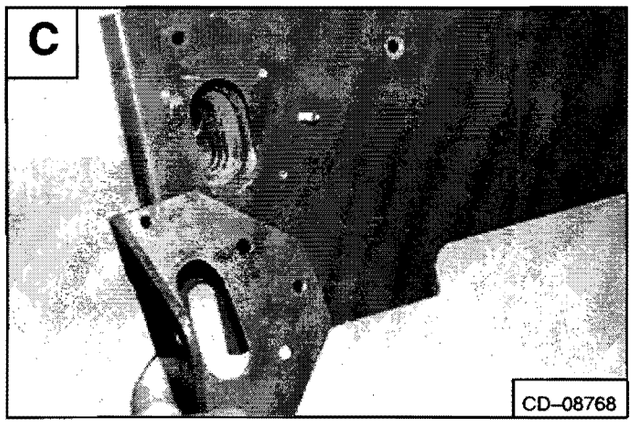
Remove the steering lever from the front panel **[A]**.



Remove the bolts from the steering lever rubber boot for the stop **[B]**.



Remove the steering lever stop **[C]**.

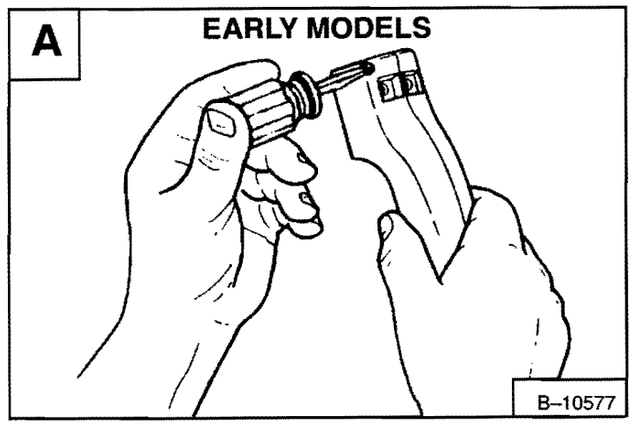


https://truckmanualshub.com/

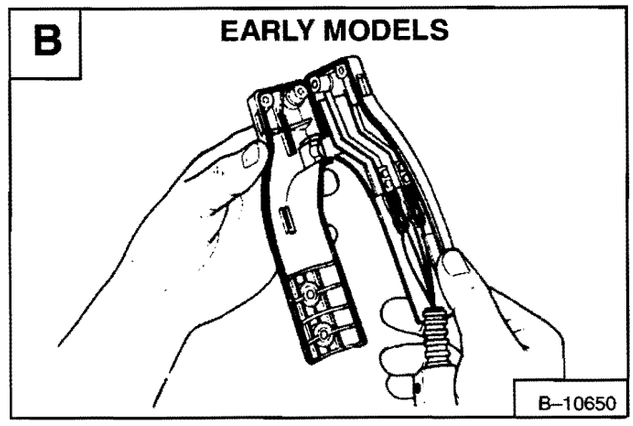
STEERING LEVER CONTROL HANDLE

Disassembly and Assembly

Remove all the screws and nuts from the control handle **[A]**.



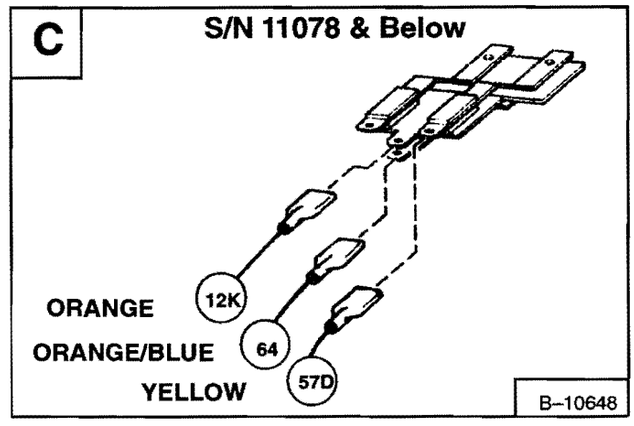
Remove one side of the control handle **[B]**.

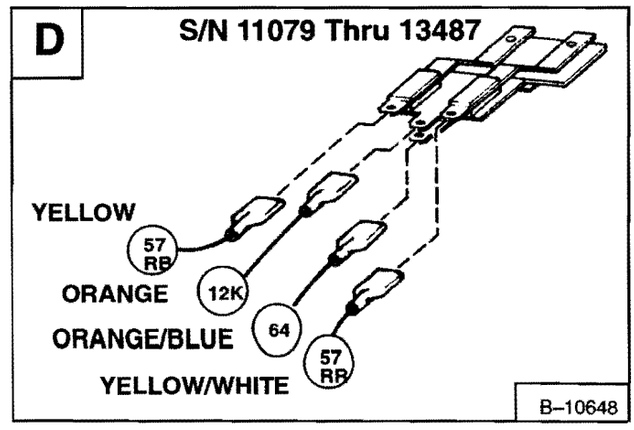


Disconnect the wires and remove the other half of the handle with the switch plate.

Assembly: When connecting the electrical wires to the right switch, See Figure **[C]** or **[D]** for correct installation.

NOTE: S/N 13488 & Above; The control handle/switches cannot be disassembled and must be replaced as an assembly.





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STEERING LINKAGE
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

Steering Linkage Adjustment

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Raise the lift arms. (See Page 1–1.)

Lift and block the loader. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Connect the remote start switch (MEL–1398). (See Page 1–1.)

Remove the fan drive belt.

Loosen the nuts and bolts on the steering linkage **[A]**.

Move both steering levers backward. Tighten the nuts and bolts on the linkage **[A]**.

Move one steering lever backward **[B]**.

Put a 3/8" (10 mm) spacer between the cam (Item 1) **[C]** and the bar (Item 2) **[C]**.

Move the steering lever forward and install a 1" (25 mm) spacer (Item 3) **[C]** between the centering spring plate and the mounting bracket on the hydrostatic pump.

Loosen the linkage bolts **[A]**.

Move the steering lever forward (adjust one lever at a time) against the stop **[B]**.

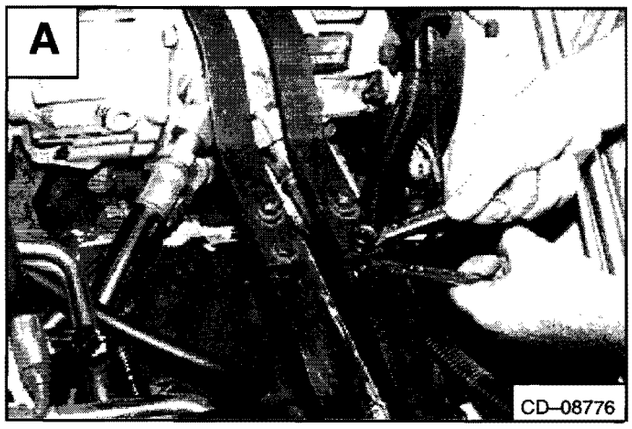
Move the hydrostatic pump pintle arm forward to full stroke. Tighten the nuts and bolts to 23 ft.–lbs. (31 Nm) torque **[A]**.

Repeat the procedure for the other steering lever.

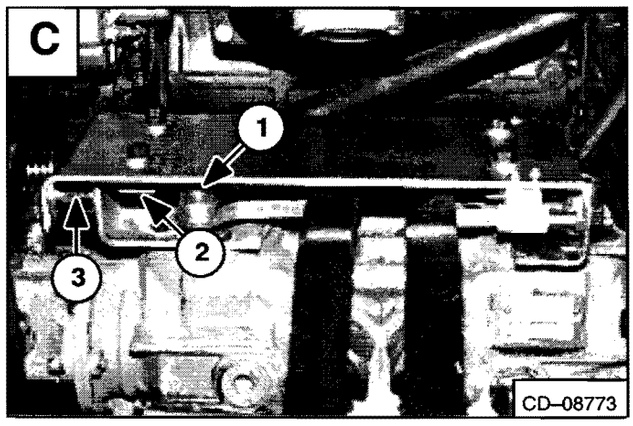
Check the lever movement to make sure that the pintle arm and the steering lever are both at full stroke at the same time. This will allow for maximum forward speed.

Remove the spacer **[C]**.

Install the fan drive belt.







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STEERING LINKAGE (Cont'd)
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

Steering Linkage Adjustment (Cont'd)

Remove the fan drive belt.

Loosen the nuts and bolts at the steering linkage to release any tension on the torsion bushings **[A]**.

Tighten the nuts and bolts to 23 ft.–lbs. (31 Nm) torque.

Start the engine and check for neutral (no tires turning).

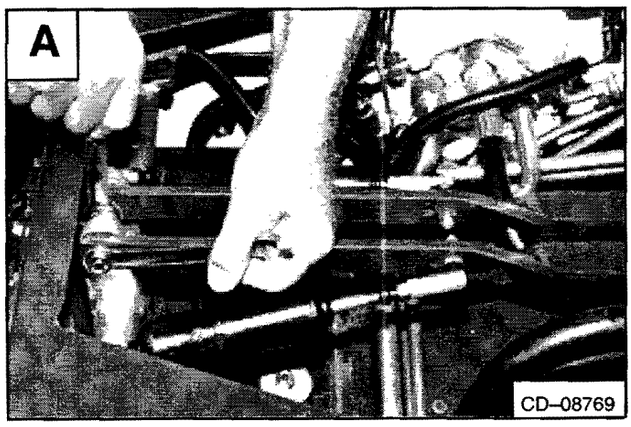
Stop the engine.

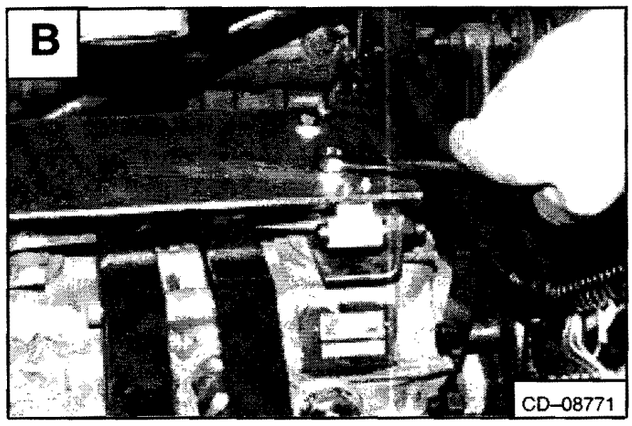
If the linkage need adjusting, do the following:

Loosen the pintle bar bolts (both sides) **[B]** & **[C]**.

Start the engine and run at high idle speed. Move the left steering lever until the tires do not turn (neutral).

Push the pintle bar against the pintle arm lobes. Tighten the front bolt first and then the rear pintle bar bolt to 28 ft.–lbs. (38 Nm) torque **[B]**.





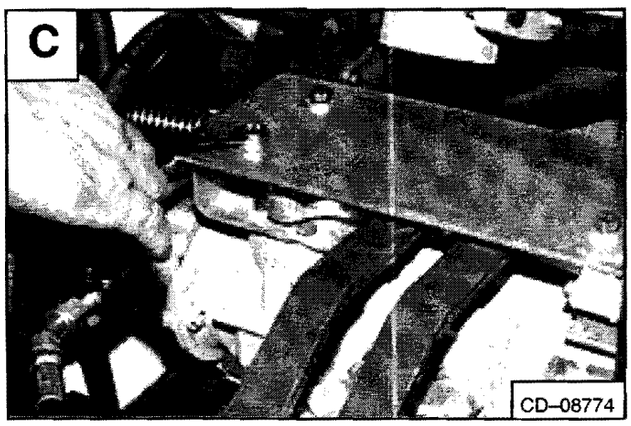
Move the right steering lever until the tires do not turn (neutral).

Push the pintle bar against both lobes of the pintle lever. Tighten the bolts to 28 ft.–lbs. (38 Nm) torque **[C]**.

Move both steering levers backward and forward and let the transmission return to neutral. If the transmission does not return to neutral, repeat the above procedure again.

Stop the engine.

Re–install the fan drive belt.

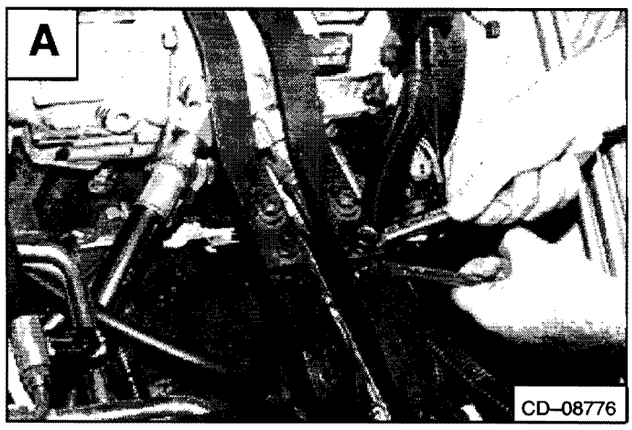


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STEERING LINKAGE (Cont'd)
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

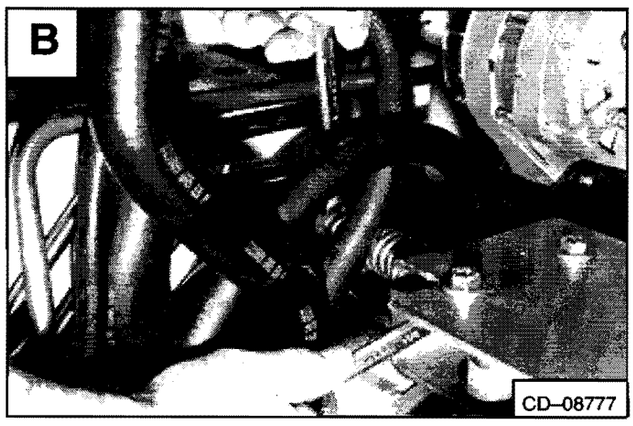
Removal and Installation

NOTE: The steering linkage centering plate and pintle arms can be removed with the hydrostatic pump installed or removed from the loader. Disconnect the steering linkage if the procedure is done in the loader [A].

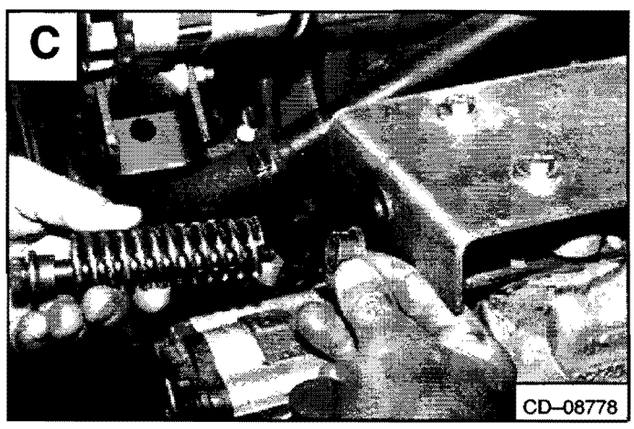


Remove the lock nut from the centering spring bolt **[B]**.

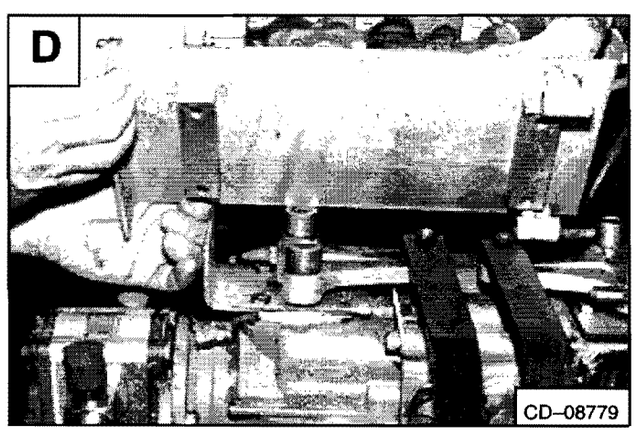
Installation: Tighten the centering spring bolts and a NEW lock nut to 25–28 ft.–lbs. (34–38 Nm) torque.



Remove the centering spring bolt, spring and bushing.



Slide the centering plate/pintle bar assembly from the dowels and remove from the hydrostatic pumps **[D]**.

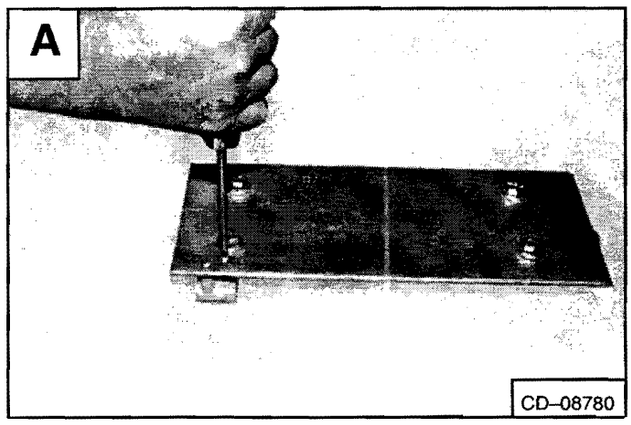


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STEERING LINKAGE (Cont'd)
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

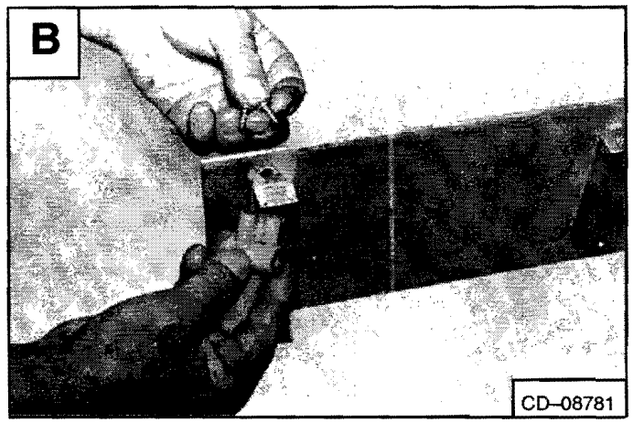
Centering Plate

Remove the two screws from the plastic guide **[A]**.

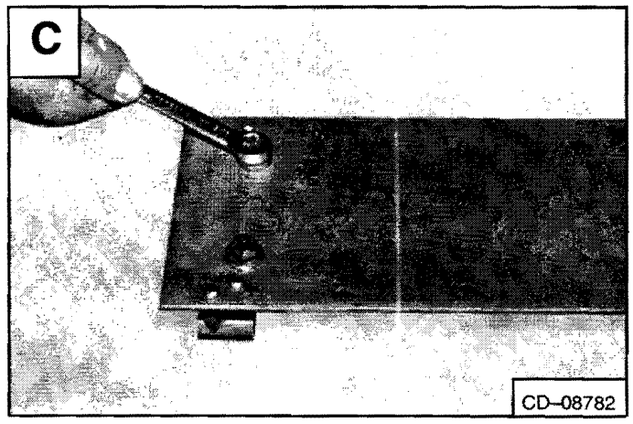


Remove the plastic guide **[B]**.

Replace the guides as needed.



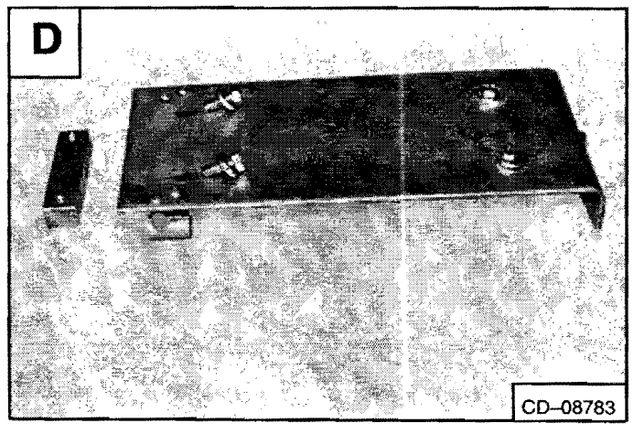
Loosen the two pintle bar bolts **[C]**.



Remove the bolts and washers. Remove the pintle bar and washers (on top of the bar) from the centering plate **[D]**.

Replace the parts as needed.

NOTE: Tighten the pintle bar bolts to the correct torque when the steering linkage adjustment is done.

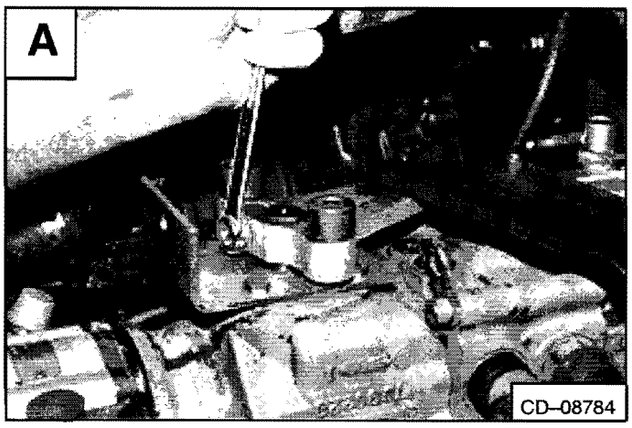


https://truckmanualshub.com/

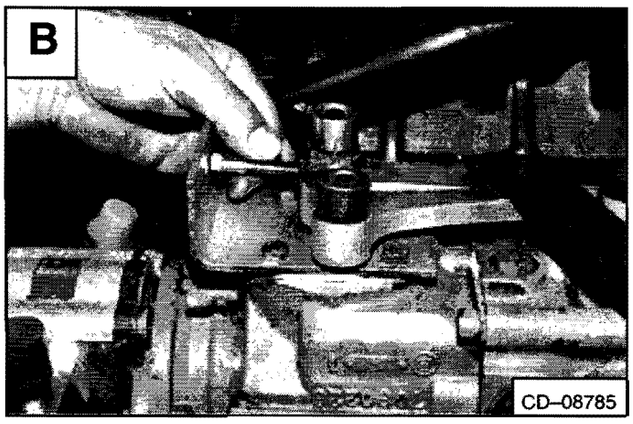
STEERING LINKAGE (Cont'd)
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

Loosen the bolt on the pintle arm **[A]**.

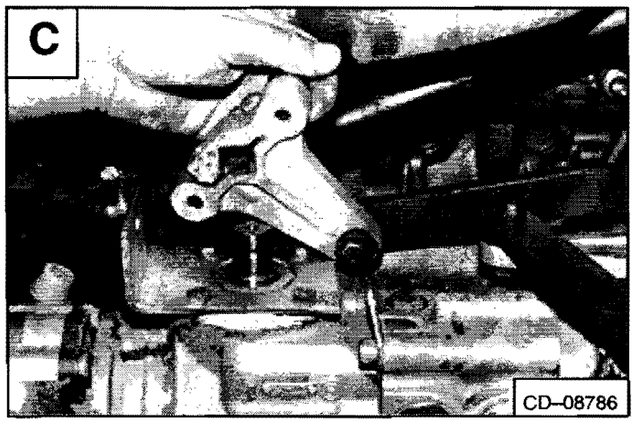
Installation: Tighten the bolt to 40–50 ft.–lbs. (54–68 Nm) torque.



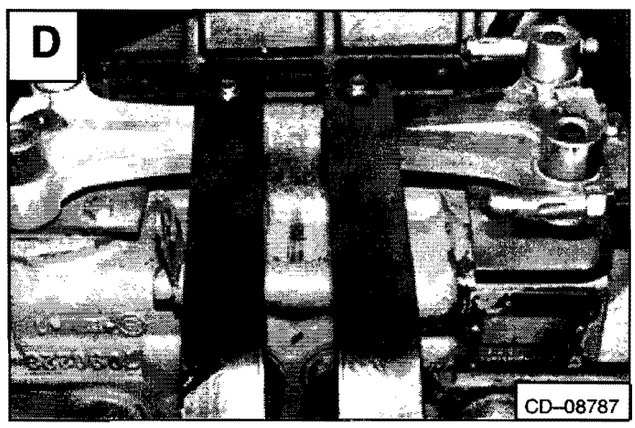
Remove the bolt from the pintle arm **[B]**.



Remove the pintle arm from the hydrostatic pump shaft **[C]**.



NOTE: Make sure the steering linkage is parallel with the pintle arm so there is no binding of the rubber bushing [D].

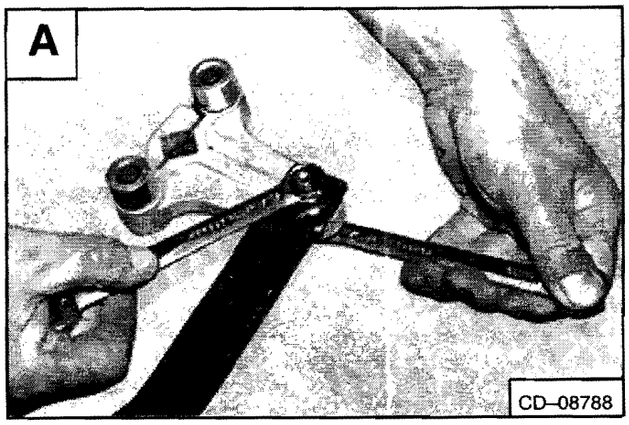


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STEERING LINKAGE (Cont'd)
S/N's: 508611001–90879
511011001 & Above
511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139

Pintle Arm Repair

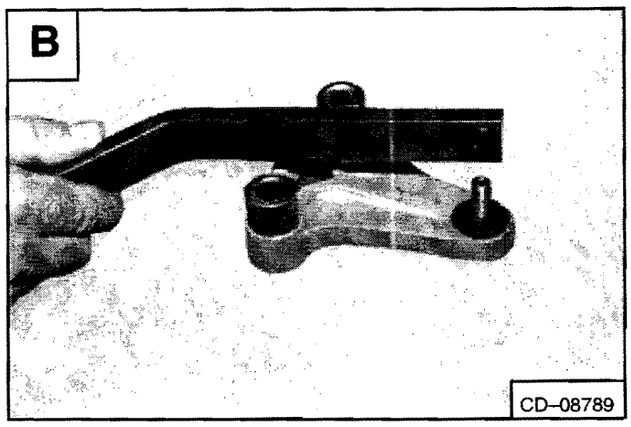
Remove the nut from the pintle arm and steering linkage **[A]**.



Remove the steering linkage from the pintle arm **[B]**.

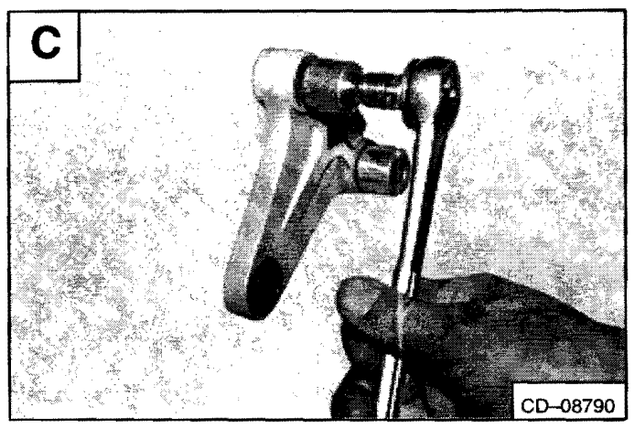
Replace the rubber bushing as needed.

NOTE: Tighten the steering linkage bolt and lock nut to the correct torque when the steering linkage adjustment is done.



Loosen the bolt at the pintle arm lobe **[C]**.

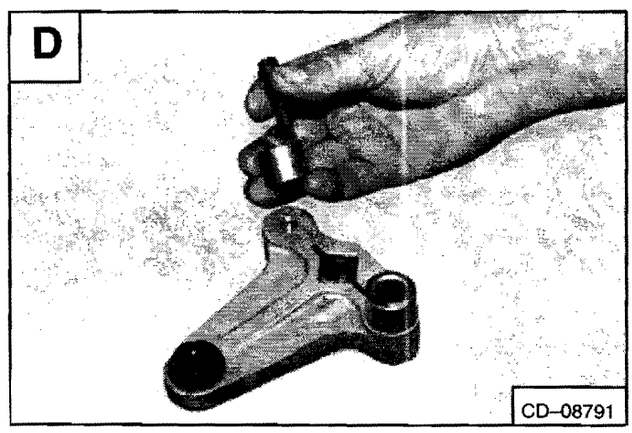
Assembly: Tighten the bolt to 25–28 ft.–lbs. (34–38 Nm) torque.



Remove the bolt and lobe **[D]**.

Replace the parts as needed.

After all parts are assembled, the steering lever travel and the neutral adjustment procedures must be done. (See Page 3–10 & 3–11.)



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STEERING LINKAGE (Cont'd)
S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above
508690870 & Above
511475024 & Above

Steering Linkage Adjustment

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Raise the lift arms. (See Page 1–1.)

Lift and block the loader. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Connect the remote start switch (MEL–1398). (See Page 1–1.)

Remove the fan drive belt.

Pre–load tension in the torsion bushings must be removed before adjusting the steering linkage. Loosen the nut (Item 1) **[A]** 3 to 4 turns, then loosen the bolt (Item 2) **[A]**. The bolt (Item 2) **[A]** is threaded into the linkage bar (Item 3) **[A]**. The bolt (Item 2) **[A]** must be loosened enough to allow the torsion bushing to turn freely between the steering bellcrank and the linkage bar.

Tighten the bolt and the nut.

Tighten the bolt to 11–13 ft.–lbs. (15–17 Nm) torque, then tighten the nut to 21–25 ft.–lbs. (28–33 Nm) torque.

Loosen the nut (Item 1) **[B]** 3 to 4 turns, then loosen the bolt (Item 2) **[B]**. The bolt (Item 2) **[B]** is threaded into the linkage bar (Item 3) **[B]**. The bolt (Item 2) **[B]** must be loosened enough to allow the torsion bushing to turn freely between the pintle arm and the linkage bar.

Tighten the bolt and the nut.

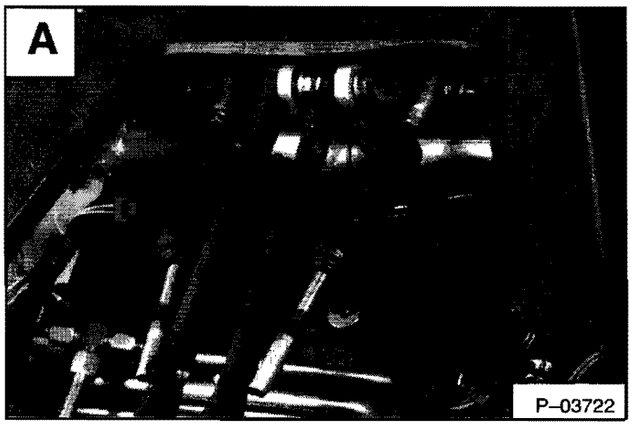
Tighten the bolt to 11–13 ft.–lbs. (15–17 Nm) torque, then tighten the nut to 21–25 ft.–lbs. (28–33 Nm) torque.

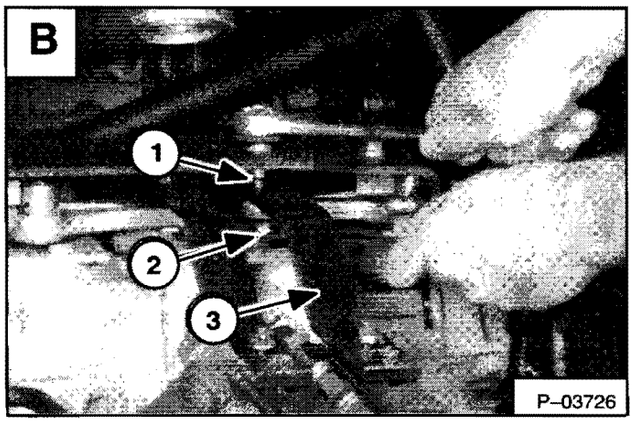
Move the right hand steering lever to the rear and install a 3/8 inch (10 mm) thick spacer (Item 1) **[C]** between the pintle arm cam (Item 2) **[C]** and the centering block (Item 3) **[C]**.

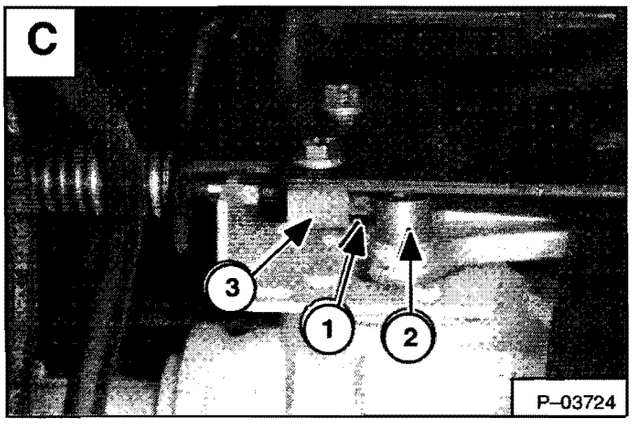
Move the right hand steering lever forward and install a 15/16 inch (24 mm) thick spacer (Item 1) **[D]** between the centering plate (Item 2) **[D]** and the mounting plate (Item 3) **[D]**.

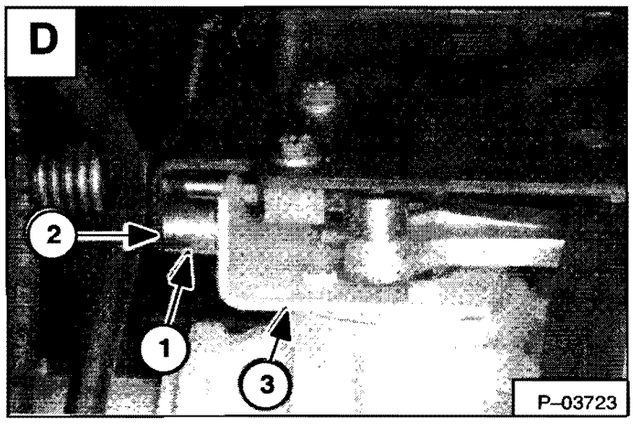
This will allow the pintle arms to move freely while adjusting the steering linkage for full forward travel speed.

Remove the 3/8" (10 mm) thick spacer (Item 1) **[C]**.







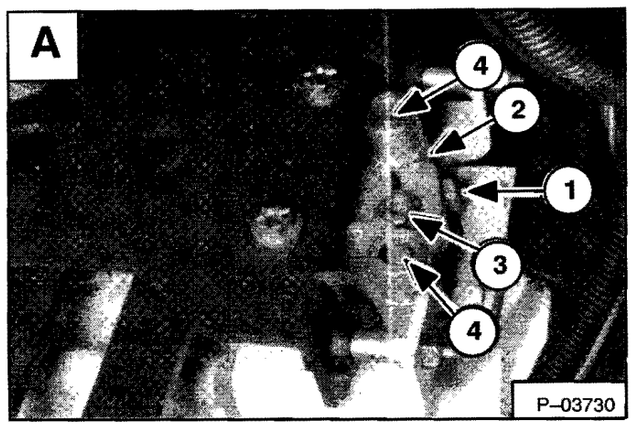


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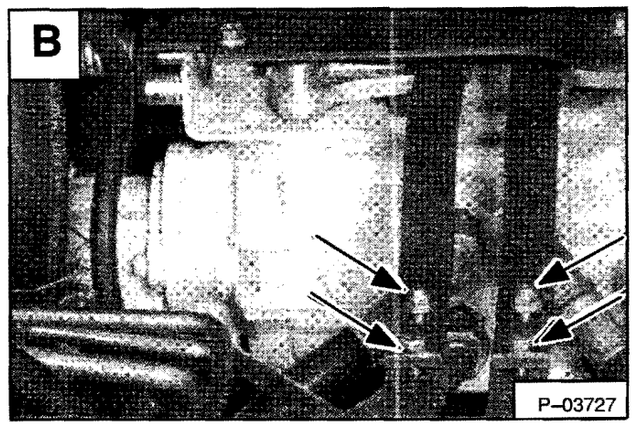
STEERING LINKAGE (Cont'd)
S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above
508690870 & Above
511475024 & Above

Steering Linkage Adjustment (Cont'd)

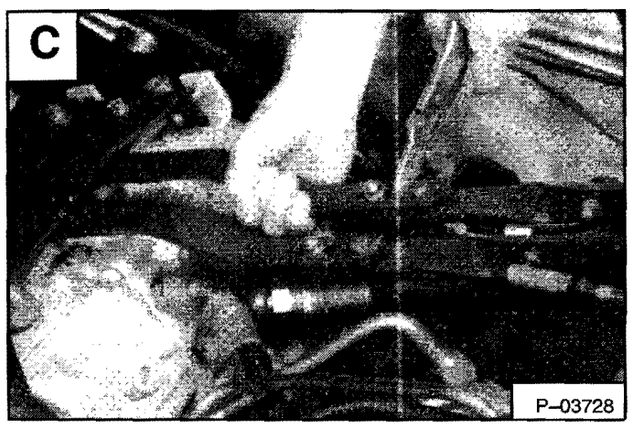
Before adjusting the linkage, check that the pintle arm mounting bolt (Item 1) **[A]** is tight, 25–28 ft.–lbs. (34–38 Nm) torque and that there is no play between the pintle arm (Item 2) **[A]** and the square pump shaft (Item 3) **[A]**. Also check that the cam mounting bolts (Item 4) **[A]** are tight, 45–50 ft.–lbs. (62–68 Nm) torque.



Loosen the two (2) bolts and nuts on each steering linkage bar **[B]**.



Move the left hand steering lever to the full forward position (until the lever hits the stop), then pull forward on the left hand rear linkage bar until the pintle arm is rotated to the front as far as possible **[C]**. Use a clamping plier and clamp the two (2) linkage bars together **[C]**.



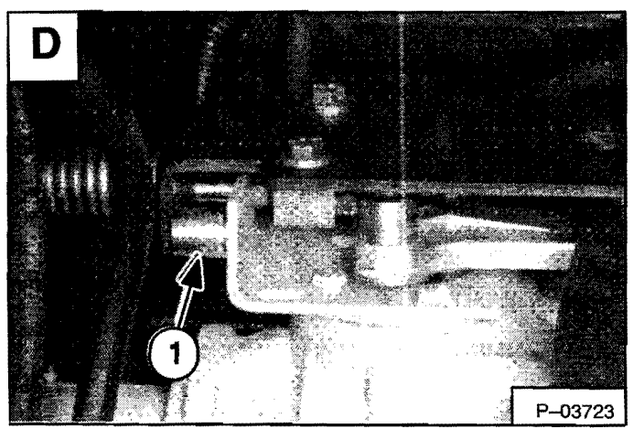
Tighten the nuts and bolts to 25–28 ft.–lbs. (34–38 Nm) torque.

Check the lever movement to make sure that the pintle arm and the steering lever are both at full stroke at the same time. This will allow for maximum forward speed.

Repeat the procedure for the right hand side linkage.

After both sides of the linkage have been adjusted, the feel of both levers at full stroke should be the same. Readjust the linkage if necessary.

Remove the spacer (Item 1) **[D]**.



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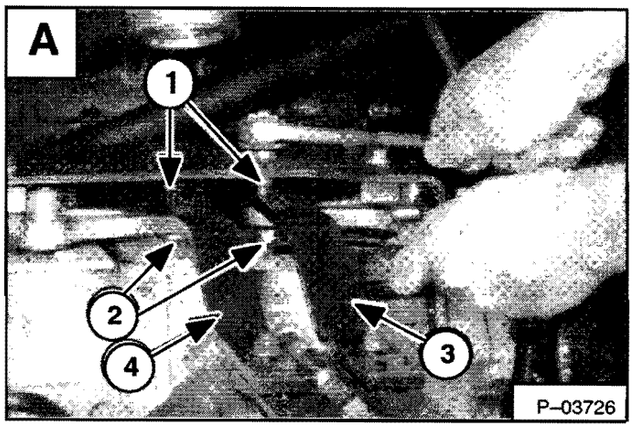
STEERING LINKAGE (Cont'd)
S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above
508690870 & Above
511475024 & Above

Steering Neutral Adjustment

Remove the fan drive belt.

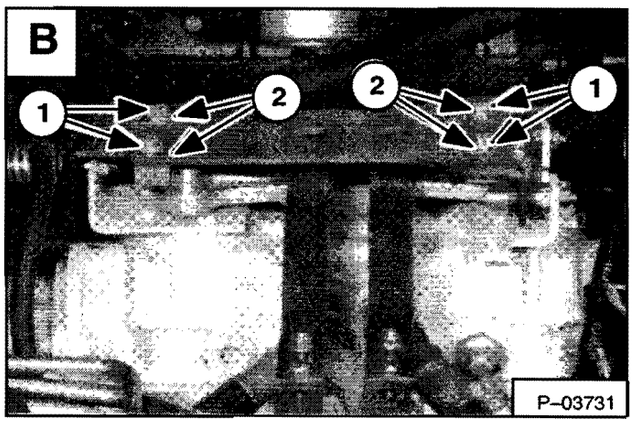
Loosen the nut (Item 1) **[A]** a couple of turns, then loosen the bolt (Item 2) **[A]**. The bolt (Item 2) **[A]** is threaded into the linkage bars (Item 3 & 4) **[A]**.

The bolt (Item 2) **[A]** must be loose enough to allow the torsion bushing to turn freely between the pintle arm and the linkage bar.



Loosen the four (4) bolts (Item 1) **[B]** holding the two (2) centering blocks. Move the right hand centering block to the right as far as possible.

NOTE: Bolt holes (Item 2) [B] are slotted for pintle arm centering adjustment.



Adjust the left hand centering block first.

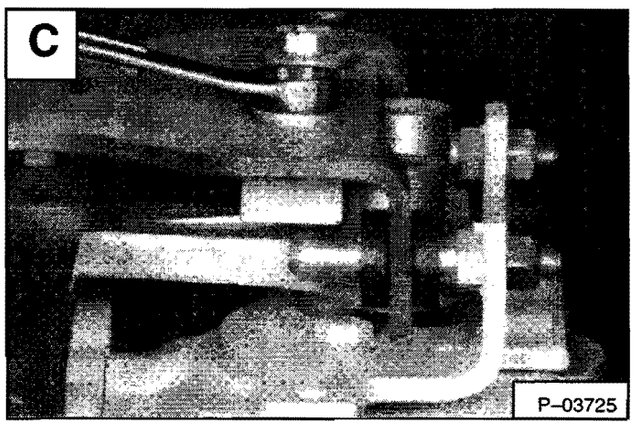
Start the engine and run at high RPM.

Move the left hand steering lever until the tires do not turn (neutral position).

Move the left hand centering block to the left until it contacts both pintle cams and the steering lever is still in the neutral position **[C]**.

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

NOTE: If the centering blocks are worn, they can be removed and rotated 180 degrees and reinstalled. If the cams are worn, they can be loosened and rotated 90 degrees and reinstalled.



Adjust the right hand centering block.

Move the right hand steering lever until the tires do not turn (neutral position).

Move the right hand centering block to the left until it contacts both pintle cams and the steering lever is still in the neutral position **[D]**.

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

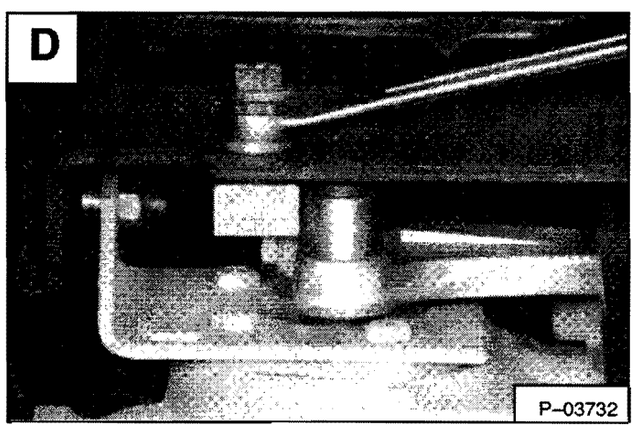
Test both levers by moving them backward and forward and letting them return to neutral by the return spring force.

If the levers do not return to neutral and the tires do not come to a complete stop, repeat the adjustment procedure again.

Stop the engine.

Tighten the two (2) bolts (Item 2) **[A]** to 11–13 ft.–lbs. (15–17 Nm) torque, then tighten the two (2) nuts (Item 1) **[A]** to 21–25 ft.–lbs. (28–33 Nm) torque.

Install the fan drive belt.



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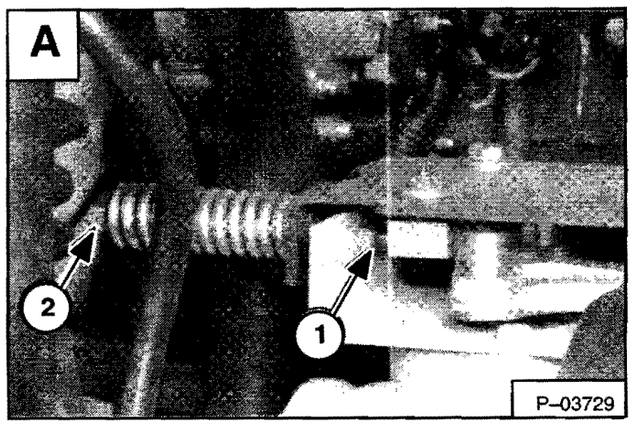
STEERING LINKAGE (Cont'd)
S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above
508690870 & Above
511475024 & Above

Removal and Installation

Remove the nut (Item 1) **[A]** from the end of the centering spring shoulder bolt (Item 2) **[A]**.

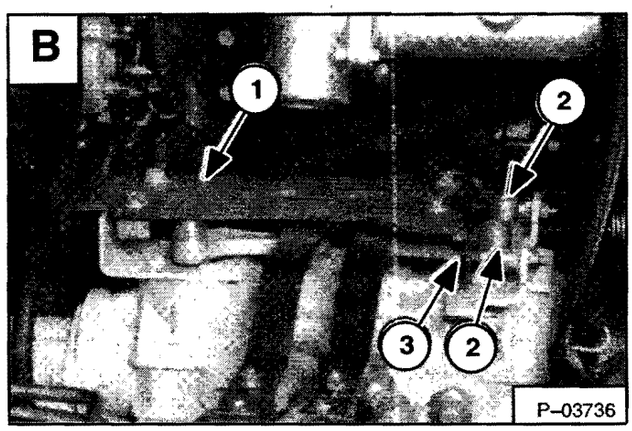
Remove the shoulder bolt/spring assembly.

Installation: Tighten the centering spring shoulder bolt and a NEW lock nut to 25–28 ft.–lbs. (34–38 Nm) torque.

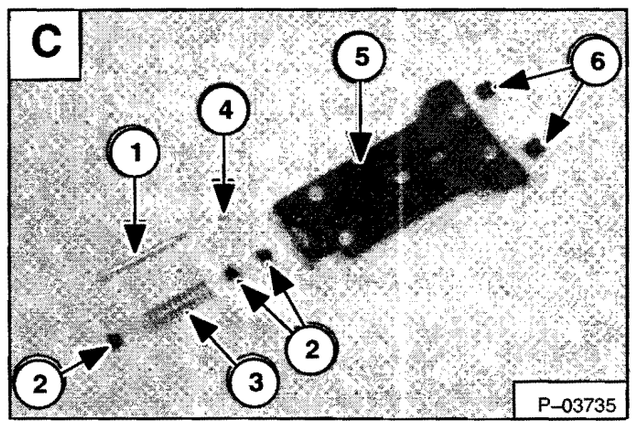


Slide the plate (Item 1) **[B]** to the right and remove it from the two guide pins (Item 2) **[B]**.

NOTE: The two (2) guide bushings (Item 3) [B] will be loose and can fall out of the plate (Item 1) [B] as soon as it is removed from the guide pins (Item 2) [B].

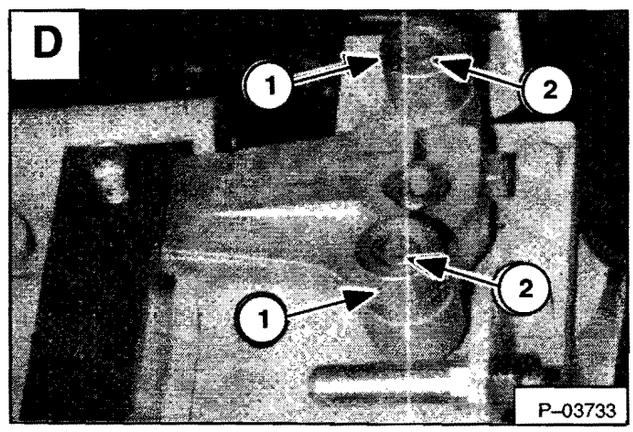


The centering plate/centering spring assembly consists of the following parts; shoulder bolt (Item 1), shoulder bushings (Item 2), spring (Item 3), lock nut (Item 4), centering plate (Item 5) and guide bushings (Item 6) **[C]**.



If the surface of any of the four (4) pintle cams (Item 1) **[D]** is worn, loosen the bolt (Item 2) **[D]** and rotate the cams 1/4 turn.

Tighten the bolts to 45–50 ft.–lbs. (62–68 Nm) torque.



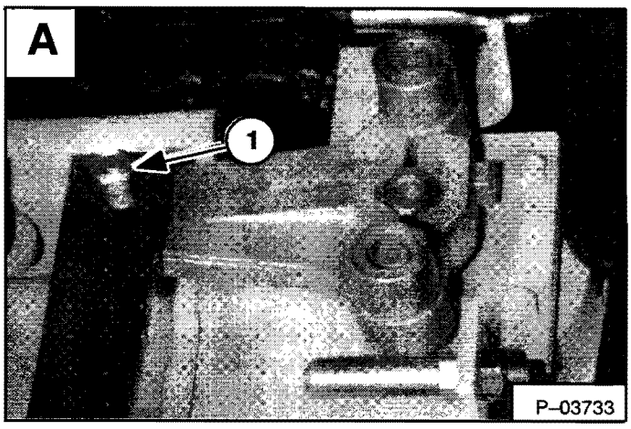
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STEERING LINKAGE (Cont'd)
S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above
508690870 & Above
511475024 & Above

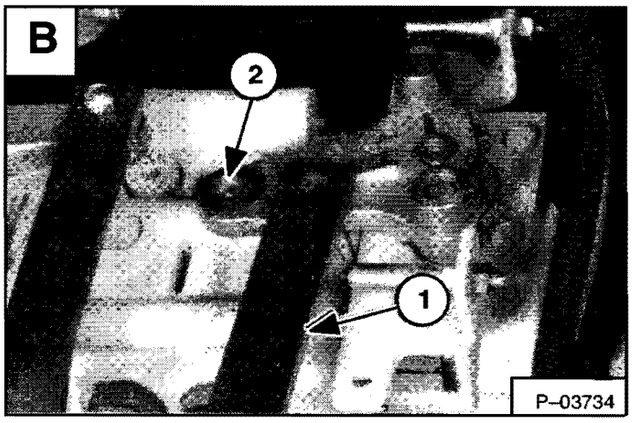
Removal and Installation (Cont'd)

Remove the nut (Item 1) **[A]** from the torsion bushing/linkage bar. The bolt is threaded into the linkage bar. Remove the bolt from underneath the pintle arm.

Installation: Tighten the bolt to 11–13 ft.–lbs. (21–25 Nm) torque, then tighten the nut to 21–25 ft.–lbs. (28–33 Nm) torque.



Remove the linkage bar (Item 1) **[B]** and remove the torsion bushing (Item 2) **[B]**.



Remove the nuts (Item 1) **[C]** from both shock absorber ball joint ends.

Remove the shock absorbers.

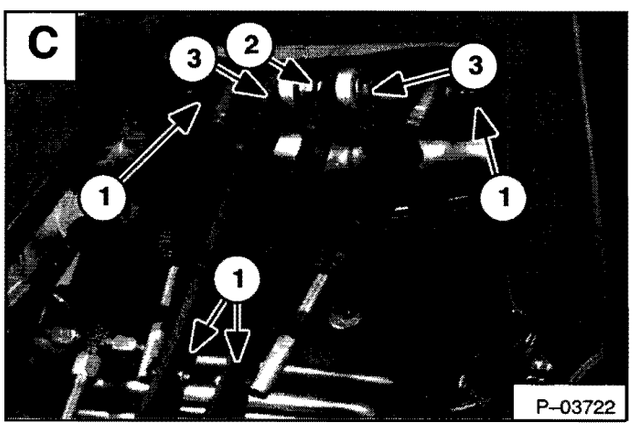
Installation: Tighten the nuts to 25–28 ft.–lbs. (34–38 Nm) torque.

Remove the nuts (Item 2) **[C]** from the linkage bar mounting bolt. The bolts (Item 3) **[C]** are threaded into the linkage bars. Remove the bolts (Item 3) **[C]**.

The torsion bushings can now be removed from the steering bell cranks.

Installation: Tighten the bolts to 11–13 ft.–lbs. (21–25 Nm) torque, then tighten the nuts to 21–25 ft.–lbs. (28–33 Nm) torque.

The linkage and the centering plate must be readjusted for neutral after the components have been reassembled. See Page 3–16 for the neutral adjustment procedure.



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HYDROSTATIC MOTOR

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.

I–2003–0888

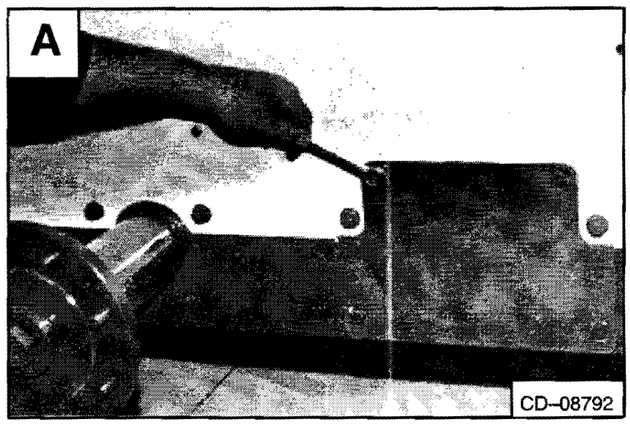
Raise the lift arms. (See Page 1–1).

Lift and block the loader. (See Page 1–1).

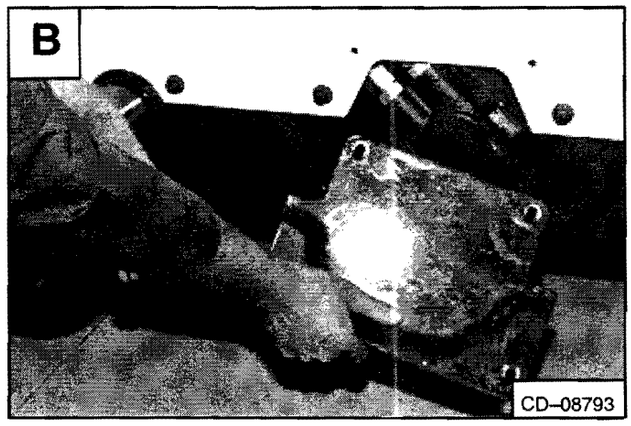
Raise the operator cab. (See Page 1–1).

Remove a wheel/tire assembly.

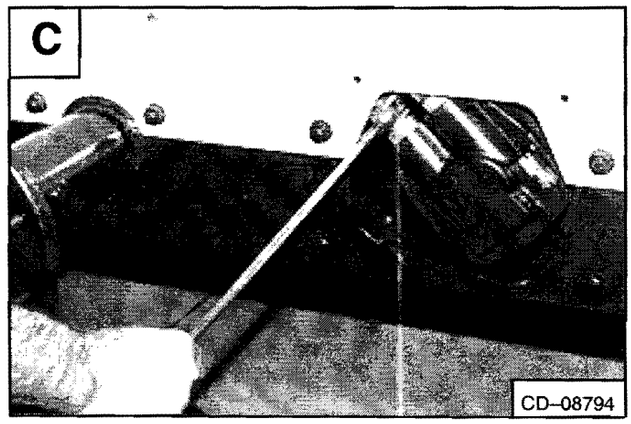
Remove the bolts from the motor cover **[A]**.



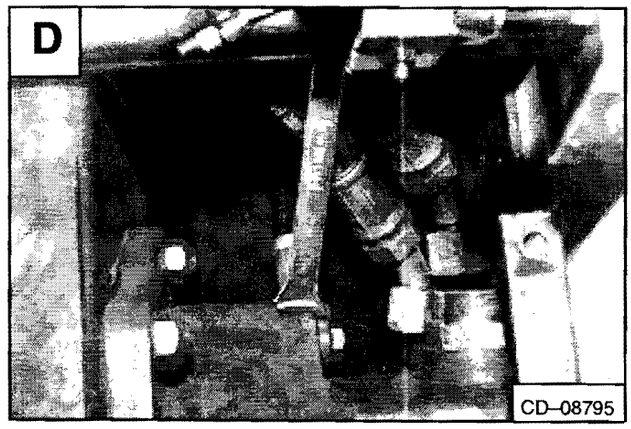
Remove the motor cover **[B]**.



Mark the hoses for correct installation. Disconnect the high pressure hose **[C]**.



Disconnect the other high pressure hose **[D]**.

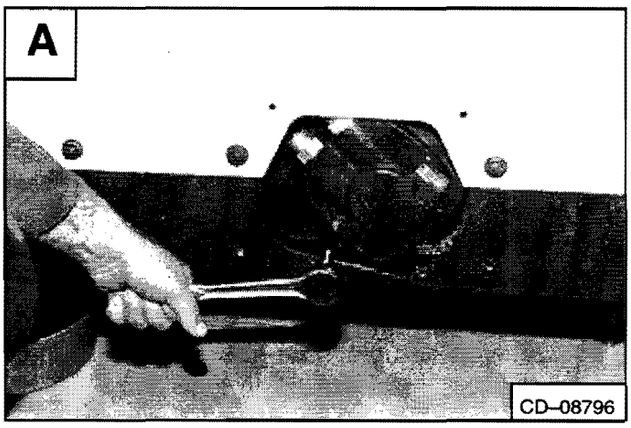


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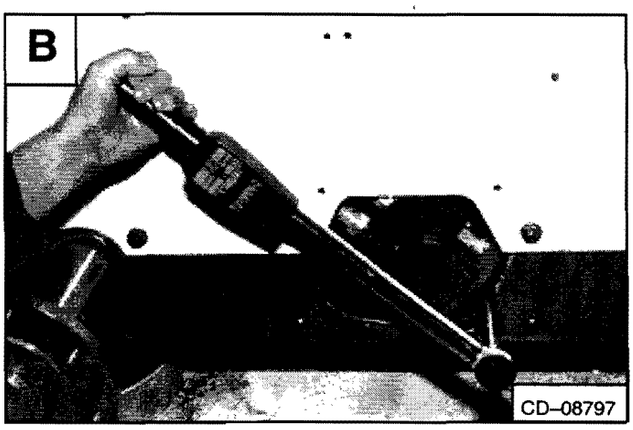
HYDROSTATIC MOTOR (Cont'd)

Removal and Installation (Cont'd)

Remove the mounting bolts from the hydrostatic motor **[A]**.



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



Remove the hydrostatic motor from the motor carrier **[C]**.



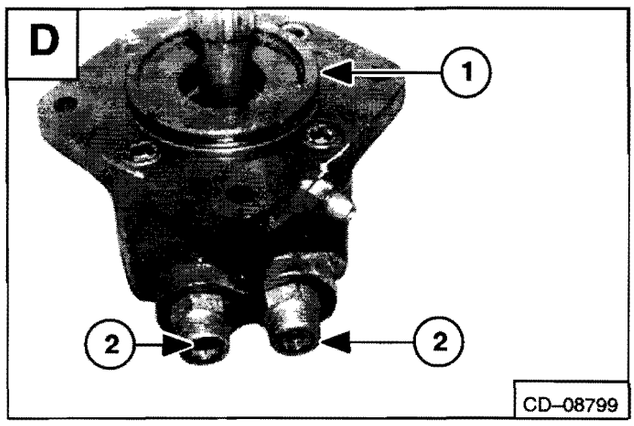
Installation: Always use new large O–ring (Item 1) **[D]** and face seals (Item 2) **[D]** before installing the motor.

⚠ 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

SEE THE HYDROSTATIC MOTORS COMPONENT REPAIR MANUAL FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.



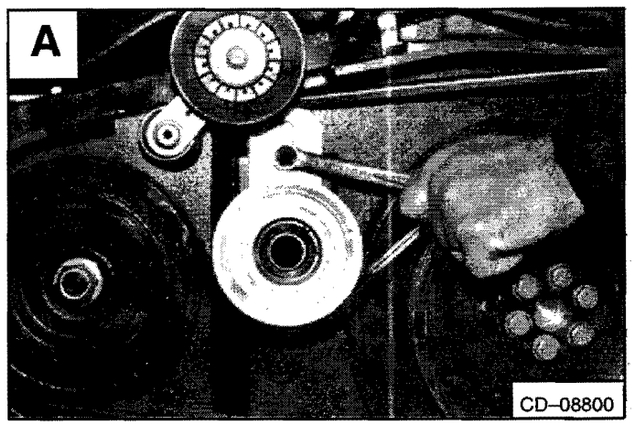
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HYDROSTATIC PUMP

Removal and Installation

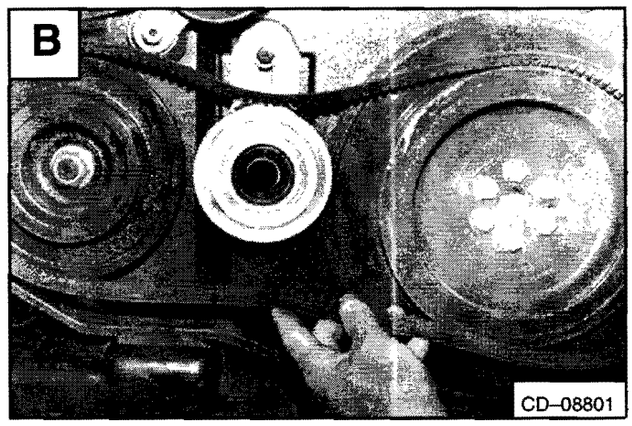
NOTE: The engine and hydrostatic pump must be removed from the loader as an assembly. (See Page 7–1).

Remove the belt shield. Loosen the bolt at the drive bolt tensioner pulley **[A]**.

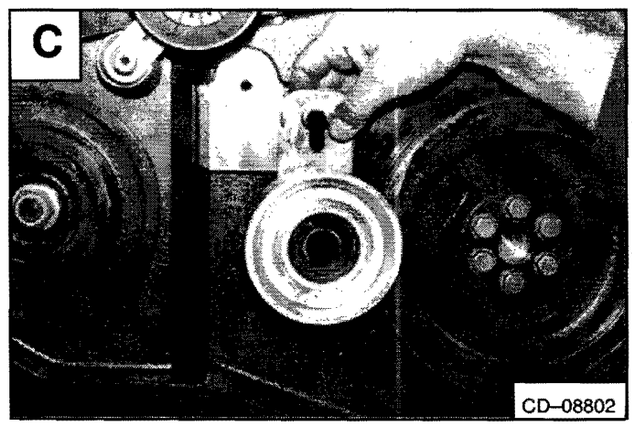


Remove the drive belt **[B]**.

Installation: For correct tension of the drive belt. (See Page 1–1 for the correct procedure).



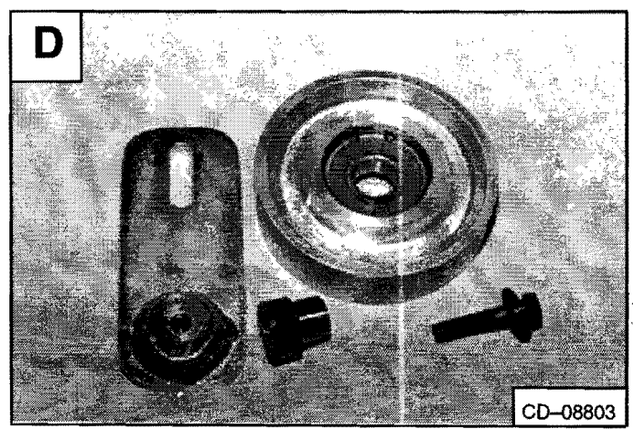
Remove the tension pulley assembly **[C]**.



Remove the pulley from the bracket and check the parts for wear **[D]**.

Replace the parts as needed.

S/N 16852 & Above: See Page 3–25 for disassembly and assembly of the Drive Belt Tensioner Pulley.



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Removal and Installation (Cont'd)

IMPORTANT

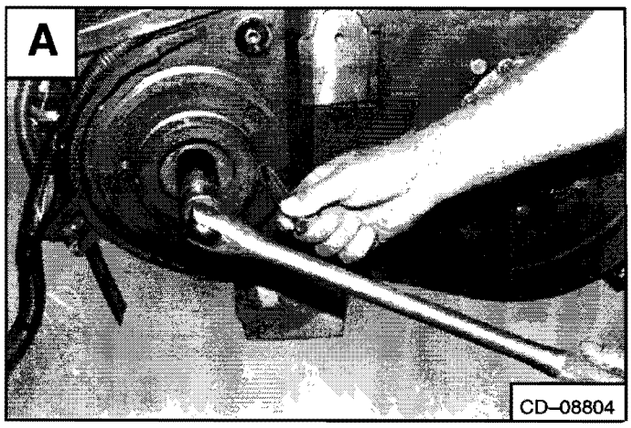
When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I–2003–0888

Hold the hydrostatic pump pulley and loosen the nut **[A]**.

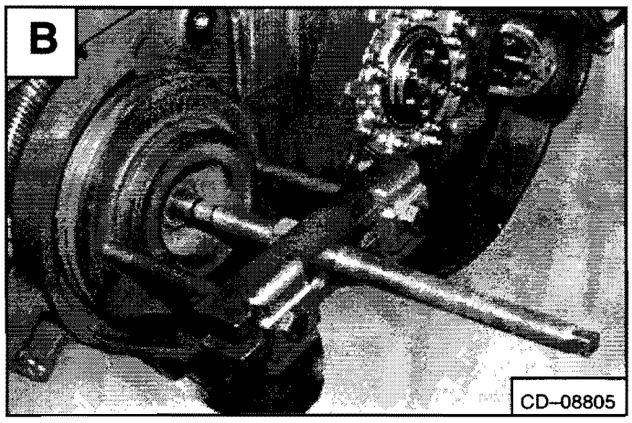
Remove the nut and washer.

Installation: Tighten the nut to 175–200 ft.–lbs. (237–271 Nm) torque.

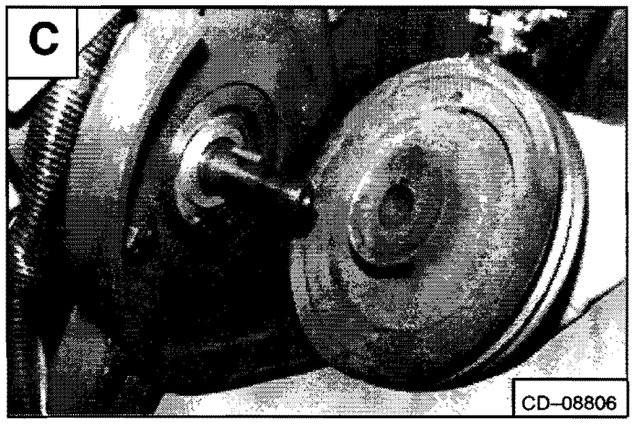


Install a puller and remove the pulley from the pump shaft **[B]**.

Remove the puller.

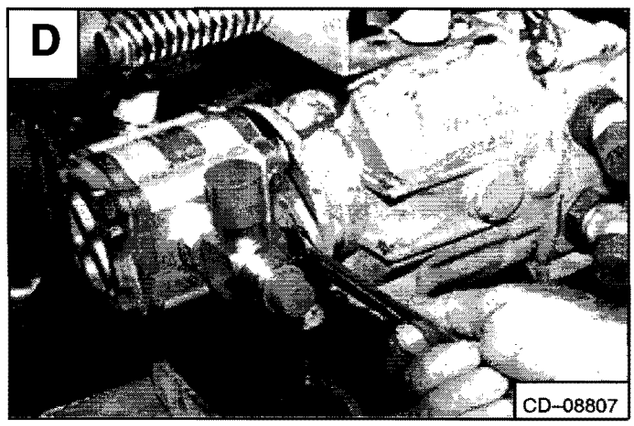


Installation: Make sure the key (Item 1) **[C]** is installed in the shaft.



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

Remove the hydraulic pump.



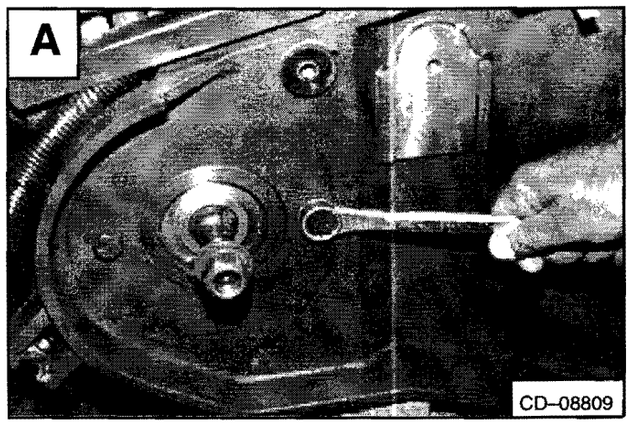
https://truckmanualshub.com/

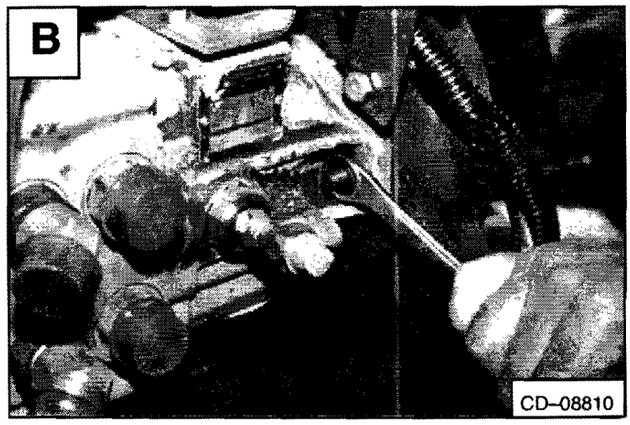
HYDROSTATIC PUMP (Cont'd)

Removal and Installation (Cont'd)

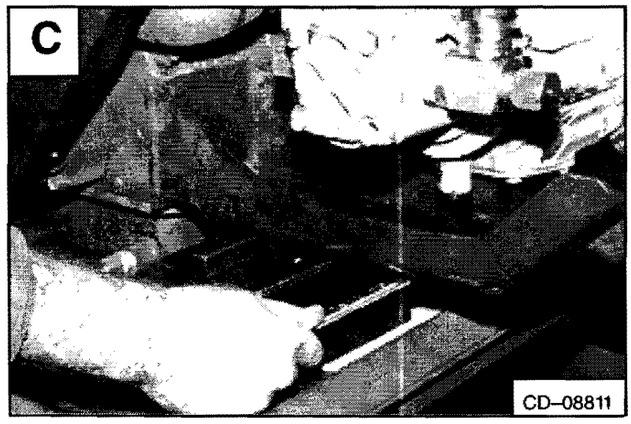
Remove the bolts and nuts from the hydrostatic mounting flange **[A]** & **[B]**.

Installation: Tighten the mounting bolts and nuts to 65–70 ft.–lbs. (88–95 Nm) torque.

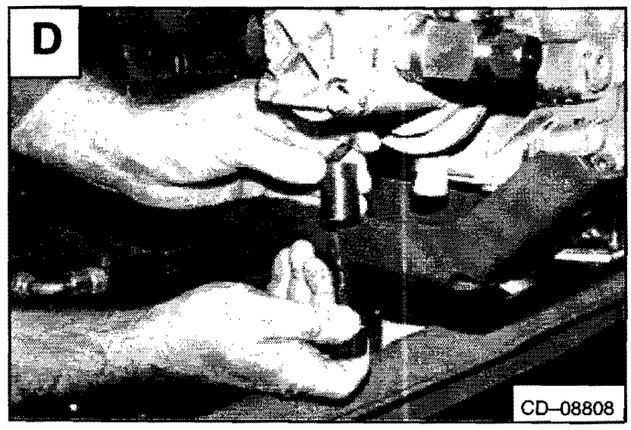




Remove the bolt and washer(s) **[C]**.



Installation: Add or remove washers to align the pump drive belt **[D]**. Tighten the bolt to 65–70 ft.–lbs. (88–95 Nm) torque.



⚠ 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

SEE THE HYDROSTATIC MOTORS COMPONENT REPAIR MANUAL FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.

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OIL COOLER

Removal and Installation

IMPORTANT

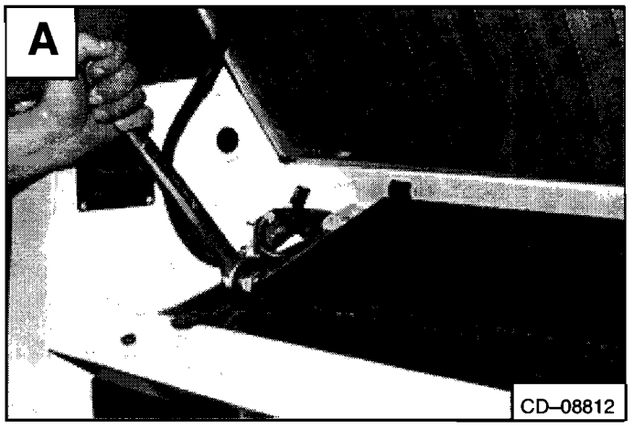
When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.

I–2003–0888

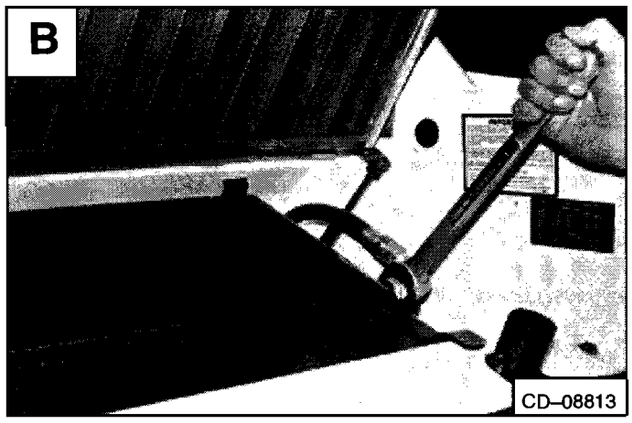
Open the rear door.

Raise the rear grill.

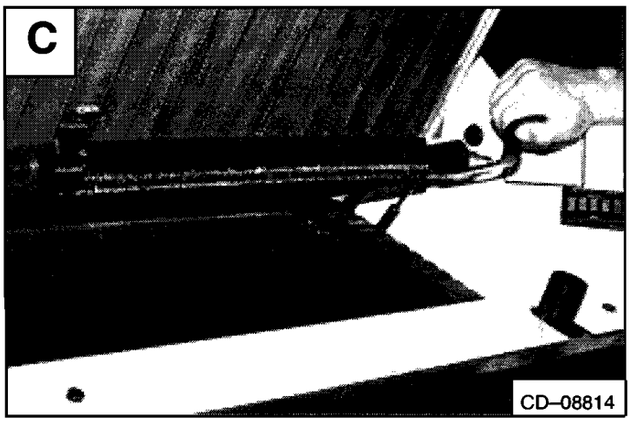
Disconnect the hose at the right side of the oil cooler **[A]**.



Disconnect the hose from the left side of the oil cooler **[B]**.



Lift and remove the oil cooler from the loader **[C]**.



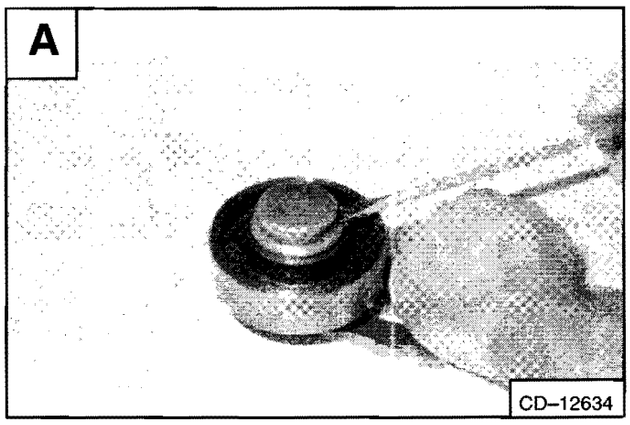
https://truckmanualshub.com/

DRIVE BELT TENSIONER PULLEY

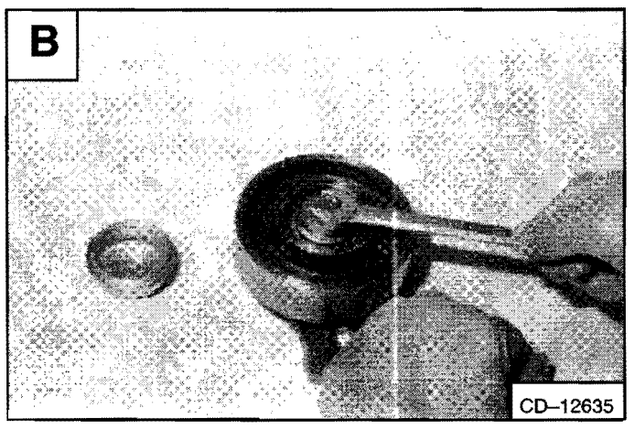
Disassembly

NOTE: Be careful, the pulley hub is full of oil.

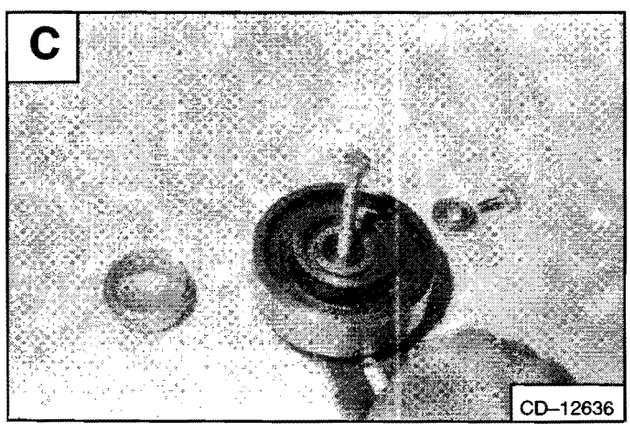
Remove the cap **[A]**.



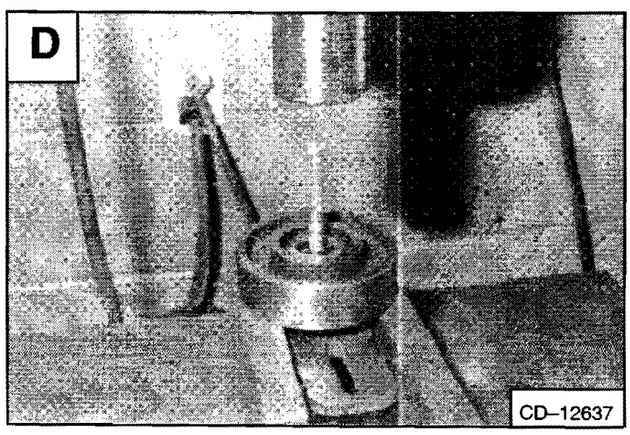
Remove the bolt and washer **[B]**.



Install a long bolt into the shaft **[C]**.



Remove the idler pulley and bearing from the shaft using a press **[D]**.



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DRIVE BELT TENSIONER PULLEY (Cont'd)

Disassembly (Cont'd)

Install a bearing puller behind the seal and wear sleeve **[A]**.

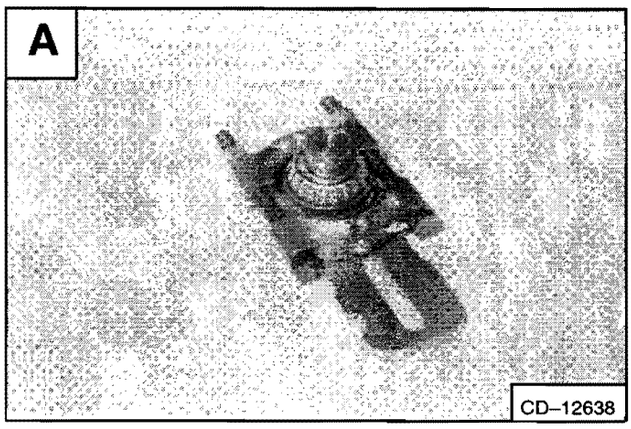
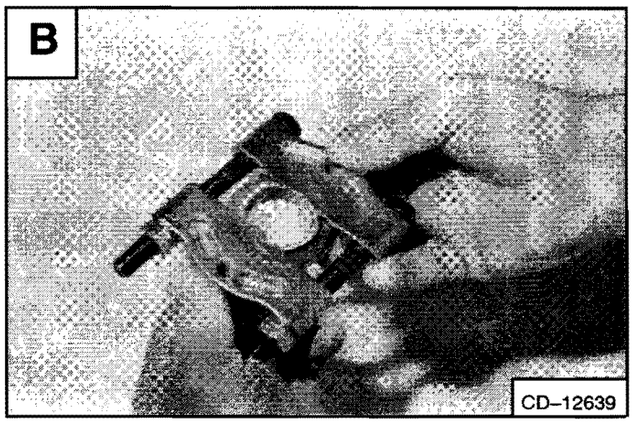
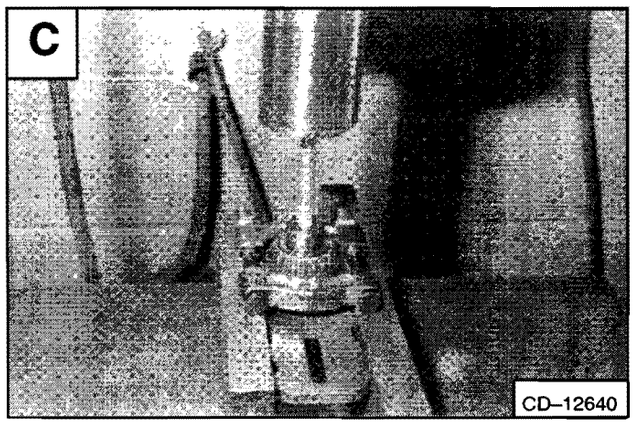


PHOTO CLARITY ONLY: If the bearing puller is installed behind the bearing, seal and wear sleeve, the wear sleeve will also be removed **[B]**.



Remove the bearing, seal and wear sleeve using the press **[C]**.

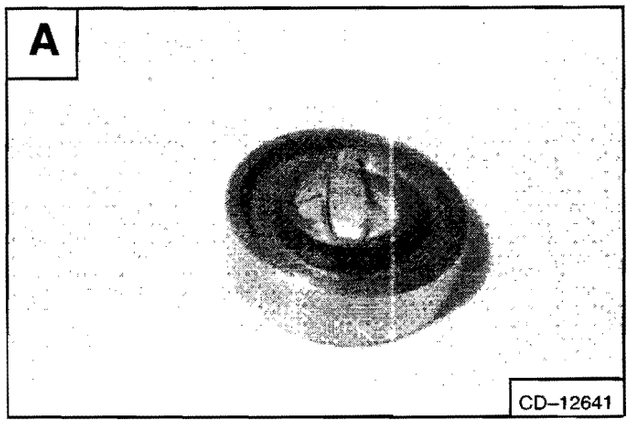


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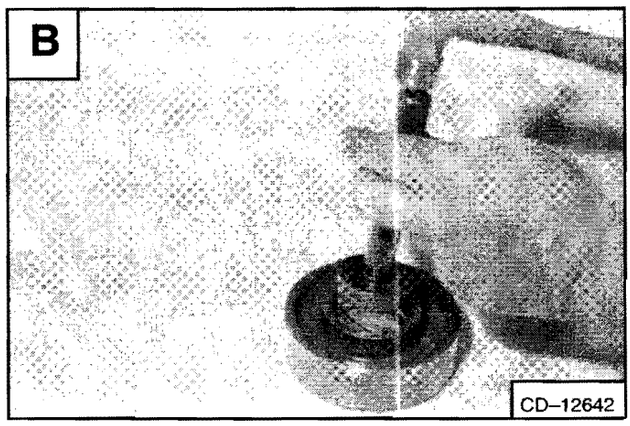
Assembly

NOTE: The bearings, cups and spacers are a matched set and must be replaced as a unit.

If the spacer is replaced, compress the new spacer and install into the pulley **[A]**.

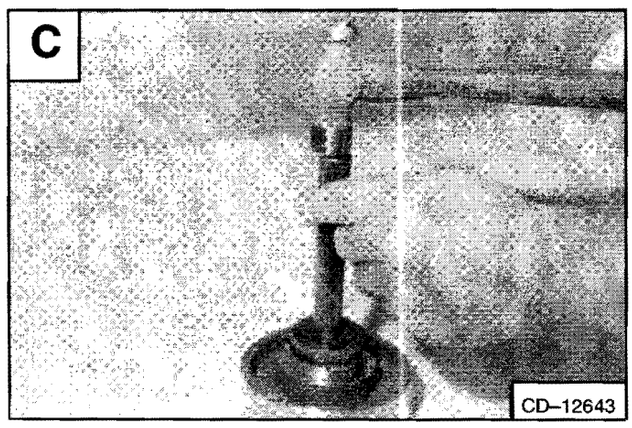


Use a driver tool (1–5/16" diameter) and push the spacer into the matched groove **[B]**.

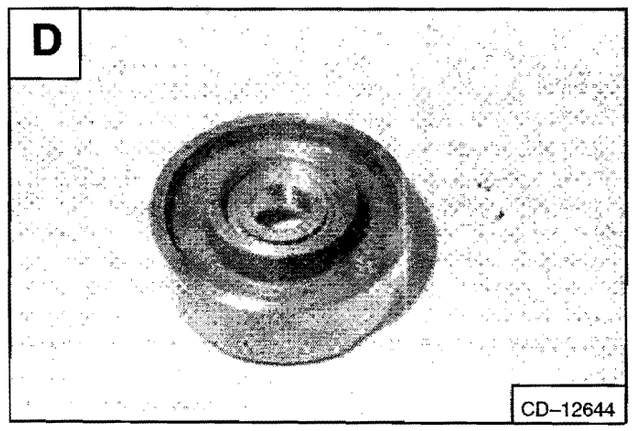


Install the bearing cup using the driver tool (both sides) **[C]**.

NOTE: The seal side of the pulley hub has the larger I.D. diameter.



Install the taper roller bearing to the pulley (seal side) **[D]**.

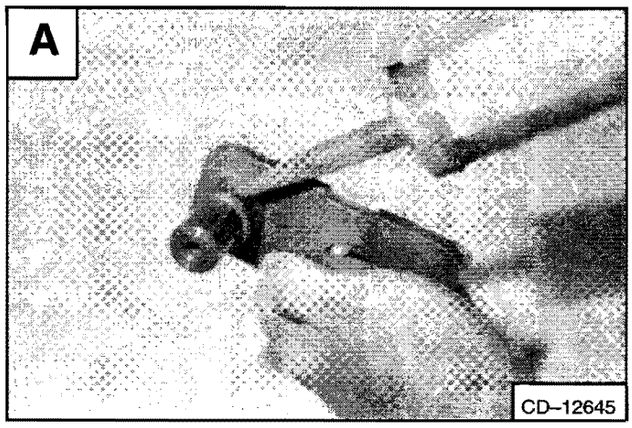


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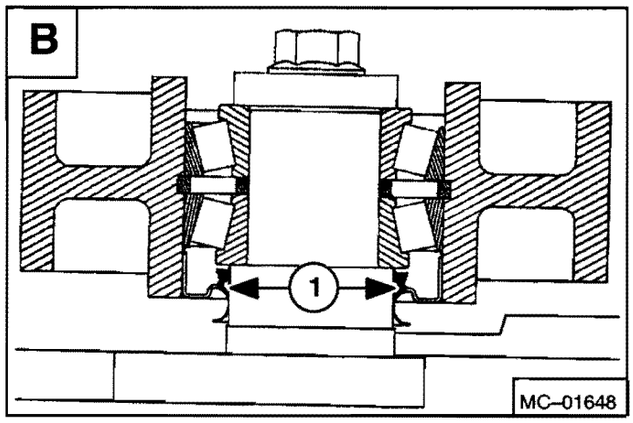
DRIVE BELT TENSIONER PULLEY (Cont'd)

Assembly (Cont'd)

Put sealant (P/N 6633538) around the diameter of the shaft where the wear sleeve is installed on the shaft **[A]**.



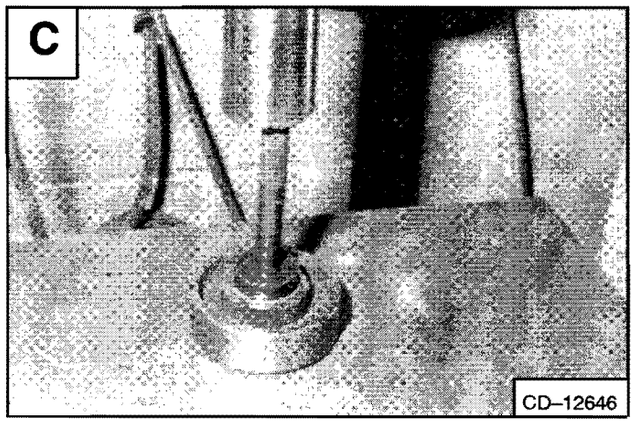
Put grease (P/N 6599719) on the seal lips (Item 1) **[B]**. Make sure the grease is between the outside and inside lips and all the way around the seal.



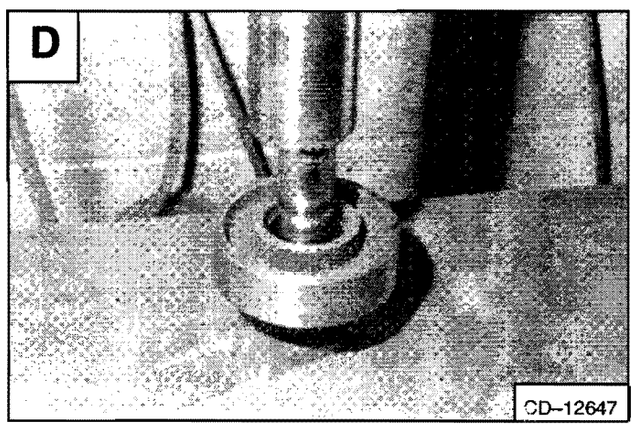
Press the seal into the pulley hub larger diameter using a press **[C]**.

NOTE: The wear sleeve and the seal must be replaced as a unit.

DO NOT damage the seal lips with the sharp edge of the wear sleeve. Install the wear sleeve into the seal.



Use a spacer tube which goes over the shaft and pushes on the inside diameter of the taper bearing, install the pulley, seal and wear sleeve onto the shaft **[D]**.

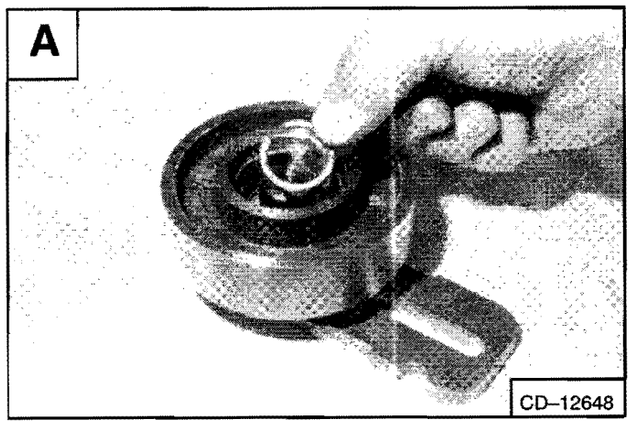


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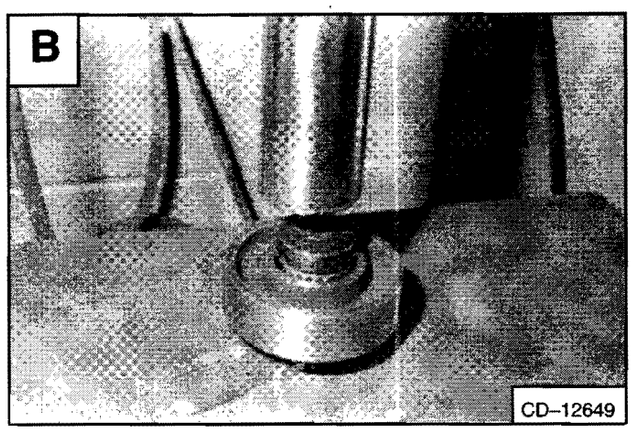
DRIVE BELT TENSIONER PULLEY (Cont'd)

Assembly (Cont'd)

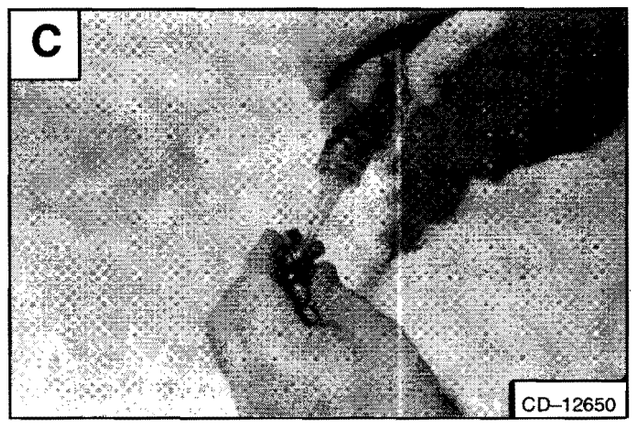
Install the small bearing spacer **[A]**.



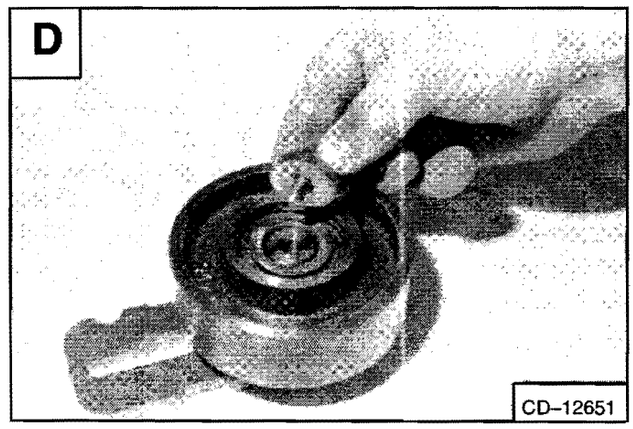
Install the taper roller bearing pushing on the I.D. of the bearing **[B]**.



Put LOCTITE (P/N 6540410) on the bolt threads **[C]**.



Install the bolt and washer into the shaft **[D]**.

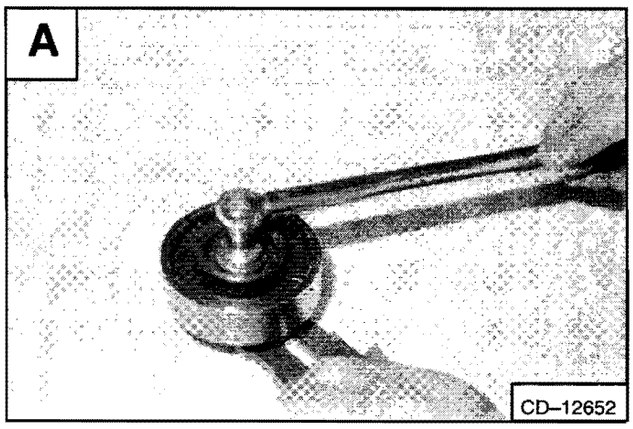


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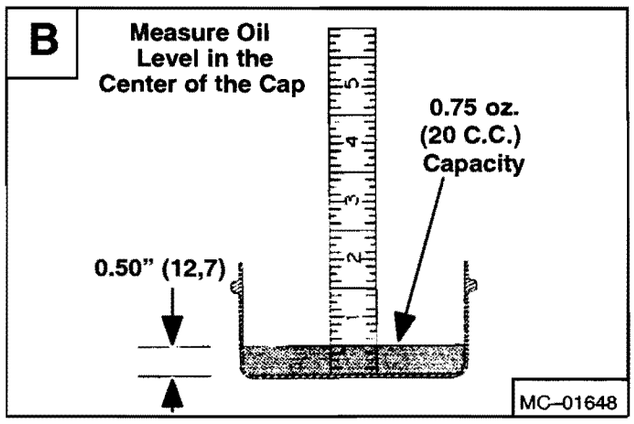
DRIVE BELT TENSIONER PULLEY (Cont'd)

Assembly (Cont'd)

Tighten the bolt to 25–28 ft.–lbs. (43–38 Nm) torque **[A]**.

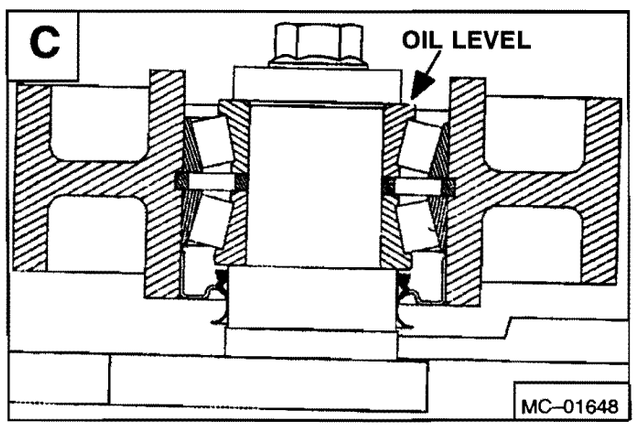


Use only 15W/50 synthetic oil (Example: Mobil One) for the bearings. Use the cap and add oil until it is at the 0.50" (12,7 mm) mark on the scale, which should be 0.75 oz. (20 C.C.) of oil **[B]**.



Add the oil slowly, at one location of the bearing which will allow the trapped air to escape from the other side **[C]**.

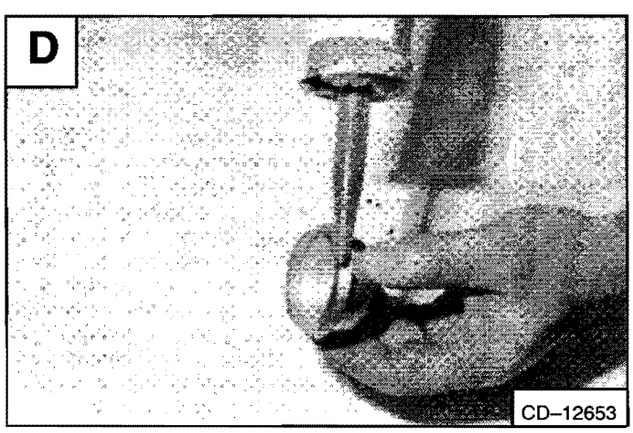
NOTE: Oil capacity is very critical, do not add any more and/or any less oil to the idler pulley.



Check the cap sealing edge to make sure it is not damaged. Replace the cap as needed.

Make sure the sealing edge on the hub bore and cap sealing edge is clean and free of oil, put a bead of sealant (P/N 6633538) on the cap **[D]**.

Install the cap.

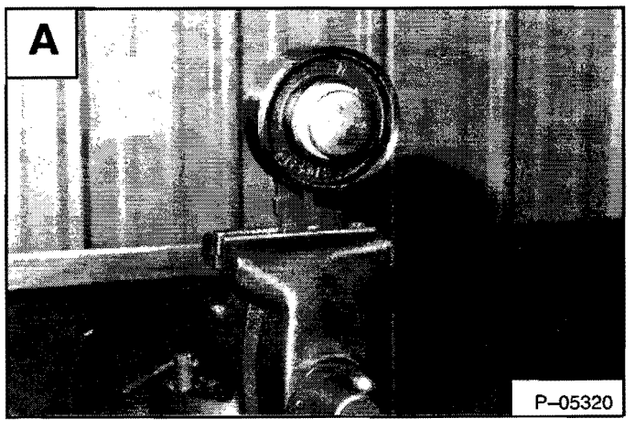


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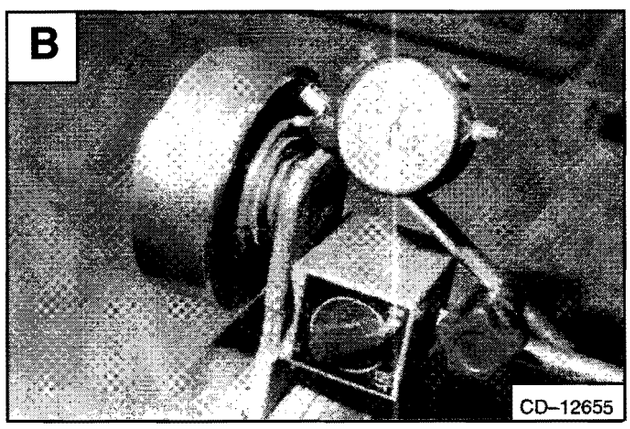
DRIVE BELT TENSIONER PULLEY (Cont'd)

Checking Pulley End Play

Install the pulley/mounting bracket assembly in to vise **[A]**.

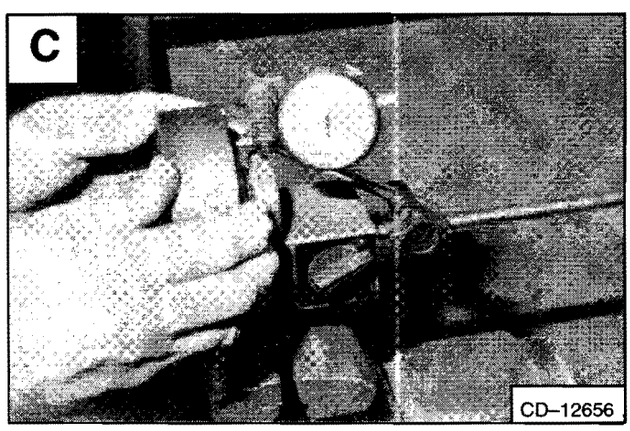


Install a dial indicator on the pulley hub **[B]**.



Move the pulley by hand, back and forth. The correct end play is 0.005–0.013" (0,13–0,33 mm) **[C]**.

If the end play is not correct, there is not adjustment. Replace the hub, pulley and/or bearings.



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DRIVE SYSTEM

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TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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PARKING BRAKE

Adjustment

When the parking brake is in good condition and adjusted correctly, it will keep the loader from moving when the steering levers are moved.

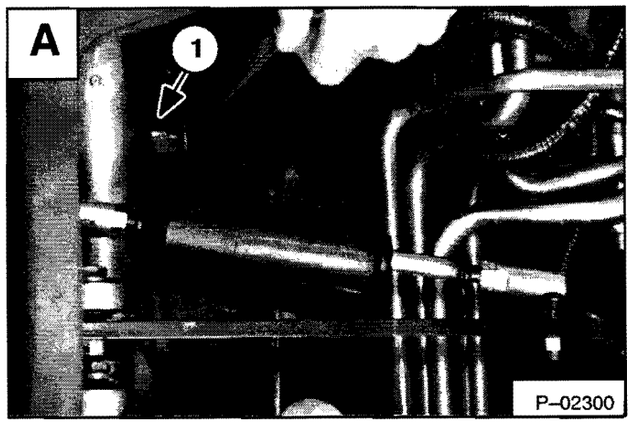
Raise the operator cab. (See Page 1–1).

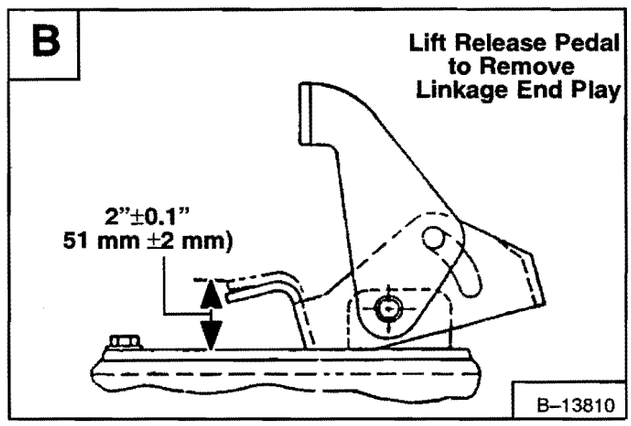
Turn the nut (Item 1) **[A]** to adjust the parking brake.

OLD STYLE: There must be 3/4" (19 mm) movement from the top of the cover (not the bolt head) to bottom edge (heel) of the brake pedal.

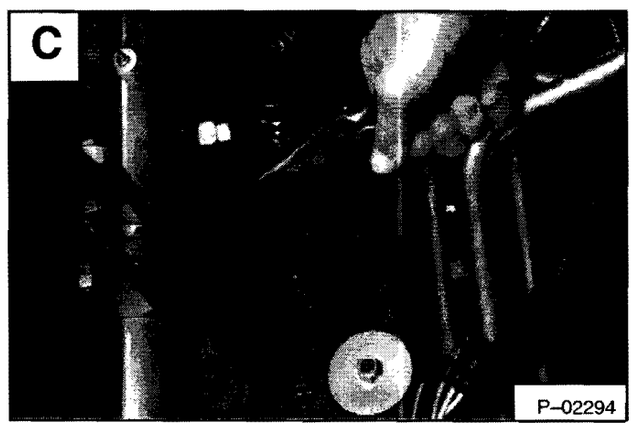
NEW STYLE: Adjust the release pedal so there is 2" ± 0.1" (51 mm ± 2 mm) from the top of the release pedal to the top of the chaincase cover **[B]**.

