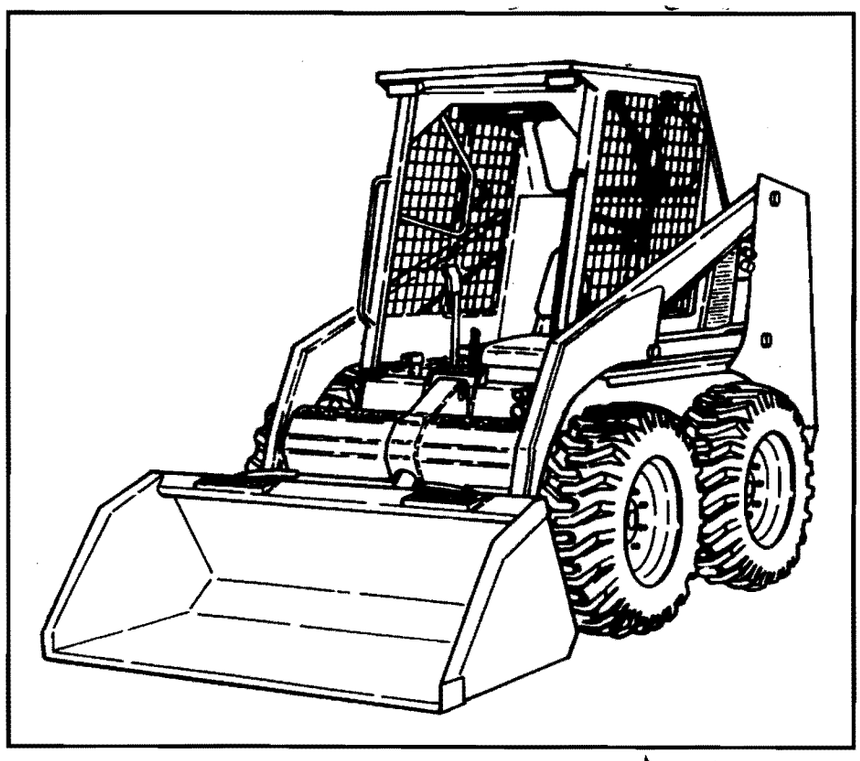
# 753

# 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.**

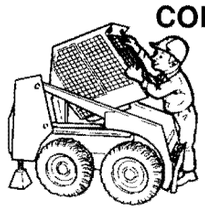
**CORRECT**



B–10731

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

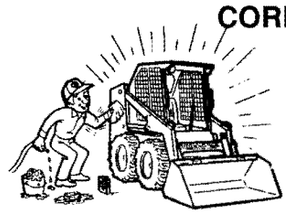
**CORRECT**



B–12365

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

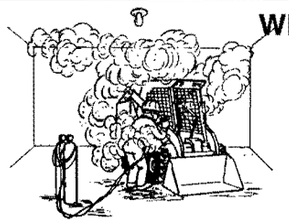
**CORRECT**



B–7469

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

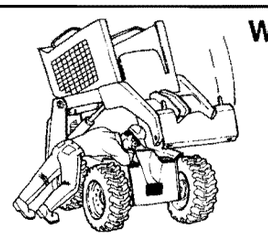
**WRONG**



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.**

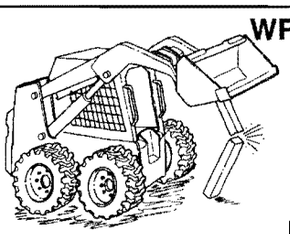
**WRONG**



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.**

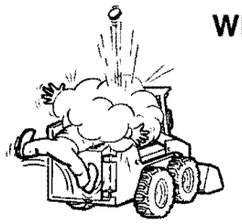
**WRONG**



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.**

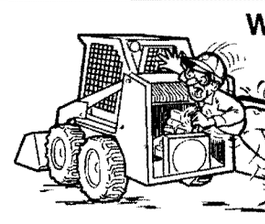
**WRONG**



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



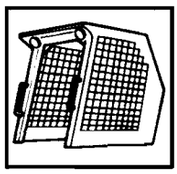
Bobcat®

# *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.



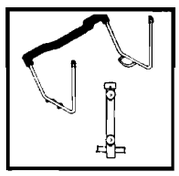
2. Check that ROPS mounting hardware is tightened and is Melroe approved.



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



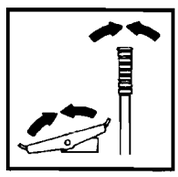
4. The seat bar and pedal interlocks must be correctly adjusted, clean and lubricated.



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.



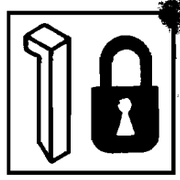
8. The parking brake must function correctly.



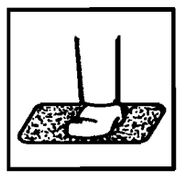

9. Enclosure door latches must open and close freely.



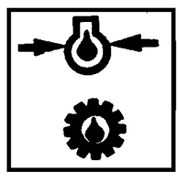
10. Bob–Tach wedges and linkages must function correctly and be in good condition.



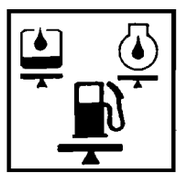
11. Safety treads must in good condition.



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



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



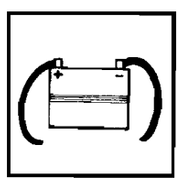
14. Inspect for fuel, oil or hydraulic fluid leaks.



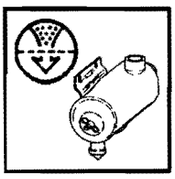
15. Lubricate the loader.



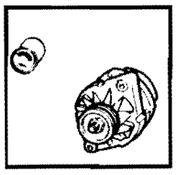
16. Check the condition of the battery and cables.



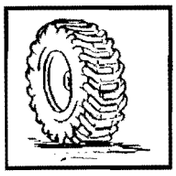
17. Inspect the air cleaner for damage or leaks. Check the condition of the element.



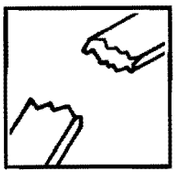
18. Check the electrical charging system.



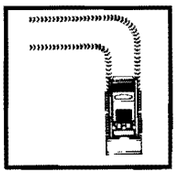
19. Check tires for wear and pressure.



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.



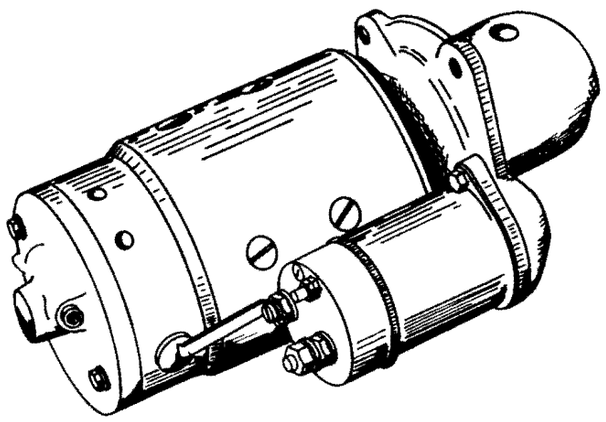

Recommend to the owner that all necessary corrections be made before the machine is returned to service.