NOTE: If the correct adjustment can not be obtained by turning the nut, the brake lever must be adjusted using the following procedure.

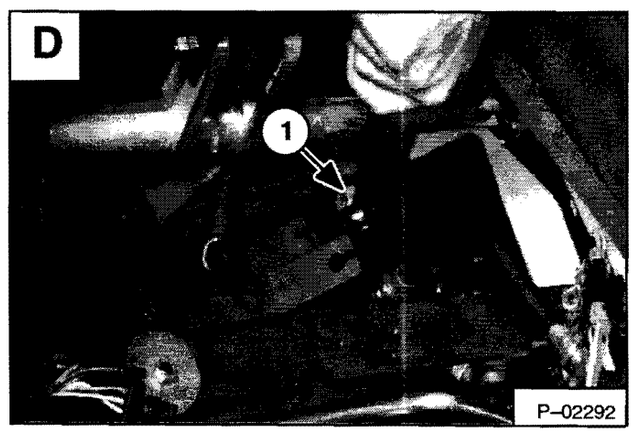




Disconnect the spring from the brake lever **[C]**.



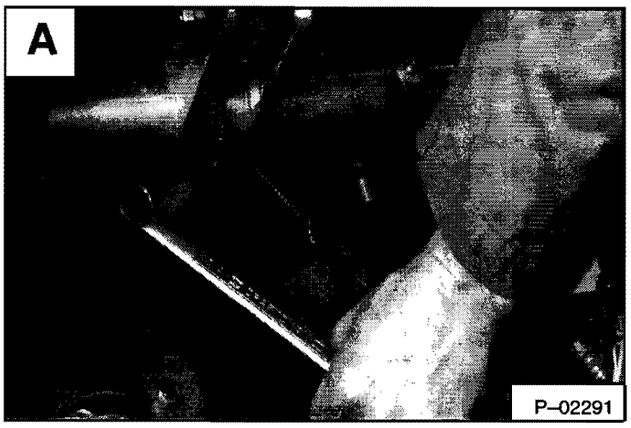
Loosen the nut (Item 1) **[D]**.



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Adjustment (Cont'd)

Loosen the bolt on the brake lever **[A]**. Do not remove the bolt.



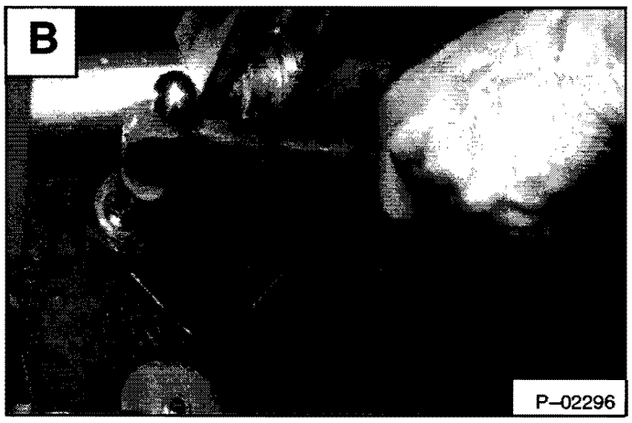
Pry up on the lever and hit the bolt with the hammer until brake lever is loose **[B]**.

Remove the bolt and brake lever.

Turn the brake block shaft counterclockwise until the brake pads make contact with the brake discs.

Install the brake lever. Install the bolt and tighten to 65–70 ft.–lbs. (88–95 Nm) torque.

Adjust the parking brake again.

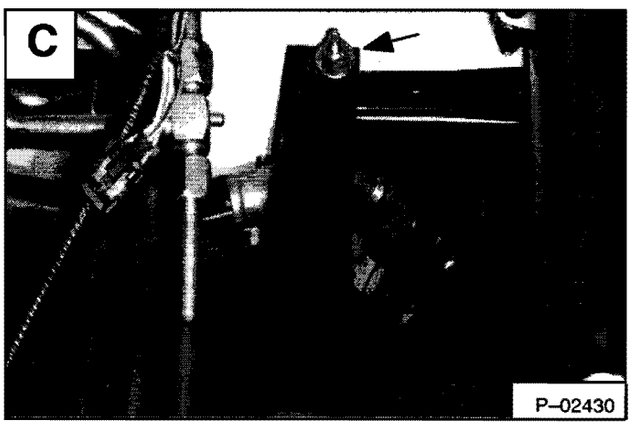


Removal and Installation

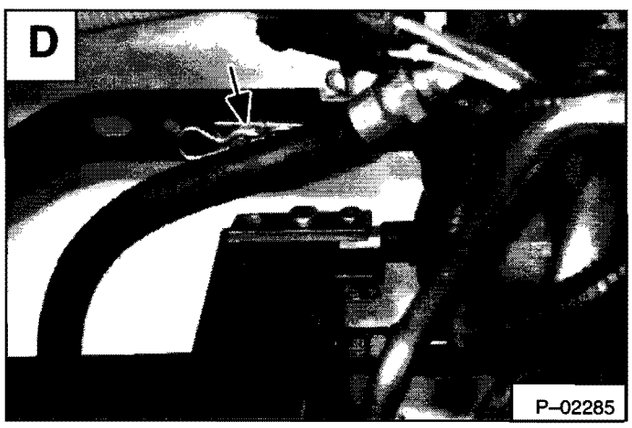
Raise the lift arms. (See Page 1–1).

Raise the operator cab. (See Page 1–1).

Remove the bolt and nut from the lift pedal linkage **[C]**.



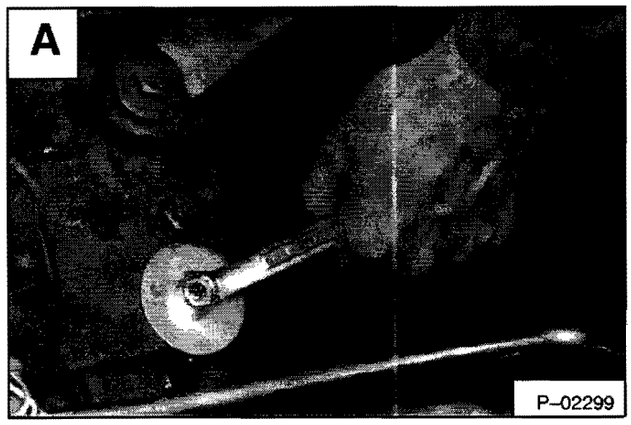
Disconnect the lift linkage from the control valve spool **[D]**.



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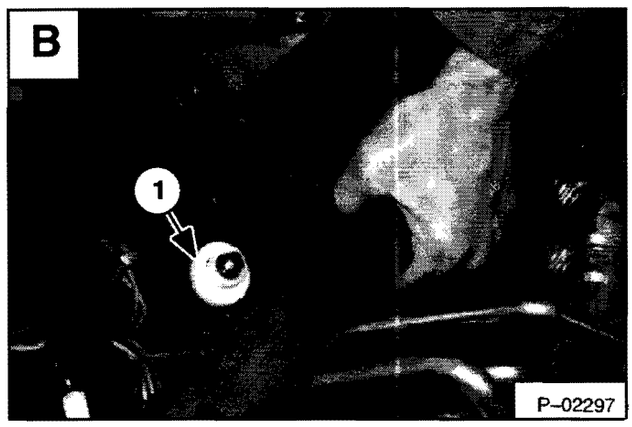
Removal and Installation (Cont'd)

Remove the pivot bolt from the lift linkage crossmember **[A]**.



Remove the linkage crossmember **[B]**.

Remove the plastic washer (Item 1) **[B]** and check for wear and replace as needed.

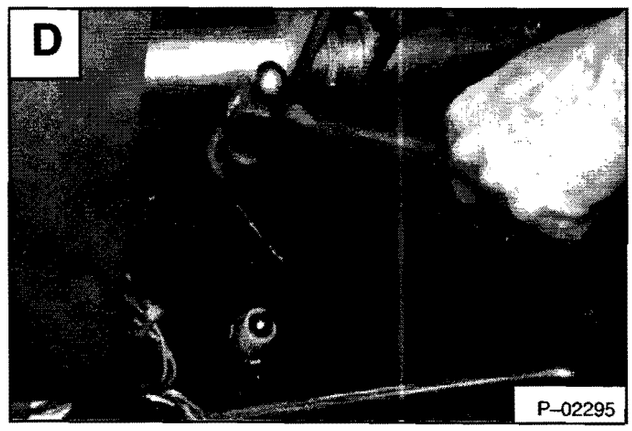


Remove the nuts from the brake linkage rod **[C]**.



Disconnect the brake lever spring.

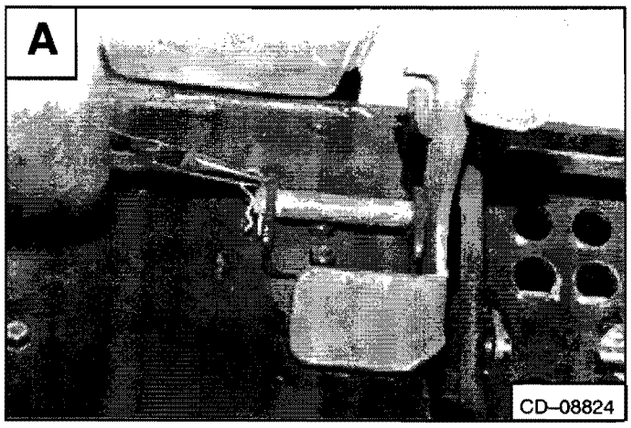
NOTE: If the brake block and pads are going to be disassembled, loosen the brake lever bolt. Pry up on the lever and hit the bolt until the brake lever is loose [D].



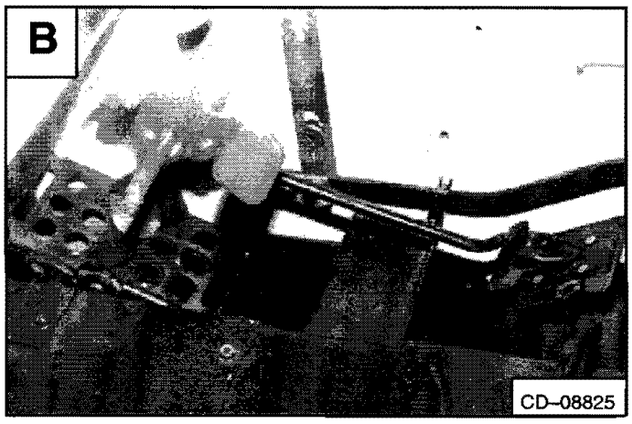
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Removal and Installation (Cont'd)

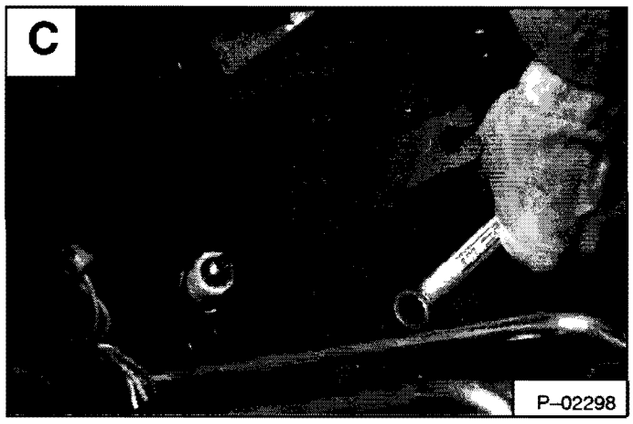
Remove the cotter pin from the brake pedal pivot shaft **[A]**.



Remove the brake pedal/linkage rod assembly **[B]**.



Remove all the cover bolts **[C]**.



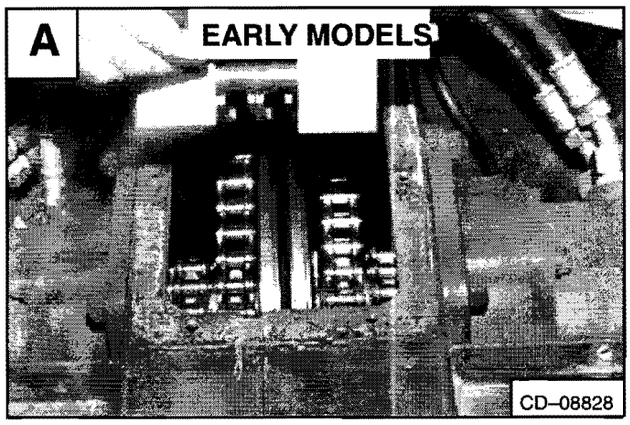
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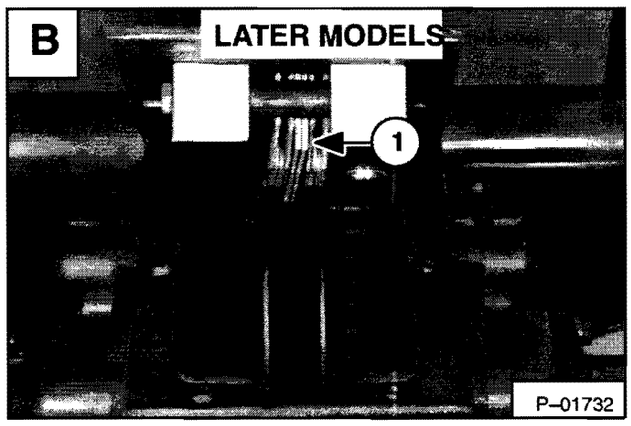
Removal and Installation (Cont'd)

Remove the cover/brake block assembly **[A]** & **[B]**.

NOTE: Early model bakes are cast iron machined [A]. Later model brakes are made of steel and have a spacer (Item 1) [B] between the brake pads.

Installation: Clean and dry the cover. Clean the surface on the chaincase where the cover sets. Use a new gasket under the cover. (See Parts Microfiche for serial number and part number.) Align the brake discs so they are centered and in–between the brake pads **[A]**.

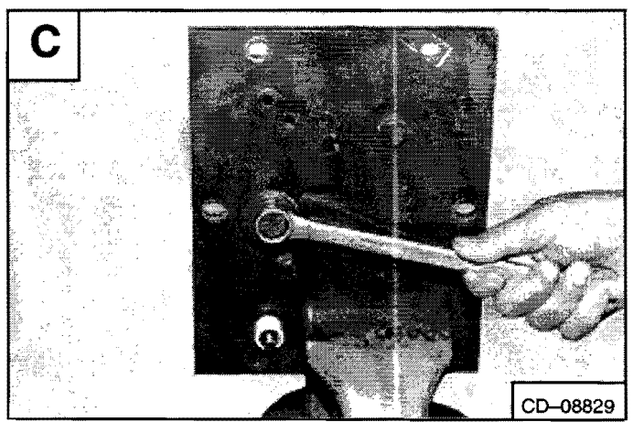




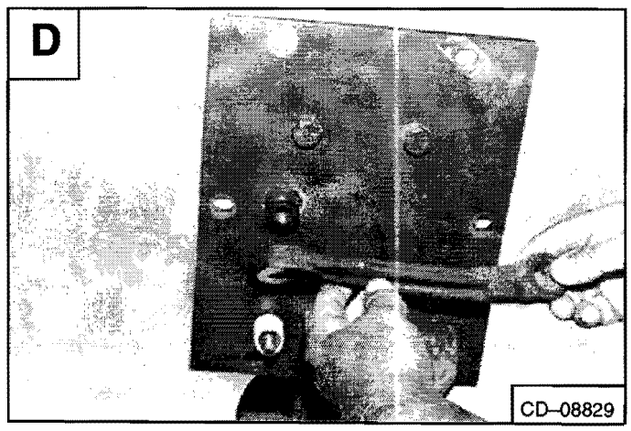
Brake Block and Pads

Remove the brake lever bolt **[C]**.

Installation: Tighten the bolt to 65–70 ft.–lbs. (88–95 Nm) torque.



Remove the brake lever **[D]**.



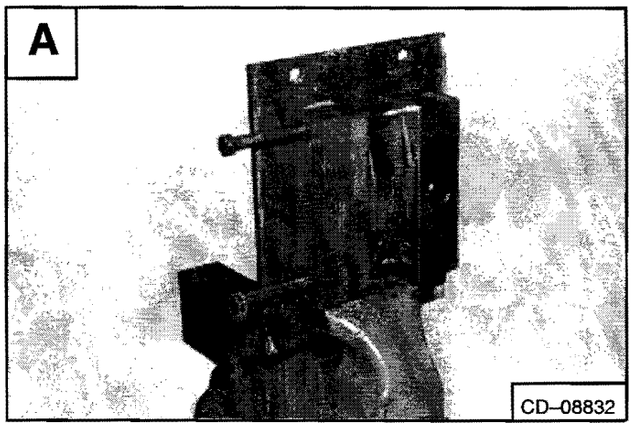
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PARKING BRAKE (Cont'd)

Brake Block and Pads (Cont'd)

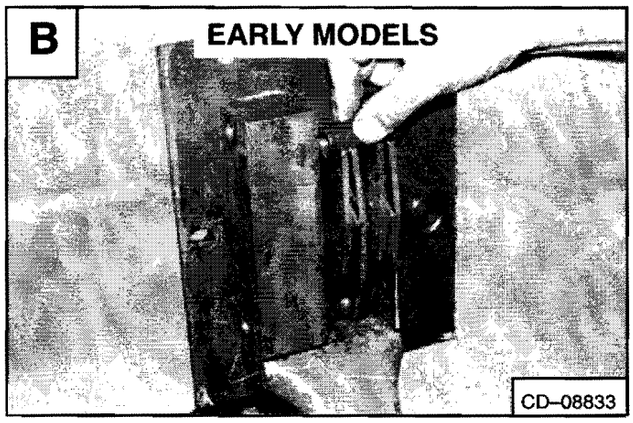
Remove the bolts from the brake block **[A]**.

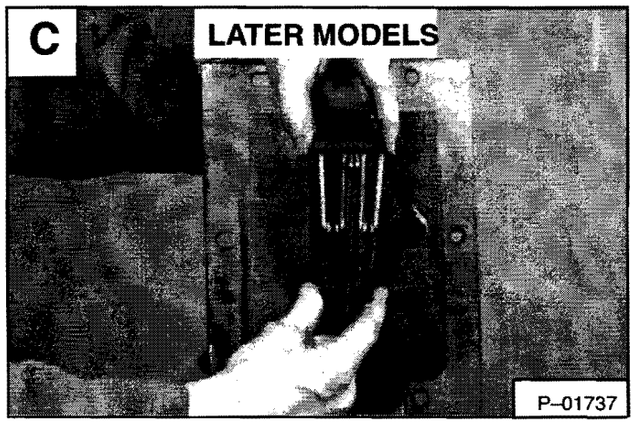
Installation: Tighten the bolts to 65–70 ft.–lbs. (88–95 Nm) torque.



Remove the guide and pads **[B]** & **[C]**.

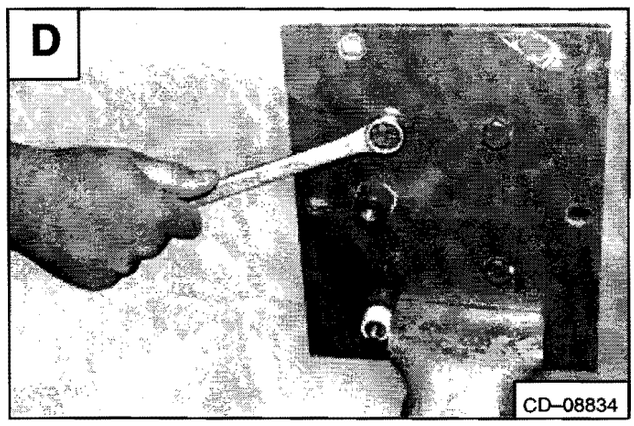
Check the pads for wear and replace them as needed.





Remove the bolts which fasten the brake block to the cover **[D]**.

Installation: Tighten the bolts to 65–70 ft.–lbs. (88–95 Nm) torque.



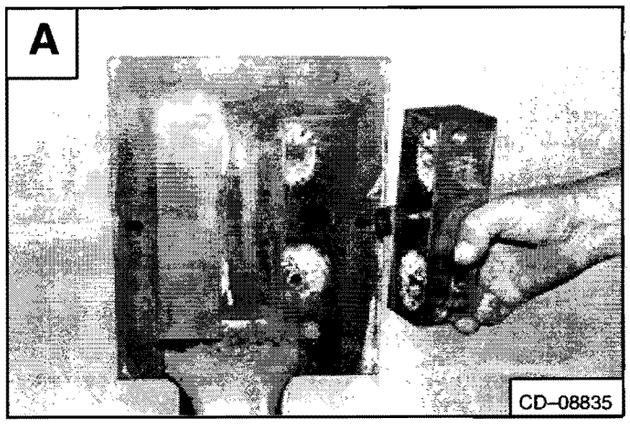
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Brake Block and Pads (Cont'd)

Remove the brake block **[A]**.

Installation: Clean and dry the brake block. Put a bead of R.T.V. sealant on the brake block.

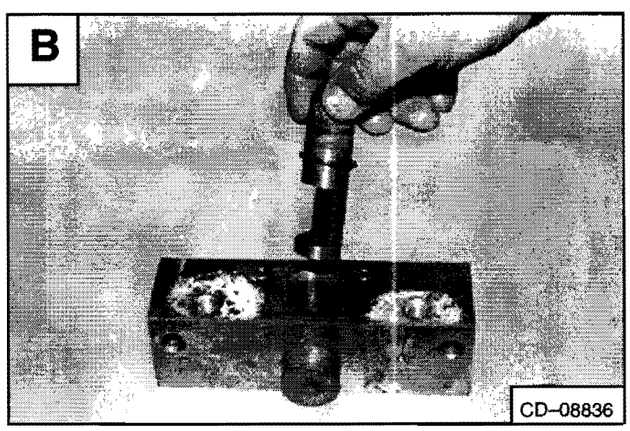
NOTE: Do Not use excessive R.T.V. sealant on the block. Make sure the brake shaft does not rub.



Remove the shaft from the brake block **[B]**.

Check the parts for wear or damage and replace as needed.

Installation: Always install a new O–ring when the shaft is installed. Make sure shaft rotates freely in the cover.



Brake Discs

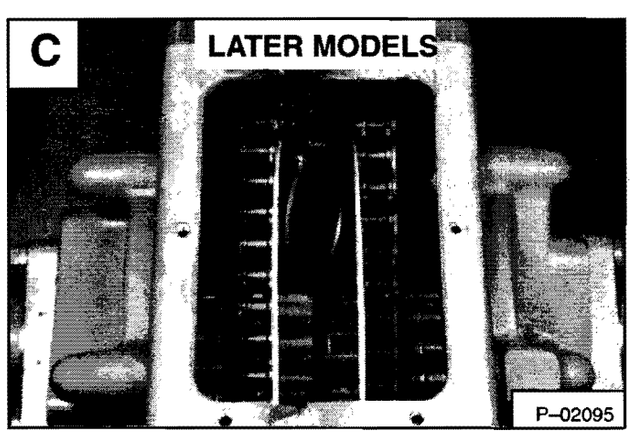
To remove the brake discs, the following items must be removed from the chaincase first:

Remove the front cover. (See Page 4–11).

Remove the motor carrier. (See Page 4–12).

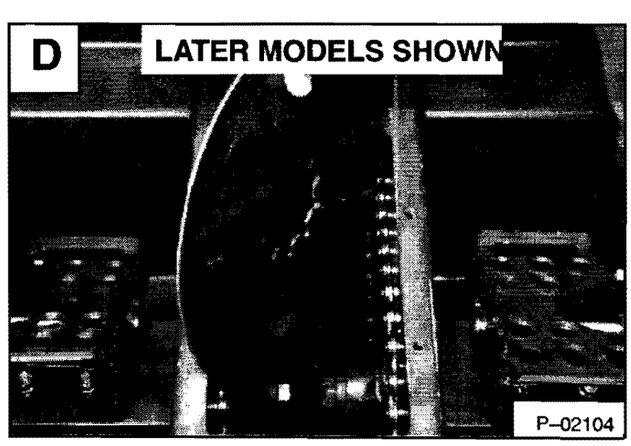
Remove the front axle and sprocket. (See Page 4–16).

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



Remove the brake discs from the front chaincase hole **[D]**.

Check the brake discs for damage. Replace the brake discs as needed. DO NOT grind the brake discs.



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CENTER TRANSMISSION COVER

Installation

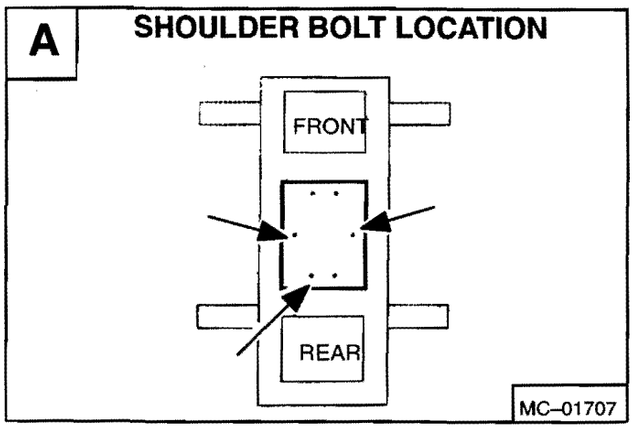
When installing the center cover on the transmission, always use three shoulder bolts where shown.

See your Bobcat loader dealer for the correct shoulder bolt.

Tighten the bolts to 20–25 ft.–lbs. (27–34 Nm) torque.

NOTE: Be sure the warning decal is installed on the inside of the left fender.





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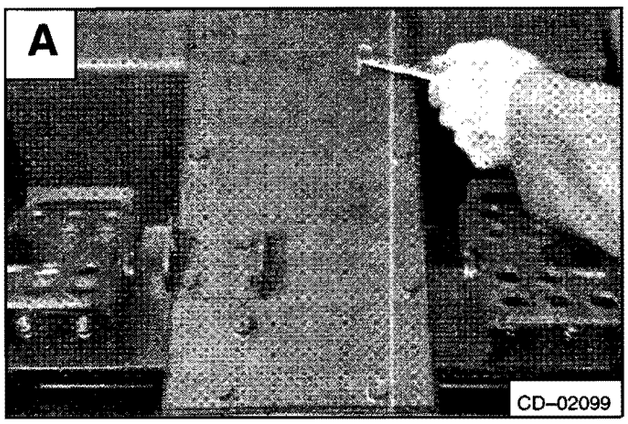
FRONT CHAINCASE COVER

Removal and Installation

Remove the front panel/steering lever assembly. (See Page 3–1.)

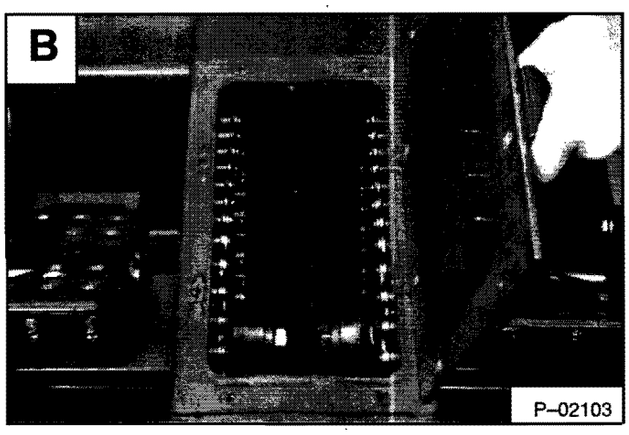
Remove the parking brake pedal.

Remove all the bolts from the front cover **[A]**.



Remove the cover from the chaincase **[B]**.

Installation: Clean and dry the cover. Clean the surface on the chaincase where the cover sets. Install a new gasket under the cover. (See Parts Microfiche for correct serial number and part number.)



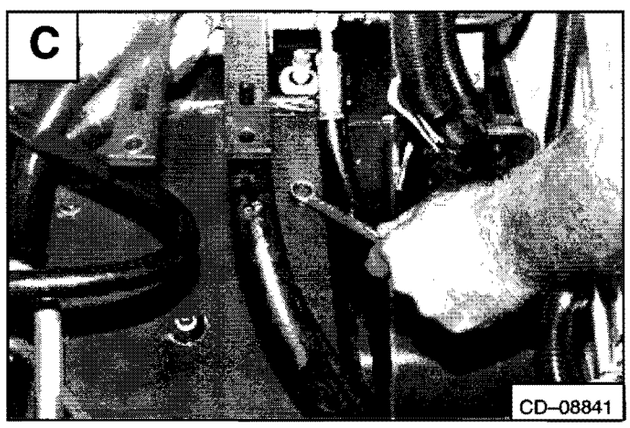
REAR CHAINCASE COVER

Removal and Installation

Remove the steering linkage. (See Page 3–1.)

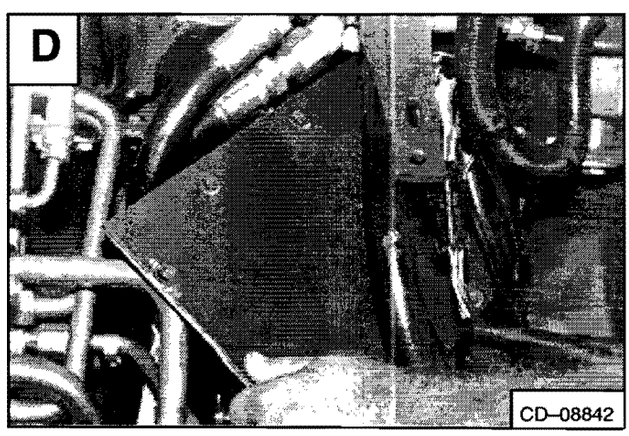
Disconnect the steering linkage.

Remove all the bolts from the rear cover **[C]**.



Remove the cover from the chaincase **[D]**.

Installation: Clean and dry the cover. Clean the surface on the chaincase where the cover sets. Install a new gasket under the cover. (See Parts Microfiche for correct serial number and part number.)



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MOTOR CARRIER

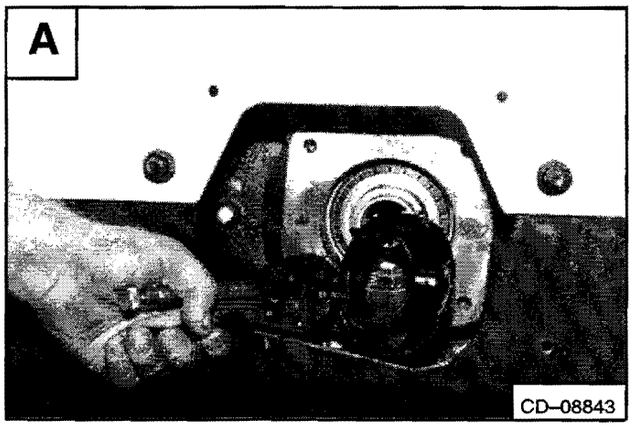
Shaft Seal Replacement

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

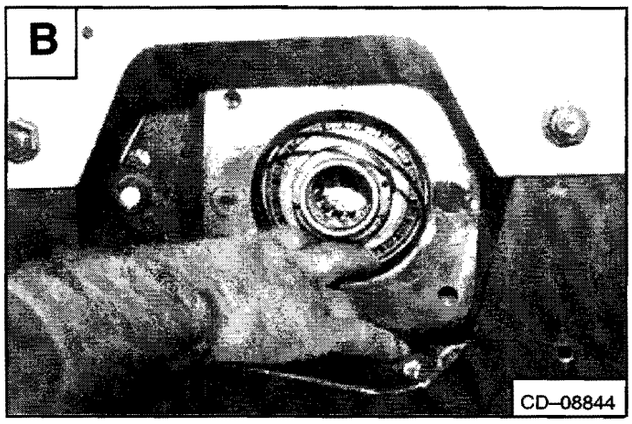
MEL1399 – Axle Seal Tool
MEL1402 – Carrier Seal Tool

Remove the hydrostatic motor. (See Page 3–1.)

Pull the seal carrier from the motor carrier **[A]**.

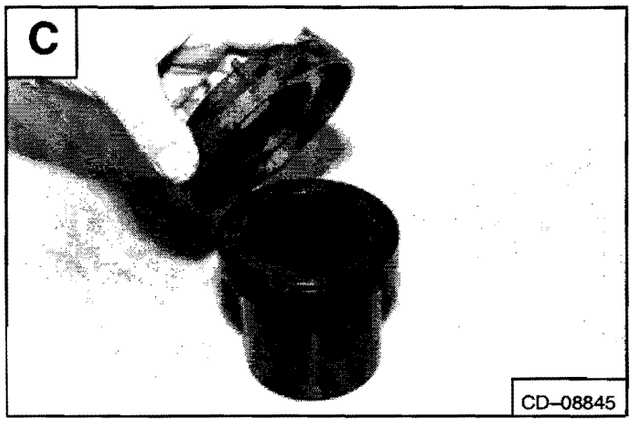


Remove the old O–ring and replace with a new O–ring **[B]**.

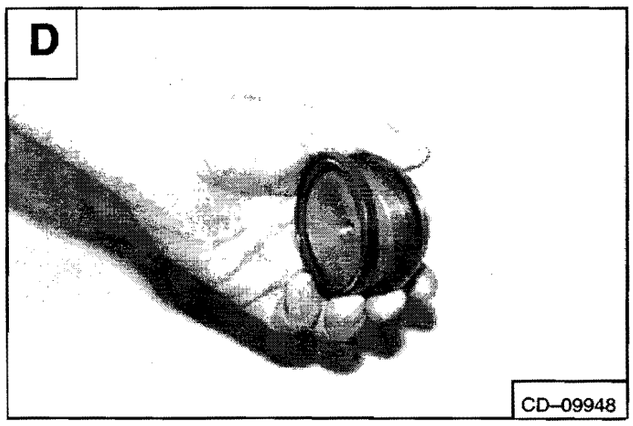


Remove the old seals from the seal carrier.

Install the seal carrier on the axle seal tool (MEL1399) **[C]**.



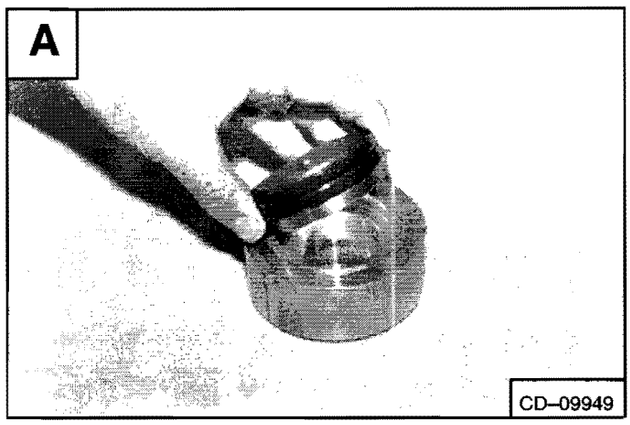
Install two seals on the tube shaft of the motor carrier seal tool (face the seal lips with one inward and one outward) **[D]**.



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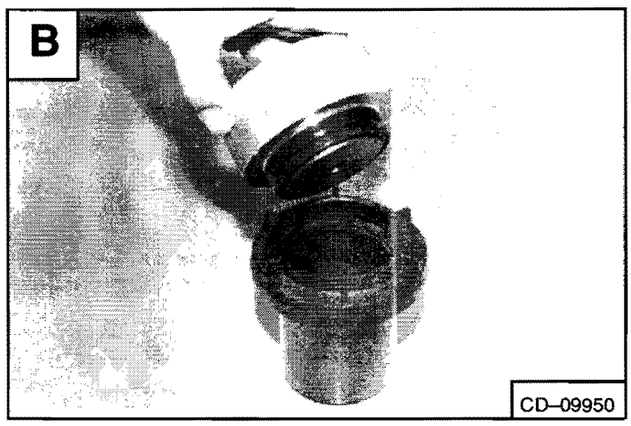
Shaft Seal Replacement (Cont'd)

Install the two seals and shaft into the top half of the seal carrier tool **[A]**.

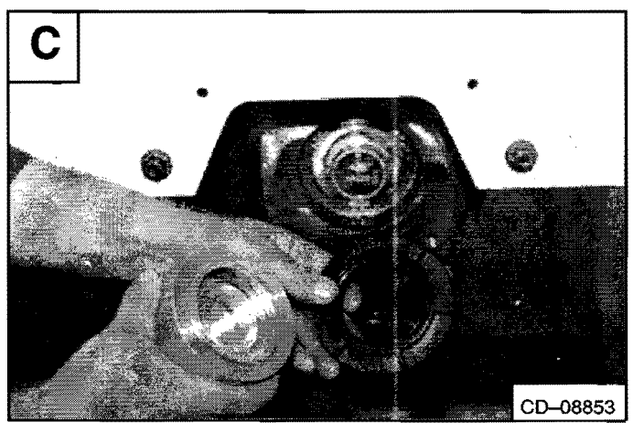


Install the seal/tool assembly into the motor carrier seal housing **[B]**.

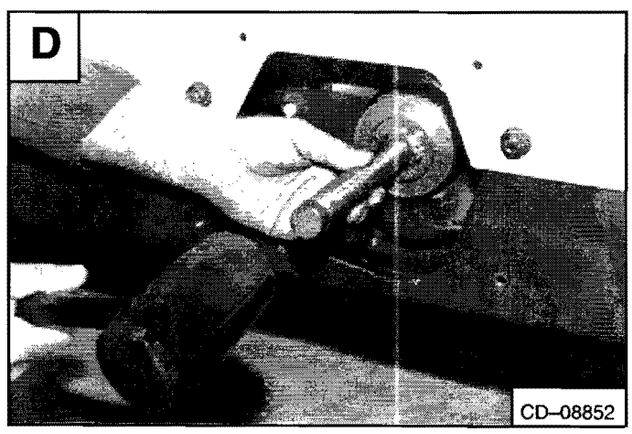
Hit the tool with a hammer to seal the seals in the housing.



Install the seal/seal carrier housing into the motor carrier **[C]**.



Install the seal carrier installation tool into the seal carrier housing. Hit the tool with a hammer until the seal housing is fully seated **[D]**.



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MOTOR CARRIER (Cont'd)

Removal and Installation (Later Models)

Raise the lift arms. (See Page 1–1.)

Lift and block the loader. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Remove the front panel/steering lever assembly. (See Page 3–1.)

Remove the parking brake/cover assembly. (See Page 4–4.).

Remove the fluid from the chaincase. (See Page 4–24.)

Remove the front axle and sprocket. (See Page 4–16.)

Remove the hydrostatic motor. (See Page 3–1.)

Remove from the motor carrier mounting bolts from inside the chaincase **[A]**.

Installation: Tighten the bolts to 125–140 ft.–lbs. (170–190 Nm) torque.

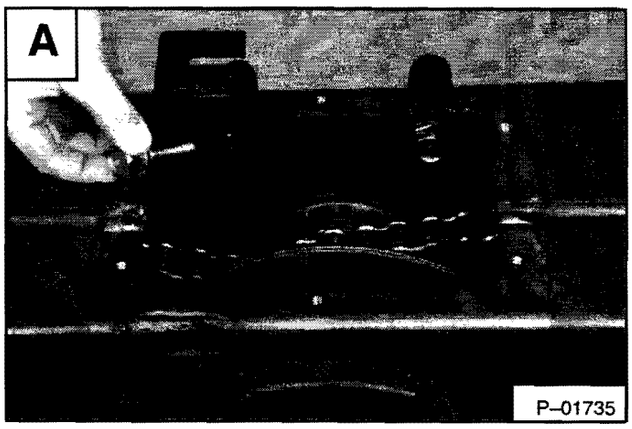
Move the motor carrier housing toward the rear of the chaincase. Remove the rear drive chain from the motor carrier sprockets **[B]**.

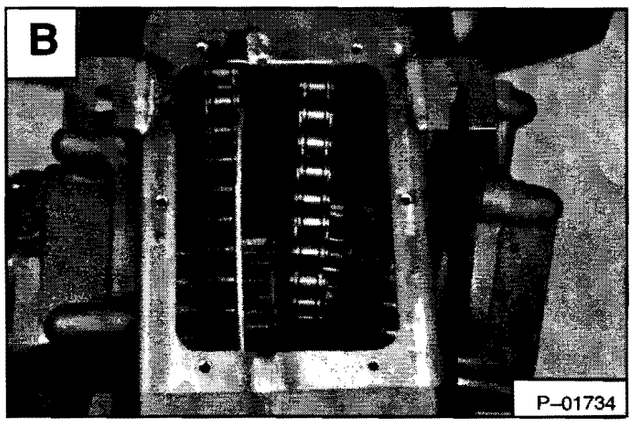
Remove the front drive chain from the motor carrier sprockets.

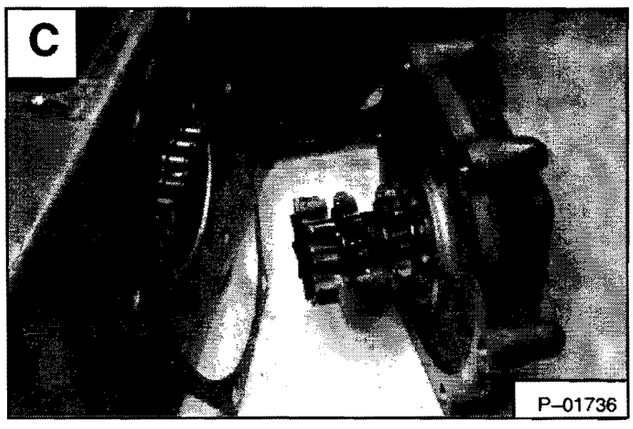
Remove the motor carrier assembly from the chaincase **[C]**.

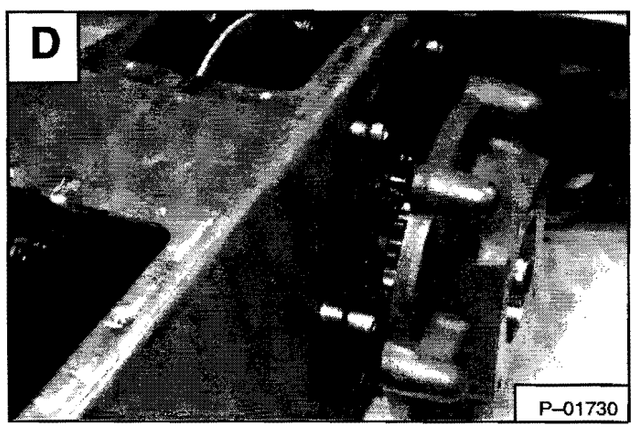
Installation: Clean the motor carrier housing flange. Install the gasket on the mounting surface **[D]**.

NOTE: When installing the motor carrier with through holes in the flange, either a gasket or sealant can be used. Put sealant between the bolt heads and the chaincase to prevent leakage.









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Disassembly and Assembly (Later Models)

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

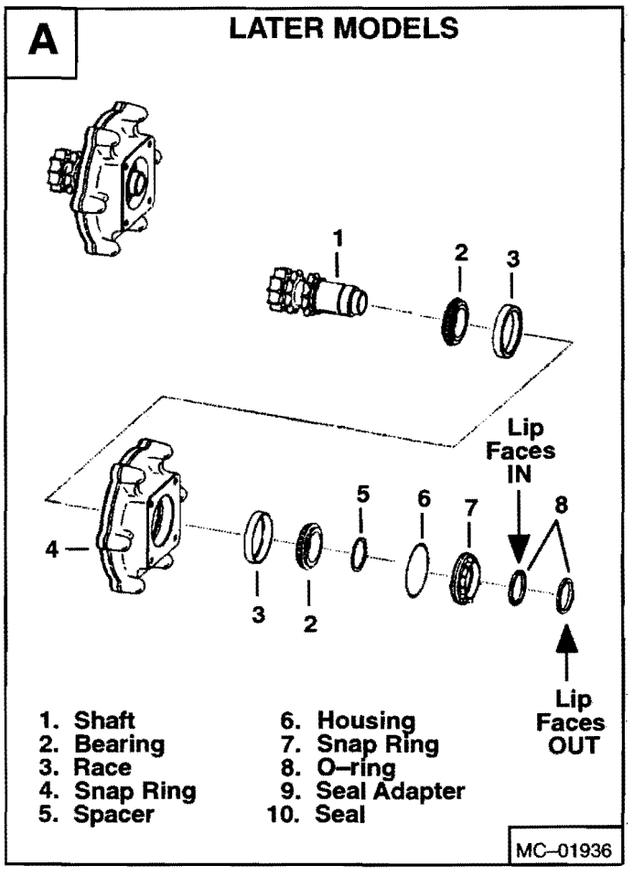
MEL1402 – Carrier Seal Tool

Use **[A]** as a guide to disassemble and assemble the motor carrier.

The correct shaft end play is 0.008" (0,2 mm) and is controlled by the snap ring (Item 5) **[A]**.

The snap ring (Item 5) **[A]** comes in two different widths. (See Parts Microfiche for the correct procedure.)

A



Disassembly and Assembly (Early Models)

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

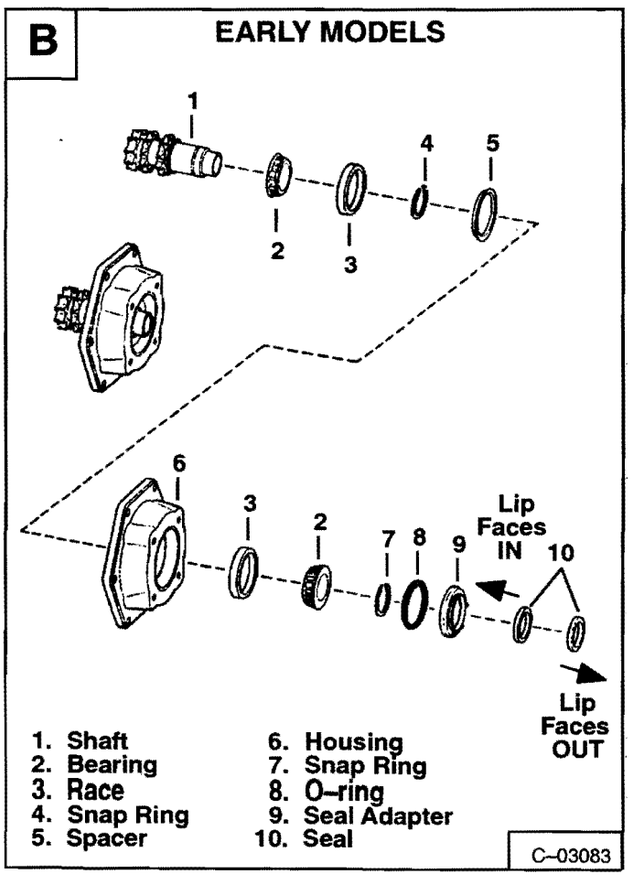
MEL1402 – Carrier Seal Tool

Use **[B]** to disassemble and assemble the motor carrier.

The correct shaft end play is 0.008" (0,2 mm) and is controlled by the snap ring (Item 7) **[B]**.

The snap ring (Item 7) **[B]** comes in two different widths. (See Parts Microfiche for the correct part number.)

B



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AXLE SEAL

Removal and Installation

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

MEL1242 – Port–a–Power
MEL1399 – Axle Seal Tool

To loosen the axle hub bolt use the following procedure:

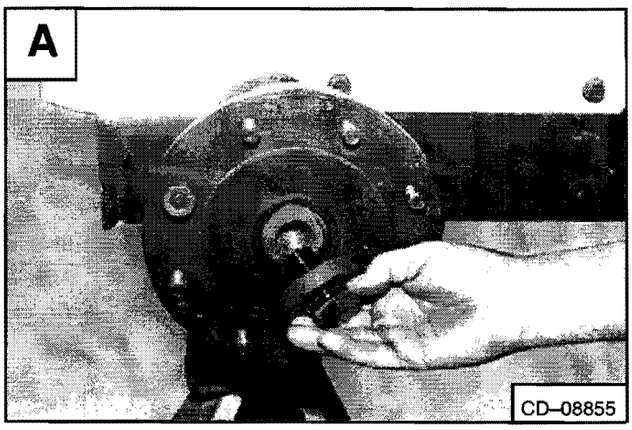
With the tires on the ground, loosen the hub bolt. If the axle and bearings are being replaced, loosen the sprocket bolt while the tires are still on the ground. (See page 4–19.)

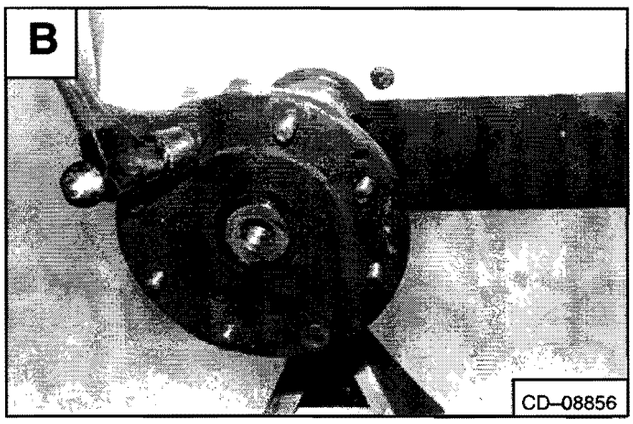
Lift and block the loader. (See Page 1–1.)

Remove the tire/wheel assembly.

Installation: Tighten the bolt to 575–625 ft.–lbs. (780–848 Nm) torque.

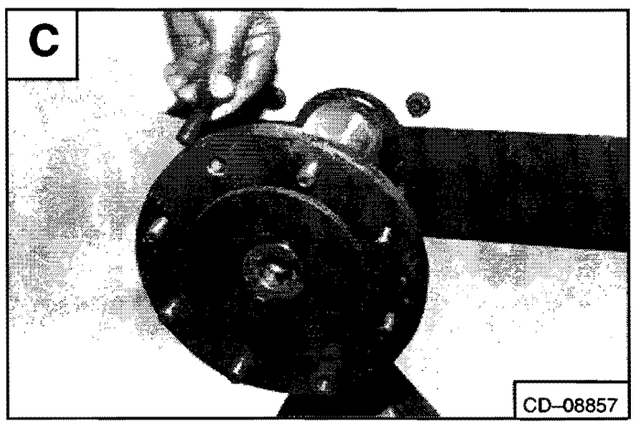
Install wheel nuts on two studs straight across from each other. Use a hammer to remove the wheel studs **[B]**.





Remove the wheel nut and studs from the hub **[C]**.

Installation: After the hub has been removed, use a hammer to install the wheel stud in the hub.

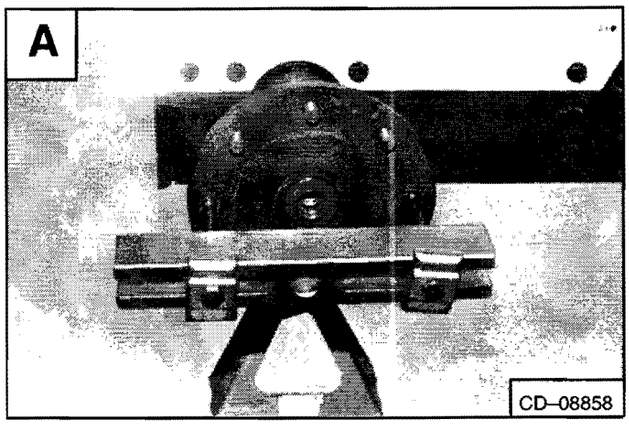


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AXLE SEAL (Cont'd)

Removal and Installation

Install a puller on the wheel hub **[A]**.



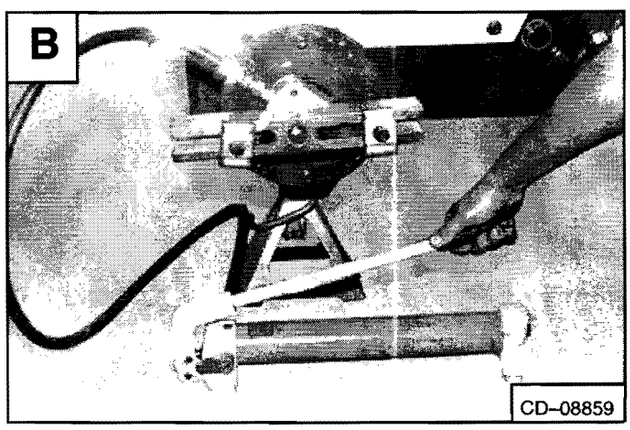
A slide–hammer or Port–a–Power can be used to remove the hub. A Port–a–Power is used in the following sequence:

Install a spacer on the end of the axle and against the Port–a–Power ram **[B]**.

⚠ WARNING

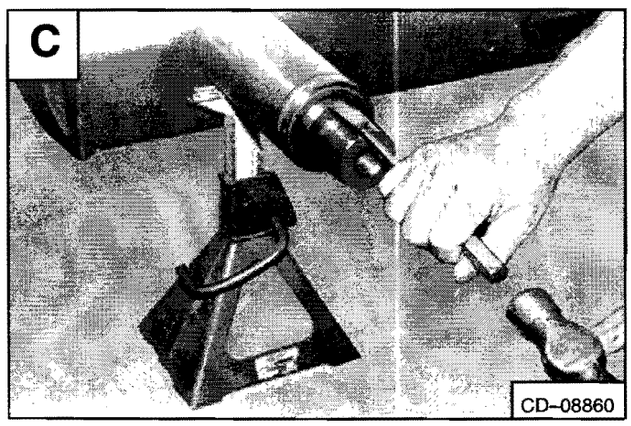
NEVER STAND IN–LINE OF THE HUB WHEN REMOVING A HUB FROM AN AXLE. The hub has a tapered fit on the axle end and can come off the axle with great force and cause serious injury.

W–2186–0395

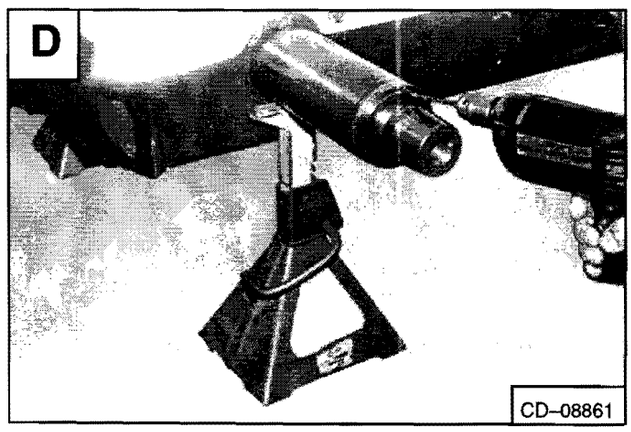


Remove the hub from the axle **[B]**.

Remove the key from the axle **[C]**.



Drill a small hole into the axle seal **[D]**.



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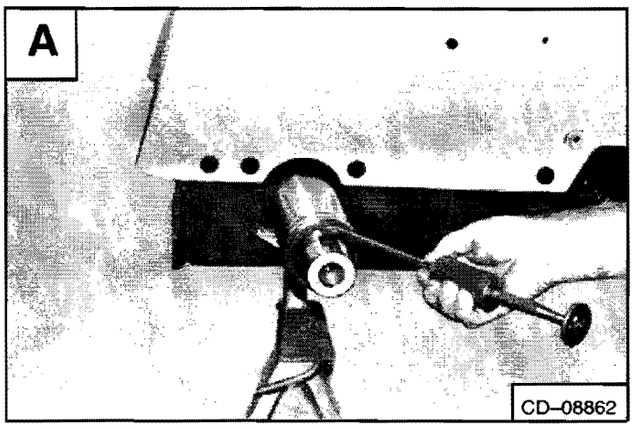
AXLE SEAL (Cont'd)

Removal and Installation (Cont'd)

Install a puller and remove the axle seal **[A]**.

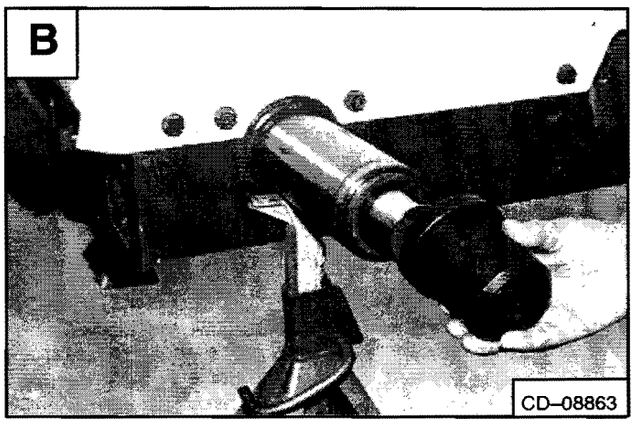
Clean the seal area and inspect the shaft for wear.

If necessary, order an axle repair sleeve from Melroe Parts Sales.

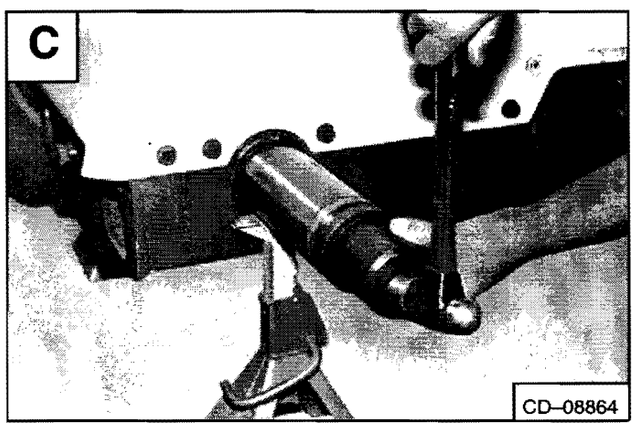


Installation: Install the new seal on the axle and into the axle tube **[B]**.

Installation: Install the seal drive tool over the axle **[B]**.



Installation: Use a hammer, install the new axle seal until the tool is flush with the edge of the axle tube **[C]**.



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AXLE, SPROCKET AND BEARINGS

Removal and Installation

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

MEL1242 – Port–a–Power
MEL1202B – Axle Bearing Service Set

NOTE: The procedure shown for removal and installation of the axle, sprocket and bearings is for a front axle. This procedure is the same for the rear axle.

Loosen the axle sprocket bolt while the tires are on the ground **[A]**.

Raise the lift arms. (See Page 1–1.)

Lift and block the loader. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Remove the front panel/steering lever assembly. (See Page 3–1.)

Remove the front or rear cover depending which axle is being removed. (See Page 4–11.)

Remove the fluid from the chaincase. (See Page 4–24.)

Installation: Tighten the axle sprocket bolt to 220–245 ft.–lbs. (298–332 Nm) torque.

Remove the axle hub. (See Page 4–16.)

Install the Port–a–Power ram between the two sprockets with a spacer against the end of the axle **[B]**.

Push the axle out until the ram is at the end of the stroke. Add a spacer and push the axle out again. Repeat this procedure until the axle is out of the sprocket **[C]**.

Remove the inner bearing from the chaincase **[D]**.

Installation: Pack the outer and inner bearing with grease before installing them.

Checking Axle End Play

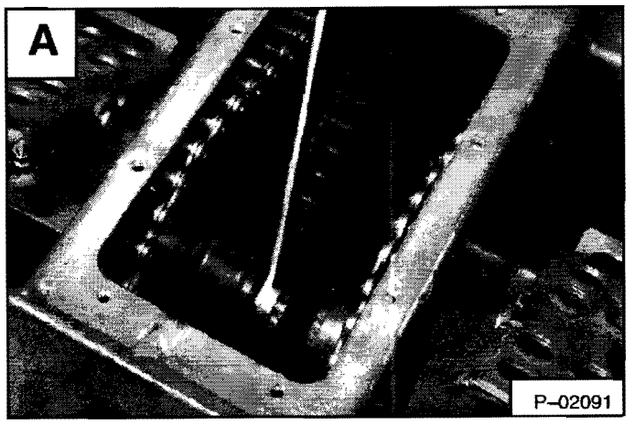
With the axle shafts reinstalled, attach a dial indicator and measure the axle end play.

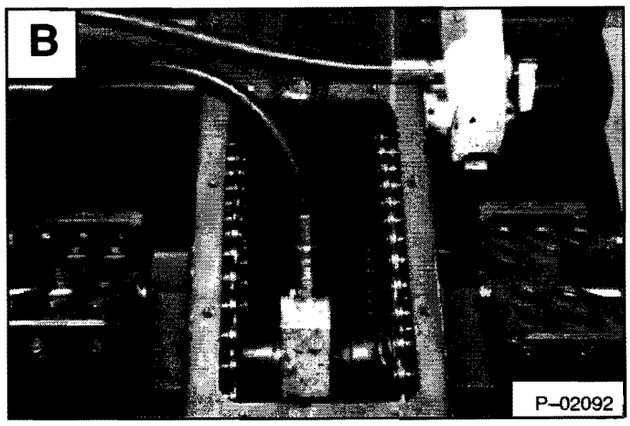
The allowable axle end play is .010 inch (0,254 mm) maximum.

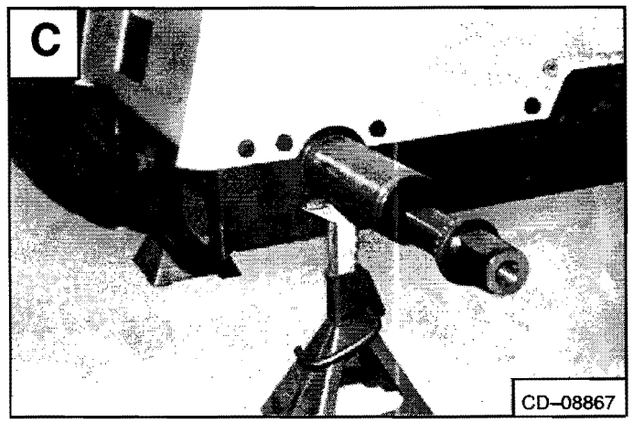
If the axle end play exceeds the maximum range, remove the axle sprocket bolt and washer **[A]**.

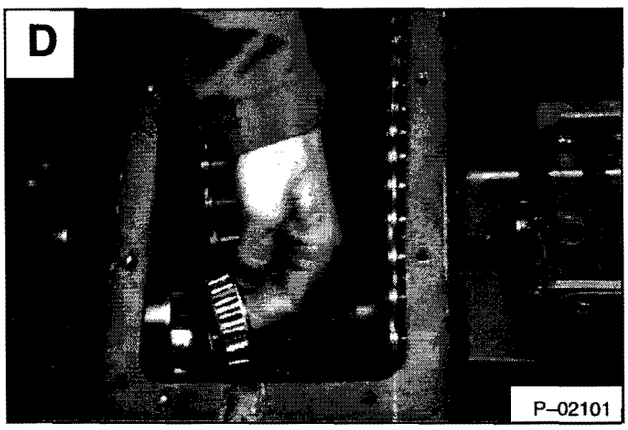
Install new washer (P/N 6563606 available from Melroe Parts Operation) and the bolt and tighten the bolt to 220–245 ft.–lbs. (298–332 Nm) torque.

NOTE: The washer (P/N 6563606) is marked on each side surface with the amount of end play the washer will take up .005 inch (0,127 mm) or .010 inch (0,254 mm).





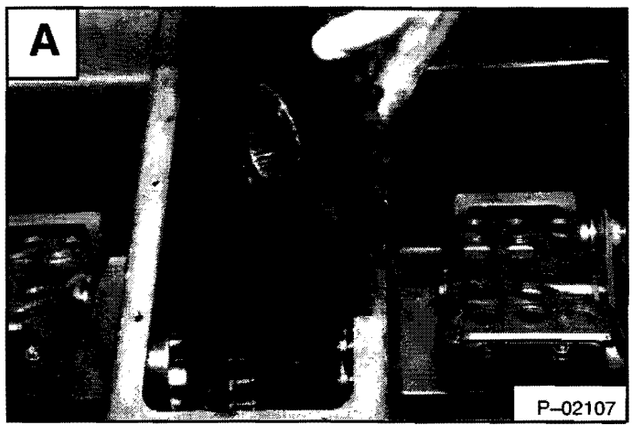




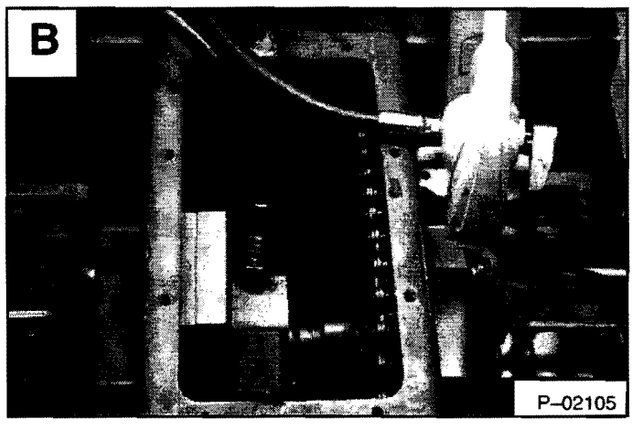
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Removal and Installation (Cont'd)

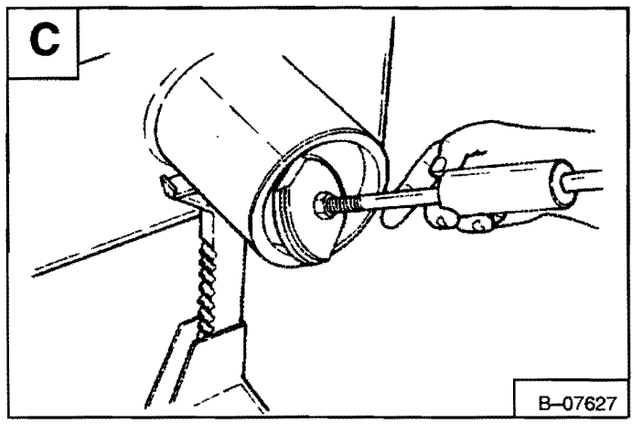
Remove the axle sprocket from the chaincase **[A]**.



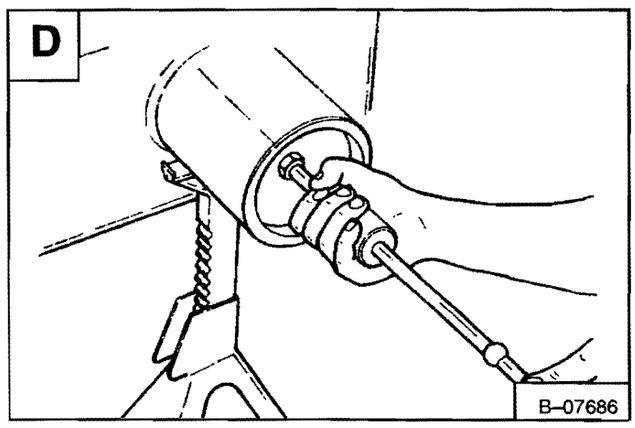
If the other side axle, sprocket and bearings are removed with one axle removed, use spacer plates and the Port–a–Power ram **[B]**.



Install the bearing cup puller tool into the axle tube **[C]**.



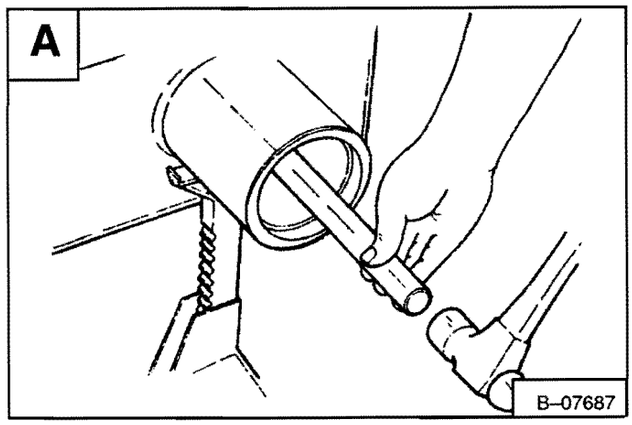
Pull the bearing cup from the axle tube **[D]**.



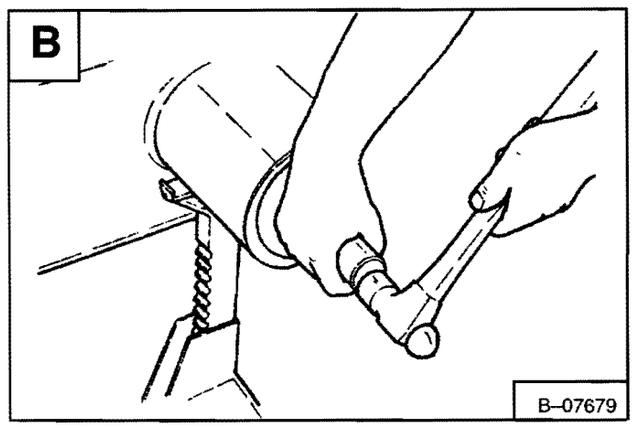
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Removal and Installation (Cont'd)

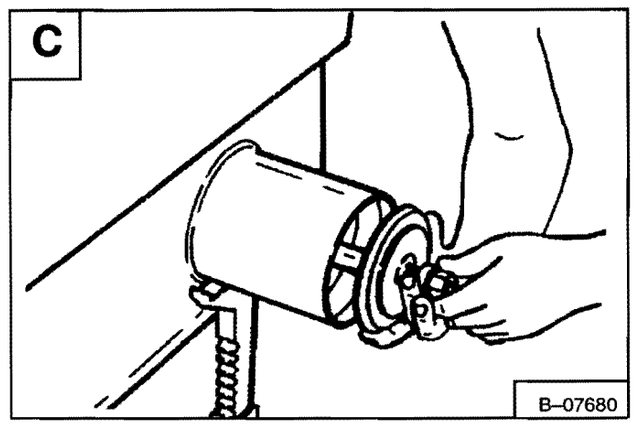
Use a long rod and bearing cup tool to remove the inner bearing cup **[A]**.



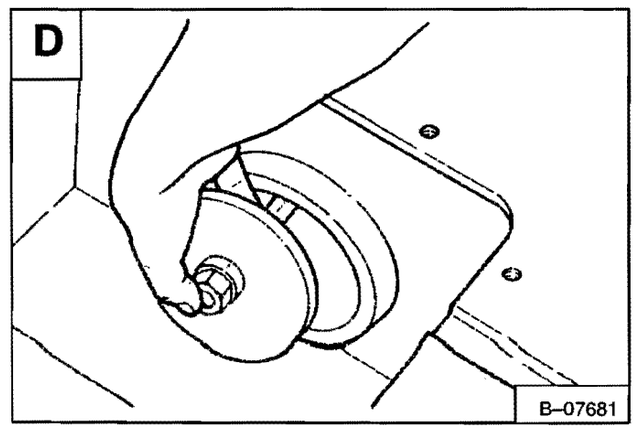
Use the correct size driver, install the outer bearing cup **[B]**.



Install the long threaded rod into the axle tube. Install the correct size bearing cup driver tool. Install the washer and nut **[C]**.



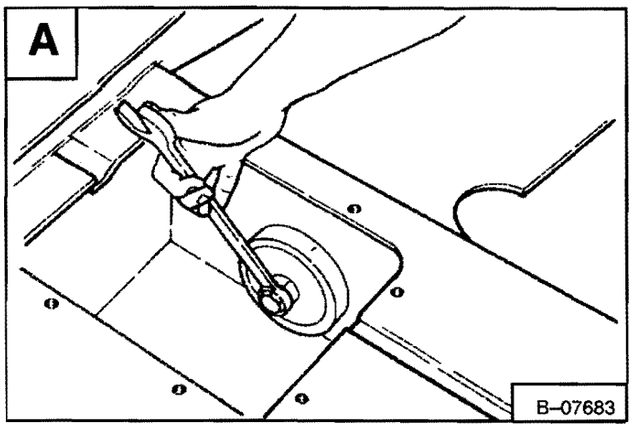
Inside the chaincase, install the bearing cup driver tool, washer and nut **[D]**.



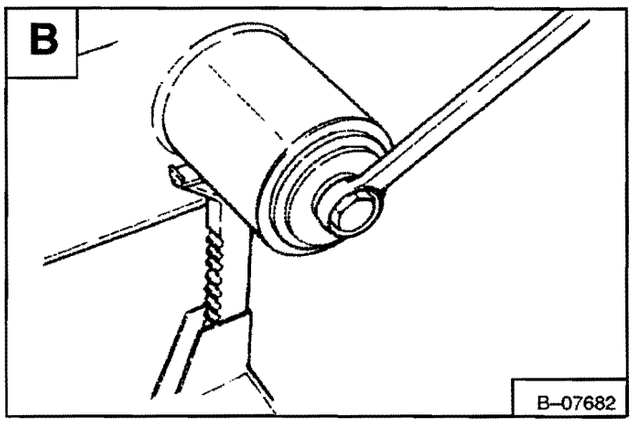
https://truckmanualshub.com/

Removal and Installation (Cont'd)

Hold the nut inside the chaincase **[A]**.

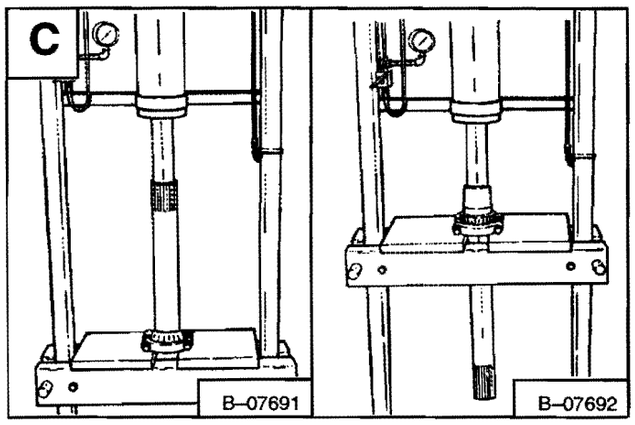


Turn the nut on the outside of the axle tube until the inner bearing cup is on its seat **[B]**.



Use a press to remove the bearing from the axle **[C]**.

Turn the axle around and press the new bearing into position on the axle **[C]**.



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DRIVE CHAIN

Removal and Installation

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

MEL1242 – Port–a–Power
MEL1037 – Chain Link Tool

Raise the lift arms. (See Page 1–1.)

Lift and block the loader. (See Page 1–1.)

Raise the operator cab. (See Page 1–1.)

Remove the front panel/steering lever assembly. (See Page 3–1.)

Remove the parking brake/cover assembly. (See Page 4–4.)

Remove the front and rear cover. (See Page 4–11.)

Remove the fluid from the chaincase. (See Page 4–24.)

Remove the front axle sprocket bolt **[A]**.

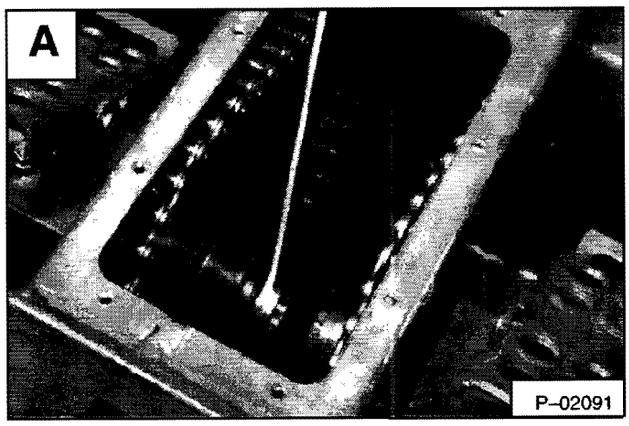
Installation: Tighten the axle sprocket bolt to 220–245 ft.–lbs. (298–332 Nm) torque.

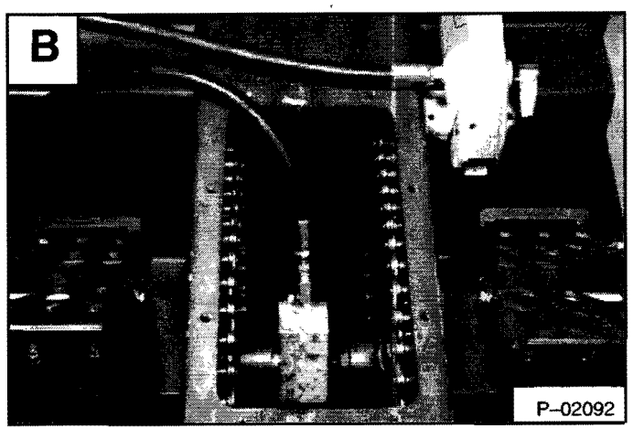
Install a Port–a–Power ram between the two sprockets with a spacer against the end of the axle **[B]**.

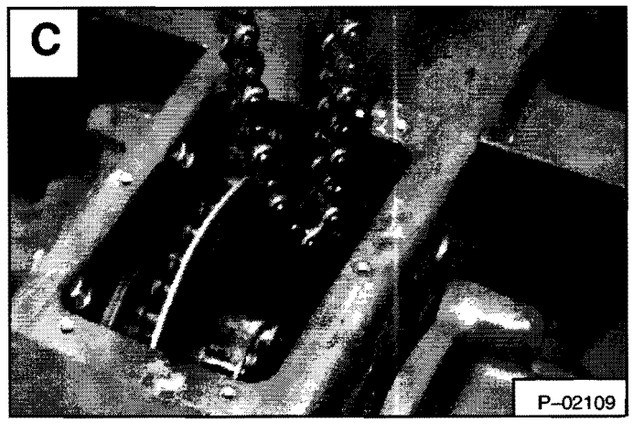
Push the axle out until the ram is at the end of the stroke. Add a spacer and repeat the procedure until the axle is out of the sprocket.

Remove the motor carrier. (See Page 4–14.)

Remove the front and rear drive chain from the chaincase **[C]**.





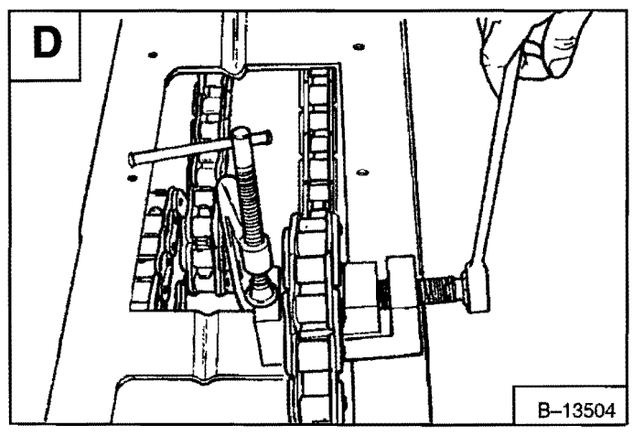


Installation: If a new chain is installed, a connector link must be used to connect the chain together.

Use a chain link tool and #80 chain adapter.

Use a large wrench to hold the tool while pressing the chain link.

Tighten the chain link tool bolt to 180 ft.–lbs. (244 Nm) torque to press the chain link onto the chain **[D]**.



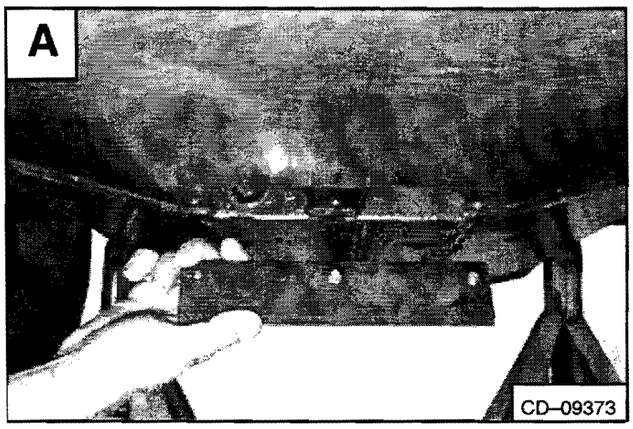
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CHAINCASE FLUID

Replacing the Chaincase Fluid

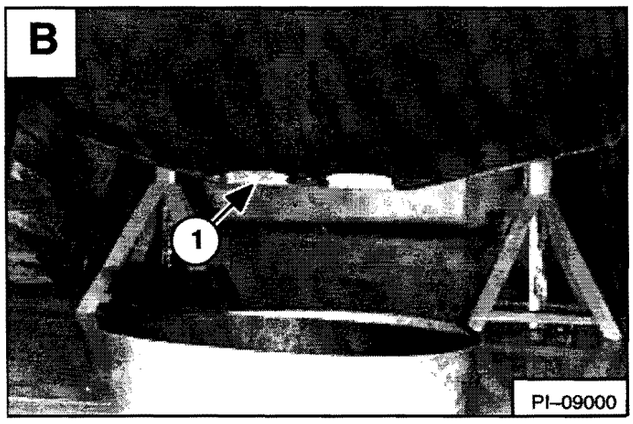
Remove the cover from underneath the engine floor pan and behind the chaincase **[A]**.

NOTE: When the drain plug is removed, install new rubber bushing on reassembly.



Remove the plug (Item 1) **[B]** and drain the oil into a container.

To add fluid to the chaincase, remove the chaincase cover (see Page 4–10) and add the correct fluid to the chaincase. (See Specifications, Page 8–1.)



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MAIN FRAME

	Page Number
BOB–TACH	
Bob–Tach Lever and Wedge	5–11
Bob–Tach Stops (If Equipped)	5–12
Removal and Installation	5–8
FUEL TANK	
Fuel Level Sender	5–16
Removal and Installation	5–15
LIFT ARMS	
Removal and Installation	5–13
OPERATOR CAB	
Removal and Installation	5–5
OPERATOR CAB GAS CYLINDER	
Disassembly and Assembly	5–4
Removal and Installation	5–3
REAR DOOR	
Removal and Installation	5–6
REAR GRILL	
Removal and Installation	5–7
SEAT BAR	
Installation	5–6
Removal	5–6

TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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OPERATOR CAB GAS CYLINDER

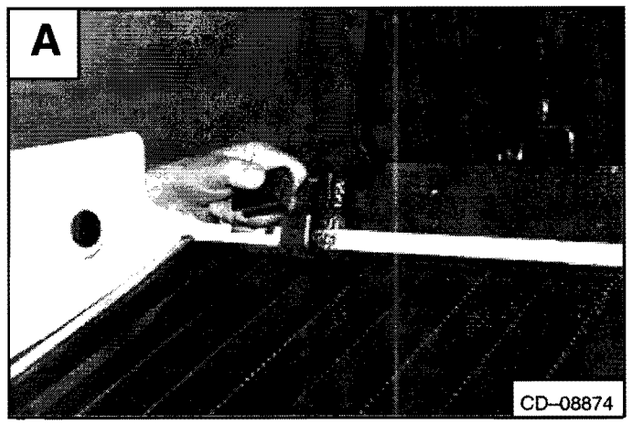
Removal and Installation

⚠ WARNING

Cylinder contains high pressure gas. Do not open. Opening cylinder can release rod and cause injury or death.

W–2113–0288

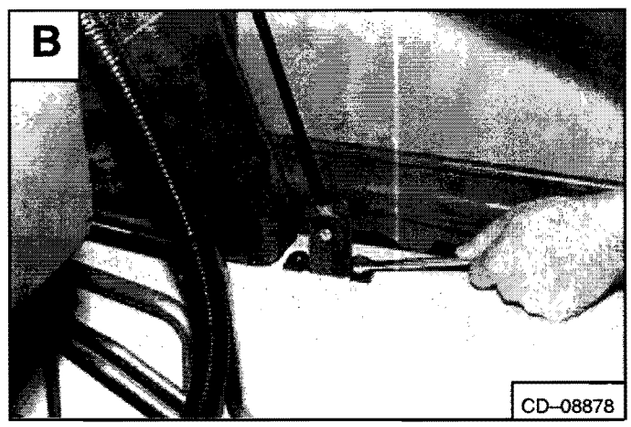
Remove the operator cab stop (both sides) **[A]**.



NOTE: Be careful not to break the rear window when the cab is raised after the cab stops are removed.

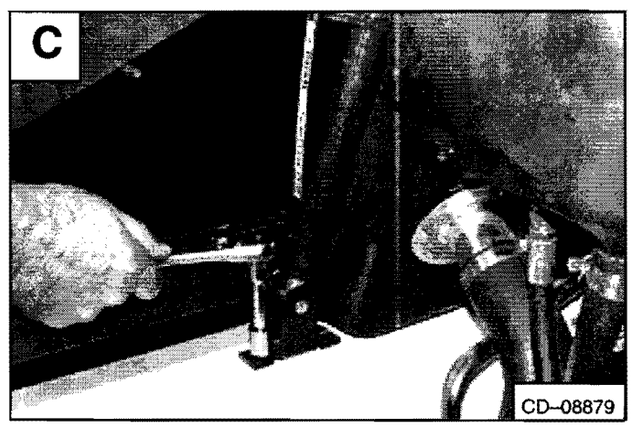
Raise the operator cab. (See Page 1–7.)

Remove the bolts from the bracket which mounts to the loader fender; Left side **[B]**; Right Side **[C]**.

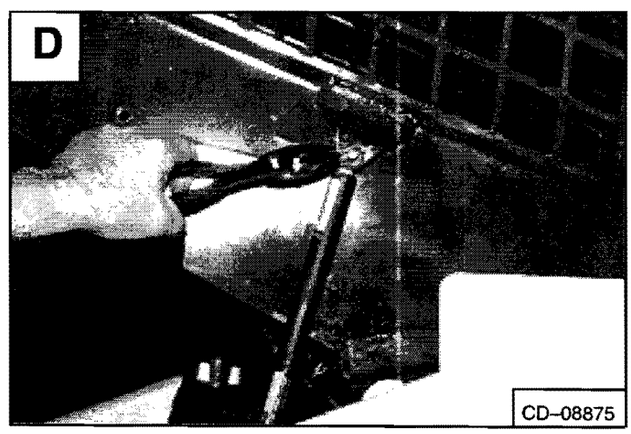


Slide the mounting bracket forward to release the tension on the gas cylinder.

Installation: Use a punch to align the holes in the mounting bracket with the holes in the loader fender.



Remove the cotter pin from the top pivot pin **[D]**.



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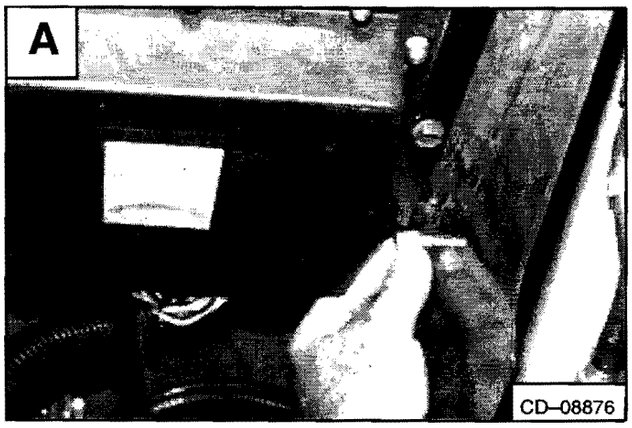
OPERATOR CAB GAS CYLINDER (Cont'd)

Removal and Installation (Cont'd)

Remove the pivot pin and bushing **[A]** & **[B]**.

Remove the gas cylinder.

Repeat the procedure to remove the other gas cylinder.

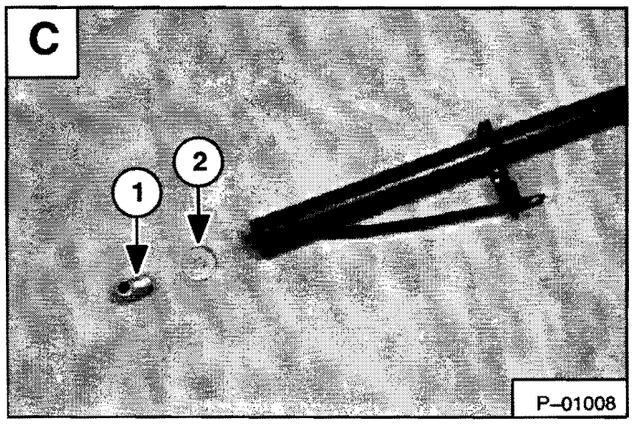




Disassembly and Assembly

Remove the clevis (Item 1) **[C]** and washer (Item 2) **[C]** from the end of the gas cylinder.

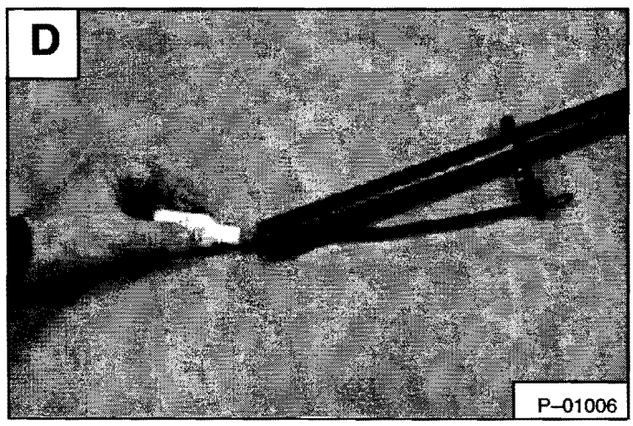
Remove the gas cylinder from the outer housing.



Installation: Install a replacement cylinder inside the cylinder housing.

Apply a small amount of liquid adhesive (LOCTITE #242) on the threads of the cylinder rod **[D]**.

Re–Install the washer and clevis on the cylinder rod.



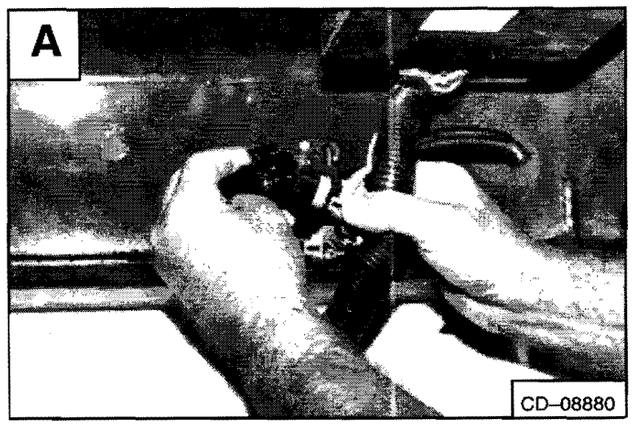
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OPERATOR CAB

Removal and Installation

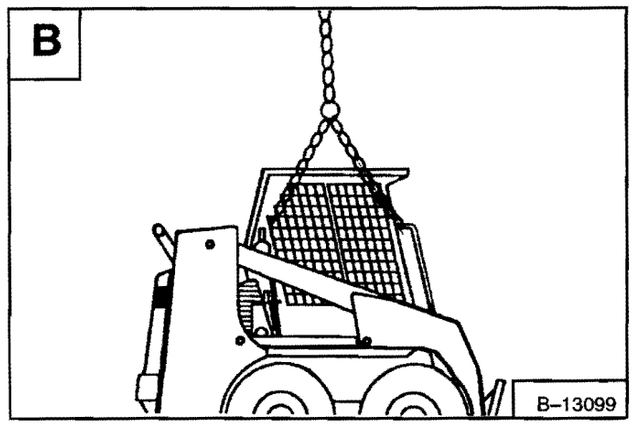
Remove the gas cylinders. (See Page 5–3.)

Disconnect the electrical wiring harness connectors **[A]**.



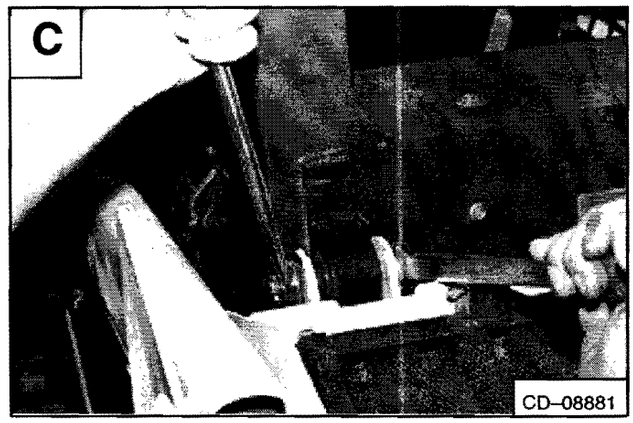
Lower the operator cab.

Connect a chain hoist to the operator cab as shown in figure **[B]**.



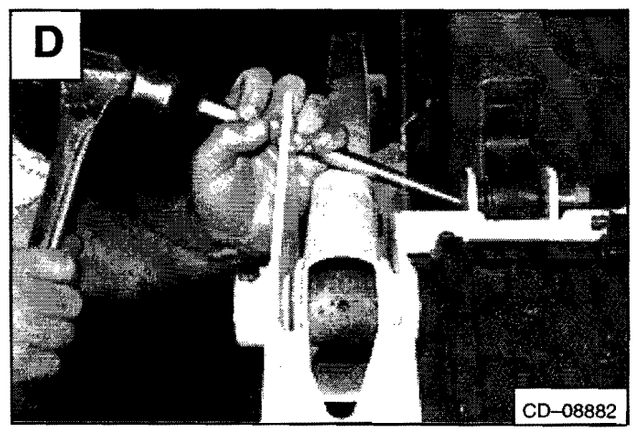
Remove the nut from the pivot bolt (both sides) **[C]**.

Installation: Tighten the pivot bolt and nut to 25–35 ft.–lbs. (34–47 Nm) torque.



Remove the pivot bolt (both sides) **[D]**.

Lift the operator cab and remove it from the loader frame.

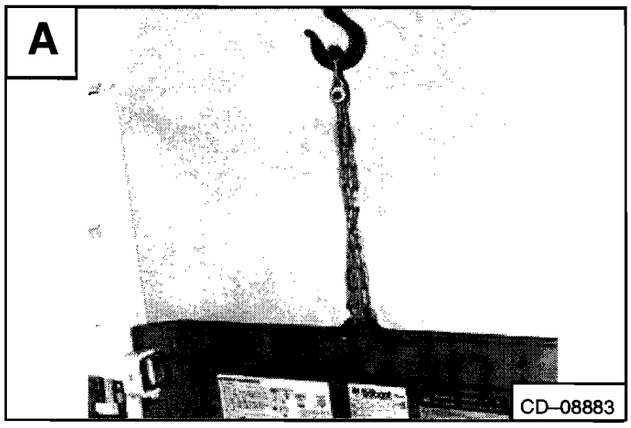


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REAR DOOR

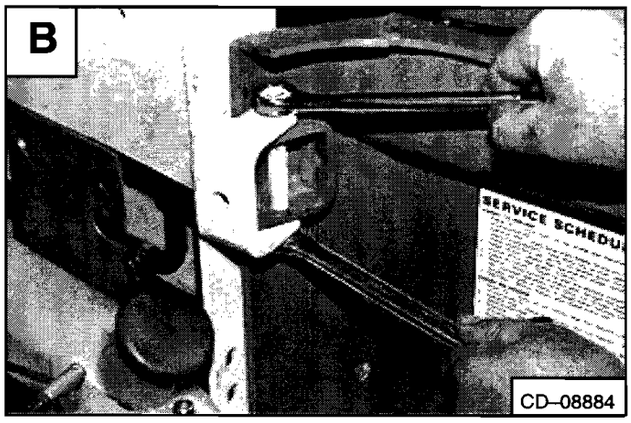
Removal and Installation

Connect a chain hoist to the rear door **[A]**.



Remove the pivot bolt and nut (both top and bottom) **[B]**.

Remove the rear door from the hinges and loader.



SEAT BAR

Removal

Remove the bolt (Item 1) **[C]** that holds the seat bar pivot assembly (both sides).

NOTE: Check the position of the washer (Item 6) [C] and plate (Item 5) [C] for assembly.

Remove the bolt (Item 2) **[C]**, remove the parts from the seat bar.

Remove the seat bar.

Installation

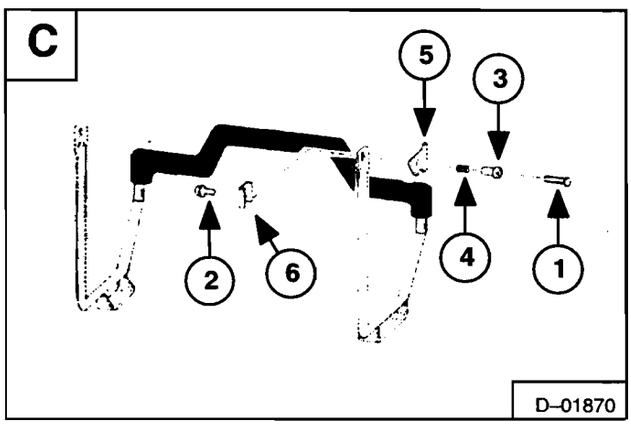
Install the seat bar in the ROPS.

Install spring (Item 4) **[C]** and plate (Item 5) **[C]** on the bushing (Item 3) **[C]**.

Install bushing through seat bar and install washer (Item 6) **[C]** and bolt (Item 2) **[C]**.

Align bushing with hole in ROPS and install bolt (Item 1) **[C]** through ROPS hole. Tighten the bolts (Items 1 & 2) **[C]**.

Put grease on the pivot surface of the plate (Item 5) **[C]**.



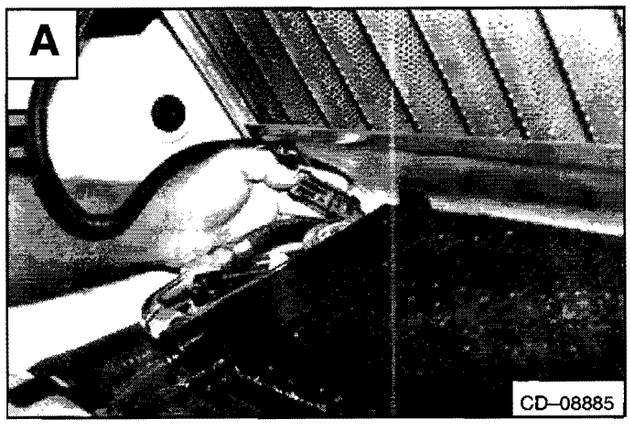
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REAR GRILL

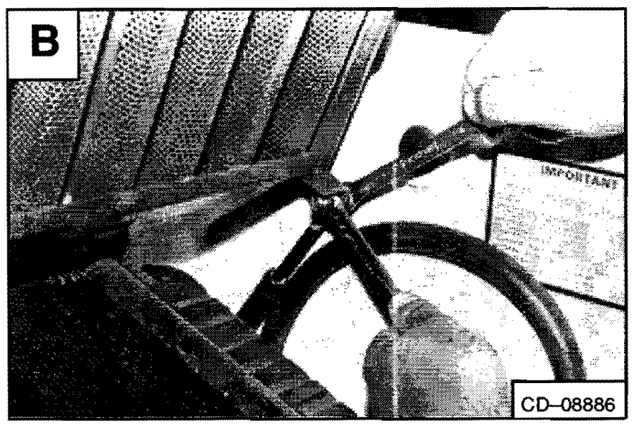
Removal and Installation

Raise the rear grill.

Disconnect the wiring harness for the lights **[A]**.

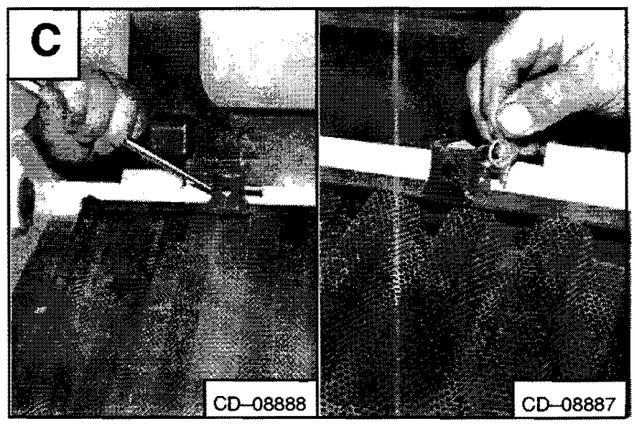


Remove the pivot bolt and nut and disconnect the left gas cylinder from the rear grill **[B]**.

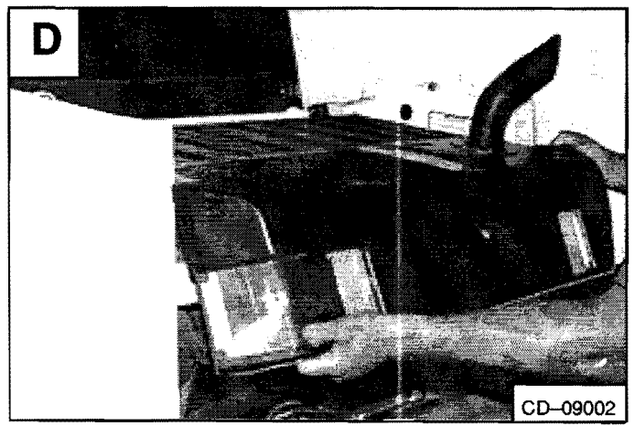


Remove the cotter pin from the pivot pin (both sides) **[C]**.

Remove the pivot pin (both sides) **[C]**.



Lift the rear grill from the loader **[D]**.

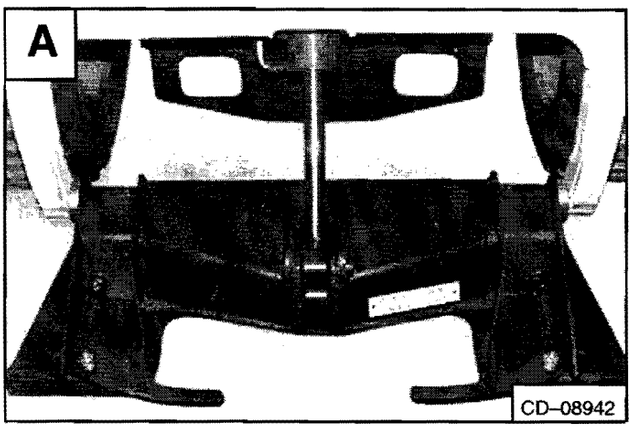


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BOB–TACH

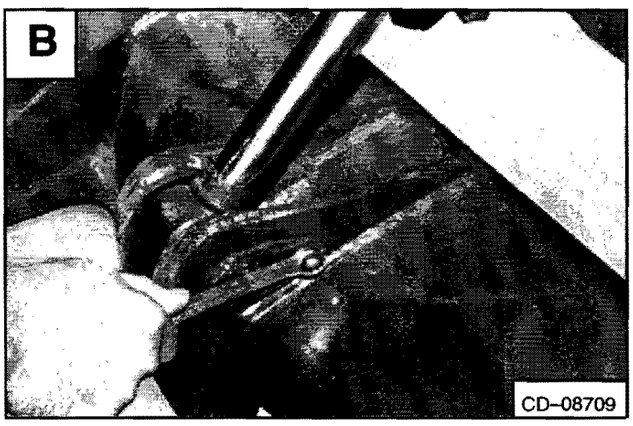
Removal and Installation

Tilt the Bob–Tach fully forward until the front edge is on the floor **[A]**.



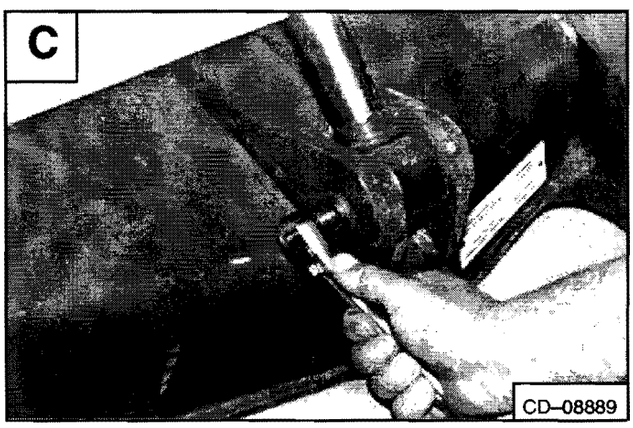
Stop the engine. Move the hydraulic controls to release the hydraulic pressure.

Remove the retainer bolt from the pivot pin **[B]**.

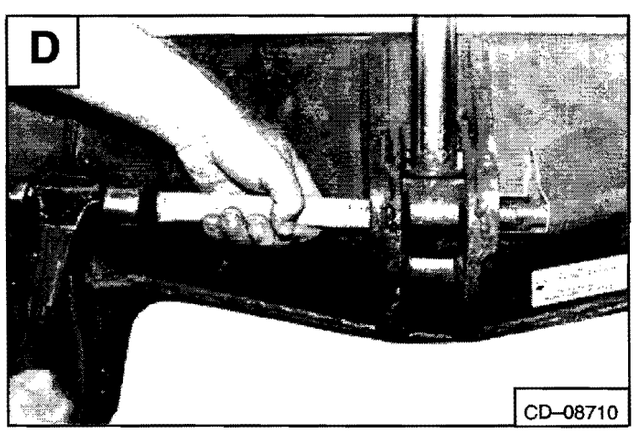


Installation: Tighten the retainer bolt to 18–20 ft.–lbs. (24–27 Nm) torque.

Remove the grease fitting from the pivot pin **[C]**.



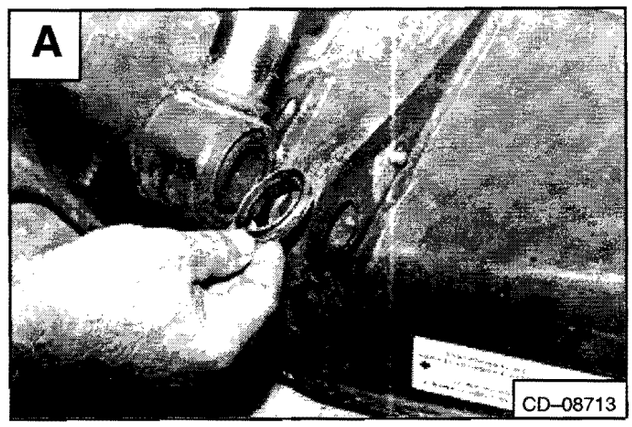
Use a punch and hammer, remove the tilt cylinder rod end pivot pin **[D]**.



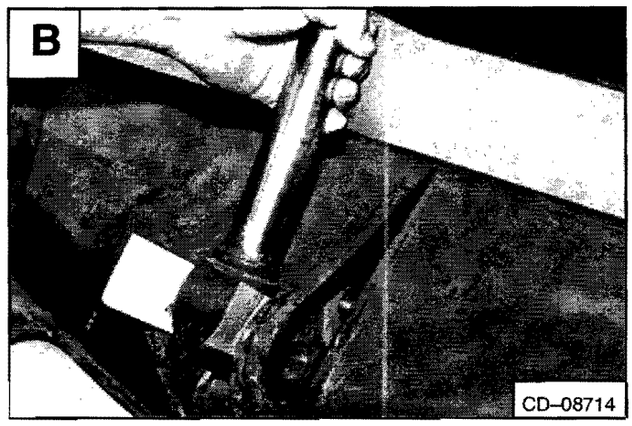
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Removal and Installation

Remove the hydraulic cylinder rod end. Remove the seals **[A]**.

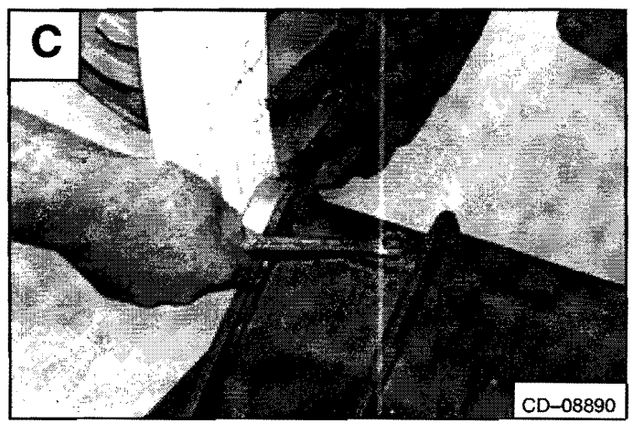


Installation: Put a piece of shim stock on each side over the seals. Install the rod end into the Bob–Tach frame **[B]**.



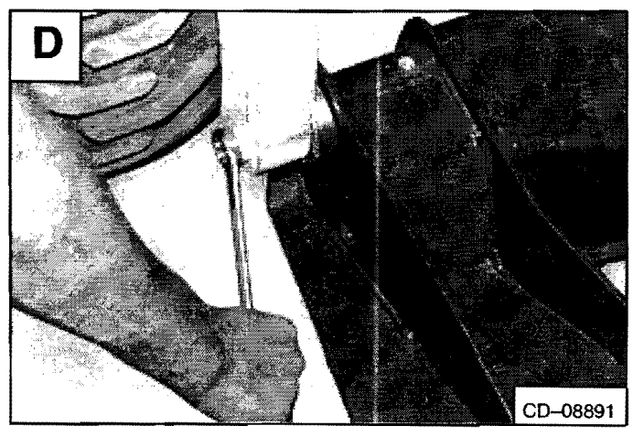
Remove the grease fitting from the Bob–Tach frame for the pivot pin (both sides) **[C]**.

NOTE: The grease fitting at the pivot pin must be removed because the grease can cause a lock and the pivot pin can not be pushed into the Bob–Tach frame.



Loosen the bolt at the Bob–Tach pivot pin (both sides) **[D]**.

Installation: Tighten the bolt to 130–140 ft.–lbs. (176–190 Nm) torque.



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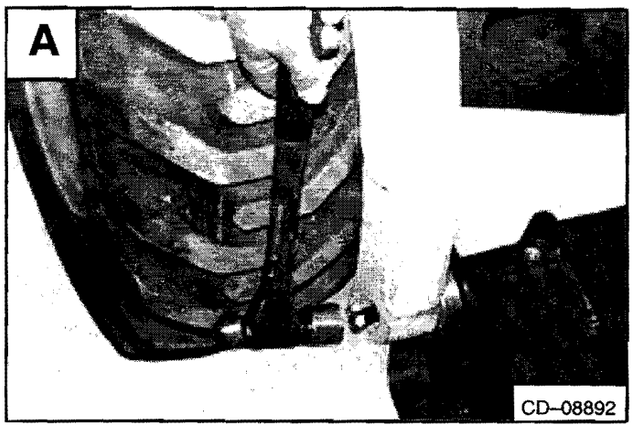
Removal and Installation (Cont'd)

Hit the bolt to start the pivot pin into the Bob–Tach frame (both sides) **[A]**.

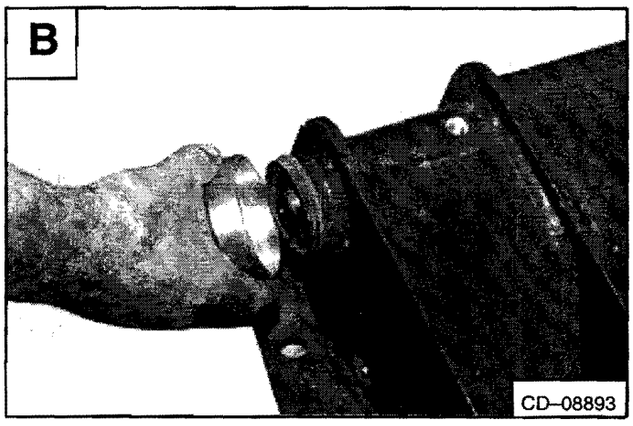
Remove the bolt. Use a punch to push the pivot pin all the say into the Bob–Tach frame.

Installation: A long bolt may be needed to turn into the pivot pin. Pull the pivot pin into the lift arms.

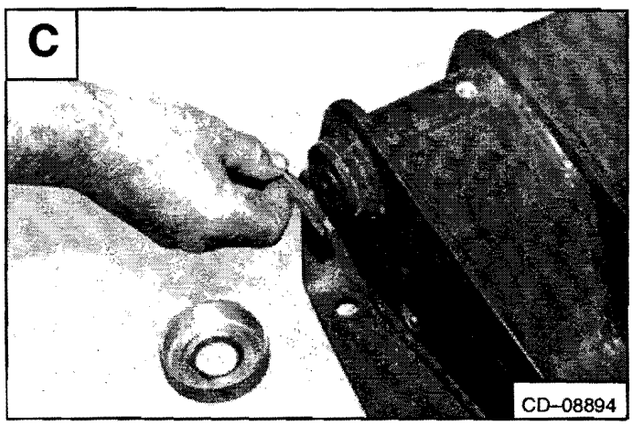
Remove the Bob–Tach frame from the lift arms.



Remove the seal dust cap (both sides) **[B]**.

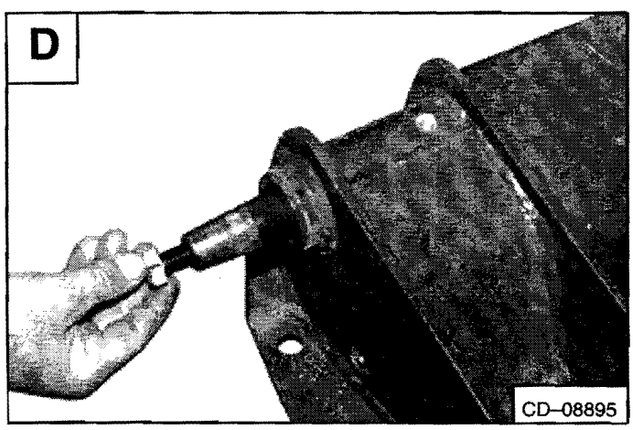


Remove the rubber seal (both sides) **[C]**.



Turn the bolt into the pivot pin. Remove the pivot pin from the Bob–Tach frame **[D]**.

Check for wear and damage. Replace the pivot pins as needed.



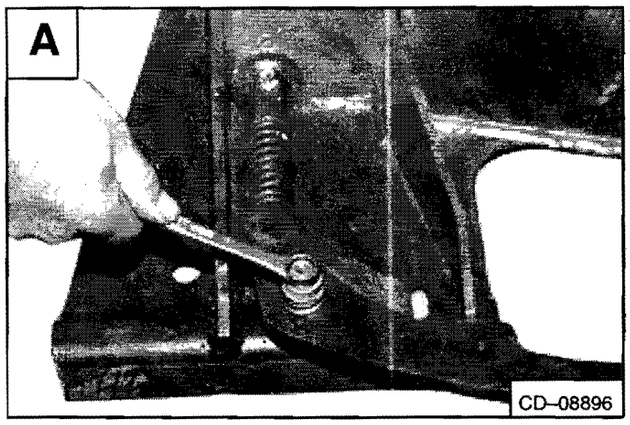
https://truckmanualshub.com/

Bob–Tach Lever and Wedge

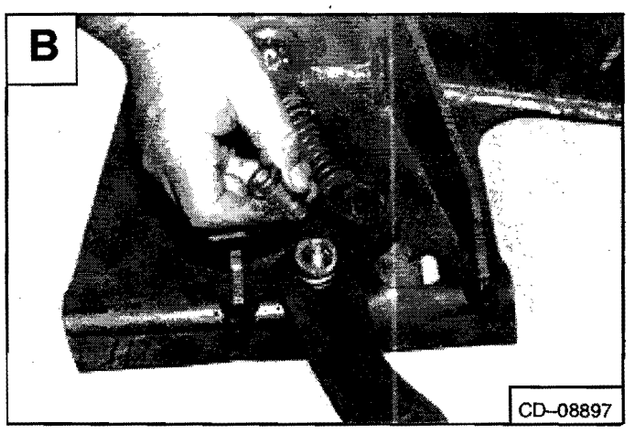
Use the following procedure to remove and install the Bob–Tach lever, spring and wedge:

Remove the nut from the Bob–Tach lever **[A]**.

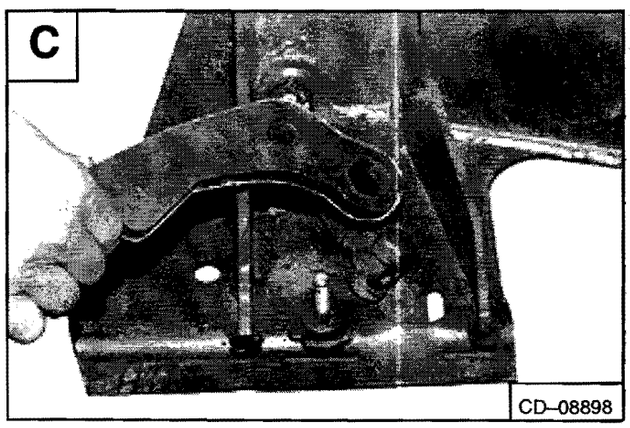
Installation: Tighten the nut to 25–28 ft.–lbs. (34–38 Nm) torque.



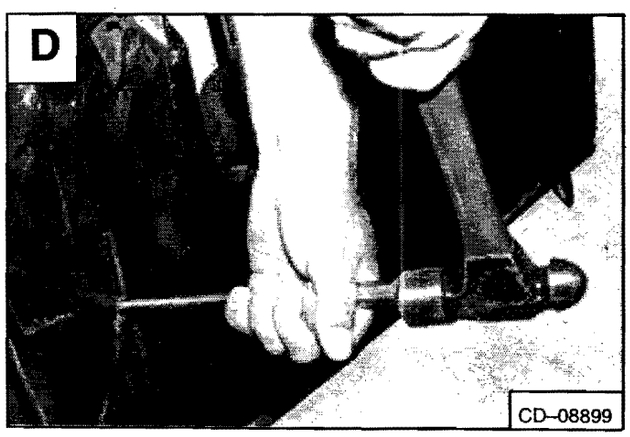
Remove the bushing and spring **[B]**.



Remove the Bob–Tach lever **[C]**.



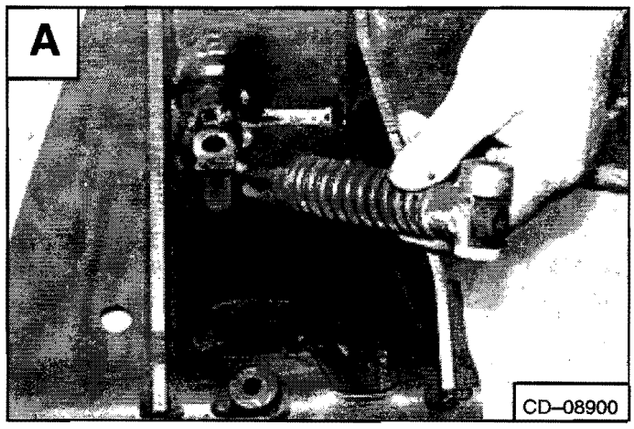
Use a punch and hammer, remove the roll pin from the Bob–Tach wedge and spring bolt clevis assembly **[D]**.



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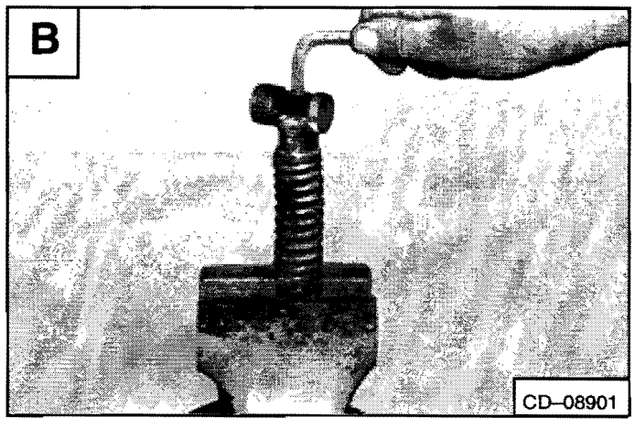
Bob–Tach Lever and Wedge (Cont'd)

Remove the spring, bolt and clevis assembly **[A]**.



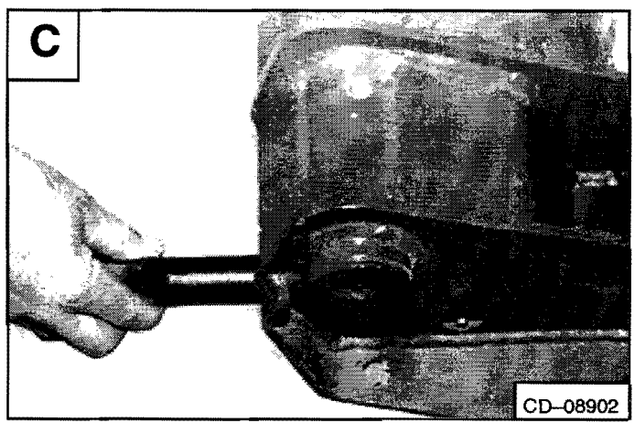
If the spring is damaged, put the assembly in the vise and remove the bolt **[B]**.

Replace the worn or damaged parts as needed.



Remove the wedge from the Bob–Tach frame **[C]**.

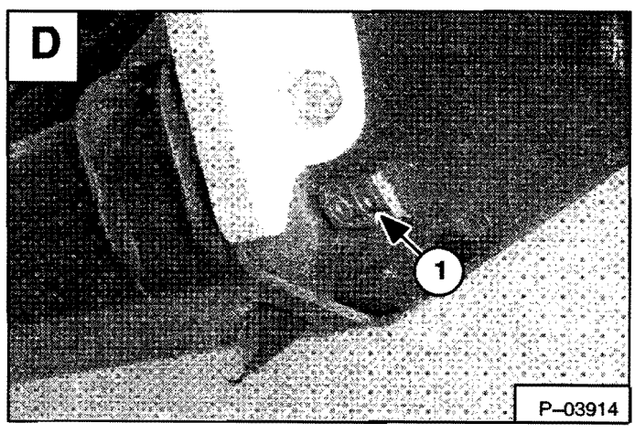
Always replace bent or broken wedges.



Bob–Tach Stops (If Equipped)

Remove and replace the Bob–Tach stop (Item 1) **[D]** (both sides) if worn or damaged.

NOTE: The Bob–Tach stop (Item 1) [D] must contact the lift arm at the same time the tilt cylinder reaches full extension. Use available shims to adjust the Bob–Tach stop and tilt cylinder sequence as closely as possible.



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LIFT ARMS

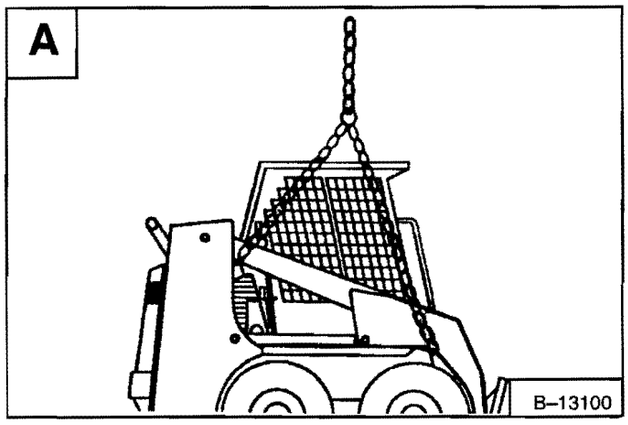
Removal and Installation

Tilt the Bob–Tach fully forward. Stop the engine. Move the hydraulic controls to release the hydraulic pressure.

Remove the Bob–Tach frame from the lift arms. (See Page 5–8.)

Install a chain hoist and chains on the lift arms as shown **[A]**.

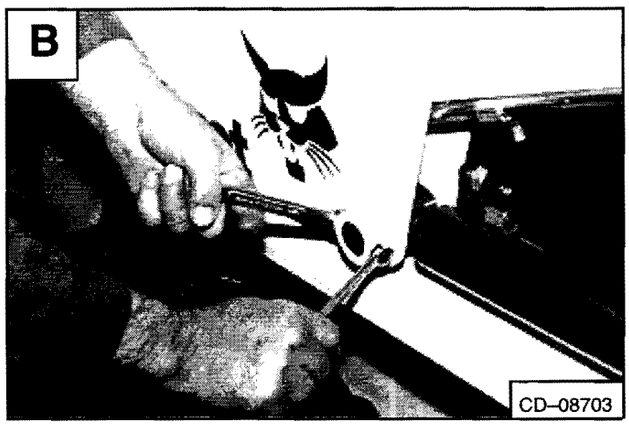
Remove the hydraulic hoses from the lift cylinders. (See Page 2–1.)



Remove the retainer bolt and nut from the lift arm cylinder rod end pivot pin (both sides) **[B]**.

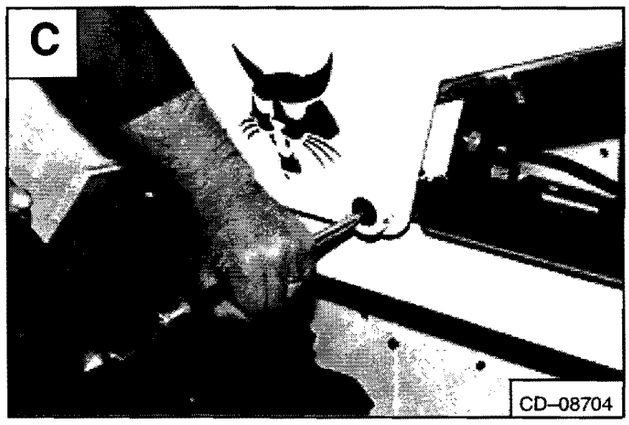
Installation: Tighten the bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.

NOTE: The lift arms may have to be raised (use a floor jack) so there is clearance to remove the lift cylinder rod end pivot pin.



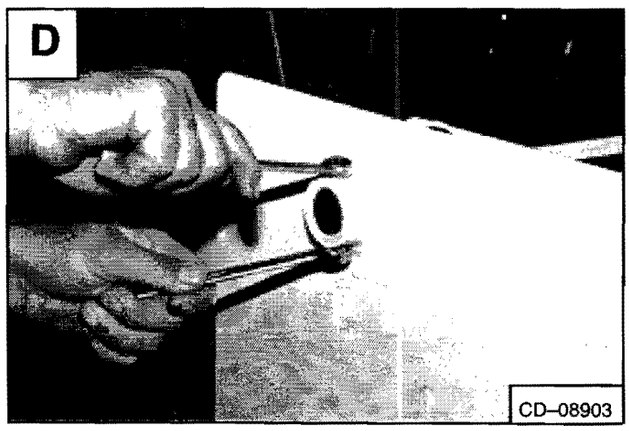
Remove the rod end pivot pin (both sides) **[C]**.

Lower the lift arms. Remove the floor jack.



Remove the retainer bolt and nut from the lift arm link pivot pin (both sides) **[D]**.

Installation: Tighten the retainer bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.



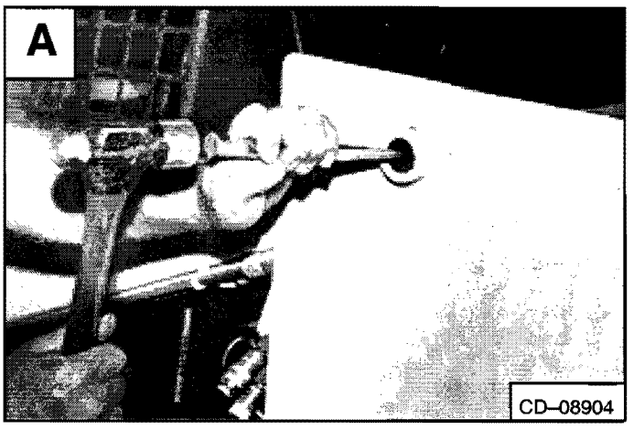
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LIFT ARMS (Cont'd)

Removal and Installation (Cont'd)

Remove the lift arm pivot pin (both sides) **[A]**.

Raise the lift arm link with a chain hoist and remove it from the loader frame.



⚠ WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

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FUEL TANK

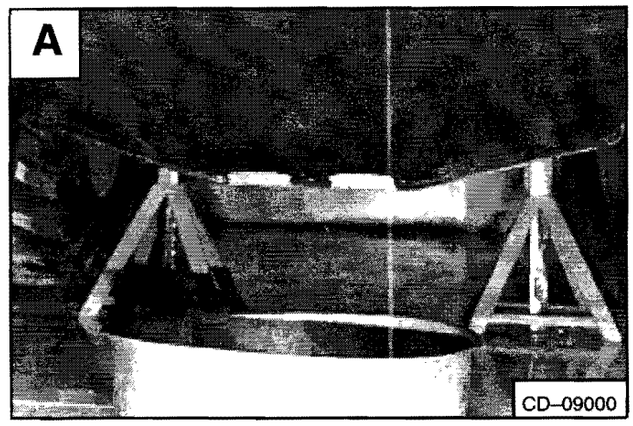
Removal and Installation

Remove the cover over the drain plug which is located under the loader behind the chaincase.

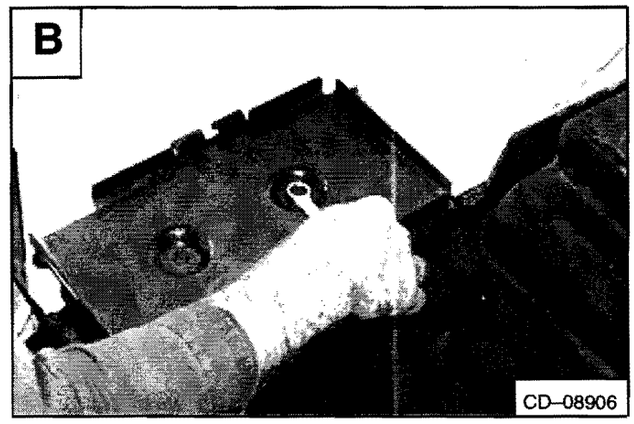
Remove the drain plug (Item 1) **[A]** from the fuel tank.

Drain all the fuel into a container.

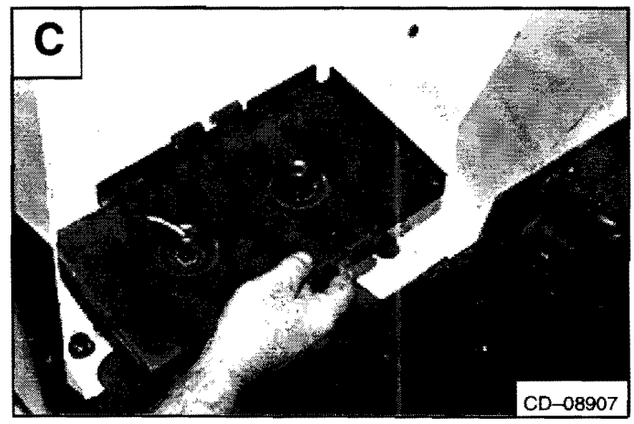
Remove the engine/hydrostatic pumps assembly from the loader. (See Page 7–1.)



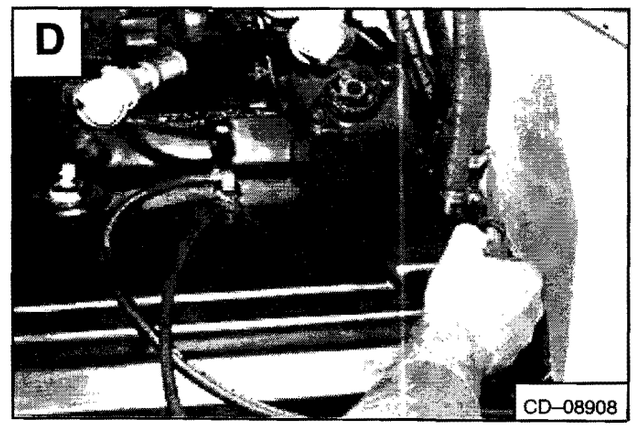
Remove the bolts from the battery holddown plate **[B]**.



Remove the battery holddown plate from the loader **[C]**.



Disconnect the fuel fill hose and vent hose from the fuel tank **[D]**.



TIGHTEN ALL HARDWARE PER SIZE TO GRADE 5 TORQUE (SEE STANDARD TORQUE SPECIFICATIONS FOR BOLTS, SECTION 8) UNLESS OTHERWISE SPECIFIED.

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	10
10A	Black	12
10E	Black	16
10EA	Black	16
10M	Black	16
12C	Orange	14
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/Yellow	16
46	Brown	16
46L	Brown	16
46R	Brown	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Left Flasher Light (Opt.)
6. Left Front Light
7. Flasher
8. Right Front Light
9. Right Flasher Light (Opt.)
10. Instrument Panel Display
11. Display Back Light
12. Auxiliary Hydraulics Control Switch
13. Diagnostic Monitor Connector
14. Light Switch
15. Ignition Switch
16. Horn (Opt.)
17. Frame Ground
18. Horn Connector

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WIRING DIAGRAM (P/N 6724018) Sheet 1 Of 3
With BOSS - With Hi-Flow Hydraulics
Operator Cab
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	10
10A	Black	12
10E	Black	16
10EA	Black	16
10M	Black	16
12C	Orange	14
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/Yellow	16
46	Brown	16
46L	Brown	16
46R	Brown	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Left Flasher Light (Opt.)
6. Left Front Light
7. Flasher
8. Right Front Light
9. Right Flasher Light (Opt.)
10. Instrument Panel Display
11. Display Back Light
12. Auxiliary Hydraulics Control Switch
13. Diagnostic Monitor Connector
14. Light Switch
15. Ignition Switch
16. Horn (Opt.)
17. Frame Ground
18. Horn Connector

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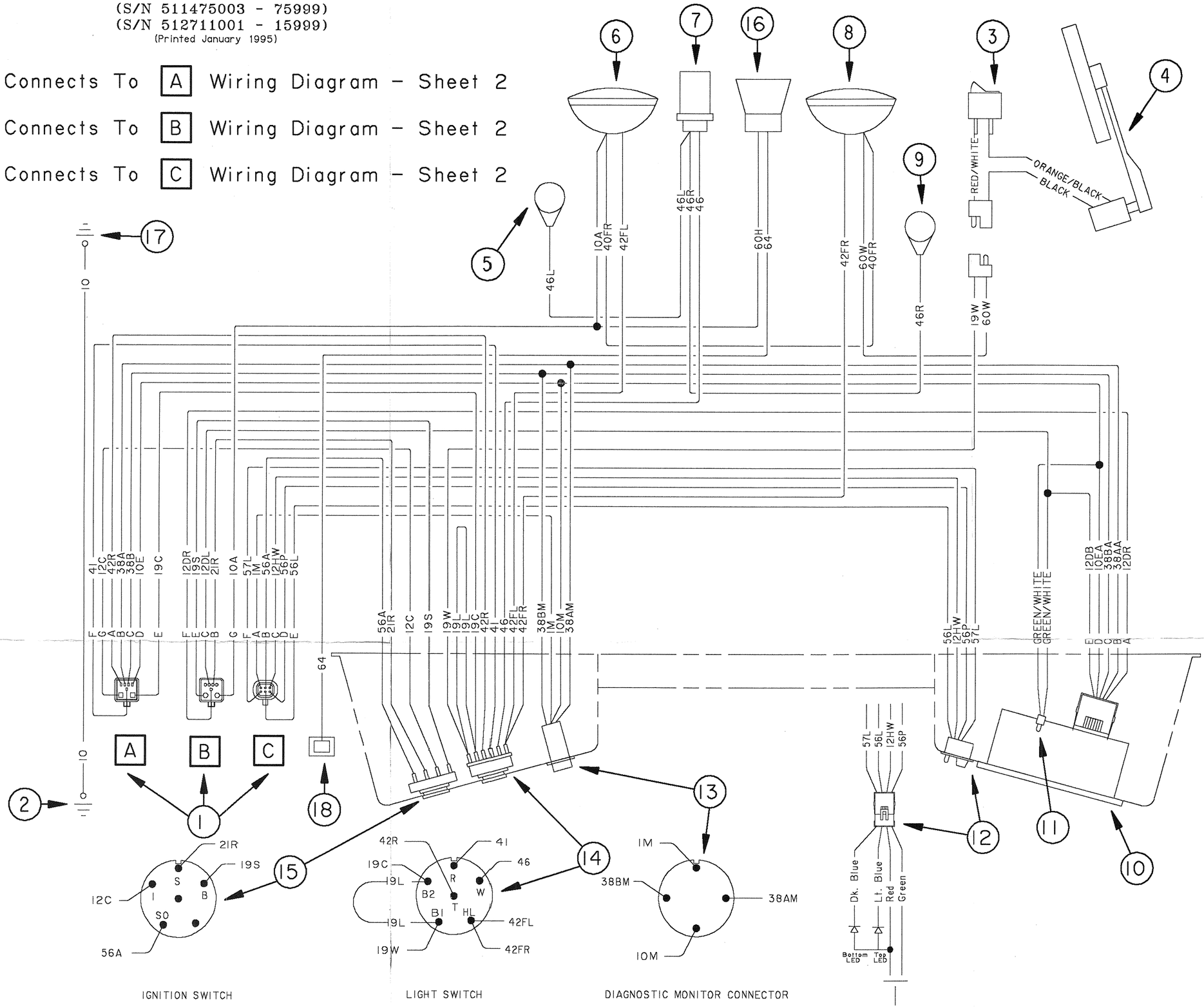
WIRING DIAGRAM (P/N 6724018) Sheet 1 Of 3

With BOSS - With Hi-Flow Hydraulics
Operator Cab
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)
(Printed January 1995)

[A] Connects To [A] Wiring Diagram - Sheet 2

[B] Connects To [B] Wiring Diagram - Sheet 2

[C] Connects To [C] Wiring Diagram - Sheet 2



IGNITION SWITCH

LIGHT SWITCH

DIAGNOSTIC MONITOR CONNECTOR

AUX. HYD. CONTROL SWITCH

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WIRING DIAGRAM (P/N 6724018) Sheet 2 Of 3
With BOSS - With Hi-Flow Hydraulics
Engine Wiring
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	14
1F	Red	12
1M	Red	16
1T	Red	14
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	12
19S	Red/White	14
19SA	Red/White	14
20	Black	14
20A	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	16
23F	White/Black (Harness)	16
23F	Red/Blue (Timer Module)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34PA	Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Dk. Green/Red	16
57DA	Yellow	16
57L	Dk. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

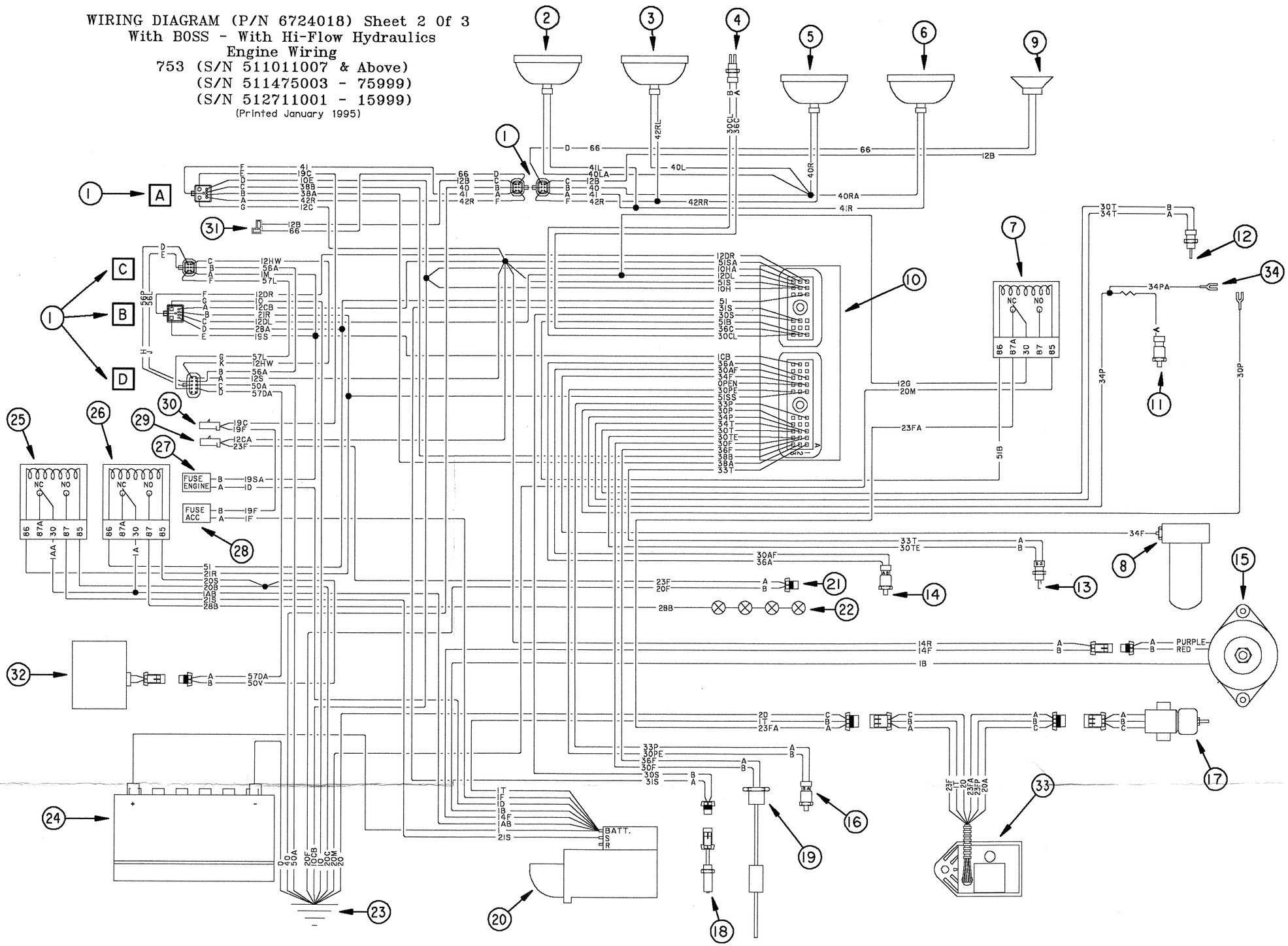
(1) Harness Connectors
(2) Left Tail Light
(3) Left Rear Work Light
(4) Radiator Coolant Level Sender
(5) Right Rear Work Light
(6) Right Tail Light
(7) Shut-Down Relay
(8) Hydraulic Fluid Differential Pressure Sensor
(9) Back-up Alarm (Opt.)
(10) System Operating Unit
(11) Hydraulic Charge Pressure Sensor
(12) Hydraulic Fluid Temperature Sensor
(13) Engine Coolant Temperature Sensor
(14) Air Cleaner Switch
(15) Alternator
(16) Engine Oil Pressure Sender
(17) Fuel Shut-Off Solenoid
(18) Magnetic Pickup (Engine RPM)
(19) Fuel Sensor
(20) Starter
(21) Fuel Pump Connector
(22) Glow Plugs
(23) Ground
(24) Battery
(25) Starter Relay
(26) Glow Plug Relay
(27) Fuse 25 Amp. - Ignition
(28) Fused 25 Amp. - Accessory
(29) Fused and Switched Power
(30) Fused Accessory Power
(31) Back-Up Alarm Connector
(32) Diverter Valve (Opt.)
(33) Fuel Shut-Off Solenoid Timer Module
(34) Not Used On This Application

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WIRING DIAGRAM (P/N 6724018) Sheet 2 Of 3
With BOSS - With Hi-Flow Hydraulics
Engine Wiring
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)

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WIRING DIAGRAM (P/N 6724018) Sheet 3 Of 3
With BOSS - With Hi-Flow Hydraulics
Operator Controls
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	16
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50E	Black	16
50F	Black	16
50G	Black	16
50H	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/Lt. Green	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57F	Lt. Blue/Red	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	16
57RB	Yellow (Console Harness)	16
57RB	Yellow/White(High Flow Harness)	16
57RBA	White/Yellow	16
57RBB	Yellow	16
57RR	Brown (High Flow Harness)	16
57RR	Yellow/White(Console Harness)	16
57RRA	Brown	16
57RRB	Brown	16
64	Orange/Blue	16

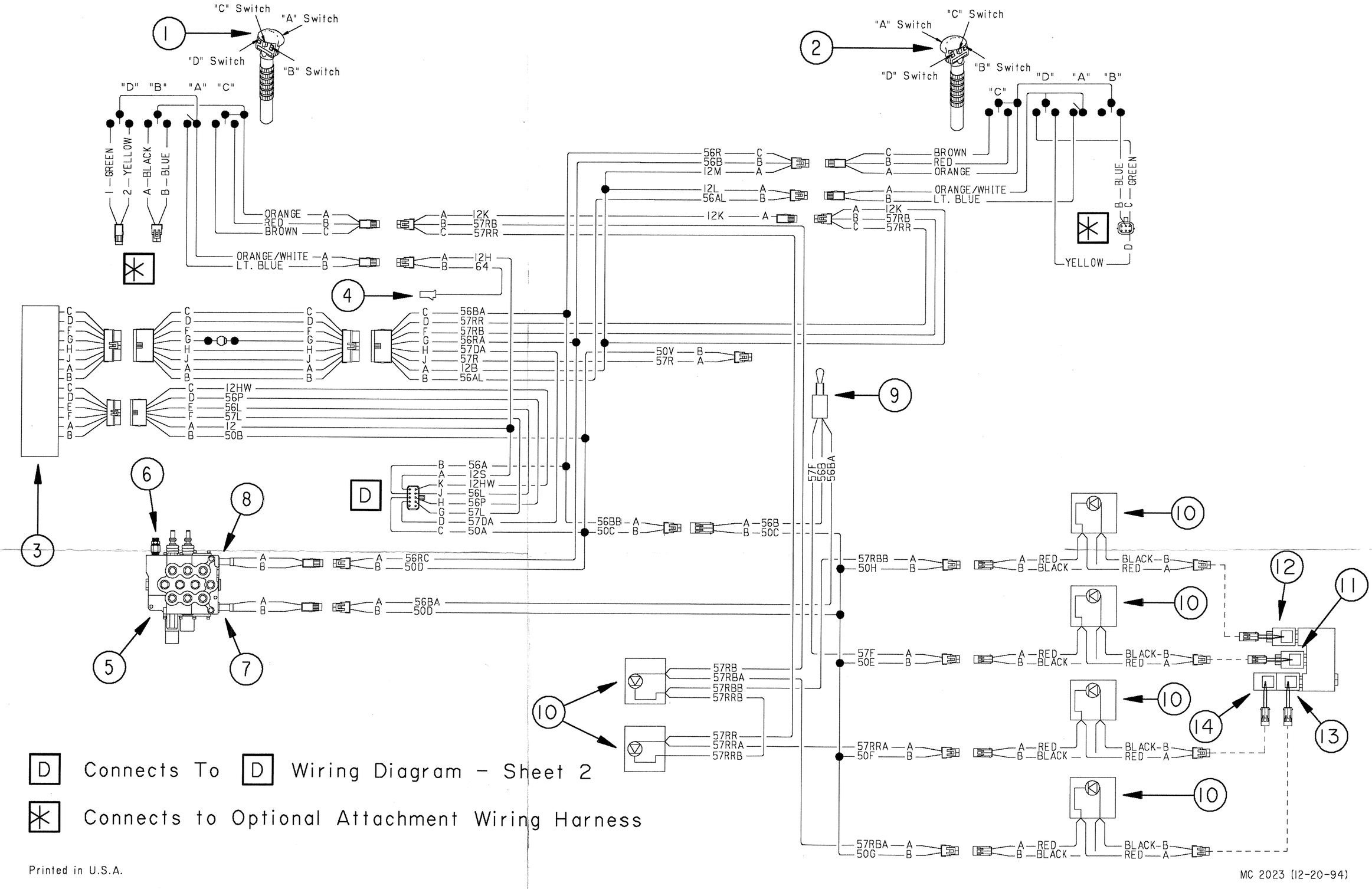
PARTS LEGEND

1. Left Multi-Switch Control Handle
2. Right Multi-Switch Control Handle
3. Auxiliary Control Module
4. Horn Connector
5. Hydraulic Control Valve
6. High Pressure Relief Valve
7. Front Auxiliary Solenoid (Base End/Female Coupler)
8. Front Auxiliary Solenoid (Rod End/Male Coupler)
9. Hi-Flow On/Off Switch
10. Diodes
11. Hi-Flow Solenoid
12. Diverter Solenoid
13. Rear/Secondary Front Auxiliary Solenoid (Base End/Female Coupler)
14. Rear/Secondary Front Auxiliary Solenoid (Rod End/Male Coupler)

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WIRING DIAGRAM (P/N 6724018) Sheet 3 Of 3
With BOSS - With Hi-Flow Hydraulics
Operator Controls
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)

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D Connects To D Wiring Diagram - Sheet 2

Connects to Optional Attachment Wiring Harness

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WIRING DIAGRAM (P/N 6724019) Sheet 1 Of 3
With BOSS - Without Hi-Flow Hydraulics
Operator Cab
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001- 15999)

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WIRE LEGEND

NO. 's	COLOR	GAUGE
1M	Red	16
10	Black	10
10A	Black	12
10E	Black	16
10EA	Black	16
10M	Black	16
12C	Orange	14
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/Yellow	16
46	Brown	16
46L	Brown	16
46R	Brown	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Left Flasher Light (Opt.)
6. Left Front Light
7. Flasher
8. Right Front Light
9. Right Flasher Light (Opt.)
10. Instrument Panel Display
11. Display Back Light
12. Auxiliary Hydraulics Control Switch
13. Diagnostic Monitor Connector
14. Light Switch
15. Ignition Switch
16. Horn (Opt.)
17. Frame Ground
18. Horn Connector

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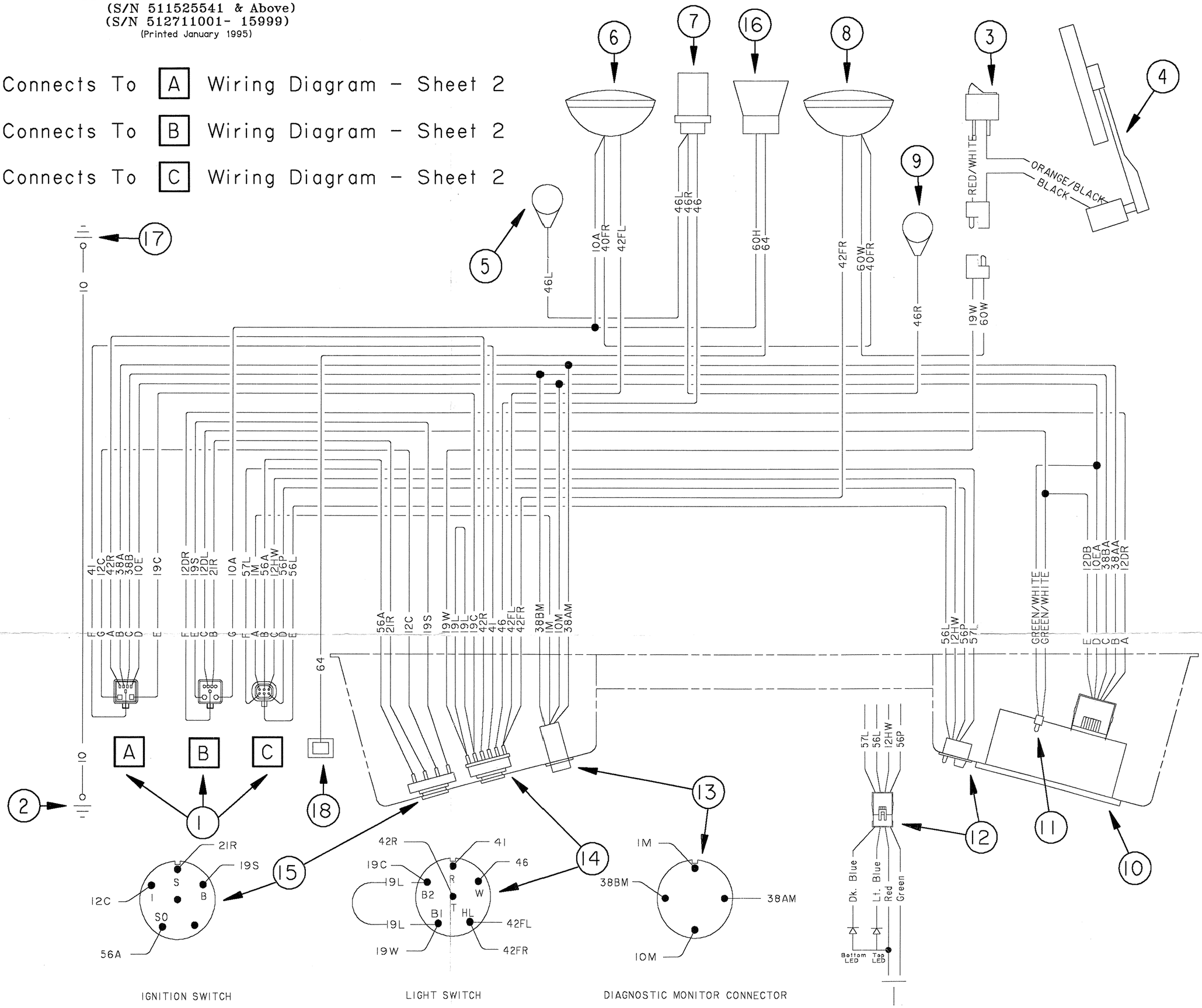
WIRING DIAGRAM (P/N 6724019) Sheet 1 Of 3

With BOSS - Without Hi-Flow Hydraulics
Operator Cab
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001- 15999)
(Printed January 1995)

[A] Connects To [A] Wiring Diagram - Sheet 2

[B] Connects To [B] Wiring Diagram - Sheet 2

[C] Connects To [C] Wiring Diagram - Sheet 2



IGNITION SWITCH

LIGHT SWITCH

DIAGNOSTIC MONITOR CONNECTOR

AUX. HYD. CONTROL SWITCH

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WIRING DIAGRAM (P/N 6724019) Sheet 2 Of 3
With BOSS - Without Hi-Flow Hydraulics
Engine Wiring
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001- 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	14
1F	Red	12
1M	Red	16
1T	Red	14
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	12
19S	Red/White	14
19SA	Red/White	14
20	Black	14
20A	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	16
23F	White/Black (Harness)	16
23F	Red/Blue (Timer Module)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34PA	Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Dk. Green/Red	16
57DA	Yellow	16
57L	Dk. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

(1) Harness Connectors
(2) Left Tail Light
(3) Left Rear Work Light
(4) Radiator Coolant Level Sender
(5) Right Rear Work Light
(6) Right Tail Light
(7) Shut-Down Relay
(8) Hydraulic Fluid Differential Pressure Sensor
(9) Back-up Alarm (Opt.)
(10) System Operating Unit
(11) Hydraulic Charge Pressure Sensor
(12) Hydraulic Fluid Temperature Sensor
(13) Engine Coolant Temperature Sensor
(14) Air Cleaner Switch
(15) Alternator
(16) Engine Oil Pressure Sender
(17) Fuel Shut-Off Solenoid
(18) Magnetic Pickup (Engine RPM)
(19) Fuel Sensor
(20) Starter
(21) Fuel Pump Connector
(22) Glow Plugs
(23) Ground
(24) Battery
(25) Starter Relay
(26) Glow Plug Relay
(27) Fuse 25 Amp. - Ignition
(28) Fused 25 Amp. - Accessory
(29) Fused and Switched Power
(30) Fused Accessory Power
(31) Back-Up Alarm Connector
(32) Diverter Valve (Opt.)
(33) Fuel Shut-Off Solenoid Timer Module
(34) Not Used On This Application

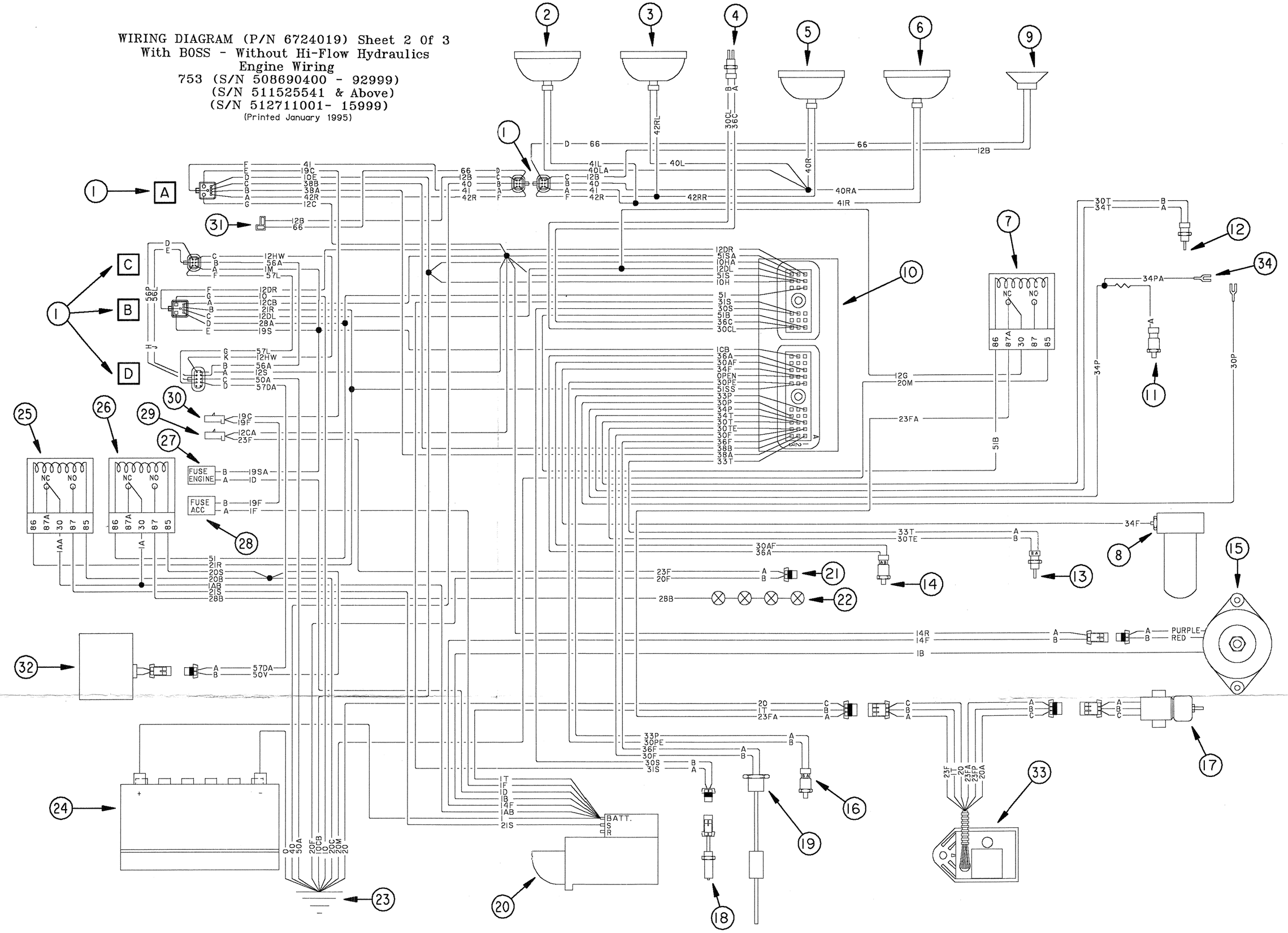
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WIRING DIAGRAM (P/N 6724019) Sheet 2 Of 3
With BOSS - Without Hi-Flow Hydraulics
Engine Wiring
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001- 15999)

(Printed January 1995)



A Connects To A Wiring Diagram - Sheet 1

B Connects To B Wiring Diagram - Sheet 1

C Connects To C Wiring Diagram - Sheet 1

D Connects To D Wiring Diagram - Sheet 3

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WIRING DIAGRAM (P/N 6724019) Sheet 3 Of 3
With BOSS - Without Hi-Flow Hydraulics
Operator Controls
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	18
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/Lt. Green	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	16
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

PARTS LEGEND

(1) Left Two-Switch Control Handle

(1a) Left Multi-Switch Control Handle (Opt.)

(2) Right Two-Switch Control Handle

(2a) Right Multi-Switch Control Handle (Opt.)

(3) Auxiliary Control Module

(4) Horn Connector

(5) Hydraulic Control Valve

(6) Front Auxiliary Solenoid (Base End/Female Coupler)

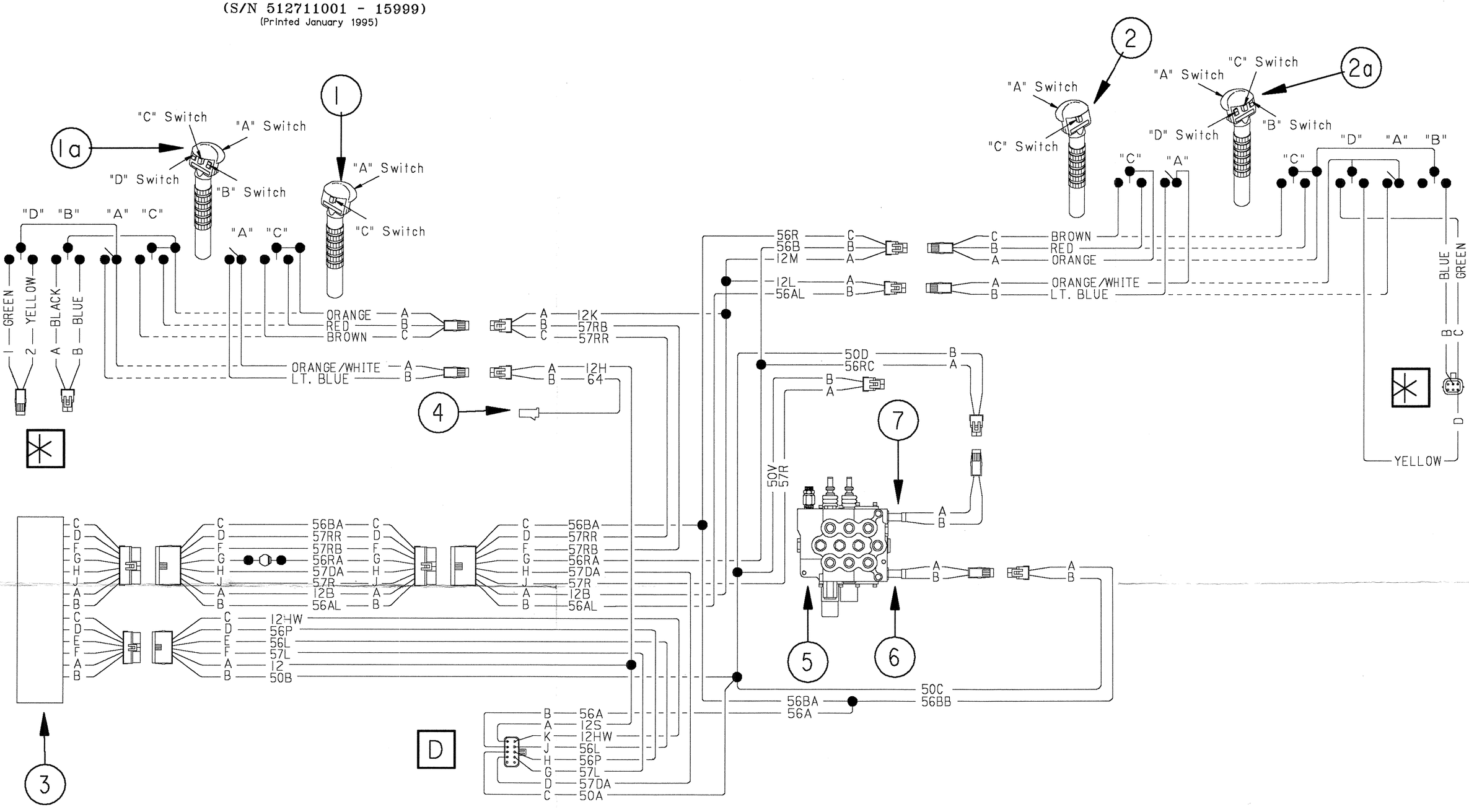
(7) Front Auxiliary Solenoid (Rod End/Male Coupler)

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WIRING DIAGRAM (P/N 6724019) Sheet 3 Of 3
With BOSS - Without Hi-Flow Hydraulics
Operator Controls
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001 - 15999)

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D Connects To D Wiring Diagram - Sheet 2

Connects To Optional Attachment Wiring Harness

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WIRING DIAGRAM (P/N 6724020) Sheet 1 Of 3
Without BOSS - Without Hi-Flow Hydraulics
Operator Cab
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	14
10A	Black	12
10B	Black	16
12A	Orange	16
12C	Orange	16
12F	Orange	16
12HW	Orange	16
12L	Orange	16
12T	Orange	16
12V	Orange	16
19C	Red/White	16
19F	Red/White	16
19G	Red/White	16
19H	Red/White	16
19L	Red/White	16
19S	Red/White	14
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26A	Lt. Blue/Green	16
28	Lt. Blue/Black	16
30	Black	16
30G	Black	16
30T	Black	16
31	Yellow/Green	16
31P	Yellow/Green	16
32	Yellow/Dk. Blue	16
32F	Yellow/Dk. Blue	16
35H	Yellow/Brown	16
36	Purple	16
36T	Purple/White	16
40FL	Black	16
40FR	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
49F	Gray	16
49T	Gray	16
49V	Gray	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Auxiliary Hydraulics Connector
4. Left Flasher Light (Opt.)
5. Left Front Light (Opt.)
6. Flasher
7. Right Front Light (Opt.)
8. Right Flasher Light (Opt.)
9. Shutdown Module (Opt.)
10. Wiper Switch (Opt.)
11. Wiper (Opt.)
12. Ignition Switch
13. Light Switch
14. Glow Plug Pre-Heat Button
15. Ignition Fuse
16. Accessory Fuse
17. Hourmeter
18. Fuel Gauge
19. Temperature Gauge
20. Voltmeter
21. Engine Warning Lamp
22. Transmission Warning Lamp
23. Horn Connector
24. Horn (Opt.)

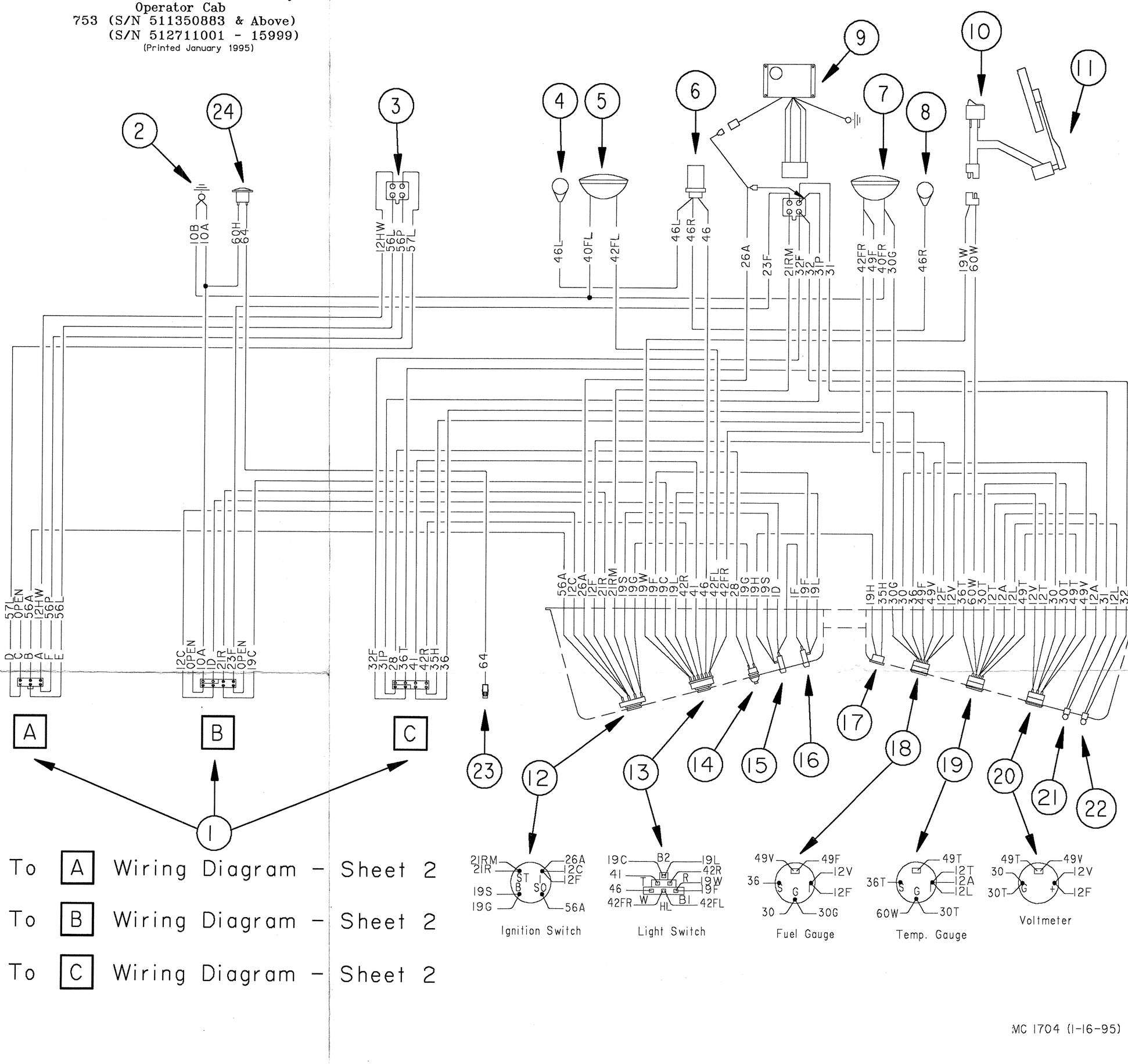
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WIRING DIAGRAM (P/N 6724020) Sheet 1 Of 3

Without BOSS - Without Hi-Flow Hydraulics
Operator Cab
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)
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A Connects To A Wiring Diagram - Sheet 2

B Connects To B Wiring Diagram - Sheet 2

C Connects To C Wiring Diagram - Sheet 2

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WIRING DIAGRAM (P/N 6724020) Sheet 2 Of 3
Without BOSS - Without Hi-Flow Hydraulics
Engine Wiring
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1A	Red	12
1AA	Red	14
1B	Red	10
1D	Red	12
1T	Red	14
10	Black	14
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
20	Black	14
20A	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	14
23F	White/Black (Harness Side)	16
23F	Red/Blue (Module Side)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	12
30F	Black	16
31P	Yellow/Green	16
32F	Yellow/Dk. Blue	16
32P	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36F	Purple	16
36T	Purple/White	16
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light (Opt.)
3. Left Rear Work Light (Opt.)
4. Right Rear Work Light (Opt.)
5. Right Tail Light (Opt.)
6. Back-Up Alarm (Opt.)
7. Starter Relay
8. Glow Plug Relay
9. Fused and Switch Power
10. Fused Accessory Power
11. Glow Plugs
12. Ground
13. Battery
14. Fuel Sender
15. Engine Oil Pressure Sender
16. Fuel Shut-Off Solenoid
17. Hydraulic Charge Pressure Switch
18. Hydraulic Fluid Temperature Switch
19. Engine Coolant Temperature Sendor
20. Starter
21. Alternator
22. Back-Up Alarm Connector
23. Fuel Shut-Off Solenoid Timer Module
24. Hydraulic Filter Pressure Switch
25. Diverter Valve (Opt.)

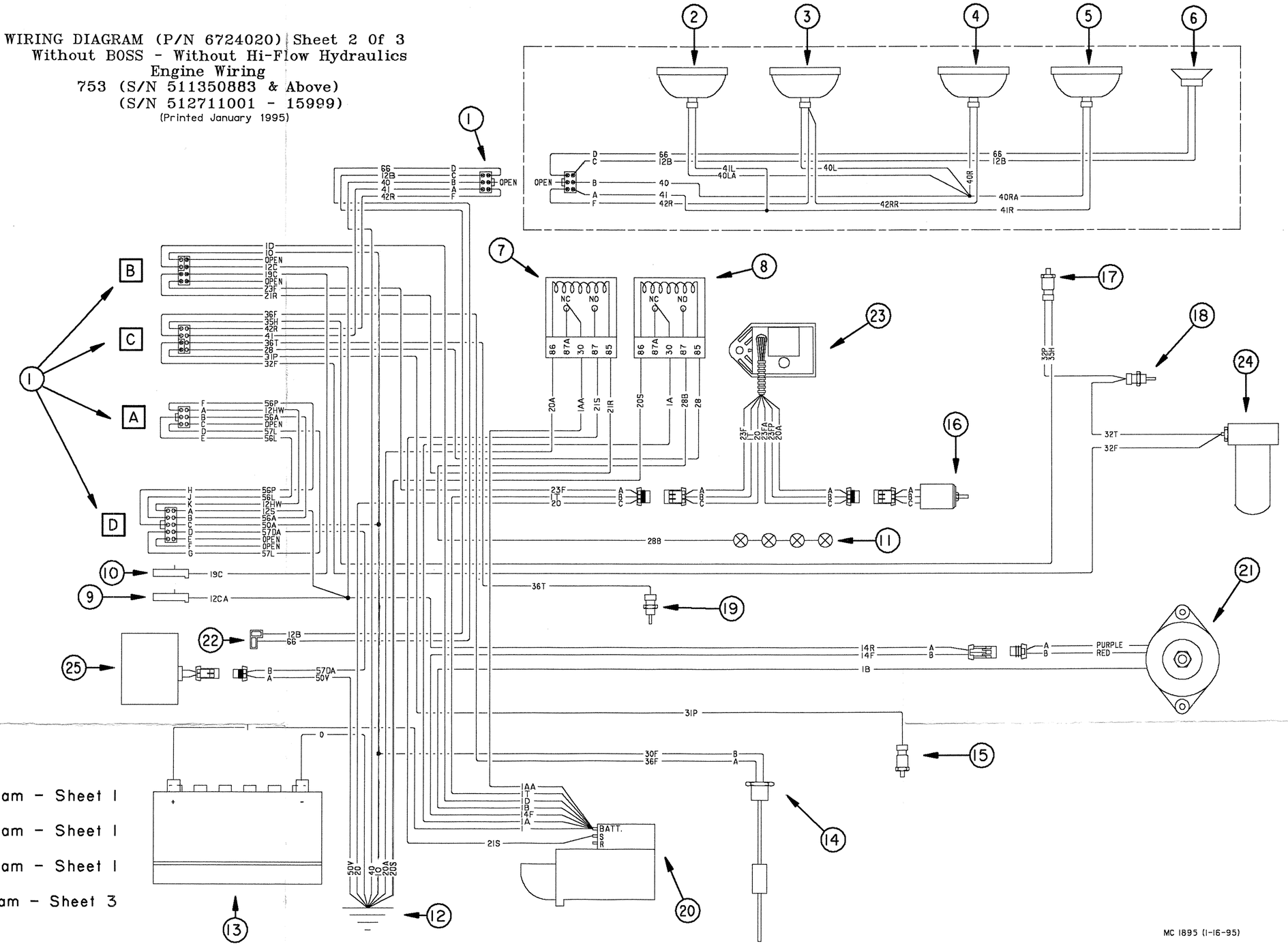
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WIRING DIAGRAM (P/N 6724020) Sheet 2 Of 3
Without BOSS - Without Hi-Flow Hydraulics
Engine Wiring
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)

(Printed January 1995)



A Connects To A Wiring Diagram - Sheet 1

B Connects To B Wiring Diagram - Sheet 1

C Connects To C Wiring Diagram - Sheet 1

D Connects To D Wiring Diagram - Sheet 3

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WIRING DIAGRAM (P/N 6724020) Sheet 3 Of 3
Without BOSS - Without Hi-Flow Hydraulics
Operator Controls
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	18
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/Lt. Green	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	16
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

PARTS LEGEND

(1) Left Two-Switch Control Handle

(1a) Left Multi-Switch Control Handle (Opt.)

(2) Right Two-Switch Control Handle

(2a) Right Multi-Switch Control Handle (Opt.)

(3) Auxiliary Control Module

(4) Horn Connector

(5) Hydraulic Control Valve

(6) Front Auxiliary Solenoid (Base End/Female Coupler)

(7) Front Auxiliary Solenoid (Rod End/Male Coupler)

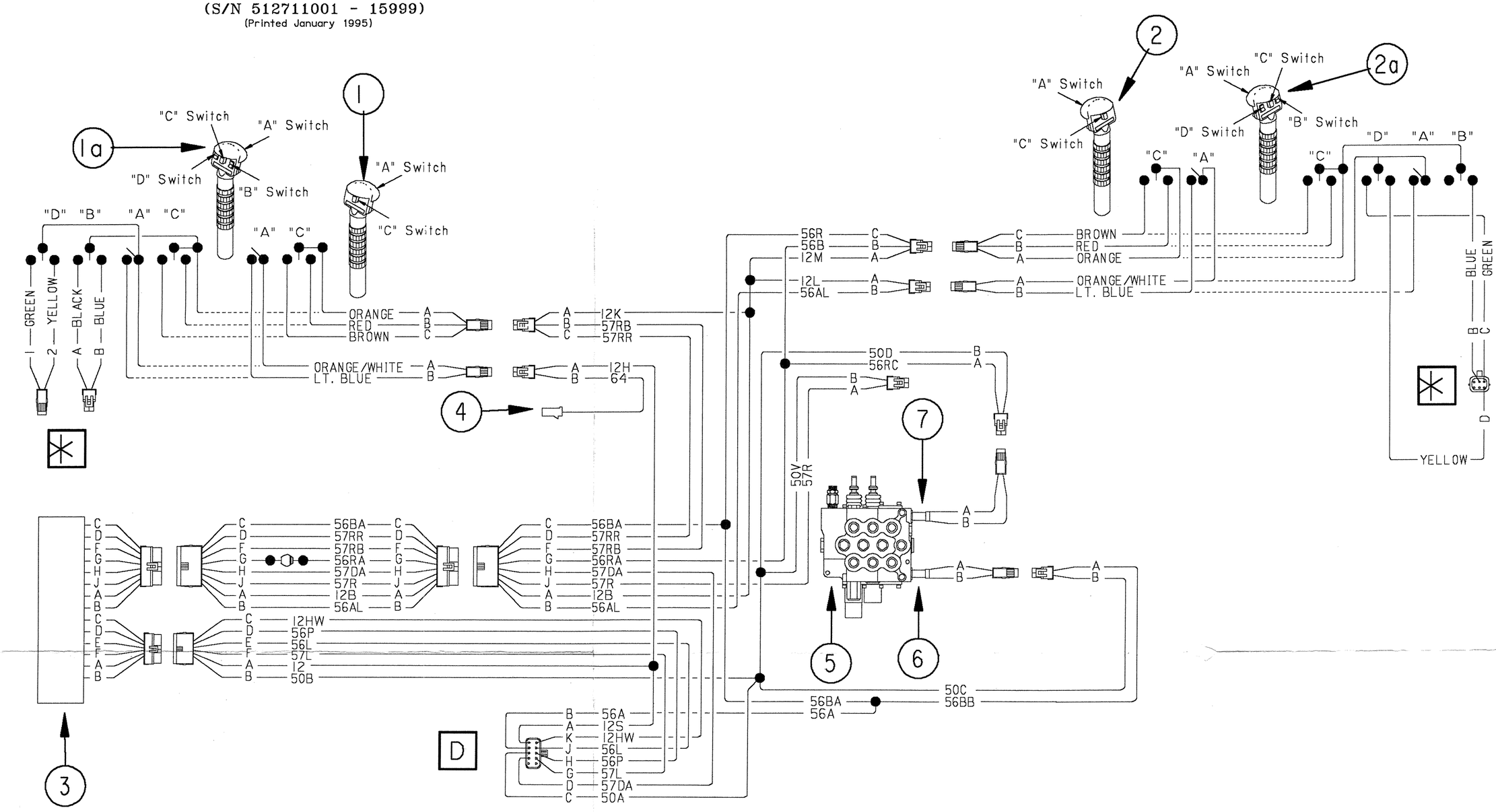
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WIRING DIAGRAM (P/N 6724020) Sheet 3 Of 3
Without BOSS - Without Hi-Flow Hydraulics
Operator Controls
753 (S/N 511350883 & Above)
(S/N 512711001 - 15999)

(Printed January 1995)



D Connects To D Wiring Diagram - Sheet 2

Connects To Optional Attachment Wiring Harness

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WIRING DIAGRAM (P/N 6724021) Sheet 1 Of 3
Without BOSS - With Hi-Flow Hydraulics
Operator Cab
753 (S/N 512711001 - 15999)

(Printed January 1995)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	14
10A	Black	12
10B	Black	16
12A	Orange	16
12C	Orange	16
12F	Orange	16
12HW	Orange	16
12L	Orange	16
12T	Orange	16
12V	Orange	16
19C	Red/White	16
19F	Red/White	16
19G	Red/White	16
19H	Red/White	16
19L	Red/White	16
19S	Red/White	14
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26A	Lt. Blue/Green	16
28	Lt. Blue/Black	16
30	Black	16
30G	Black	16
30T	Black	16
31	Yellow/Green	16
31P	Yellow/Green	16
32	Yellow/Dk. Blue	16
32F	Yellow/Dk. Blue	16
35H	Yellow/Brown	16
36	Purple	16
36T	Purple/White	16
40FL	Black	16
40FR	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
49F	Gray	16
49T	Gray	16
49V	Gray	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Auxiliary Hydraulics Connector
4. Left Flasher Light (Opt.)
5. Left Front Light (Opt.)
6. Flasher
7. Right Front Light (Opt.)
8. Right Flasher Light (Opt.)
9. Shutdown Module (Opt.)
10. Wiper Switch (Opt.)
11. Wiper (Opt.)
12. Ignition Switch
13. Light Switch
14. Glow Plug Pre-Heat Button
15. Ignition Fuse
16. Accessory Fuse
17. Hourmeter
18. Fuel Gauge
19. Temperature Gauge
20. Voltmeter
21. Engine Warning Lamp
22. Transmission Warning Lamp
23. Horn Connector
24. Horn (Opt.)

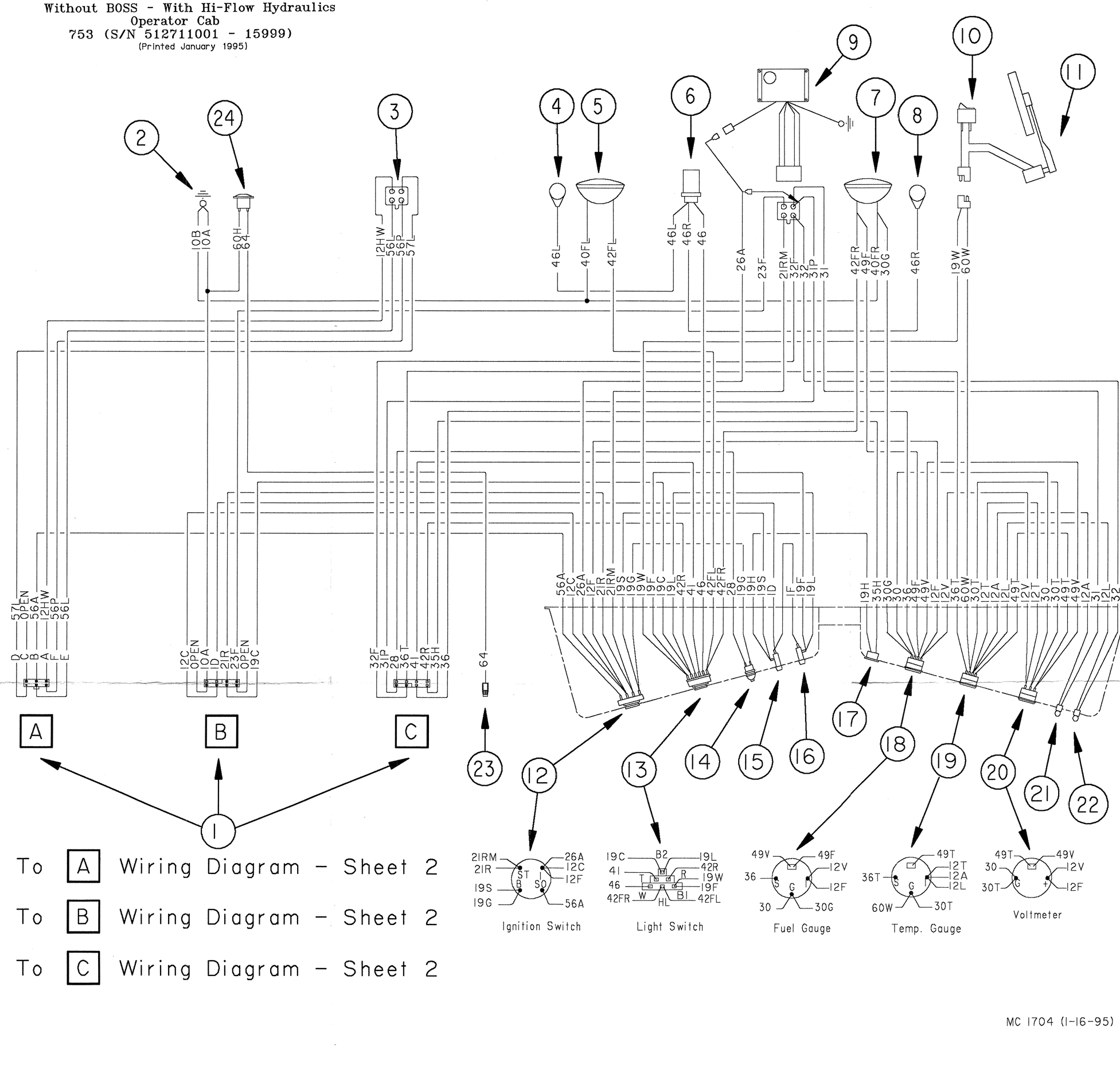
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WIRING DIAGRAM (P/N 6724021) Sheet 1 Of 3

Without BOSS - With Hi-Flow Hydraulics
Operator Cab
753 (S/N 512711001 - 15999)
(Printed January 1995)



A Connects To A Wiring Diagram - Sheet 2

B Connects To B Wiring Diagram - Sheet 2

C Connects To C Wiring Diagram - Sheet 2

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WIRING DIAGRAM (P/N 6724021) Sheet 2 Of 3
Without BOSS - With Hi-Flow Hydraulics
Engine Wiring
753 (S/N 512711001 - 15999)

(Printed January 1995)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1A	Red	12
1AA	Red	14
1B	Red	10
1D	Red	12
1T	Red	14
10	Black	14
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
20	Black	14
20A	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	14
23F	White/Black (Harness Side)	16
23F	Red/Blue (Module Side)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	12
30F	Black	16
31P	Yellow/Green	16
32F	Yellow/Dk. Blue	16
32P	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36F	Purple	16
36T	Purple/White	16
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light (Opt.)
3. Left Rear Work Light (Opt.)
4. Right Rear Work Light (Opt.)
5. Right Tail Light (Opt.)
6. Back-Up Alarm (Opt.)
7. Starter Relay
8. Glow Plug Relay
9. Fused and Switch Power
10. Fused Accessory Power
11. Glow Plugs
12. Ground
13. Battery
14. Fuel Sender
15. Engine Oil Pressure Sender
16. Fuel Shut-Off Solenoid
17. Hydraulic Charge Pressure Switch
18. Hydraulic Fluid Temperature Switch
19. Engine Coolant Temperature Sendor
20. Starter
21. Alternator
22. Back-Up Alarm Connector
23. Fuel Shut-Off Solenoid Timer Module
24. Hydraulic Filter Pressure Switch
25. Diverter Valve (Opt.)

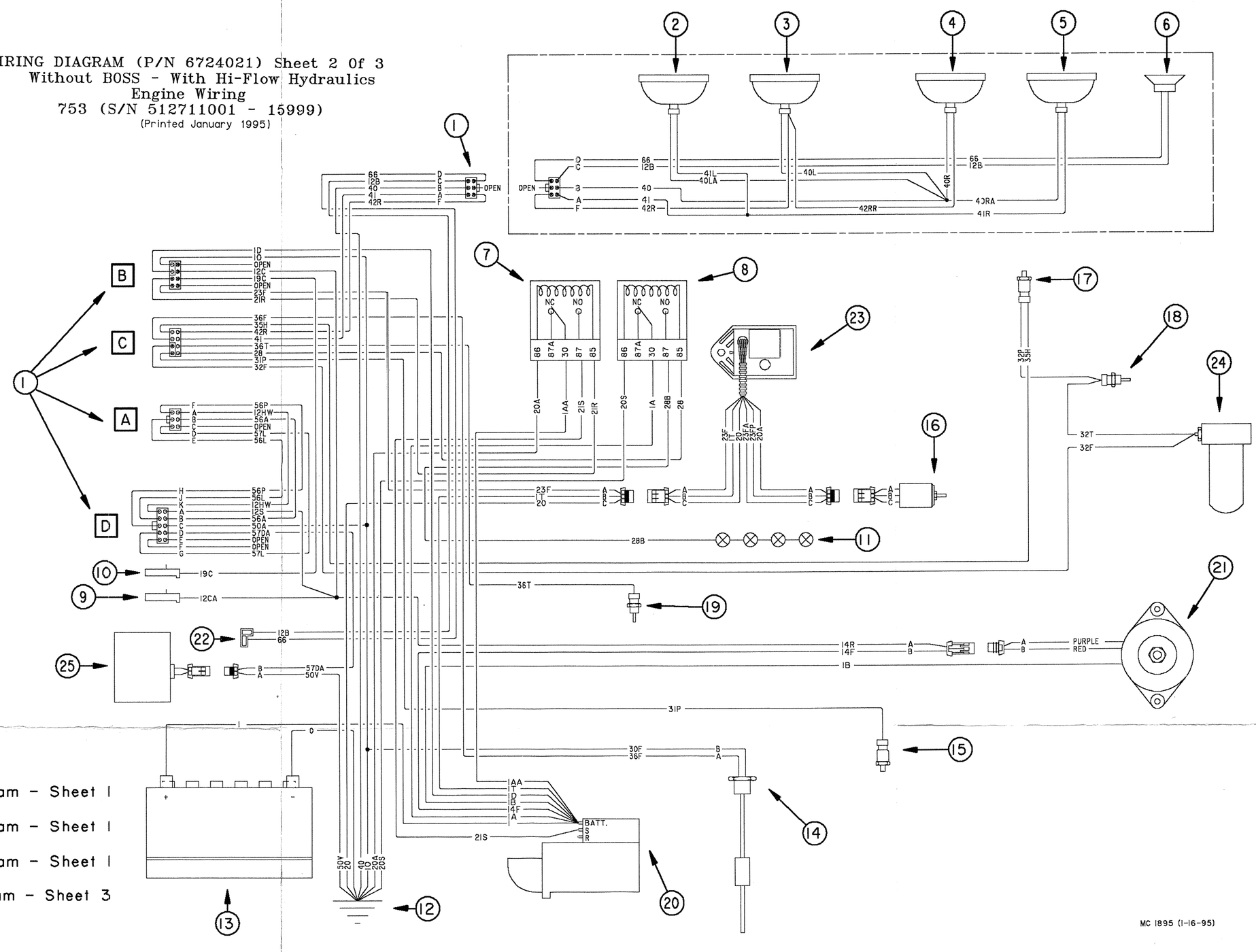
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WIRING DIAGRAM (P/N 6724021) Sheet 2 Of 3
Without BOSS - With Hi-Flow Hydraulics
Engine Wiring
753 (S/N 512711001 - 15999)

(Printed January 1995)



A Connects To A Wiring Diagram - Sheet 1

B Connects To B Wiring Diagram - Sheet 1

C Connects To C Wiring Diagram - Sheet 1

D Connects To D Wiring Diagram - Sheet 3

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WIRING DIAGRAM (P/N 6724021) Sheet 3 Of 3
Without BOSS - With Hi-Flow Hydraulics
Operator Controls
753 (S/N 512711001 - 15999)

(Printed January 1995)

Printed in U.S.A.

MC 2023ti21

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	16
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50E	Black	16
50F	Black	16
50G	Black	16
50H	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/Lt. Green	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57F	Lt. Blue/Red	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	16
57RB	Yellow (Console Harness)	16
57RB	Yellow/White(High Flow Harness)	16
57RBA	White/Yellow	16
57RBB	Yellow	16
57RR	Brown (High Flow Harness)	16
57RR	Yellow/White(Console Harness)	16
57RRA	Brown	16
57RRB	Brown	16
64	Orange/Blue	16

PARTS LEGEND

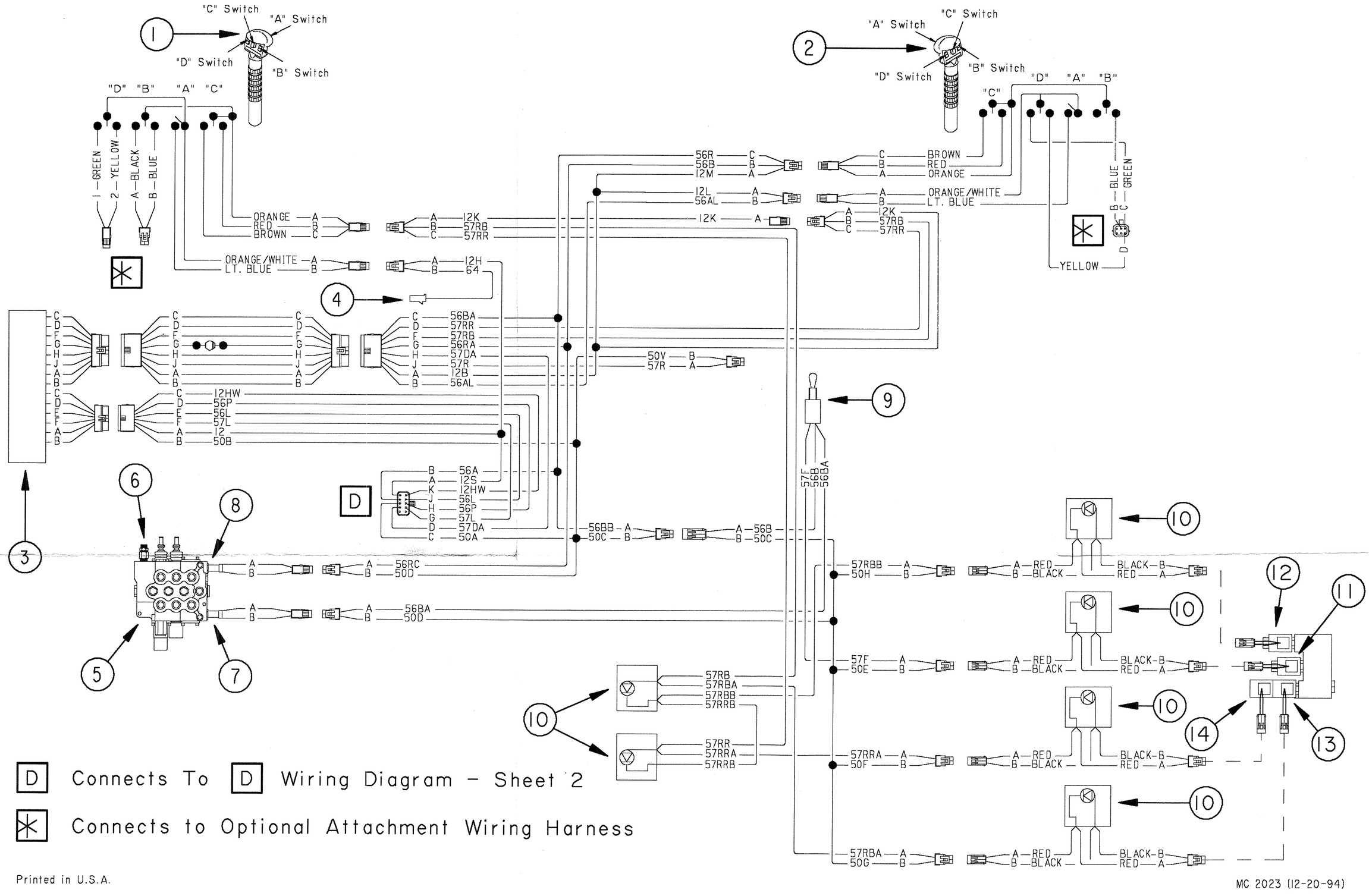
1. Left Multi-Switch Control Handle
2. Right Multi-Switch Control Handle
3. Auxiliary Control Module
4. Horn Connector
5. Hydraulic Control Valve
6. High Pressure Relief Valve
7. Front Auxiliary Solenoid (Base End/Female Coupler)
8. Front Auxiliary Solenoid (Rod End/Male Coupler)
9. Hi-Flow On/Off Switch
10. Diodes
11. Hi-Flow Solenoid
12. Diverter Solenoid
13. Rear/Secondary Front Auxiliary Solenoid (Base End/Female Coupler)
14. Rear/Secondary Front Auxiliary Solenoid (Rod End/Male Coupler)

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WIRING DIAGRAM (P/N 6724021) Sheet 3 Of 3
Without BOSS - With Hi-Flow Hydraulics
Operator Controls
753 (S/N 512711001 - 15999)
(Printed January 1995)



D Connects To D Wiring Diagram - Sheet 2

* Connects to Optional Attachment Wiring Harness

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MC 2023 (12-20-94)

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WIRING DIAGRAM (P/N 6724022) Sheet 1 Of 1
Optional Attachment Wiring Harness
753
(For use on Models with Multi-Switch Handles Only)

(Printed January 1995)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12A	Orange	16
12B	Orange	14
12C	Orange	16
19	Red/White	14
50	Black	14
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50E	Black	14
50W	Black	16
56A	Dk. Green/Yellow	16
56B	Yellow	16
56BA	Yellow	16
56BAA	Yellow	16
56BB	Dk. Blue	16
56BBA	Dk. Blue	16
56BBB	Dk. Blue	16
56R	Dk. Green	16
56RA	Dk. Green	16
56RAA	Dk. Green	16
56RB	White (*Orange/White)	16
56RBA	Orange/White	16
56RBB	Orange/White	16
56S	Dk. Green	16
56SA	Dk. Green	16
56SG	Dk. Green	16
56W	Lt. Green/White	16
57B	Yellow/Red (*Lt. Blue)	16
57BA	Lt. Blue	16
57BB	Lt. Blue	16
57BBA	Lt. Green	16
57BBB	Lt. Green	16
57BBC	Lt. Green	16
57BC	Yellow/White	16
57C	Orange/Dk. Blue	16
57CA	Orange/Dk. Blue	16
57CB	Orange/Dk. Blue	16
57RB	Yellow/Red (*Red)	16
57RR	Yellow/Lt. Green (*Brown/White)	16
57RRA	Yellow/Lt. Green (*Brown)	16
57RRB	Brown	16
57RRC	Brown	16
57RRD	Red	14
57RRE	White	16
57RRF	Brown/Yellow	16

* Alternate Color Used On Some Harnesses.

PARTS LEGEND

1. Connector-Water Kit
2. Wiring Harness
3. Connector - Auxiliary Bleed
4. Connector - Fused and Switche
5. Connector - Hot and Fused (Angle Broom)
6. Connector-Stump Grinder (High Flow Valve)
7. Power Relay - Stump Grinder
8. Power Relay - Angle Broom
9. Power Relay - Front/Rear Auxiliary
10. Plug-In Connector - Lift Arm Harness
11. Diode Module
12. Connector - Diode Module
13. Connector - Right Control Handle
14. Connector - Loader Control Harness
15. Connector - Left Control Handle

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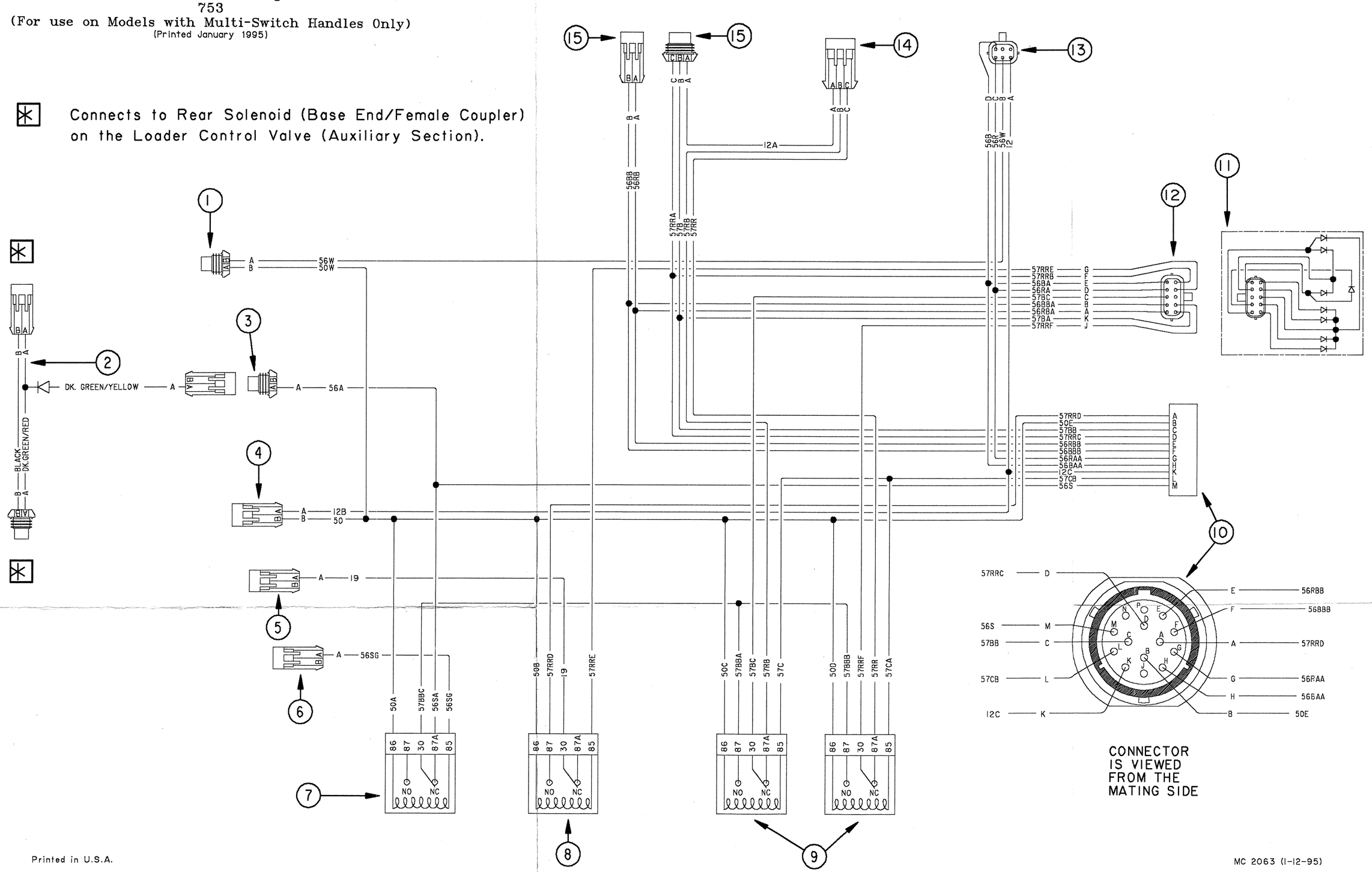
MC 2063le (12-12-94)

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WIRING DIAGRAM (P/N 6724022) Sheet 1 Of 1
Optional Attachment Wiring Harness
753
(For use on Models with Multi-Switch Handles Only)

(Printed January 1995)

✱ Connects to Rear Solenoid (Base End/Female Coupler) on the Loader Control Valve (Auxiliary Section).