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**Both new and rebuilt starters are available from Melroe.**



**Available at your local Bobcat Dealer.**

MELROE COMPANY

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## SAFETY INSTRUCTIONS

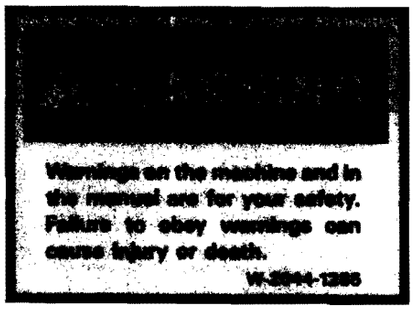
**⚠ WARNING**

**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.

## 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].

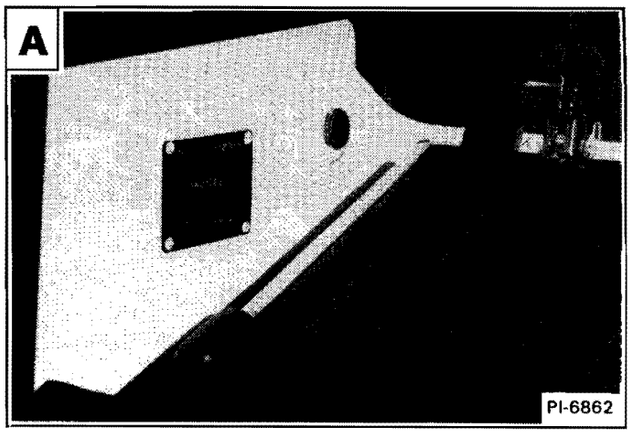
Explanation of loader Serial Number:

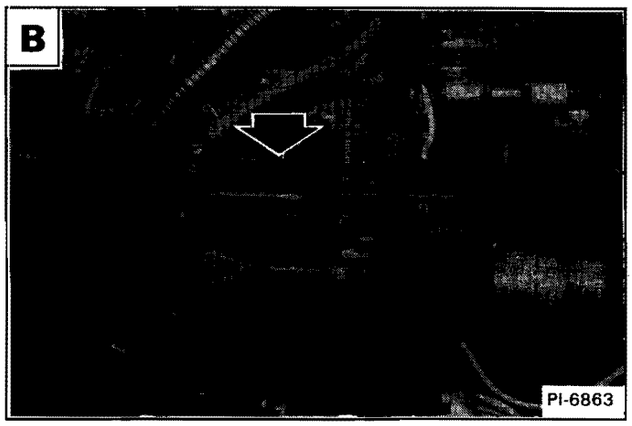
XXXXX XXXX

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

### ENGINE SERIAL NUMBER LOCATION

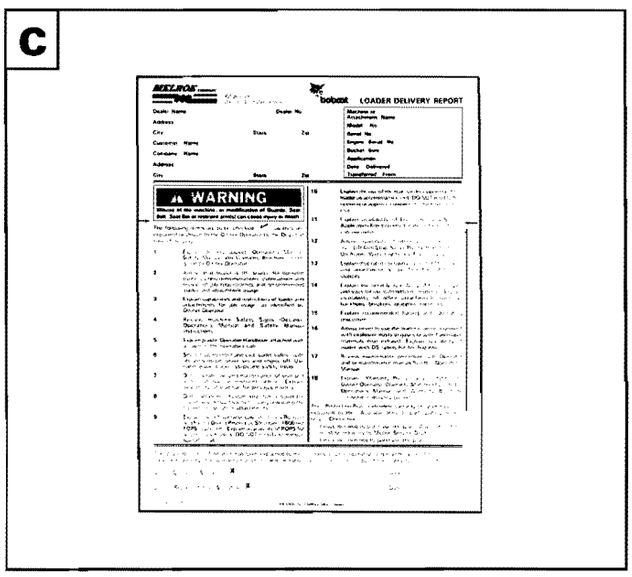
The serial number is near the fuel injection pump on the engine block [B].



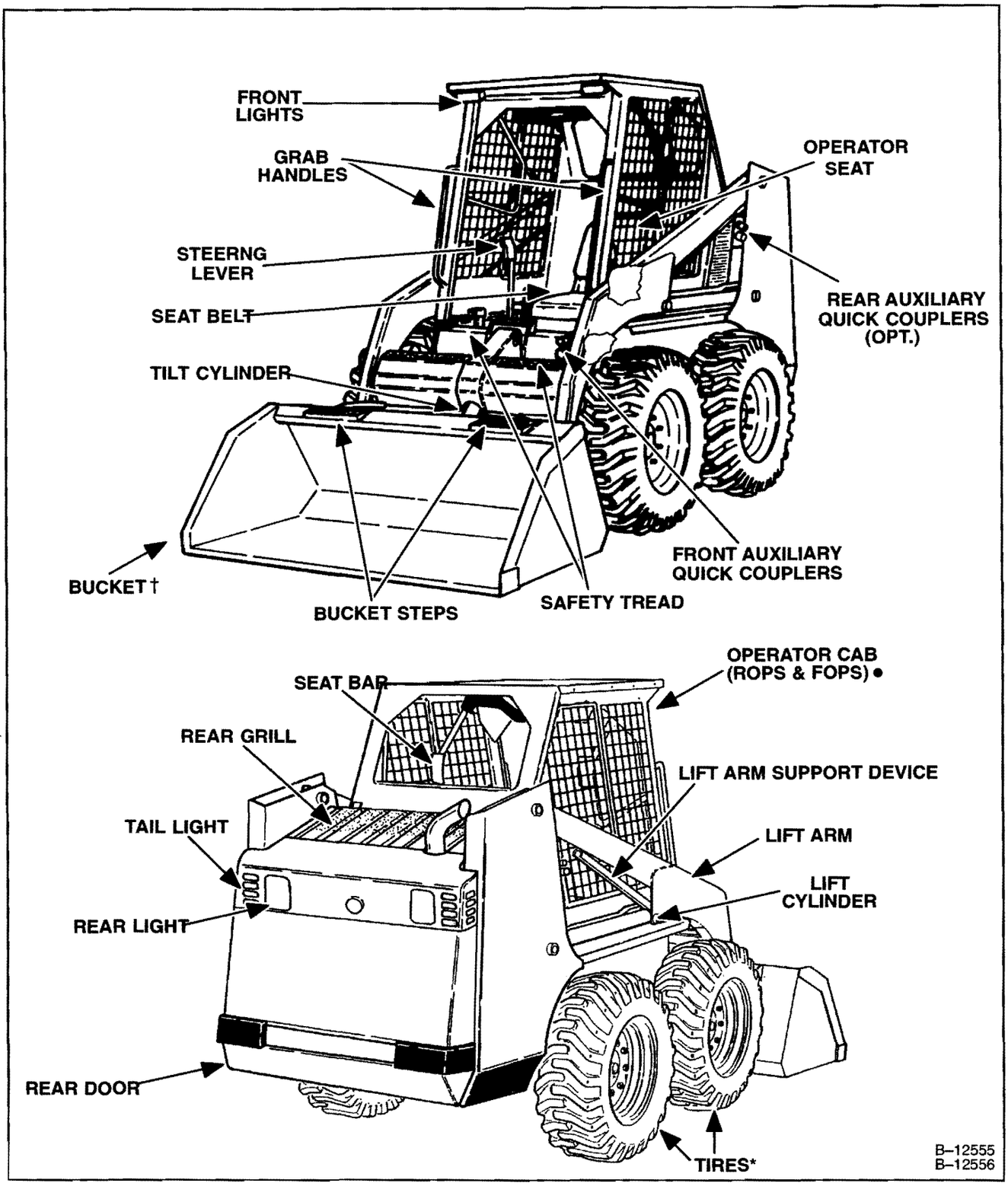




## DELIVERY REPORT

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].



## V. BOBCAT LOADER IDENTIFICATION

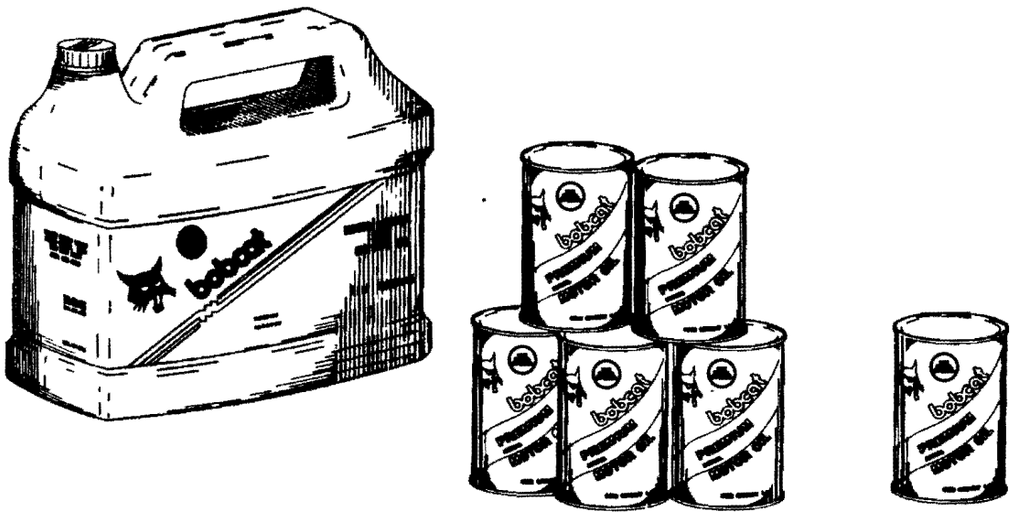



* TIRES – Flotation tires are shown. The Bobcat loader is base–equipped with standard tires.