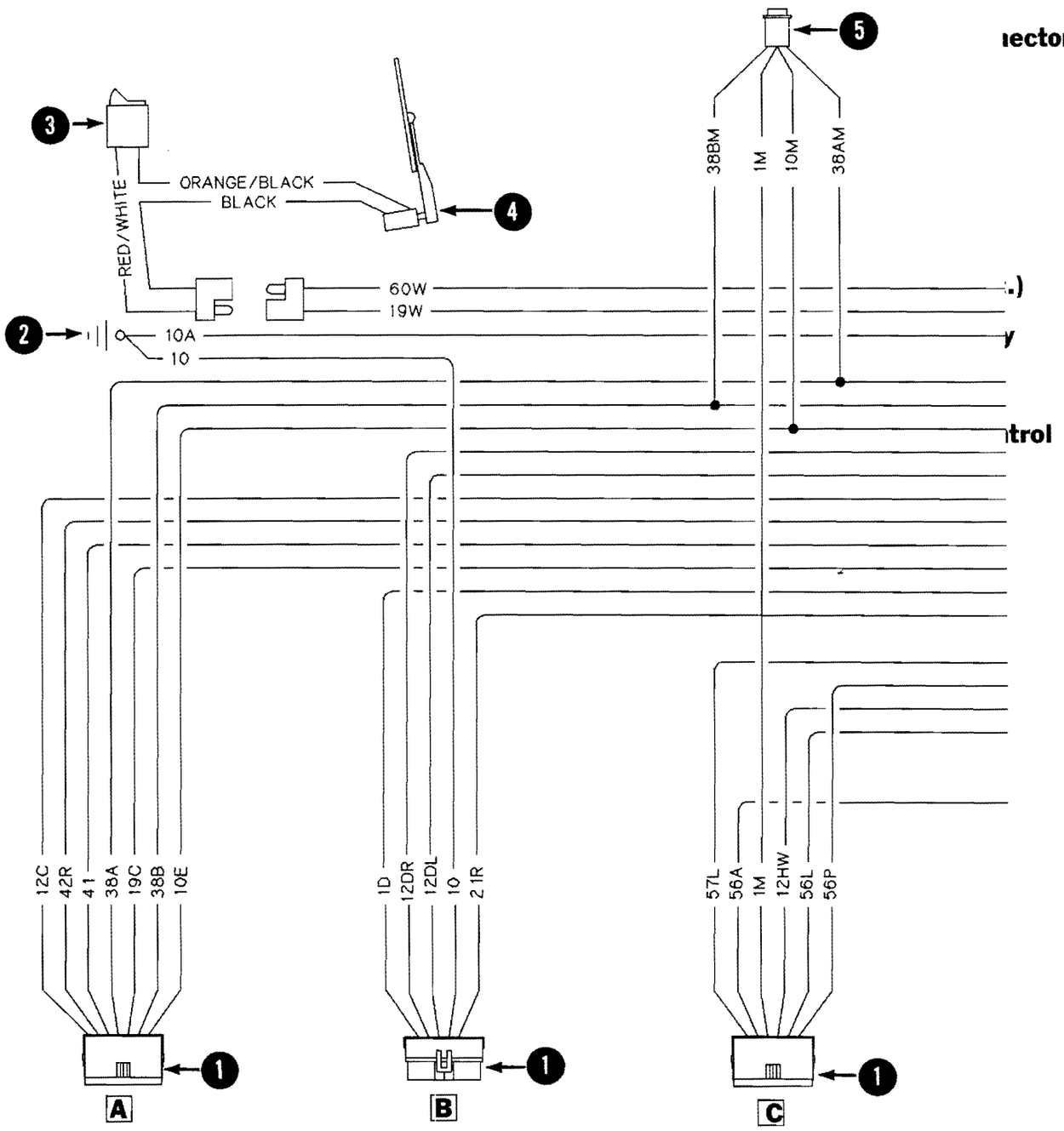
CONNECTOR IS VIEWED FROM THE MATING SIDE

https://truckmanualshub.com/

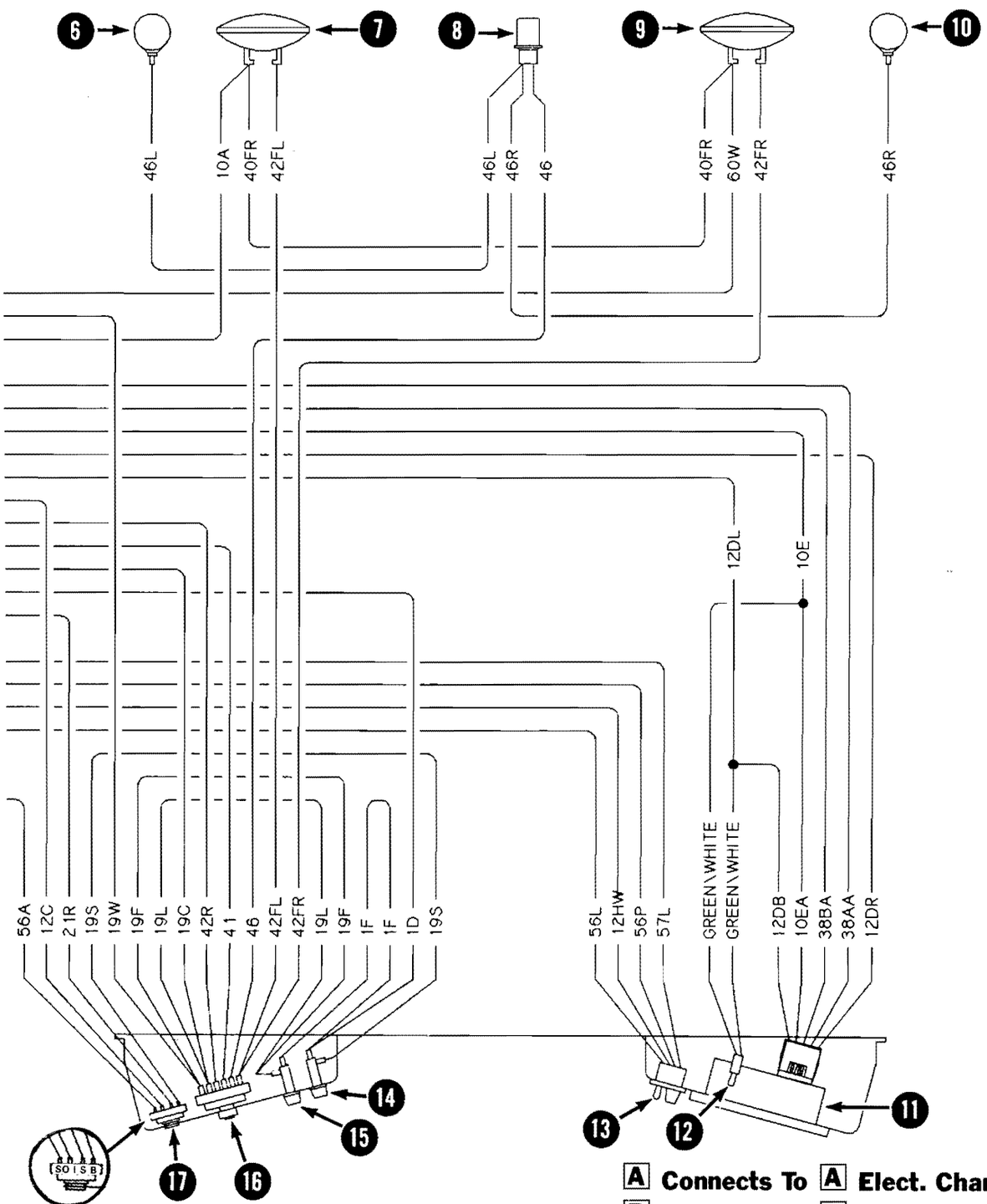
OPERATOR CAB WIRING DIAGRAM (P/N 6720317)

Model 753 (S/N 11078 & Below)

(Printed August 1990) 1 Of 3 Pages



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A Connects To A Elect. Chart—Page 2
B Connects To B Elect. Chart—Page 2
C Connects To C Elect. Chart—Page 2

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https://truckmanualshub.com/

WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
1M	Red	16
10	Black	12
10A	Black	12
10E	Black	16
10M	Black	16
10EA	Black	18
12C	Orange	14
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19F	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	16
40FR	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
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60W	Black	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Diagnostic Monitor Connector
6. Left Flasher Light (Opt.)
7. Left Front Light
8. Flasher (Opt.)
9. Right Front Light
10. Right Flasher Light (Opt.)
11. Instrument Panel Display
12. Display Back Light
13. Auxiliary Hydraulics Control Switch
14. Fuse - Ignition
15. Fuse - Accessory
16. Light Switch
17. Ignition Switch

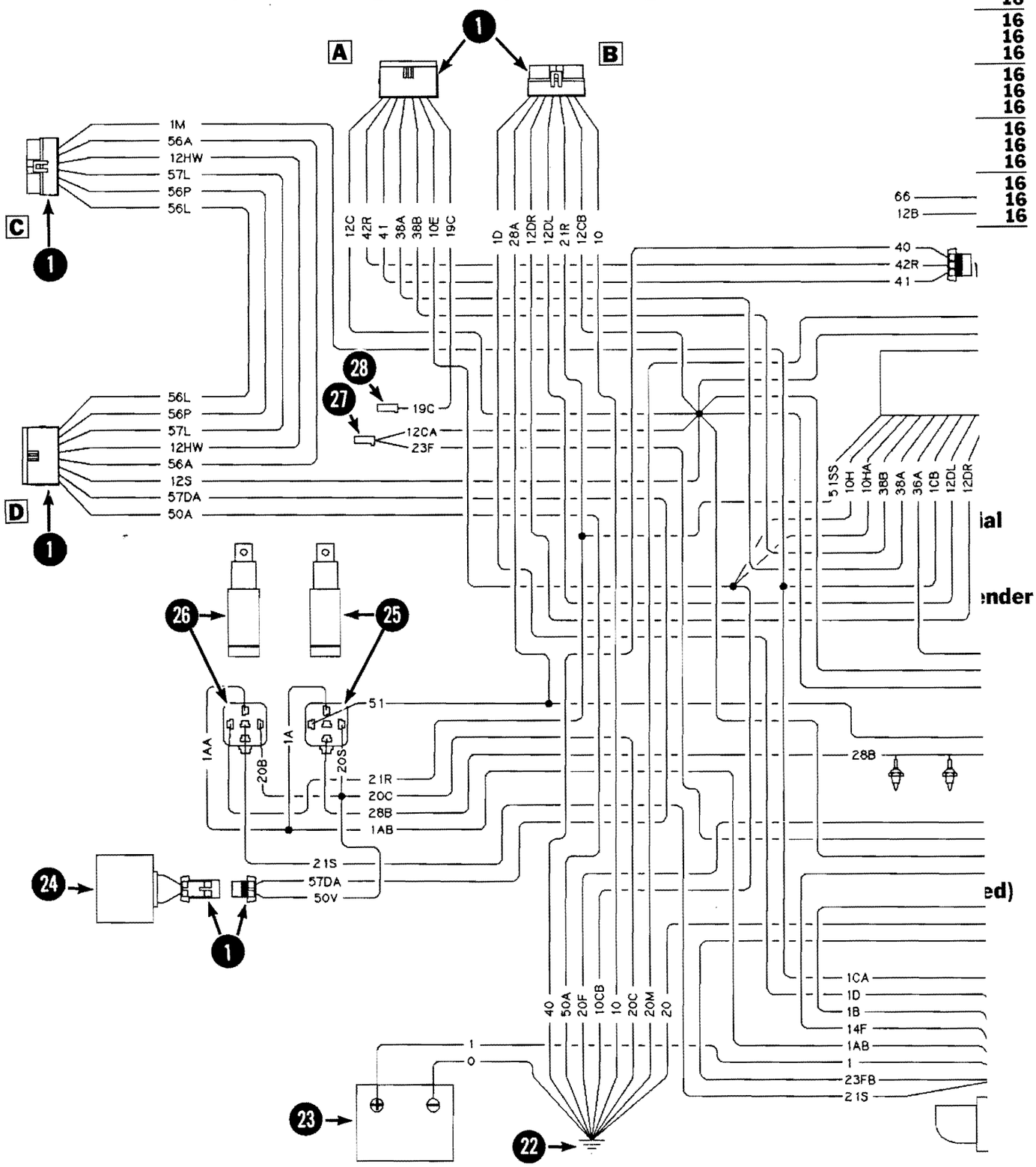
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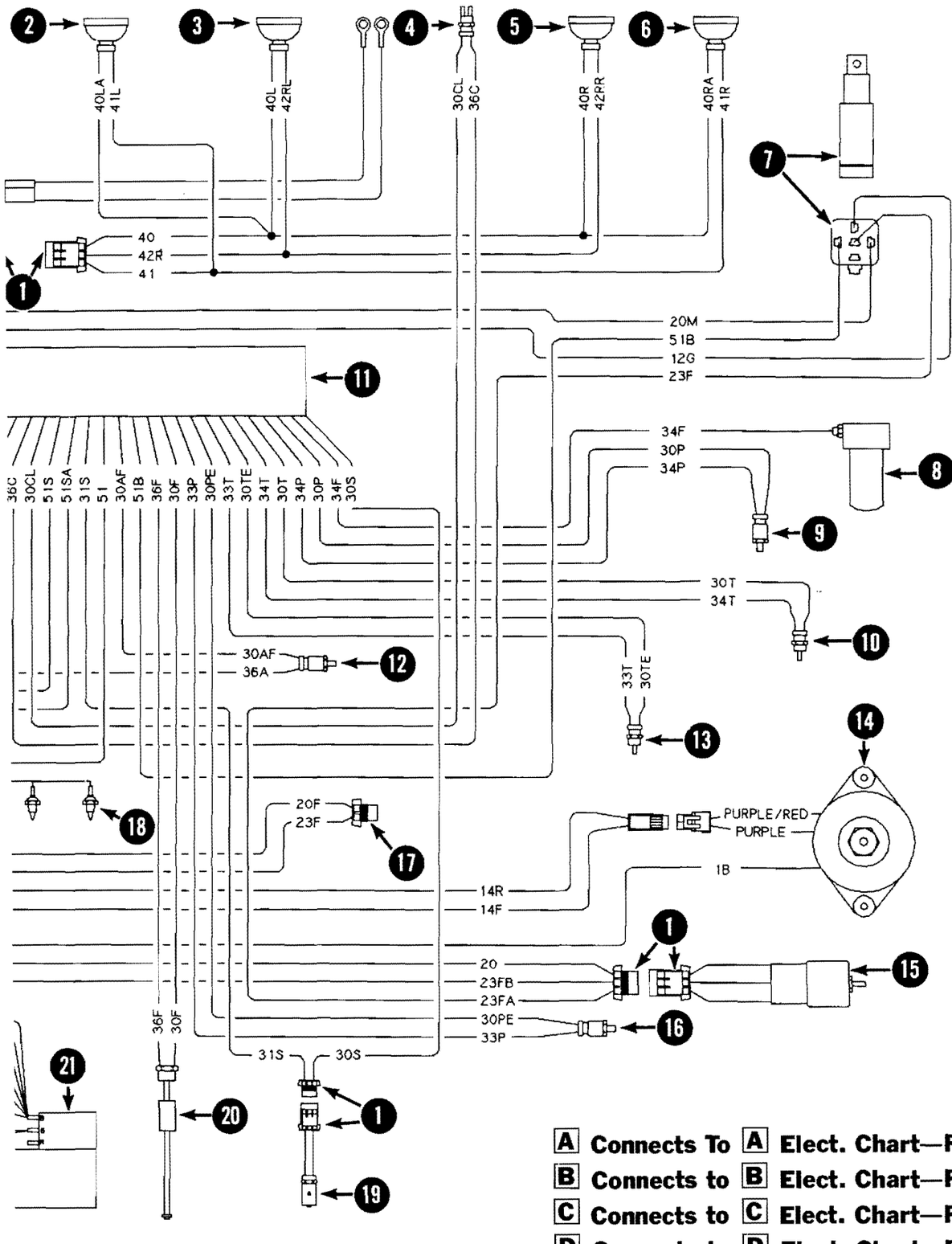
ENGINE WIRING DIAGRAM (P/N 6720317)

Model 753 (S/N 11078 & Below)

(Printed August 1990) 2 Of 3 Pages



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A Connects To **A** Elect. Chart—Page 1
B Connects to **B** Elect. Chart—Page 1
C Connects to **C** Elect. Chart—Page 1
D Connects to **D** Elect. Chart—Page 3

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CA	Red	16
1CB	Red	16
1D	Red	10
1M	Red	16
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12S	Orange	16
12HW	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
20	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White/Lt. Green	16
21S	White/Lt. Green	16
23FA	Red/Blue	16
23FB	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
40L	Black	16
40LA	Black	16
40R	Black	16
40RA	Black	16
41	Pink	16
41L	Pink	16
41R	Pink	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
42R	Dk. Blue/White	16
42RR	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Dk. Green/Red	16
57L	Dk. Green/Pink	16
57DA	Yellow	16
66	Orange/Green	16

PARTS LEGEND

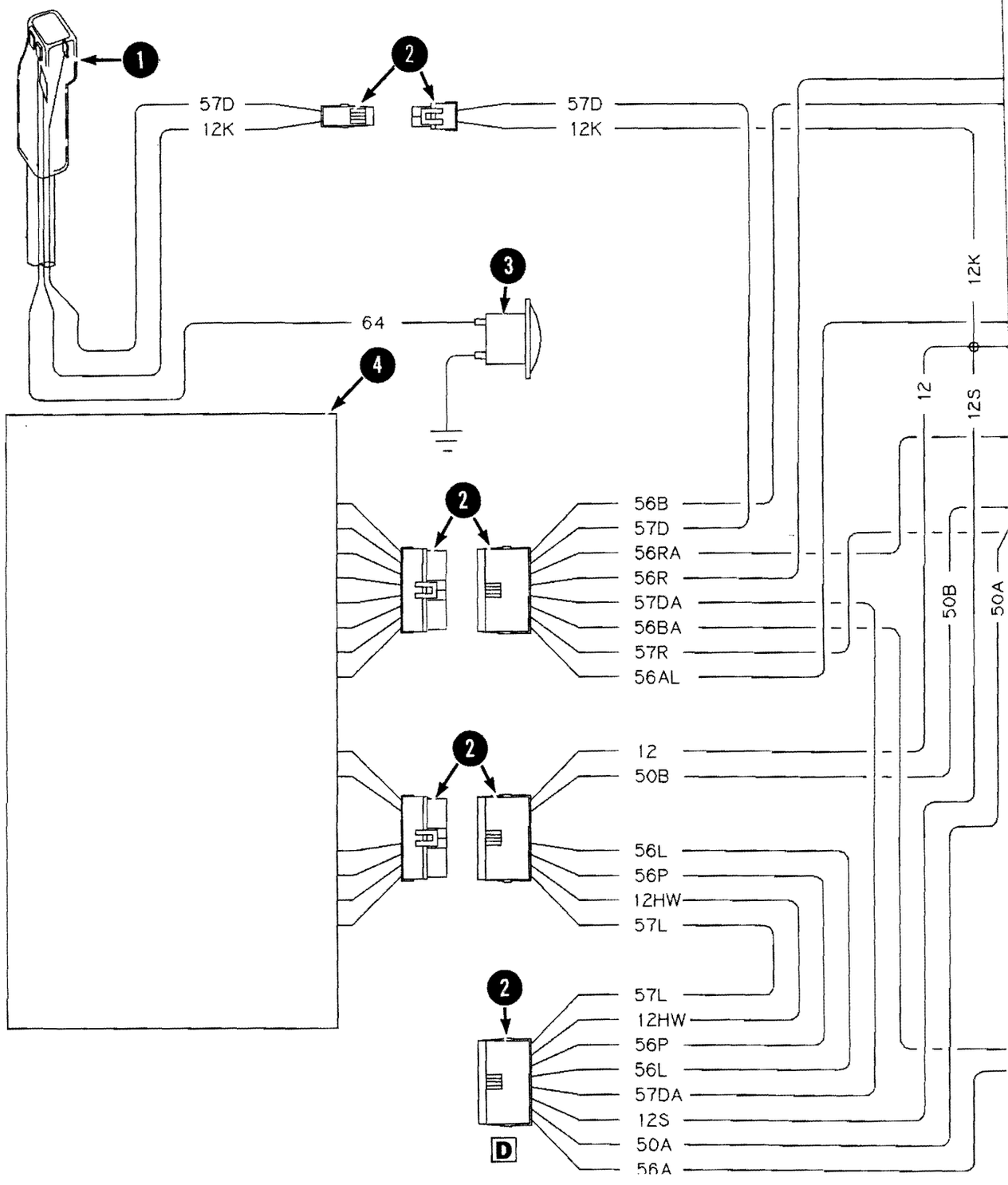
1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Fluid Filter Differential Pressure Switch
9. Charge Pressure Sender
10. Hydraulic Fluid Temperature Sender
11. System Operating Unit
12. Air Cleaner Switch
13. Engine Coolant Temp, Sender
14. Alternator
15. Fuel Shut-Off Solenoid
16. Engine Oil Pressure Sender
17. Fuel Pump Connector
18. Glow Plugs
19. Magnetic Pick-Up (Engine Speed)
20. Fuel Sender
21. Starter
22. Ground
23. Battery
24. Diverter Valve
25. Glow Plug Relay
26. Starter Relay
27. Fused and Switch Power
28. Fused Accessory Power

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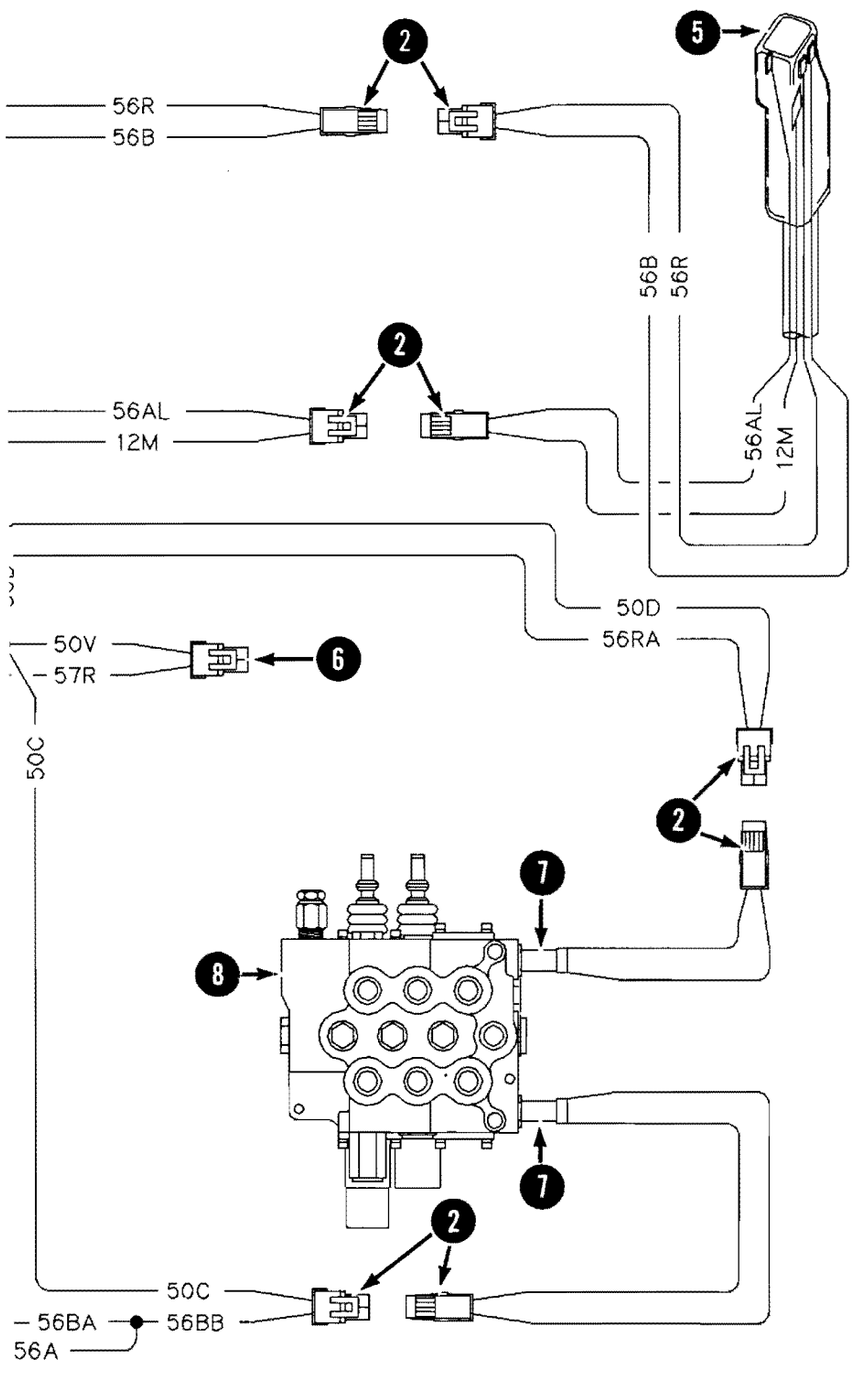
AUXILIARY HYD. WIRING DIAGRAM (P/N 6720317)

Model 753 (S/N 11078 & Below)

(Printed August 1990) 3 Of 3 Pages



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D Connects To D Elect. Chart—Page 2

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12HW	Orange	16
12K	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/White	16
57D	Yellow/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	14
64	Orange/Blue	16

PARTS LEGEND

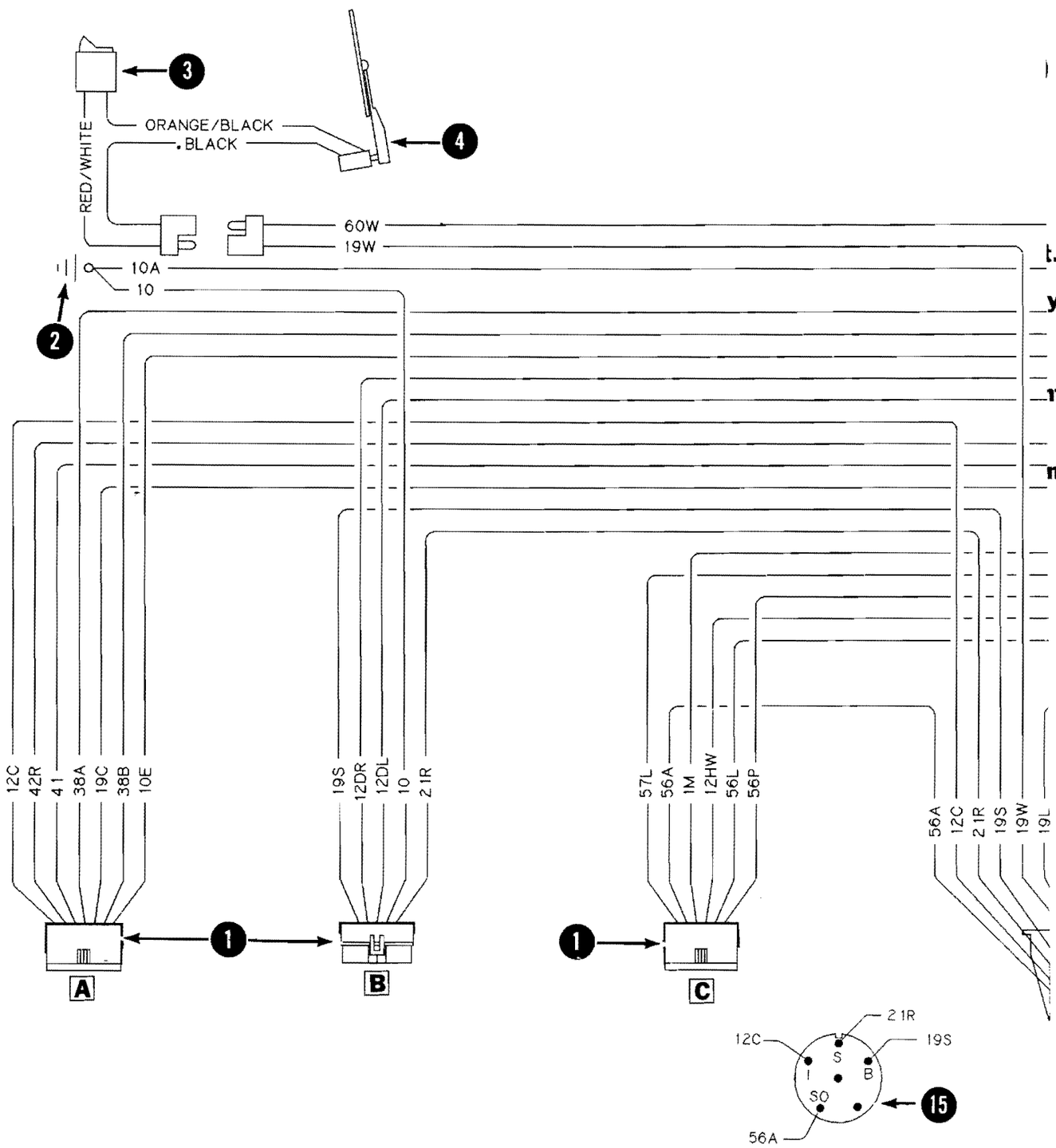
1. Left Steering Lever Control
2. Harness Connectors
3. Horn
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve

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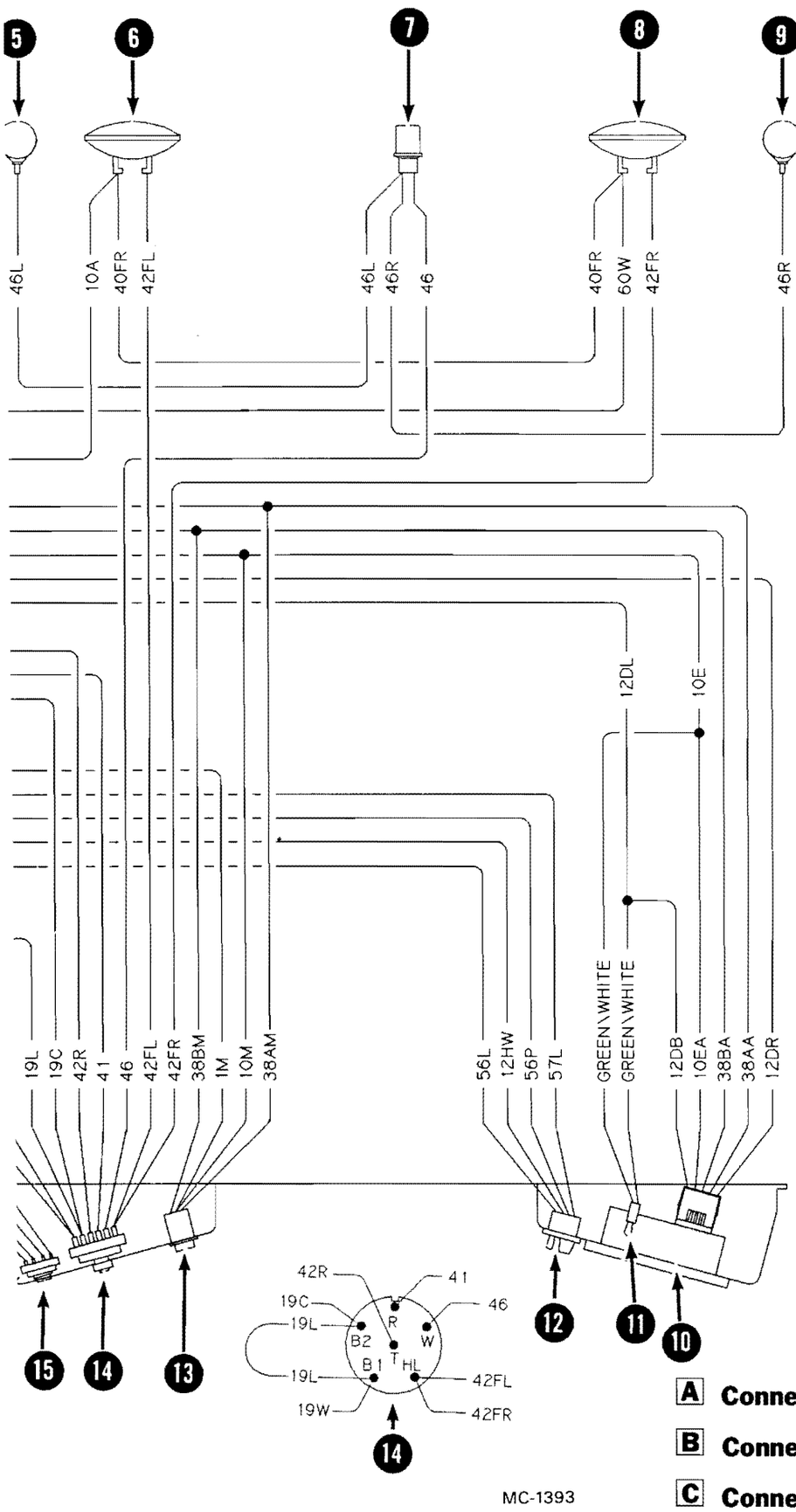
OPERATOR CAB WIRING DIAGRAM (P/N 6720582)

Model 753 (S/N 11079 Thru 13487)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	12
10A	Black	12
10E	Black	16
10EA	Black	18
10M	Black	16
12C	Orange	16
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	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
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60W	Black	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Left Flasher Light (Opt.)
6. Left Front Light
7. Flasher (Opt.)
8. Right Front Light
9. Right Flasher Light (Opt.)
10. Instrument Panel Display
11. Display Back Light
12. Auxiliary Hydraulics Control Switch
13. Diagnostic Monitor Connector
14. Light Switch
15. Ignition Switch

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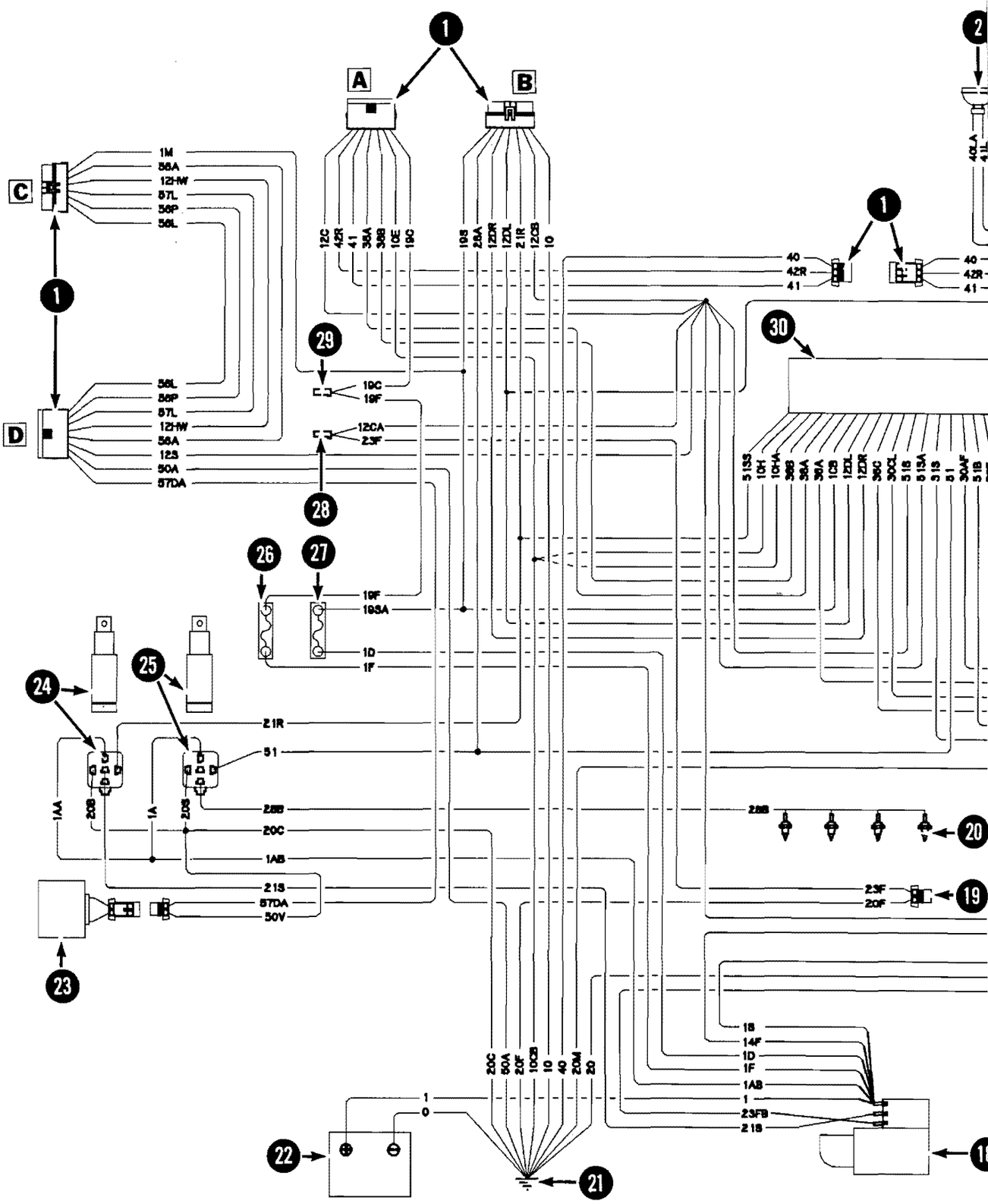
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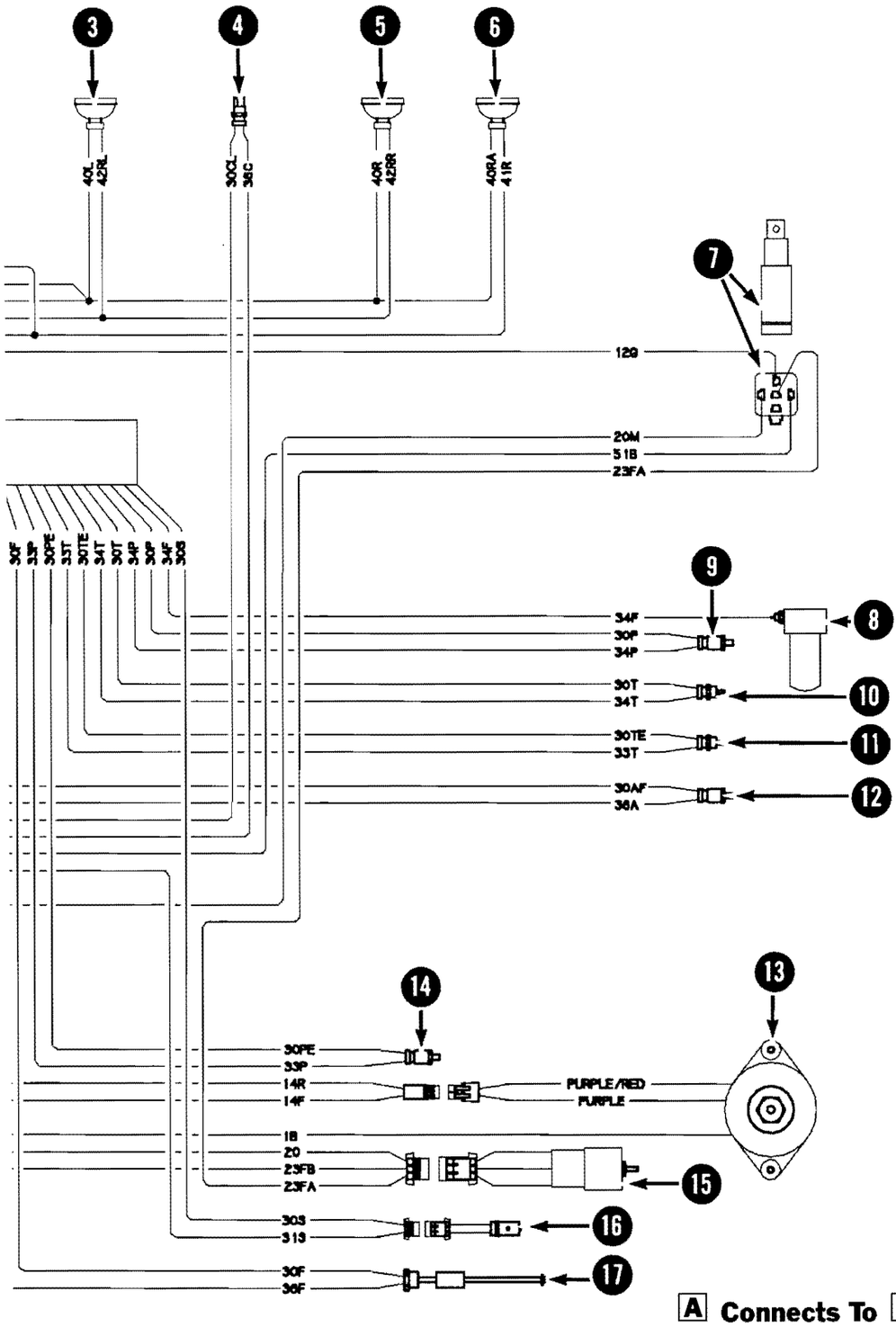
ENGINE WIRING DIAGRAM (P/N 6720582)

Model 753 (S/N 11079 Thru 13487)

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A Connects To A Elect. Chart—Page
B Connects to B Elect. Chart—Page
C Connects to C Elect. Chart—Page
D Connects to D Elect. Chart—Page

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	10
1F	Red	16
1M	Red	16
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12S	Orange	16
12HW	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	16
19S	Red/White	16
19SA	Red/White	16
20	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White/Lt. Green	16
21S	White/Lt. Green	16
23F	White/Black	16
23FA	Red/Blue	16
23FB	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
40L	Black	16
40LA	Black	16
40R	Black	16
40RA	Black	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
41	Pink	16
41L	Pink	16
41R	Pink	16
42R	Dk. Blue/White	16
42RL	Dk. Blue/White	16
42RR	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk.Green/Blue	16
56P	Dk. Green/Red	16
57L	Dk. Green/Pink	16
57DA	Yellow	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Fluid Filter Differential Pressure Switch
9. Charge Pressure Sender
10. Hydraulic Fluid Temperature Sender
11. Engine Coolant Temp. Sender
12. Air Cleaner Switch
13. Alternator
14. Engine Oil Pressure Sender
15. Fuel Shut-Off Solenoid
16. Magnetic Pickup (Engine Speed)
17. Fuel Sender
18. Starter
19. Fuel Pump Connector
20. Glow Plugs
21. Ground
22. Battery
23. Diverter Valve
24. Starter Relay
25. Glow Plug Relay
26. Fuse - Accessory
27. Fuse - Ignition
28. Fused and Switch Power
29. Fused Accessory Power
30. System Operating Unit

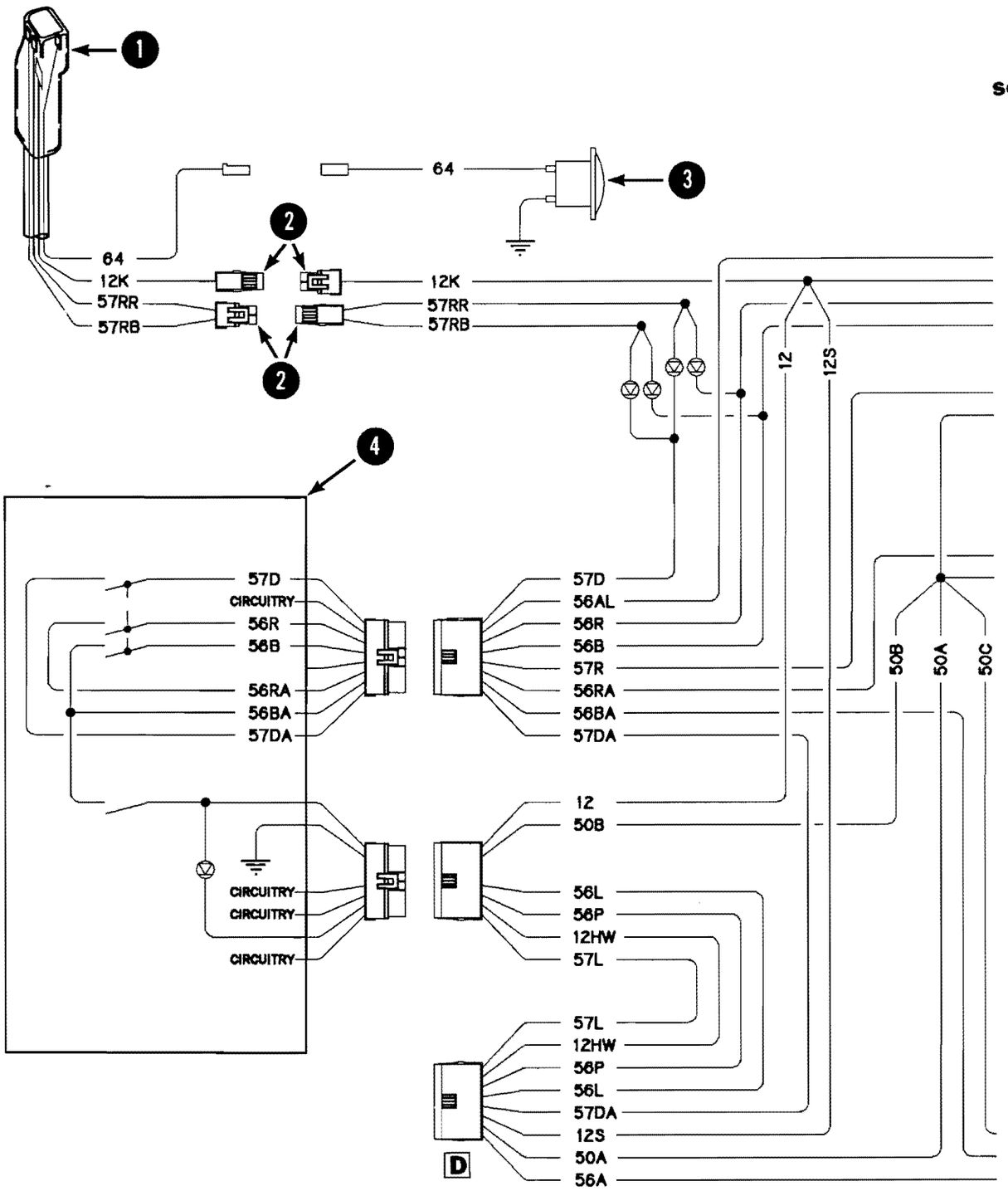
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AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720582)

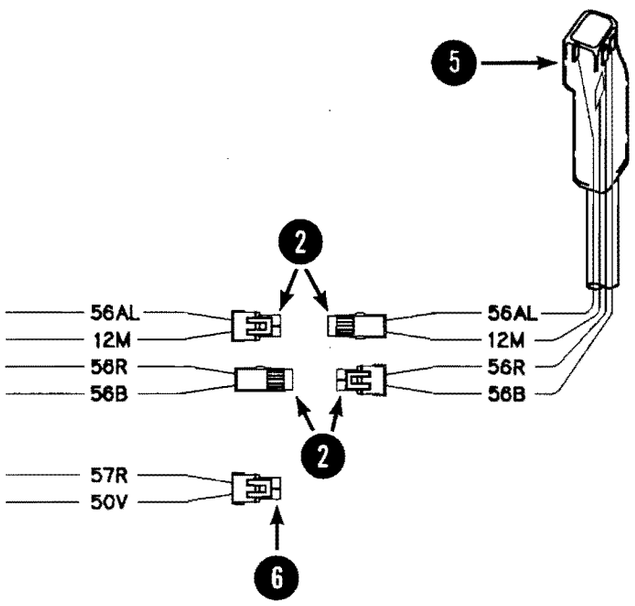
Model 753 (S/N 11079 Thru 13487)

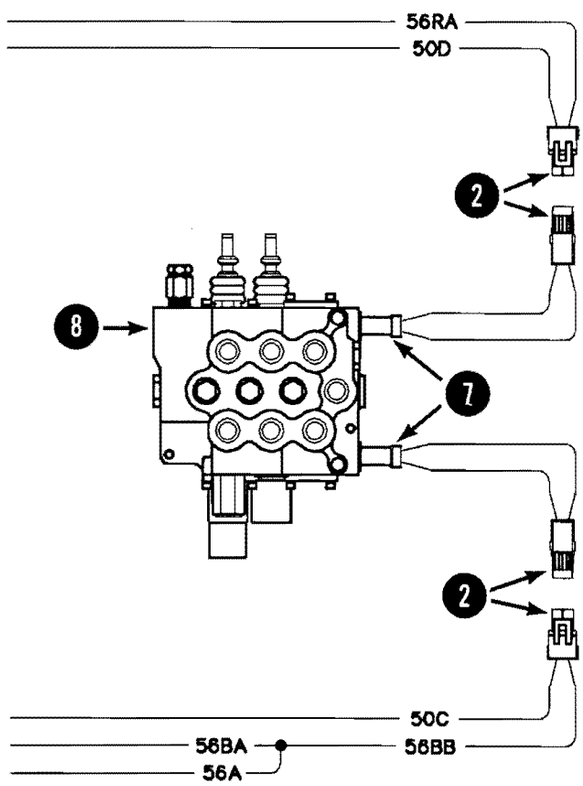
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D Connects To D Elect. Chart—Page 2

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12HW	Orange	16
12K	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/White	16
57D	Yellow/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	14
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

PARTS LEGEND

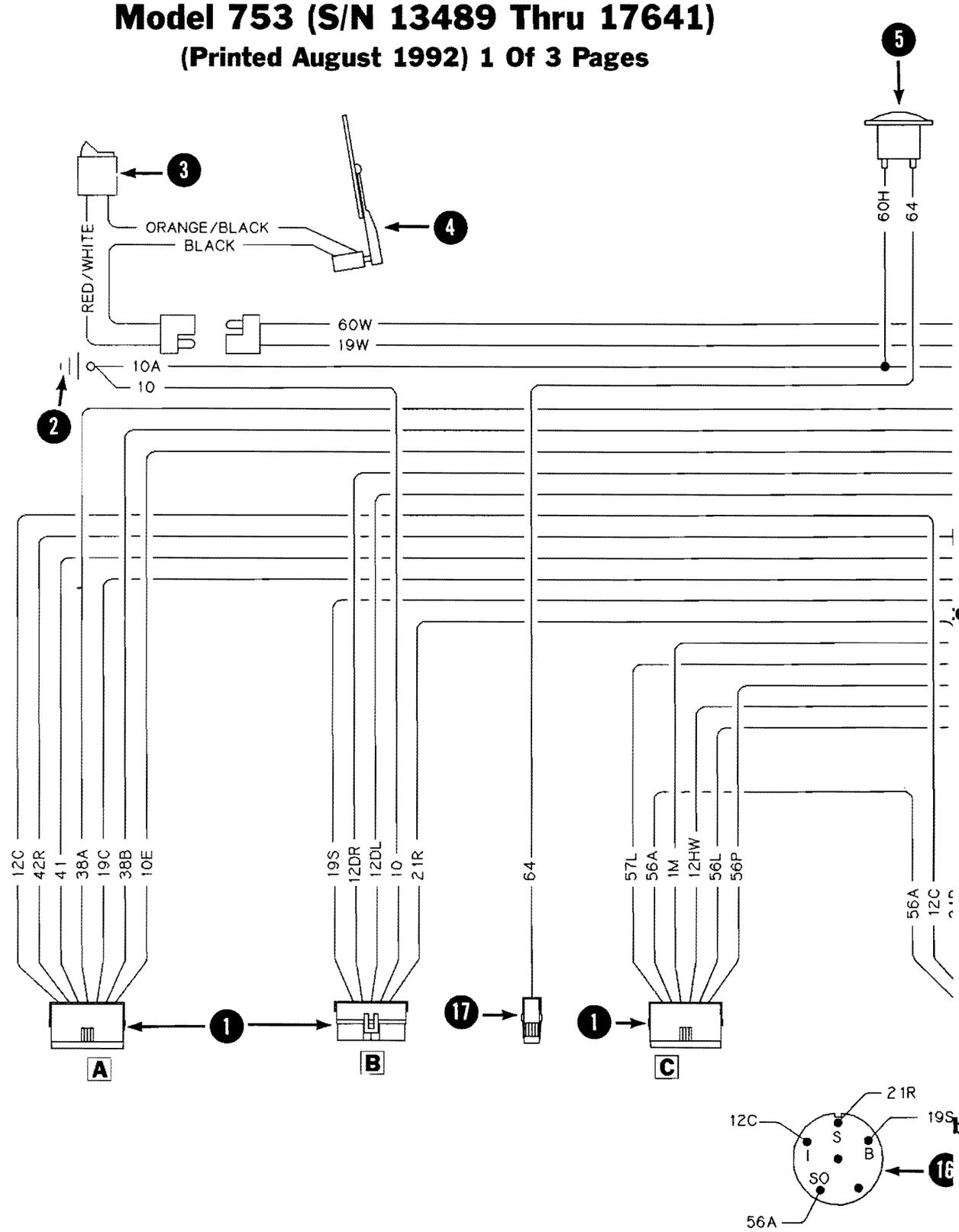
1. Left Steering Lever Control
2. Harness Connectors
3. Horn
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve

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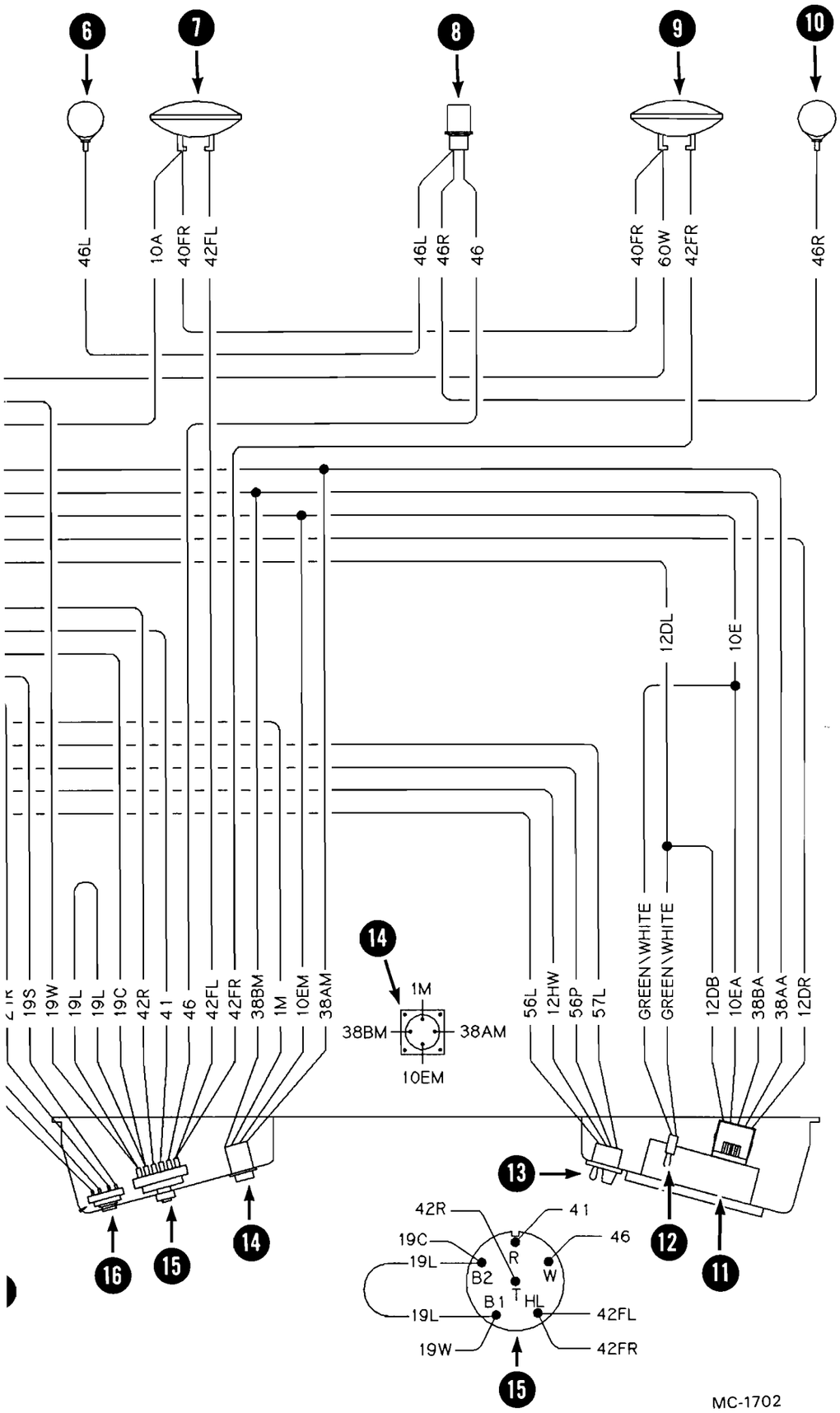
OPERATOR CAB WIRING DIAGRAM (P/N 6720959)

Model 753 (S/N 13489 Thru 17641)

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A Connects To A

B Connects To B

C Connects To C

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	12
10A	Black	12
10E	Black	16
10EA	Black	18
10M	Black	16
12C	Orange	16
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	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
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Horn (Opt.)
6. Left Flasher Light (Opt.)
7. Left Front Light
8. Flasher (Opt.)
9. Right Front Light
10. Right Flasher Light (Opt.)
11. Instrument Panel Display
12. Display Back Light
13. Auxiliary Hydraulics Control Switch
14. Diagnostic Monitor Connector
15. Light Switch
16. Ignition Switch
17. Horn Connector

NOTE: Wires 60H (Black) & 64 (Orange/Blue) were added to the wire harness at the following Serial Numbers: 17270, 17277 & 17280 & Above.

A Elect. Chart—Page 2

B Elect. Chart—Page 2

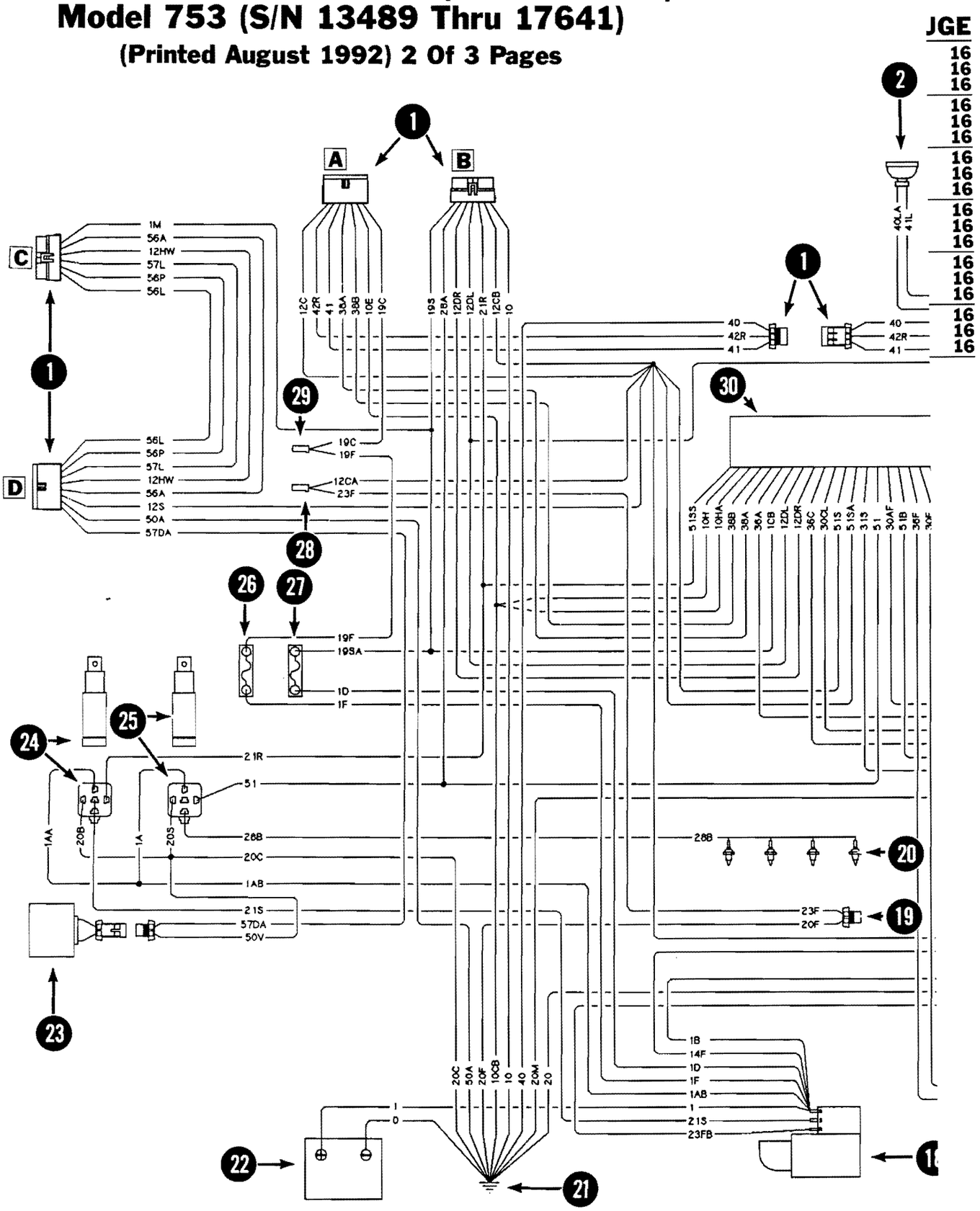
C Elect. Chart—Page 2

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ENGINE WIRING DIAGRAM (P/N 6720959)

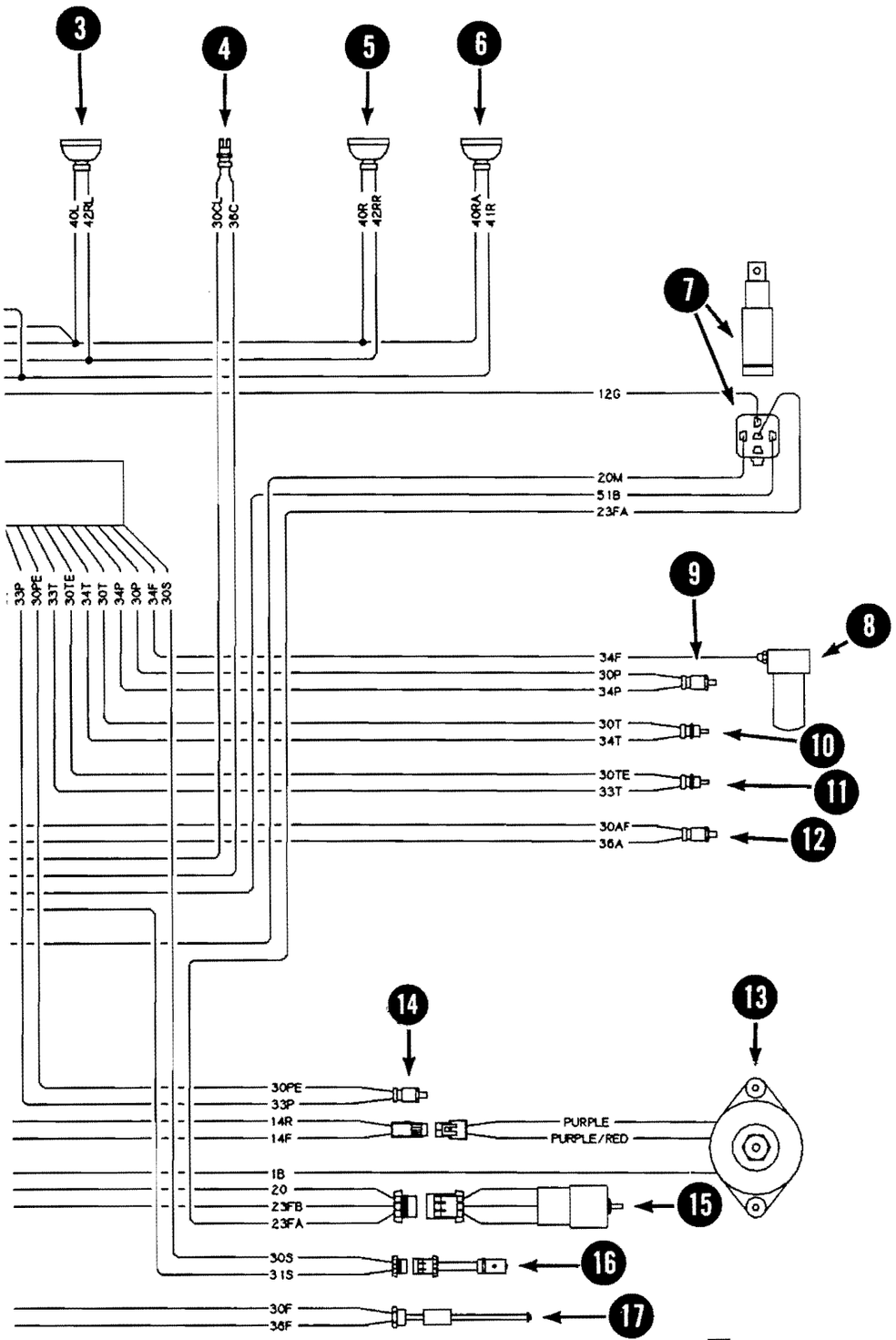
Model 753 (S/N 13489 Thru 17641)

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Electrical Chart
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A Connects To A Elect. Chart—Pa
B Connects to B Elect. Chart—Pa
C Connects to C Elect. Chart—Pa
D Connects to D Elect. Chart—Pa

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	10
1F	Red	16
1M	Red	16
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12S	Orange	16
12HW	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	16
19S	Red/White	16
19SA	Red/White	16
20	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White/Lt. Green	16
21S	White/Lt. Green	16
23F	White/Black	16
23FA	Red/Blue	16
23FB	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
40L	Black	16
40LA	Black	16
40R	Black	16
40RA	Black	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
41	Pink	16
41L	Pink	16
41R	Pink	16
42R	Dk. Blue/White	16
42RL	Dk. Blue/White	16
42RR	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk.Green/Blue	16
56P	Dk. Green/Red	16
57L	Dk. Green/Pink	16
57DA	Yellow	16

PARTS LEGEND

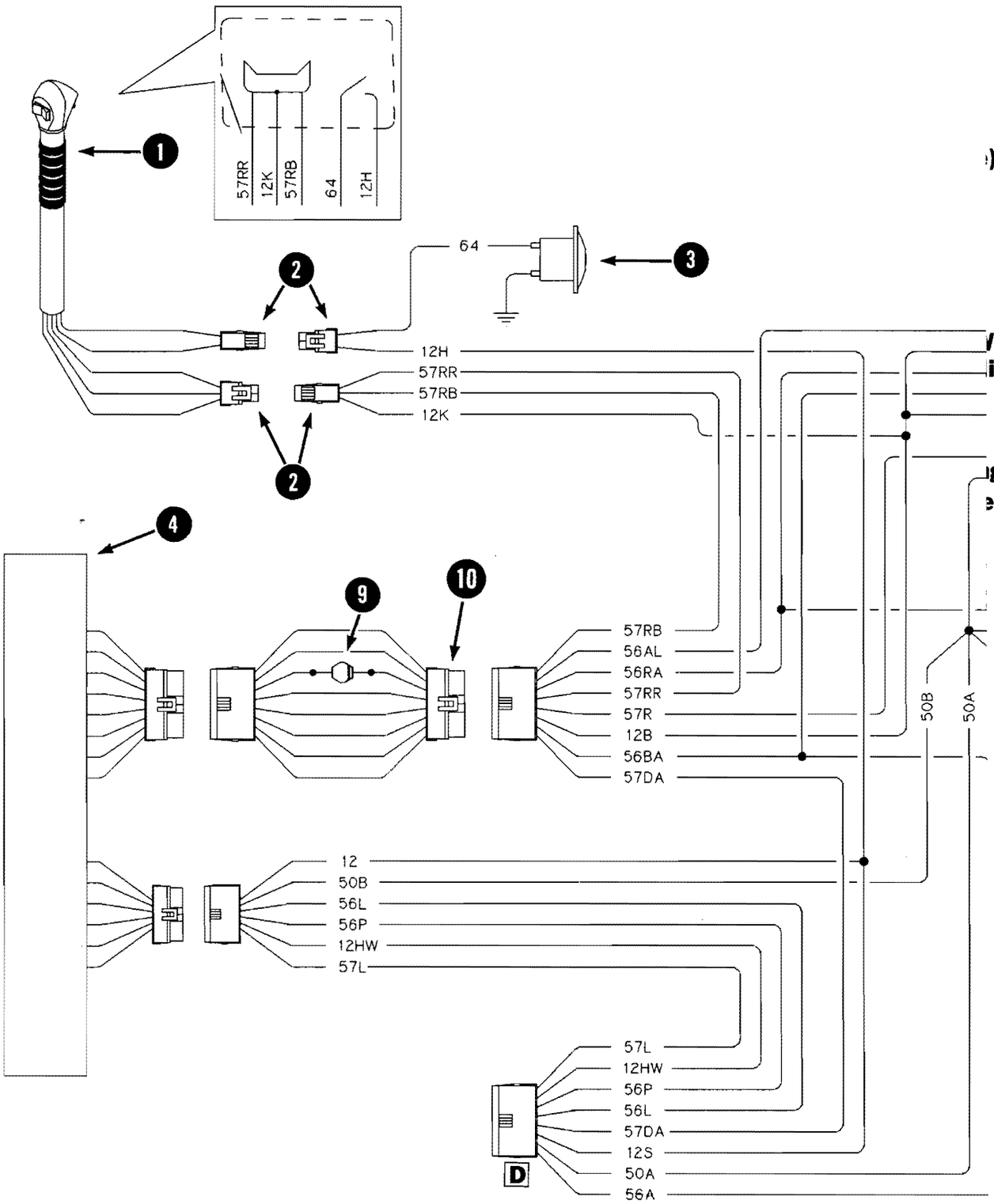
1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Fluid Filter Differential Pressure Switch
9. Charge Pressure Sender
10. Hydraulic Fluid Temperature Sender
11. Engine Coolant Temp. Sender
12. Air Cleaner Switch
13. Alternator
14. Engine Oil Pressure Sender
15. Fuel Shut-Off Solenoid
16. Magnetic Pickup (Engine Speed)
17. Fuel Sender
18. Starter
19. Fuel Pump Connector
20. Glow Plugs
21. Ground
22. Battery
23. Diverter Valve
24. Starter Relay
25. Glow Plug Relay
26. Fuse - Accessory
27. Fuse - Ignition
28. Fused and Switch Power
29. Fused Accessory Power
30. System Operating Unit

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AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959)

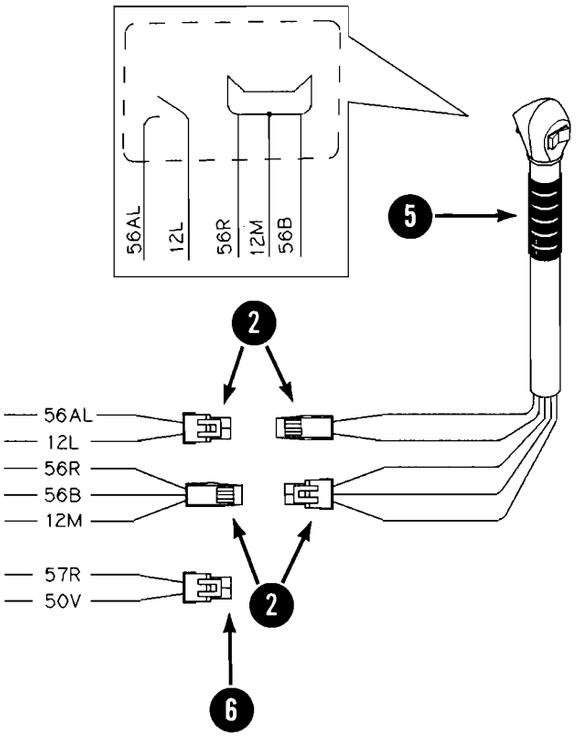
Model 753 (S/N 13489 Thru 17641)

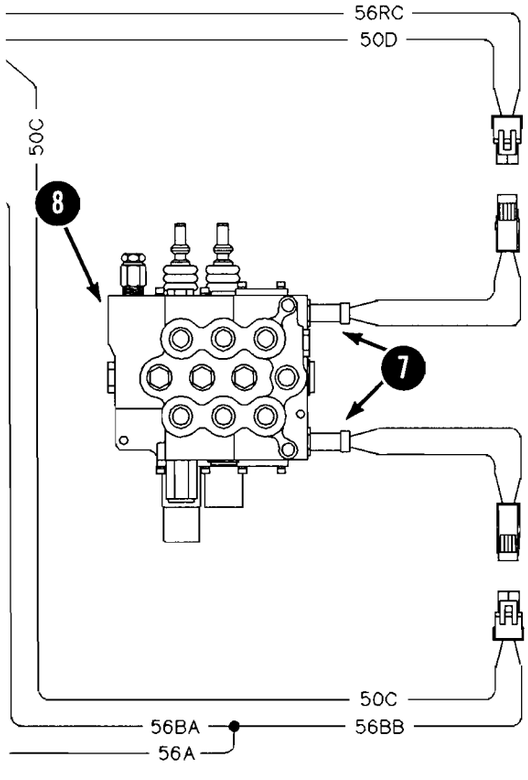
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Electrical Chart
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D Connects To D Elect. Chart—Page 2

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	16
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/White	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	14
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

PARTS LEGEND

1. Left Steering Lever Control
2. Harness Connectors
3. Horn
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve
9. Diode
10. Harness (P/N 6704114) (Used When Optional Rear Auxiliary Hydraulics Are Installed)

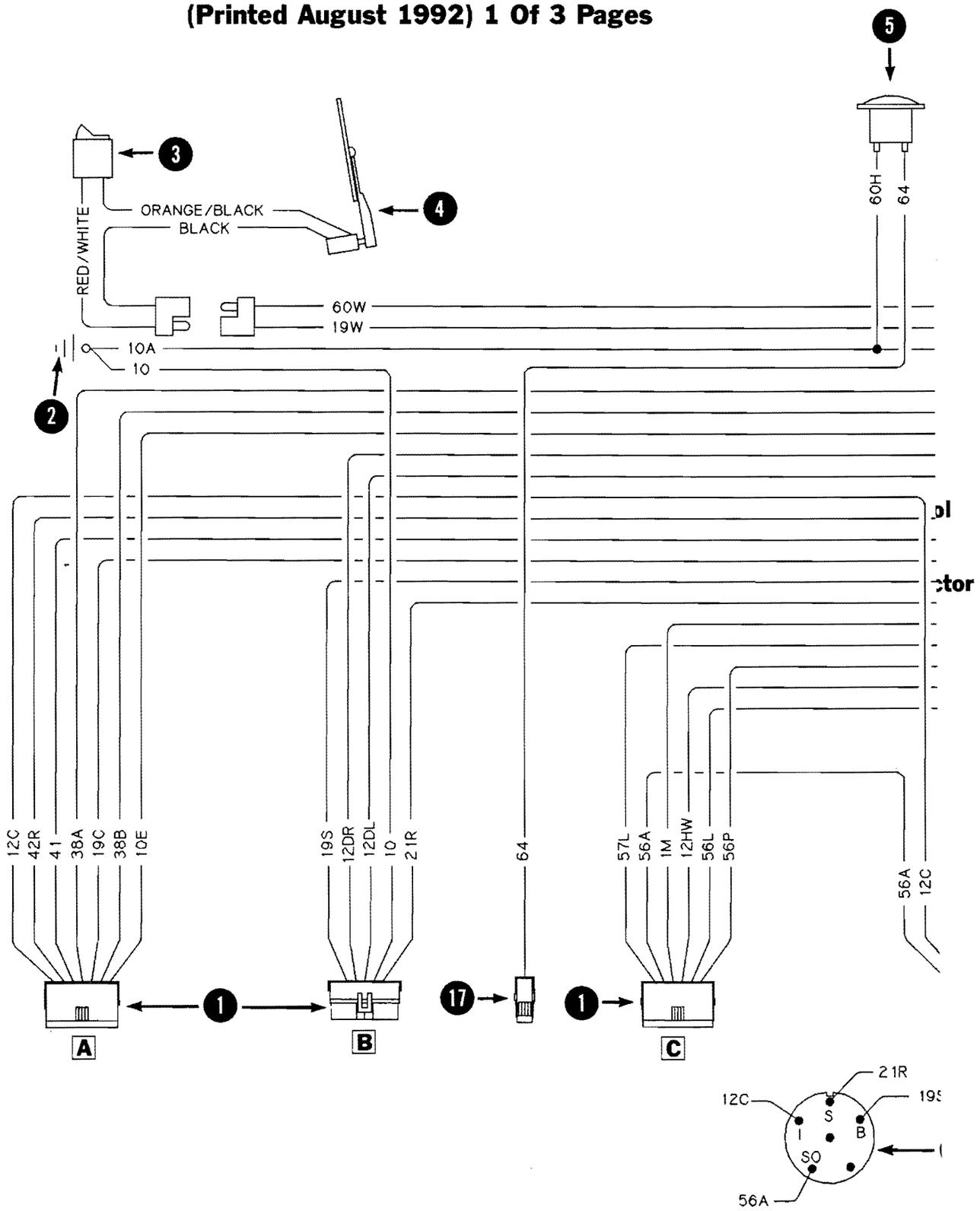
NOTE: See Operator Cab Wiring Diagram (Page 1) for serial number break for Horn wire change.

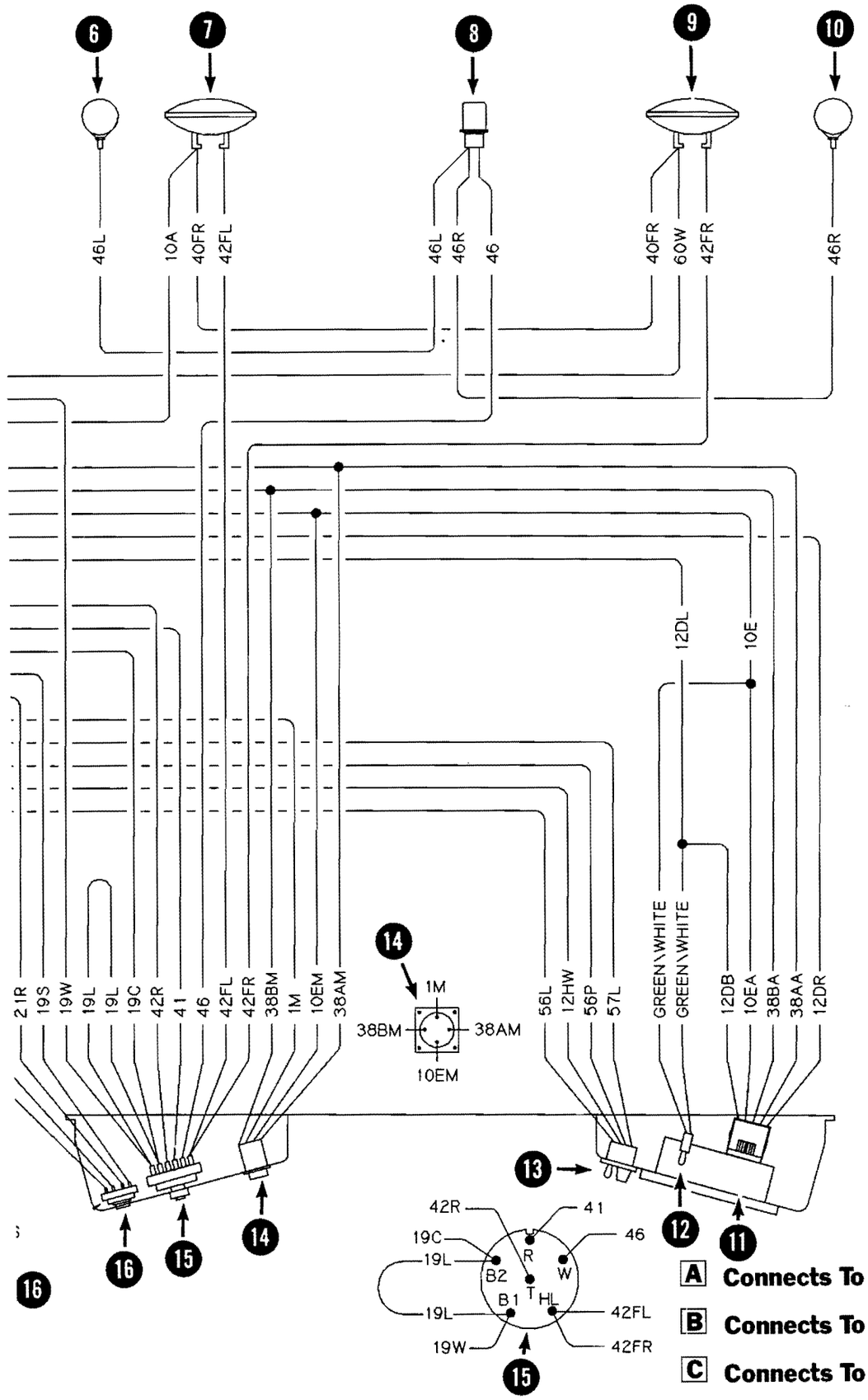
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OPERATOR CAB WIRING DIAGRAM (P/N 6722301)

Model 753 (Starting With S/N 17642)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	12
10A	Black	12
10E	Black	16
10EA	Black	18
10M	Black	16
12C	Orange	16
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	18
40FR	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
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Horn (Opt.)
6. Left Flasher Light (Opt.)
7. Left Front Light
8. Flasher (Opt.)
9. Right Front Light
10. Right Flasher Light (Opt.)
11. Instrument Panel Display
12. Display Back Light
13. Auxiliary Hydraulics Control Switch
14. Diagnostic Monitor Connector
15. Light Switch
17. Ignition Switch
18. Horn Connector

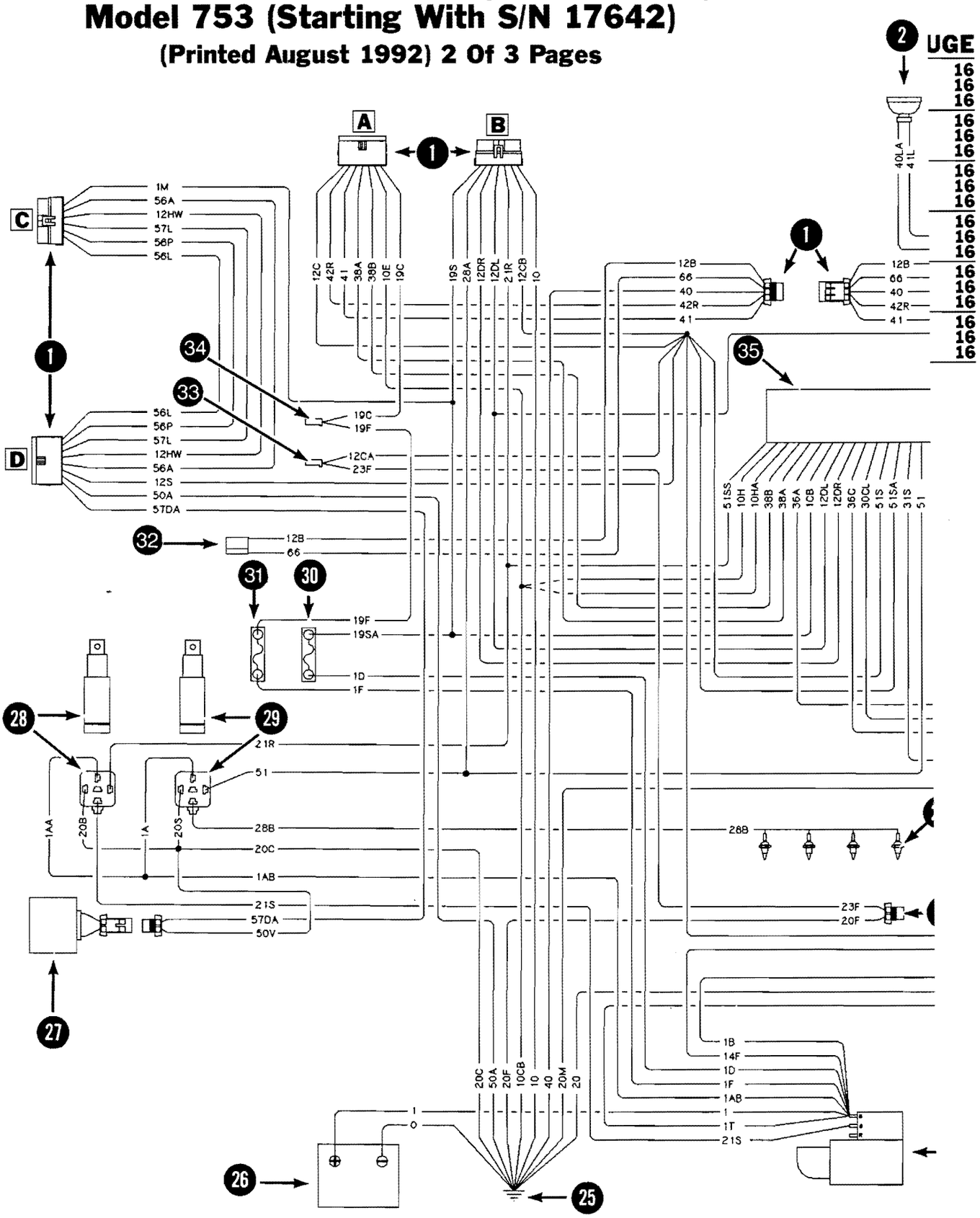
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ENGINE WIRING DIAGRAM (P/N 6722301)

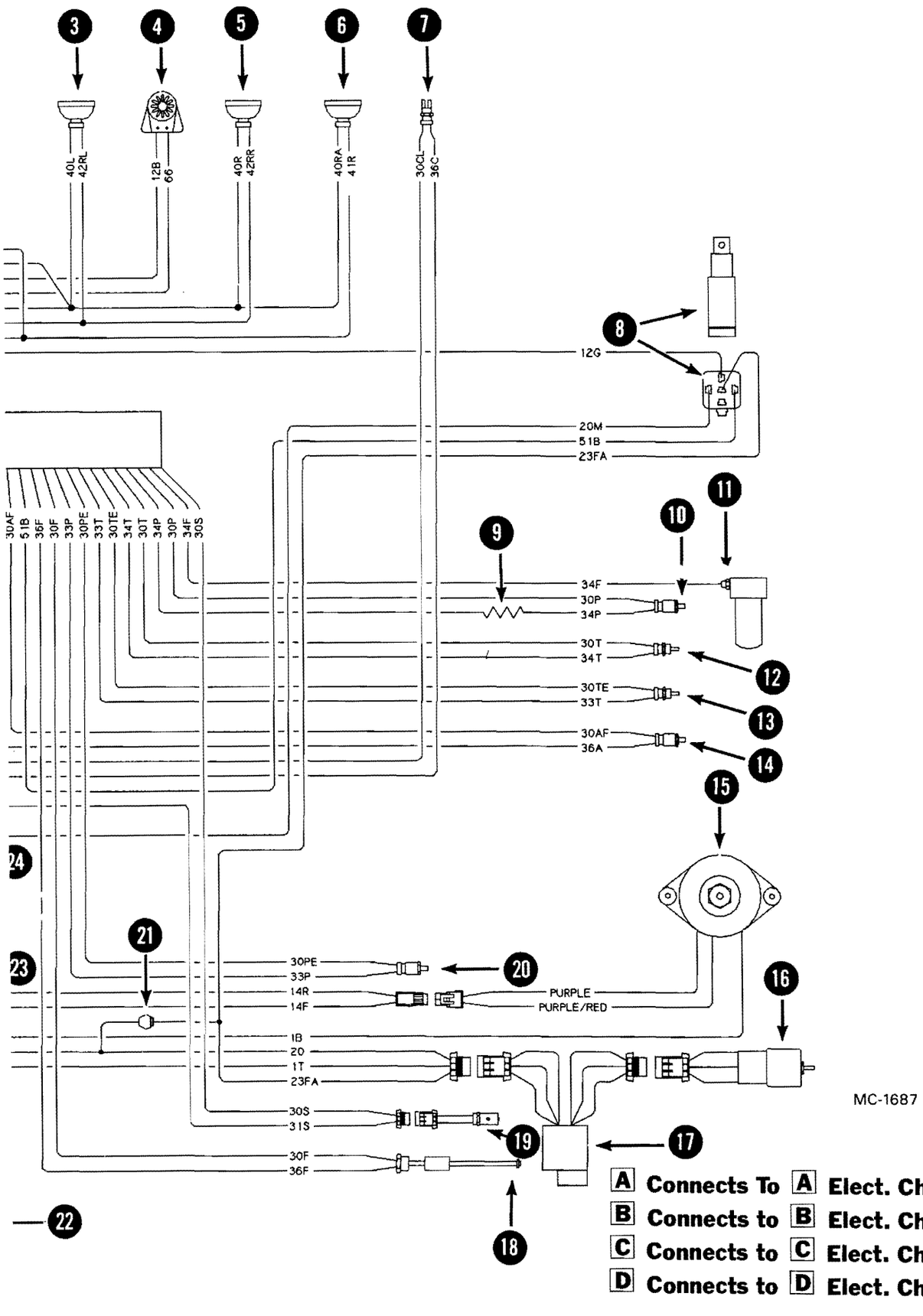
Model 753 (Starting With S/N 17642)

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	14
1F	Red	12
1M	Red	16
1T	Red	14
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12S	Orange	16
12HW	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	12
19S	Red/White	14
19SA	Red/White	14
20	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White/Lt. Green	16
21S	White/Lt. Green	14
23F	White/Black	16
23FA	Red/Blue	16
23FB	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple/Red	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16
40	Black	16
40L	Black	16
40LA	Black	16
40R	Black	16
40RA	Black	16
41	Pink	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
41L	Pink	16
41R	Pink	16
42R	Dk. Blue/White	16
42RL	Dk. Blue/White	16
42RR	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk.Green/Blue	16
56P	Dk. Green/Red	16
57L	Dk. Green/Pink	16
57DA	Yellow	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Back-Up Alarm (Opt.)
5. Right Rear Work Light
6. Right Tail Light
7. Radiator Coolant Level Sender
8. Shut-Down Relay
9. Resistor
10. Charge Pressure Sender
11. Hydraulic Fluid Filter Differential Pressure Switch
12. Hydraulic Fluid Temperature Sender
13. Engine Coolant Temp. Sender
14. Air Cleaner Switch
15. Alternator
16. Fuel Shut-Off Solenoid
17. Fuel Timer Module (Starting Wtih S/N 17946)
18. Fuel Sender
19. Magnetic Pickup (Engine Speed)
20. Engine Oil Pressure Sender
21. Diode
22. Starter
23. Fuel Pump Connector
24. Glow Plugs
25. Ground
26. Battery
27. Diverter Valve
28. Starter Relay
29. Glow Plug Relay
30. Fuse - Ignition
31. Fuse - Accessory
32. Back-Up Alarm Connector
33. Fused and Switch Power
34. Fused Accessory Power
35. System Operating Unit

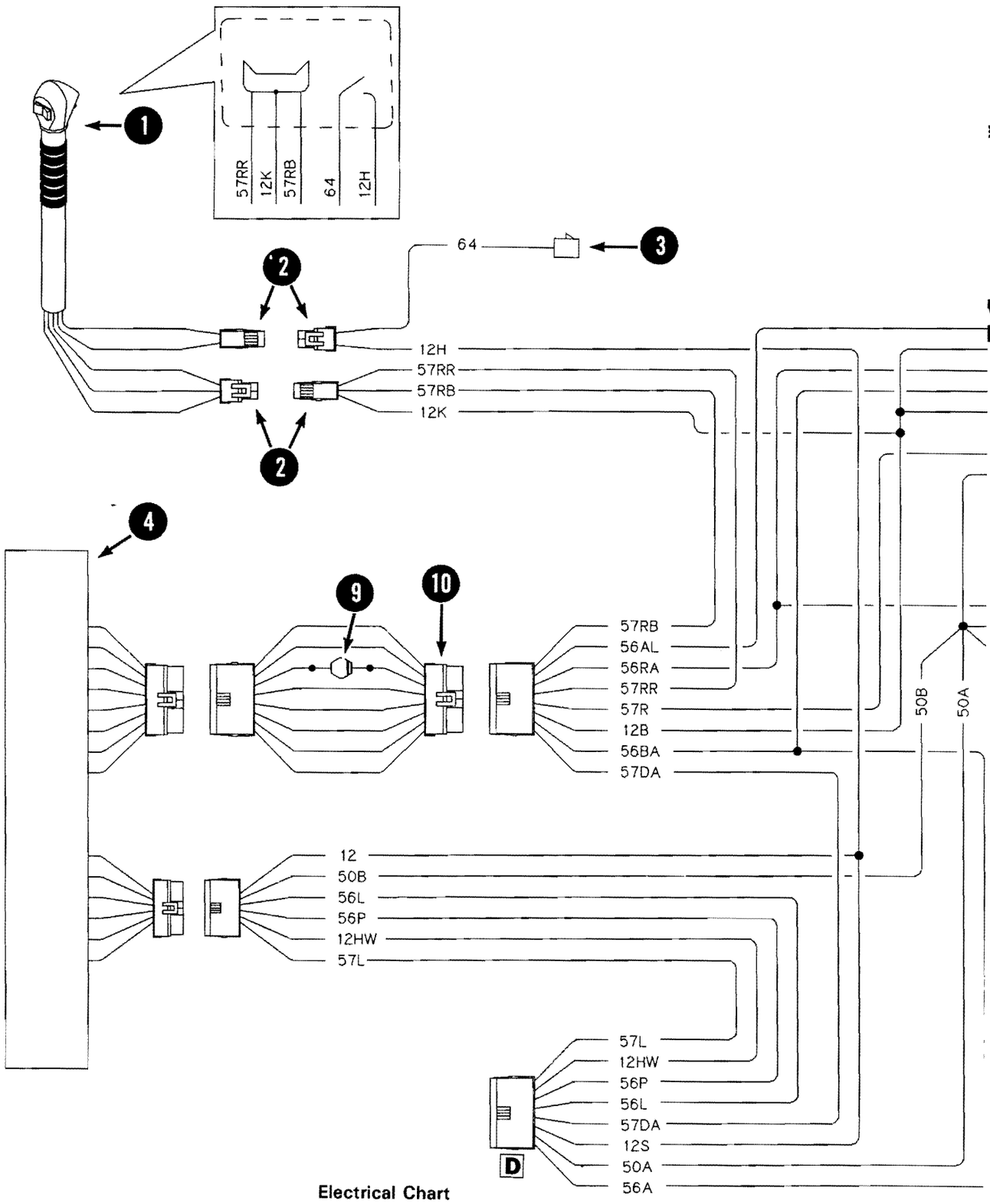
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age 1
age 1
age 3

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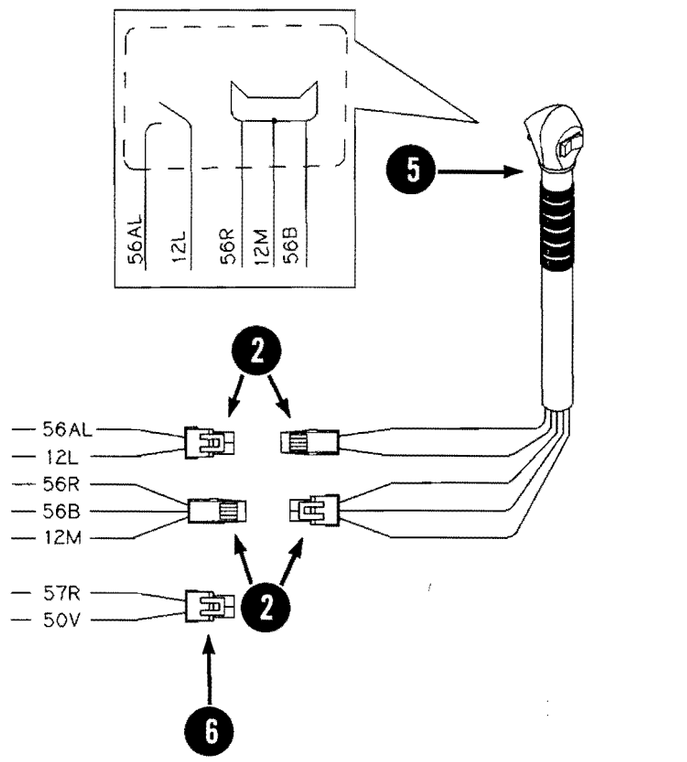
AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6722301)

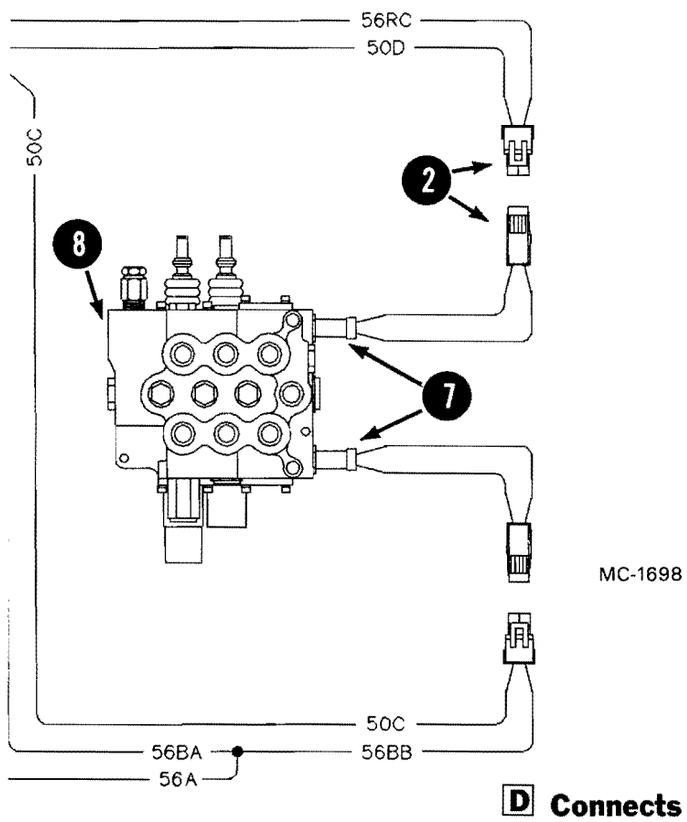
Model 753 (Starting With S/N 17642)

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D Connects To D Elect. Chart—Page 2

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	16
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/White	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	14
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

PARTS LEGEND

1. Left Steering Lever Control
2. Harness Connectors
3. Horn Connector
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve
9. Diode
10. Harness (P/N 6704114) (Used When Optional Rear Auxiliary Hydraulics Are Installed)

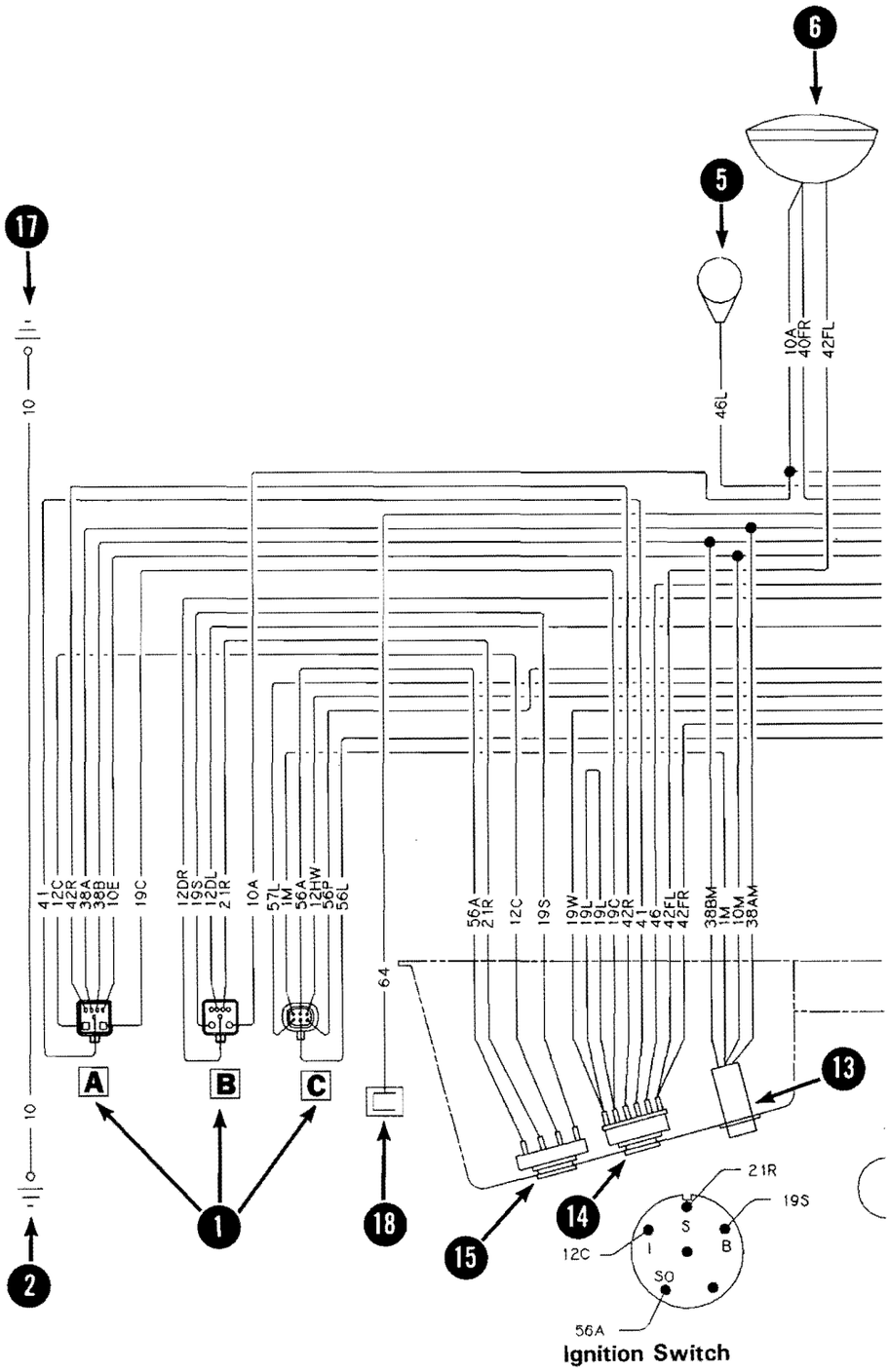
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OPERATOR CAB WIRING DIAGRAM (P/N 6722827)

Model 753 (S/N 511525001 Thru 511525540)

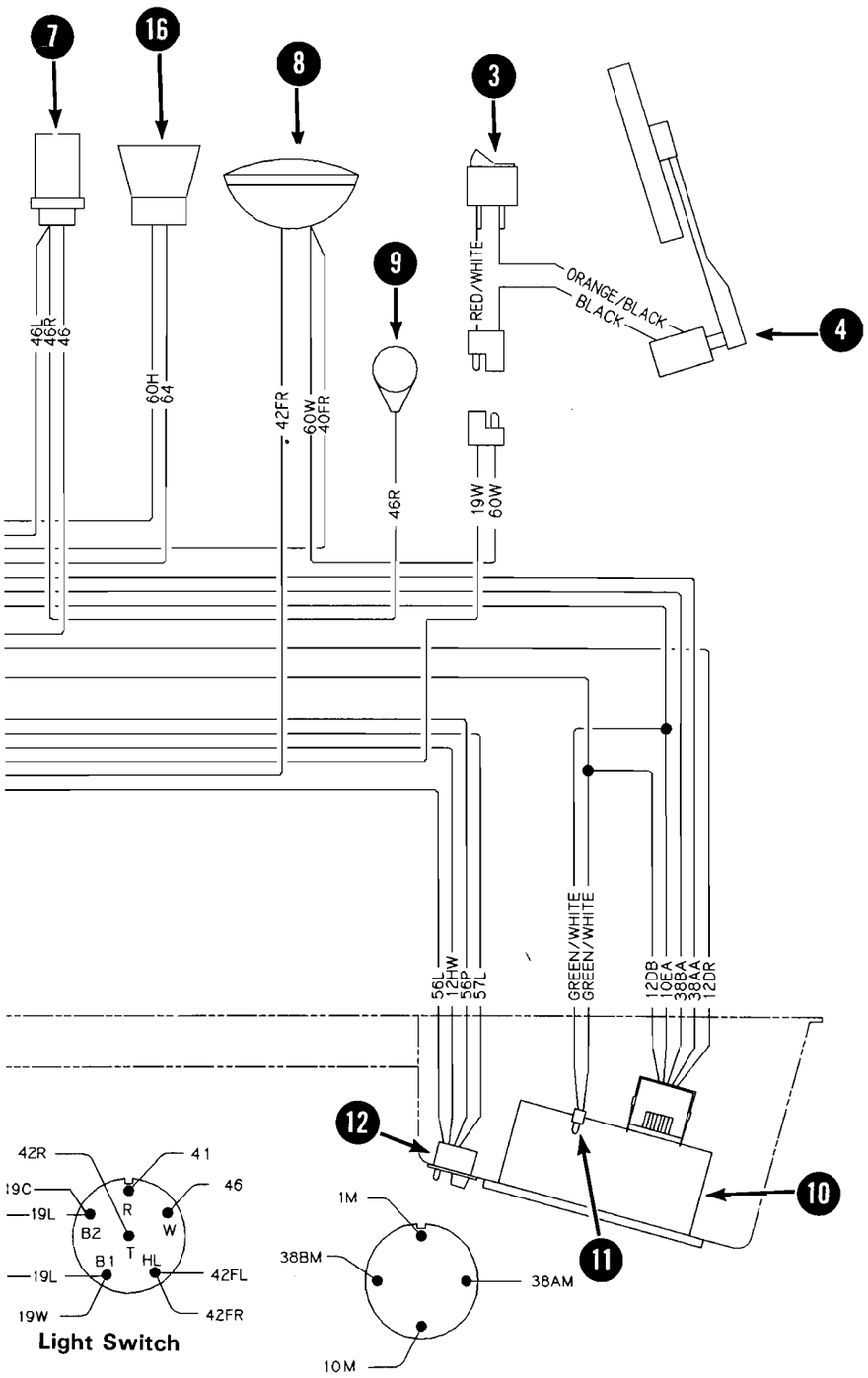
Model 753H (S/N 511011001 Thru 511911006)

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A Connects To A Elect. Chart—Page 2
B Connects To B Elect. Chart—Page 2
C Connects To C Elect. Chart—Page 2

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WIRE LEGEND

NO.'s	COLOR	GAUGE
1M	Red	16
10	Black	10
10A	Black	12
10E	Black	16
10EA	Black	18
10M	Black	16
12C	Orange	14
12DB	Orange	18
12DL	Orange	16
12DR	Orange	18
12HW	Orange	18
19C	Red/White	16
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
38A	Purple/Red	18
38AA	Purple/Red	16
38AM	Purple/Red	16
38B	Purple/White	18
38BA	Purple/White	18
38BM	Purple/White	16
40FR	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
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Left Lasher Light (Opt.)
6. Left Front Light
7. Flasher
8. Right Front Light
9. Right Flasher Light (Opt.)
10. Instrument Panel Display
11. Display Back Light
12. Auxiliary Hydraulics Control Switch
13. Diagnostic Monitor Connector
14. Light Switch
15. Ignition Switch
16. Horn (Opt.)
17. Frame Ground
18. Horn Connector

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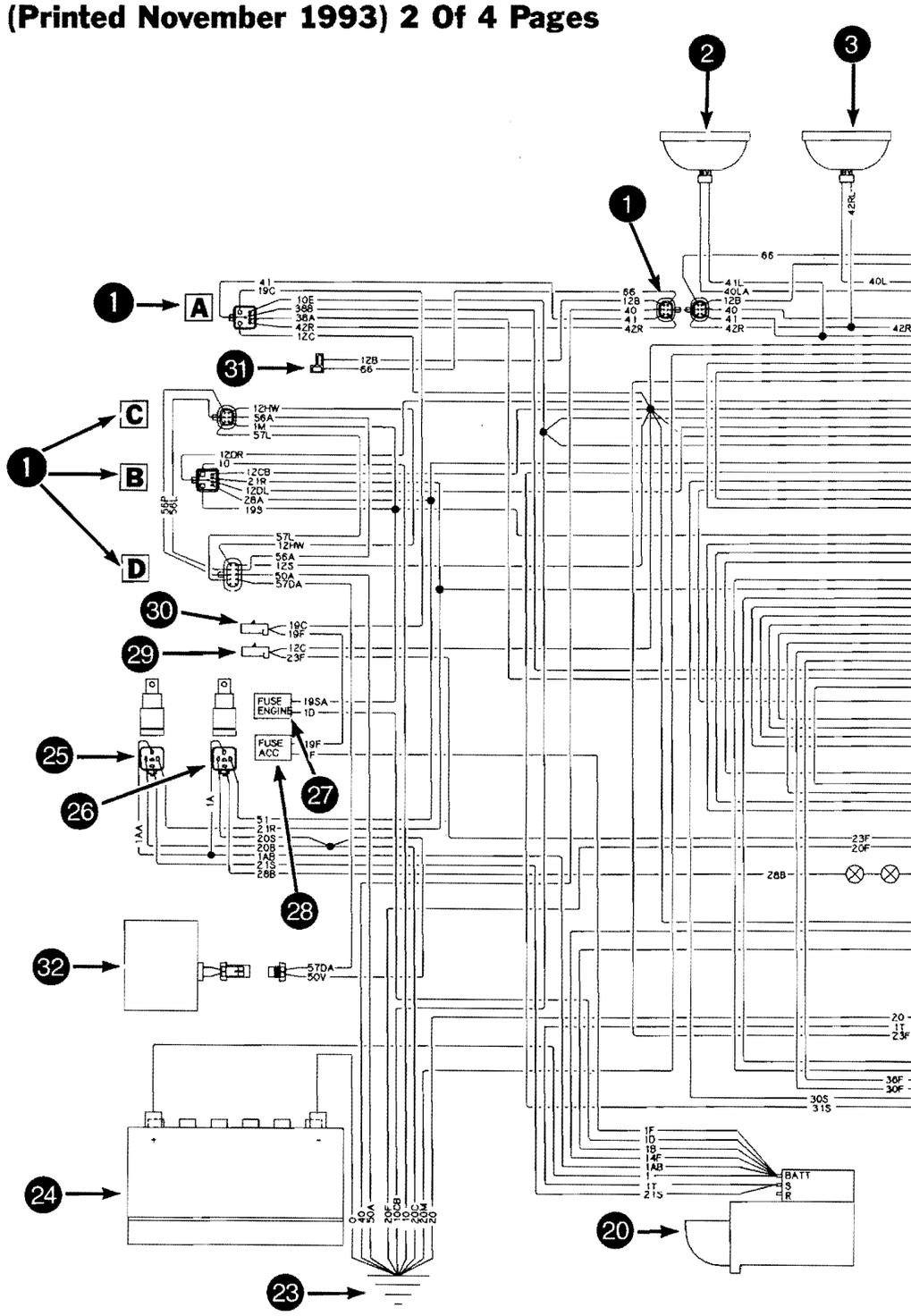
ENGINE WIRING DIAGRAM (P/N 6722827)

Model 753 (S/N 511525001 Thru 511525540)