† 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.

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




**Available at your local Bobcat Dealer.**

MELROE COMPANY
A BUSINESS UNIT OF [illegible] EQUIPMENT COMPANY

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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**

**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**

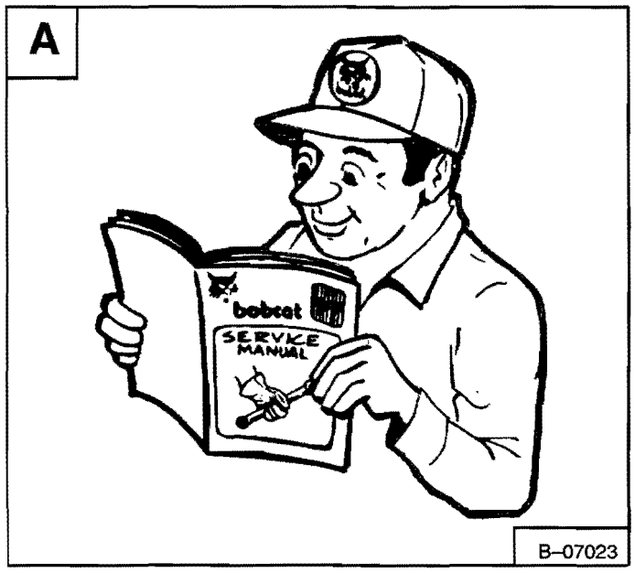
| SERVICE SCHEDULE | | HOURS | | | | |
|---|---|---|---|---|---|---|
| **ITEM** | **SERVICE REQUIRED** | 8–10 | 50 | 100 | 250 | ■ 1000 |
| Engine Oil | Check the oil level & add oil as needed. | | | | | |
| Air Cleaner | Check display. Service only when required. | | | | | |
| Engine Cooling System | 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.**

**⚠ 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.

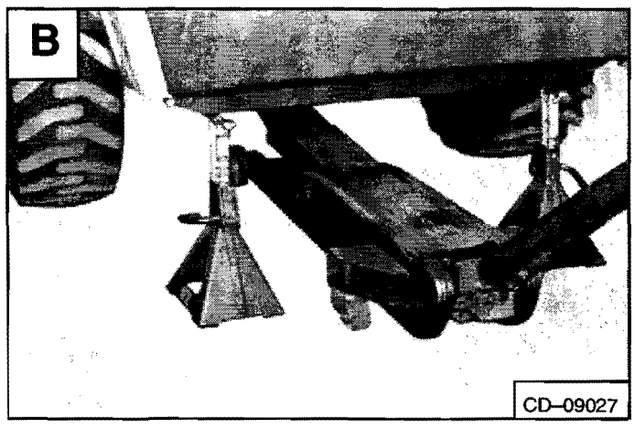
**⚠ WARNING**

**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]**.

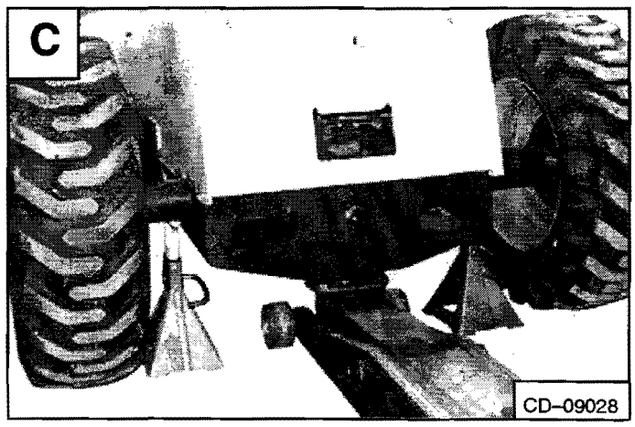
Lift the rear of the loader and install jackstands **[B]**.




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.**



## TRANSPORTING THE LOADER

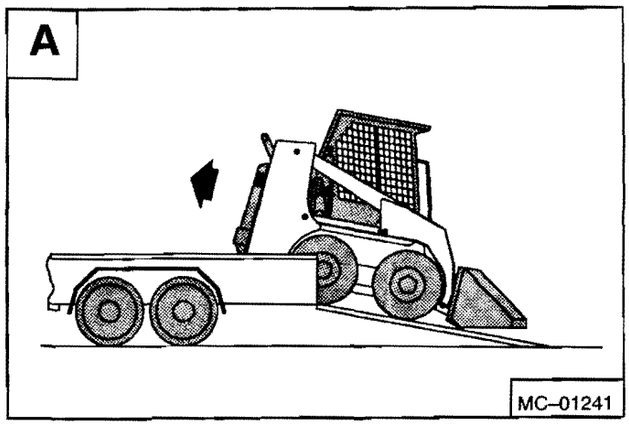
**Procedure**

**⚠ 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.**

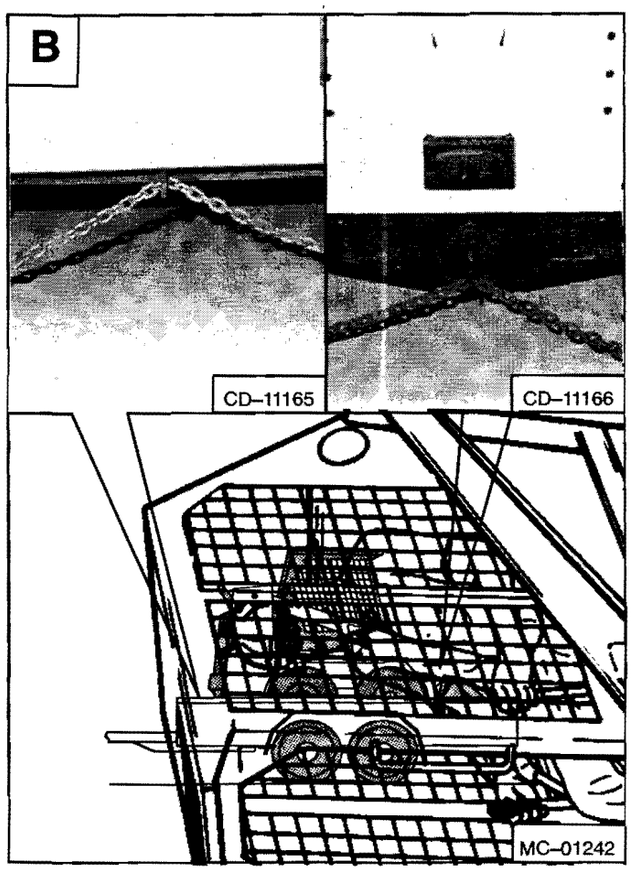
**W–2058–0494**

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**

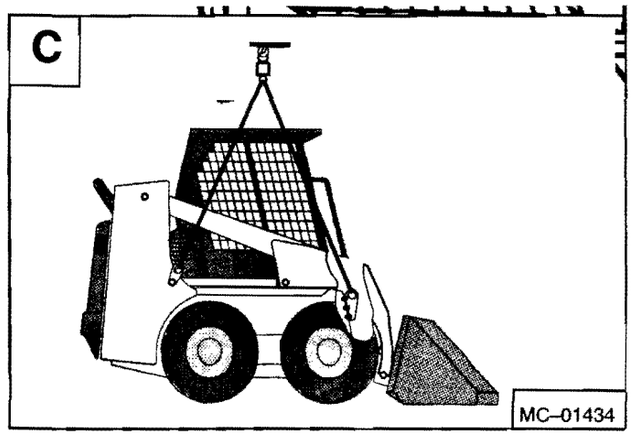
**AVOID INJURY OR DEATH**

- **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]**.