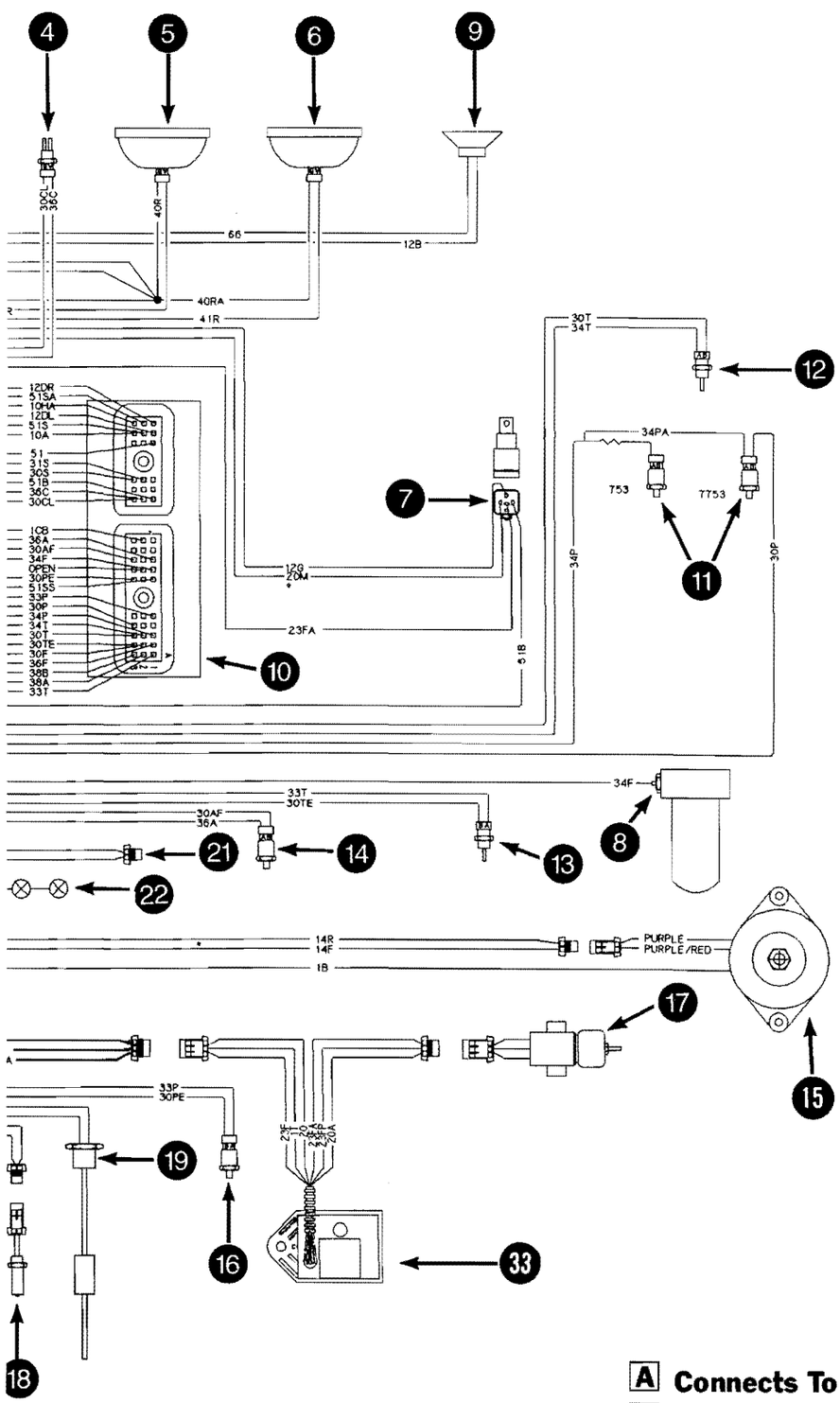
Model 753H (S/N 511011001 Thru 511011006)

(Printed November 1993) 2 Of 4 Pages

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A Connects To A Elect. Chart—Page 1
B Connects to B Elect. Chart—Page 1
C Connects to C Elect. Chart—Page 1
D Connects to D Elect. Chart—Page 3

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WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1AA	Red	14
1AB	Red	12
1B	Red	10
1CB	Red	16
1D	Red	14
1F	Red	12
1M	Red	16
1T	Red	14
10	Black	14
10CB	Black	14
10E	Black	16
10H	Black	16
10HA	Black	16
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12CB	Orange	16
12DL	Orange	16
12DR	Orange	16
12G	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
19F	Red/White	12
19S	Red/White	14
19SA	Red/White	14
20	Black	14
20A	Black	14
20B	Black	16
20C	Black	16
20F	Black	16
20M	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	14
23F	White/Black (Harness)	16
23F	Red/Blue (Timer Module)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28A	Lt. Blue/Orange	16
28B	Lt. Blue/Orange	12
30AF	Black	16
30CL	Black	16
30F	Black	16
30P	Black	16
30PE	Black	16
30S	Black	16
30T	Black	16
30TE	Black	16
31S	Yellow/Lt. Blue	16
33P	Yellow/Green	16
33T	Yellow/Red	16
34F	Yellow/Dk. Blue	16
34P	Yellow/Lt. Blue	16
34PA	Lt. Blue	16
34T	Yellow/Brown	16
36A	Purple	16
36C	Purple/Lt. Blue	16
36F	Purple	16
38A	Purple/Red	16
38B	Purple/White	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
51	Lt. Blue/White	16
51B	Orange/Blue	16
51S	Orange/White	16
51SA	Orange/White	16
51SS	White/Orange	16
56A	Dk. Green/Yellow	16
56L	Dk. Green/Blue	16
56P	Dk. Green/Red	16
57DA	Yellow	16
57L	Dk. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Filter Differential Pressure Sensor
9. Back-up Alarm (Opt.)
10. System Operating Unit
11. Hydraulic Charge Pressure Sensor
12. Hydraulic Fluid Temperature Sensor
13. Engine Coolant Temperature Sensor
14. Air Cleaner Switch
15. Alternator
16. Engine Oil Pressure Sender
17. Fuel Shut-Off Solenoid
18. Magnetic Pickup (Engine RPM)
19. Fuel Sensor
20. Starter
21. Fuel Pump Connector
22. Glow Plugs
23. Ground
24. Battery
25. Starter Relay
26. Glow Plug Relay
27. Fuse 25 Amp. - Ignition
28. Fuse 25 Amp. - Accessory
29. Fused and Switched Power
30. Fused Accessory Power
31. Back-Up Alarm Connector
32. Diverter Valve
33. Fuel Shut-Off Solenoid Timer Module

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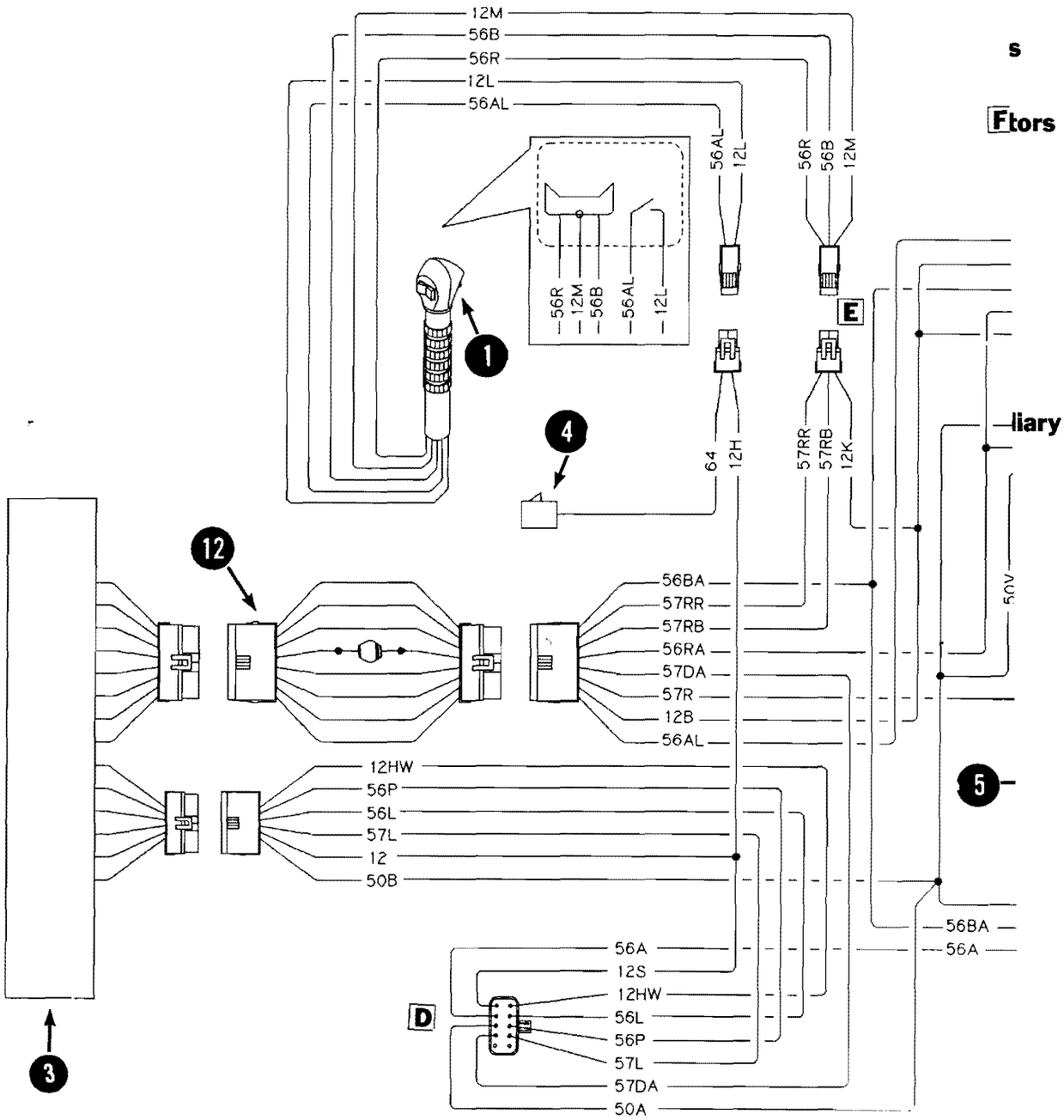
AUXILIARY HYD. WIRING DIAGRAM (P/N 6722827)

Model 753 (S/N 511350001 Thru 511350882)

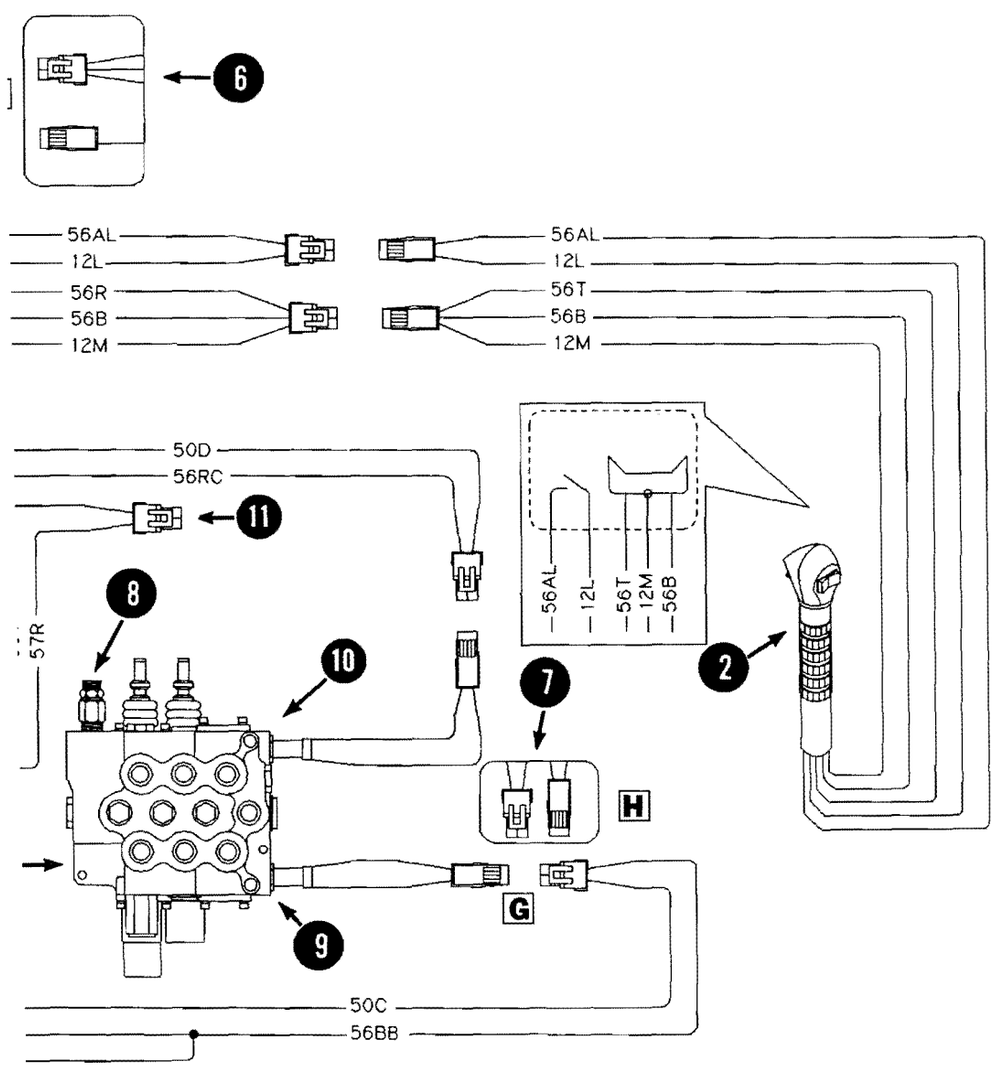
Model 753 (S/N 511525001 Thru 511525540)

Model 753H (S/N 511011001 Thru 511011006)

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D Connects To D Elect. Chart—Page 2

E Connects To F Elect. Chart—Page 3 &

G Connects To H Elect. Chart—Page 3 &

https://truckmanualshub.com/

WIRE LEGEND

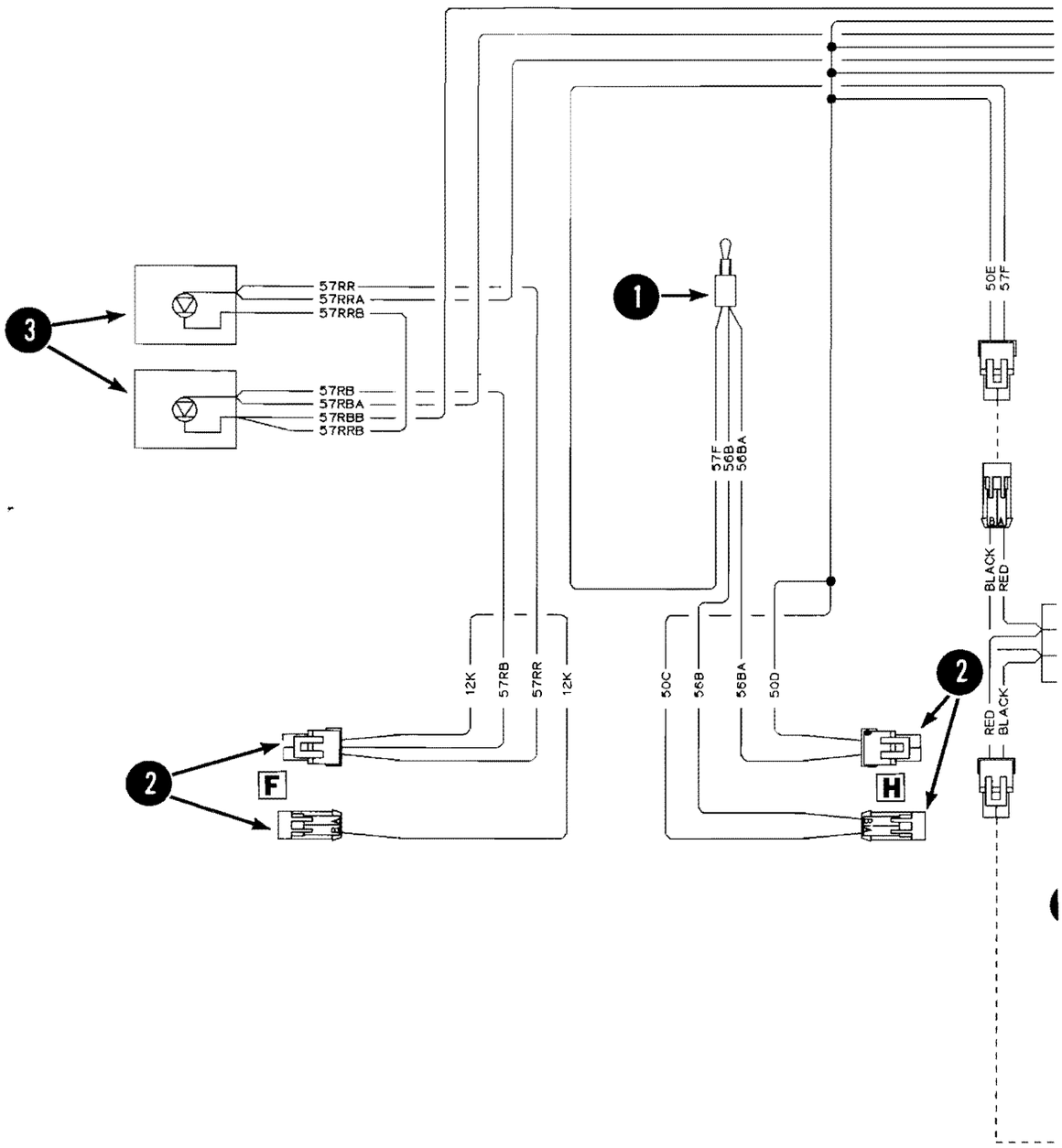
NO.'s	COLOR	GAUGE
12	Orange	16
12B	Orange	16
12H	Orange	16
12HW	Orange	16
12K	Orange	16
12L	Orange	16
12M	Orange	16
12S	Orange	16
50A	Black	16
50B	Black	16
50C	Black	16
50D	Black	16
50V	Black	16
56A	Dk. Green/Yelow	16
56AL	Dk. Green	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
56BB	Dk. Green/Red	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
56R	Dk. Green/Lt. Green	16
56RA	Dk. Green/Lt. Green	16
56RC	Dk. Green/Lt. Green	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
57R	Lt. Blue/Red	16
57RB	Yellow	16
57RR	Yellow/White	16
64	Orange/Blue	16

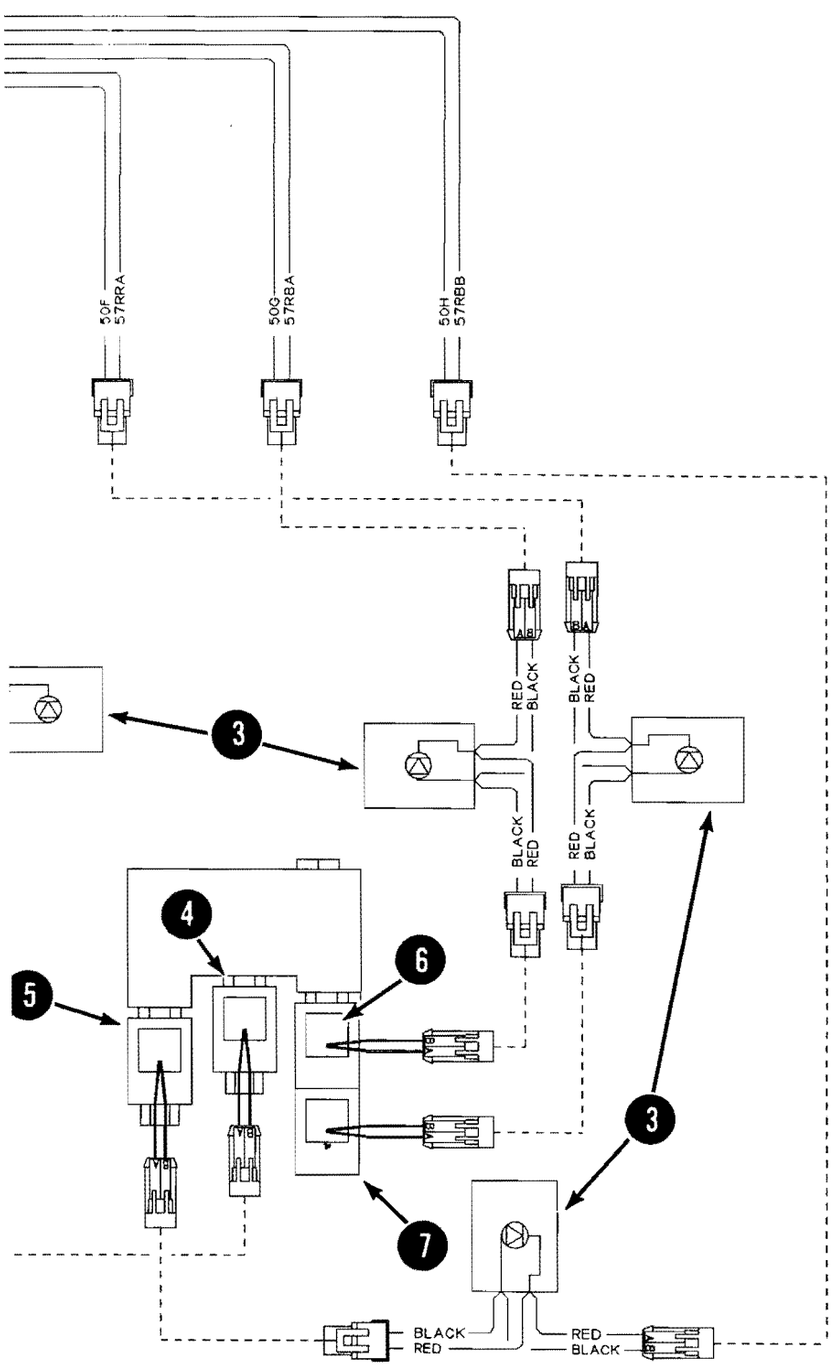
PARTS LEGEND

1. Left Steering Lever Control
2. Right Steering Lever Control
3. Auxiliary Control Moldule
4. Horn Connector
5. Hydraulic Control Valve
6. Left Handle Controls Connectors (Hi Flow)
7. Control Valve Base End Connectors (Hi Flow)
8. High Pressure Relief Valve
9. Front Auxiliary Solenoid (Base)
10. Front Auxiliary Solenoid (Rod)
11. Connector (Not Used)
12. Harness (P/N 6704114) (Used When Optional Rear Auxiliary Hydraulics Are Installed)

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HIGH FLOW WIRING DIAGRAM (P/N 6722827)
Model 753H (S/N 511011001 Thru 511011006)
(Printed November 1993) 4 Of 4 Pages





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F Connects To E Elect. Chart—Page 3

H Connects To G Elect. Chart—Page 3

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WIRE LEGEND

NO.'s	COLOR	GAUGE
12K	Orange	16
50C	Black	16
50D	Black	16
50E	Black	16
50F	Black	16
50G	Black	16
50H	Black	16
56B	Dk. Green/Red	16
56BA	Dk. Green/Red	16
57F	Lt. Blue/Red	16
57RB	White/Yellow	16
57RBA	White/Yellow	16
57RBB	Yellow	16
57RR	Brown	16
57RRA	Brown	16
57RRB	Brown	16

PARTS LEGEND

1. Hi Flow On/Off Switch
2. Auxiliary Control Harness Connectors
3. Diodes
4. Hi Flow Solenoid
5. Diverter Solenoid
6. Rear/Secondary Front Auxiliary Solenoid (Base)
7. Rear/Secondary Front Auxiliary Solenoid (Rod)

3

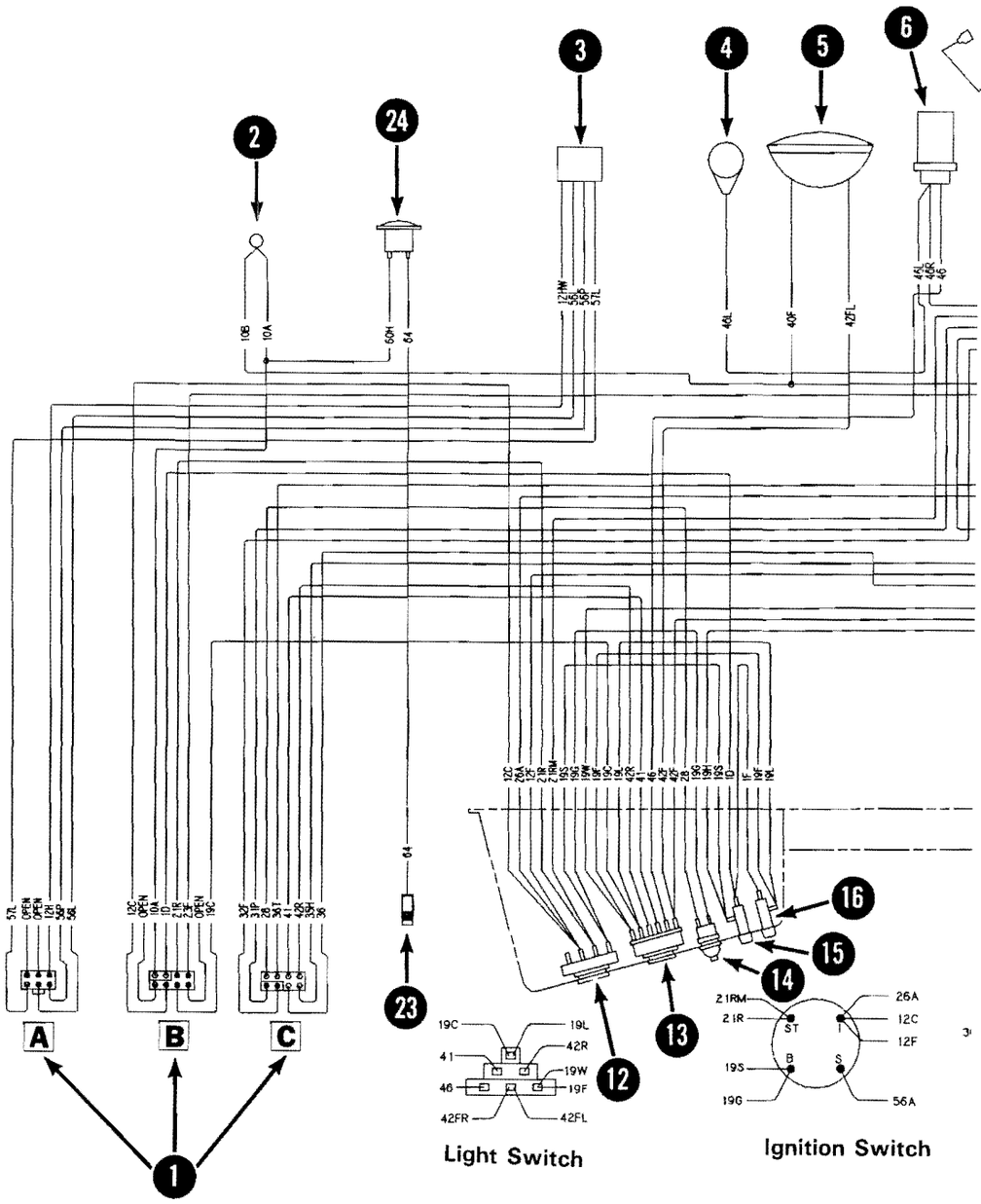
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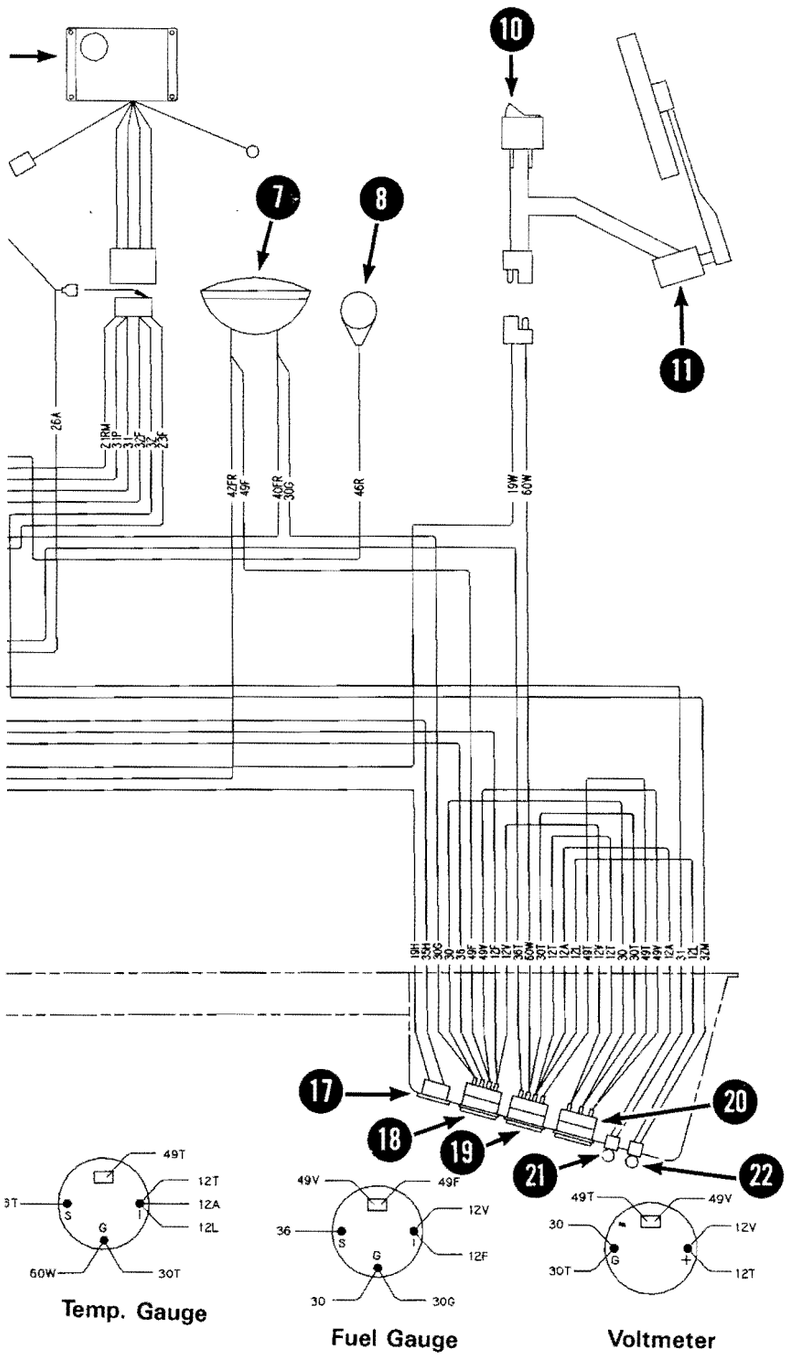
OPERATOR CAB WIRING DIAGRAM (P/N 6722831)

Model 753 (S/N 511350001 Thru 511350882)

(Printed November 1993) 1 Of 2 Pages



https://truckmanualshub.com/



MC-1704

A Connects To A Elect. Chart—Page 2
B Connects To B Elect. Chart—Page 2
C Connects To C Elect. Chart—Page 2

https://truckmanualshub.com/

WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	14
10A	Black	12
10B	Black	16
12A	Orange	16
12C	Orange	14
12F	Orange	16
12HW	Orange	16
12L	Orange	16
12T	Orange	16
12V	Orange	16
19C	Red/White	16
19F	Red/White	16
19G	Red/White	16
19H	Red/White	16
19L	Red/White	16
19S	Red/White	14
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26A	Lt. Blue/Green	16
28	Lt. Blue/Black	16
30	Black	16
30G	Black	16
30T	Black	16
31	Yellow/Green	16
31P	Yellow/Green	16
32	Yellow/Dk. Blue	16
32F	Yellow/Dk. Blue	16
35H	Yellow/Brown	16
36	Purple	16
36T	Purple/White	16
40FL	Black	16
40FR	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
49F	Gray	16
49T	Gray	16
49V	Gray	16

WIRE LEGEND (Cont'd)

NO.'s	COLOR	GAUGE
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57L	Lt. Green/Pink	16
60H	Black	16
60W	Black	16
64	Orange/Blue	16

PARTS LEGEND

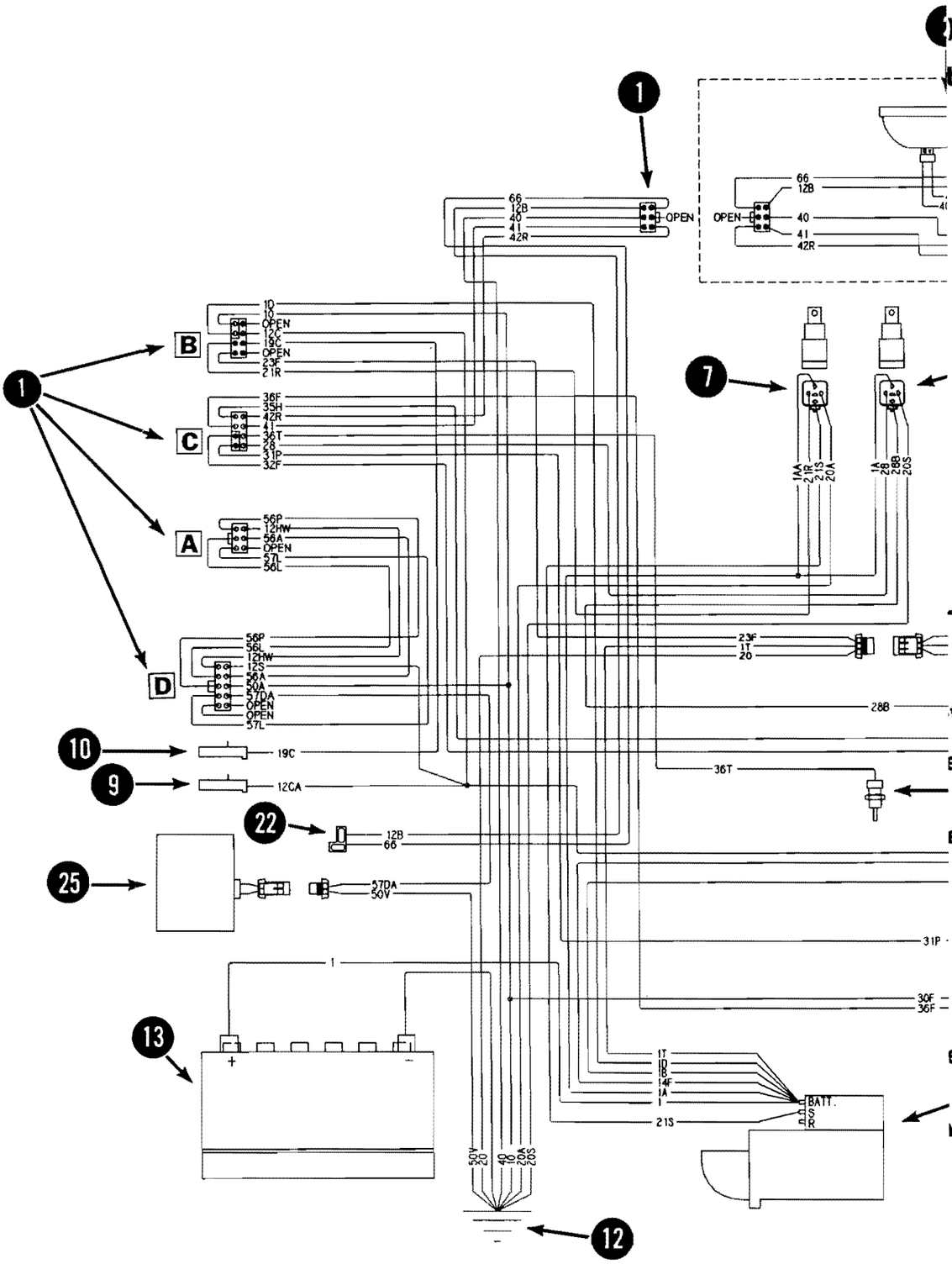
1. Harness Connectors
2. Operator Cab Ground
3. Auxiliary Hydraulics Connector
4. Left Flasher Light (Opt.)
5. Left Front Light (Opt.)
6. Flasher
7. Right Front Light (Opt.)
8. Right Flasher Light (Opt.)
9. Shutdown Module (Opt.)
10. Wiper Switch (Opt.)
11. Wiper (Opt.)
12. Ignition Switch
13. Light Switch
14. Glow Plug Pre-Heat Button
15. Ignition Fuse
16. Accessory Fuse
17. Hornmeter
18. Fuel Gauge
19. Temperature Gauge
20. Voltmeter
21. Engine Warning Lamp
22. Transmission Warning Lamp
23. Horn Connector
24. Horn (Opt.)

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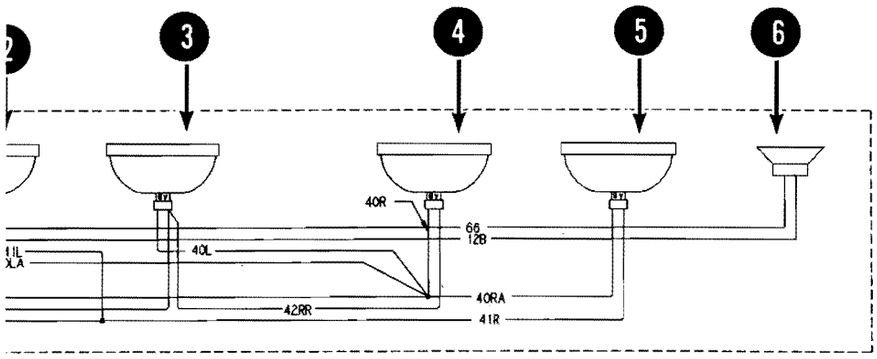
ENGINE WIRING DIAGRAM (P/N 6722831)

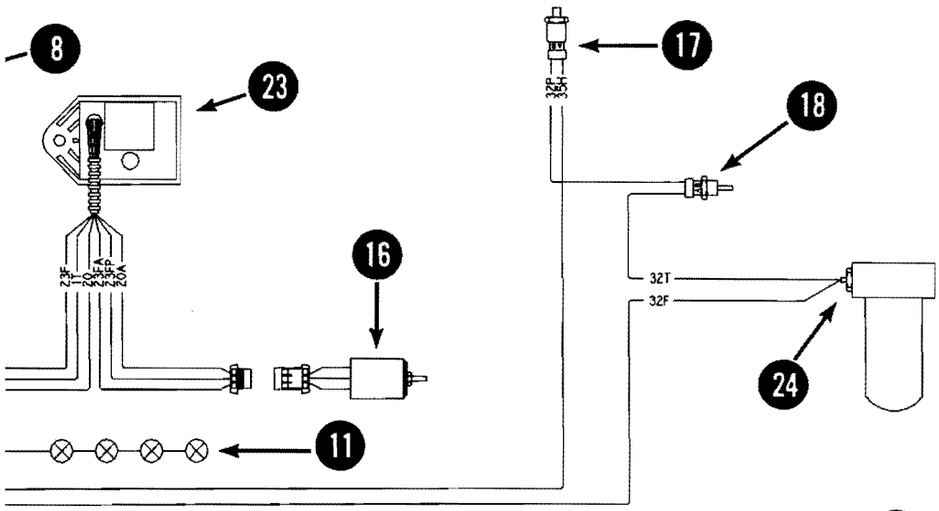
Model 753 (S/N 511350001 Thru 511350882)

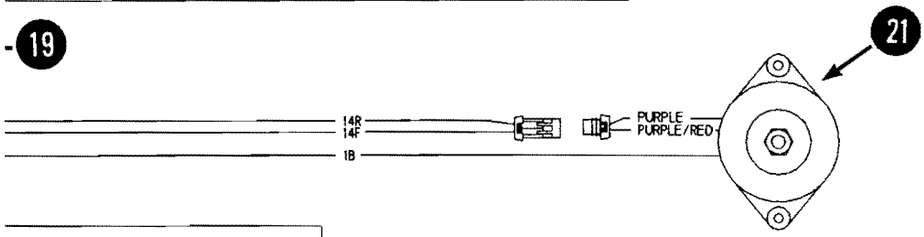
(Printed November 1993) 2 Of 2 Pages

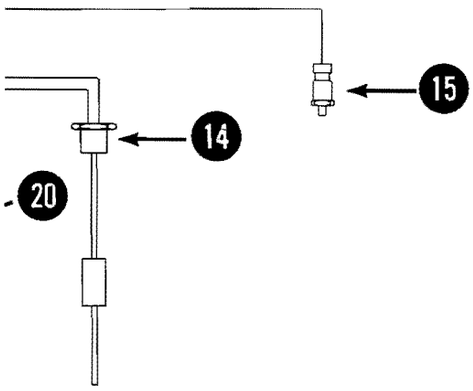


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MC-1895

A Connects To A Elect. Chart—Page 1

B Connects To B Elect. Chart—Page 1

C Connects To C Elect. Chart—Page 1

D Connects To D Elect. Chart (P/N 6722827) Page

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WIRE LEGEND

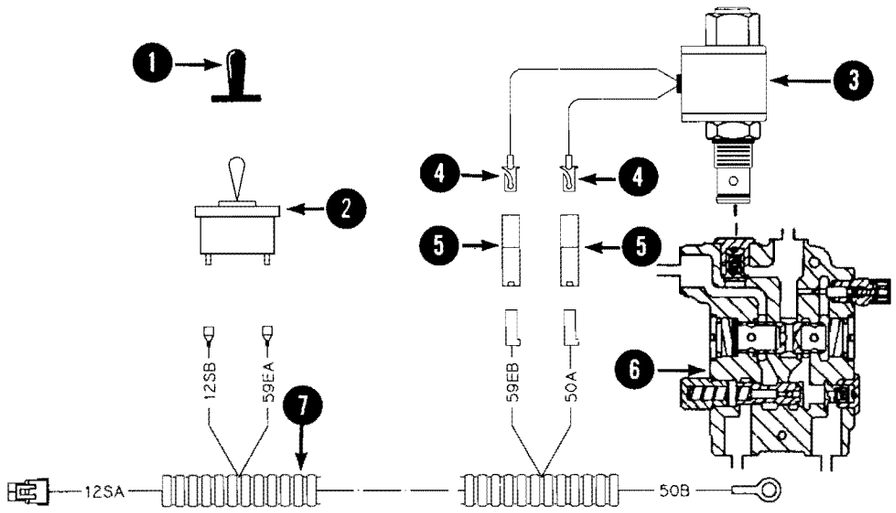
NO.'s	COLOR	GAUGE
1A	Red	12
1AA	Red	14
1B	Red	10
1D	Red	12
1T	Red	14
10	Black	14
12B	Orange	16
12C	Orange	14
12CA	Orange	16
12HW	Orange	16
12S	Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
19C	Red/White	16
20	Black	14
20A	Black	16
20S	Black	16
21R	White	16
21S	White/Lt. Green	14
23F	White/Black (Harness Side)	16
23F	Red/Blue (Module Side)	16
23FA	Red/Blue	16
23FP	White/Blue	14
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	12
30F	Black	16
31P	Yellow/Green	16
32F	Yellow/Dk. Blue	16
32P	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36F	Purple	16
36T	Purple/White	16
40	Black	16
41	Pink	16
42R	Dk. Blue/White	16
50A	Black	16
50V	Black	16
56A	Dk. Green/Yellow	16
56L	Lt. Green/Blue	16
56P	Lt. Green/Red	16
57DA	Yellow	16
57L	Lt. Green/Pink	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Left Tail Light (Opt.)
3. Left Rear Work Light (Opt.)
4. Right Rear Work Light (Opt.)
5. Right Tail Light (Opt.)
6. Back-Up Alarm (Opt.)
7. Starter Relay
8. Glow Plug Relay
9. Fused and Switch Power
10. Fused Accessory Power
11. Glow Plugs
12. Ground
13. Battery
14. Fuel Sender
15. Engine Oil Pressure Sender
16. Fuel Shut-Off Solenoid
17. Hydraulic Charge Pressure Switch
18. Hydraulic Fluid Temperature Switch
19. Engine Coolant Temperature Sender
20. Starter
21. Alternator
22. Back-Up Alarm Connector
23. Fuel Shut-Off Solenoid Timer Module
24. Hydraulic Filter Pressure Switch
25. Diverter Valve

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WIRING DIAGRAM (P/N 6722195)
BUCKET POSITION VALVE LOCKOUT (OPTIONAL)
Model 753, 7753, 843, 843B & 853
(Printed April 1992)



MC-1450
MC-1118

WIRE LEGEND

WIRE NO.	COLOR	CONNECTS TO
12S-A	Orange	Loader Wiring Harness Fused & Switched Power
12S-B	Orange	Switch
59E-A	Orange	Switch
59E-B	Orange	Solenoid
50-A	Black	Solenoid
50-B	Black	Ground

PARTS LEGEND

1. Switch Cover
2. Switch
3. Solenoid
4. Terminal
5. Connector
6. Bucket Position Valve
7. Wiring Harness

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6 ELECTRICAL SYSTEM

ELECTRICAL SYSTEM INFORMATION

Description

The loader has a 12 volt, negative ground electrical system. There are two main circuits.

1. The charging circuit has an alternator (with built–in regulator) and a battery.

2. The starting circuit has glow plugs, starter motor and solenoid for starting the engine.

Optional equipment for the loader are windshield wiper, horn and back–up alarm.

S/N 11078 & Below: The electrical system is protected by two fuses in the instrument panel.

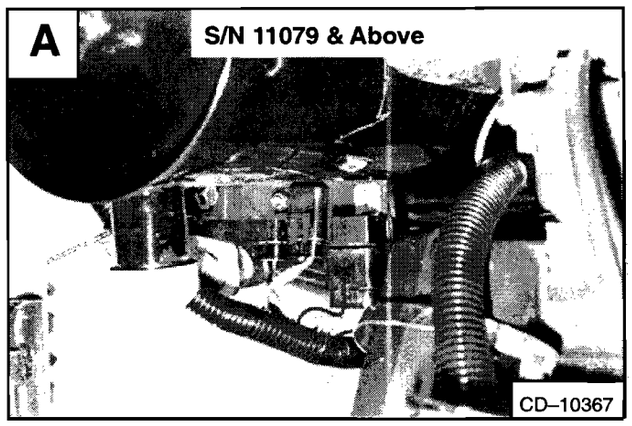
S/N 11079 & Above: The electrical system is protected by two fuses in the wiring harness **[A]**.

Fuses protect the electrical system from an overload.

⚠ 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



TROUBLESHOOTING

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
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, 5, 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 ground connection is 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.

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BATTERY

Removal and Installation

⚠ WARNING

Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

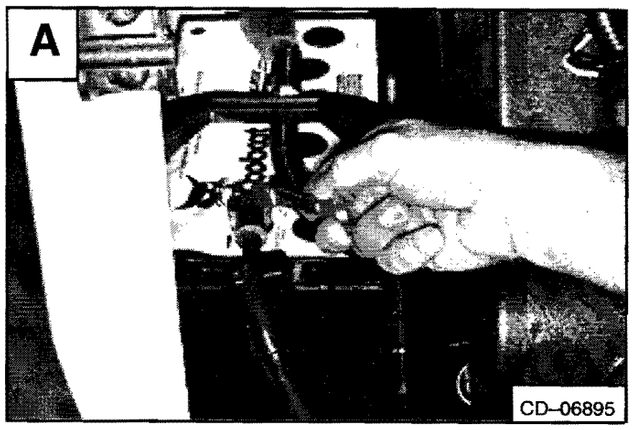
In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

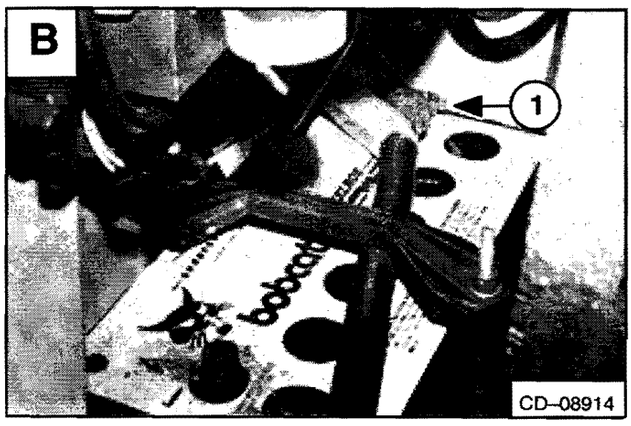
W–2065–1296

Open the rear door.

Disconnect the negative (–) battery cable **[A]**.

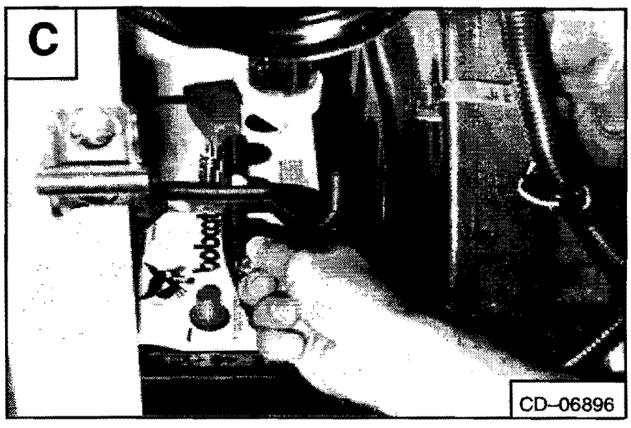


Disconnect the positive (+) cable (Item 1) **[B]**.



Remove the nuts from the holddown clamp **[C]**.

Remove the holddown clamp.



Remove the battery from the loader **[D]**.

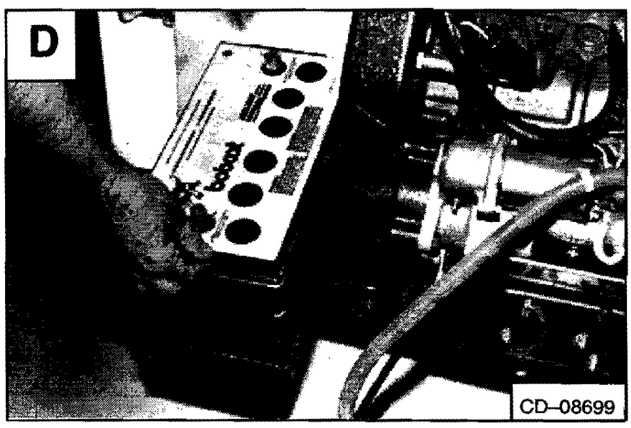
⚠ WARNING

Keep arcs, sparks, flames and lighted tobacco away from batteries. When *jumping* from booster battery make final connection (negative) at engine frame.

Do not jump start or charge a frozen or damaged battery. Warm battery to 60°F. (16°C.) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.

Battery gas can explode and cause serious injury.

W–2066–1296



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ALTERNATOR

Checking the Alternator Output (Old Style)

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Lift and block the loader (Page 1–2).

Disconnect the negative (–) cable from the battery.

Disconnect the orange wire (Item 1) from the alternator. Connect the wire to the negative (–) side of the ammeter.

Connect the positive (+) side of the ammeter to the output terminal on the alternator (Item 2).

Close the fuel shut–off valve.

Connect the negative (–) cable to the battery.

Turn on the lights and crank the engine for 30 seconds to discharge the battery.

Open the fuel shut–off valve.

Start the engine and run at 2600 RPM.

The ammeter reading should be between 45 & 55 amps. @ 2600 RPM.

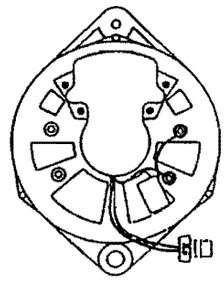
If the reading is low, remove the screws and pull the regulator cover away from the alternator.

Disconnect the battery and connect a jumper wire from the alternator output terminal (Item 1) **[A]** to the regulator terminal (Item 2).

Connect the battery cable, start the engine and check the ammeter. If the reading is within the rated amperage (45–55 amps. @ 2600 RPM) replace the diode trio.

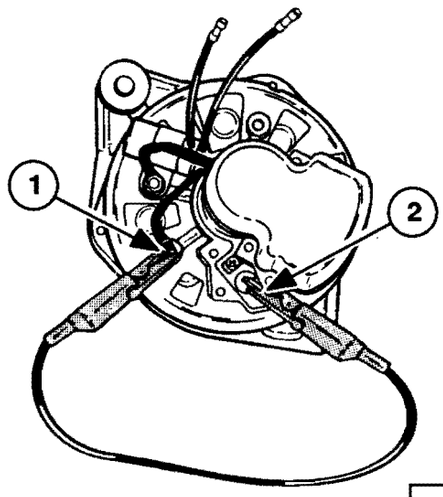
A

REAR VIEW OF ALTERNATOR
OLD 6632211



MC–01813

B



B–09570

https://truckmanualshub.com/

ALTERNATOR (Cont'd)

Checking the Alternator Regulator (Old Style)

Connect the positive (+) voltmeter lead to the positive (+) battery terminal and connect the negative (–) voltmeter lead to the negative (–) terminal **[A]**.

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

⚠ WARNING

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W–2050–1285

Start and run the engine at 1500–2000 RPM. The voltmeter reading should be between 13.9–14.7 volts **[A]**.

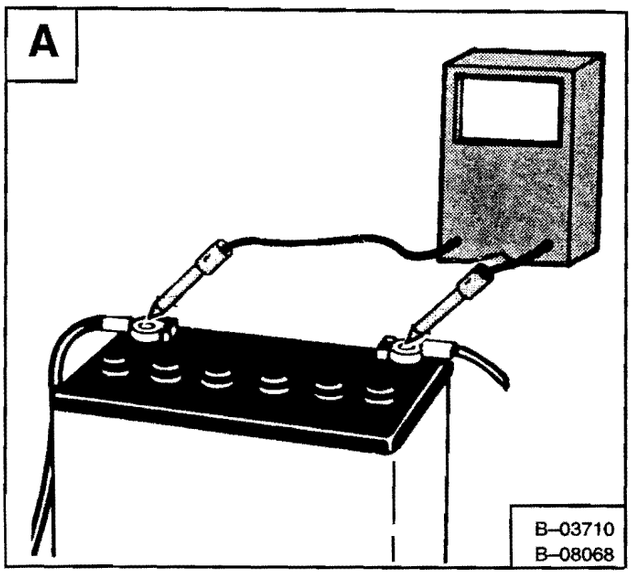
If the reading is low, stop the engine and disconnect the battery.

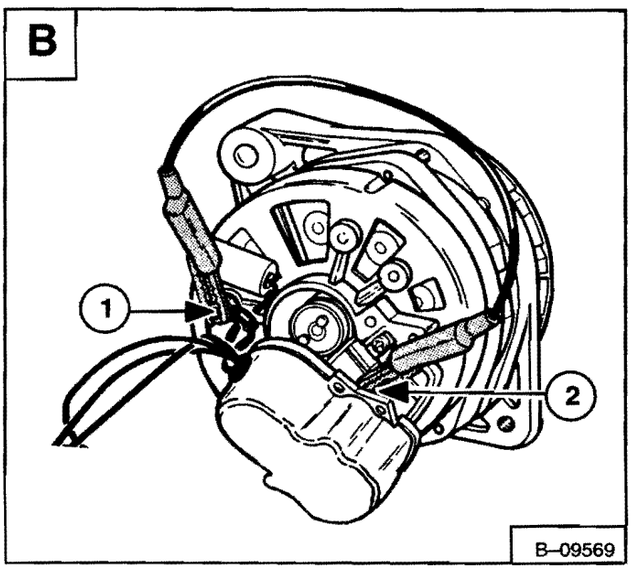
Remove the screws and pull the regulator cover away from the alternator. Connect the jumper wire from the ground stud (Item 1) to the brush terminal (Item 2) (the tan wire) **[B]**.

Connect the battery and start the engine. Run at 1500 RPM. DO NOT allow the meter to exceed 16 volts.

If the reading is 14.5 or above, replace the regulator.

If the reading is 14.5 or below, repair or replace the alternator.





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ALTERNATOR

Test the New Style alternator as follows:

a. Alternator Output Test
b. Rectifier (Diode) Test
c. Alternator Regulator Test

Alternator Output Test (New Style)

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W–2017–0286

Lift and block the loader (Page 1–2).

Disconnect the negative (–) cable from the battery.

Disconnect the red wire (Item 1) from the alternator. Connect that wire to the negative (–) side of the ammeter **[B]**.

Connect the positive (+) side of the ammeter to the output terminal on the alternator (Item 2) **[B]**.

Disconnect the fuel stop solenoid connector.

Connect the negative (–) cable to the battery.

Turn on the lights and crank the engine for 30 seconds to discharge the battery.

Connect the fuel stop solenoid, start the engine and run at 2600 RPM.

The ammeter reading should be between 45 & 55 amps. @ 2600 RPM.

If the reading is low, remove the screws and pull the regulator cover away from the alternator.

Rectifier (Diode) Test (New Style)

The alternator is removed from the loader for clarity purposes **[C]**.

Disconnect the negative (–) cable from the battery.

Install the wires in their original location on the back of the alternator.

Connect a jumper wire (Item 1) to the alternator output terminal and the regulator terminal **[C]**.

Connect the battery negative (–) cable.

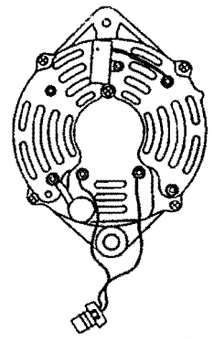
Start the engine and run at 2600 RPM.

If the reading is within 45–55 AMPS at 2600 RPM replace the rectifier (diode) assembly or replace the alternator.

If the reading is low, do the Alternator Regulator Test.

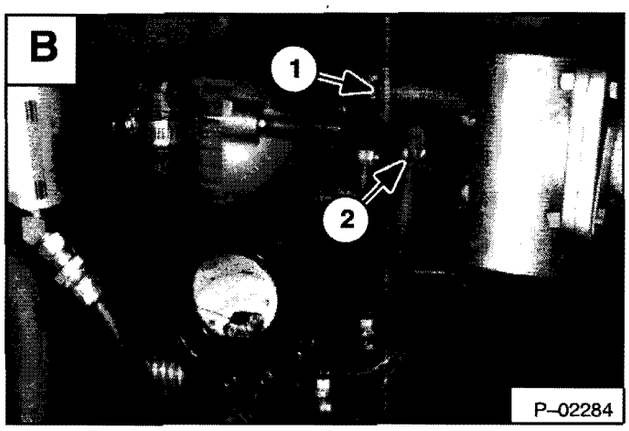
A

REAR VIEW OF ALTERNATOR
OLD 6661611



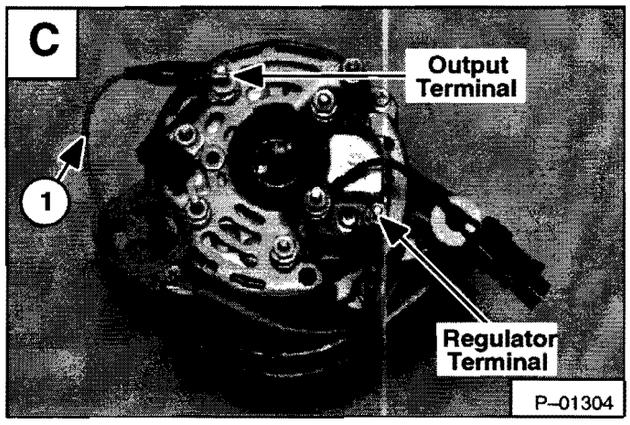
MC–01813

B



P–02284

C



P–01304

https://truckmanualshub.com/

ALTERNATOR (Cont'd)

Alternator Regulator Test (New Style)

⚠ WARNING

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W–2050–1285

Connect the positive (+) voltmeter lead to the positive (+) battery terminal **[A]**.

Connect the negative (–) voltmeter lead to the negative (–) battery terminal **[A]**.

Start the engine and run at 1500–2000 RPM.

The voltmeter should read between 13.9–14.7 volts.

If the reading is low stop the engine and disconnect the battery negative (–) cable.

The alternator is removed from the loader for clarity purposes **[B]**.

Remove the wires from the back of the alternator.

Remove the regulator cover from the back of the alternator.

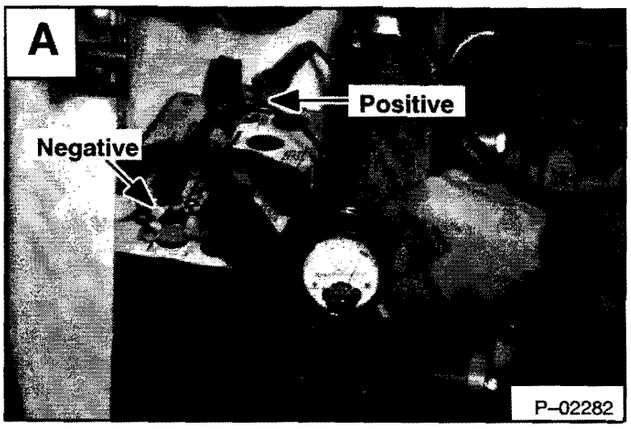
Install the wires on the back of the alternator.

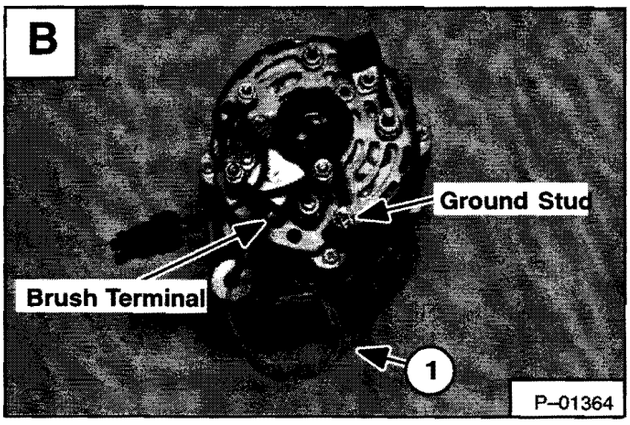
Connect a jumper wire (Item 1) from the brush terminal to the ground stud **[B]**.

Connect the negative (–) battery cable and start the engine. Run at 1500 RPM.

If the voltmeter reading is 14.5 or above replace the regulator.

If the voltmeter reading is below 14.5, repair or replace the alternator.





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ALTERNATOR

Removal and Installation (Old Style)

IMPORTANT

Damage to the alternator can occur if:

- **Engine is operated with battery cables disconnected.**
- **Battery cables are connected when using a fast charger or when welding on the loader. (Remove both cables from the battery.)**
- **Extra battery cables (booster cables) are connected wrong.**

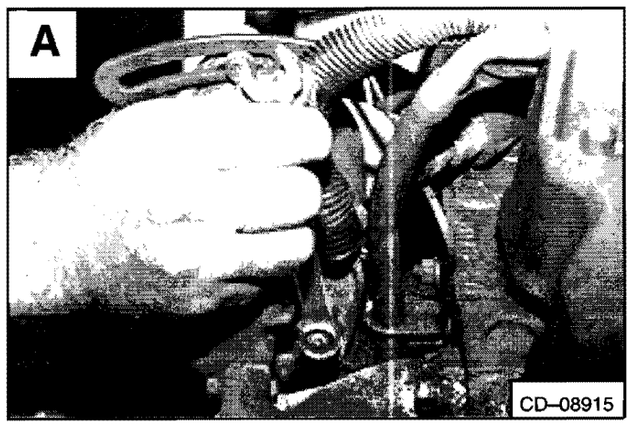
I–2023–1285

Raise the operator cab (Page 1–5).

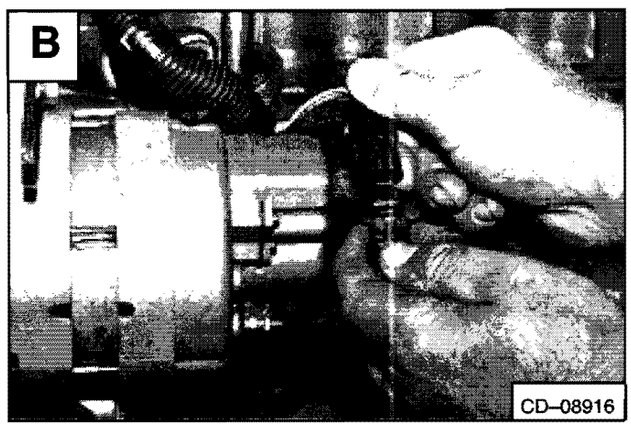
Open the rear door.

Disconnect the negative (–) battery cable.

Disconnect the orange lead from the alternator **[A]**.



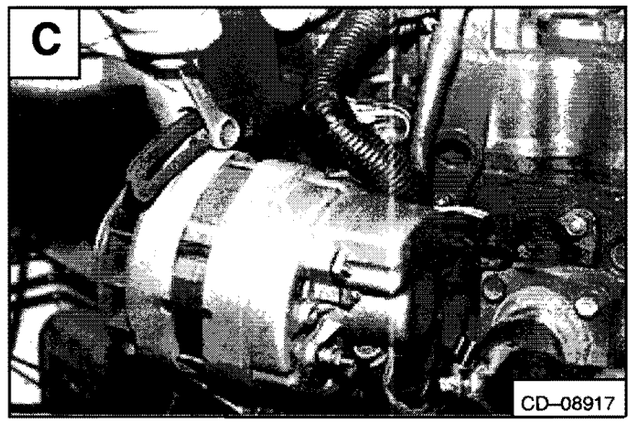
Disconnect the wire harness connectors **[B]**.



Remove the adjustment bolt **[C]**.

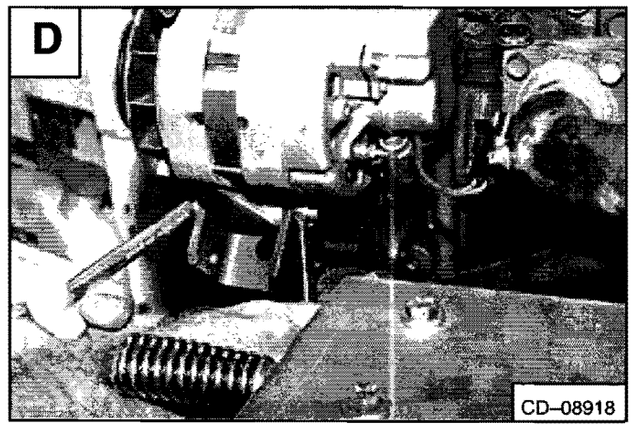
Remove the alternator belt from the alternator pulley.

Installation: Move the alternator until the belt has 5/16" (8,0 mm) movement at the middle of the belt span with 15 lbs. (66 N) of force.



Remove the mounting bolt **[D]**.

Remove the alternator from the mounting bracket.



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ALTERNATOR (Cont'd)

Disassembly (Old Style)

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

Remove the three bolts (Item 4) holding halves together **[A]**.

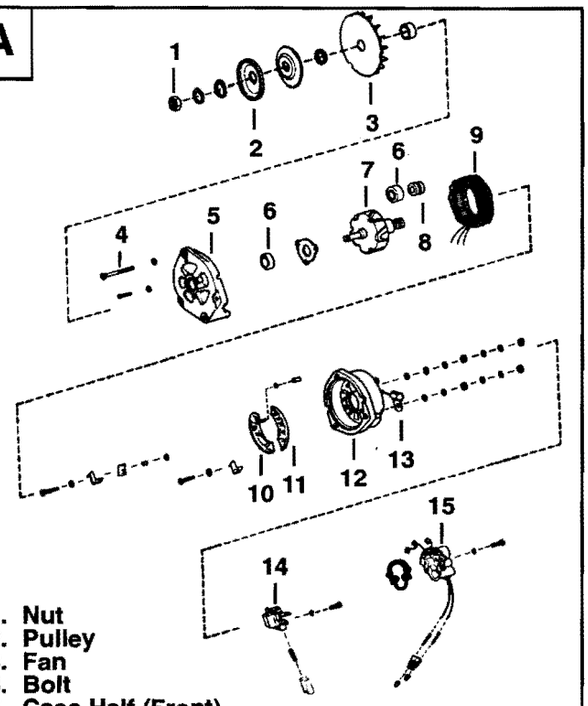
Pry the halves apart. Use a soft jaw vise to hold the rotor while removing the pulley nut (Item 1) **[A]**.

Assemble: Tighten the nut on the alternator shaft to 50 ft.–lbs. (68 Nm) torque.

Remove the front case half (Item 5) from the rotor using a plastic hammer or press **[A]**.

Melt the solder holding the stator wires to the rectifier to test the stator and rectifier. Use a needle nose plier to aid in removal of the wires.

A



1. Nut
2. Pulley
3. Fan
4. Bolt
5. Case Half (Front)
6. Bearing
7. Rotor
8. Slip Ring
9. Stator
10. Heat Sink (+)
11. Heat Sink (–)
12. Case Half (Rear)
13. Condenser Assy.
14. Brush Holder
15. Regulator

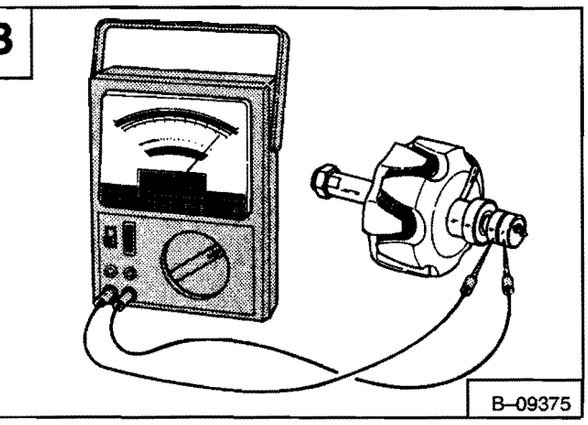
D–01760

Checking the Rotor (Old Style)

Use the following procedures with an ohmmeter to test the rotor:

Touch both probes on the slip rings. There must be a 3 to 5 ohm reading **B]**.

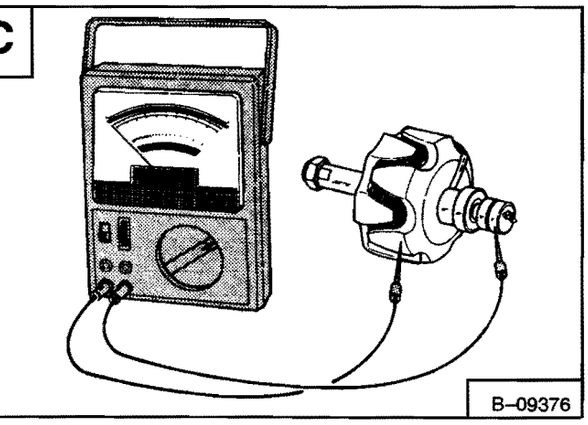
B



B–09375

Touch one probe to the shaft and one probe to a slip ring, then touch the other slip ring. There must be maximum resistance **[C]**.

C



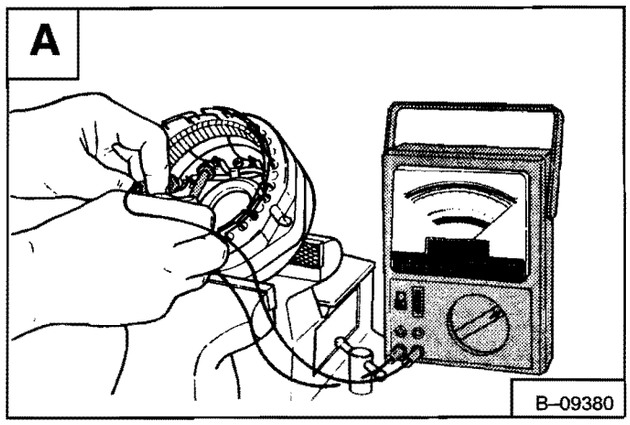
B–09376

https://truckmanualshub.com/

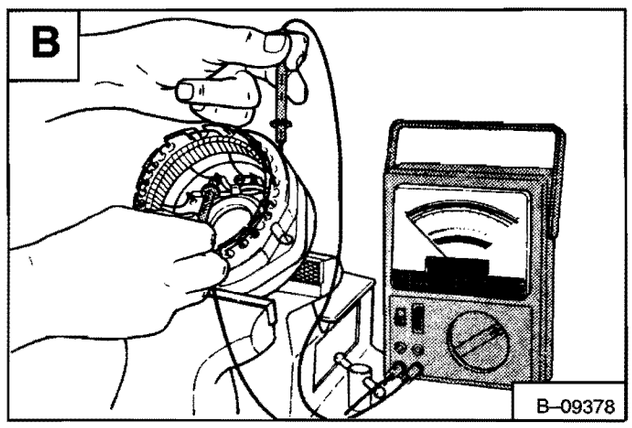
Checking the Stator (Old Style)

Use the following procedure with an ohmmeter to test the stator:

Touch two wire ends of the stator with the probes, take a reading. Move one probe to the other wire. The reading should be the same **[A]**.



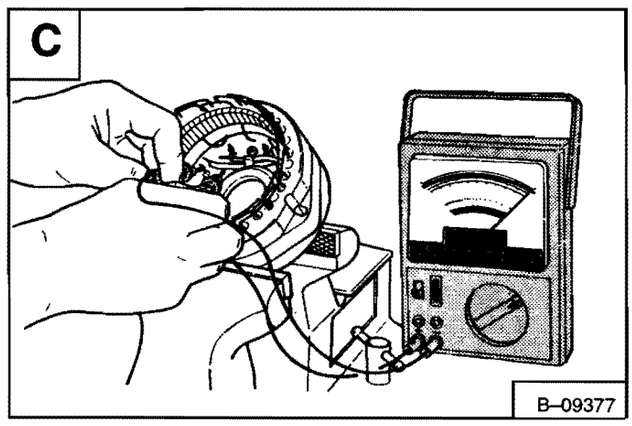
Test the ground by touching one probe on the metal surface of the stator and the other probe on the bare wire. There must be no needle movement **[B]**.



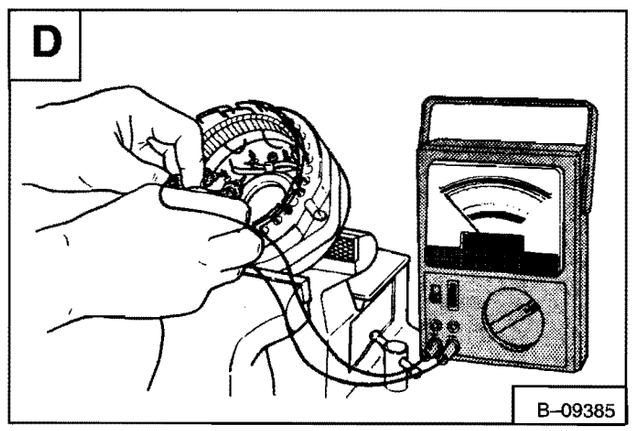
Checking the Rectifier (Old Style)

Use the following procedure with a circuit tester to test the rectifier:

Touch the positive probe to the positive diode holder and the negative probe to each diode terminal. There must be continuity **[C]**.



Reverse the probes and check the continuity in the other direction. There must be no continuity **[D]**.

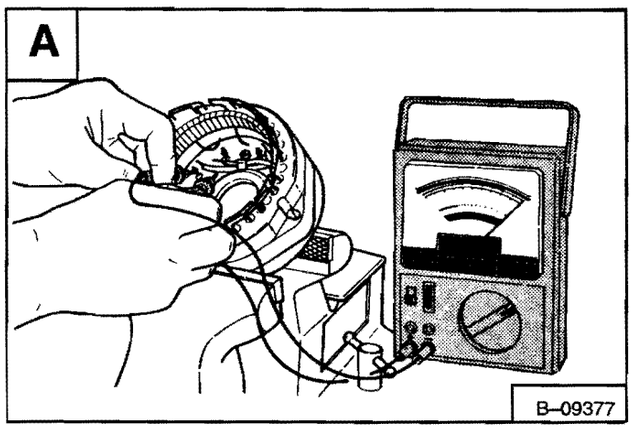


https://truckmanualshub.com/

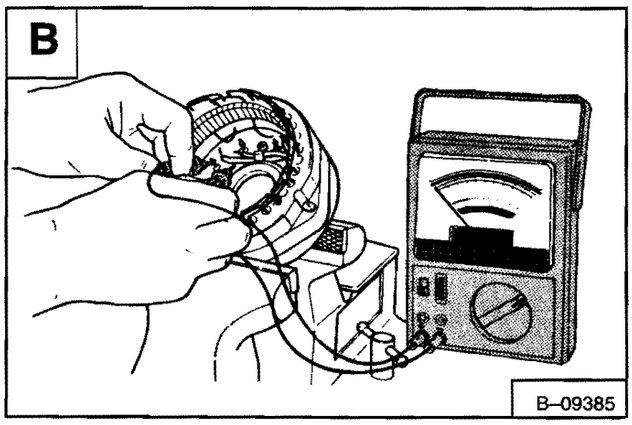
ALTERNATOR (Cont'd)

Checking the Rectifier (Old Style) (Cont'd)

Touch the negative probe to the negative diode holder and the positive probe to each diode terminal. There must be continuity **[A]**.



Reverse the probe and check the continuity in the other direction. There must be no continuity **[B]**.



Check the brushes for wear. The maximum of exposed brushes should be 0.125" (3,0 mm). Replace broken or rusted brush springs.

To assemble the alternator, reverse the order of disassembly.

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ALTERNATOR (Cont'd)

Disassembly and Inspection (New Style)

Disassemble the alternator (See Parts Identification **[A]**).

Remove the regulator cover and regulator.

Remove the four bolts holding halves together.

Pry the halves apart (use a press if needed).

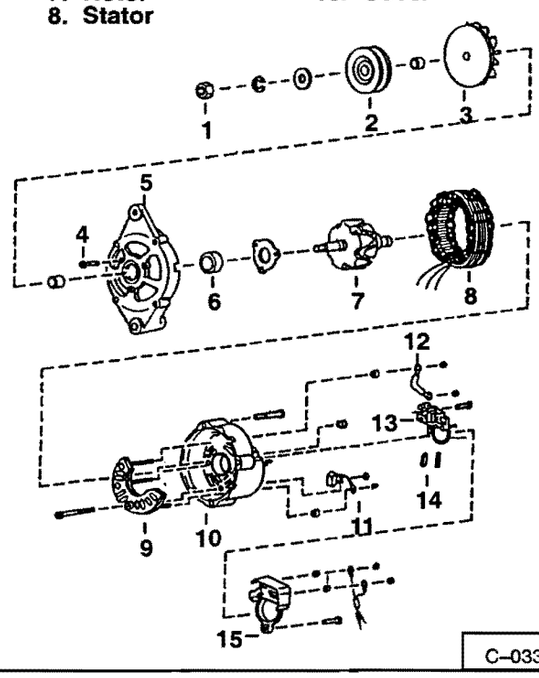
Use a soft jaw vise to hold rotor while removing pulley nut.

Remove front case half from the rotor using a plastic hammer or press.

Unsolder the stator leads from the rectifier. Remove the stator.

A

1. Nut
2. Pulley
3. Fan
4. Bolt
5. Case Half (Front)
6. Bearing
7. Rotor
8. Stator
9. Rectifier (Diode)
10. Case Half (Rear)
11. Condenser Assy.
12. Strap
13. Regulator
14. Brush
15. Cover



C–03312

Stator Continuity Test (New Style)

Use an ohmmeter to test the stator.

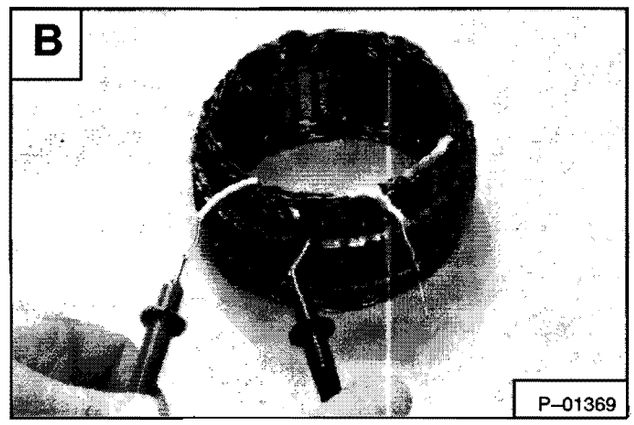
Touch the probes to two of the bare stator wires **[B]**.

Move one of the probes to the third wire.

The readings should be the same.

If there is no continuity, replace the stator.

B



P–01369

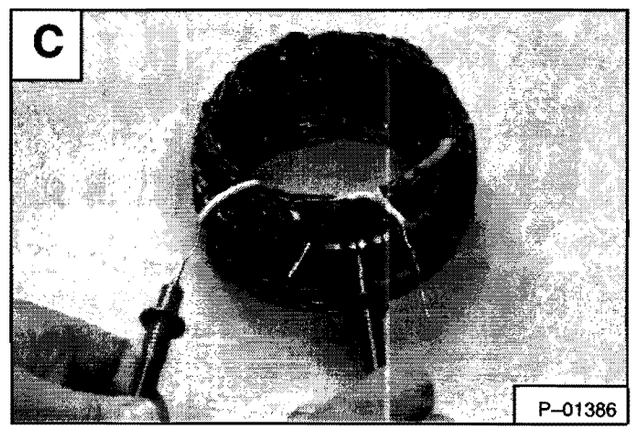
Stator Ground Test (New Style)

Touch one probe to a bare stator lead and the other probe to the bare metal surface of the stator **[C]**.

There should be no continuity.

Replace the stator if there is continuity.

C



P–01386

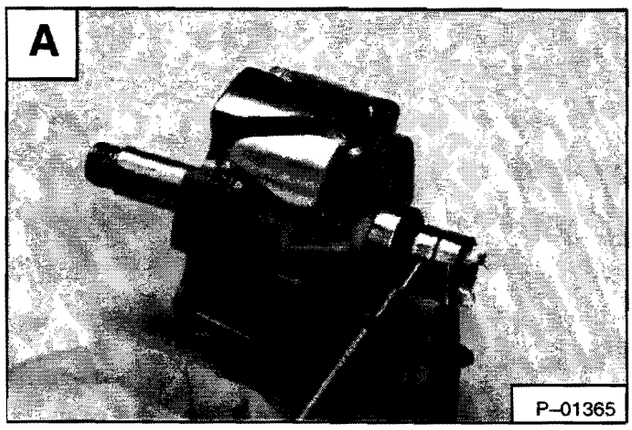
https://truckmanualshub.com/

Rotor Continuity Test (New Style)

Touch the probes to the slip rings **[A]**.

The ohmmeter should read between 3.065–3.385 ohms.

If there is no continuity replace the rotor.

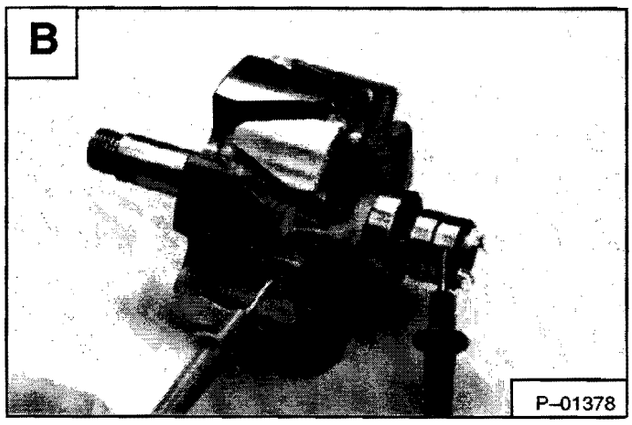


Rotor Ground Test (New Style)

Touch one probe to one of the slip rings and the other probe to the rotor shaft **[B]**.

There should be no continuity.

Replace the rotor if there is continuity.



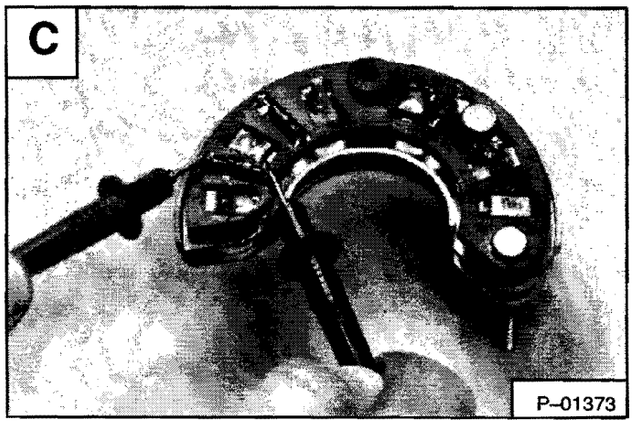
Rectifier Continuity (Diode) Test (New Style)

NOTE: In the diode tests there should be continuity in one direction only. If the diode being tested shows no continuity or continuity in both directions, replace the rectifier assembly.

Touch the probes to the terminals of each diode and read the meter **[C]**.

Reverse the probes to check the diode in the other direction.

There should be continuity in one direction only.



Touch one probe to the diode and the other probe to the connected heatsink and read the meter **[D]**.

Reverse the probes to check the diode in the other direction.

There should be continuity in one direction only.



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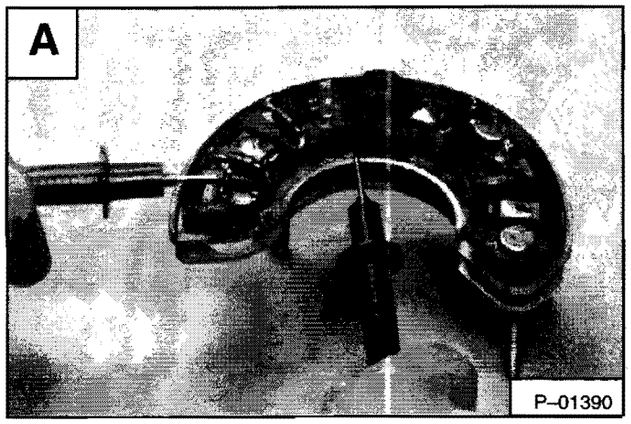
ALTERNATOR (Cont'd)

Rectifier Continuity (Diode) Test (New Style) (Cont'd)

Touch one probe to the diode and the other probe to the connected heatsink and read the meter **[A]**.

Reverse the probes to check the diode in the other direction.

There should be continuity in one direction only.



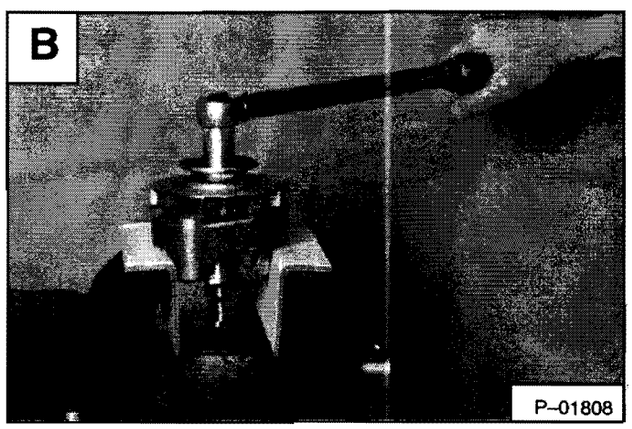
Assembly (New Style)

Reverse the order of disassembly.

Do not assemble the rear case half.

Place the rotor in soft jaws when tightening the shaft nut. Tighten to 50 ft.–lbs. (68 Nm) torque **[B]**.

Install the rear case half and the remaining parts.



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STARTER

Checking the Starter

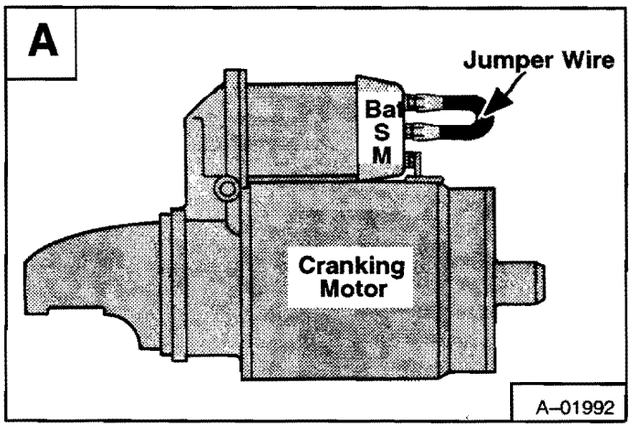
The key switch must be in the "OFF" position.

The battery must be at full charge.

The cable connections on the battery must be clean and tight.

Connect a jumper wire between "S" terminal and "BAT" terminal **[A]**.

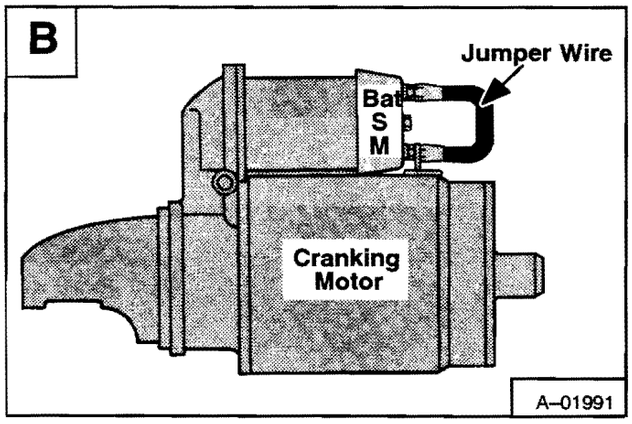
If the starter turns but does not turn the engine, the starter drive has a defect.



Connect a jumper wire between the "M" terminal and the "BAT" terminal **[B]**.

If the starter turns, the defect is in the solenoid.

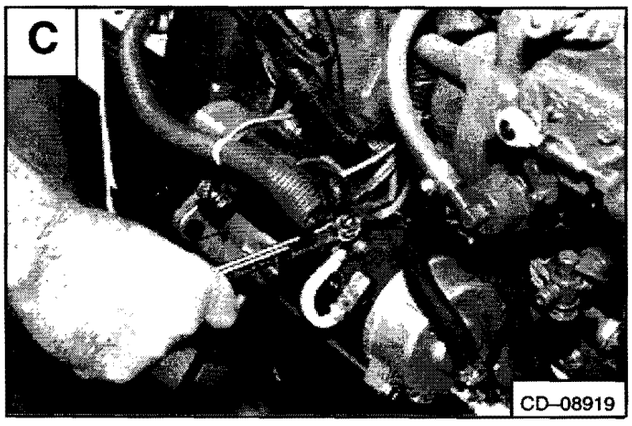
If the starter does not turn, the starter is defective.



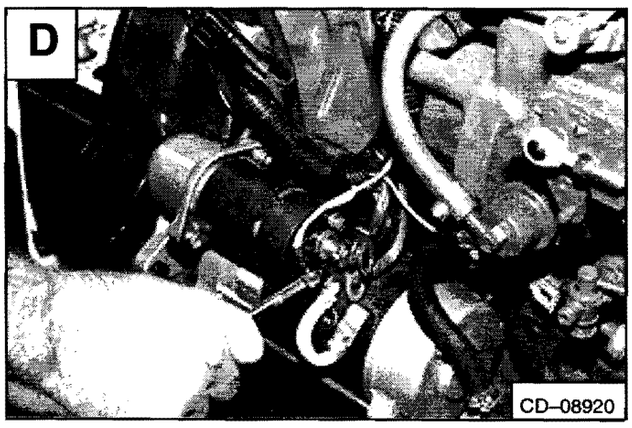
Removal and Installation

Disconnect the negative (–) cable from the battery.

Disconnect the positive (+) cable from the starter solenoid **[C]**.



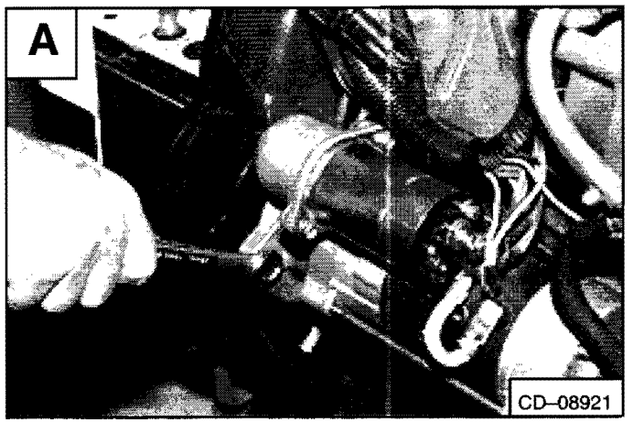
Disconnect all the wires from the starter solenoid **[D]**.



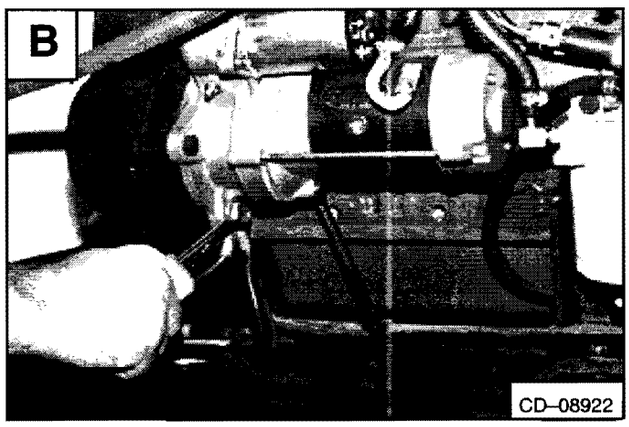
https://truckmanualshub.com/

STARTER (Cont'd)

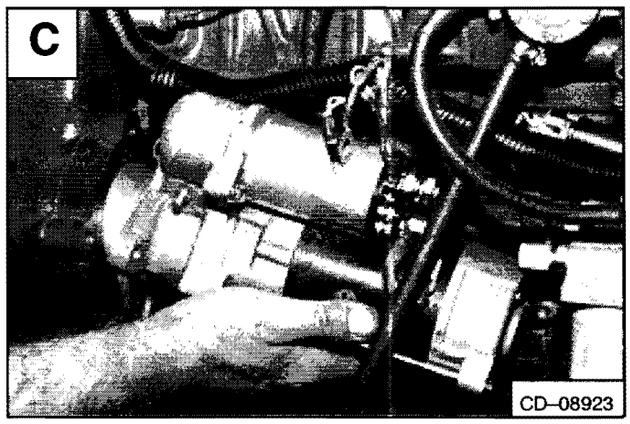
Remove the top and side mounting bolts **[A]**.



Remove the bottom mounting bolt and ground cable **[B]**.

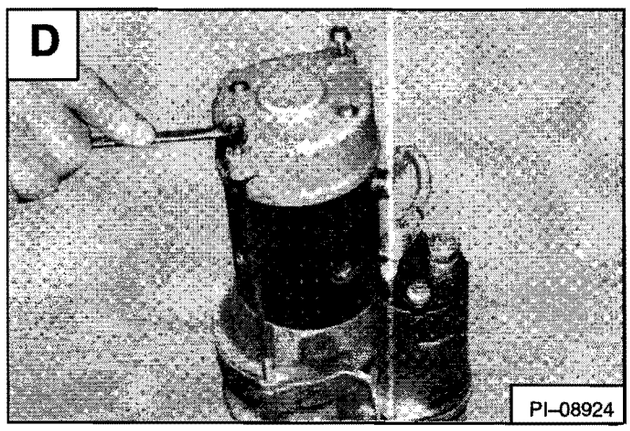


Remove the starter from the engine **[C]**.



Disassembly and Assembly

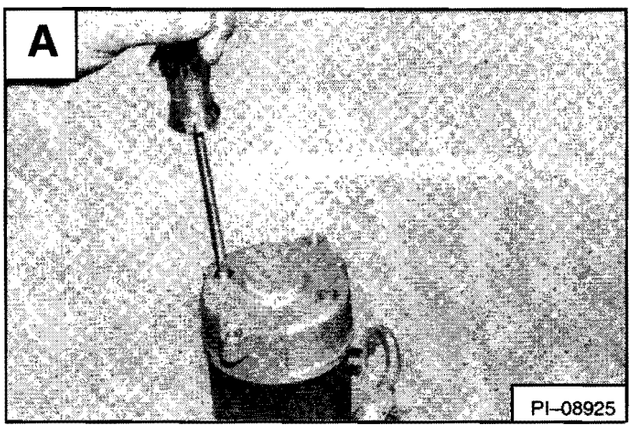
Remove the starter thru–bolts **[D]**.



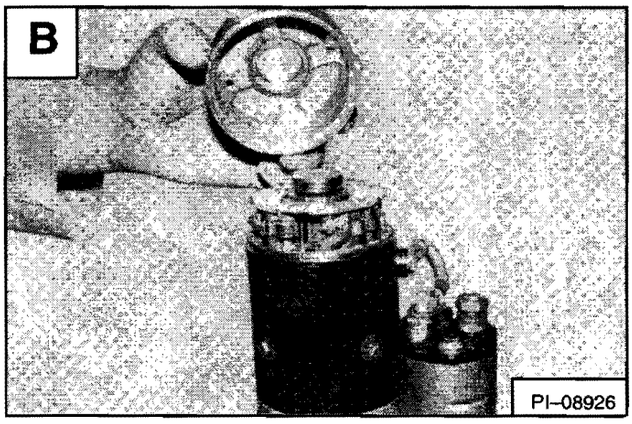
https://truckmanualshub.com/

STARTER (Cont'd)

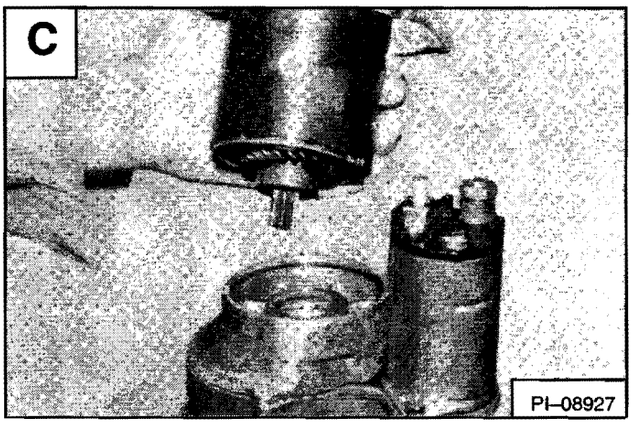
Remove the screws for the brush holders **[A]**.



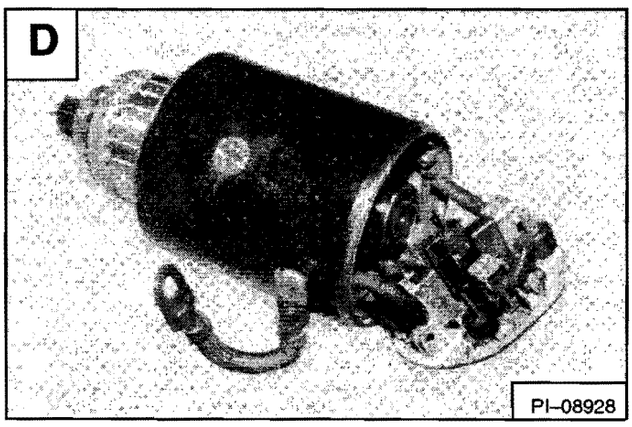
Remove the starter end cap **[B]**.



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

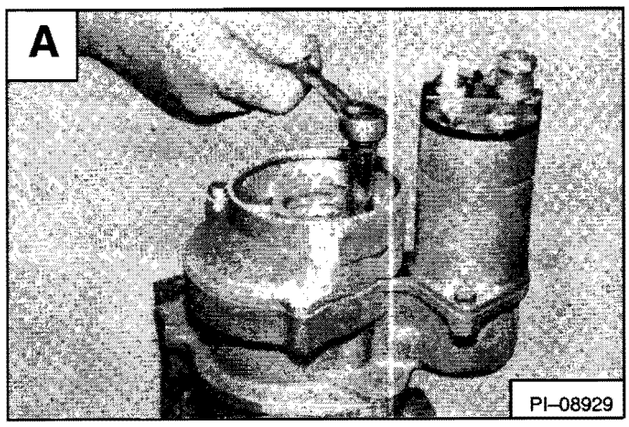


Remove the armature and brushes from the starter housing **[D]**.

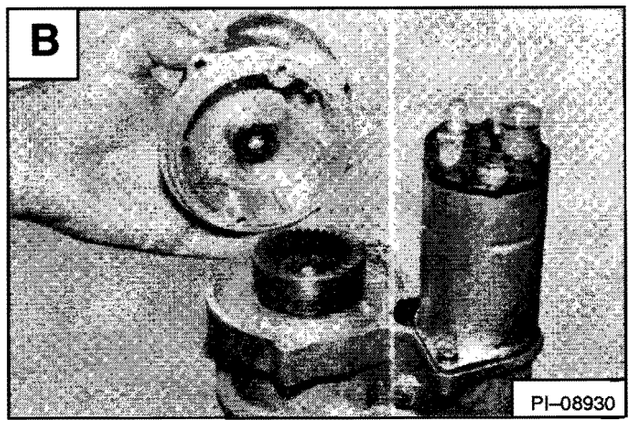


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Remove the bolts from the reduction gear housing **[A]**.



Remove the reduction gear housing **[B]**.



Cleaning and Inspection

Use a brush and air pressure to clean the drive, field coils, armature and starter housing.

NOTE: DO NOT use solvent to clean the drive assembly. The solvent will remove the lubricant and the drive will slip.

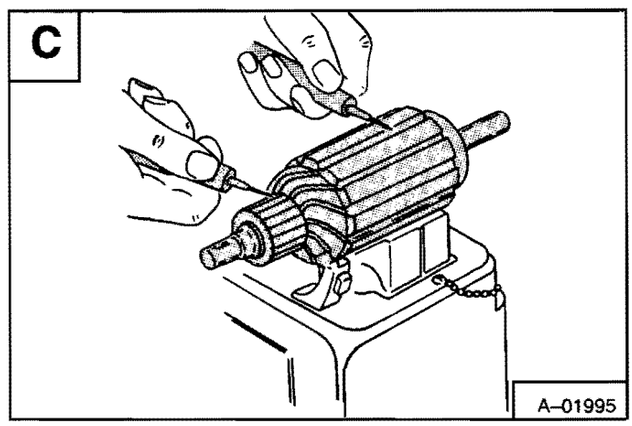
Check the following items:

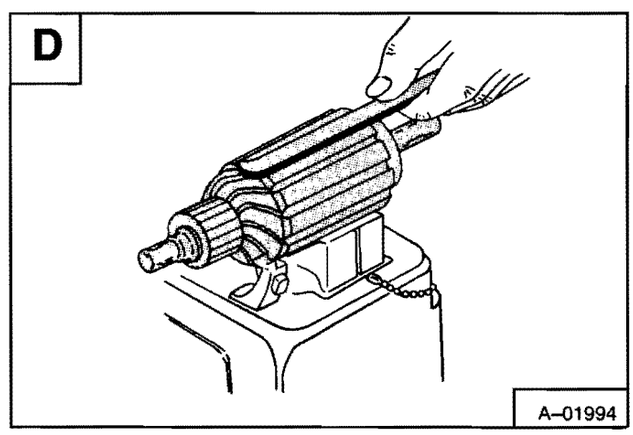
Armature
- Broken or burned insulation
- Loose connections at commutator
- Open or grounded circuits **[C]** & **[D]**.
- Worn shaft or bearings
- Rough commutator

Brush Holders
- Broken springs
- Broken insulation
- Spring Tension

Field Coils
- Broken or burned insulation
- Electrical continuity
- Brush connections

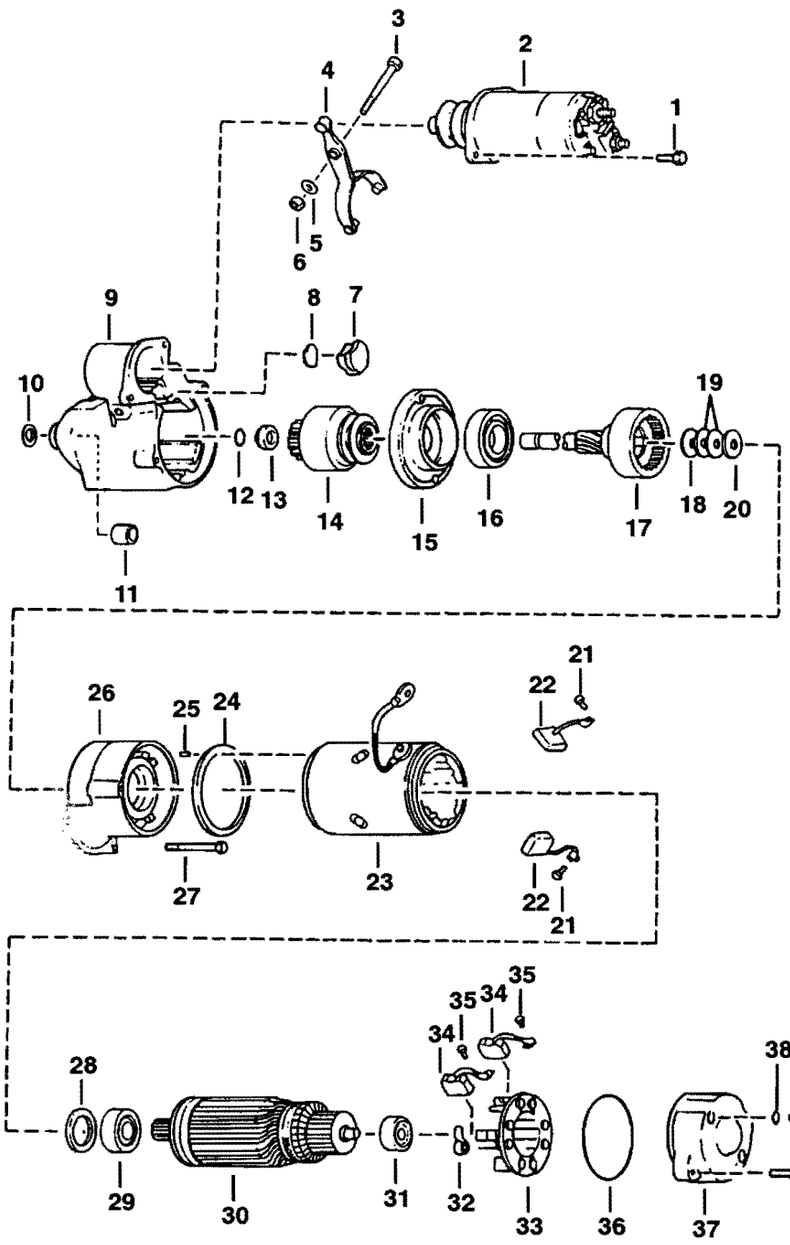
Drive Gears
- Worn Teeth
- Tooth engagement





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Parts Identification



1. Screw
2. Solenoid
3. Bolt
4. Lever
5. Washer
6. Nut
7. Plug
8. Washer
9. Housing Drive
10. Washer
11. Bushing
12. Ring
13. Stop
14. Drive
15. Drive Support
16. Support
17. Drive Shaft
18. Washer
19. Washer
20. Washer
21. Screw
22. Brush
23. Frame Assy.
24. Gasket
25. Pin
26. Armature Support
27. Bolt
28. Spacer
29. Bearing
30. Armature
31. Bearing
32. Spring
33. Holder Assy.
34. Brush
35. Screw
36. O–ring
37. Frame
38. Washer
39. Screw
40. Bolt

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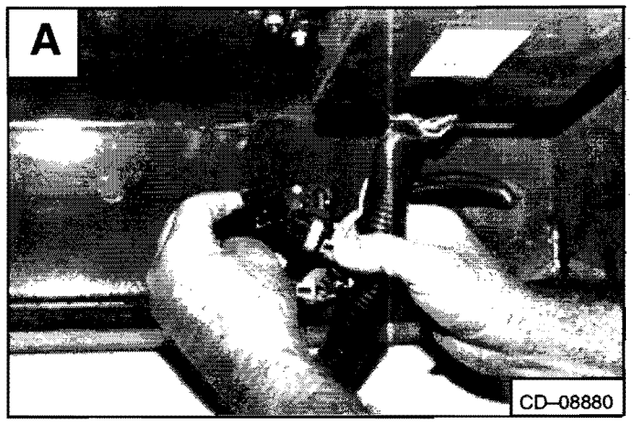
OPERATING SYSTEM UNIT

Removal and Installation

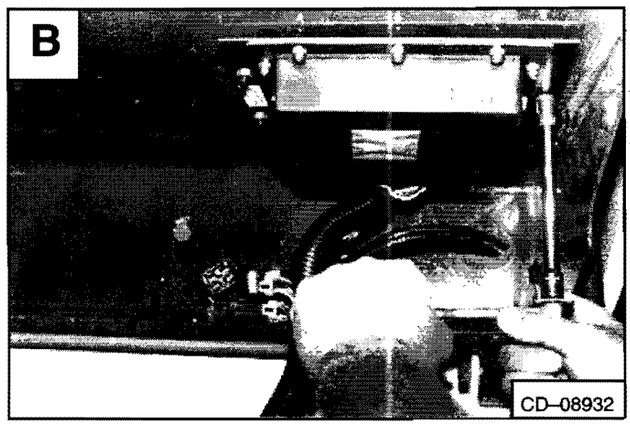
Raise the operator cab (Page 1–5).