## LIFT ARM SUPPORT DEVICE

### To Engage Lift Arm Support Device

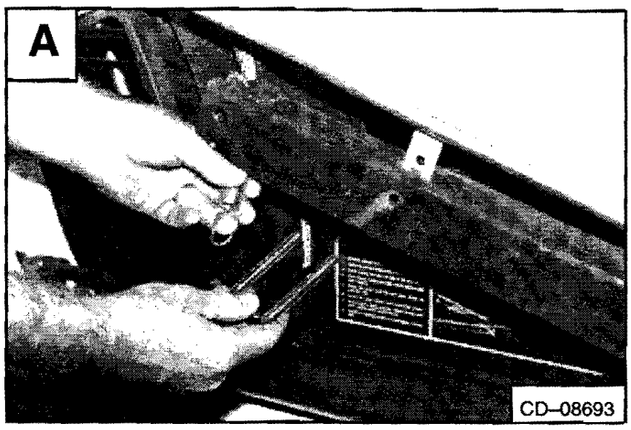
**⚠ WARNING**

**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]**.



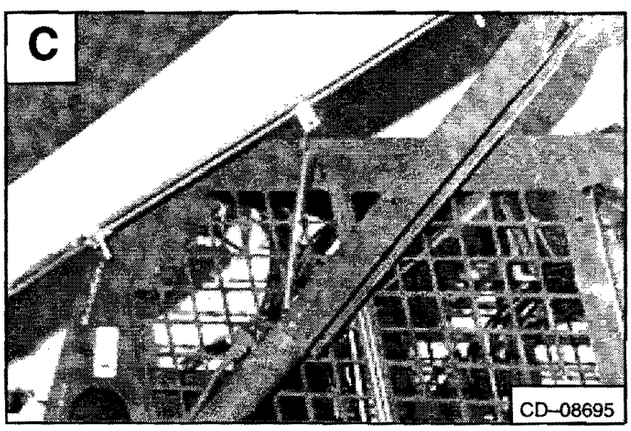

Lower the lift arms slowly until the support device is held between the lift arm and the lift cylinder. Stop the engine. Raise the seat bar and unfasten the seat belt.

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]**.

## 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]**.

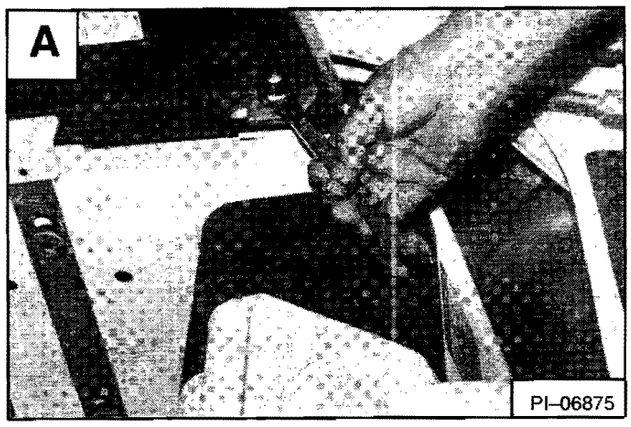
Lift on the grab handle and bottom of the operator cab slowly until the cab latching mechanism engages and the cab is all the way up **[C]**.

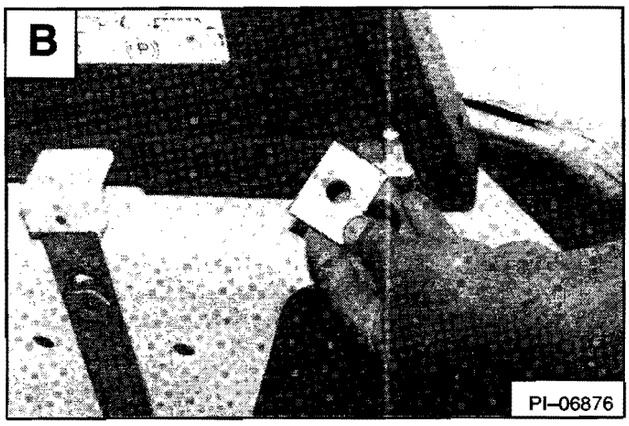
### Lowering the Operator Cab

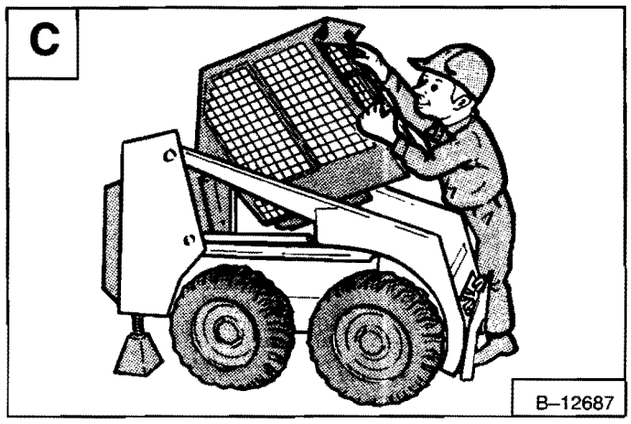
Pull down on the bottom of the operator cab until it is stopped by the latching mechanism. Release the latching mechanism and pull the cab all the way down **[D]**.

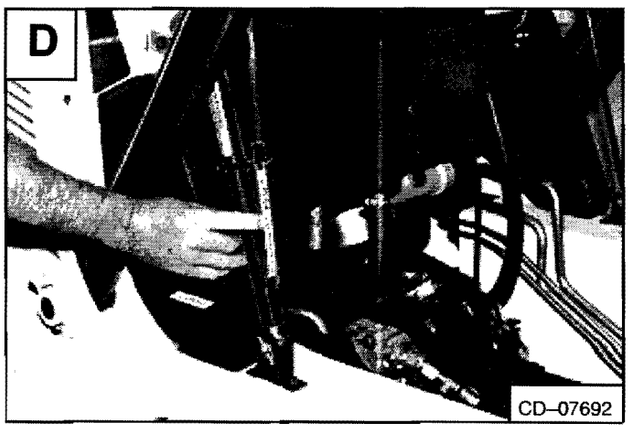
Install the nut and plate (both sides) **[B]**.

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



## 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**

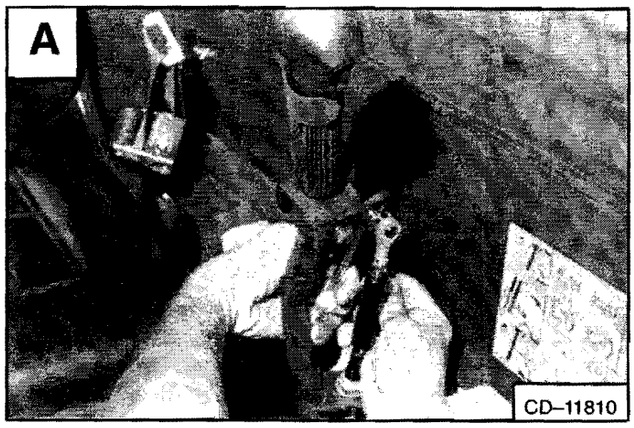
**Accidental movement of the loader, the lift arms or the attachment can occur if the lift or tilt control handles are not positioned correctly before lifting or lowering the cab.**

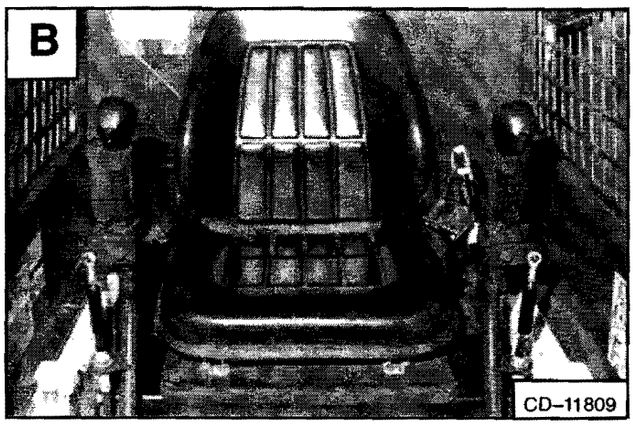
**Move control linkage to top hole in handles as shown, so cab does not hit handles when being lifted or lowered.**

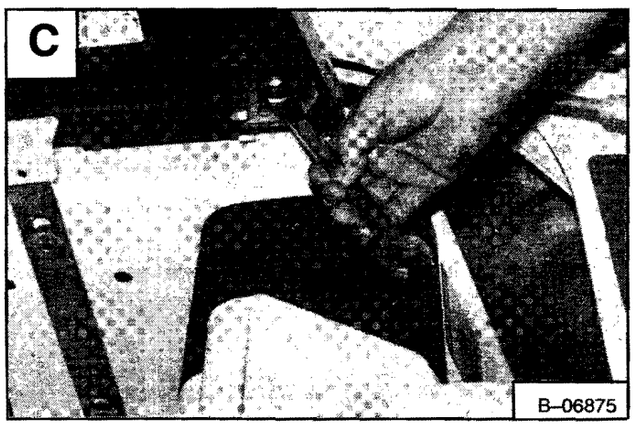
**W–2157–0594**

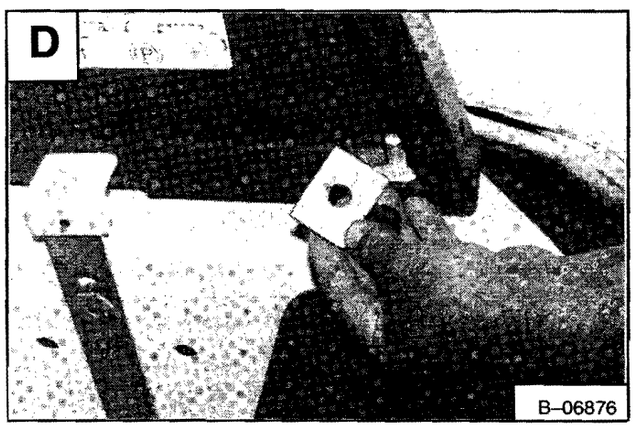
Loosen the nut (both sides) at the front corner of the operator cab **[C]**.

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

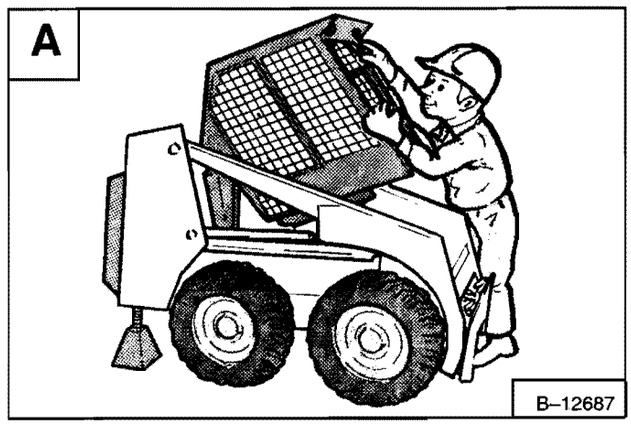


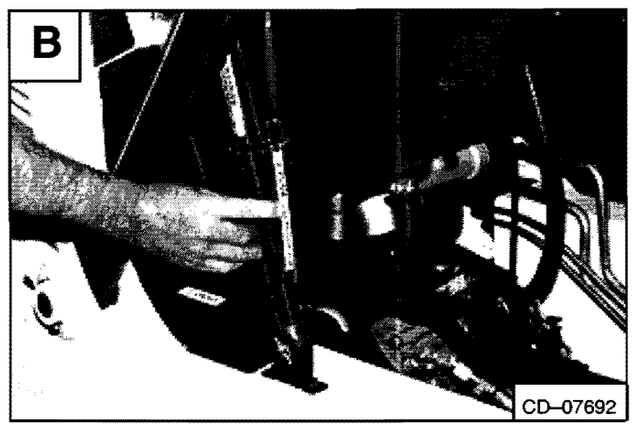



Lift on the grab handle and bottom of the loader cab slowly until the cab latching mechanism engages and the cab is all the way up **[A]**.




**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]**.



## 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

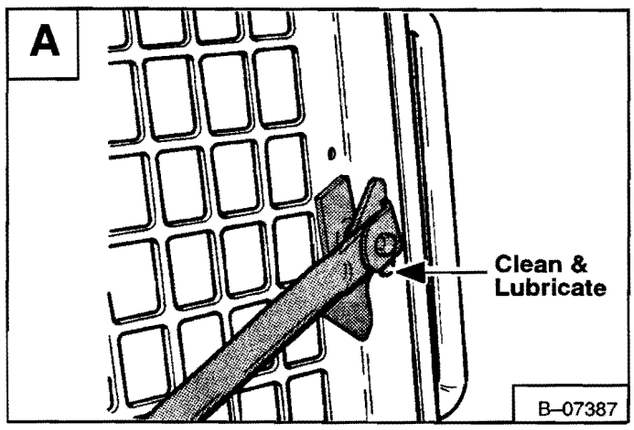
See the Service Schedule (Page 1–1) for the correct service interval.

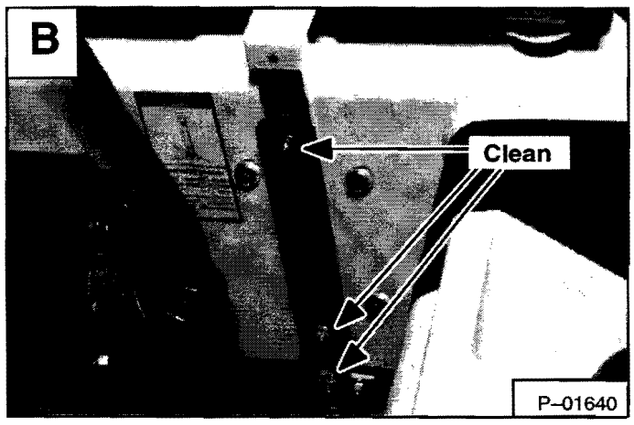
Clean any debris or dirt from the moving parts **[A]** & **[B]**.

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.

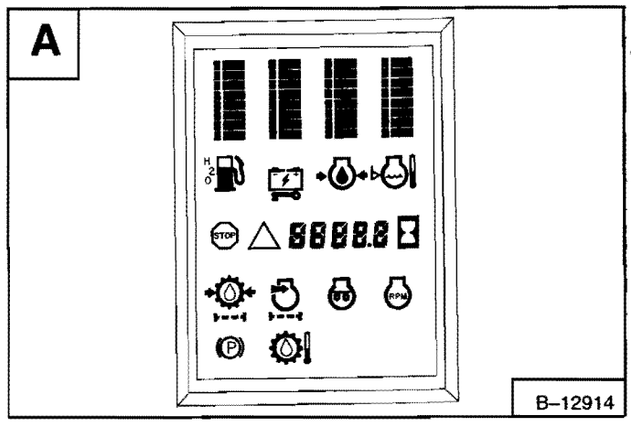


## AIR CLEANER

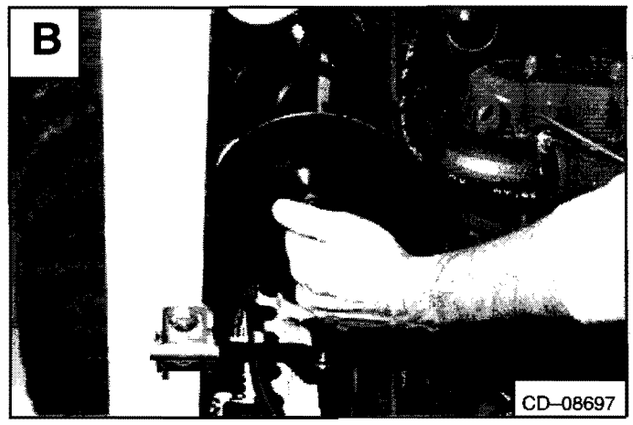
### Replacement of the Filter Element

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]**.