Disconnect the negative (–) cable from the battery.

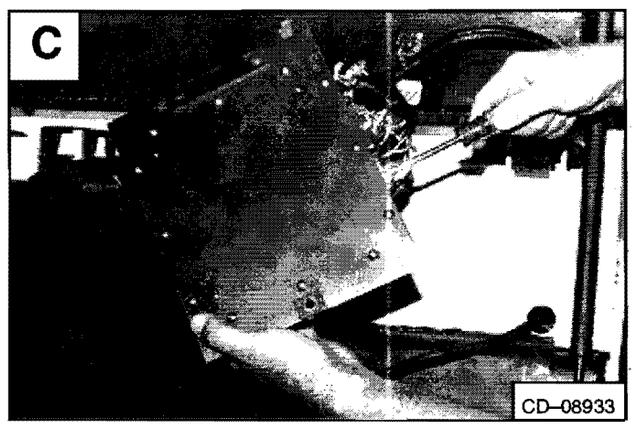
Disconnect the wire harness connectors from the operator cab wiring harness **[A]**.



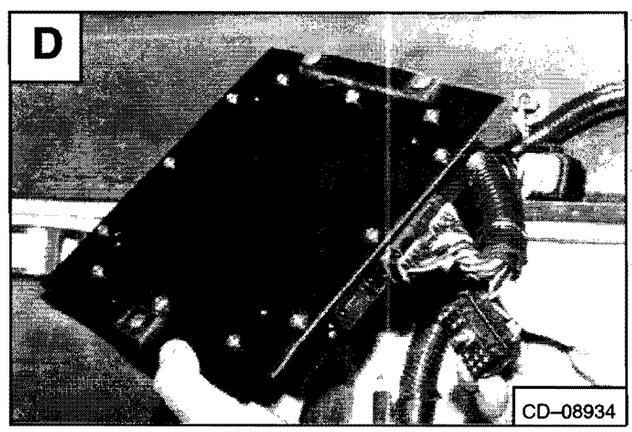
Loosen the mounting bolt **[B]**.



Remove the operating system unit from the operator cab. Remove the wire harness connector screws **[C]**.



Disconnect the wire harness connectors from the operating system unit **[D]**.



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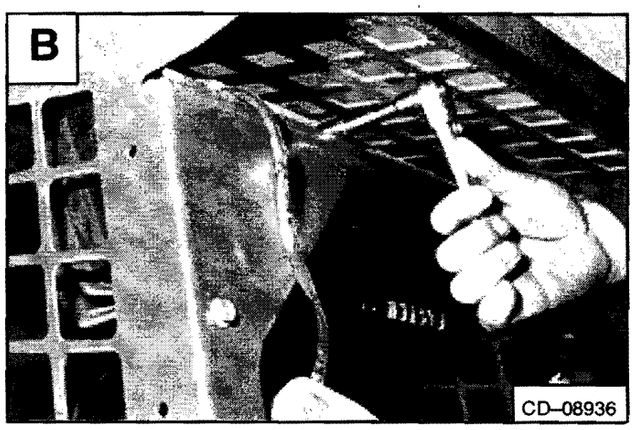
INSTRUMENT PANEL (S/N 11079 & Above)

Removal and Installation

Remove the front light from the operator cab (both sides) **[A]**.

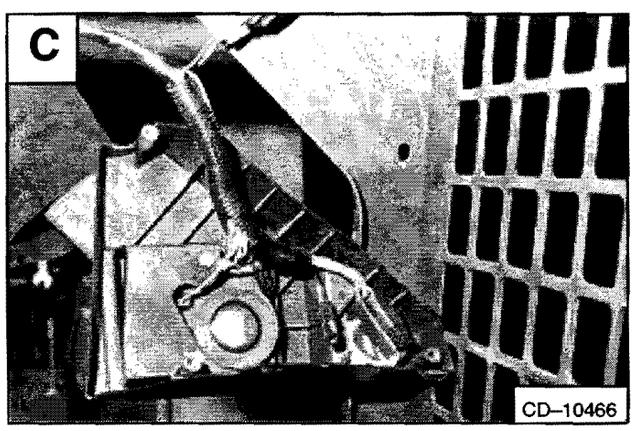


Remove the instrument panel mounting bolts (both sides) **[B]**.



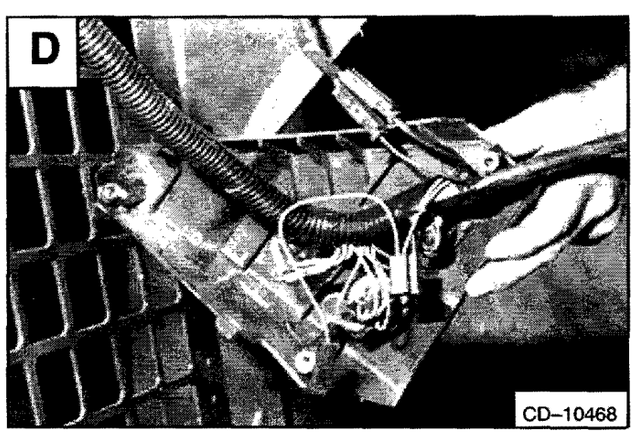
Pull the right side instrument panel down and away from the operator cab **[C]**.

Disconnect the wire harness connectors from the instrument panel display. Replace parts as needed.



Pull the left instrument panel down and away from the cab **[D]**.

Disconnect the wire harness connectors from the gauge and switches. Replace the parts as needed.



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ENGINE SERVICE

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ENGINE SERVICE

TROUBLESHOOTING

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
Engine will not start.	2, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 19, 27, 28, 29
Difficult to start.	1, 2, 5, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 25, 27, 28, 29
No power for engine.	8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 20, 21, 22, 23, 27, 28, 29
Engine is mis–firing.	8, 9, 11, 12, 13, 15, 16, 17, 21, 22, 24, 25, 26, 28
Too much fuel consumption.	10, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 27, 28, 29
Black exhaust.	10, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 27, 28, 29
Blue/white exhaust.	4, 10, 15, 16, 17, 21, 23, 27, 29, 30, 50
Low oil pressure.	4, 31, 32, 33, 34, 35, 37, 38, 39, 52
Engine knocking.	13, 15, 16, 19, 22, 24, 25, 27, 29, 31, 40, 41, 53
Engine running rough.	7, 8, 9, 10, 11, 12, 13, 17, 18, 22, 24, 25, 26, 29, 40, 53
Vibration.	12, 13, 17, 21, 22, 25, 26, 29, 40, 42, 43
High oil pressure warning.	4, 33, 36
Overheating.	10, 12, 13, 15, 16, 20, 21, 40, 44, 45, 46, 47, 48, 51
Too much crankcase pressure.	22, 27, 29, 30, 40, 49
Poor compression.	10, 16, 21, 24, 25, 27, 28, 29, 30, 41, 53
Start and stop.	9, 10, 11

KEY TO CORRECT THE CAUSE

1. Alternator belt is loose or damaged.
2. Bad electrical connections.
3. Faulty starter motor.
4. Incorrect grade of oil.
5. Low cranking speed.
6. Fuel tank empty.
7. Faulty stop control operation.
8. Plugged fuel line.
9. Plugged fuel filter.
10. Restriction in the air cleaner.
11. Air in the fuel system.
12. Faulty fuel injection pump.
13. Faulty fuel injectors.
14. Broken injection pump drive.
15. Incorrect injection pump timing.
16. Incorrect valve timing.
17. Poor compression.
18. Plugged fuel tank vent.
19. Incorrect grade of fuel.
20. Exhaust pipe restriction.
21. Cylinder head gasket leaking.
22. Overheating.
23. Cold running.
24. Incorrect tappet adjustment.
25. Sticking valves.
26. Incorrect fuel lines.
27. Worn cylinder bores.
28. Worn valve and seats.
29. Broken or worn piston rings.
30. Worn valve stems or guides.
31. Worn or damaged bearings.
32. Not enough oil in the crankcase.
33. Switch/sensor is defective.
34. Oil pump worn.
35. Relief valve is sticking open.
36. Relief valve is sticking closed.
37. Broken relief valve spring.
38. Faulty suction pipe.
39. Plugged oil filter.
40. Piston seizure.
41. Incorrect piston height.
42. Faulty engine mounting.
43. Incorrect flywheel alignment.
44. Faulty thermostat.
45. Restriction in water jacket.
46. Loose alternator belt.
47. Plugged radiator.
48. Faulty water pump.
49. Plugged breather pipe.
50. Damaged valve stem deflectors.
51. Coolant level to low.
52. Plugged oil pump pipe strainer.
53. Broken valve spring.

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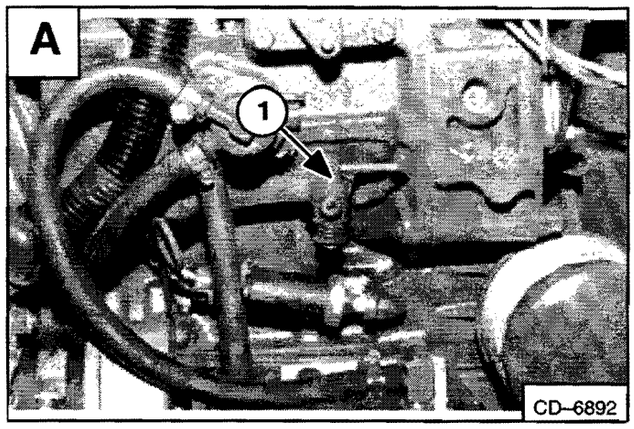
RADIATOR

Removal and Installation

Open the rear door.

Remove the rear grill. (See Page 5–1.)

Loosen the radiator cap. Open the engine block drain (Item 1) **[A]** and drain the coolant into a container.



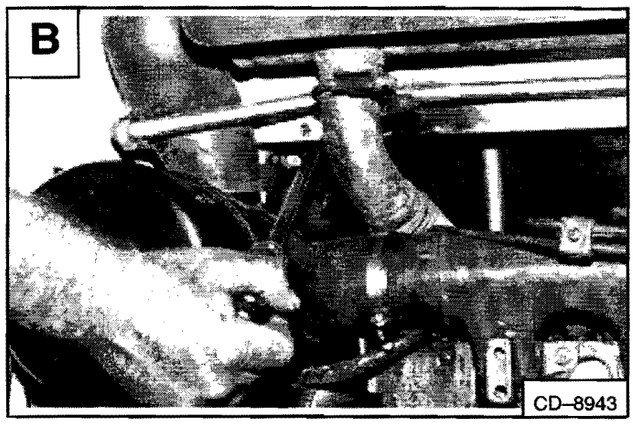
⚠ WARNING

Do not remove radiator cap when the engine is hot. You can be seriously burned.

W–2070–1285

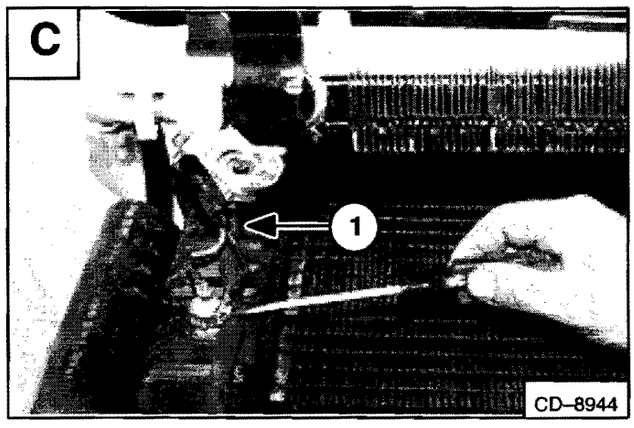
Remove the oil cooler. (See Page 3–1.)

Disconnect the radiator hoses (both sides) **[B]**.

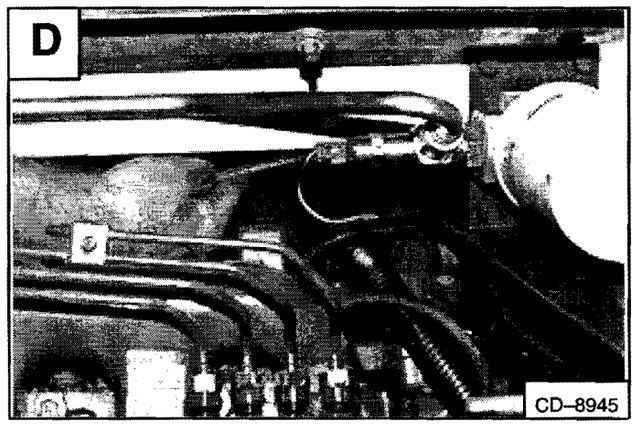


Disconnect the wires from the low water level sender unit **[C]**.

Disconnect the over–flow hose (Item 1) **[C]** from the radiator filler neck.



Remove the radiator mounting bolts (both sides) **[D]**.



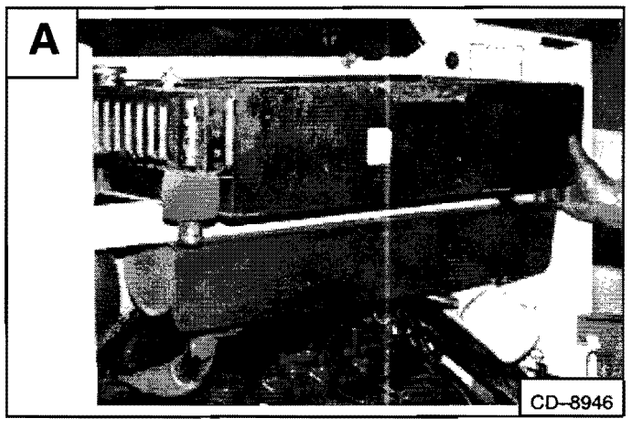
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RADIATOR (Cont'd)

Removal and Installation (Cont'd)

Lift the radiator up and out of the loader frame **[A]**.

Remove the radiator from the loader.



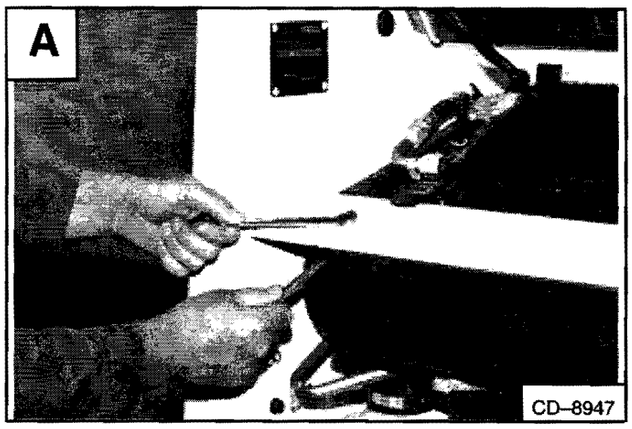
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ENGINE MUFFLER

Removal and Installation

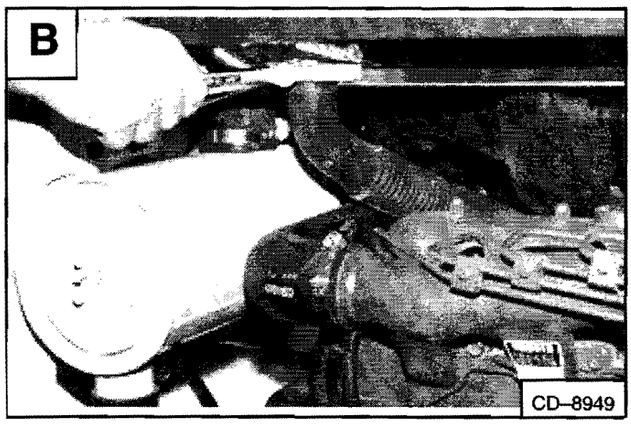
Open the rear door. Raise the rear grill.

Loosen the muffler and shield mounting bolts (both sides) **[A]**.

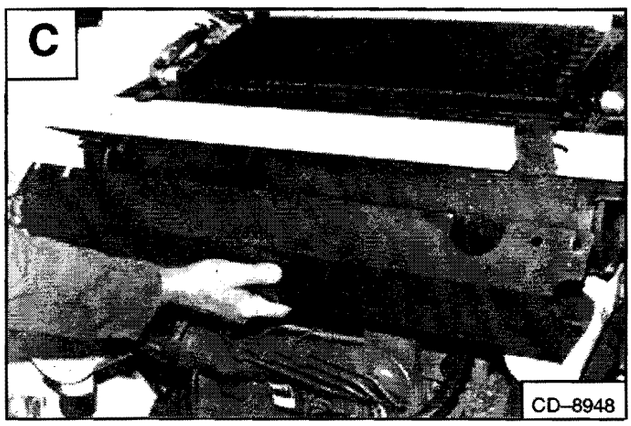


Remove the exhaust pipe clamp **[B]**.

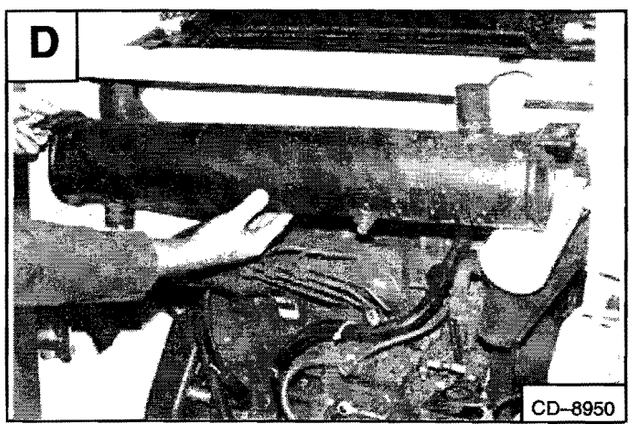
Disconnect the exhaust pipe from the muffler.



Remove the muffler from the shield **[C]**.



Remove the mounting bolts. Remove the muffler from the loader **[D]**.



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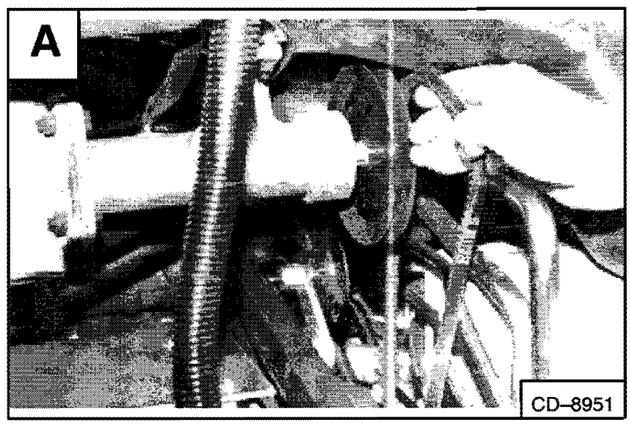
BLOWER HOUSING/FAN GEARBOX

Removal and Installation

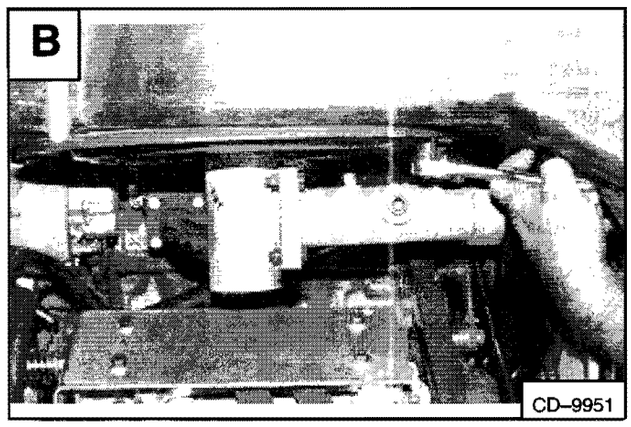
Raise the operator cab. (See Page 1–7.)

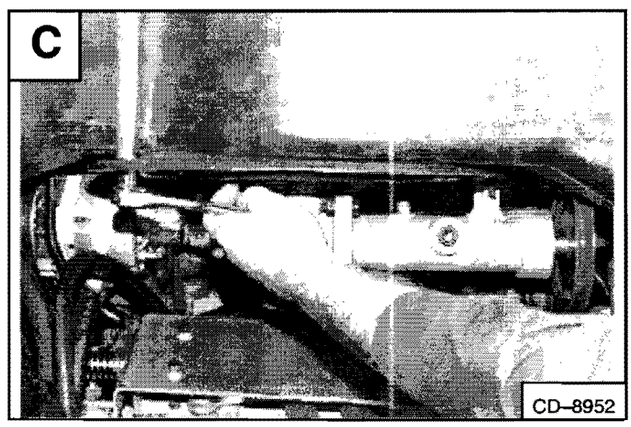
Lift up on the tension pulley and remove the fan drive belt **[A]**.

Remove the hydraulic fluid reservoir. (See Page 2–1.)



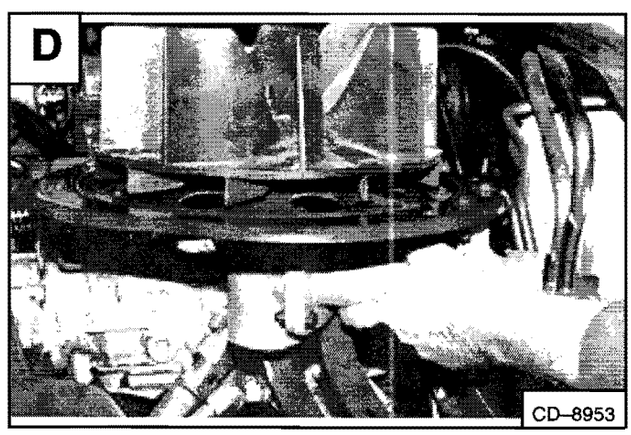
Remove the four mounting bolts from the fan blower housing **[B]** & **[C]**.





Pull the fan/gearbox assembly down and out of the loader frame **[D]**.

Remove the blower housing from the loader frame.

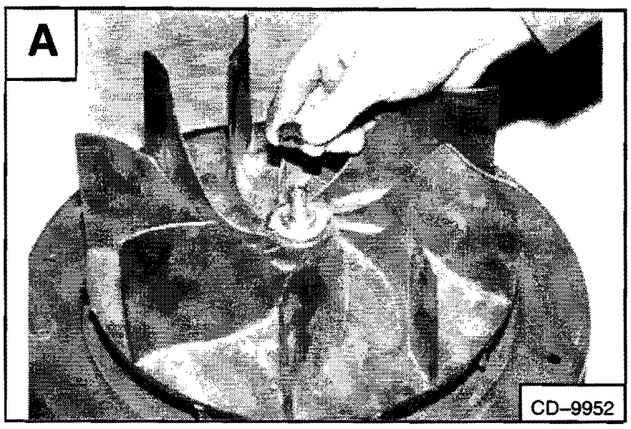


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Removal and Installation (Cont'd)

Remove the lock nut and spacer **[A]**.

Installation: Tighten the nut to 45–55 ft.–lbs. (61–75 Nm) torque.



Use the following procedure to remove the fan from the shaft:

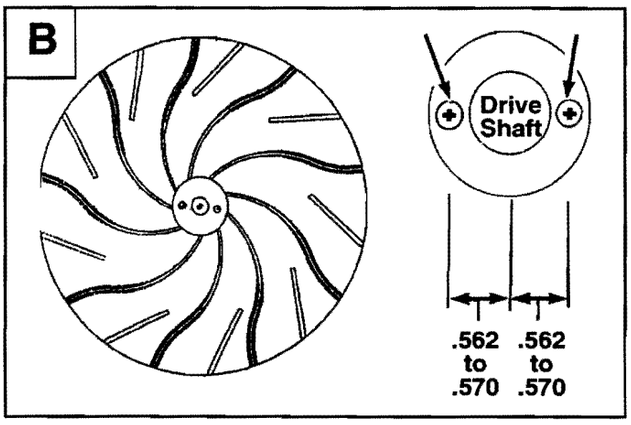
Use a center punch to mark the aluminum bushing in the fan where shown **[B]**.

⚠ WARNING

AVOID INJURY OR DEATH

Wear safety goggles to prevent eye injury when drilling or grinding.

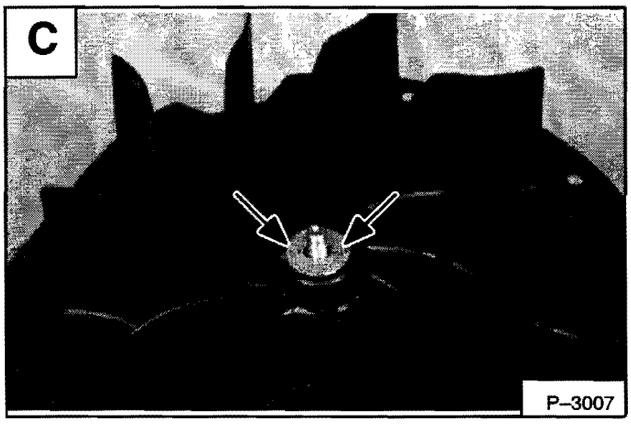
W–2108–1186



To insure straight drilling and tapping of the holes, a drill press is recommended.

Drill the two holes 1.00" (25,4 mm) deep using a 13/64" (5 mm) bit **[C]**.

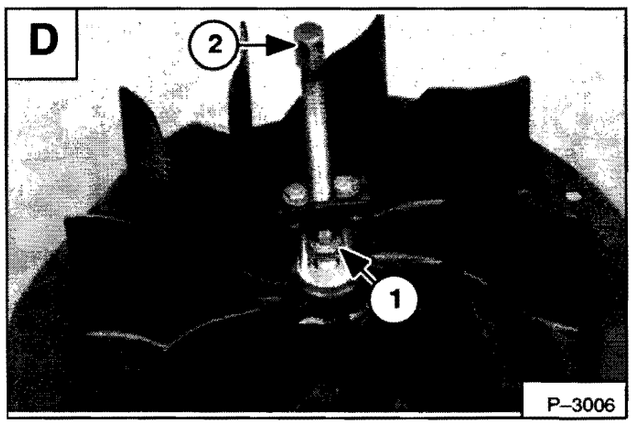
Use a 1/4" NC bottom tap to cut maximum threads in the holes.



Install the nut (Item 1) **[D]** on the tapered shaft to protect the shaft and threads.

Install the puller on the fan as shown **[D]**.

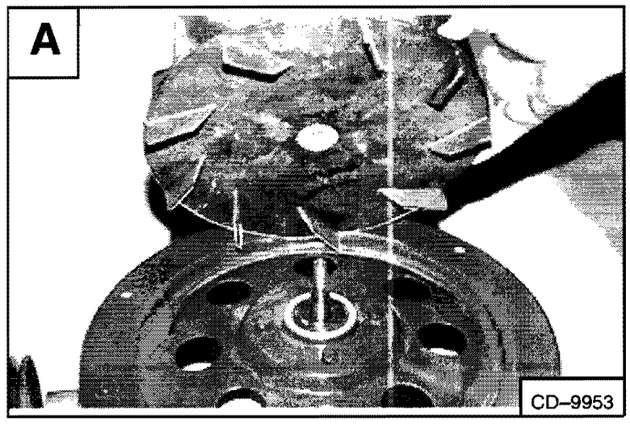
As the center bolt (Item 2) **[D]** is tightened, periodically strike the bolt head to loosen the fan from the shaft.



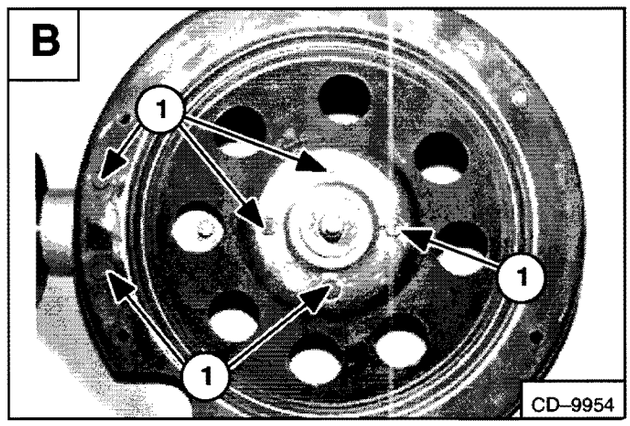
https://truckmanualshub.com/

Removal and Installation (Cont'd)

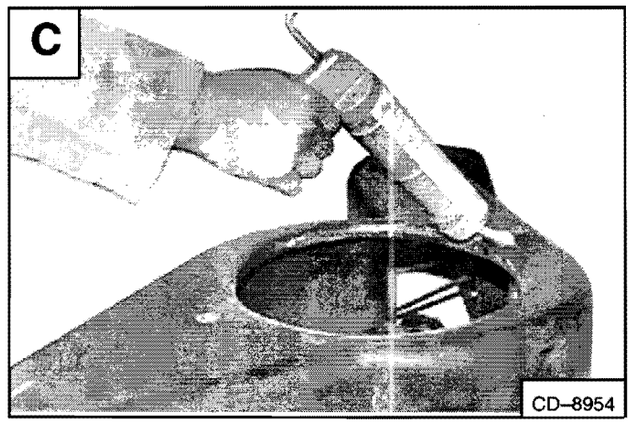
Remove the fan from the tapered shaft **[A]**.



To remove the blower housing mounting plate, remove the six bolts (Item 1) **[B]**.



Installation: Clean the surface where the blower housing contacts the loader frame. Put a bead of R.T.V. sealant on the blower housing **[C]**.

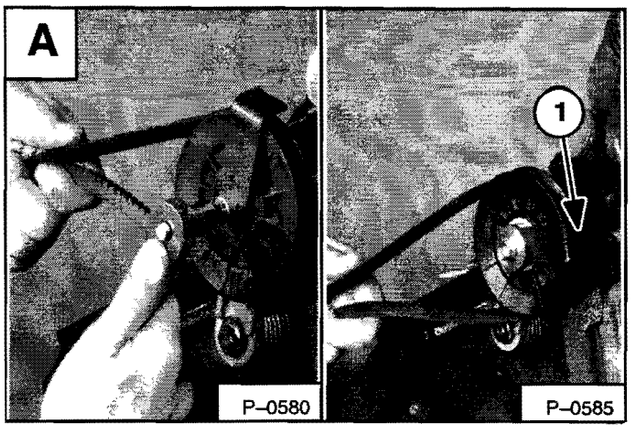


https://truckmanualshub.com/

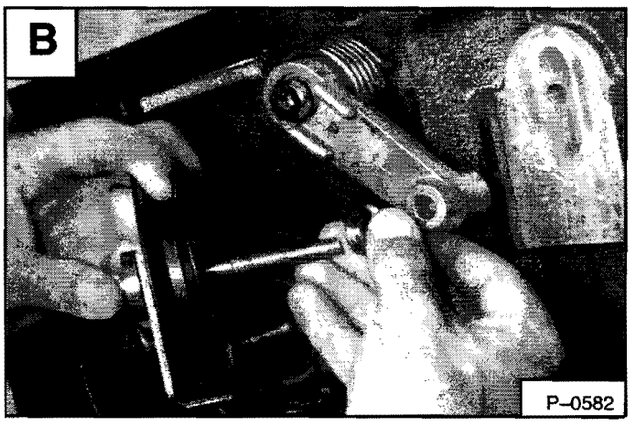
Tension Pulley Removal and Installation

Loosen the idler pulley bolt **[A]**.

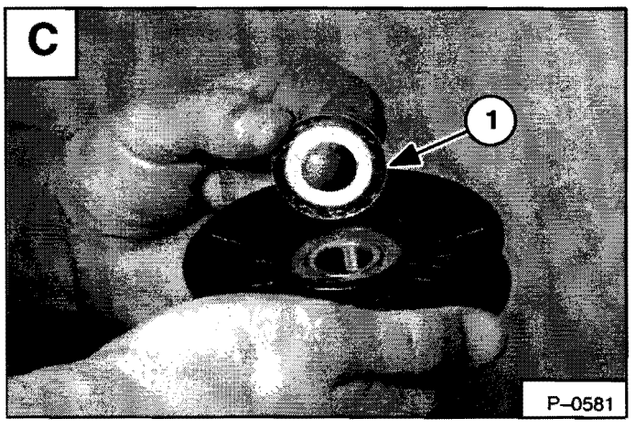
Installation: Install the retainer bracket (Item 1) **[A]** for the fan belt at the three o'clock position.



Remove the spacers, bolt and washer from the arm **[B]**.

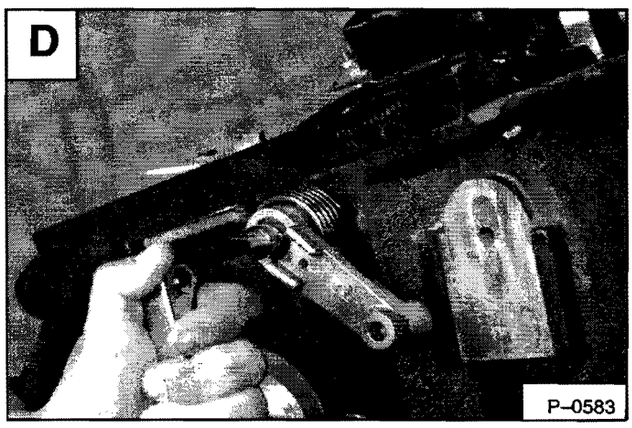


Installation: Put a small amount of grease around the outside edge (Item 1) **[C]** on the grease rings.



Remove the bolt, spring and arm for the idler pulley **[D]**.

Check all parts for damage or worn and replace them as needed.



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FAN GEARBOX

Disassembly

NOTE: When repairing the gearbox order the following as needed.

1. **Complete Assembly**
2. **Long Housing Assembly**
3. **Long Housing**
4. **Short Housing Assembly (See Note Below)**
5. **Internal Parts**

NOTE: The short housing is only available as an assembly. See the parts identification page (page 7–23) for reference. (Order parts from Melroe Parts Sales.)

NOTE: Be sure to count the number and thickness of shims during disassembly. Install the shims in the original location during assembly.

NOTE: Always replace seals during assembly. Replace the parts in the gearbox as needed.

Remove the fan and blower housing mounting plate. (See Page 7–9.)

Long Housing

Loosen the set screws (Item 1) **[A]** and remove the pulley (Item 2) **[A]**.

Remove the long key (Item 3) **[A]**.

Remove the four mounting bolts and the part number tag **[B]**.

Remove the oil from the gearbox.

⚠ WARNING

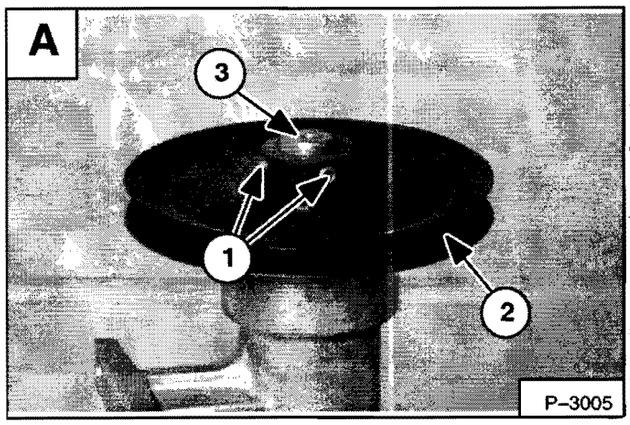
AVOID INJURY OR DEATH

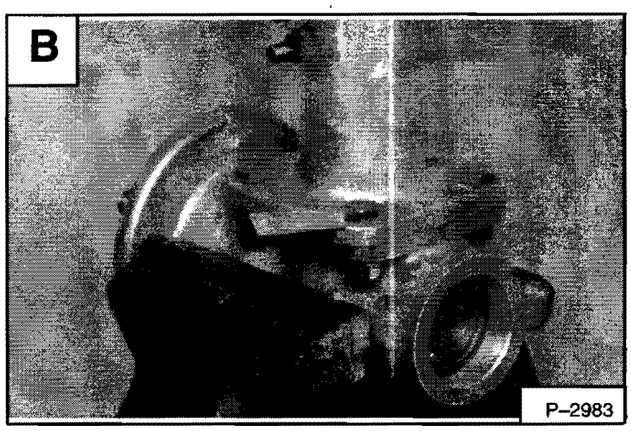
Wear safety goggles to prevent eye injury when drilling or grinding.

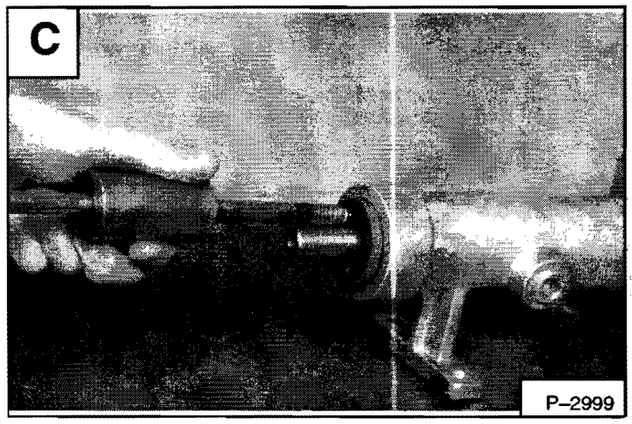
W–2108–1186

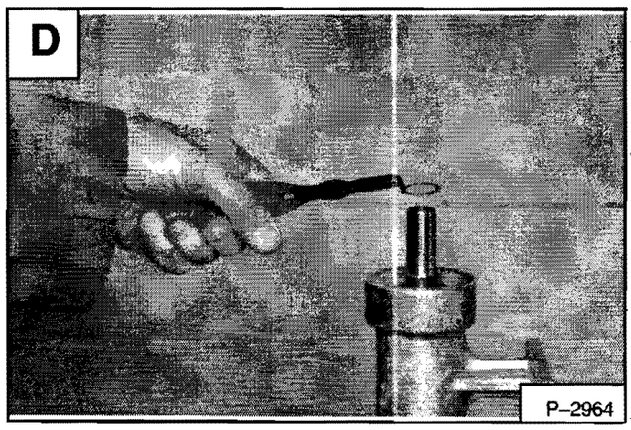
Drill an 1/8 inch (13 mm) hole in the seal. Use a slide hammer tool to remove the seal **[C]**.

Remove the small snap ring **[D]**.









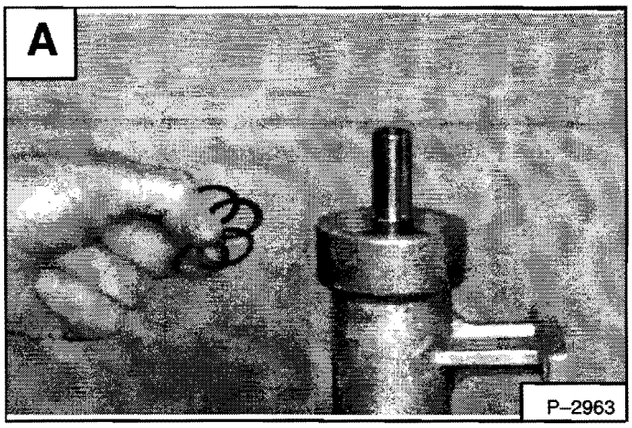
https://truckmanualshub.com/

FAN GEARBOX (Cont'd)

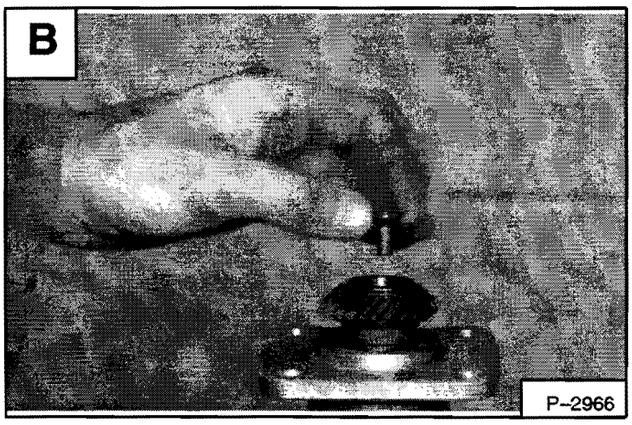
Disassembly (Cont'd)

Remove the small shims **[A]**.

NOTE: Use the same size and thickness of shims during assembly.

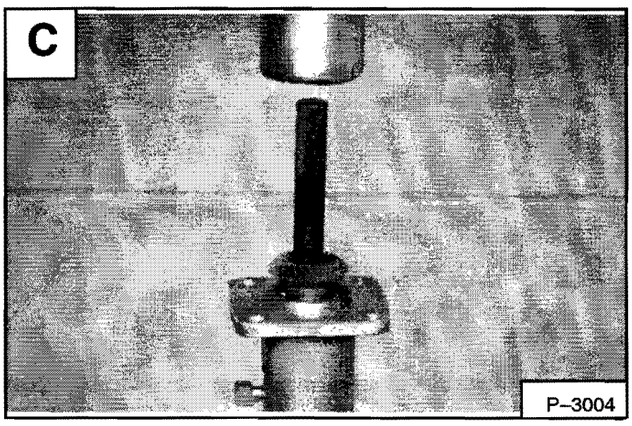


Remove the screw and washer from the shaft **[B]**.

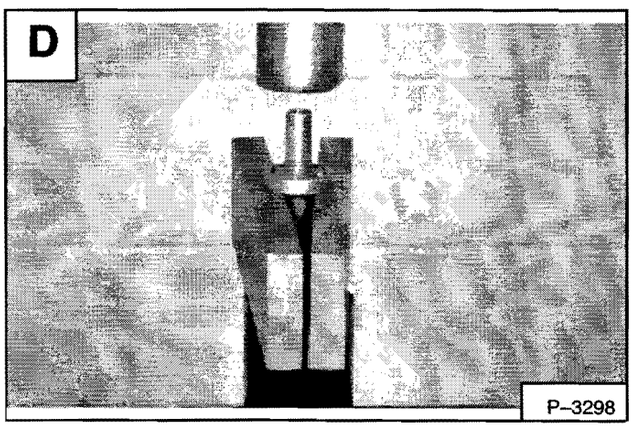


Support the lower flange and press the shaft from the bearing **[C]**.

NOTE: The gear and the other bearing (pulley end) will be removed with the shaft.



Support the bearing and press the shaft from the bearing **[D]**.



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FAN GEARBOX (Cont'd)

Disassembly (Cont'd)

Short Housing

Remove the end cap **[A]**.

Use care not to damage the housing.

⚠ WARNING

AVOID INJURY OR DEATH

Wear safety goggles to prevent eye injury when drilling or grinding.

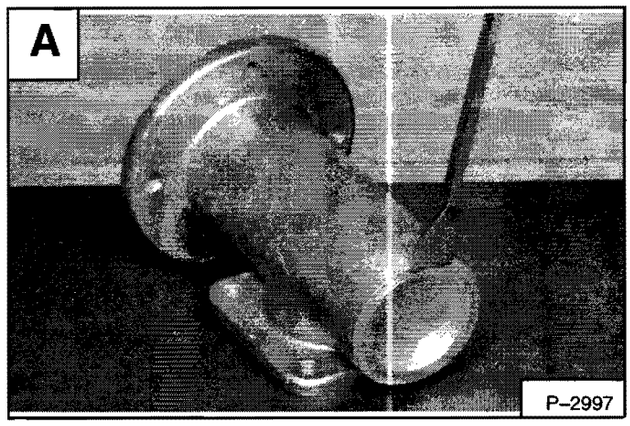
W-2108-1186

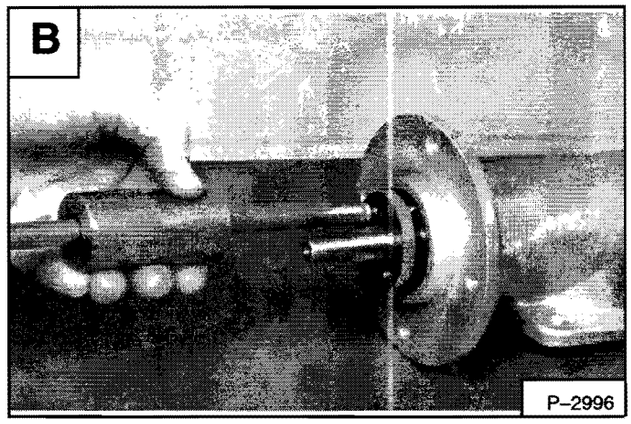
Drill an 1/8 inch (3 mm) hole in the seal. Use a slide hammer tool to remove the seal **[B]**.

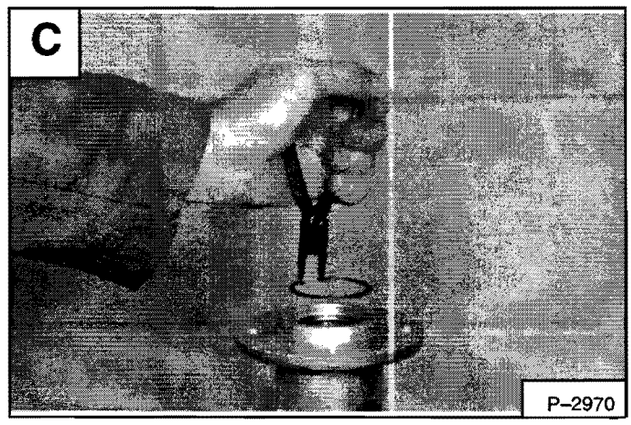
Remove the large snap ring from the flange end of the housing **[C]**.

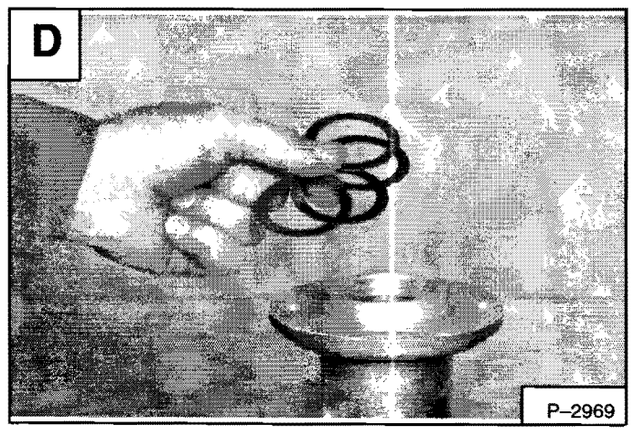
Remove the large shims from the housing **[D]**.

NOTE: Use the same size and thickness of shims during assembly.







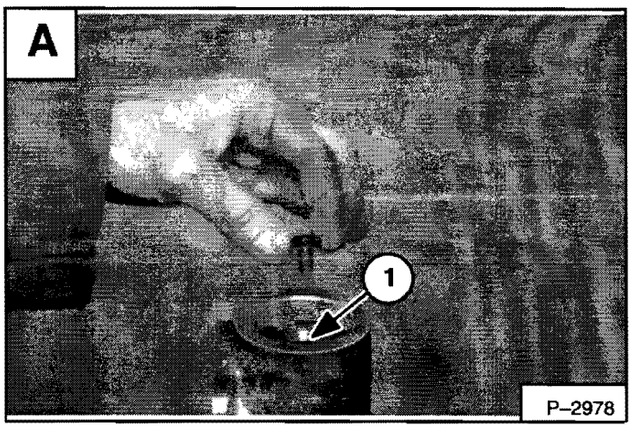


https://truckmanualshub.com/

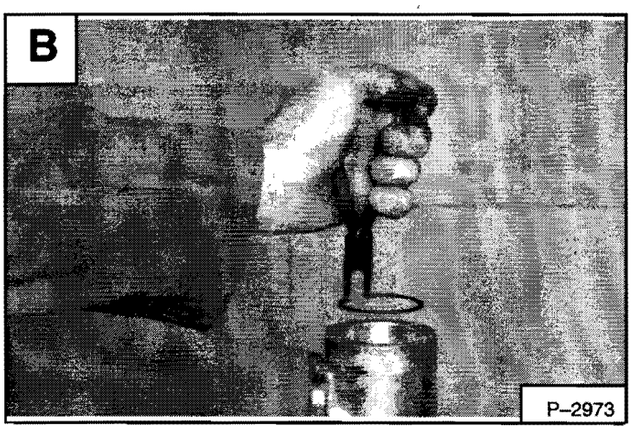
FAN GEARBOX (Cont'd)

Disassembly (Cont'd)

Remove the screw and washer (Item 1) **[A]** from the shaft.

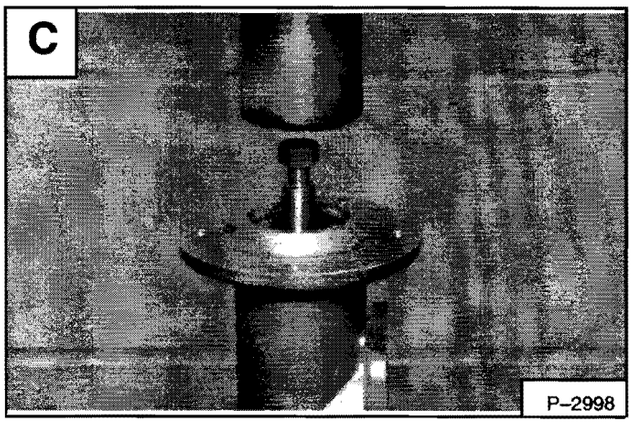


Remove the snap ring from the cap end of the housing **[B]**.

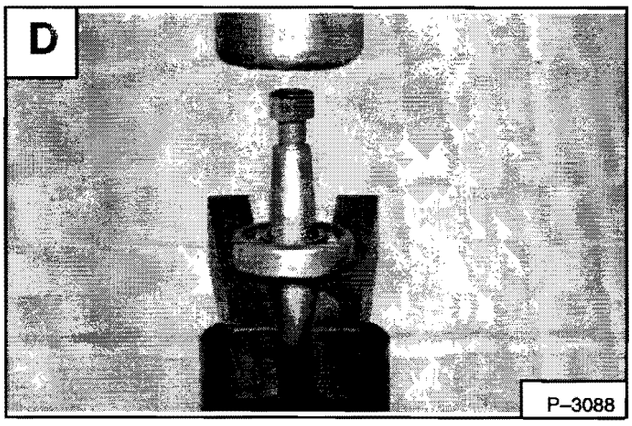


Press the shaft from the housing **[C]**.

NOTE: Both bearings may come out of the housing with the shaft. If one bearing remains in the housing use a non metal object to tap the bearing from the housing.



Press the bearing from the tapered end of the shaft **[D]**.

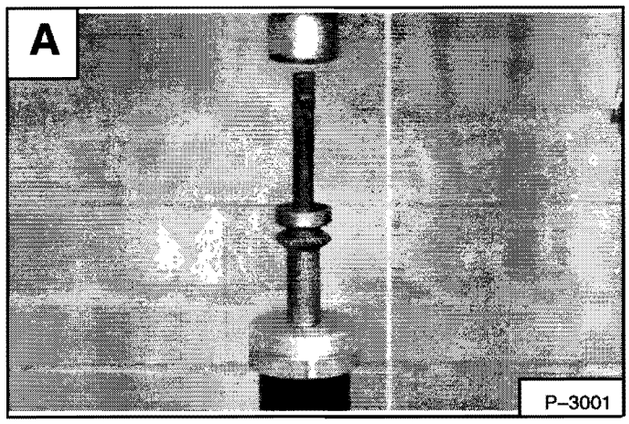


https://truckmanualshub.com/

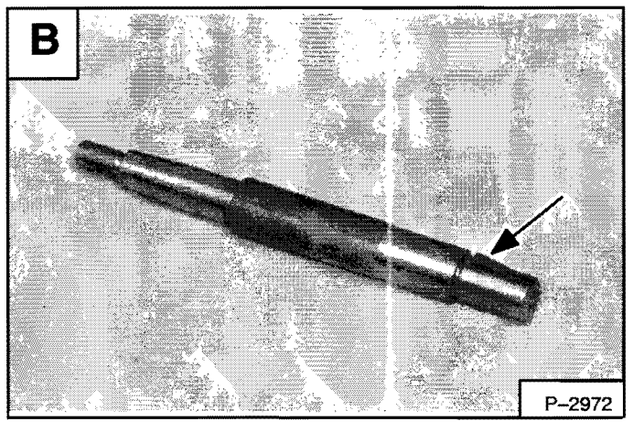
FAN GEARBOX (Cont'd)

Disassembly (Cont'd)

Press the bearing, shims and gear from the shaft **[A]**.



Remove the key from the shaft **[B]**.



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FAN GEARBOX (Cont'd)

Assembly

NOTE: See Note Page 7–9 when ordering parts for the Fan Gearbox.

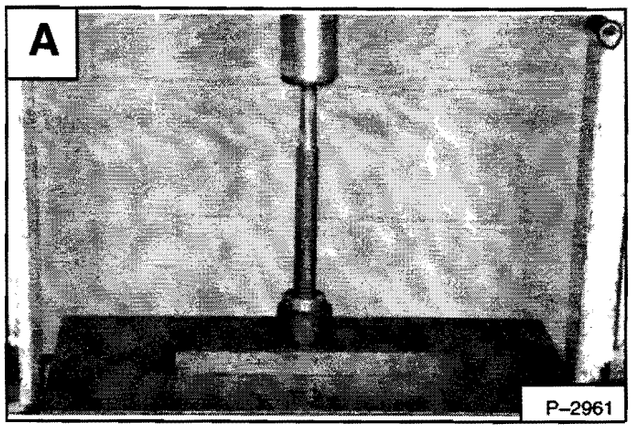
NOTE: Do not install the seals and cap in the housing until after the backlash has been checked.

NOTE: Use care when pressing the bearings into the aluminum housing. The housing can be damaged if too much pressure is used.

NOTE: For procedures requiring the use of LOCTITE adhesive, thoroughly clean and dry affected parts before the application of LOCTITE.

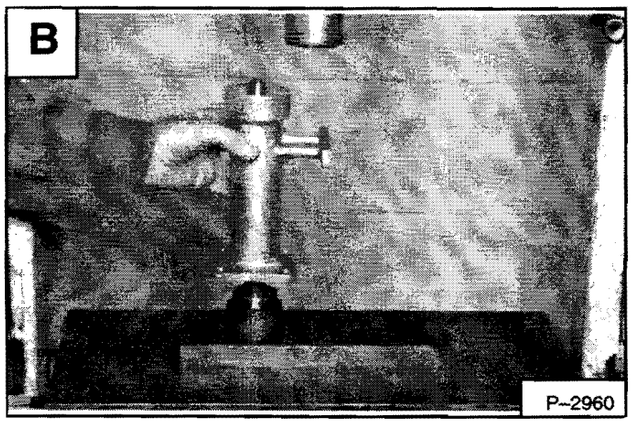
Long Housing

Press a bearing on the short keyed end of the long shaft **[A]**.



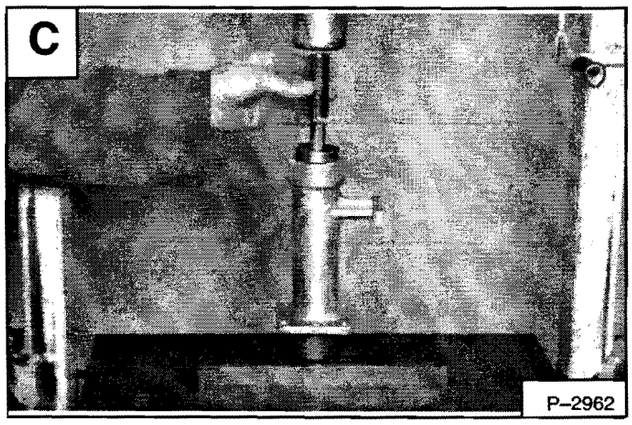
Install the long housing on the shaft **[B]**.

Be sure the bearing is seated in the bore at the lower end of the housing.

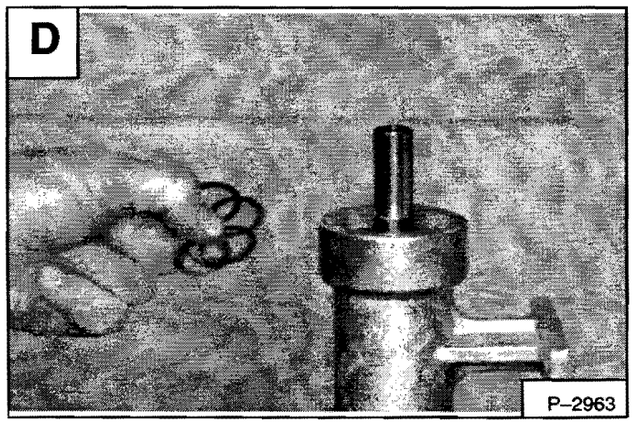


Install a bearing on the long keyed end of the shaft **[C]**.

Support the lower bearing and press the other bearing in the housing until the bearings seat in the housing **[C]**.



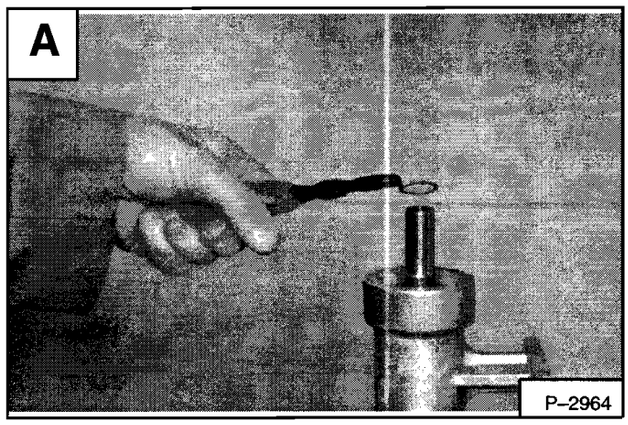
Install on the bearing, the same number and size shims that were removed during disassembly **[D]**.



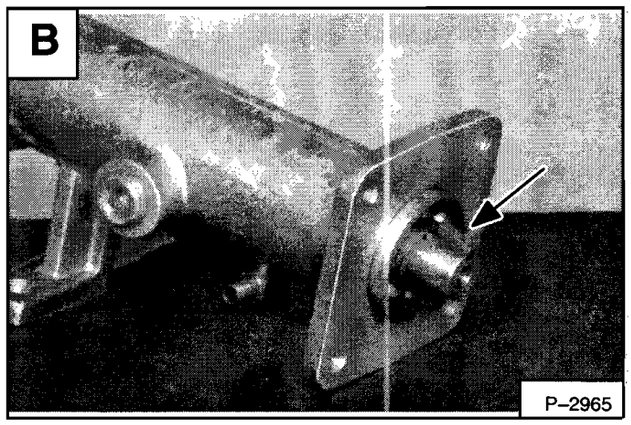
https://truckmanualshub.com/

Assembly (Cont'd)

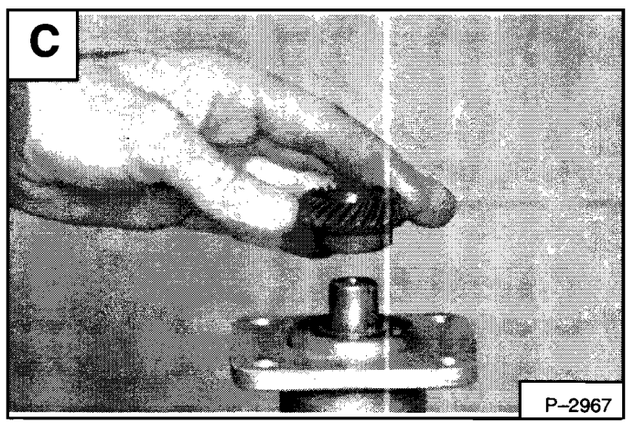
Install the small snap ring in the groove above the shims **[A]**.



Install the gear key in the flange end of the shaft **[B]**.

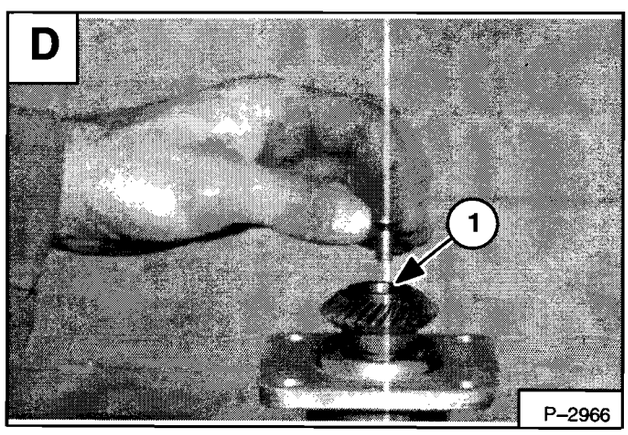


Align the key and gear. While supporting the bearing on the other end, press the gear on the shaft until it seats against the bearing **[C]**.



Install the washer (Item 1) **[D]**.

Put liquid adhesive (LOCTITE 242) on the screw threads. Install and tighten the screw **[D]**.

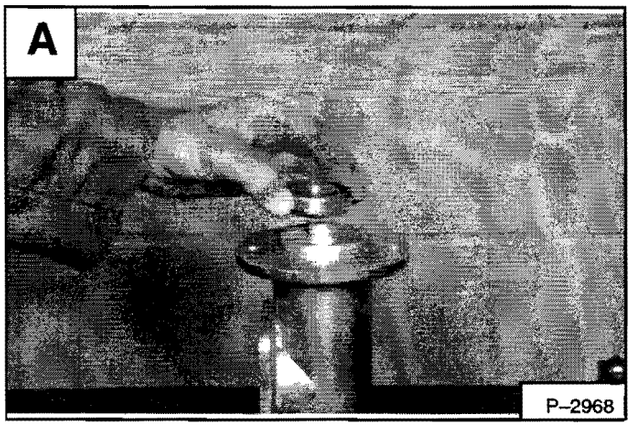


https://truckmanualshub.com/

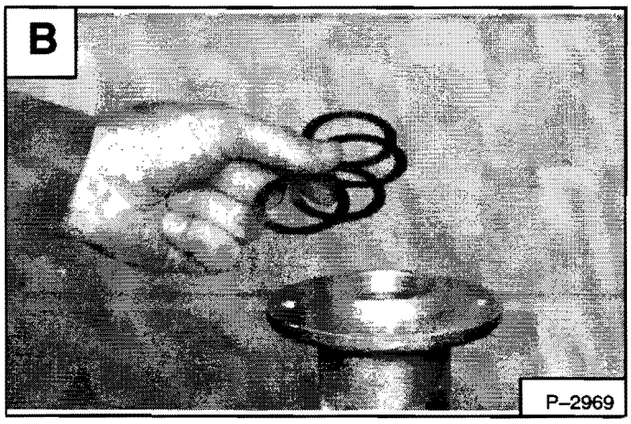
Assembly (Cont'd)

Short Housing

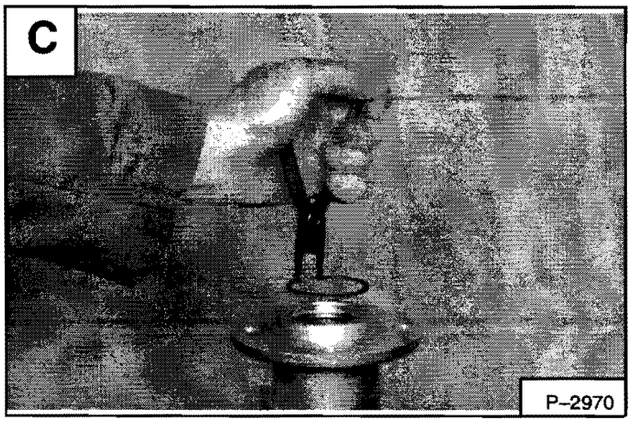
Install a bearing in the flanged end of the housing **[A]**.



Install the large shims on the bearing (flanged end) **[B]**.

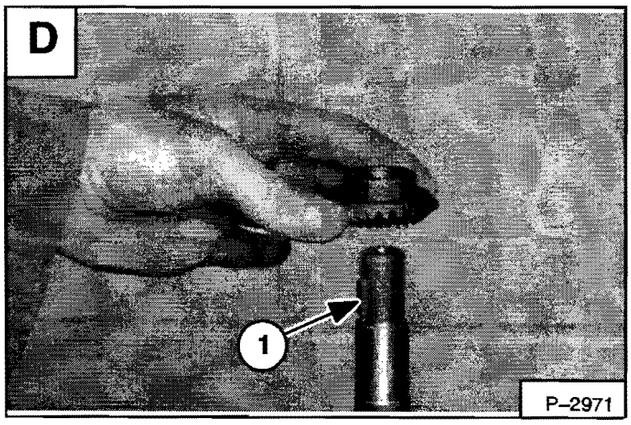


Install the large snap ring in the groove above the shims **[C]**.



Install the short key (Item 1) **[D]**.

Align and press the gear on the shaft (teeth toward the tapered end of the shaft) **[D]**.



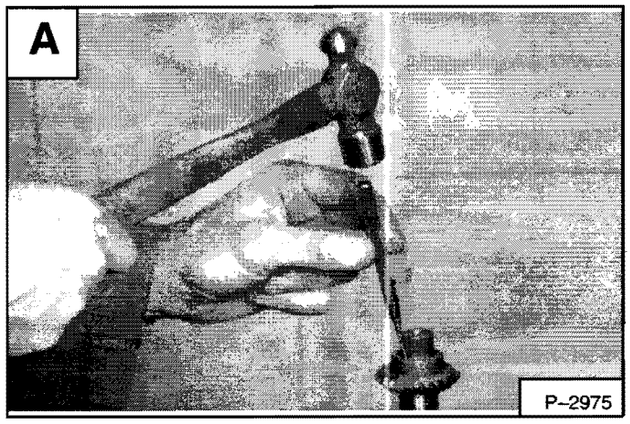
https://truckmanualshub.com/

FAN GEARBOX (Cont'd)

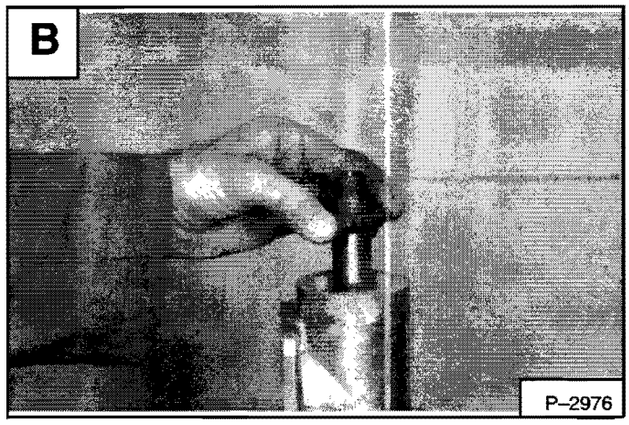
Assembly (Cont'd)

After the gear is seated, drive the key down inside the gear key way **[A]**.

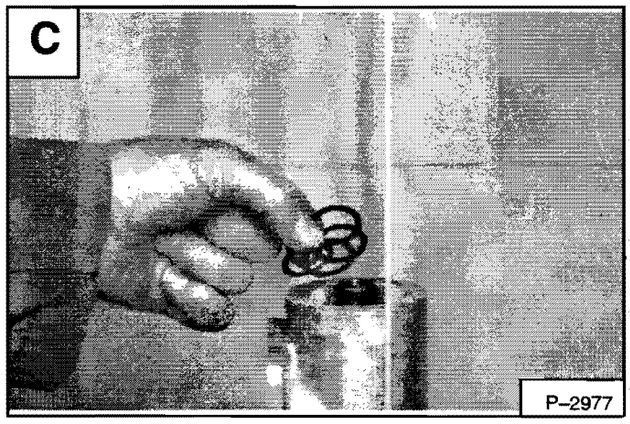
NOTE: This will prevent damage to the shims when the bearing is installed later.



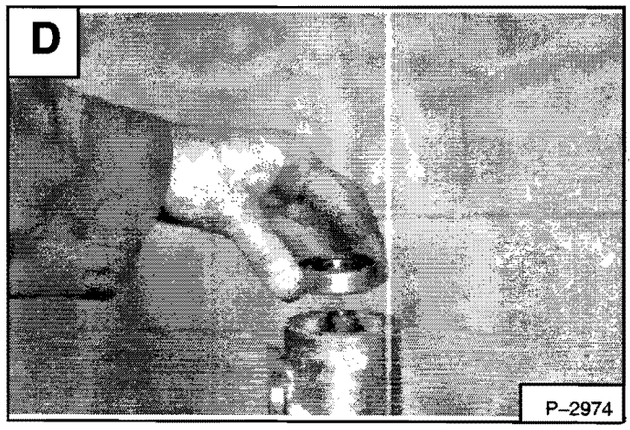
Install the shaft in the housing, tapered end in the bearing at the round flange end of the housing **[B]**.



Install on the shaft, the same number and size shims that were removed during disassembly **[C]**.



Install a bearing on the gear end of the shaft **[D]**.

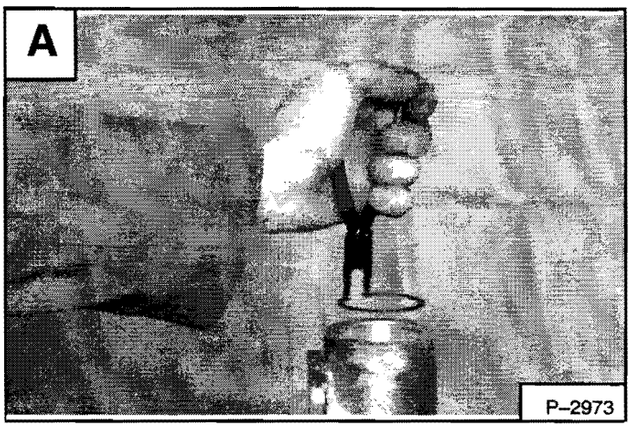


https://truckmanualshub.com/

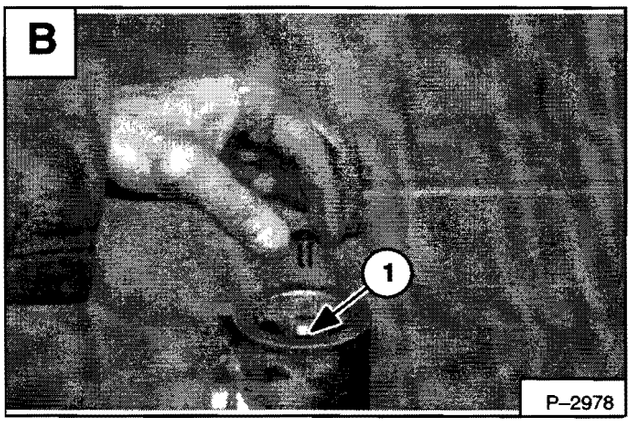
FAN GEARBOX (Cont'd)

Assembly (Cont'd)

Install the snap ring in the groove above the bearing **[A]**.



Install the washer (Item 1) **[B]** on the shaft. Put liquid adhesive (LOCTITE 242) on the screw threads and install the screw **[B]**.



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FAN GEARBOX (Cont'd)

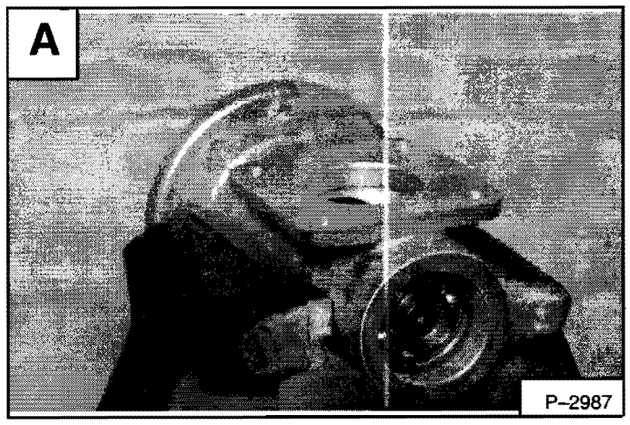
Checking Backlash

NOTE: For procedures requiring the use of LOCTITE adhesive, thoroughly clean and dry affected parts before the application of LOCTITE.

The backlash tolerance between the gears should be .005"–.008" (0,127–0,203 mm).

To check the gear backlash use the following procedure:

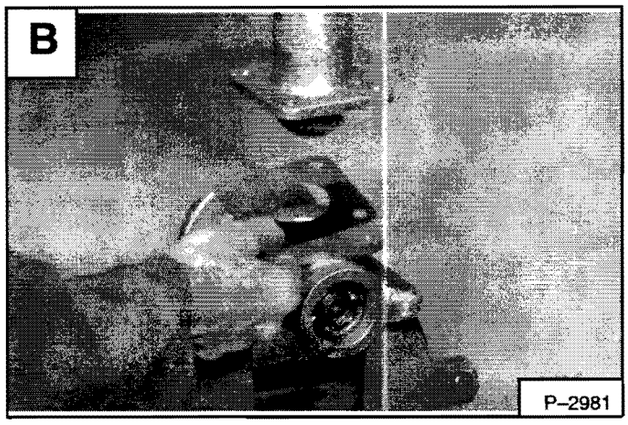
Put the short housing in a vise, square flange facing up as shown **[A]**.



Install the same size and number of square shims (if present during disassembly) between the two housings **[B]**.

Set the long housing on the short housing with a small amount of liquid adhesive (LOCTITE 242) between the mounting surfaces.

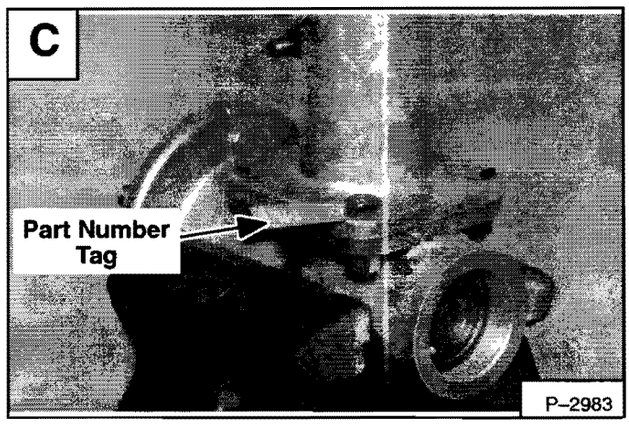
NOTE: If square shims are used, put a small amount of the liquid adhesive on both sides of all shims.



Install the four mounting bolts through the flange holes **[C]**.

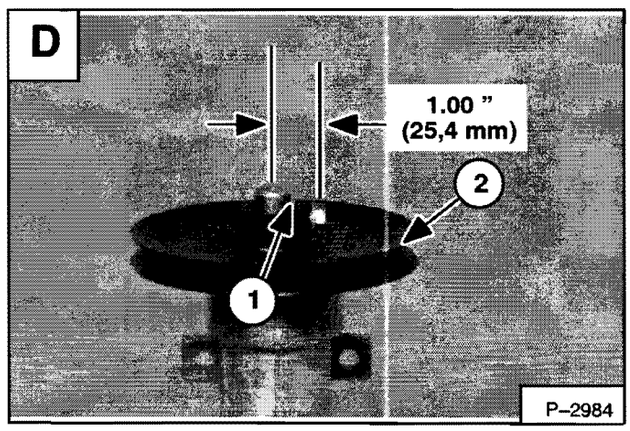
Install the part number tag **[C]**.

Install and tighten the nut to 25–28 ft.–lbs. (34–38 Nm) torque.



Install the long key (Item 1) **[D]** and the pulley (Item 2) **[D]**.

Install a bolt in the set screw hole to maintain a 1.00" (25,4 mm) distance from the shaft center to the bolt head (to be used with a dial indicator) **[D]**.



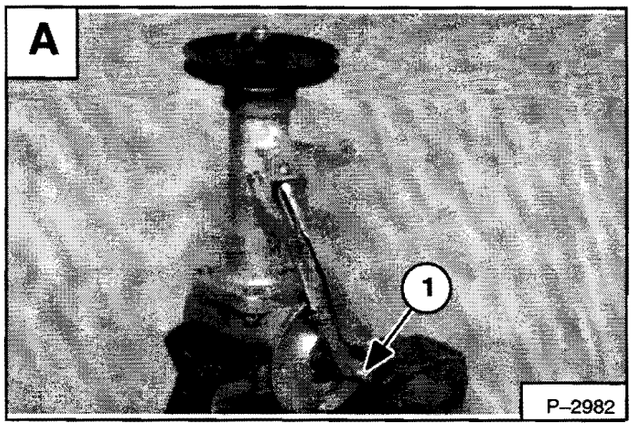
https://truckmanualshub.com/

FAN GEARBOX (Cont'd)

Checking Backlash (Cont'd)

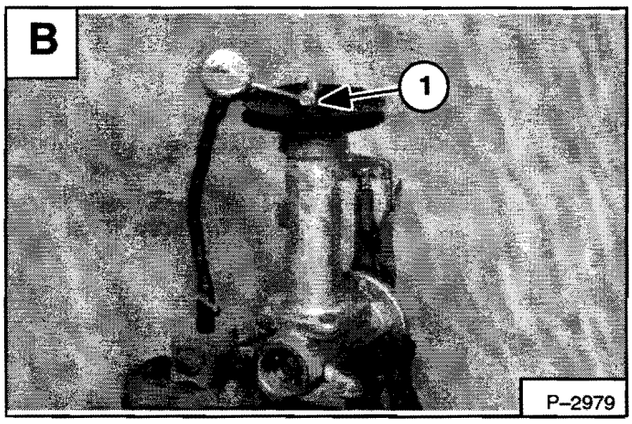
Put the fan nut (Item 1) **[A]** on the shaft and tighten snugly.

Install a locking pliers on the fan nut and support the handle against the long housing **[A]**.



Using a magnetic based dial indicator mounted on a bench vise, touch the dial stem on the bolt (Item 1) **[B]**.

Hold the locking pliers against the long housing and rotate the pulley back and forth to read the dial gauge **[B]**.



If the backlash is GREATER than .008" (0,203 mm), do the following:

1. Remove a square shim(s) (if present) between the two housings.
2. Remove a large shim(s) from the tapered end of the short shaft and add a small shim (s) of the same thickness between the bearing and the gear on the screw end of the shaft.

If the backlash is LESS than .005" (0,127 mm) do the following:

1. Add a square shim(s) between the two housings.
2. Remove a small shim(s) between the bearing and the gear on the screw end of the short shaft and add a large shim(s) of the same thickness between the snap ring and the bearing on the tapered end of the shaft.

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FAN GEARBOX (Cont'd)

Checking Backlash (Cont'd)

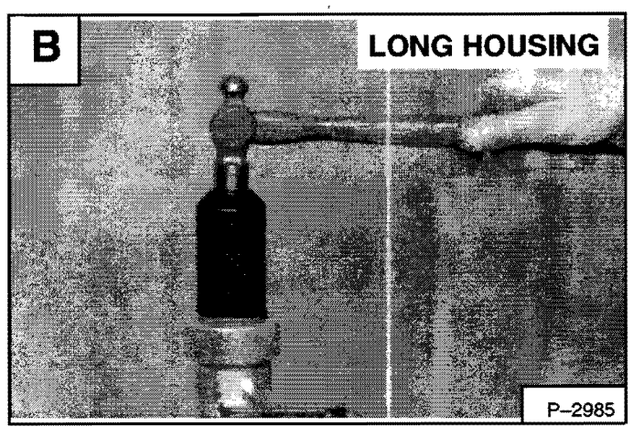
When the backlash is correct, install the seals, cap and gear oil as follows:

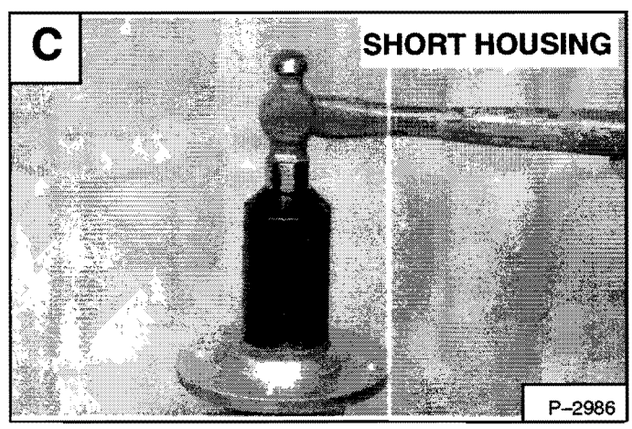
Remove the bolts from the flanges and separate the two housings.

Put liquid adhesive (LOCTITE 242) on the outside diameter of the seal(s) **[A]**.



Install the seal(s) flush with the housing surface **[B]** & **[C]**.





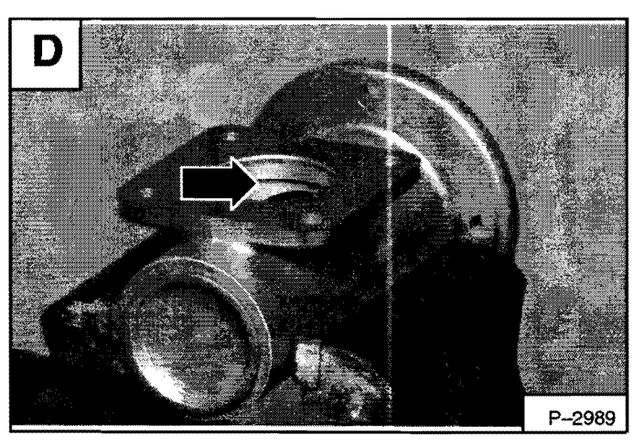
Add SAE 90 gear oil in the short housing to about 1/2" (12 mm) below the flange surface **[D]**.

Clean any oil from the flange surface.

Install the long housing on the short housing flange.

Install the four bolts and part number tag.

Install and tighten the nuts to 25–28 ft.–lbs. (34–38 Nm) torque.

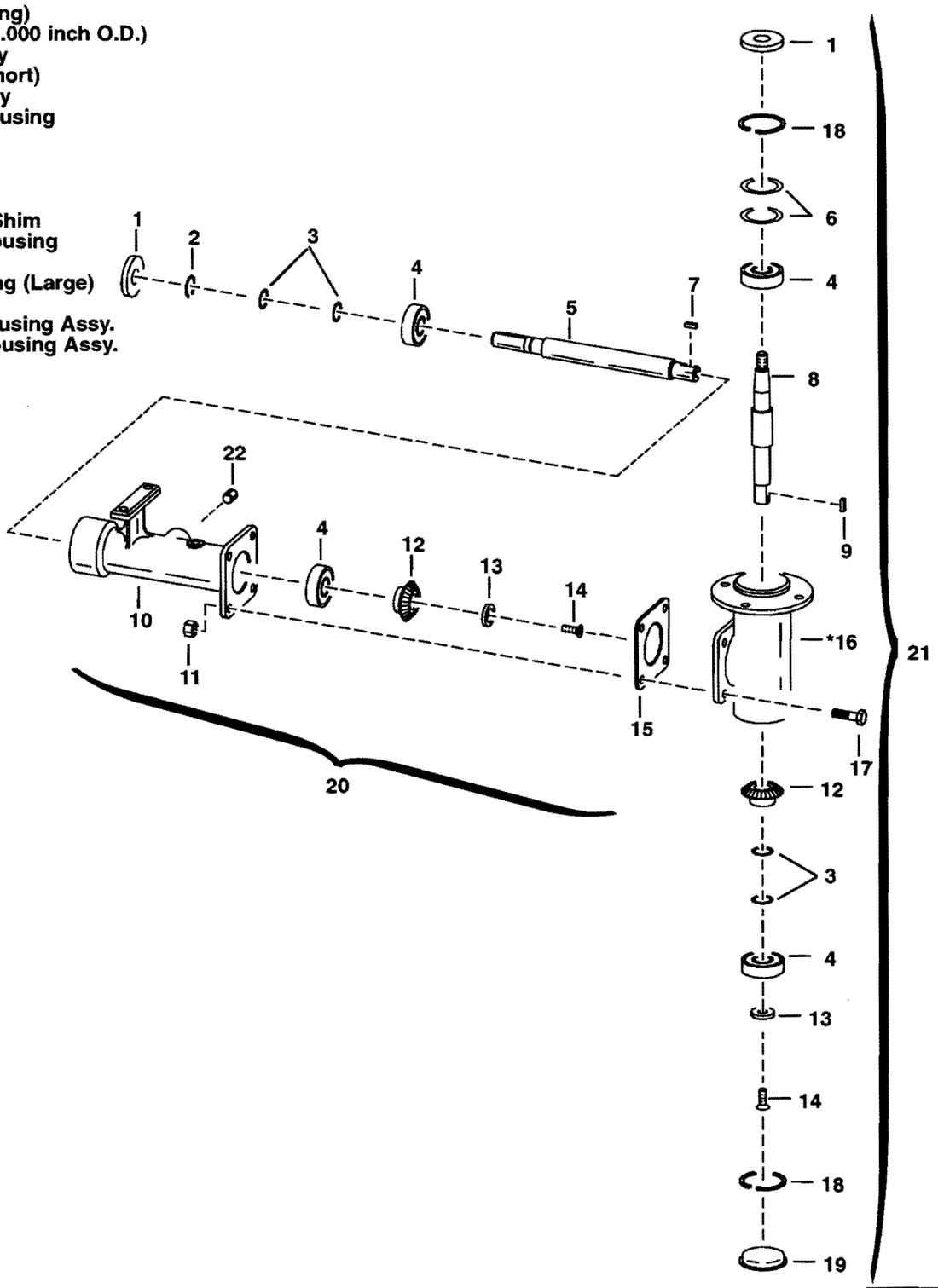


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FAN GEARBOX (Cont'd)

Parts Identification

1. Seal
2. Snap Ring (Small)
3. Shims (1.000 inch O.D.)
4. Bearing
5. Shaft (long)
6. Shims (2.000 inch O.D.)
7. Long Key
8. Shaft (Short)
9. Short Key
10. Long Housing
11. Nut
12. Gear
13. Washer
14. Screw
15. Square Shim
*16. Short Housing
17. Bolt
18. Snap Ring (Large)
19. Cap
20. Long Housing Assy.
21. Short Housing Assy.
22. Fill Plug



* Individual Part not available (See Note Page 7–19).

TS–1002

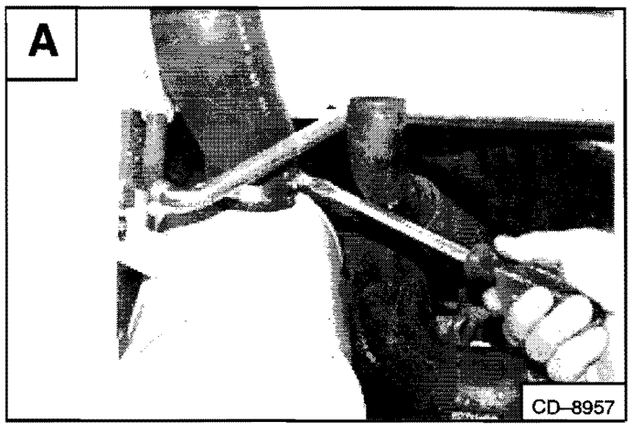
https://truckmanualshub.com/

AIR CLEANER

Removal and Installation

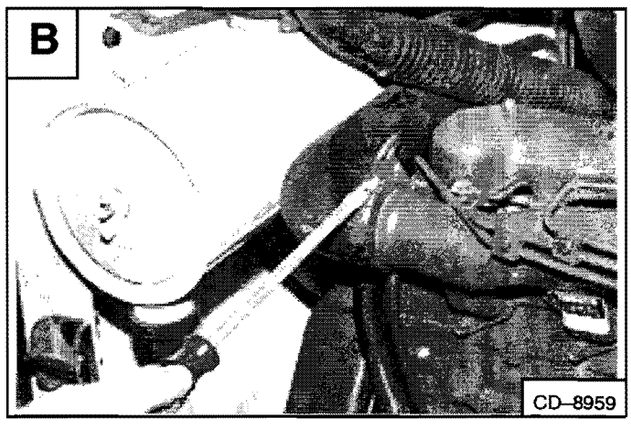
Remove the muffler. (See Page 7–6.)

Remove the hose clamp from the air cleaner intake hose **[A]**.



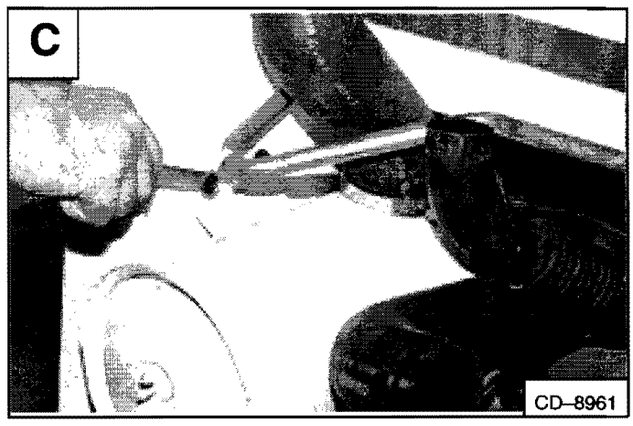
Loosen the hose clamp on the intake hose **[B]**.

Disconnect the hose from the manifold.



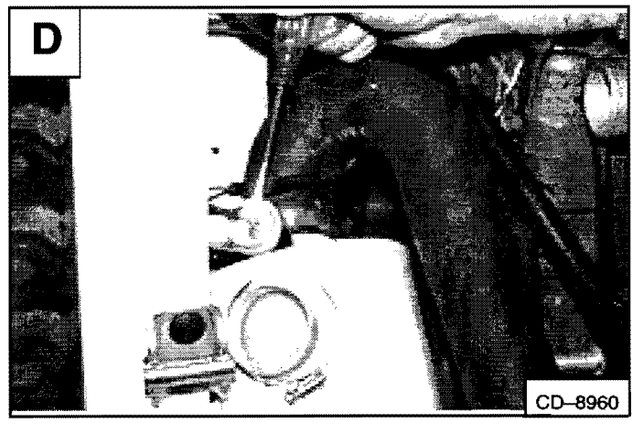
Remove the air cleaner housing mounting bolts **[C]**.

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



Move the air cleaner housing out of the engine compartment for clearance.

Disconnect the wires from the sender unit **[D]**.

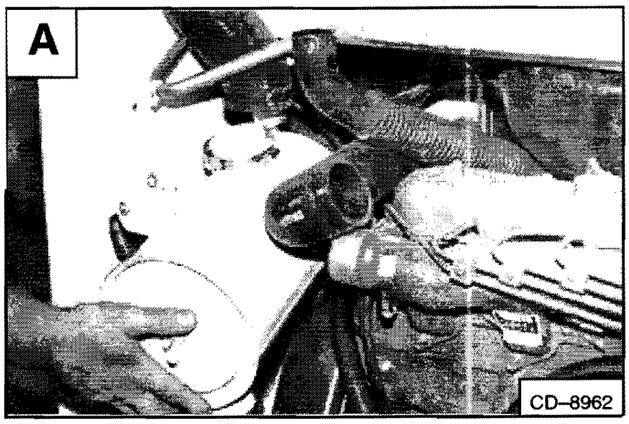


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AIR CLEANER

Removal and Installation (Cont'd)

Remove the air cleaner housing assembly from the loader **[A]**.



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ENGINE

Removal and Installation

Remove the rear door. (See Page 5–1.)

Remove the rear grill. (See Page 5–1.)

Raise the operator cab. (See Page 1–1.)

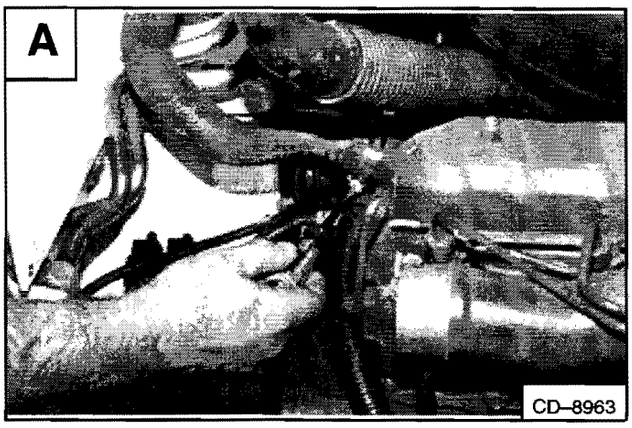
Remove the battery. (See Page 6–1.)

Remove the muffler. (See Page 7–6.)

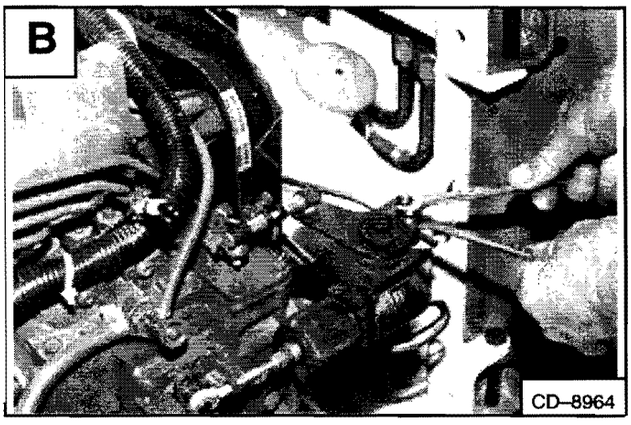
Remove the air cleaner. (See Page 7–10.)

Remove the coolant from the cooling system.

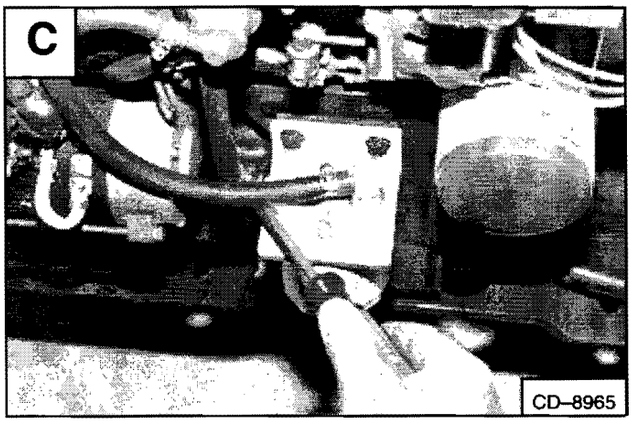
Disconnect the radiator hose from the engine (both sides) **[A]**.



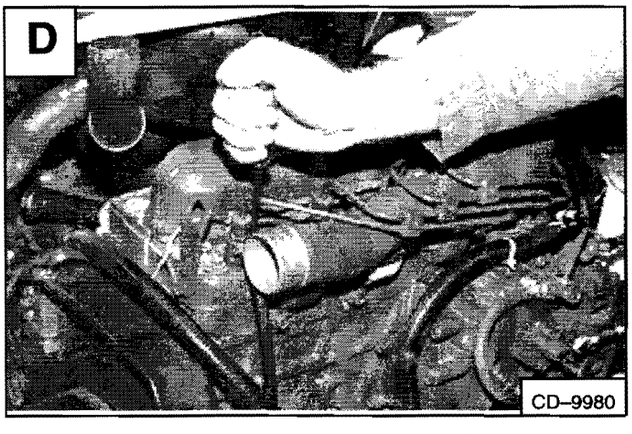
Disconnect the throttle linkage **[B]**.



Disconnect the fuel hose from the fuel filter **[C]**.



Disconnect the fuel return hose **[D]**.

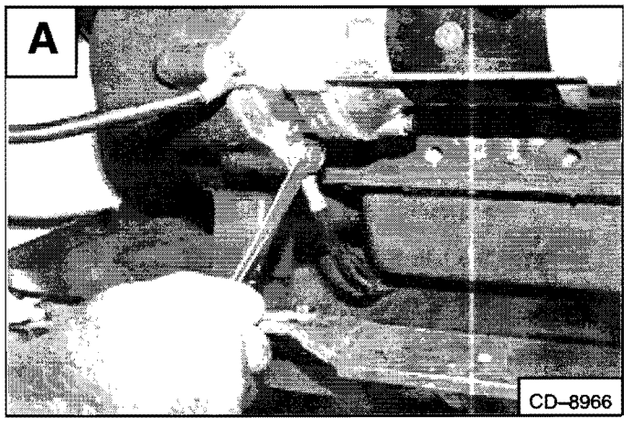


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ENGINE (Cont'd)

Removal and Installation (Cont'd)

Disconnect the ground cable from the start mounting bolt **[A]**.



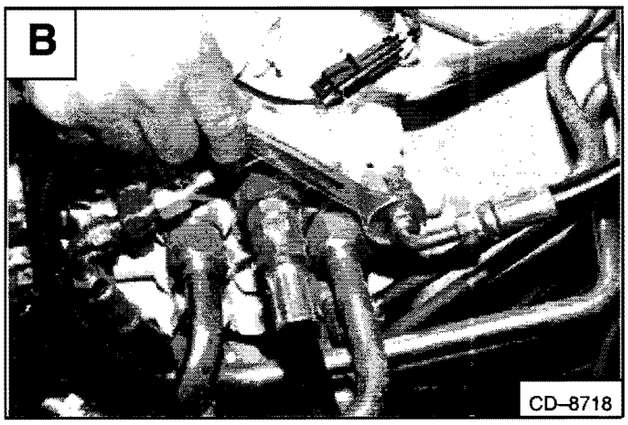
IMPORTANT

When making repairs on 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.

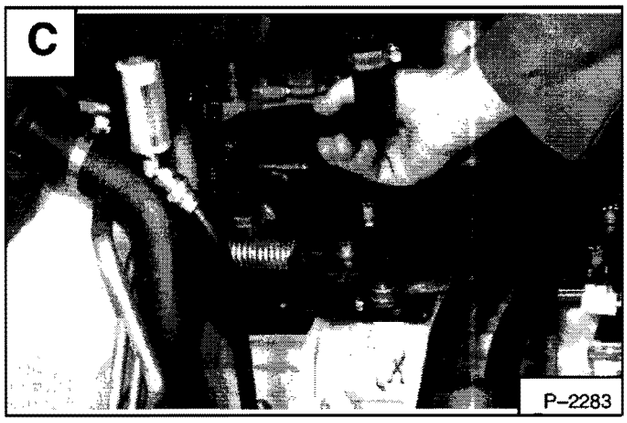
I–2003–0284

Disconnect the hose which goes from the control valve to the hydraulic fluid reservoir **[B]**.

When this hose is disconnected fluid will drain from the reservoir. Drain the fluid into a container.



Remove the suction hose **[C]**.



Disconnect the outlet high pressure tubeline **[D]**.

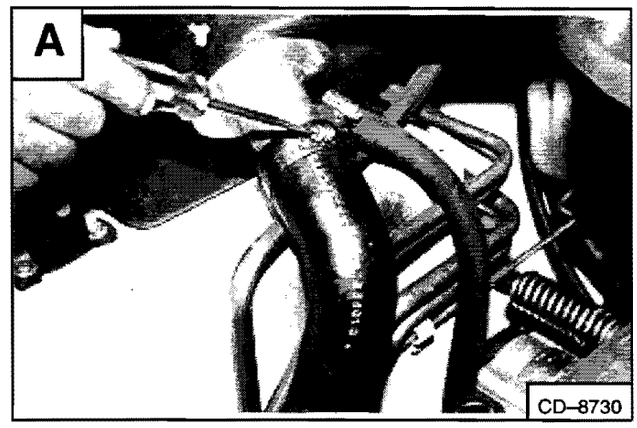


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ENGINE (Cont'd)

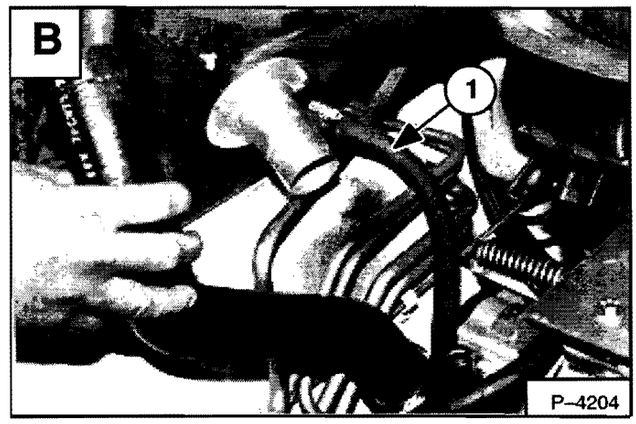
Removal and Installation (Cont'd)

Loosen the hose clamps on the fuel tank fill hose **[A]**.



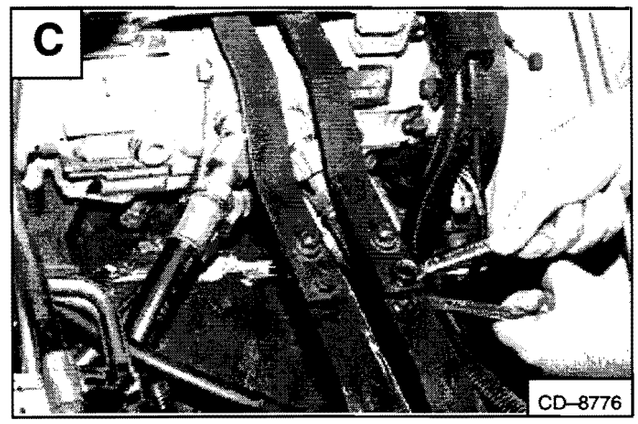
Remove the fuel fill hose **[B]**.

Disconnect the vent hose (Item 1) **[B]** from the fuel tank.



Disconnect the small hose (if equipped) from the outlet fitting on the hydraulic pump.

Disconnect the steering linkage **[C]**.