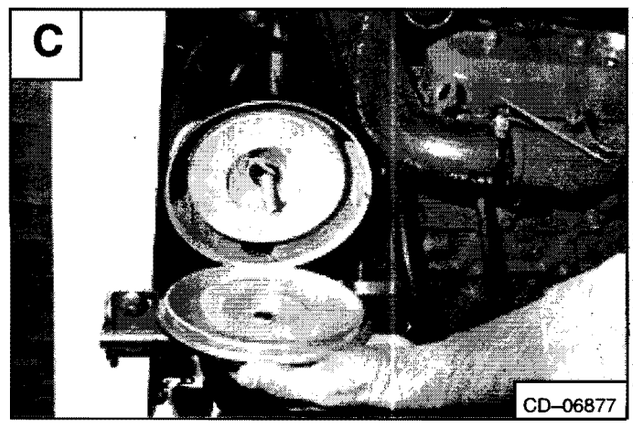



Service the air cleaner as follows:

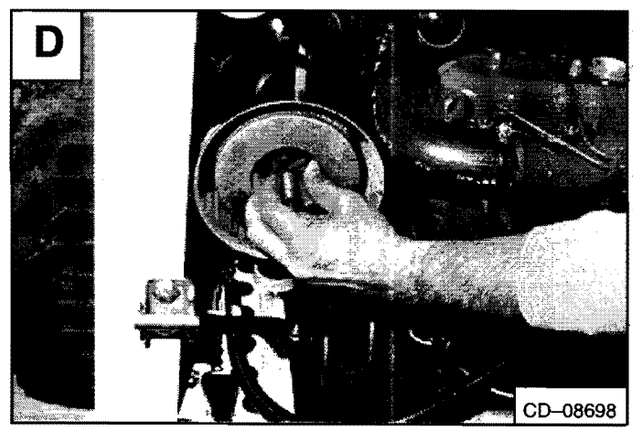
Remove the dust cover wing nut **[B]**.




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




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



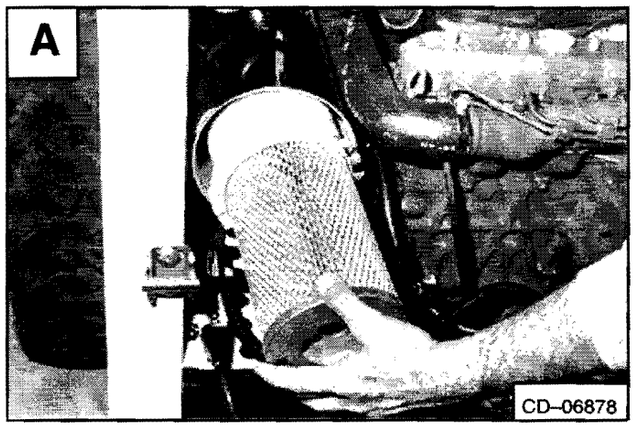
**AIR CLEANER (Cont'd)**

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

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

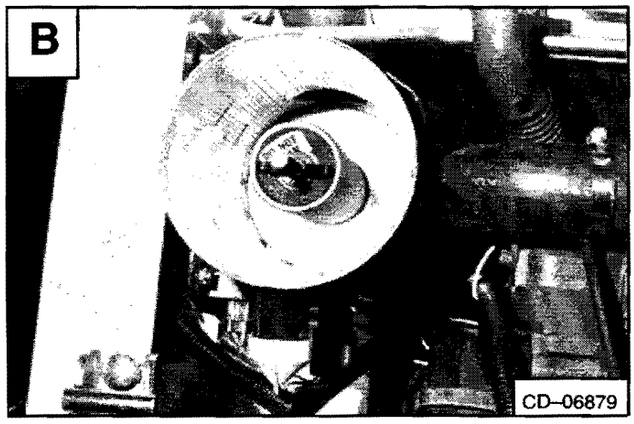
Install the new filter element and tighten the wing nut. Install the dust cover and tighten the wing nut.

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.



## 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.**

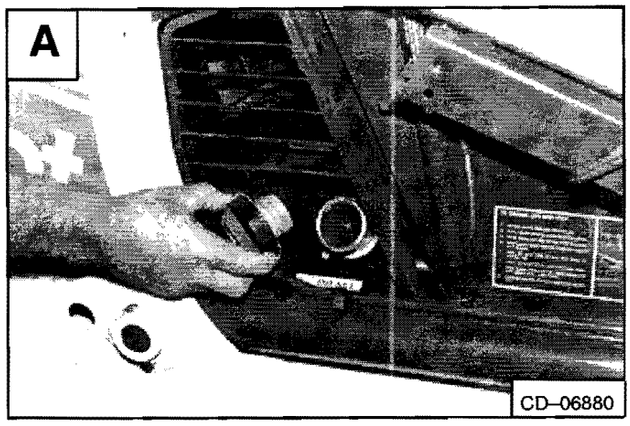
**W–2103–1285**

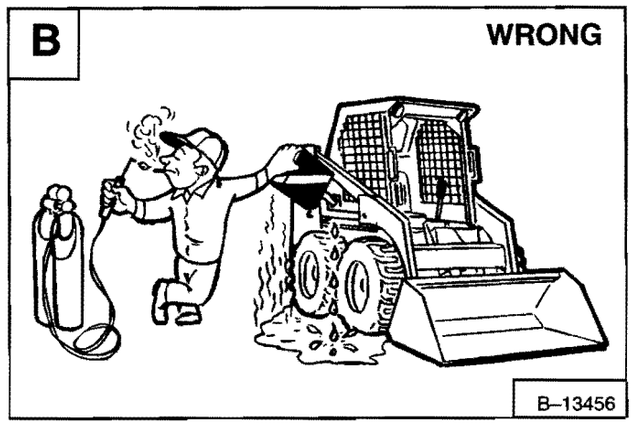
See the Service Schedule (Page 1–1) for the service interval when to remove the water from the fuel filter.

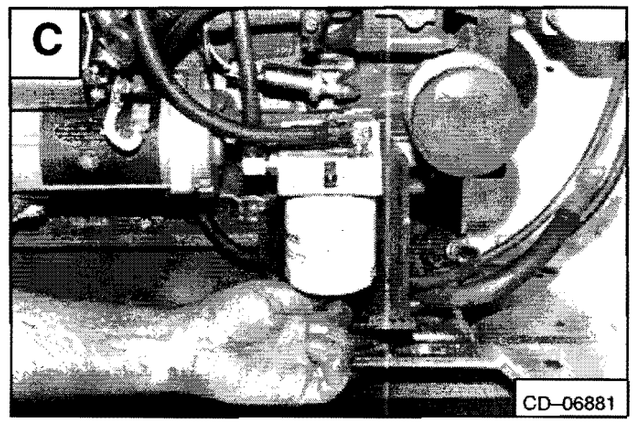
Loosen the drain at the bottom of the filter element to drain the water from the filter **[C]**.

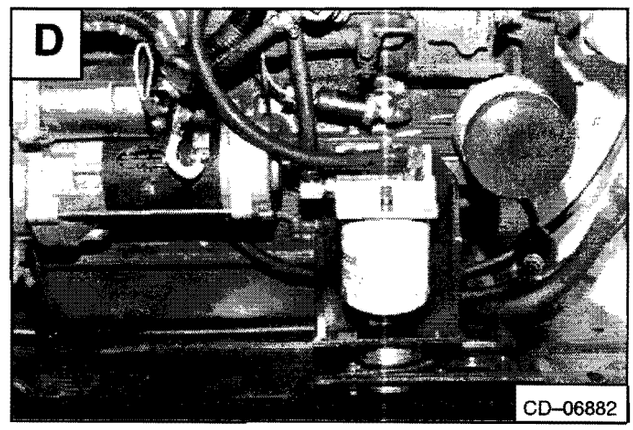
See the Service Schedule (Page 1–1) for the service interval when to replace the fuel filter.

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



**FUEL SYSTEM (Cont'd)**

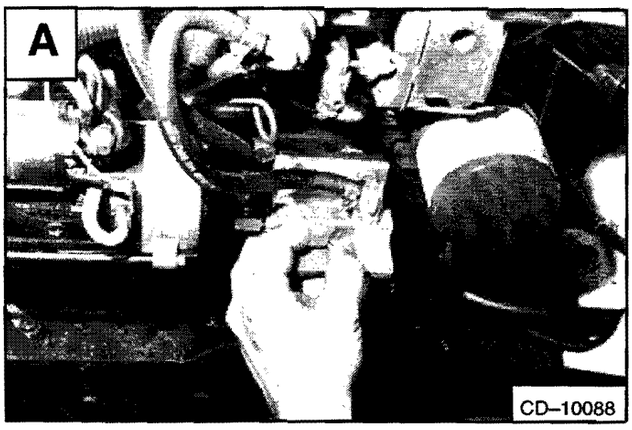
Clean the area around the filter housing. Put oil on the seal of the new filter element. Install the fuel filter.

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]**.

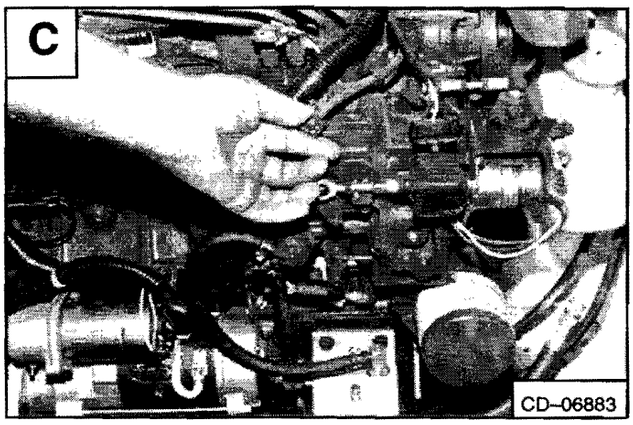



Open the vent on the fuel injection pump **[C]**.

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**

## ENGINE LUBRICATION SYSTEM

### Checking Engine Oil

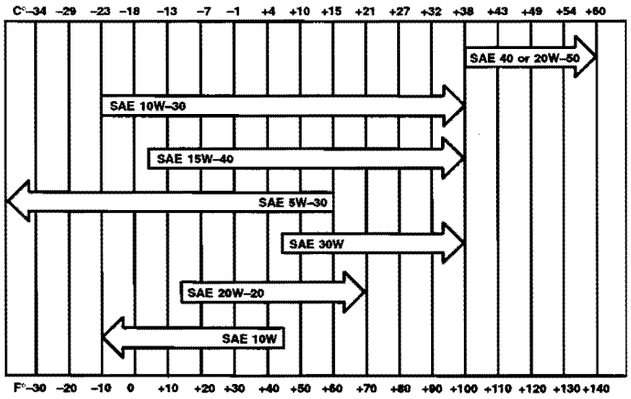
Check the oil level every day.

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)**

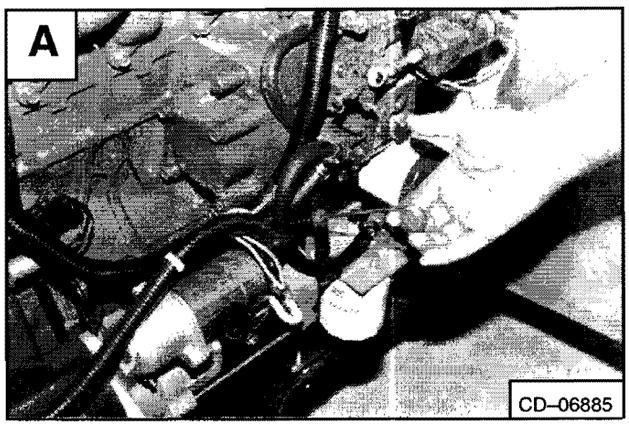


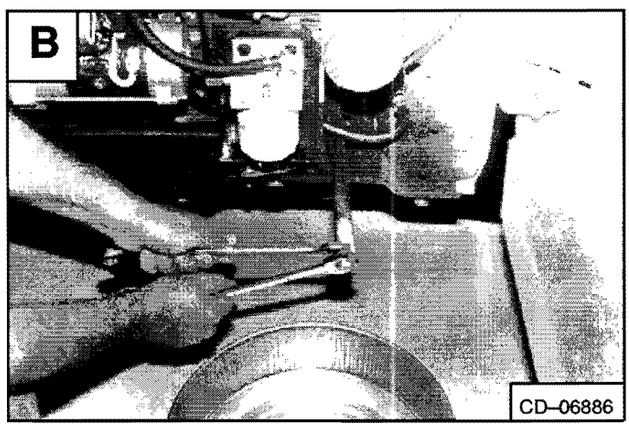

**TEMPERATURE RANGE ANTICIPATED BEFORE NEXT OIL CHANGE (DIESEL: USE API CLASSIFICATION CC, CD OR CE)**

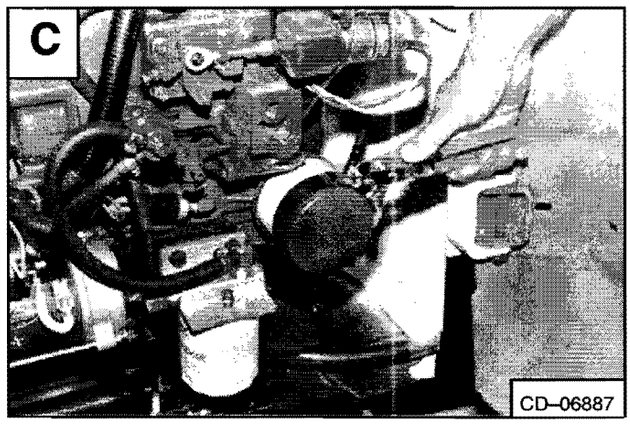
### Replacement of Oil and Filter

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

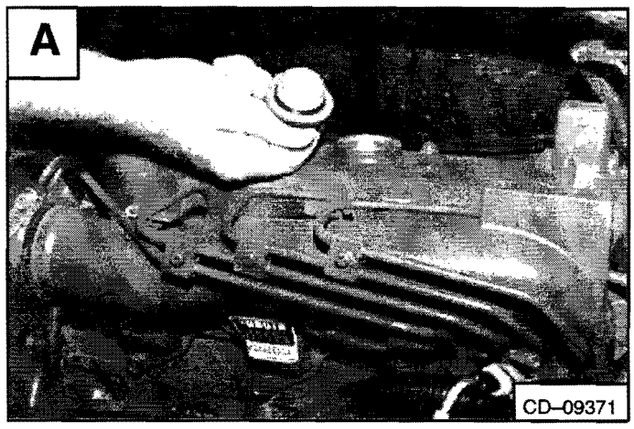
1. Run the engine until it is at operating temperature. Stop the engine.
2. Open the rear door. Remove the drain plug **[B]**. Drain the oil into a container.
3. Remove the oil filter **[C]**.
4. Clean the filter housing surface. Put clean oil on the new oil filter gasket. Install the filter and hand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



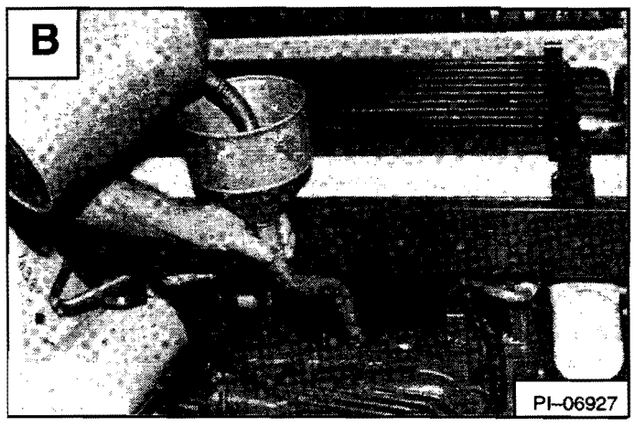



6. Remove the filler cap from the valve cover **[A]**.




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**

## 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]**.

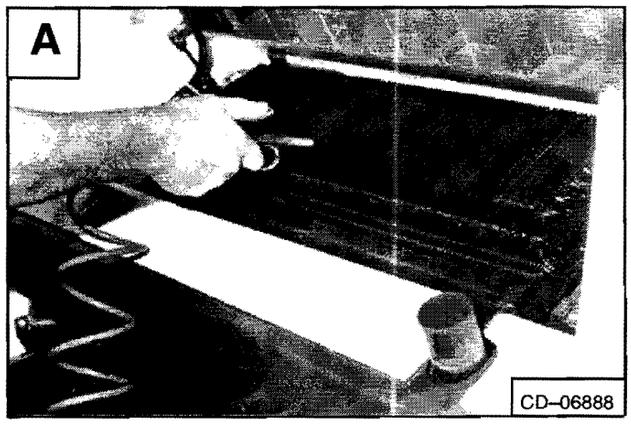
Check the cooling system for leaks.