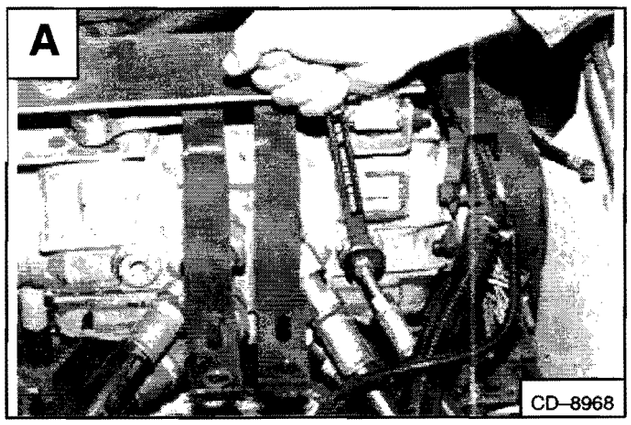


https://truckmanualshub.com/

ENGINE (Cont'd)

Removal and Installation (Cont'd)

Disconnect the case drain hose from the hydrostatic pump **[A]**.

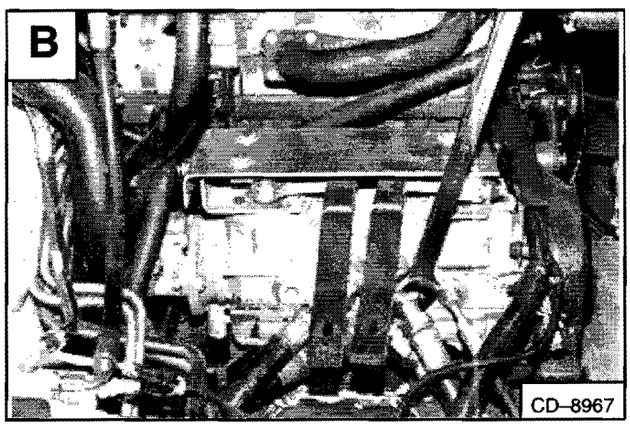


Mark the high pressure hoses for correct installation. Remove the high pressure hoses from the hydrostatic pumps **[B]**.

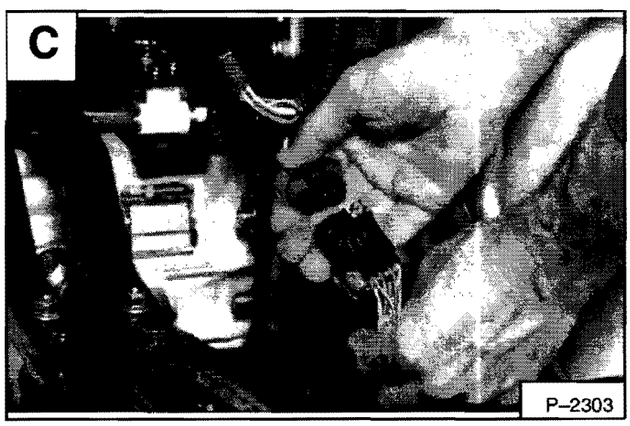
⚠ WARNING

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.

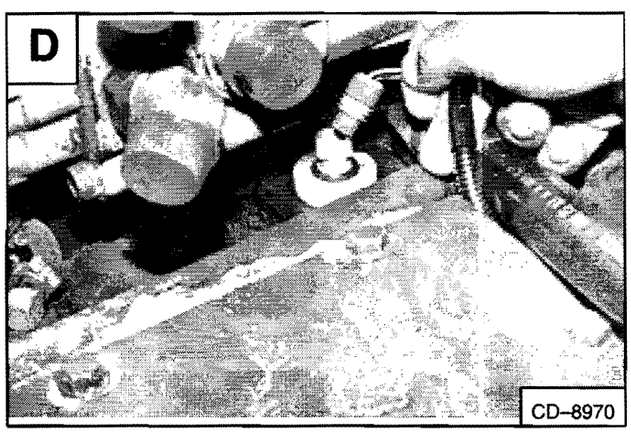
W–2103–1285



Disconnect the wire harness connectors in front of the hydrostatic pump **[C]**.



Disconnect the fuel level sender wire **[D]**.

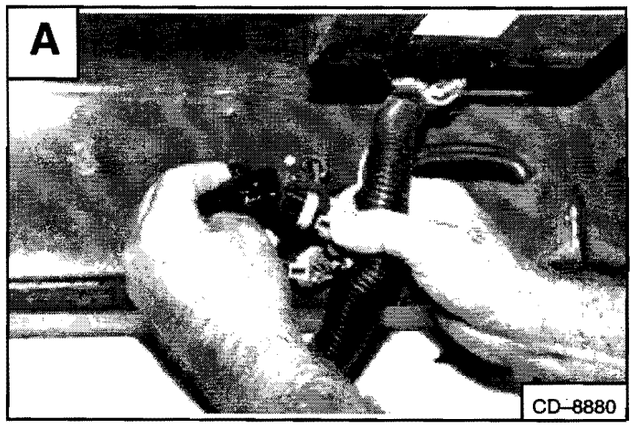


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ENGINE (Cont'd)

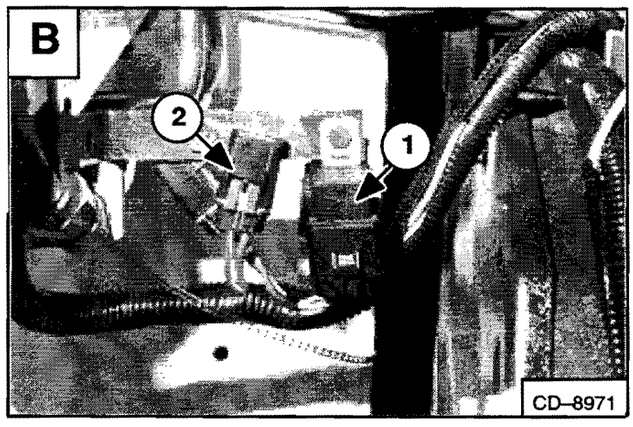
Removal and Installation (Cont'd)

Disconnect the engine wiring harness from the operator cab wiring harness **[A]**.

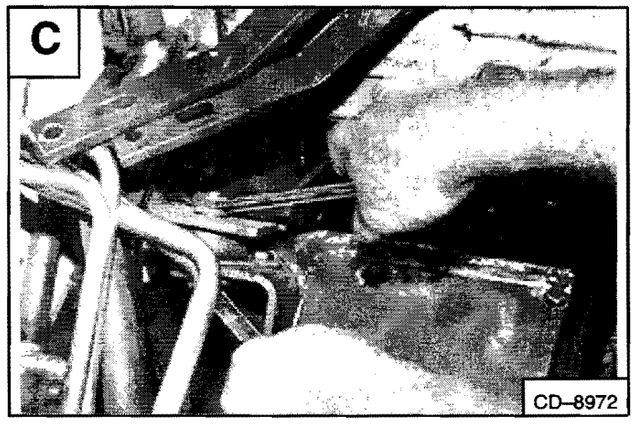


S/N 11079 & Above

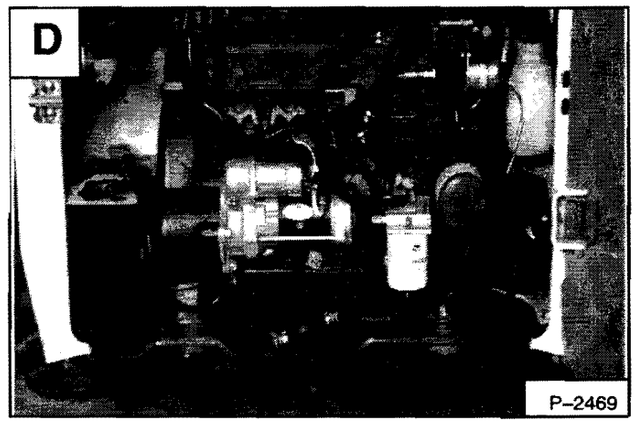
The relays (Item 1) **[B]** and fuses (Item 2) **[B]** are loosened when air cleaner is removed and are removed with the engine wiring harness when the engine/hydrostatic pumps are removed.



Remove the bolt and nut from the engine/hydrostatic pump mount (both sides) **[C]**.



Remove the bolt and nut at the rear engine mount (both sides) **[D]**.

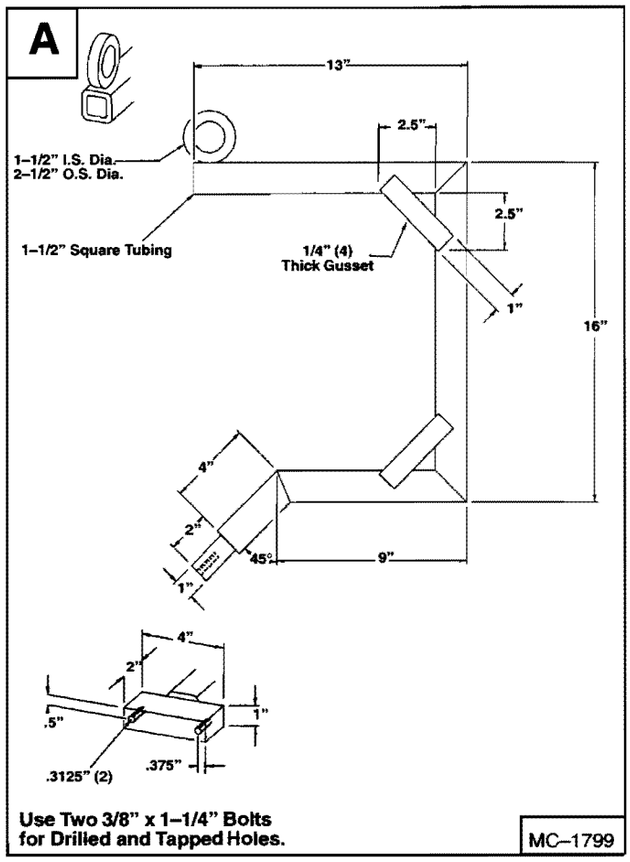


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ENGINE (Cont'd)

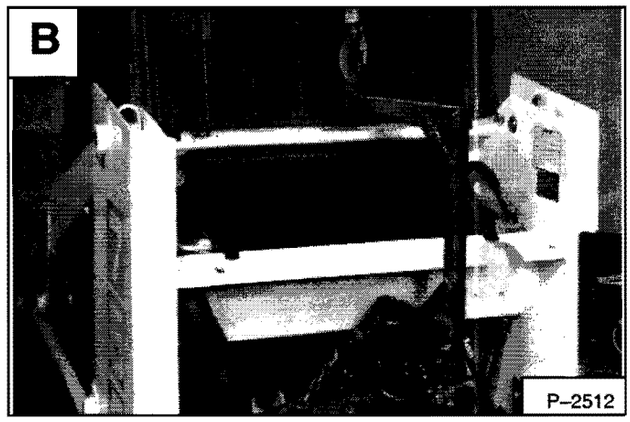
Removal and Installation (Cont'd)

A tool will be needed so the engine/hydrostatic pump assembly can be lifted a small amount (off the engine mounts) and moved out of the loader. Use the dimensions in **[A]** to make the engine removal tool.



Install a chain on the engine lifting tool. Connect the chain hoist to the ring on the lifting tool and connect the chain to the lifting eye brackets on the engine **[B]**.

Lift the engine/hydrostatic pump assembly and remove them from the loader.



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ENGINE (Cont'd)

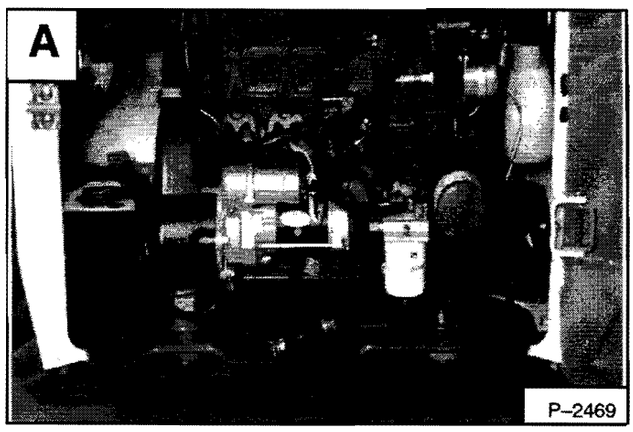
Installation

There is a kit available to replace the existing engine mounts in older model 753 loaders. (See your Bobcat loader dealer for the kit needed.)

Use the following procedure to install new engine mounts:

Remove the existing mount from the engine **[A]**.

Replace all four engine mounts 2 front and 2 rear.



Use the parts shown to install the new engine mounts **[B]**.

Item 1 – square nut – used on left side engine mounts

Item 2 – hex nut – used on rear side engine mounts

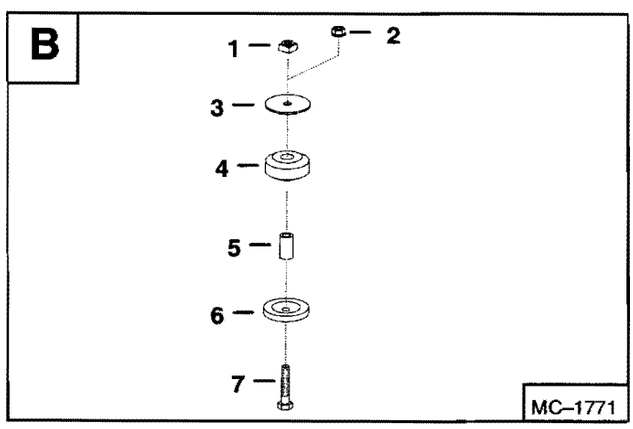
Item 3 – mount washer

Item 4 – engine mount

Item 5 – tube spacer (front mount) – 1.47" (37,3 mm)
tube spacer (rear mount) – 1.57" (39,9 mm)

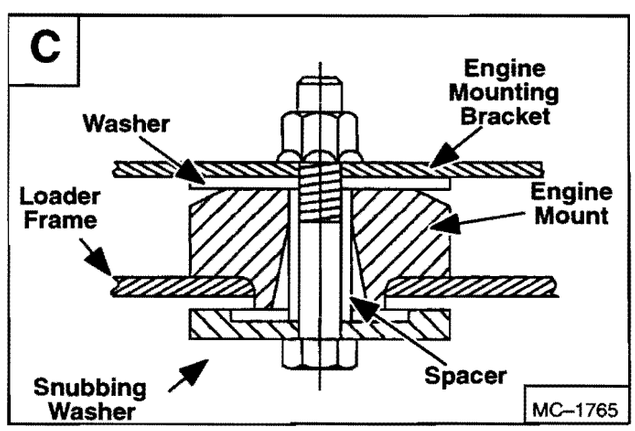
Item 6 – snubbing washer

Item 7 – mounting bolt



Install the new engine mount as shown in the cut away side view **[C]**.

Tighten the mounting bolts to 90–100 ft.–lbs. (125–130 Nm) torque.



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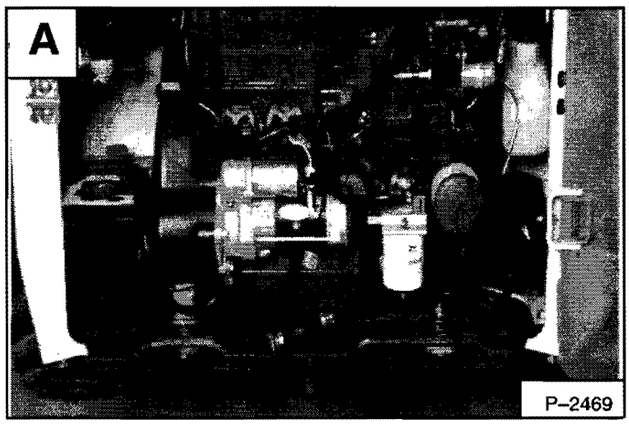
Installation

There is a kit available to replace the existing engine mounts in older model 753 loaders. (See your Bobcat loader dealer for the kit needed.)

Use the following procedure to install new engine mounts:

Remove the existing mount from the engine **[A]**.

Replace all four engine mounts 2 front and 2 rear.



Use the parts shown to install the new engine mounts **[B]**.

Item 1 – square nut – used on left side engine mounts

Item 2 – hex nut – used on rear side engine mounts

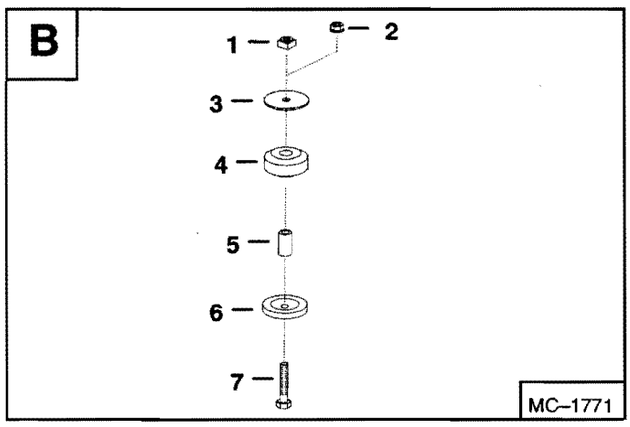
Item 3 – mount washer

Item 4 – engine mount

Item 5 – tube spacer (front mount) – 1.47" (37,3 mm)
tube spacer (rear mount) – 1.57" (39,9 mm)

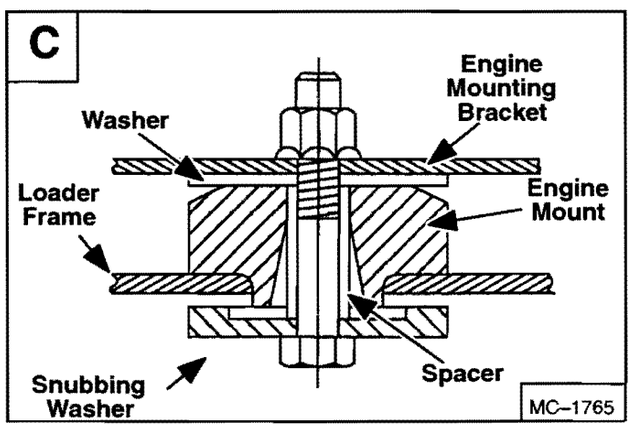
Item 6 – snubbing washer

Item 7 – mounting bolt



Install the new engine mount as shown in the cut away side view **[C]**.

Tighten the mounting bolts to 90–100 ft.–lbs. (125–130 Nm) torque.

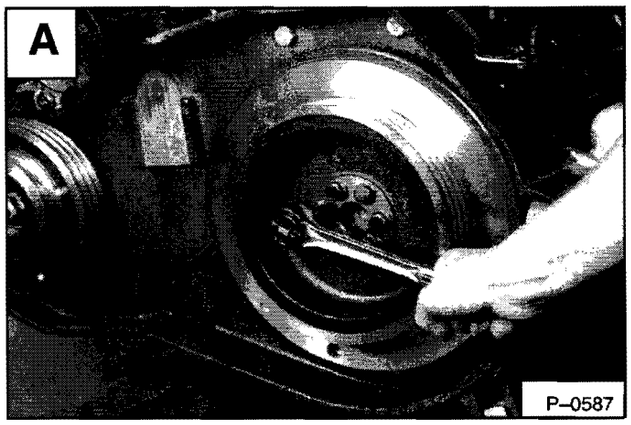


https://truckmanualshub.com/

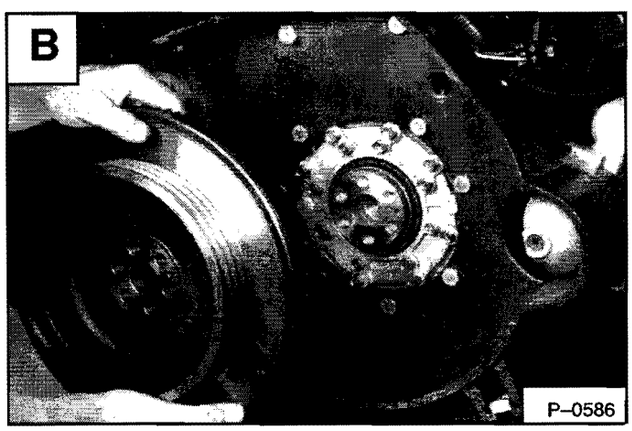
FLYWHEEL

Removal and Installation

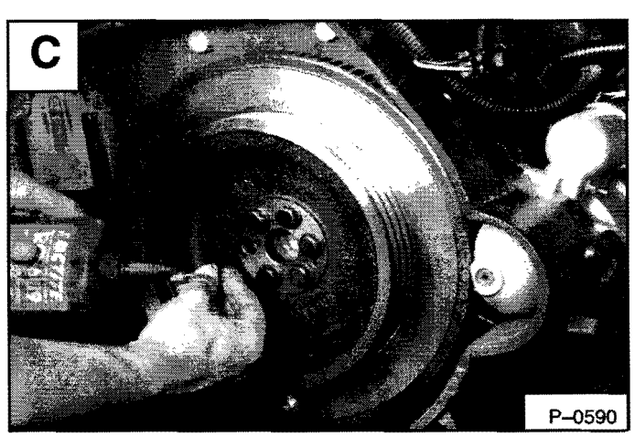
Remove the bolts from the flywheel **[A]**.



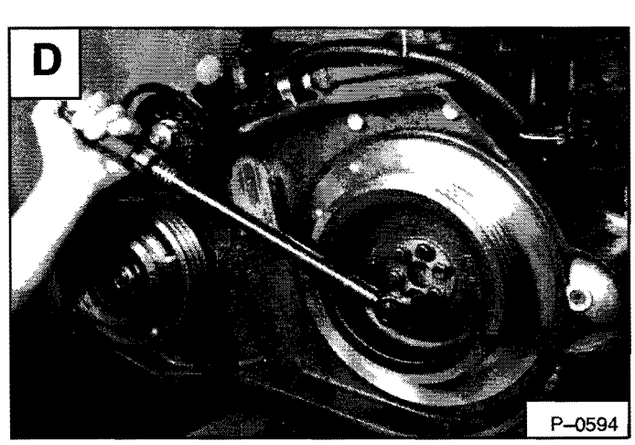
Remove the flywheel from the crankshaft **[B]**.



Installation: Put liquid adhesive (LOCTITE #242) on the flywheel bolts before installation **[C]**.



Installation: Tighten the bolts to 83–90 ft.–lbs. (113–122 Nm) torque **[D]**.



Flywheel Ring Gear

The ring gear on the flywheel is an interference fit. Heat the ring gear enough to expand it and hit it with a hammer, to remove it evenly.

Clean the outer surface of the flywheel to give a smooth fit.

Clean the new ring gear and heat it to a temperature of 450–500°F (232–260°C).

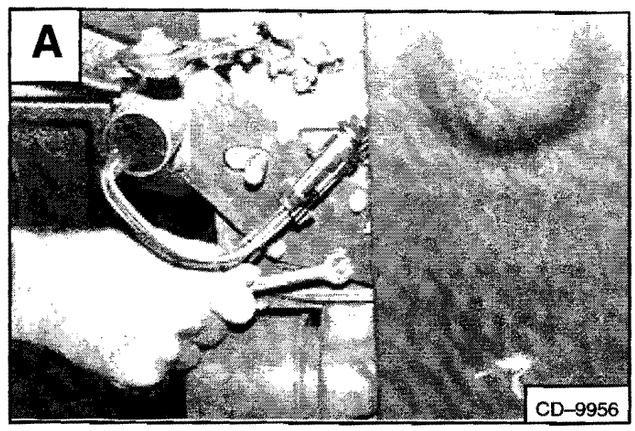
Fit the ring gear over the flywheel. Make sure the gear is on the seat correctly.

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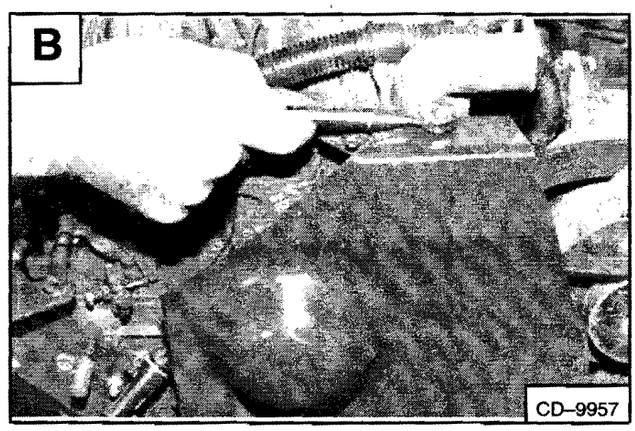
BELT SHIELD

Removal and Installation

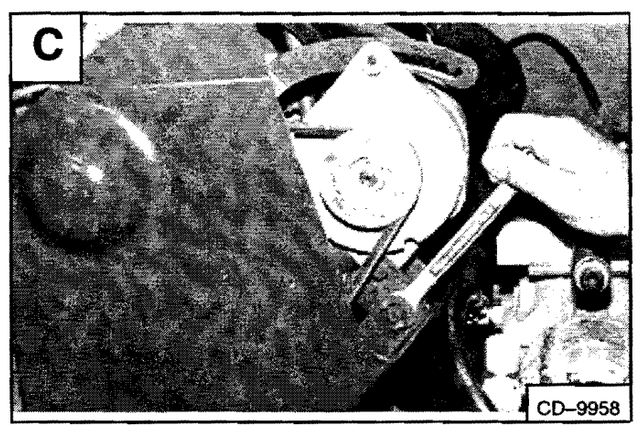
Remove the bolt from the timing gearcase cover **[A]**.



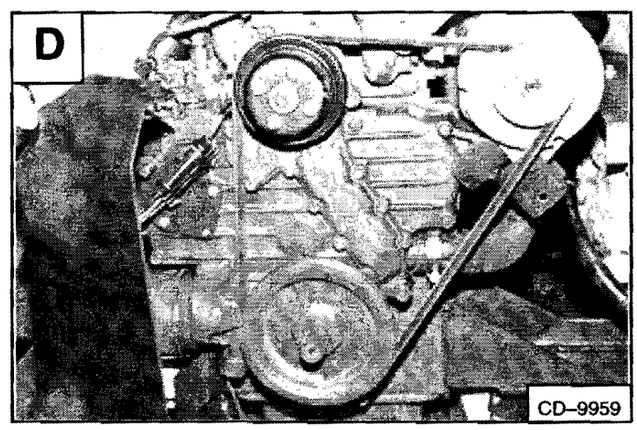
Remove the bolt from the thermostat housing **[B]**.



Remove the bolt from the alternator mounting bracket **[C]**.



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



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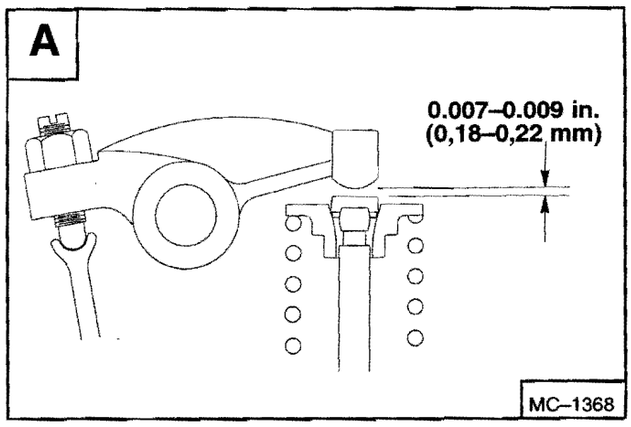
VALVE CLEARANCE

Adjustment

Make the valve clearance adjustment with the engine stopped and cold.

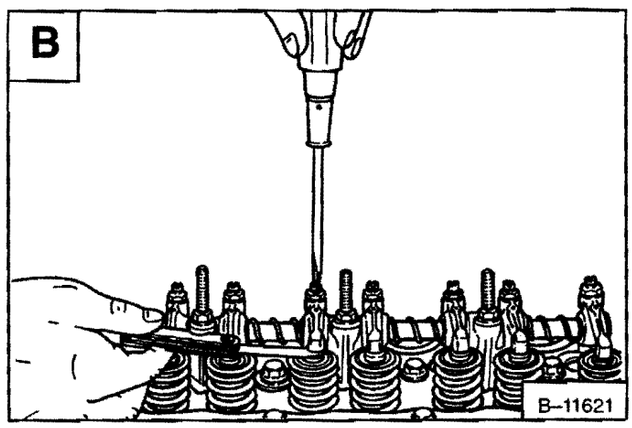
The correct valve clearance is 0.007–0.009" (0,18–0,22 mm) **[A]**.

Make sure the piston is at T.D.C. when making the adjustment for the intake and exhaust valves of the particular cylinder.



Put the correct size feeler gauge between the rocker arm and the valve stem. Turn the adjustment bolt until the clearance is correct **[B]**.

Tighten the adjusting bolt lock nut.



ENGINE COMPRESSION

Checking

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

OEM1074 – Engine Compression Kit
MEL1404 – Compression Adapter

The engine must be at operating temperature.

Remove the glow plugs. (See Page 7–37.)

Install the correct compression adapter into the cylinder head **[C]**.

Connect the compression gauge **[D]**.

Make sure the throttle is fully backward (engine idle).

Disconnect the fuel stop solenoid.

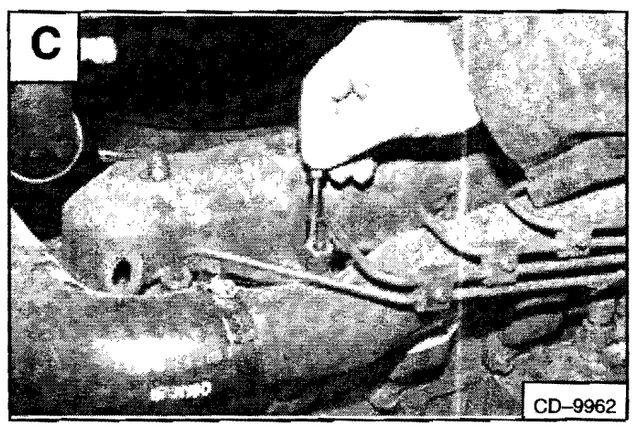
Crank the engine with the starter at 200–300 RPM.

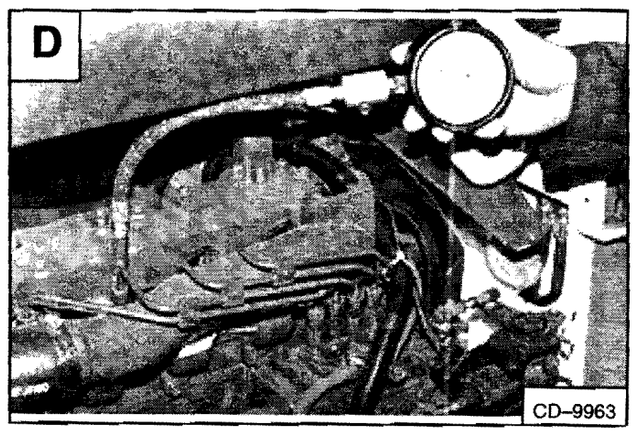
If the measurement is below the allowable limit, check the cylinder, piston ring, top clearance, valve and cylinder head.

Compression Pressure 412–469 PSI (2840–3233 kPa)
Allowable Limit (minimum) ..... 327 PSI (2255 kPa)

No more than 10% variance among cylinders.

Connect the fuel stop solenoid.





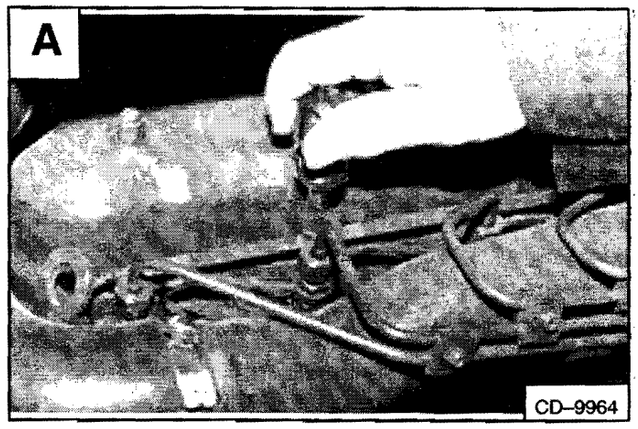
https://truckmanualshub.com/

GLOW PLUGS

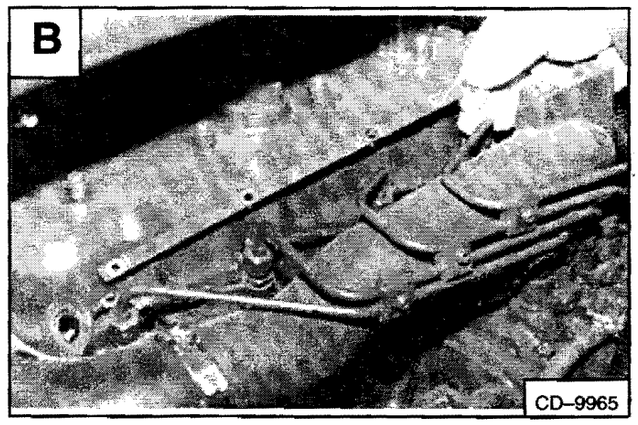
Removal and Installation

Disconnect the negative (–) cable from the battery.

Remove the nut from the glow plugs **[A]**.

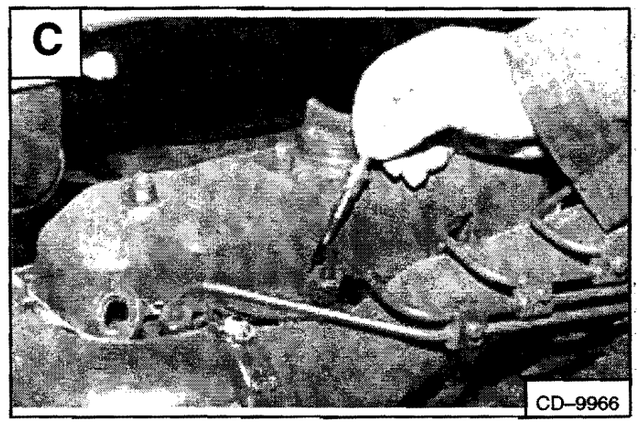


Remove the glow plug connecting strap **[B]**.



Loosen and remove the glow plug **[C]**.

Installation: Tighten the glow plug 15–18 ft.–lbs. (20–24 Nm) torque.



Checking

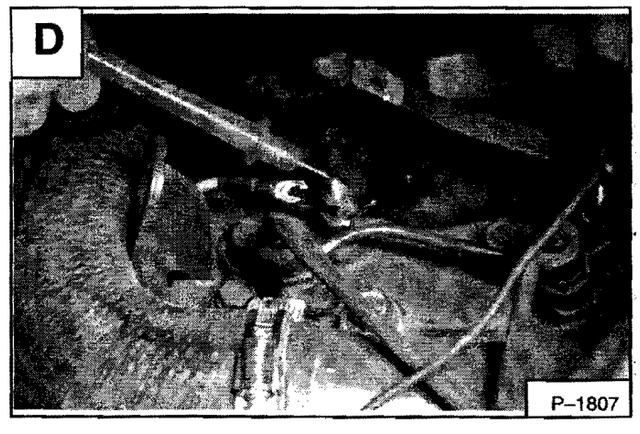
Disconnect the glow plug cables and leads.

Use an ohmmeter to check the glow plugs.

Touch one probe to the end of the glow plug and the other probe to the body of glow plug **[D]**.

The reading must be between 1 and 2. If the resistance is infinite, the coil of the glow plug is broken.

Repeat the procedure for each glow plug.



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FUEL INJECTION PUMP

Checking the 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.

⚠ WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes causing serious injury. 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.

W–2074–1285

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

MEL1237 – Adapter Fuel Line
MEL1173–1 – Pressure Gauge

To check the discharge pressure at the fuel injection pump, use the following procedure:

Disconnect a high pressure fuel line from the injection pump. Loosen the other end of the same fuel line so it can be turned away from the fitting.

Connect the adapter fuel line (Item 1) **[A]** to the fitting and connect the pressure gauge (Item 2) **[A]**.

Turn the flywheel to increase the pressure. If the pressure can not reach the allowable limit of 2133 PSI (14707 kPa), replace the injection pump assembly.

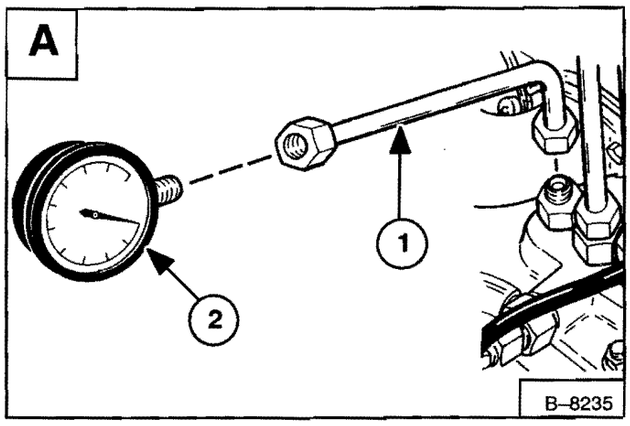
Fuel Tightness of Pump Element
Allowable Limit ..... 2133 PSI (14707 kPa)

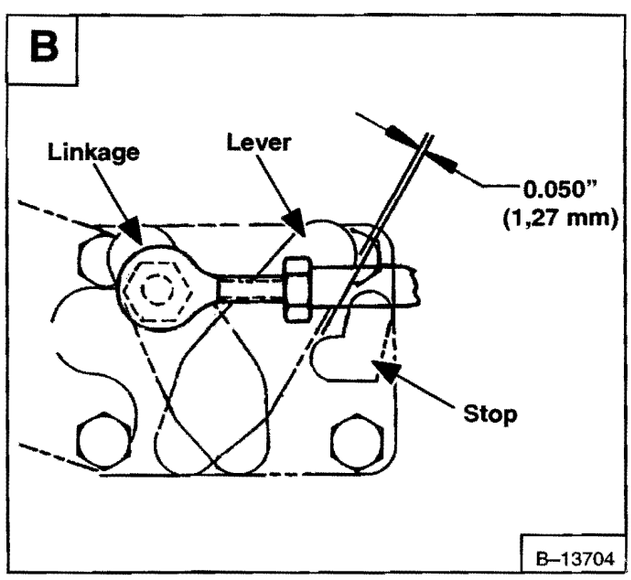
Measure the time needed to decrease the pressure from 2133–1990 PSI (14707–13721 kPa). If the measurement is less than the allowable limit, replace the delivery valve.

Fuel Tightness of Delivery Valve
Allowable Limit ..... 5 seconds

Adjusting Shut–Off Linkage

Adjust shut–off linkage for maximum distance of 0.05" (1,27 mm) between the lever and stop when solenoid plunger is seated **[B]**.



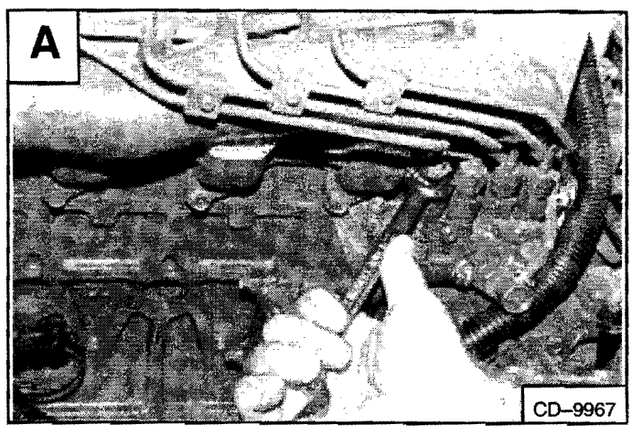


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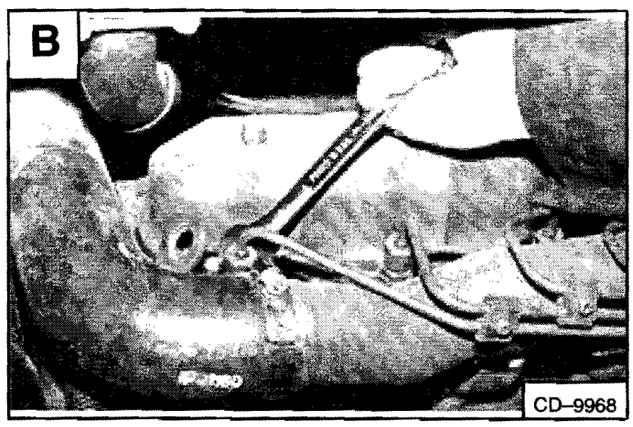
FUEL INJECTION PUMP (Cont'd)

Removal and Installation

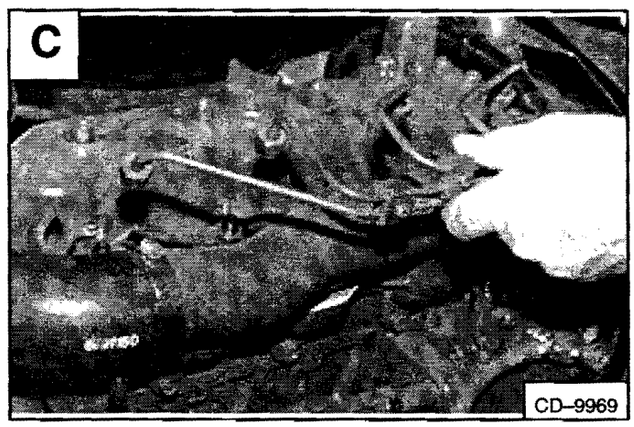
Clean around the injection pump. Disconnect the high pressure fuel lines from the injection pump **[A]**.



Disconnect the high pressure fuel lines from the fuel injectors **[B]**.



Remove the high pressure fuel lines **[C]**.



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FUEL INJECTION PUMP (Cont'd)

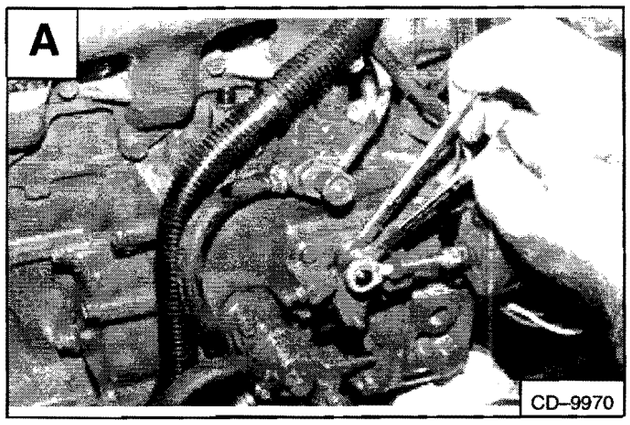
Removal and Installation (Cont'd)

IMPORTANT

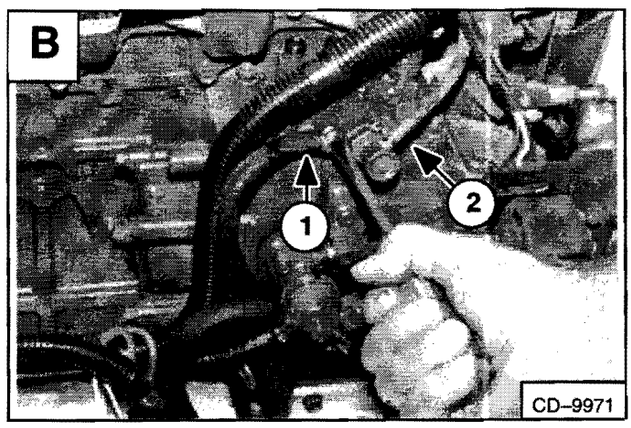
Do not bend the high pressure fuel injection tubes when removing or installing them.

I–2029–0289

Disconnect the fuel shut–off linkage **[A]**.

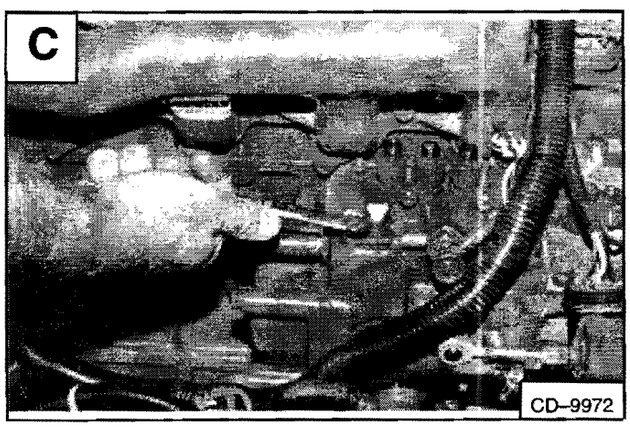


Disconnect the fuel inlet hose (Item 1) **[B]** and fuel return hose (Item 2) **[B]**.



Remove the mounting nuts & bolts **[C]**.

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



Remove the side cover. Put the pin in the control rack (Item 1) **[D]** in alignment with the slot in the engine block (Item 2) **[D]**.

Remove the injection pump **[D]**.

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

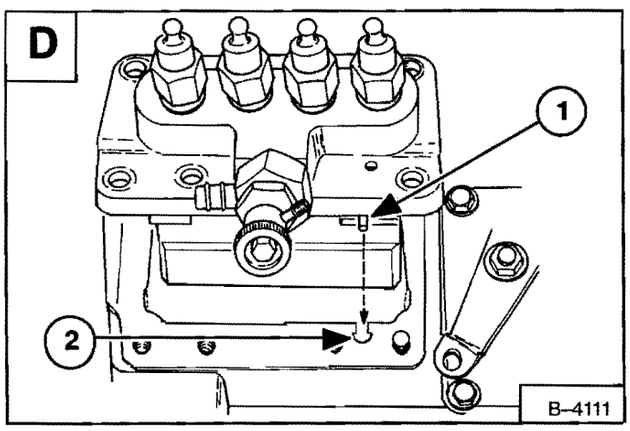
IMPORTANT

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

I–2028–0289

Installation: When the injection pump is installed, make sure the pin (Item 1) **[D]** 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.



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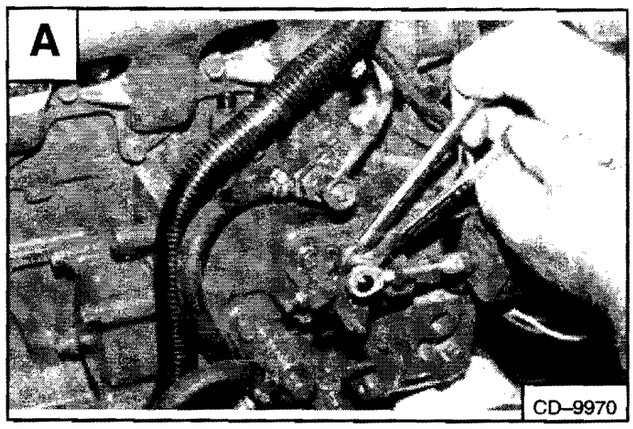
FUEL INJECTION PUMP (Cont'd)

Timing the Injection Pump

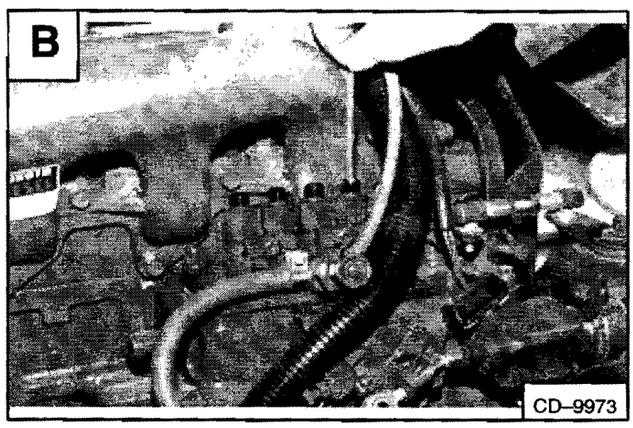
Timing the injection pump is done by changing the number of shims between the injection pump and engine block.

Remove the number one cylinder high pressure line from the injection pump.

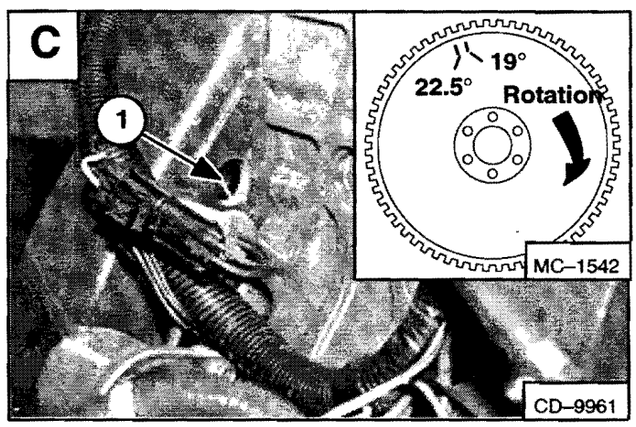
Disconnect the fuel shut–off linkage from the injection pump **[A]**.



Turn the fuel supply lever to the ON position. Install a short plastic tube in the fitting of the number one cylinder port. Point the tube up (vertical) **[B]**.

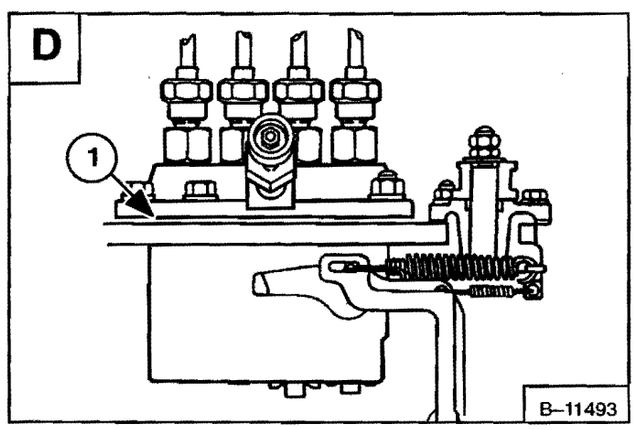


Rotate the engine in a clockwise direction (Viewed from crankshaft pulley). Fuel must flow from the pipe when the timing mark (19 degrees) on the flywheel shows in the flywheel housing window (Item 1) **[C]**.



The correct engine timing is 19° B.T.D.C. Add or subtract shim(s) (Item 1) **[D]** as needed to adjust the delivery time of the fuel.

NOTE: Adding or removing one shim varies the timing by approximately 1.5°.



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FUEL INJECTION NOZZLES

⚠ WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes causing serious injury. 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.

W–2074–1285

Some problems caused by faulty injector nozzles:

* The engine is hard to start or will not start.
* Rough engine operation and idle.
* The engine will not have full power.
* Excessive exhaust smoke.

Removal and Installation

IMPORTANT

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

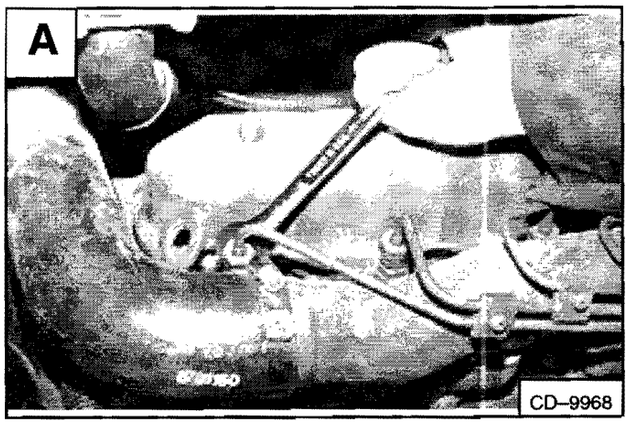
I–2029–0289

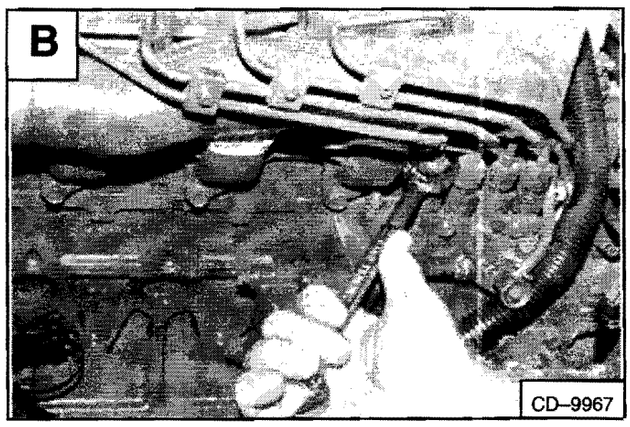
Disconnect the high pressure fuel lines from the fuel injectors **[A]**.

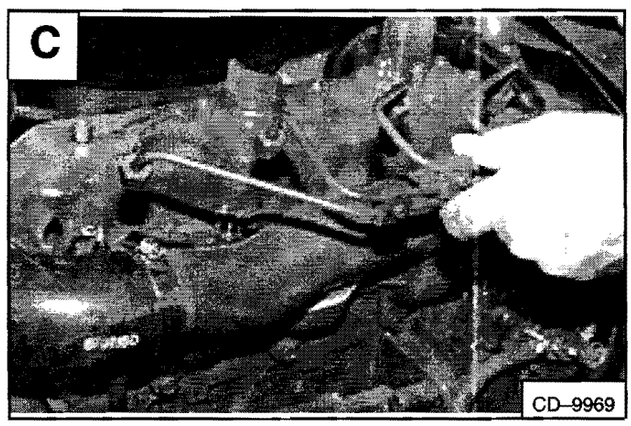
Disconnect the high pressure fuel lines form the fuel injection pump **[B]**.

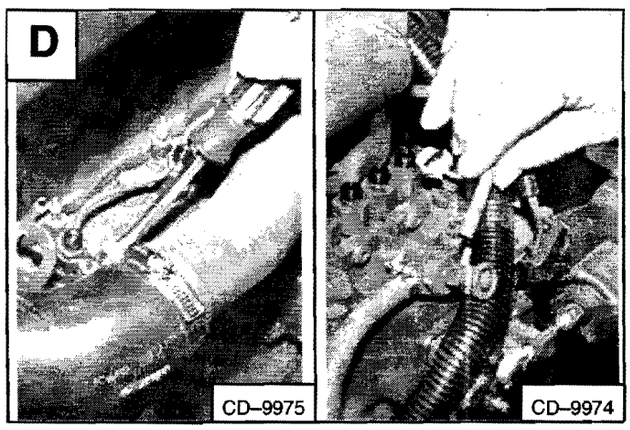
Remove the high pressure fuel lines **[C]**.

Disconnect the fuel return hose from the fuel injector and bleed screw **[D]**.







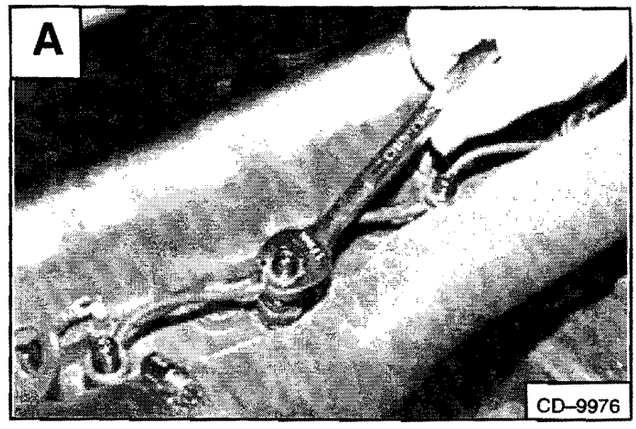


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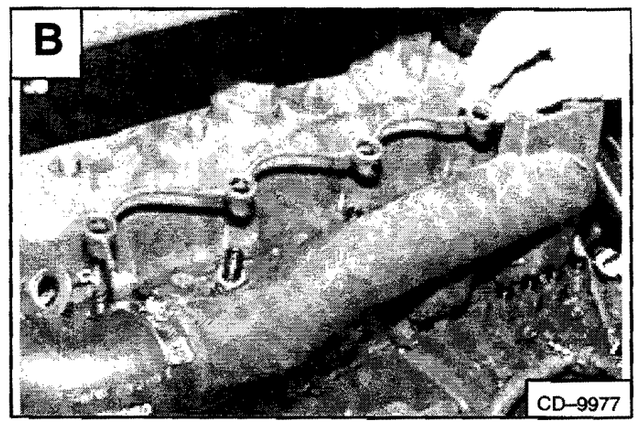
FUEL INJECTOR NOZZLES (Cont'd)

Removal and Installation (Cont'd)

Remove the retainer nut from the top of the fuel injectors **[A]**.

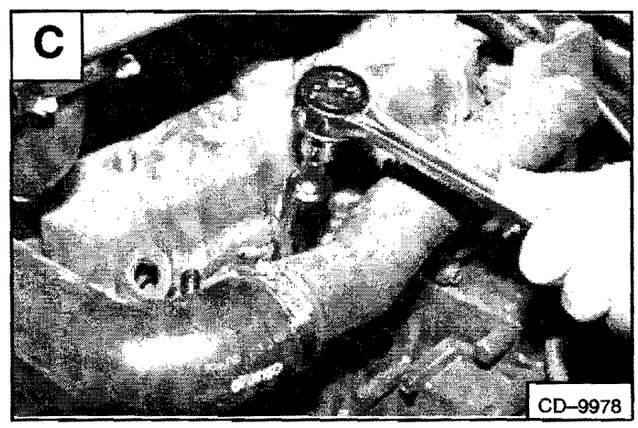


Remove the fuel return pipe from the fuel injectors **[B]**.



Use a socket and rachet and loosen the fuel injector nozzle **[C]**.

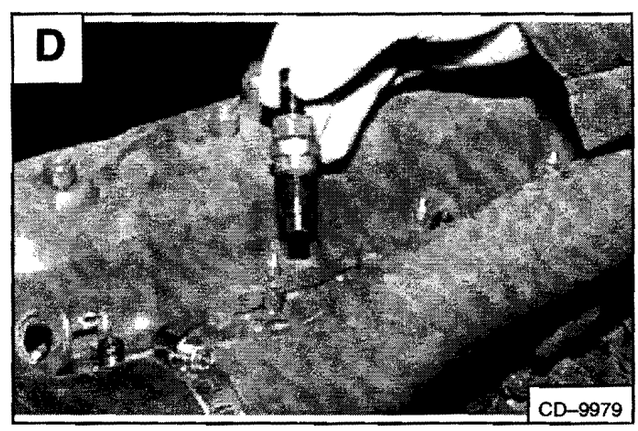
Installation: Tighten the fuel injector nozzle to 36–51 ft.–lbs. (46–69 Nm) torque.



Remove the injector nozzle from the cylinder head **[D]**.

Installation: Make sure the copper washer and the nozzle cap are in the correct position in the cylinder head.

NOTE: Make sure to replace the copper washer and nozzle cap anytime new or used injectors are installed.



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FUEL INJECTOR NOZZLE (Cont'd)

Checking the Injector Nozzle

IMPORTANT

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

I–2027–0284

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

MEL10018 – Injector Nozzle Tester

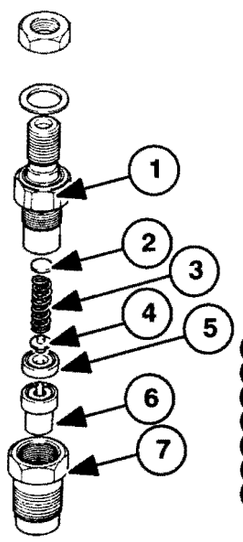
Disassemble and clean the injector nozzle.

The nozzle release pressure can be adjusted by adding or removing spacer(s) (Item 2) **[A]** from the top of the nozzle spring (Item 3) **[A]**.

Each spacer will change the release pressure by about 142 PSI (980 kPa).

Fuel Injection Pressure . . . . . 1991–2133 PSI (13728–14707 kPa)

A



(1) Nozzle Holder
(2) Adjusting Washer
(3) Nozzle Spring
(4) Push Rod
(5) Distance Piece
(6) Nozzle Piece
(7) Nozzle Retaining Nut

PI–9981

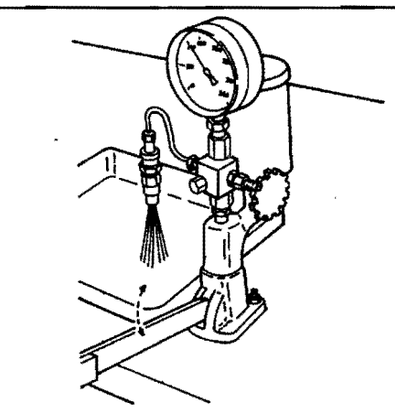
Assemble the injector nozzle. Connect the nozzle to the tester with the nozzle down **[B]**.

Operate the hand lever at a slow rate and record the opening pressure. If the pressure is not correct, disassemble the nozzle and add or remove spacers (Item 2) **[A]** as needed.

When the injector nozzle is assembled, tighten the nozzle body to 43–58 ft.–lbs. (59–79 Nm) torque.

Check for inside leakage. Operate the hand lever until the pressure is 1850 PSI (12755 kPa). Keep the nozzle under this pressure for 10 seconds, check to see if fuel leaks from the nozzle. If fuel leaks, replace the nozzle.

B

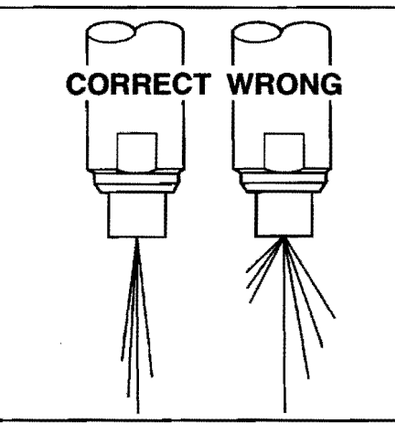


A–2513

Check that the spray pattern is correct **[C]**:

1. Fuel does not come out the side of the nozzle.
2. Drops of fuel are not present at the nozzle.
3. The injector has an even flow coming from the nozzle.

C



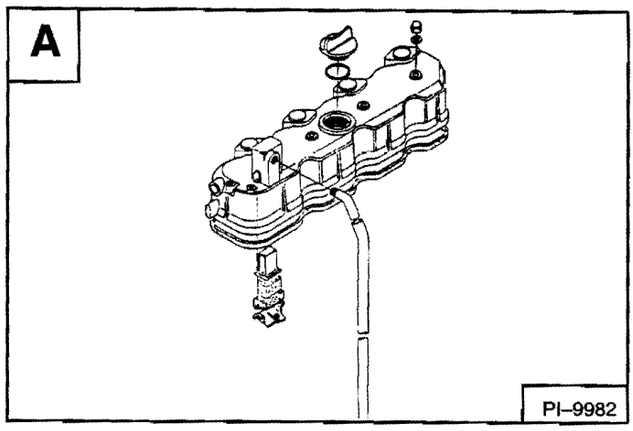
A–2621

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CYLINDER HEAD

Removal and Installation

Remove the nuts from the valve cover, remove the valve cover and gasket **[A]**.



Remove the fuel injector nozzles. (See Page 7–42.)

Remove the glow plugs. (See Page 7–37.)

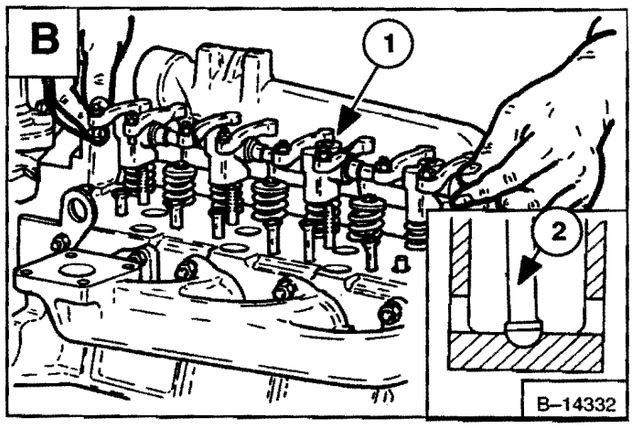
Remove the belt shield. (See Page 7–34.)

Remove the alternator. (See Page 6–1.)

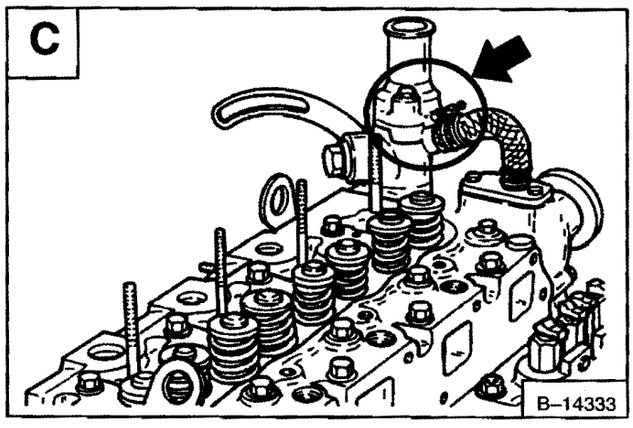
Remove the rocker arm and shaft assembly (Item 1) **[B]**.

Remove the push rods (Item 2) **[B]**.

Remove the intake and exhaust manifolds.



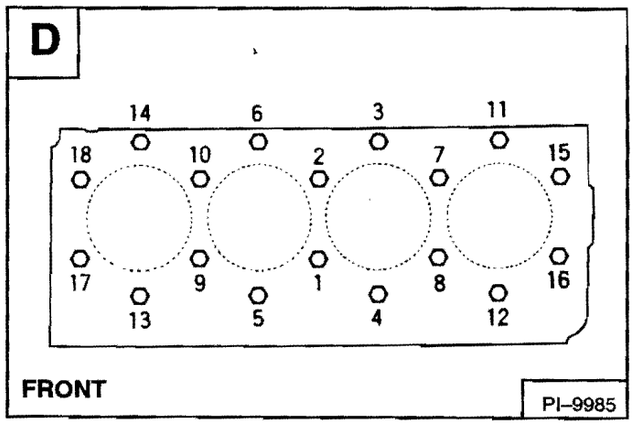
Remove the water return hose **[C]**.



Remove the cylinder head bolts in order of #18 to #1 **[D]**.

Installation: Put oil on the bolt threads. Tighten the bolts in the correct sequence to 67–72 ft.–lbs. (91–98 Nm) torque.

NOTE: Retighten the cylinder head bolts in the correct sequence after the engine has been run for 30 minutes.



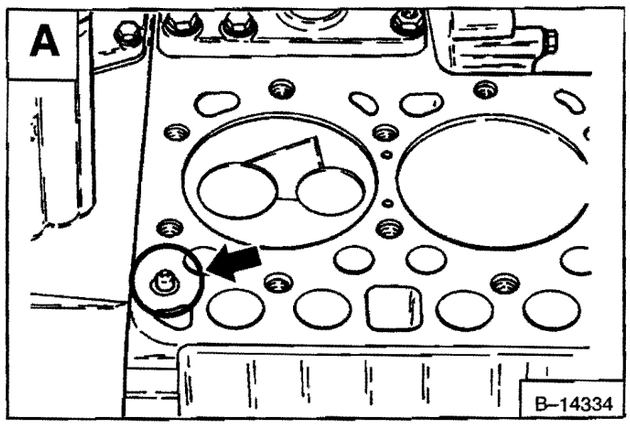
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CYLINDER HEAD (Cont'd)

Removal and Installation (Cont'd)

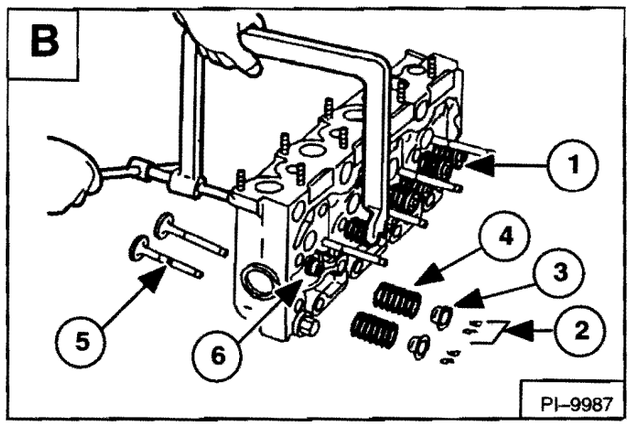
Remove the cylinder head from the engine block.

Installation: Always use new head gasket and new O–ring. Make sure the O–ring is seated over the dowel **[A]**.



Disassembly and Assembly

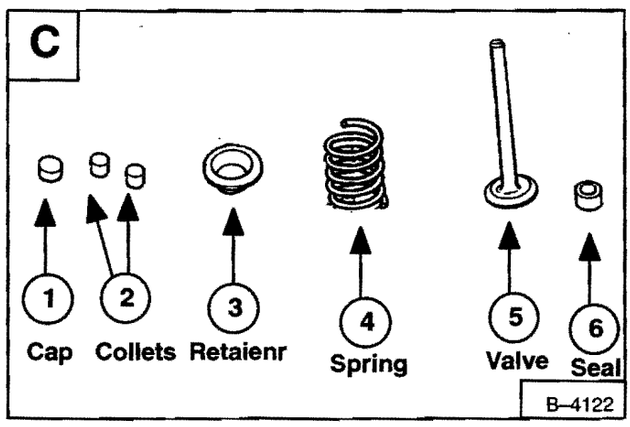
Use a valve spring compressor to compress the valve spring **[B]**.



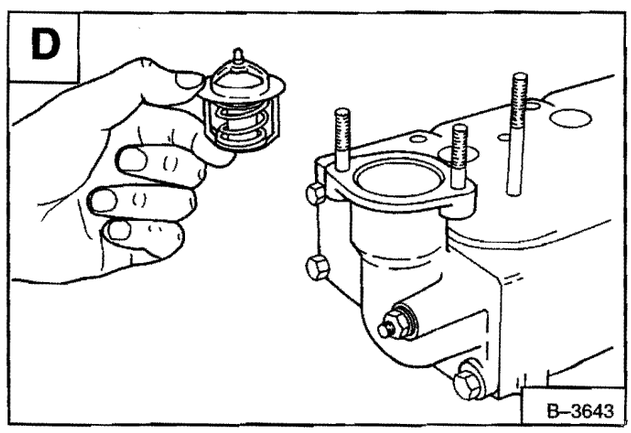
Remove the valve cap (Item 1) and valve spring collet (Item 2) **[B]** & **[C]**.

Remove the valve spring retainer (Item 3) and the spring (Item 4) **[B]** & **[C]**.

Remove the seal (Item 6) and the valve (Item 5) **[B]** & **[C]**.



Remove the thermostat housing. Remove the thermostat from the cylinder head **[D]**.



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CYLINDER HEAD (COnt'd)

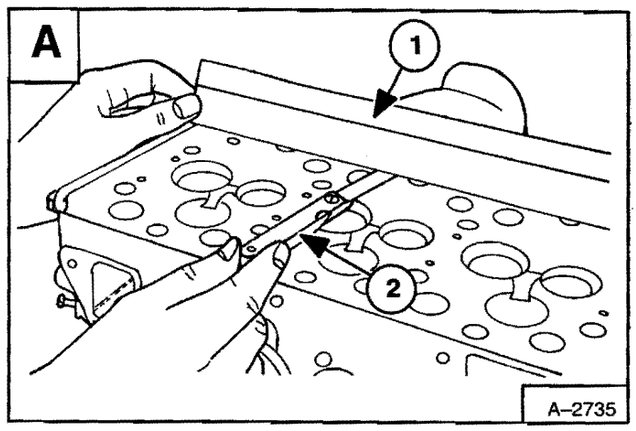
Servicing the Cylinder Head

Clean the surface of the cylinder head.

Put a straight edge (Item 1) on the cylinder head **[A]**.

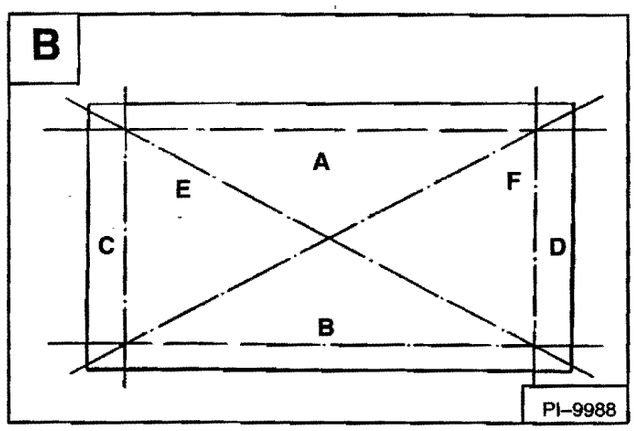
NOTE: Do not put the straight edge across combustion chambers.

Put a feeler gauge (Item 2) **[A]** between the straight edge and the surface of the cylinder head.



Put the straight edge on the cylinder head's four sides and two diagonal as shown in figure **[B]**.

The maximum distortion of the head surface is ± 0.002 inch (± 0,05 mm). If the measurement exceeds the specification, replace the cylinder head.

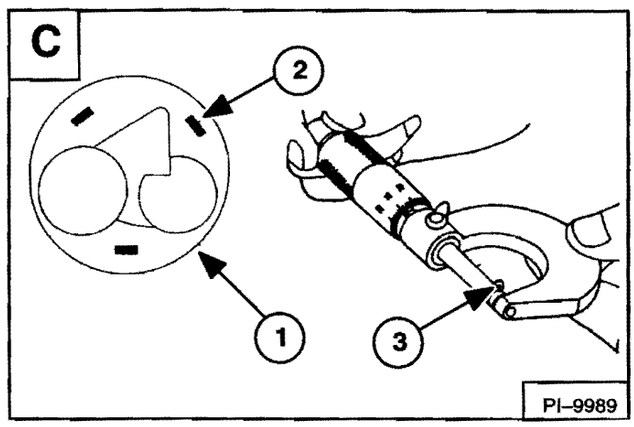


Top Clearance

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

Put 3 pieces of 0.06 inch (1,5 mm) diameter solder (Item 2) **[C]** on the top of the piston. Use grease to hold them in position.

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



Turn the piston to bottom dead center.

Install the cylinder head and tighten to the correct torque in the correct sequence. (See Page 7–45.)

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

Remove the solder wire (Item 3) **[C]** and measure it.

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

Top Clearance ..... 0.022–0.028 inch (0,55–0,7 mm)

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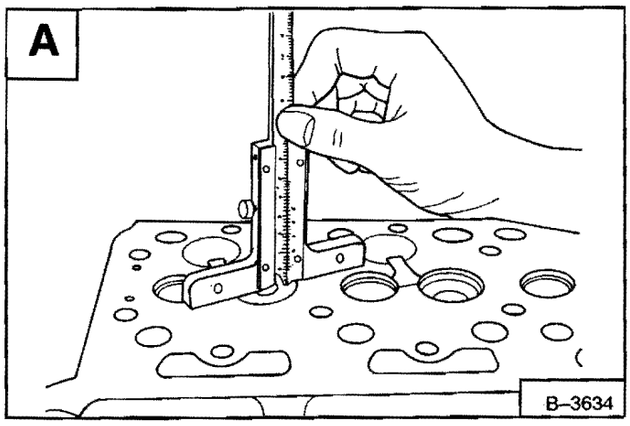
VALVE, VALVE SEAT AND GUIDE

Checking the Valve Guide

Remove the valve and spring from the cylinder head. (See Page 7–20.)

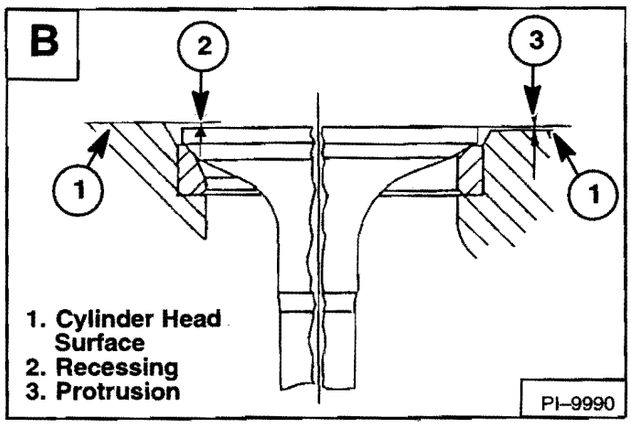
Clean the valve seat and combustion chamber.

Install the valve into the guide. Measure the valve recessing or protrusion with a depth gauge **[A]**.



If the measurement exceeds the allowable limit, replace the valve or cylinder head **[B]**.

Protrusion ..... 0.002" (0,05mm)
Recessing ..... 0.006" (0,15 mm)
Allowable Limit (Recessing) ..... 0.016" (0,4 mm)



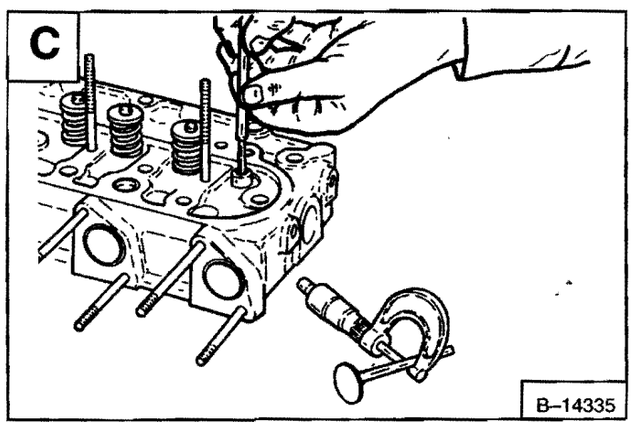
Remove the carbon from the valve guide.

Measure the valve stem O.D. **[C]**.

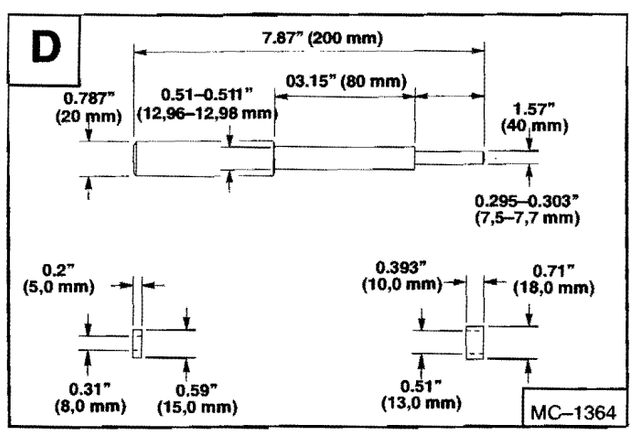
Measure the valve guide I.D. **[C]**.

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

Valve Guide I.D. .... 0.3156–0.3161" (8,015–8,03 mm)
Valve Stem O.D. .... 0.3134–03142" (7,96–7,98 mm)
Clearance Between Valve Stem and Guide ..... 0.0016–0.0028" (0,04–0,07 mm)
Allowable Limit ..... 0.004" (0,1 mm)



To remove and replace the valve guide, make the driver tool as shown in figure **[D]**.



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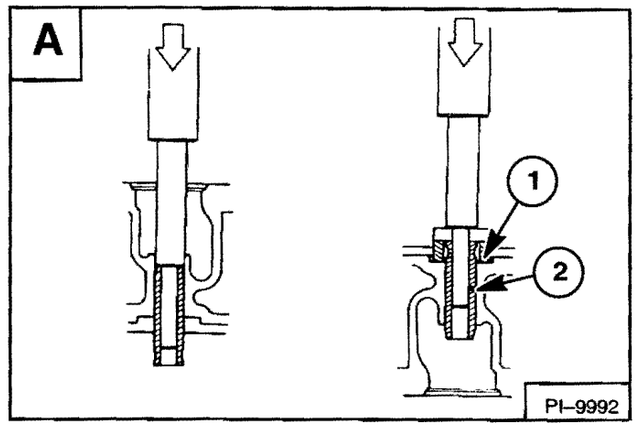
VALVE, VALVE SEAT AND GUIDE (Cont'd)

Checking the Valve Guide (Cont'd)

Press the used valve guide out of the cylinder head using the special driver tool **[A]**.

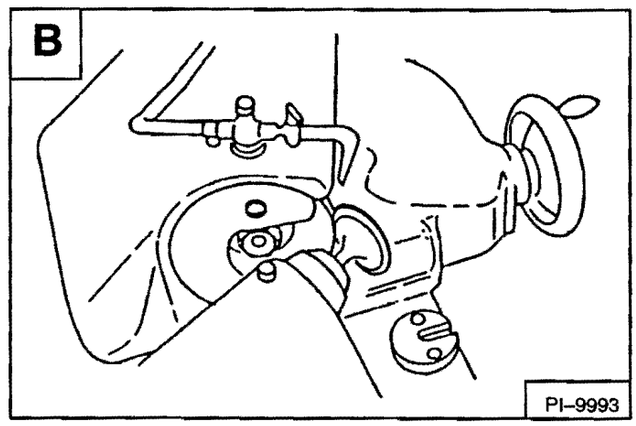
Put oil on the outside diameter of the new valve guide. Press the new valve guide into the cylinder head from the top side. Use the special driver tools (Item 1 & 2) **[A]**, press the new guide until the tool contacts the cylinder head.

Ream the valve guide to the correct specifications.

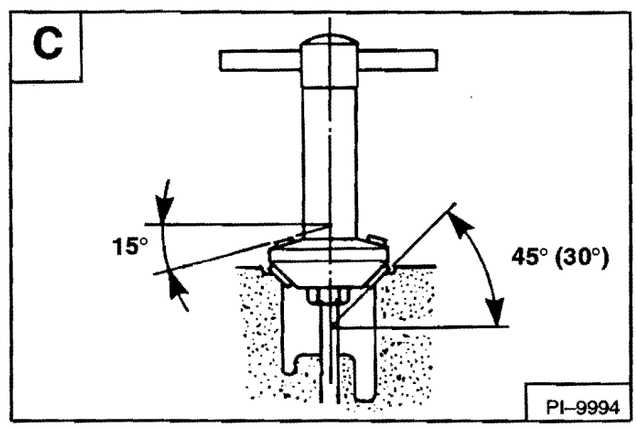


Reconditioning the Valve and Valve Seat

Grind the valve face to the correct angle using a valve refacer **[B]**.



Grind the valve seat surface in the cylinder head to the correct angle **[C]**.

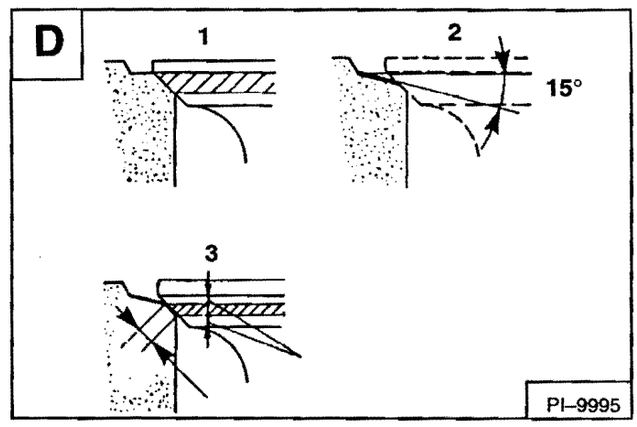


Check the seat surface and valve face (Item 1) **[D]**.

If the seat surface is too wide, use a 15 degree cutter (Item 2) **[D]** to get the correct width (Item 3) **[D]**.

Valve Seat Width
Intake ..... 0.084" (2,12 mm)
Exhaust ..... 0.084" (2,12 mm)

Valve Seat & Face Angle
Intake ..... 60°
Exhaust ..... 45°



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VALVE, VALVE SEAT AND GUIDE (Cont'd)

Valve Spring

Measure the length of the valve spring. If the measurement is less than the allowable limit, replace the spring **[A]**.

Free Length ..... 1.642–1.661" (41,7–42,2 mm)
Allowable Limit ..... 1.622" (41,2 mm)

Put the spring on a flat surface, place a square on the side of the spring **[A]**.

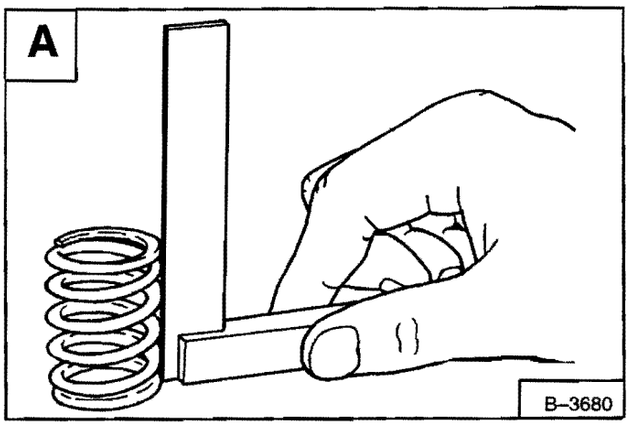
Rotate the spring and measure the maximum tilt. If the measurement exceeds the allowable limit, replace the spring.

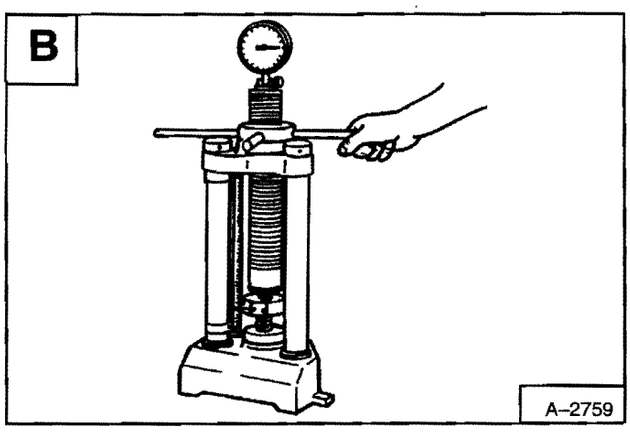
Tilt ..... 0.04 inch (1,0 mm)

Put the spring on a tester and compress to specified length **[B]**.

Read the compressed load on the gauge. If the measurement exceeds allowable limit, replace the spring.

Setting Length ..... 1.378 inch (35,0 mm)
Setting Load ..... 26.4 lbs. (117,6 N)
Allowable Limit ..... 22.5 lbs. (100,0 N)





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ROCKER ARM AND SHAFT

Checking

Measure the rocker arm I.D. (Item 1) **[A]** with an inside micrometer.

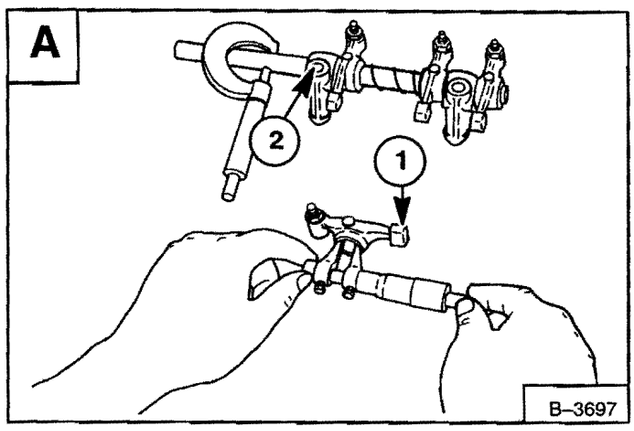
Measure the rocker arm shaft O.D. (Item 2) **[A]** with an outside micrometer.

If the clearance exceeds the allowable limit, replace the bushing.

If the clearance still exceeds the allowable limit after the bushing is replace, replace the rocker arm shaft.

Oil Clearance Between Rocker Arm
& Shaft ..... 0.006–0.0015" (0,016–0,038 mm)
Allowable Limit ..... 0.006" (0,15 mm)

Rocker Arm Shaft O.D. ..... 0.550–0551 "
(13,97–13,98 mm)
Rocker Arm I.D. .... 0.5512–0.5516 " (14,0–14,1 mm)



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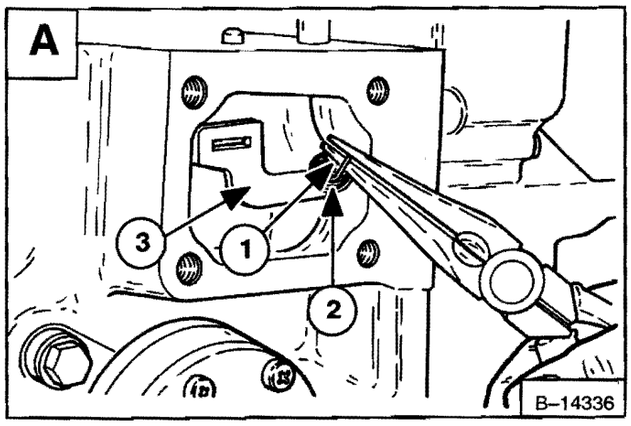
TIMING GEARCASE COVER

Removal and Installation

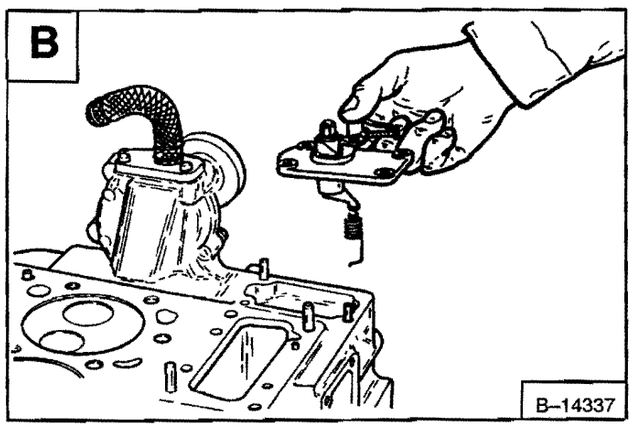
Remove the fuel injection pump. (See Page 7–39.)

Remove the cylinder head, rocker arms and push rods. (See Page 7–45.)

Disconnect the two governor springs (Item 1 & 2) **[A]** from the fork lever (Item 3) **[A]**.

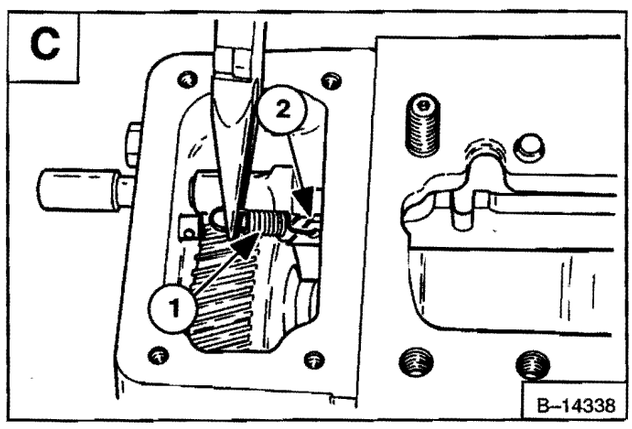


Remove the speed control plate with the governor springs **[B]**.



Remove the start spring (Item 1) **[C]** from the fork lever (Item 2) [C].

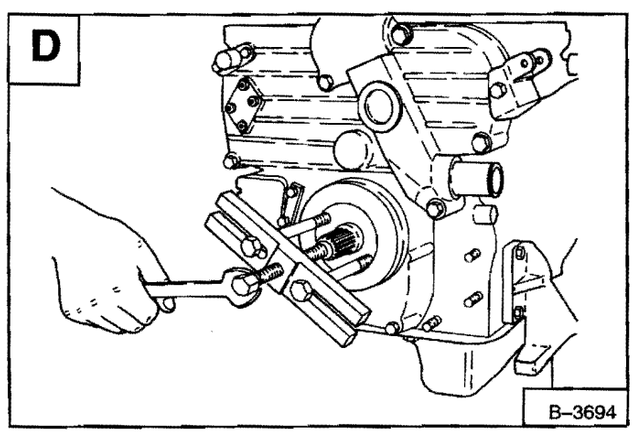
Installation: Be careful; do not drop the spring into the gearcase.



Remove the crankshaft pulley nut.

Installation: Tighten the nut to 101–116 ft.–lbs. (137–157 Nm) torque.

Use a puller and remove the crankshaft pulley **[D]**.



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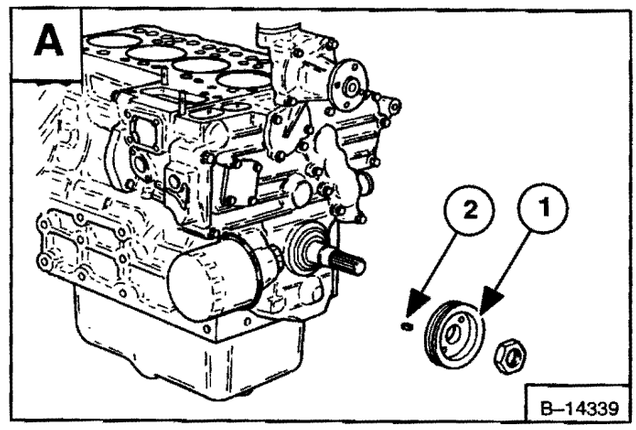
TIMING GEARCASE COVER (Cont'd)

Removal and Installation (Cont'd)

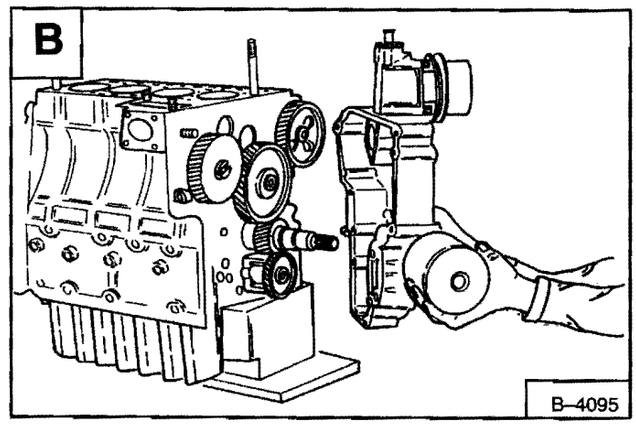
Remove the crankshaft pulley (Item 1) **[A]** and key (Item 2) **[A]**.

Remove the bolts from the timing gearcase cover.

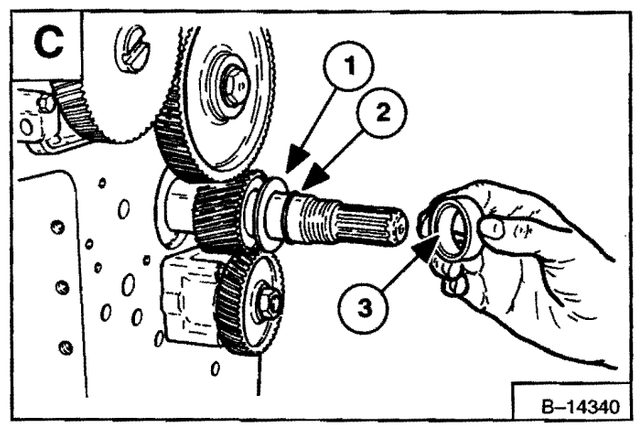
Installation: Tighten the bolts to 13–15 ft.–lbs. (18–20 Nm) torque.



Remove the timing gearcase cover **[B]**.

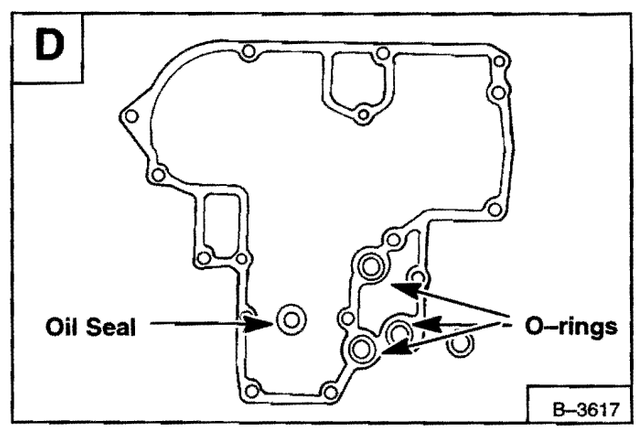


Remove the crankshaft oil slinger (Item 1) **[C]**, O–ring (Item 2) **[C]** and collar (Item 3) **[C]**.



Installation: Install new O–rings and oil seal into the timing gearcase cover **[D]**.

NOTE: When a new timing gearcase cover is installed, to establish the "correct position" of the injection pump fuel rack stop before removing it from the old timing gearcase cover, the distance from the machined surface of the gearcase (gasket surface) to the end of the stop should be measured. The stop should then be installed in the new gearcase and set to the same distance that was previously measured. Do not try to test operate the engine to establish if it has enough power. The adjustment must be set by a qualified service personnel for the injection pump.



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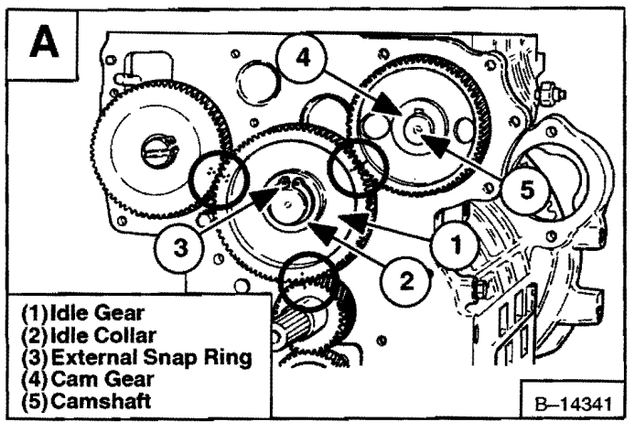
IDLER GEAR AND CAMSHAFT

Removal and Installation

Remove the timing gearcase cover. (See Page 7–52.)

Remove the snap ring (Item 3) **[A]** from the idler gear shaft (Item 1) **[A]**.

Installation: Make sure the timing marks are in correct alignment when installing the timing gears **[A]**.



Remove the idler gear (Item 1) **[B]**.

Remove the idler gear collar (Item 2) **[B]**.

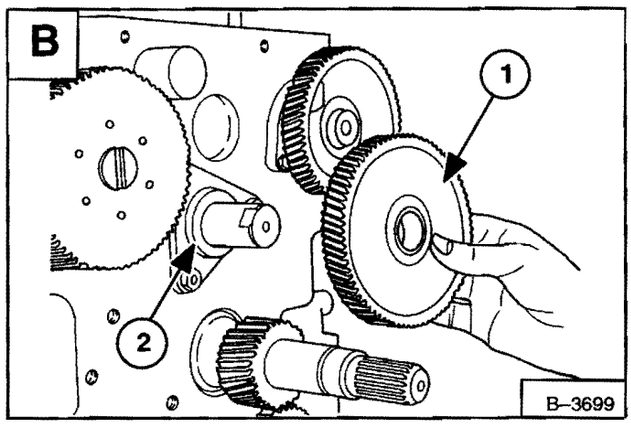
Remove the idler gear shaft mounting bolts.

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

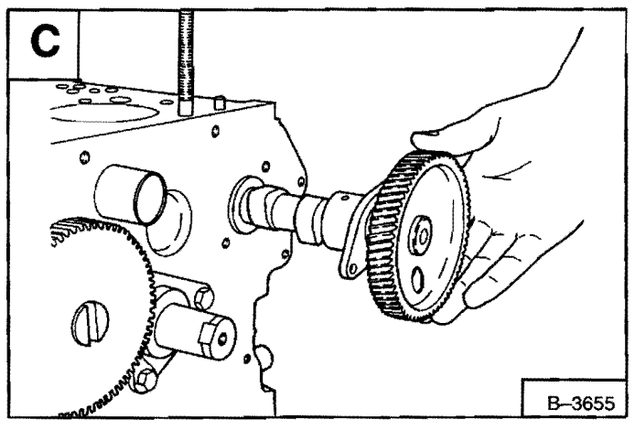
Align the holes on the camshaft gear with the camshaft retainer plate bolts.

Remove the bolts.

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

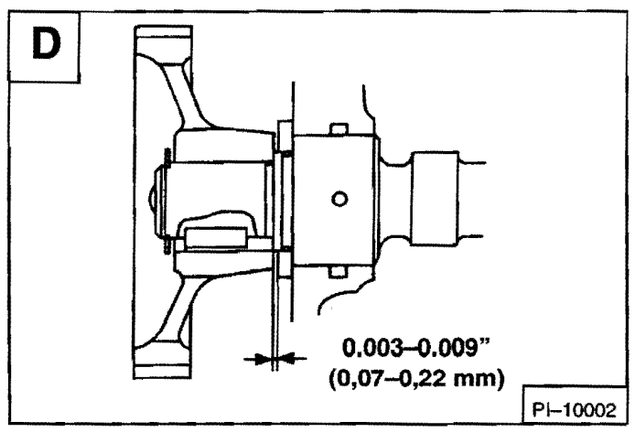


Remove the camshaft from the engine block **[C]**.



Installation: Check the camshaft end play, if the clearance exceeds the allowable limit, replace the camshaft retainer plate **[D]**.

Camshaft End Play .... 0.003–0.009" (0,07–0,22 mm)
Allowable Limit ..... 0.012" (0,3 mm)

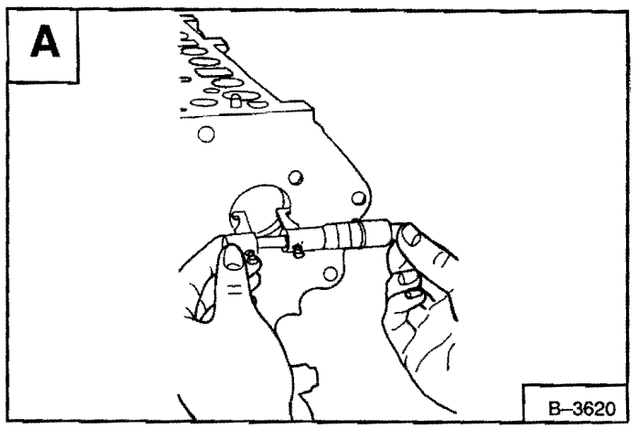


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IDLER GEAR AND CAMSHAFT (Cont'd)

Servicing the Camshaft

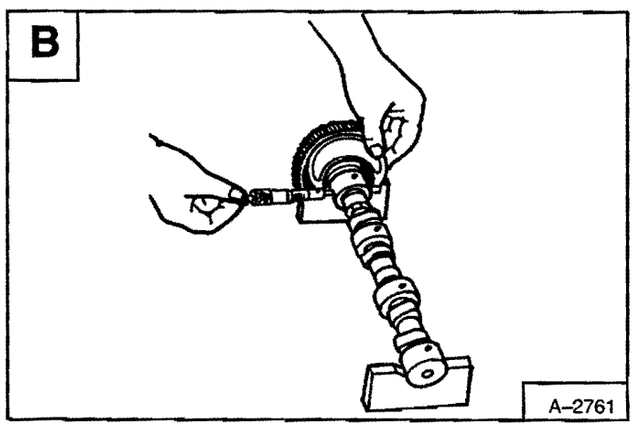
Measure the camshaft bearing in the engine block **[A]**.



Measure the camshaft journal **[B]**.

Calculate the oil clearance. If the clearance exceeds the allowable limit, replace the camshaft.

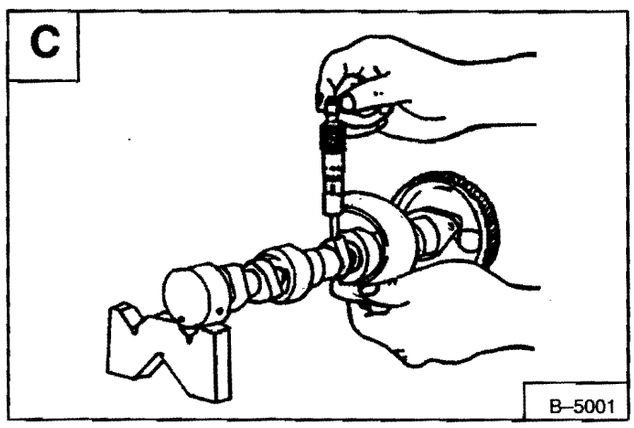
Bearing I.D. ..... 1.575–1.576" (40,0–40,03 mm)
Journal O.D. ..... 1.572–1.573" (39,93–39,95 mm)
Oil Clearance of Camshaft
Journal ..... 0.002–0.004" (0,05–0,09 mm)
Allowable Limit ..... 0.006" (0,15 mm)



Measure the cam lobes at their highest point **[C]**.

If the measurement is less than the allowable limit, replace the camshaft.

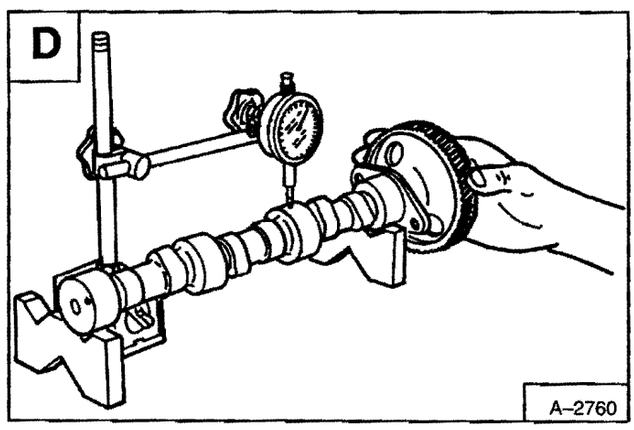
Cam Lob Height ..... 1.318" (33,47 mm)
Allowable Limit ..... 1.316" (33,42 mm)



Put the camshaft in V–blocks. Install a dial indicator **[D]**.

Turn the camshaft at a slow rate. If the misalignment exceeds the allowable limit, replace the camshaft.

Camshaft Alignment Allowable Limit ..... 0.003"
(0,08 mm)



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IDLER GEAR AND CAMSHAFT (Cont'd)

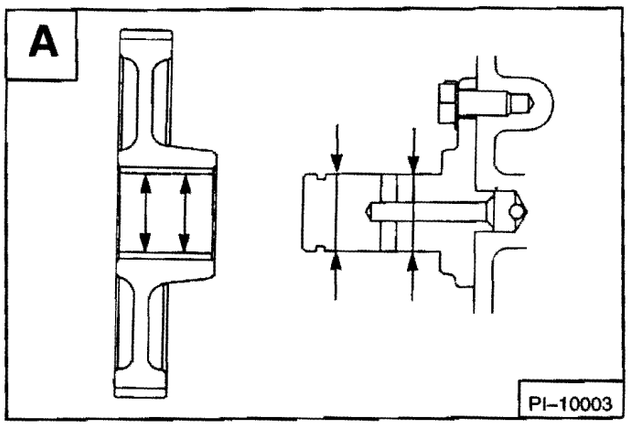
Servicing the Idler Gear and Shaft

Measure the O.D. of the idler gear shaft **[A]**.

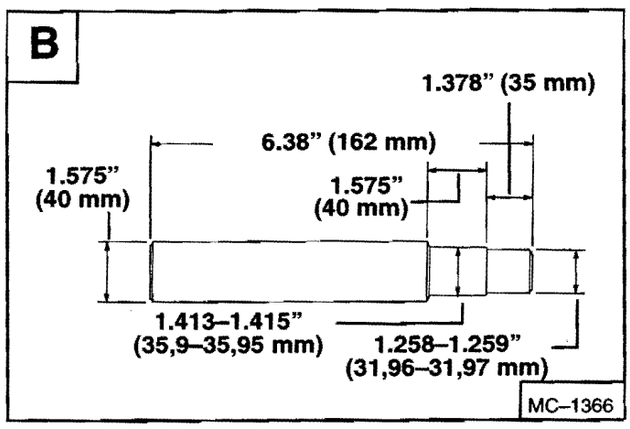
Measure the I.D. of the idler gear bushing **[A]**.

If the clearance exceeds the allowable limit, replace the bushing.

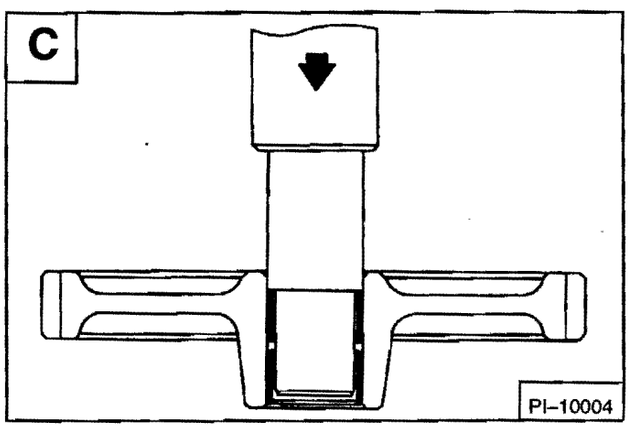
Idler Gear Shaft O.D. 1.258–1.259" (31,96–31,97 mm)
Idler Gear Bushing I.D. 1.259–1.261" (32,0–32,03 mm)
Clearance between Idler Shaft &
Gear Busing ..... 0.001–0.003" (0,025–0,07 mm)
Allowable Limit ..... 0.004" (0,1 mm)



To replace the idler gear bushing, make a driver tool as shown in figure **[B]**.



Use a press and special driver tool, to remove the old bushing and install the new bushing **[C]**.



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TIMING GEARS

Checking Backlash

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

Install a dial indicator **[D]**.

Hold one gear while turning the other gear **[D]**.

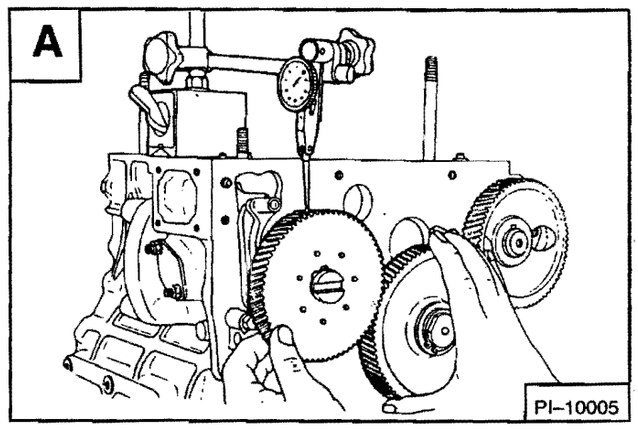
If the backlash exceeds the allowable limit, check the oil clearance of the shaft and gear. If the oil clearance is correct, replace the gear.

Crank Gear & Idler Gear . 0.002–0.004" (0,042–0,112)
Allowable Limit ..... –.006" (0,15 mm)

Cam Gear & Idler Gear0.002–0.005" (0,042–0,115 mm)
Allowable Limit ..... 0.006" (0,15 mm)

Injection Pump Gear & Idler Gear ..... 0.002–0.005" (0,042–0,115 mm)
Allowable Limit ..... 0.006" (0,15 mm)

Oil Pump Gear & Idler 0.002–0.004" (0,042–0,109 mm)
Allowable Limit ..... 0.006" (0,15 mm)



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FUEL CAMSHAFT

Removal and Installation

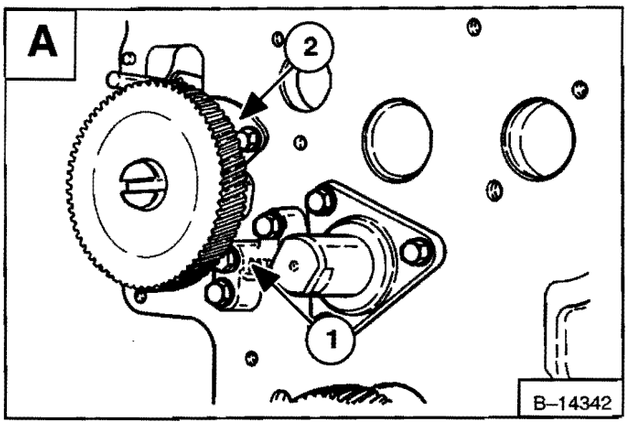
Remove the timing gearcase cover. (See Page 7–52.)

Remove the idler gear. (See Page 7–54.)

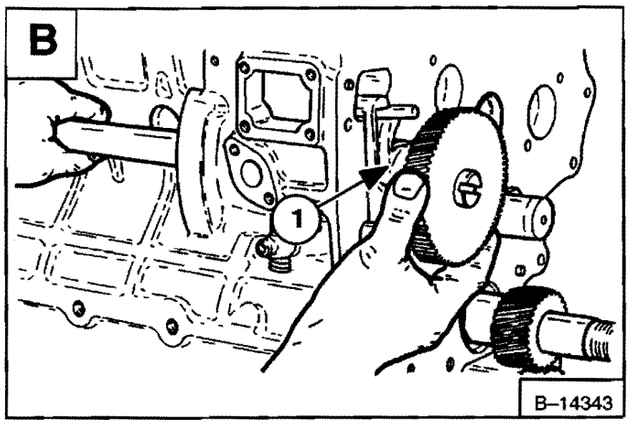
Remove the bolt (Item 1) **[A]** from the retainer plate (Item 2) **[A]**.

Installation: Tighten the bolt to 60–72 ft.–lbs. (6,8–8,1 Nm) torque.

Remove the fuel camshaft retainer plate (Item 2) **[A]**.



Remove the fuel camshaft and fork lever assembly (Item 1) **[B]** at the same time.

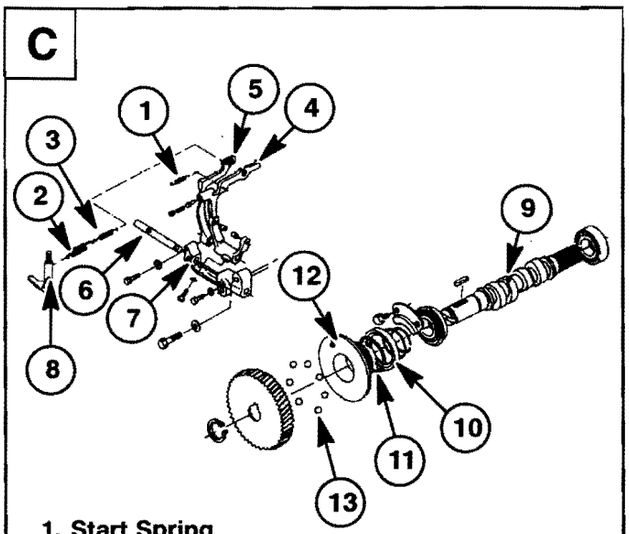


Governor

The governor serves to keep the engine speed constant by automatically adjusting the amount of fuel supplied to the engine according to changes in the load.

Disassemble and assemble the governor and fuel camshaft as shown in figure **[C]**.

Check all the parts for wear or damage and replace as needed.



1. Start Spring
2. Governor Spring
3. Governor Spring
4. Fork Lever
5. Fork Lever
6. Fork Lever Shaft
7. Fork Lever Holder
8. Governor Lever
9. Fuel Camshaft
10. Governor Ball Case
11. Steel Balls
12. Governor Sleeve
13. Steel Ball

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CRANKSHAFT GEAR

Removal and Installation

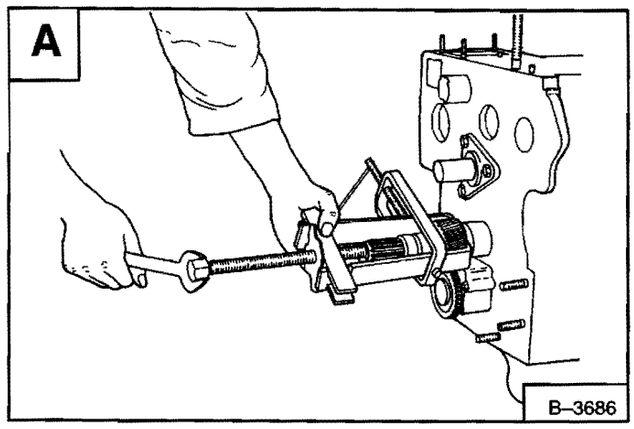
Remove the timing gearcase cover. (See Page 7–52.)

Remove the idler gear. (See Page 7–5.).

Remove the crankshaft gear with a puller **[A]**.

Remove the crankshaft key.

Installation: Install the crankshaft key. Heat the crankshaft gear to 176°F (80°C) and fit it on the crankshaft.



OIL PUMP

Removal and Installation

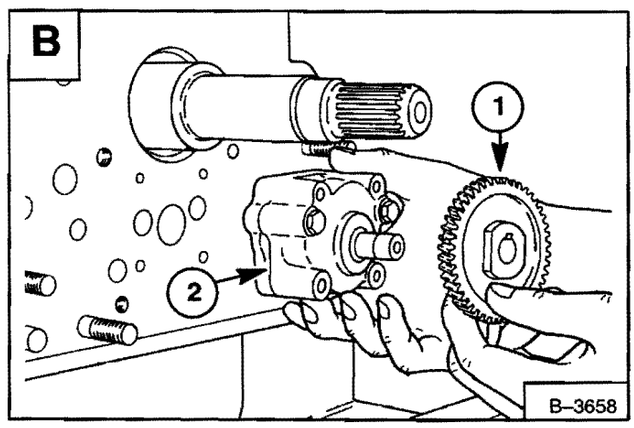
Remove the timing gearcase cover. (See Page 7–52.)

Remove the crankshaft gear.

Remove the nut from the oil pump shaft. Use a puller to remove the oil pump gear (Item 1) **[B]**.

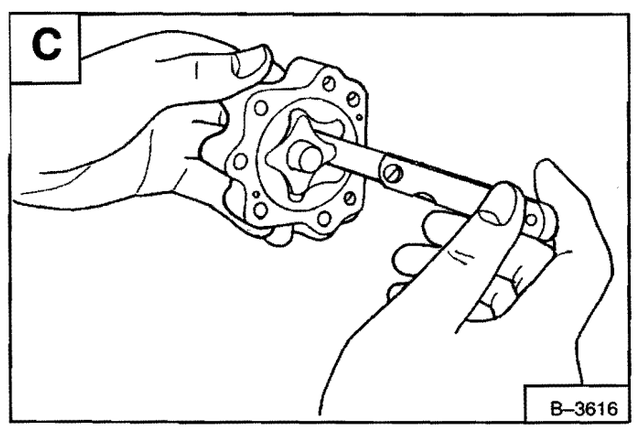
Remove the oil pump mounting bolts. Remove the oil pump (Item 2) **[B]**.

Installation: Tighten the oil pump mounting bolts to 60–72 in.–lbs. (6,9–8,1 Nm) torque.



Oil Pump Service

Measure the clearance between the lobes of the inner rotor and outer rotor **[C]**.

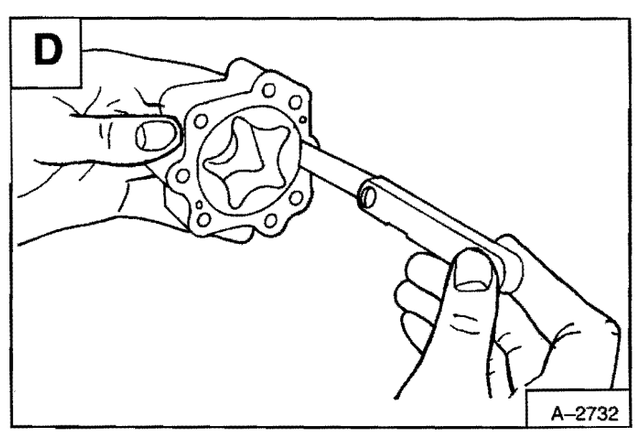


Measure the clearance between the outer rotor and pump body **[D]**.

If the clearance exceeds the allowable limit, replace the oil pump.

Clearance Between Inner & Outer Rotor ..... 0.004–0.006" (0,10–0,16 mm)
Allowable Limit ..... 0.008" (0,2 mm)

Clearance Between Outer Rotor & Body ..... 0.004–0.008" (0,11–0,19 mm)
Allowable Limit ..... 0.010" (0,25 mm)



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OIL PUMP (Cont'd)

Oil Pump Service (Cont'd)

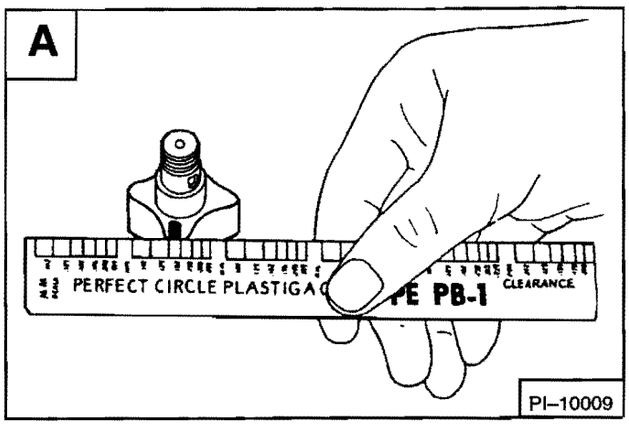
Put a piece of press gauge on the rotor face **[A]**.

Install the cover and tighten the bolts.

Remove the cover carefully. Measure the width of the press gauge **[A]**.

If the clearance exceeds the allowable limit replace the oil pump.

End Clearance ..... 0.004–0.006" (0,11–0,15 mm)
Allowable Limit ..... 0.008" (0,2 mm)



Checking Engine Oil Pressure

Remove the oil pressure sensor.

Install a pressure gauge **[B]**.

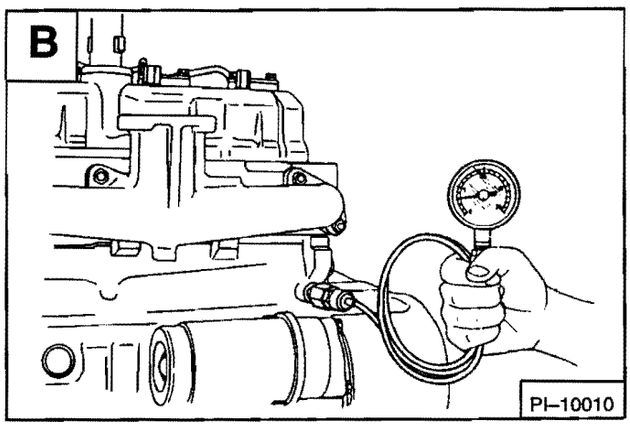
Start the engine and run until it is at operating temperature.

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 & Main Bearings
* Relief Valve Stuck

At Idle Speed Allowable Limit ..... 7 PSI (49 kPa)

At Rated Speed ..... 43–65 PSI (294–441 kPa)
Allowable Limit ..... 36 PSI (245 kPa)

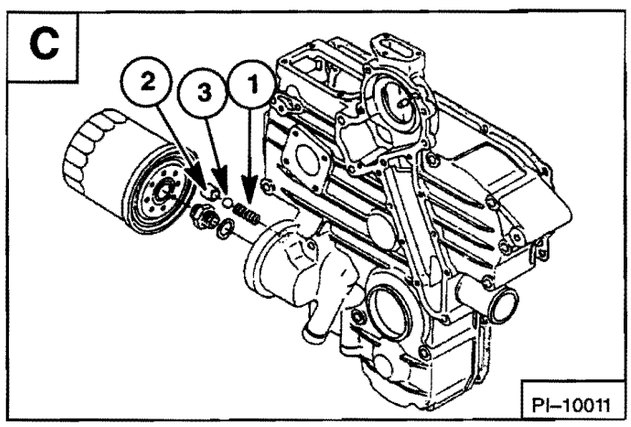


Relief Valve

The relief valve prevents damage of the lubricating system due to high pressure. This relief valve is a ball type.

Remove the valve seat (Item 2) **[C]**, ball (Item 3) **[C]** and spring (Item 1) **[C]**.

Check the parts for wear or damage and replace as needed.



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PISTON AND CONNECTING ROD

Removal and Installation

Remove the cylinder head. (See Page 7–44.)

Remove the top edge from the cylinder bore with a ridge reamer.

Remove the oil pan.

Remove the oil pump strainer (Item 1) **[A]**.

Turn the flywheel and put a pair of connecting rods at bottom dead center.

Remove the connecting rod bolts.

Installation: Tighten the connecting rod bolts to the following torque:

W/O Flange Bolt ..... 27–30 ft.–lbs. (37–41 Nm)
W/Flange Bolt ..... 33–36 ft.–lbs. (45–49 Nm)

Remove the rod cap and bearing **[B]**.

Use a hammer handle and push the piston/connecting rod assembly out of the cylinder bore **[B]**.

NOTE: Make sure the pistons are marked so they will be returned to the same cylinder bore.

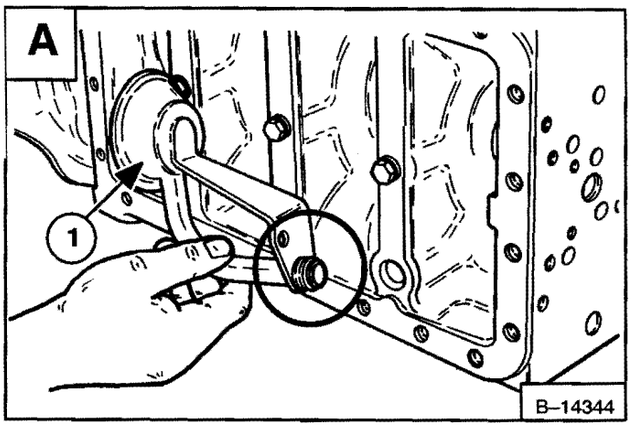
Installation: Make sure the marks on the connecting rod and bearing are aligned when installing the bearing cap **[C]**.

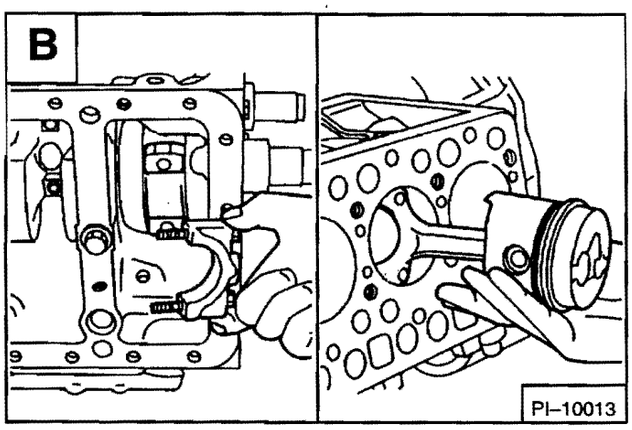
Repeat the procedure to remove the other piston/connecting rod assemblies from the engine block.

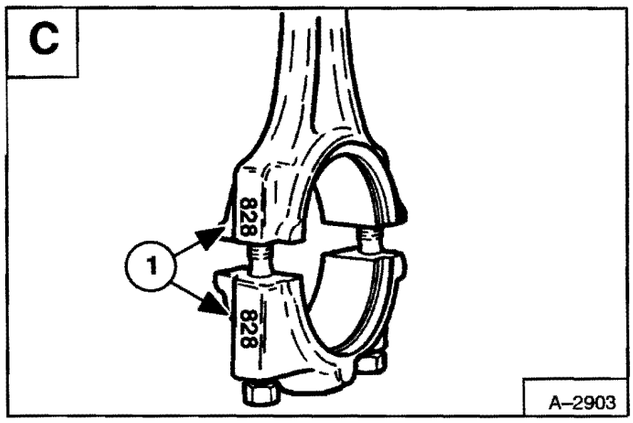
Remove the piston rings **[D]**.

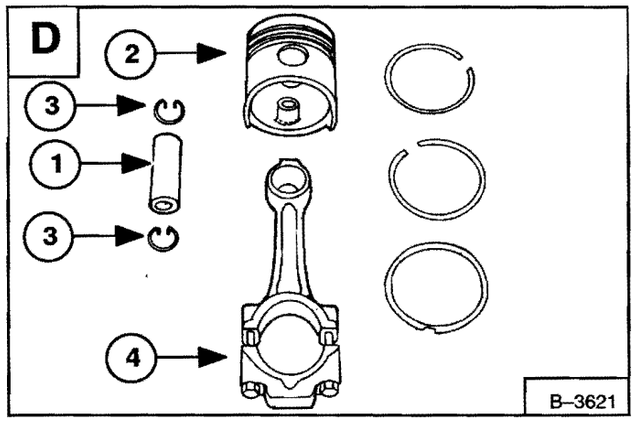
Remove the snap rings (Item 3) **[D]** and piston pin (Item 1) **[D]**.

Separate the piston (Item 2) **[D]** from the connecting rod (Item 4) **[D]**.







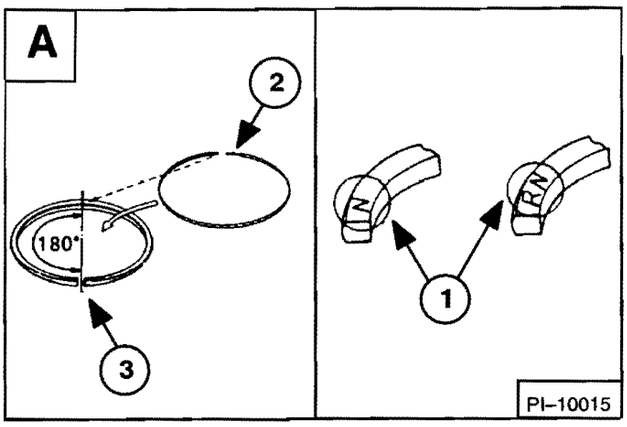


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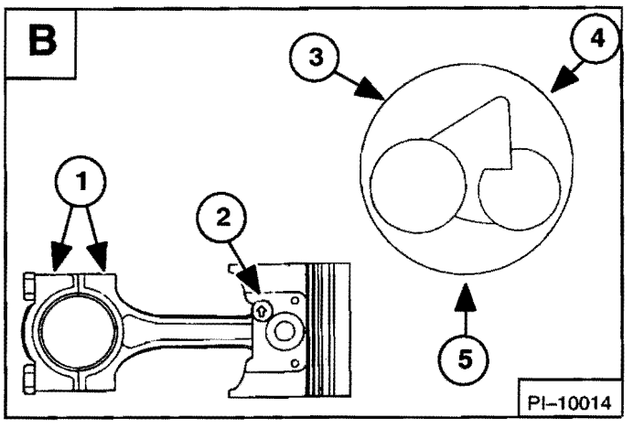
PISTON AND CONNECTING ROD (Cont'd)

Removal and Installation (Cont'd)

Installation: When installing new rings, assemble the ring so the mark (Item 1) **[A]** near the gap faces the top of the piston. When installing the oil ring, place the expander joint (Item 2) **[A]** on the opposite side of the oil ring gap (Item 3) **[A]**.



Installation: When reassembling, align the marks (Item 1) **[B]** on the connecting rod and piston (Item 2). Heat the piston to 176–212°F. (80–100°C.) and tap the piston pin into position. Place the piston rings so that there are gaps every 120 degrees (Item 3, 4 & 5) **[B]** with no gap facing the piston pin in the cylinder.

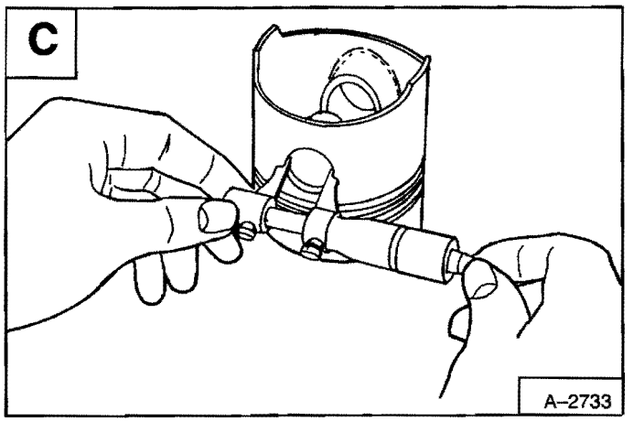


Servicing the Piston and Connecting Rod

Measure the I.D. of the piston pin bore in both horizontal and vertical directions **[C]**.

If the measurement exceeds the allowable limit, replace the piston.

Piston Pin Bore I.D. . . 0.984–0.985" (25,0–25,013 mm)
Allowable Limit . . . . . 0.986" (25,05 mm)

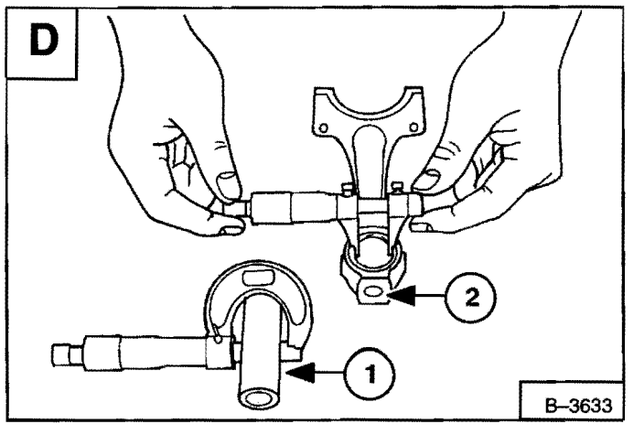


Measure the O.D. of the piston pin (Item 1) **[D]**.

Measure the I.D. of the connecting rod small end (Item 2) **[D]**.

Calculate the oil clearance. If the clearance exceeds the allowable limit, replace the bushing. If it still exceeds the specifications, replace the piston pin.

Piston Pin O.D. . . . . 0.984–0.985" (25,0–25,011 mm)
Bushing I.D. . . . . 0.985–0.986" (25,03–25,04 mm)
Oil Clearance between Piston Pin & Bushing . . . . . 0.0006–0.0015" (0,014–0,038 mm)
Allowable Limit . . . . . 0.006" (0,15 mm)
Service Replacement Part . . . . . 0.0006–0.003" (0,015–0.07 mm)

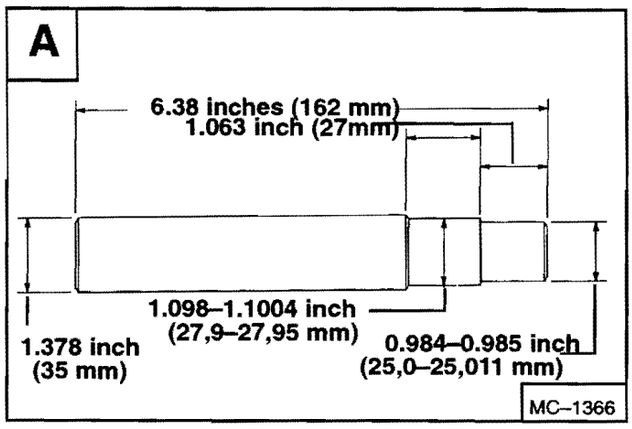


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PISTON AND CONNECTING ROD (Cont'd)

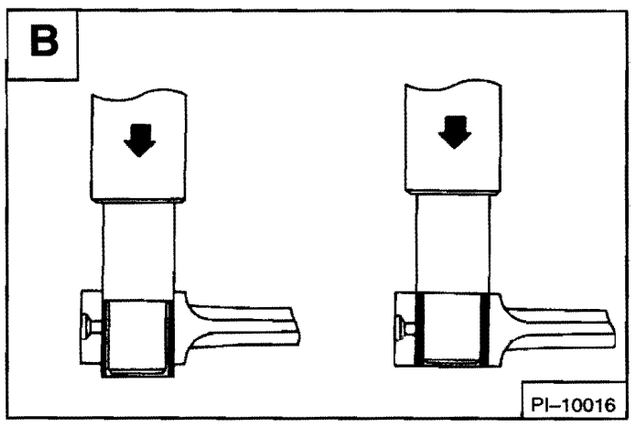
Servicing the Piston and Connecting Rod (Cont'd)

To replace the connecting rod small end bushing, make a driver tool as shown in figure **[A]**.



Use a press and special driver tool to remove the small end bushing **[B]**.

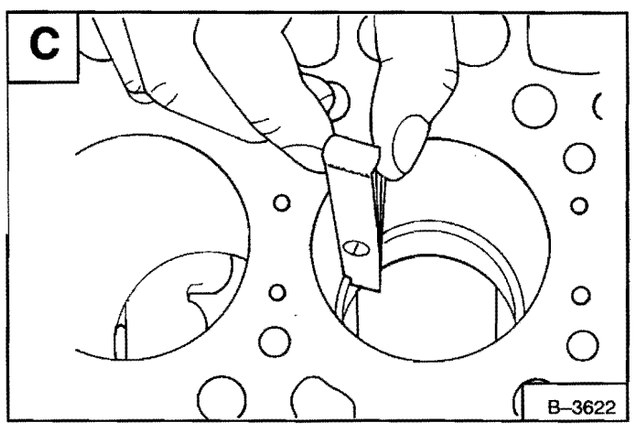
Installation: Clean the small end bushing and bore. Put oil on the bushing and press into the connecting rod until it is flush **[B]**.



Install a new piston ring into the lower part of the cylinder bore. Measure the ring gap with a feeler gauge **[C]**.

If the gap exceeds the allowable limit, replace the cylinder liner.

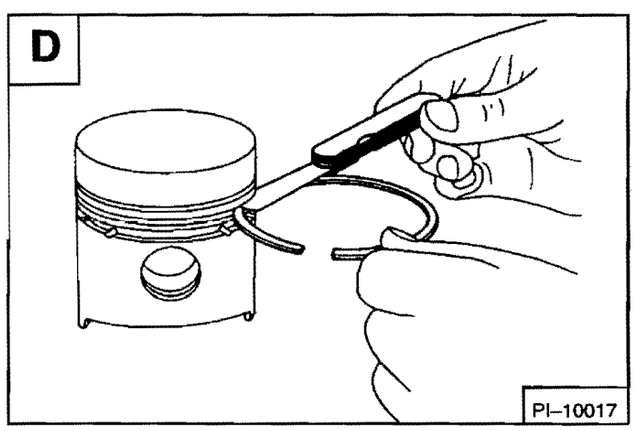
Compression Ring Gap .. 0.012–0.019" (0,3–0,5 mm)
Oil Ring Gap ..... 0.010–0.016" (0,25–0,4 mm)
Allowable Limit ..... 0.05" (1,25 mm)



Remove the carbon from the ring grooves. Measure the clearance between the ring and groove with a feeler gauge **[D]**.

If the clearance exceeds the allowable limit, replace the piston.

Compression Ring ..... 0.008" (0,2 mm)
Oil Ring ..... 0.006" (0,15 mm)



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PISTON AND CONNECTING ROD (Cont'd)

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.

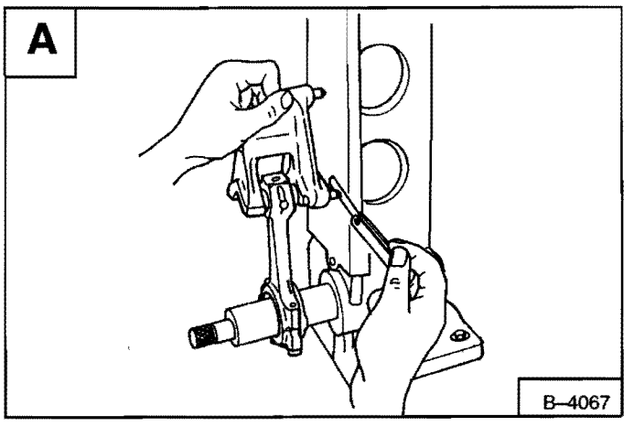
Install the connecting rod on an alignment tool.

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

If the gauge does not fit squarely against the face plate, measure the space between the gauge and face plate **[A]**.

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

Rod Alignment ..... 0.002" (0,05 mm)



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CRANKSHAFT AND BEARINGS

Removal and Installation

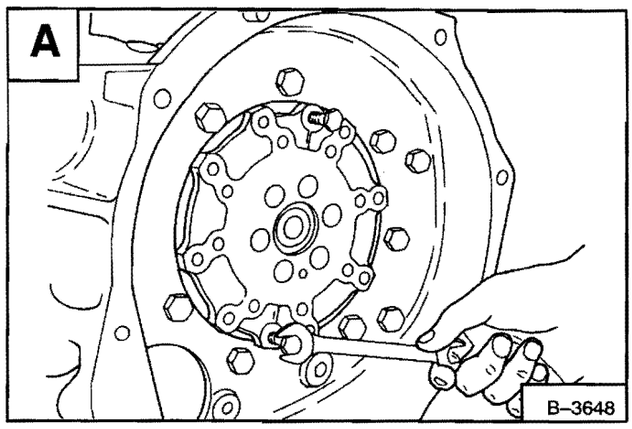
Remove the piston and connecting rod assemblies. (See Page 7–60.)

Remove the engine flywheel. (See Page 7–33.)

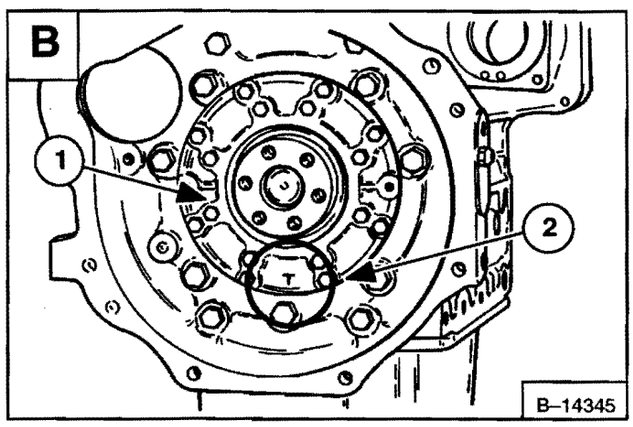
Remove the bolts which fasten the bearing case cover to the block.

Installation: Tighten the bearing case cover bolts to 13–15 ft.–lbs. (18–21 Nm) torque.

Install two bolts into the bearing case cover and pull the cover out **[A]**.



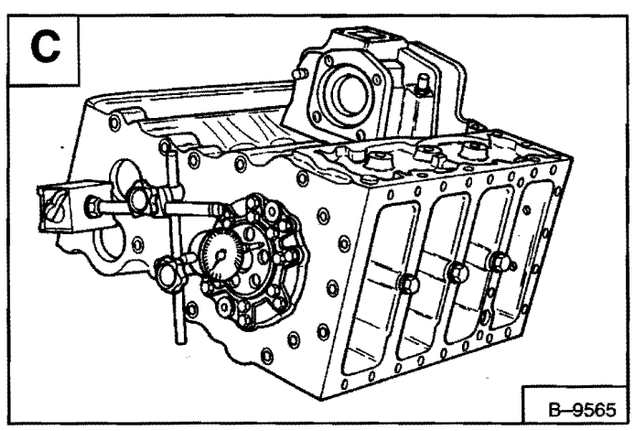
Installation: When installing the cover (Item 1) **[B]**, make sure the casting mark (Item 2) **[B]** is in the down position.



Before removing the crankshaft/main bearings, check the end play. Install a dial indicator. Measure the end play by moving the crankshaft back and forth **[C]**.

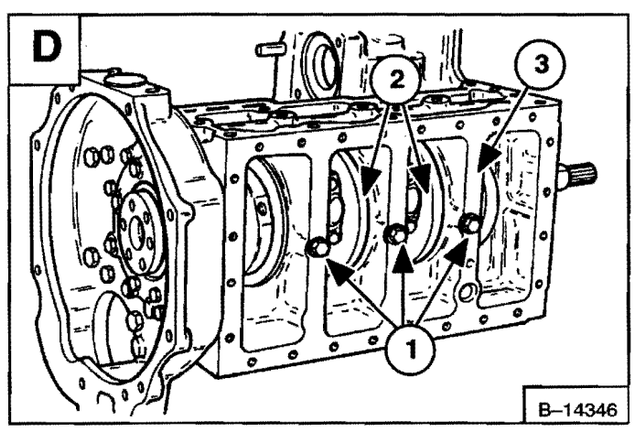
If the measurement exceeds the allowable limit, replace the thrust washers.

End Play ..... 0.006–0.012" (0,15–0,31 mm)
Allowable Limit ..... 0.020" (0,5 mm)



Remove the main bearing case bolt (Item 1) **[D]**.

Installation: Align the bearing case hole (Item 2) **[D]** with the hole in the block. Put oil on the bolt threads and tighten to 51–54 ft.–lbs. (69–73 Nm) torque.



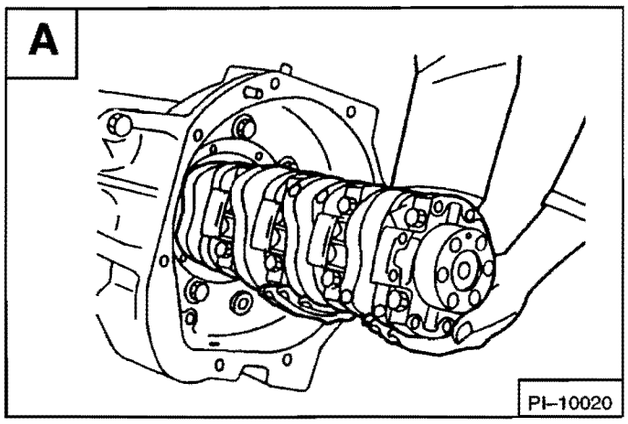
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CRANKSHAFT AND BEARINGS (Cont'd)

Removal and Installation (Cont'd)

Remove the crankshaft/main bearing assembly from the engine block **[A]**.

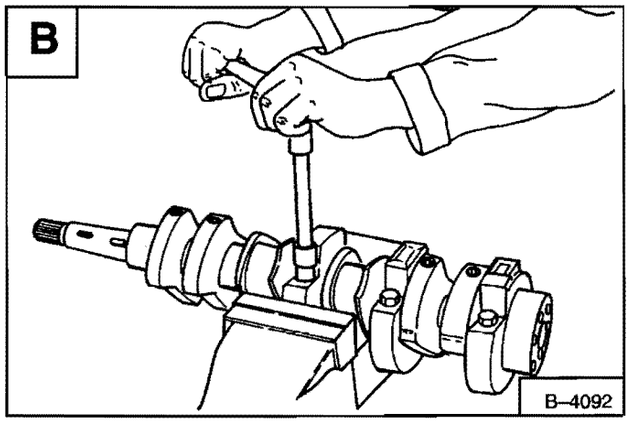
Mark the bearing case halves for correct installation.



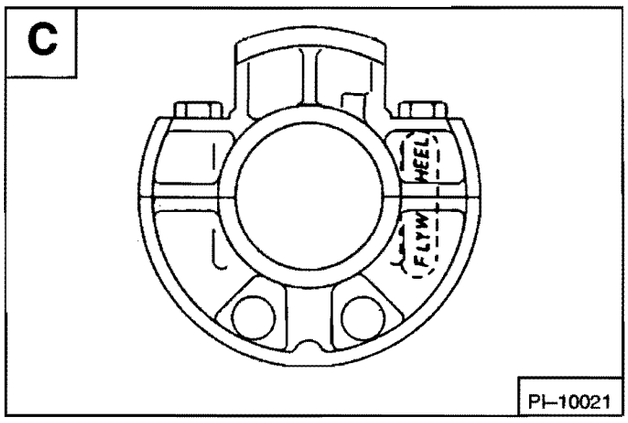
Remove the two bearing case bolts **[B]**.

Remove the bearing case and bearing.

Installation: Tighten the bearing case bolts to 34–38 ft.–lbs. (46–52 Nm) torque.



Installation: When installing the main bearing case assemblies, face the mark FLYWHEEL to the flywheel side of the engine block **[C]**. Be sure the thrust washers with its oil grooves face outward.



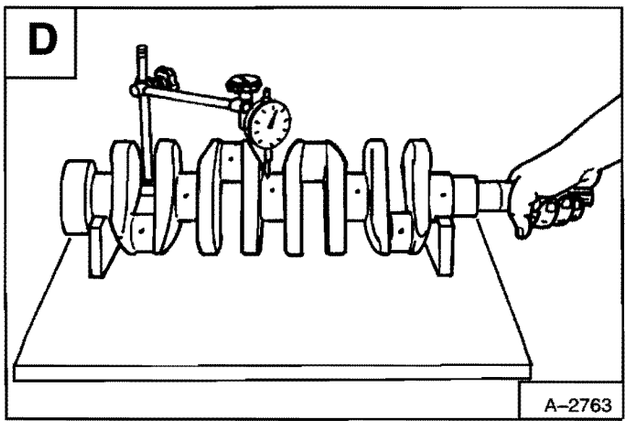
Servicing the Crankshaft and Bearings

Put the crankshaft on V–blocks. Install a dial indicator on the center journal **[D]**.

Turn the crankshaft at a slow rate.

If the misalignment exceeds the allowable limit, replace the crankshaft.

Alignment ..... 0.003" (0,08 mm)



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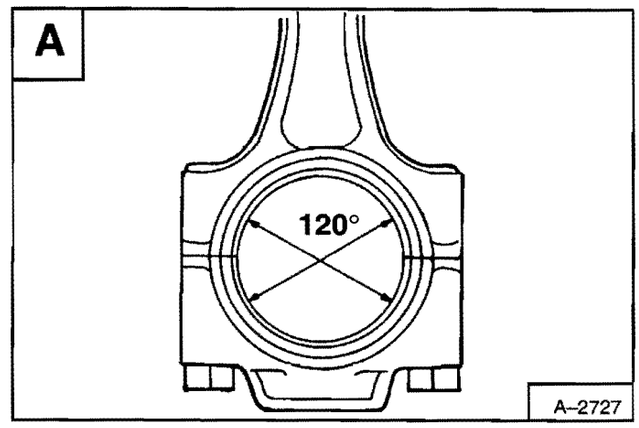
CRANKSHAFT AND BEARINGS (Cont'd)

Servicing the Crankshaft and Bearings (Cont'd)

Tighten the connecting rod cap bolts as follows:

W/O Flange Bolt ..... 27–30 ft.–lbs. (37–41 Nm)
W/Flange Bolt ..... 33–36 ft. lbs. (45–49 Nm)

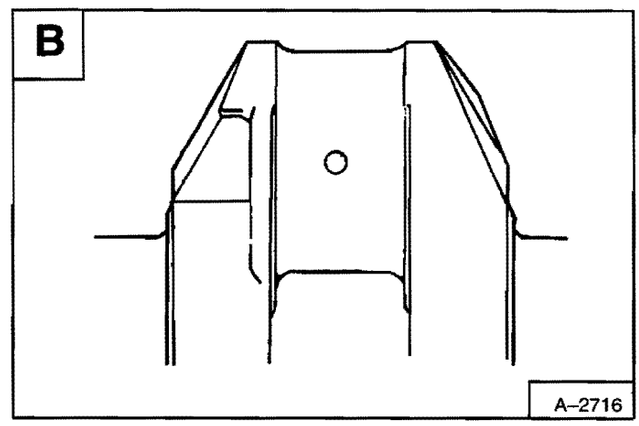
Measure the crankpin bearing I.D. **[A]**.



Measure the crankpin O.D. **[B]**.

Calculate the oil clearance.

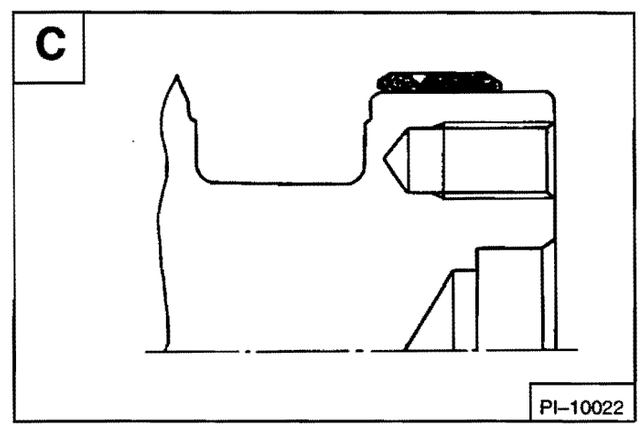
Crankpin Bearing I.D. . 1.850–1.852" (47,0–47,05 mm)
Crankpin O.D. ..... 1.849–1.850" (49,96–46,98 mm)
Oil Clearance ..... 0.0009–0.003" (0,025–0,087 mm)



Check the wear on the crankshaft sleeve **[C]**.

If the wear exceeds the allowable limit or the seal leaks oil, replace the sleeve.

Wear of Sleeve ..... 0.004" (0,1 mm)

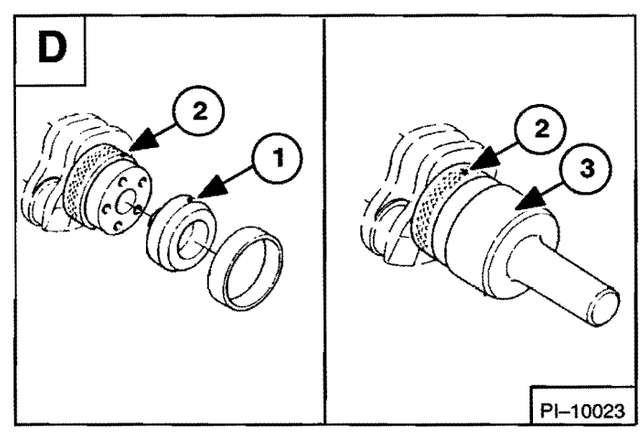


The special tool set will be needed to replace the crankshaft sleeve. The tool is available through Kubota, P/N 07916–32091.

Remove the sleeve.

Install the sleeve guide (Item 1) **[D]** and stop (Item 2) **[D]**.

Heat the sleeve to about 300°F (150°C). Install the sleeve on the crankshaft using the special driver tool (Item 3) **[D]**.

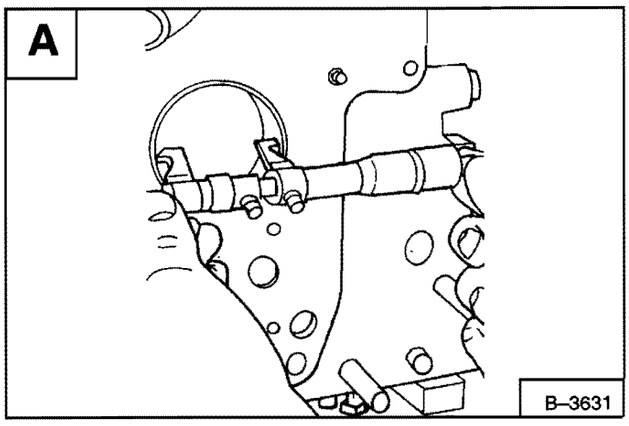


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CRANKSHAFT AND BEARINGS (Cont'd)

Servicing the Crankshaft and Bearings (Cont'd)

Measure the I.D. of the No. 1 crankshaft bearing **[A]**.

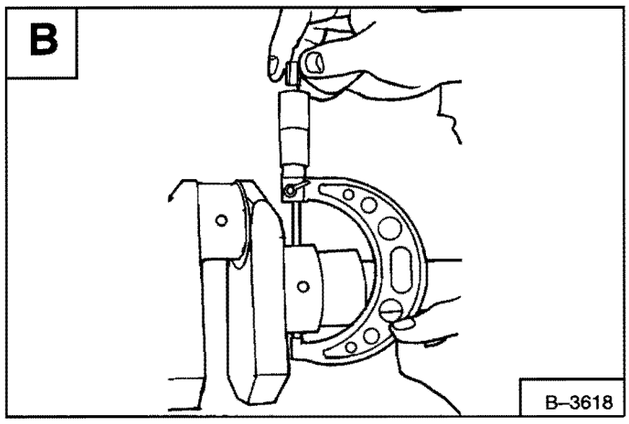


Measure the O.D. of the crankshaft journal **[B]**.

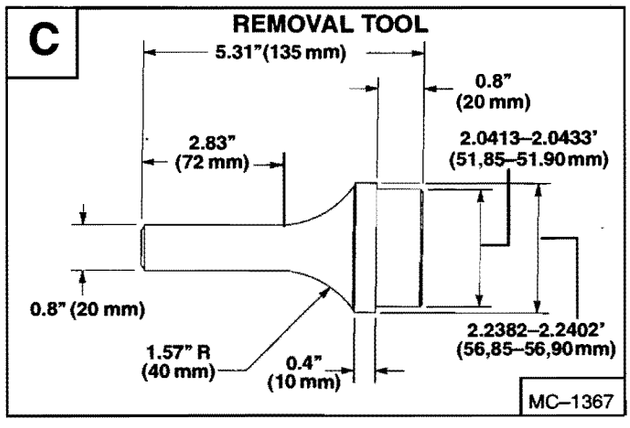
Calculate the oil clearance.

If the clearance exceeds the allowable limit, replace the crankshaft bearing.

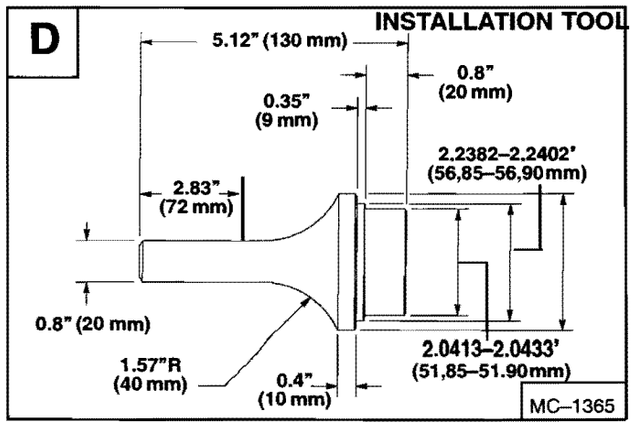
Bearing I.D. ..... 2.046–0.049" (51,98–52,04 mm)
Journal O.D. ..... 2.044–2.045" (51,92–51,94 mm)
Oil Clearance ..... 0.002–0.005" (0,04–0,12 mm)
Allowable Limit ..... 0.008" (0,2 mm)



To remove the front bearing make the tool as shown in figure **[C]**.



To install the front bearing make the tool as shown in figure **[D]**.



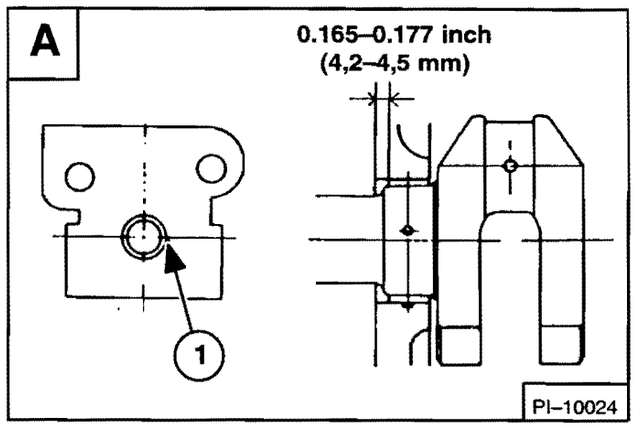
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CRANKSHAFT AND BEARINGS (Cont'd)

Servicing the Crankshaft and Bearings (Cont'd)

Remove the front bearing (Item 1) **[A]** with the special removal tool.

Installation: Clean the new bearing and bore, put oil on them. Install the new bearing with the installation driver tool **[A]**.



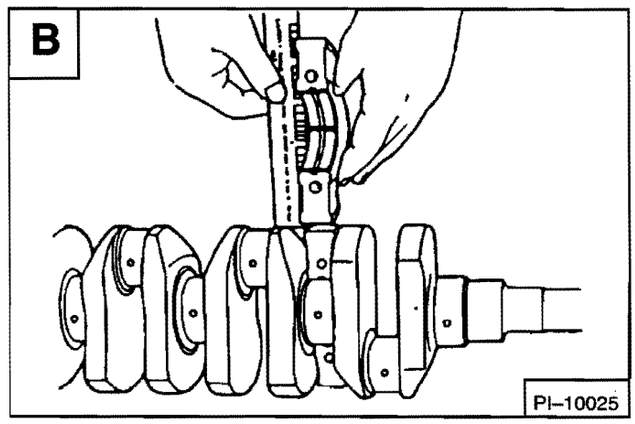
Clean the crankshaft journal and bearing. Put a strip of press gauge on the center journal.

Install the main bearing case halves and tighten the bolts. Remove the bearing case halves.

Measure the flattened press gauge **[B]**.

If the clearance exceeds the allowable limit, replace the crankshaft bearing.

Crankshaft Journal O.D. . . . . 2.044–2.045" (51,92–51,94 mm)
Bearing I.D. . . . . 2.046–2.048" (51,98–52,03 mm)
Oil Clearance . . . . . 0.002–0.004" (0,04–0,10 mm)
Allowable Limit . . . . . 0.008" (0,2 mm)

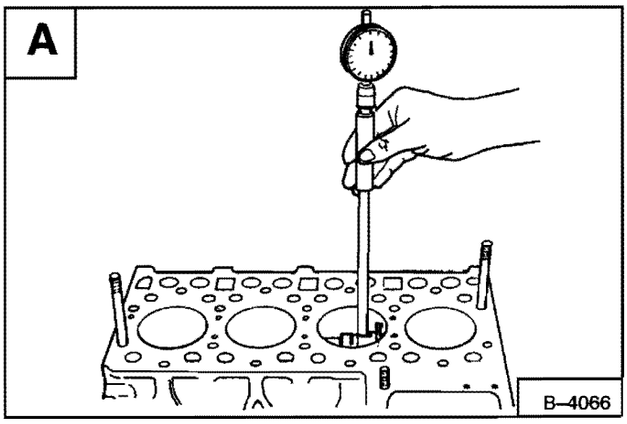


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CYLINDER BORE

Checking the Cylinder Bore

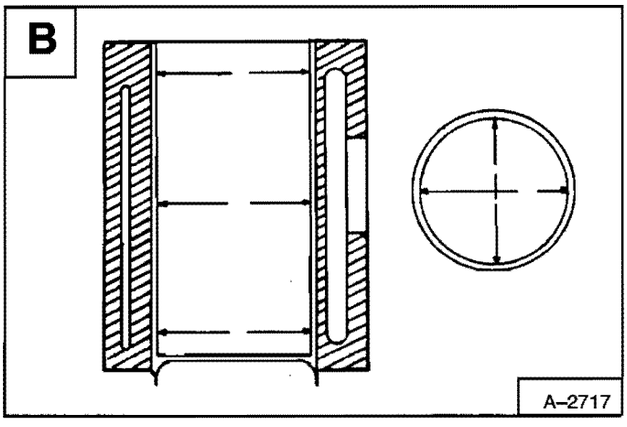
Use a gauge to check the inside measurement of the cylinder bore **[A]**.



Measure the six points as shown in figure **[B]** to find the maximum wear.

The specifications is 3.425–3.426" (87,0–87,02 mm). The wear limit is +0.006" (+0,15 mm).

If the cylinder bore is not within specifications, re–bore the cylinder for oversized piston.

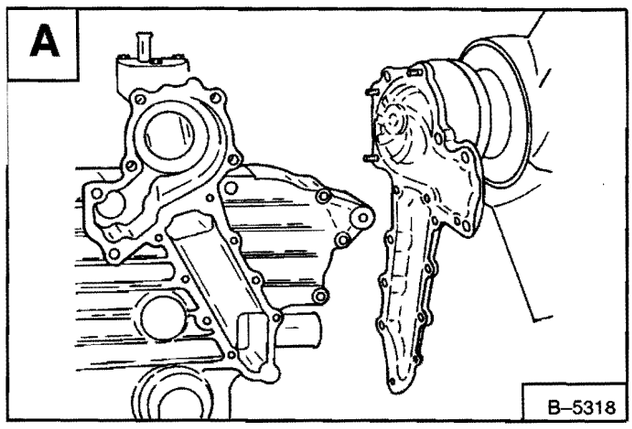


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WATER PUMP

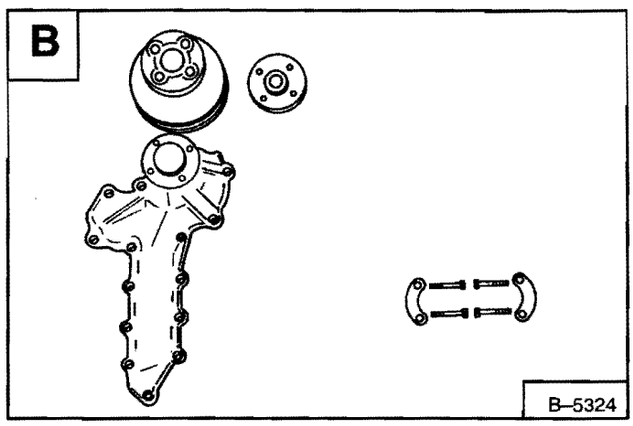
Disassembly and Assembly

Remove the water pump from the timing gearcase cover **[A]**.

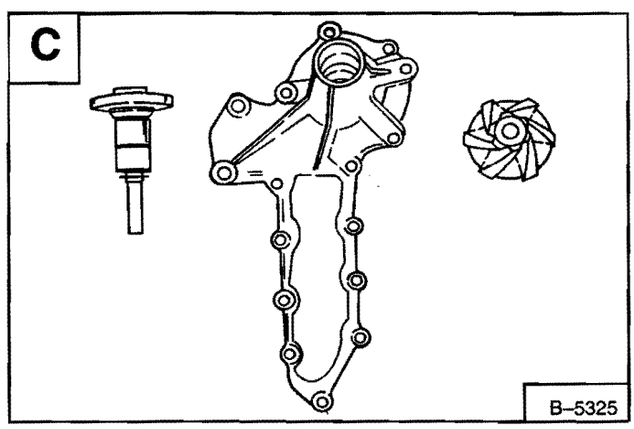


Put the water pump in a vise and remove the nut **[B]**.

Remove the pulley using a puller. Remove the key and snap ring.

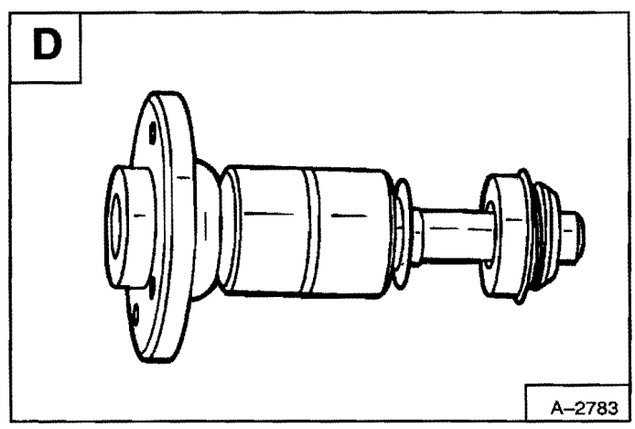


Drive the shaft out of the impeller side of the water pump housing **[C]**.



Install the new seals **[D]**. Install the shaft.

Installation: Put the water pump in a vise and tighten the nut to 50–57 ft.–lbs. (68–77 Nm) torque. Always use a new gasket when installing the water pump on the timing gearcase cover.



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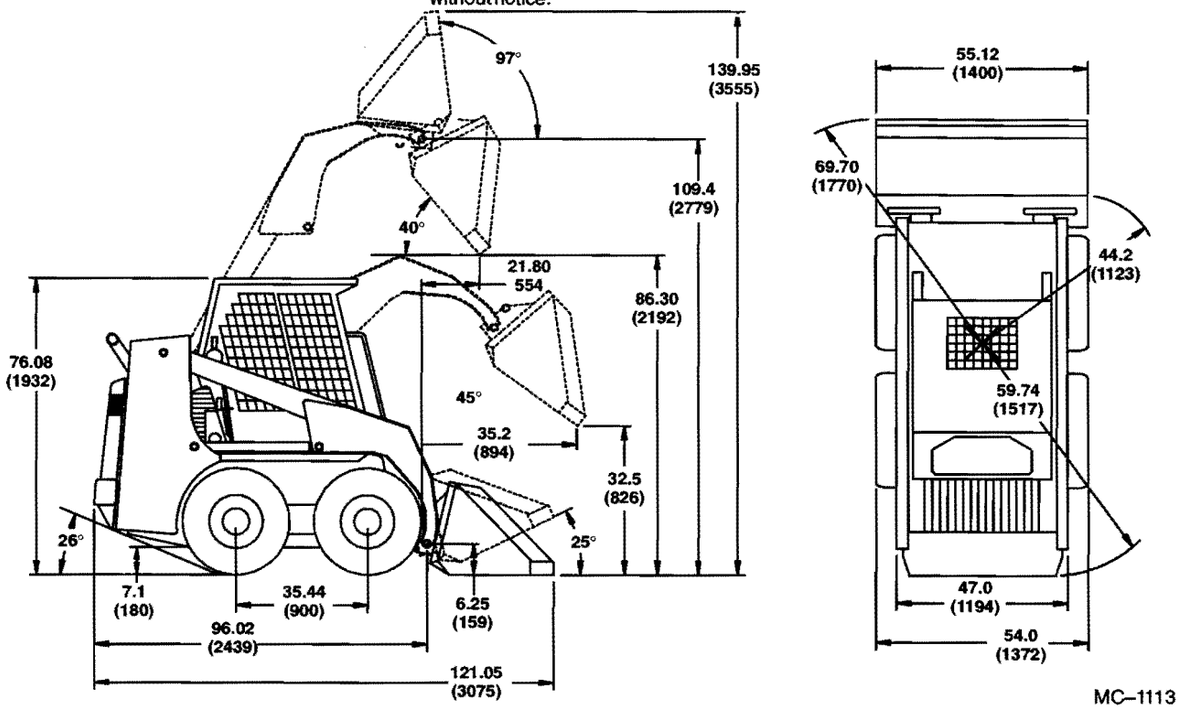


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LOADER SPECIFICATIONS

LOADER DIMENSIONS

- 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.



MC–1113

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	753
Weights	
Operating Weight	4732 lbs. (2148 kg)
Rated Operating Capcity	1300 lbs. (590 kg)
Tipping Load	2600 lbs. (1180 kg)
Travel Speed	Infinitely variable 0–6.0 MPH (9,7 km/hr.)
Controls	
Vehicle	Direction & speed controlled by two hand levers.
Loader Function	Lift, tilt function controlled by separate foot pedals. Auxiliary functions controlled by electrical push buttons on steering levers
Engine	Hand lever throttle; key–type starter switch;
Main Drive	Hydrostatic
Parking Brake	Mechanical disc, foot operated pedal
ENGINE	
Make	Kubota
Model	V2203–TV–B–Melroe–1
Fuel	Diesel
Horsepower	40 HP (30 kw)
Maximum Governed RPM	2400 RPM
Torque	102.5 ft.–lbs. (139 Nm) @ 1600 RPM
Number of Cylinders	Four
Bore/Stroke	3.43/3.64 (87/92.5)
Displacement	134.0 cu.in. (2197 cu. cm.)
Cooling System	Liquid
Lubrication	Pressure System W/Filter
Crankcase Ventilation	External
Air Cleaner	Dry replaceable cartridge, dual safety element
Ignition	Diesel–Compression
Low Idle	1150 RPM
High Idle	2460–2600 RPM

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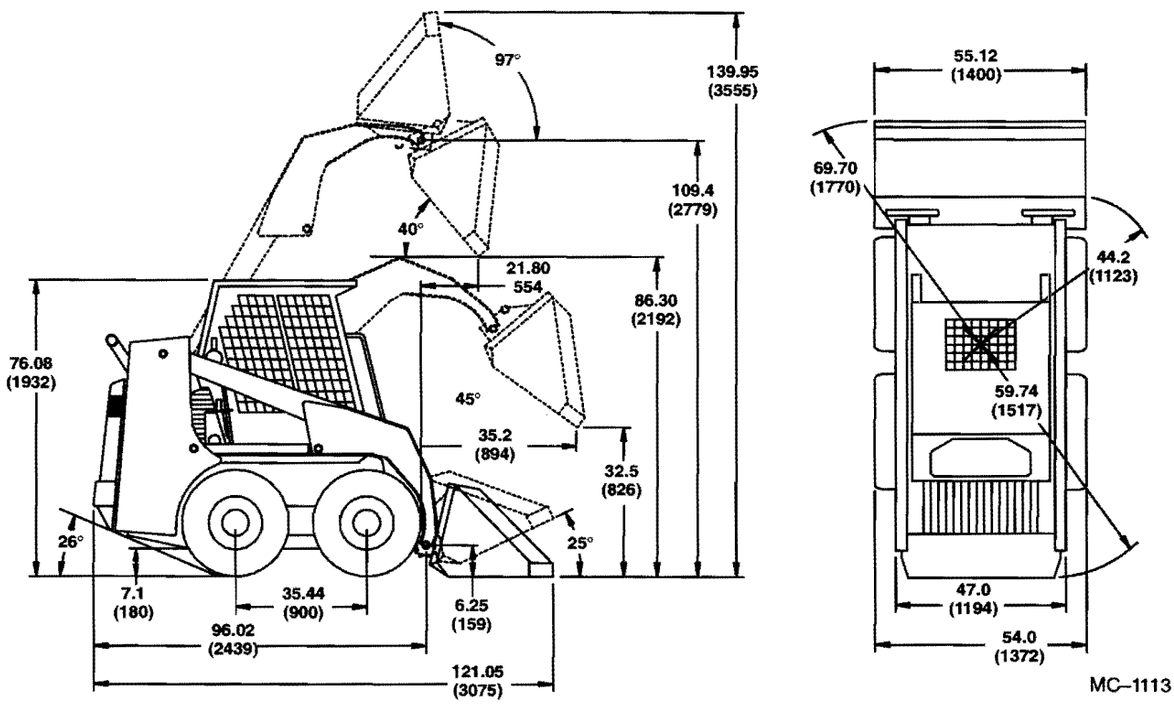
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HYDRAULIC SYSTEM	
Pump	Engine driven gear type
Pump Capacity	13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
System Main Relief	2550–2600 PSI (17582–17927 kPa) @ Quick Couplers
Filter	Full flow replaceable #3 micron synthetic medial element
Hydraulic Cylinders	Doubleacting
Bore Diameter:	
Lift Cylinder (2)	2.00 (50,8)
Tilt Cylinder (1)	3.25 (82,6)
Rod Diameter:	
Lift Cylinder (2)	1.25 (31,8)
Tilt Cylinder (1)	1.50 (38,1)
Stroke:	
Lift Cylinder (2)	26.32 (669)
Tilt Cylinder (1)	14.50 (368)
Control Valve	3–spool, open center, series type W/float detent on lift & electrical controlled auxiliary
Fluid Lines	SAE standard tubes, hoses & fittings
Hydraulic Function Time:	
Raise Lift Arms to Maximum Height	3.5 Seconds
Lower Lift Arms from Maximum Height	2.8 Seconds
Move Empty Bucket to Dump Position	2.8 Seconds
Move Bucket to Retracted Position	2.0 Seconds
Fluid Type	Bobcat Fluid (P/N 6563328) If fluid is not available, use 10W–30/10W–40 Class SE Motor Oil for temperatures above 0°F. (–18°C) & 5W–30 Motor Oil for temperatures below 0°F (–18°C).
ELECTRICAL	
Alternator	Belt drive, 55 amps. Open
Battery	12 volt, 625 cold crank amps. @ 0°F (–18°C) 160 min. reserve capacity
Starter	12 volt, 2.75 HP (2,8 kW)
DRIVE SYSTEM	
Transmission	Tandem hydro. pumps infinitely variable, driving 2 fully reversing hydrostatic motors
Final Drive	#80 HS roller chain & sprockets in sealed chaincase with oil lubrication
Total Engine to Wheel Reduction	42:09:1
CAPACITIES	
Cooling System	13 qts. (12,3 L)
Fuel	14 gals. (53 L)
Engine Oil W/Filter	7.5 qts. (7,1 L)
Hydraulic Reservoir	14 qts. (13,2 L)
Hydraulic/Hydrostatic System	6 gals. (22,7 L)
Chaincase Reservoir	8 gals. (30,3 L)
TIRES	
Standard	7:00–15, 6 Ply Rating, Nylon W/Bar Lug Tread
Pressure	45–50 PSI (310–345 kPa)
Flotation	10:00–16.5, 6 Ply Rating, Nylon W/Sure Grip Lug
Pressure	45 PSI (310 kPa)
Flotation	10:00–16.5, 8 Ply Rating, Nylon W/Sure Grip Lug
Pressure	55 PSI (379 kPa)

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LOADER SPECIFICATIONS

LOADER DIMENSIONS

- 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.



MC–1113

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	753H
Weights	
Operating Weight	4732 lbs. (2148 kg)
Rated Operating Capacity	1300 lbs. (590 kg)
Tipping Load	2600 lbs. (1180 kg)
Travel Speed	Infinitely variable 0–6.0 MPH (9,7 km/hr.)
Controls	
Vehicle	Direction & speed controlled by two hand levers.
Loader Function	Lift, tilt function controlled by separate foot pedals. Auxiliary functions controlled by electrical push buttons on steering levers
Engine	Hand lever throttle; key–type starter switch
Main Drive	Hydrostatic
Parking Brake	Mechanical disc, foot operated pedal
ENGINE	
Make	Kubota
Model	V2202–TV–B–Melroe–1
Fuel	Diesel
Horsepower	40 HP (30 kW)
Maximum Governed RPM	2400 RPM
Torque	102.5 ft.–lbs. (139 Nm) @ 1600 RPM
Number of Cylinders	Four
Bore/Stroke	3.43/3.64 (87/92.5)
Displacement	134.0 cu. in. (2197 cu. cm.)
Cooling System	Liquid
Lubrication	Pressure System W/Filter
Crankcase Ventilation	External
Air Cleaner	Dry replaceable cartridge, dual safety element
Ignition	Diesel–Compression
Low Idle	1150 RPM
High Idle	2460–2600 RPM

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LOADER SPECIFICATIONS (Cont'd)	753H
HYDRAULIC SYSTEM	
Pump	Engine driven gear type
Pump Capacity	13.0 GPM (49,2 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
Hi Flow Pump Capacity	21.7 GPM (82,1 L/min.) @ 2480 RPM @ 1150 PSI (7929 kPa)
System Main Relief	2550–2600 PSI (17582–17927 kPa) @ Quick Couplers
Hi Flow Main Relief	3550–3600 PSI (24477–24822 kPa) @ Quick Couplers
Filter	Full flow replaceable #3 micron synthetic medial element
Hydraulic Cylinders	Doubleacting
Bore Diameter:	
Lift Cylinder (2)	2.00 (50,8)
Tilt Cylinder (1)	3.25 (82,6)
Rod Diameter:	
Lift Cylinder (2)	1.25 (31,8)
Tilt Cylinder (1)	1.50 (38,1)
Stroke:	
Lift Cylinder (2)	26.32 (669)
Tilt Cylinder (1)	14.50 (368)
Control Valve	3–spool, open center, series type W/float detent on lift & electrical controlled auxiliary
Fluid Lines	SAE standard tubes, hoses & fittings
Hydraulic Function Time:	
Raise Lift Arms to Maximum Height	3.5 Seconds
Lower Lift Arms from Maximum Height	2.8 Seconds
Move Empty Bucket to Dump Position	2.8 Seconds
Move Bucket to Retracted Position	2.0 Seconds
Fluid Type	Bobcat Fluid (P/N 6563328) If fluid is not available, use 10W–30/10W–40 Class SE Motor Oil for temperatures above 0°F. (–18°C) & 5W–30 Motor Oil for temperatures below 0°F (–18°C).
ELECTRICAL	
Alternator	Belt drive, 55 amps. Open
Battery	12 volt, 625 cold crank amps. @ 0°F (–18°C) 160 min. reserve capacity
Starter	12 volt, 2.75 HP (2,8 kW)
DRIVE SYSTEM	
Transmission	Tandem hydro. pumps infinitely variable, driving 2 fully reversing hydrostatic motors
Final Drive	#80 HS roller chain & sprockets in sealed chaincase with oil lubrication
Total Engine to Wheel Reduction	42:09:1
Filters	Case Drain 90 Micron
CAPACITIES	
Cooling System	13 qts. (12,3 L)
Fuel	14 gals. (53 L)
Engine Oil W/Filter	7.5 qts. (7,1 L)
Hydraulic Reservoir	14 qts. (13,2 L)
Hydraulic/Hydrostatic System	6 gals. (22,7 L)
Chaincase Reservoir	8 gals. (30,3 L)
TIRES	
Standard	7:00–15, 6 Ply Rating, Nylon W/Bar Lug Tread
Pressure	45–50 PSI (310–345 kPa)
Flotation	10:00–16.5, 6 Ply Rating, Nylon W/Sure Grip Lug
Pressure	45 PSI (310 kPa)
Flotation	10:00–16.5, 8 Ply Rating, Nylon W/Sure Grip Lug
Pressure	55 PSI (379 kPa)

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ENGINE SPECIFICATIONS

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

Fuel Injection Nozzles

Opening Pressure	1990–2133 PSI (13721–14707 kPa)
Fuel Tightness Nozzle Seat	Dry Nozzle at 1849 PSI (12749 kPa)

Fuel Injection Pump

Fuel Tightness Plunger	10 sec: initial pressure 2133–1990 PSI (14707–13721 kPa)
Limit Permitted	5 seconds
Injection Timing	17–19 degrees B.T.D.C.
High Idle	2460–2600 RPM
Low Idle	850–1000 RPM
Cylinder Bore	
I.D. of Bore	3.4252–3.4261 (87,0–87,022)
Allowable Limit	+0.006 (+0,15)

Cylinder Head

Cylinder Head Surface Distortion	0.002 (0,05) Max.
Thickness of Gasket (Used)	0.0453–0.0492 (1,15–1,25)
(New)	0.0512–0.0551 (1,3–1,4)
Top Clearance (Piston to Head)	0.0217–0.0276 (0,55–0,70)
Compression	421–469 PSI (2903–3234 kPa)
Allowable Limit	327 PSI (2255 kPa)
Difference Between Cylinders	10%

Valves

Valve Seat Width	0.0835 (2,12)
Valve Seat Angle	45 degrees
O.D. of Valve Stems	0.3134–0.3142 (7,96–7,98)
I.D. of Valve Guides	0.3156–0.3161 (8,016–8,03)
Clearance Between Valve Stem & Guide	0.0016–0.0026 (0,04–0,07)
Allowable Limit	0.0039 (0,1)
Valve Clearance (Cold)	0.007–0.0087 (0,18–0,22)
Valve Recessing (Protrusion)	0.002 (0,05)
(Recess)	0.06 (0,15)

Valve Springs

Free Length	1.64–1.66 (41,7–42,2)
Allowable Limit	1.62 (41,2)
Fitted Length	1.378 (35,0)
Compress to Fitted Length	26.4 lbs. (117,6 N)
Allowable Limit	22.5 lbs. (100,0 N)
Inclination Allowable Limit	0.006 (0,15)

Valve Timing

Intake Valve (Open)	12 degrees B.T.D.C.
(Close)	36 degrees A.T.D.C.
Exhaust Valve (Open)	60 degrees B.T.D.C.
(Close)	12 degrees A.T.D.C.

Rocker Arms

O.D. of Rocker Arm Shaft	0.5501–0.5506 (13,97–13,99)
I.D. of Rocker Arm Bushings	0.5513–0.5529 (14,0–14,04)
Clearance Between Rocker Arm & Bushing	0.0007–0.0026 (0,02–0,06)
Allowable Limit	0.006(0,15)

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ENGINE SPECIFICATIONS (Cont'd)

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

Camshaft

Journal O.D.	1.5722–1.5728 (39.934–39,95)
Bearing I.D.	1.5748–1.5758 (40,0–40,025)
Oil Clearance	0.002–0.0036 (0,05–0,091)
Allowable Limit	0.006 (0,15)
Alignment Allowable Limit	0.003 (0,08)
Cam Lobe Height	1.318 (33,47)
Allowable Limit	1.316 (33,42)
End Clearance	0.0028–0.0087 (0,07–0,22)
Allowable Limit	0.012 (0,3)

Tappet

Clearance Between Tappet & Guide	0.0008–0.0024 (0,02–0,061)
Tappet O.D.	0.9433–0.9441 (23,959–23,98)
Tappet Guide I.D.	0.9449–0.9457 (24,0–24,021)

Cylinders

Cylinder Bore I.D.	3.425–3.426 (87,00–87,022)
Allowable Limit	+0.006 (+0,15)

Piston Rings

Ring Gap (Top & 2nd Ring)	0.012–0.018 (0,3–0,45)
Limit Permitted	0.05 (1,25)
Ring Gap (Oil Ring)	0.010–0.016 (0,25–0,4)
Limit Permitted	0.05 (1,25)
Side Clearance of Ring Groove:	
Top Ring	Zero Clearance
Second Ring	0.0037–0.0047 (0,094–0,12)
Oil RIng	0.0008–0.002 (0,02–0,051)

Pistons

Piston Pin Bore	0.9843–0.9848 (25,0–25.014)
Limit Permitted	0.9862 (25,05)

Connecting Rod

Piston Pin O.D.	0.9843–0.9847 (25,0–25,011)
Small End Bushing I.D.	0.9852–0.9858 (25,025–25,04)
Clearance Between Piston Pin & Small End Bushing	0.0006–0.0015 (0,015–0,038)
Service Replacement Part	0.0006–0.003 (0,015–0,07 mm)
Connecting Rod Alignment Limit Permitted	0.002 (0,05)

Oil Pump

Oil Pressure Rated RPM	43–64 PSI (294–441 kPa)
Limited Permitted	36 PSI (248 kPa)
Idle Speed	14 PSI (98 kPa)
Limit Permitted	7 PSI (49 kPa)
Clearance Between Inner Rotor & Outer Rotor	0.0039–0.0063 (0,1–0,16)
Limit Permitted	0.008 (0,2)
Outer Rotor & Pump Bocy	0.0043–0.0075 (0,11–0,19)
Limited Permitted	0.001 (0,25)
End Clearance Between Inner Rotor & Cover	0.0041–0.0059 (0,103–0,15)
Limit Permitted	0.008 (0,2)

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ENGINE SPECIFICATIONS (Cont'd)

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

Crankshaft

Crankshaft Alignment Limit Permitted	0.0031 (0,08)
Oil Clearance Between Journal & Bearing #1	0.0016–0.0046 (0,04–0,117)
Limit Permitted	0.008 (0,2)
Journal O.D. #1	2.0441–2.0449 (51,921[51,94)
Bearing I.D. #1	2.0465–2.0488 (51,98–52,04)
Oil Clearance Between Journal & Bearing #2	0.0016–0.0041 (0,04–0,104)
Limit Permitted	0.008 (0,2)
Journal O.D. #2	2.0441–2.0449 (51,92–51,94)
Bearing I.D. #2	2.0465–2.0482 (51,98–52,02)
Oil Clearance Between Crank Pin & Bearing	0.0009–0.0034 (0,023–0,086)
Limit Permitted	0.008 (0,2)
Crank Pin O.D.	1.8488–1.8492 (46,96–46,97)
Crank Pin Bearing I.D.	1.8504–1.8522 (47,0–47,046)
Crankshaft Side Clearance	0.0059–0.0122 (0,15–0,31)
Limit Permitted	0.020 (0,5)

Timing Gear

Timing Gear Backlash	
Crank Gear – Idle Gear	0.0016–0.0044 (0,041–0,112)
Idle Gear – Cam Gear	0.0016–0.0045 (0,041–0,114)
Idle Gear – Injection Pump Gear	0.0016–0.0046 (0,041–0,117)
Idle Gear – Oil Pump Gear	0.0016–0.0043 (0,041–0,109)
Limit Permitted	0.006 (0,15)
Clearance Between Idle Gear Shaft & Idle Gear Bushing	0.001–0.0026 (0,025–0,066)
Limit Permitted	0.004 (0,10)
Idler Gear Side Clearance Idler Gear	0.008–0.020 (0,2–0,51)

Thermostat

Valve Opening Temperature	157–163°F (70–73°C)
Valve Fully Open	185°F (85°C)

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ENGINE SPECIFICATIONS (Cont'd)

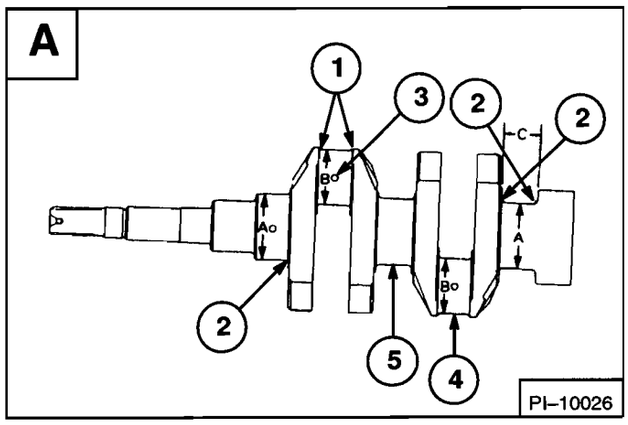
Crankshaft Re–Grind Data

if the standard size bearing cannot be employed due to excessive wear of the crankpin and crank journal use undersize or oversize bearings.

For undersize or oversize bearing use, follow the precautions noted below.

Grind the crankpin and journal with a wheel which has specified round corner and width without shoulder **[A]**.

1. 0.1299–0.1457" (3,3–3,7 mm)
2. 0.1102–0.1260" (2,8–3,2 mm)
3. Be sure to chamfer the oil hole circumference to 0.04–0.06" (1,0–1,5 mm) radius with and oil stone.
4. The crankpin must be fine finished to higher than (0,4–5).
5. The crank journal must be fine–finished to higher than (0,4–5).
6. The crank journal side surface must be fine–finished to higher than (1,6–5).



SIZE	CODE NO.	NAME OF BEARING	BEARING MARK	CRANKSHAFT PROCESSING DIM.	
–0.008" (0,2 mm)	17331–2391–1	Crankshaft Bearing 1 0.008" minus (0,2 minus)	020 US	A	2.0363–2.037" (51,721–51,74 mm)
–0.008" (0,2 mm)	17331–2393–1	Crankshaft Bearing 2 0.008" minus (0,2 minus)	020 US		
–0.016" (0,4 mm)	17331–2392–1	Crankshaft Bearing 1 0.016" minus (0,4 minus)	040 US		2.0284–2.0291" (51,521–51.54 mm)
–0.016" (0,4 mm)	17331–2394–1	Crankshaft Bearing 2 0.016" minus (0,4 minus)	040 US		
–0.008" (0,2 mm)	17331–2297–1	Crank Pin Bearing 0.008" minus (0,2 minus)	020 US	B	1.8409–1.8415" (46,759–46,775 mm)
–0.016" (0,4 mm)	17331–2298–1	Crank Pin Bearing 0.016" minus (0,4 minus)	040 US		1.8330–1.8337" (46,559–46,575 mm)
+0.008" (+0,2 mm)	15221–2395–1	Thrust Bearing 1 – 0.008" plus (0,2 mm plus)	020 US	C	1.8330–1.8337" (46,559–46,575 mm)
	19202–2397–1	Thrust Bearing 2 – 0.008" plus (0,2 mm plus)			
+0.016" (+0,4 mm)	15221–2396–1	Thrust Bearing 1 – 0.016" plus (0,4 mm plus)	040 US		1.0315–1.0335" (26,20–25,25 mm)
	19202–2398–1	Thrust Bearing 2 – 0.016" plus (0,4 mm plus)			

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ENGINE SPECIFICATIONS (Cont'd)

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	6–9 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 1.25	36–50 ft.–lbs. (49–68 Nm)	58–80 ft.–lbs. (79–108 Nm)	116–137 ft.–lbs. (157–186 Nm)

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TORQUE SPECIFICATIONS FOR LOADER

Specifications

Item	Ft.–Lbs.	Nm
Air Cleaner Mounting Bolts	25–28	34–38
Alternator Pulley Nut	50	68
Axle Hub Mounting Bolt	575–625	780–848
Axle Sprocket Bolt	220–245	298–332
Bob–Tach Pivot Pin Bolts	135–140	183–190
Bob–Tach Lever Pivot Bolt	25–28	34–38
Brake Block Mounting Bolts	65–70	88–95
Brake Lever Bolt	65–70	88–95
Brake Pad Mounting Bolts	65–70	88–95
Camshaft Retainer Plate Bolts	17–20	23–27
Centering Spring Bolt	25–28	34–38
Chaincase to Main Frame Bolts & Nuts	90–100	122–136
Connecting Rod Bolts:		
W/O Flange	27–30	37–41
W/Flange	33–36	45–49
Control Pedal Linkage Bolts	21–25	28–34
Control Valve Mounting Bolts & Nuts	15–16	20–22
Crankshaft Pulley Nut	101–116	137–157
Cylinder Head Bolts	67–72	91–98
Flywheel Bolts	83–90	113–122
Front Panel Bolts	16–20	22–27
Fuel Camshaft Retainer Plate Bolts	5–6	6,8–8,1
Glow Plug	15–18	20–24
Hydraulic Reservoir Strap Bolts	16–20	22–27
Hydraulic Filter Housing Mounting Bolts	25	34
Hydrostatic Motor Mounting Bolts	65–70	88–95
Hydrostatic Pump Mounting Bolts	65–70	88–95
Hydrostatic Pump Pulley Bolt	175–200	237–271
Idler Gear Shaft Bolts	17–20	23–27
Injection Pump Mounting Bolts & Nuts	17–20	23–27
Injection Nozzles	36–51	46–69
Injector Nozzle Body	43–58	59–79
Main Bearing Case Bolt	51–54	69–73
Main Bearing Case Half Bolts	34–38	46–52
Main Relief Valve	35–40	47–54
Motor Carrier Mounting Bolts	125–140	170–190
Operator Cab Fastening Nuts (Front)	40–50	54–68
Operator Cab Pivot Bolts & Nuts	25–35	34–47
Pedal Lock Linkage to Main Frame Bolts	7–8	9,5–10,8
Pedal Lock Linkage Tab Bolt	25	34
Pintle Arm Bolt	40–50	54–68
Pintle Arm Lobe Bolt	25–28	34–38
Pintle Bar Bolts	28	38
Pivot Pins Lock Bolt & Nut	18–20	24–27
Rear Bearing Case Cover Bolts	13–15	18–20
Seat Belt Fastening Bolts	40–45	54–61
Seat Mounting Bolts	9–11	12,2–15
Seat Bar Pivot Bolts	25–28	34–38
Steering Linkage Bolts	23	31
Steering Linkage Lock Nuts	23	31
Timing Gearcase Cover Bolts	13–17	18–23
Wheel Nuts	105–115	142–156

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HYDRAULIC/HYDROSTATIC FLUID SPECIFICATIONS

Specifications

Use Melroe hydraulic/hydrostatic transmission fluid (P/N 6563328). If this fluid is not available, use 10W–30 or 10W–40 SAE Motor Oil (5W–30 for 0°F [–18°C] and Below).

DO NOT use automatic transmission fluids in the loader or permanent damage to the transmission will result.

⚠ WARNING

Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes causing serious injury. 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.

W–2074–1285

When temperatures below zero degree F (–18°C) are common, the loader must be kept in a warm building. Extra warm–up time must be used each time the loader is started during cold temperature conditions. Cold fluid will not flow easily and it makes action of the hydraulic function slower. Loss of fluid flow to the hydrostatic transmission pump (indicated by "TRANS" light "ON") can cause transmission damage in less than 60 seconds.

⚠ WARNING

During cold weather 32°F (0°C) and below, do not operate machine until the engine has run for at least five (5) minutes at less than half throttle. This warm–up period is necessary for foot pedal operation and safe stopping. Do not operate controls during warm–up period. When temperatures are below –20°F (30°C), the hydrostatic oil must be heated or kept warm. The hydrostatic system will not get enough oil at low temperatures. Park the machine in an area where the temperature will be above 0°F (–18°C), if possible.

W–2027–1285

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STANDARD TORQUE SPECIFICATIONS FOR BOLTS

The following table shows standard torque specifications for bolts with zinc phosphate coating. Bolts purchased from Melroe that have zinc phosphate coating are specified by the letter "H" following the part number.

	THREAD SIZE	SAE GRADE 5	SAE GRADE 8
INCH. LBS. (Nm)	.250	80–90 (9,0–10,2)	110–120 (12,4–13,6)
	.3125	180–200 (20,3–22,6)	215–240 24,2–27,1)
FOOT LBS. (Nm)	.375	25–28 (34–38)	35–40 (47–54)
	.4375	40–45 (54–61)	60–65 (81–88)
	.500	65–70 (88–95)	90–100 (122–136)
	.5625	90–100 (122–136)	125–140 (170–190)
	.625	125–140 (170–190)	175–190 (240–260)
	.750	220–245 (300–330)	300–330 (410–450)
	.875	330–360 (450–490)	475–525 (645–710)
	1.000	475–525 (645–710)	725–800 (985–1085)
	1.125	650–720 (880–975)	1050–1175 (1425–1600)
	1.250	900–1000 (1200–1360)	1475–1625 (2000–2200)
	1.375	1200–1350 (1630–1830)	2000–2200 (2720–2980)
	1.500	1500–1650 (2040–2240)	2600–2850 (3530–3870)
	1.625	2000–2800 (2720–2980)	3450–3800 (4680–5150)
	1.750	2500–2750 (3390–3730)	4300–4800 (5830–6500)
	1.875	3150–3500 (4270–4750)	5500–6100 (7450–8300)
	2.000	3800–4200 (5150–5700)	6500–7200 (8800–9800)

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DECIMAL AND MILLIMETER EQUIVALENTS

FRACTIONS	DECIMALS	MM
1/64	0.015625	0.397
1/32	0.03125	0.794
3/64	0.046875	1.191
1/16	0.0625	1.588
5/64	0.078125	1.984
3/32	0.09375	2.381
7/64	0.109375	2.778
1/8	0.1250	3.175
9/64	0.140625	3.572
5/32	0.15625	3.969
11/64	0.171875	4.366
3/16	0.1876	4.762
13/64	0.203125	5.159
7/32	0.21875	5.556
15/64	0.234375	5.953
1/4	0.2500	6.350
17/64	0.265625	6.747
9/32	0.28125	7.144
19/64	0.296875	7.541
5/16	0.3125	7.938
21/64	0.328125	8.334
11/32	0.34375	8.731
23/64	0.359375	9.128
3/8	0.3750	9.525
25/64	0.390625	9.922
13/32	0.40625	10.319
27/64	0.421875	10.716
7/16	0.4375	11.112
29/64	0.453125	11.509
15/32	0.46875	11.906
31/64	0.484375	12.303
1/2	0.5000	12.700
33/64	0.515625	13.097
17/32	0.53125	13.494
35/64	0.546875	13.891
9/16	0.5625	14.288
37/64	0.578125	14.684
19/32	0.59375	15.081
39/64	0.609375	15.478
5/8	0.6250	15.875
41/64	0.640625	16.272
21/32	0.65625	16.669
43/64	0.671875	17.066
11/16	0.6875	17.462
45/64	0.703125	17.859
23/32	0.71875	18.256
47/64	0.734375	18.653
3/4	0.7500	19.050
49/64	0.765625	19.447
25/32	0.78125	19.844
51/64	0.796875	20.241
13/16	0.8125	20.638
53/64	0.828125	21.034
27/32	0.84375	21.431
55/64	0.859375	21.828
7/8	0.8750	22.225
57/64	0.890625	22.622
29/32	0.90625	23.019
59/64	0.921875	23.416
15/16	0.9375	23.812
61/64	0.953125	24.209
31/32	0.96875	24.606
63/64	0.984375	25.003
1	1.000	25.400

1 mm = 0.03937"

0.001" = 0.0254 mm

U.S. TO METRIC CONVERSION

	TO CONVERT	INTO	MULTIPLY BY
LINEAR MEASUREMENT	Miles	Kilometers	1.609
	Yards	Meters	0.9144
	Feet	Meters	0.3048
	Feet	Centimeters	30.48
	Inches	Meters	0.0254
	Inches	Centimeters	2.54
	Inches	Millimeters	25.4
AREA	Square Miles	Square Kilometers	2.59
	Square Feet	Square Meters	0.0929
	Square Inches	Square Centimeters	6.452
	Acre	Hectare	0.4047
VOLUME	Cubic Yards	Cubic Meters	0.7646
	Cubic Feet	Cubic Meters	0.02832
	Cubic Inches	Cubic Centimeters	16.39
WEIGHT	Tons (Short)	Metric Tons	0.9078
	Pounds	Kilograms	0.4536
	Ounces (Avdp.)	Grams	28.3495
PRESSURE	Pounds/Sq. In.	Kilopascal	6.895
WORK	Foot–Pounds	Newton–Metre	1.356
LIQUID VOLUME	Quarts	Liters	0.9463
	Gallons	Liters	3.785
LIQUID FLOW	Gallons/Minute	Liters/Minute	3.785
TEMPERATURE	Fahrenheit	Celsius	1.Subtract 32° 2. Multiply by 5/9

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MELROE COMPANY

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750—001
Revision Number

22 March 1991
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 753

Manual No. 6720326 (8-90)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
	☐

The attached pages are a revision to the 753 Service Manual (P/N 6720326).

Take out and put in the pages as listed below:

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HYD./HYDRO. SYSTEM OPERATION For Model 753 Chart #6720316 (Printed May 1990) CHART LEGEND	HYD./HYDRO. SYSTEM OPERATION For Model 753 Chart #6720316 (Printed May 1990) CHART LEGEND (Revised Mar. 91)
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Auxiliary Hydraulic Wiring Diagram Model 753 (S/N 11079 & Above) (Printed August 1990) 3 of 3 Pages	Auxiliary Hydraulic Wiring Diagram Model 753 (S/N 11079 & Above) (Printed March 1991) 3 of 3 Pages
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8—3, 8—4	8—3 (Revised Mar. 91), 8—4 (Revised Mar. 91)

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750—002
Revision Number

30 April 1991
Date

SERVICE MANUAL REVISION

ROUTE TO ATTENTION

PARTS MANAGER ☐
SERVICE MANAGER ☑
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AFFECTING:

Product BOBCAT LOADER

Model 753

Manual No. 6720326 (8-90)

Revise your Service Manual with the enclosed pages as shown below.

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750—003
Revision Number

10 June 1991
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 753

Manual No. 6720326 (8-90)

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PARTS MANAGER	☐
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750—004
Revision Number

10 September 1991
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 753

Manual No. 6720326 (8-90)

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- ☐ PARTS MANAGER
- ☑ SERVICE MANAGER
- ☐ SALES MANAGER
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TAKE OUT	PUT IN
PREVENTIVE MAINTENANCE - TAB PAGE (Revised Mar. 1991) 1—5, 1—6	PREVENTIVE MAINTENANCE - TAB PAGE (Revised September 91) 1—5, 1—5a (Added Sept. 91) 1—5b (Added Sept. 91), 1—6
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WIRING DIAGRAM (P/N 6720582) Model 753 (S/N 11079 & Above) (Printed Aug. 1990) 3 of 3 Pages.	WIRING DIAGRAM (P/N 6720582) Model 753 (S/N 11079 Thru 13487) (Printed Sept. 1991) 3 of 3 Pages.
	WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13488 & Above) (Printed Sept. 91) 3 of 3 Pages.

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750—005
Revision Number

7 January 1992
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 750 SERIES

Manual No. 6720326 (8-90)

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PARTS MANAGER	☐
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TAKE OUT	PUT IN
MAINTENANCE SAFETY, MAINTENANCE SAFETY (Cont'd)	MAINTENANCE SAFETY (Revised Jan. 92) MAINTENANCE SAFETY (Cont'd)
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750—006
Revision Number

9 April 1992
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 750 SERIES

Manual No. 6720326 (8-90)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
_____	☐

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TAKE OUT	PUT IN
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*NOTE: Put the WIRING DIAGRAM (P/N 6722195) at the beginning of Section 6.

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750—007
Revision Number

6 August 1992
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 750 SERIES

Manual No. 6720326 (8-90)

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PARTS MANAGER ☐
SERVICE MANAGER ☑
SALES MANAGER ☐
_____ ☐

Revise your Service Manual with the enclosed pages as shown below.

TAKE OUT	PUT IN
1—21 (Revised Jan. 92), 1—22 (Revised Jan. 92)	1—21 (Revised Aug. 92), 1—22 (Revised Aug. 92)
OPERATOR CAB WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13488 & Above) (Printed September 1991) 1 Of 3 Pages	OPERATOR CAB WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13488 Thru 17641) (Printed August 1992) 1 Of 3 Pages
ENGINE WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13488 & Above) (Printed September 1991) 2 Of 3 Pages	ENGINE WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13489 Thru 17641) (Printed August 1992) 2 Of 3 Pages
AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13488 & Above) (Printed September 1991) 3 Of 3 Pages	AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959) Model 753 (S/N 13489 Thru 17641) (Printed August 1992) 3 Of 3 Pages
	OPERATOR CAB WIRING DIAGRAM (P/N 6722301) Model 753 (Starting With S/N 17642) (Printed August 1992) 1 Of 3 Pages
	ENGINE WIRING DIAGRAM (P/N 6722301) Model 753 (Starting With S/N 17642) (Printed August 1992) 2 Of 3 Pages
	AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6722301) Model 753 (Starting With S/N 17642) (Printed August 1992) 3 Of 3 Pages
7—7, 7—8 7—15, 7—16	7—7 (Revised Aug. 92), 7—8 7—15, 7—16 (Revised Aug. 92)

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MELROE COMPANY

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SERVICE MANUAL REVISION

750—008
Revision Number

December 1992
Date

AFFECTING:

Product BOBCAT LOADER

Model 753

Manual No. 6720326 (8-90)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
_____	☐

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TAKE OUT	PUT IN
FOREWARD iii	FOREWORD(Rev. Dec. 92) iii (Rev. Dec. 92)
1—1 (Rev. Jan. 92), 1—2 2—7 (Rev. Mar. 91), 2—8	1—1 (Rev. Dec. 92), 1—2 2—7 (Rev. Dec. 92), 2—8
	HYDRAULIC/HYDROSTATIC FLOW CHART Model 753 (S/N 19227 & Above) P/N 6722407 (Printed Dec. 92)

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750—009
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30 September 1993
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SERVICE MANUAL REVISION

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Take out the pages shown and put in the revised pages shown below:

TAKE OUT	PUT IN
MAINTENANCE SAFETY	MAINTENANCE SAFETY (Revised Sept. 93)
1—5b, 1—6	1—5b, 1—6 (Revised Sept. 93)
1—15, 1—16	1—15 (Revised Sept. 93), 1—16
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2—11 thru 2—27	2—11 thru 2—25 (Revised Sept. 93)
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Section 4, Content Page	Section 4, Content Page (Revised Sept. 93)
Section 4	Section 4 (Revised Sept. 93)
Section 5, Content Page	Section 5, Content Page (Revised Sept. 93)
5—1, 5—2	5—1 (Revised Sept. 93), 5—2 (Revised Sept. 93)
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Section 6, Content Page	Section 6, Content Page (Revised Sept. 93)
Section 6	Section 6 (Revised Sept. 93)
Section 7, Content Page	Section 7, Content Page (Revised Sept. 93)
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29 November 1993
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SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 753 & 753H

Manual No. 6720326 (8-90)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐
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HYDRAULIC/HYDROSTATIC FLOW CHART
Model 753 (S/N 19227 & Above)
P/N 6722407 (Printed Dec. 92)

PUT IN

HYDRAULIC/HYDROSTATIC FLOW CHART
Model 753 (S/N 19227 & Above)
P/N 6722407 (Printed Nov. 93)

HYDRAULIC/HYDROSTATIC FLOW CHART
Model 753H (S/N 511011001 & Above)
P/N 6722833 (Printed Nov. 93)

OPERATOR CAB WIRING DIAGRAM (P/N 6722827)
Model 753 (S/N 511525001 Thru 511525540)
Model 753H (S/N 511011001 Thru 511011006)
(Printed November 1993) 1 of 4 Pages

ENGINE WIRING DIAGRAM (P/N 6722827)
Model 753 (S/N 511525001 Thru 511525540)
Model 753H (S/N 511011001 Thru 511011006)
(Printed November 1993) 2 of 4 Pages

AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6722827)
Model 753 (S/N 511350001 Thru 511350882)
Model 753 (S/N 511525001 Thru 511525540)
Model 753H (S/N 511011001 Thru 511011006)
(Printed November 1993) 3 of 4 Pages

HIGH FLOW WIRING DIAGRAM (P/N 6722827)
Model 753H (S/N 511011001 Thru 511011006)
(Printed November 1993) 4 of 4 Pages

OPERATOR CAB WIRING DIAGRAM (P/N 6722831)
Model 753 (S/N 511350001 Thru 511350882)
(Printed November 1993) 1 of 2 Pages

ENGINE WIRING DIAGRAM (P/N 6722831)
Model 753 (S/N 511350001 Thru 511350882)
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750—011
Revision Number

28 January 1994
Date

SERVICE MANUAL REVISION

AFFECTING:

Product BOBCAT LOADER

Model 753 & 753H

Manual No. 6720326 (8-90)

ROUTE TO ATTENTION

PARTS MANAGER	☐
SERVICE MANAGER	☑
SALES MANAGER	☐

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

The following pages are a revision to the 750 Series Service Manual P/N 6720326 (8-90).
Take out the pages shown and put in the revised pages as follows:

TAKE OUT	PUT IN
Section 2, Content Page (Revised Sept. 93)	Section 2, Content Page (Revised Jan. 94)
	2—8A thru 2—8F (Added Jan. 94) 2—10A (Added Jan. 94)
Section 8, Content Page	Section 8, Content Page (Revised Jan. 94)
8—3 (Revised June 91), 8—4 (Revised Mar. 91) 8—5 (Revised June 91), 8—6 8—7 thru 8—10	8—3 (Revised Jan. 94), 8—4 (Revised Jan. 94) 8—5 (Revised Jan. 94), 8—6 (Revised Jan. 94) 8—7 thru 8—10 (Revised Jan 94) 8—11 (Added Jan. 94), 8—12 (Added Jan. 94)

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SERVICE MANUAL REVISION

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Product BOBCAT LOADER

Model 753 & 753H

Manual No. 6720326 (8-90)

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SERVICE MANAGER	☑
SALES MANAGER	☐

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The following pages are a revision to the 750 Series Service Manual **P/N 6720326 (8-90).**

Insert the following pages in the Electrical Section of your Service Manual.

These electrical charts will update your Service Manual for all 753 & 753H loaders up to the introduction of BICS™.

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SERVICE MANAGER	☒
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AFFECTING:

Product BOBCAT LOADER

Model 750 Series

Manual No. 6720326 (8–90)

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Section 3	Section 3 (Revised Oct. 95)
Section 4	Section 4 (Revised Oct. 95)
Section 5	Section 5 (Revised Oct. 95)
Section 7	Section 7 (Revised Oct. 95)

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