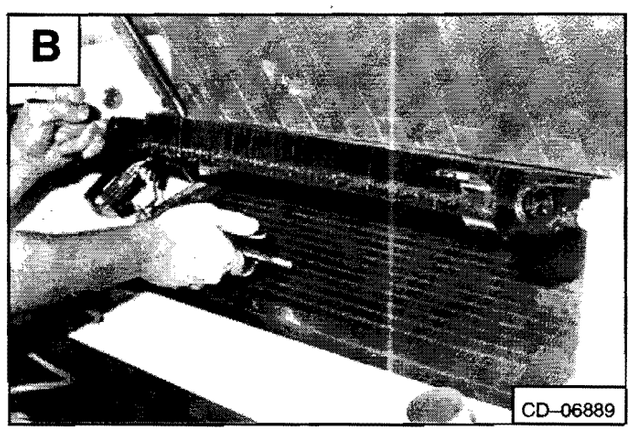
### Coolant Level

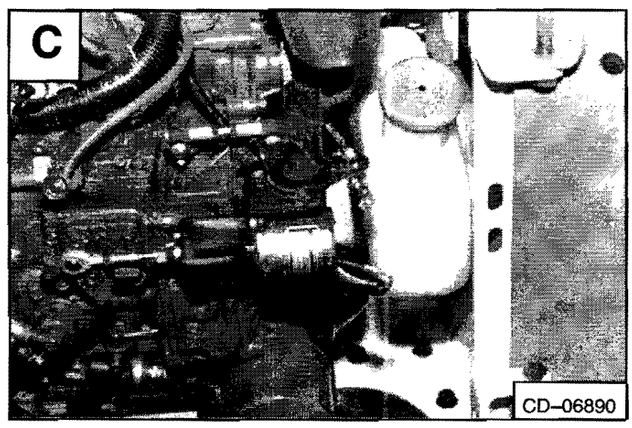
Open the rear door. Check the coolant level in the coolant recovery tank on the right side of the engine **[C]**.

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.



**Removing Coolant from the Cooling System**

**⚠ WARNING**

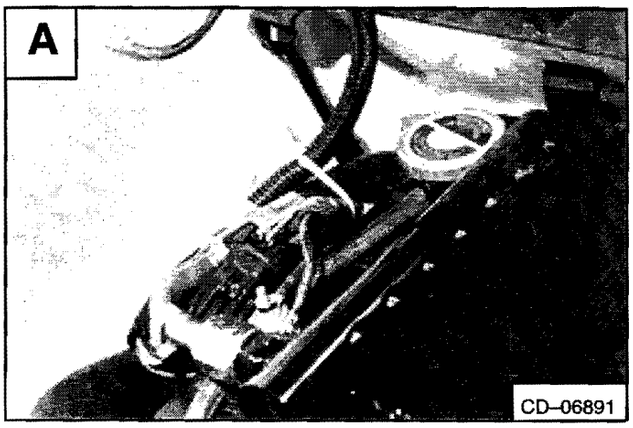
**Do not remove radiator cap when the engine is hot. You can be seriously burned.**

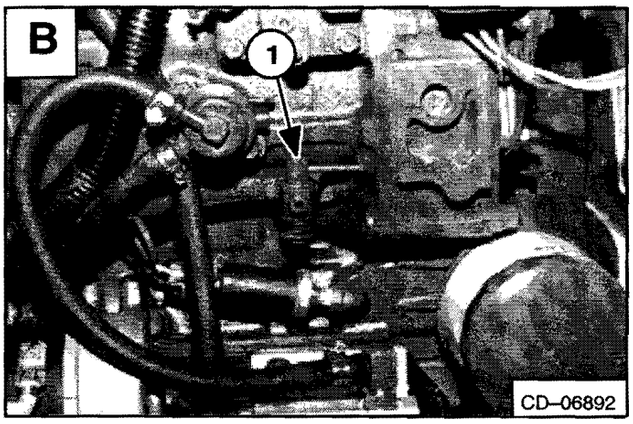
**W–2070–1285**

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.



## 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).

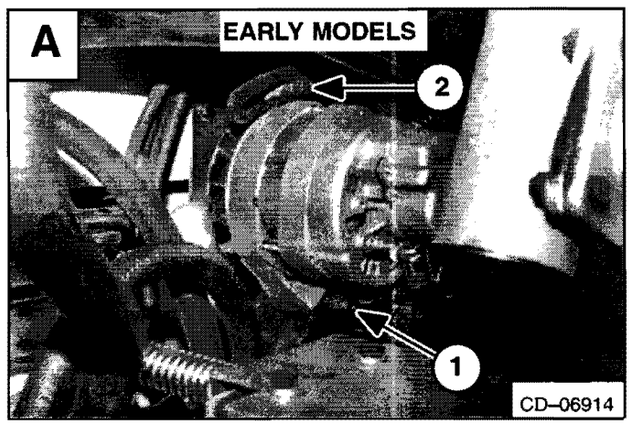
Loosen the alternator mounting bolt (Item 1) **[A]** & **[B]**.

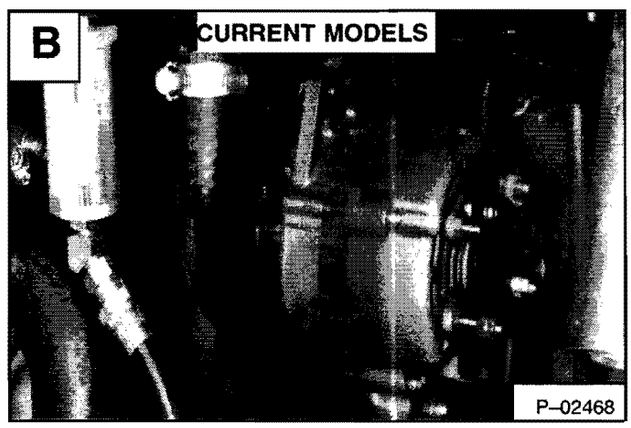
Loosen the adjusting bolt (Item 2) **[A]** & **[B]**.

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.



## 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.

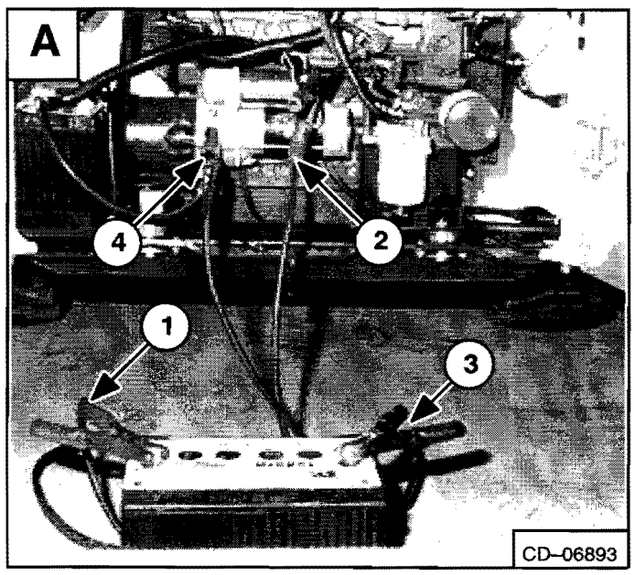
**⚠ WARNING**

**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**



## HYDRAULIC/HYDROSTATIC SYSTEM

### Checking and Adding Fluid

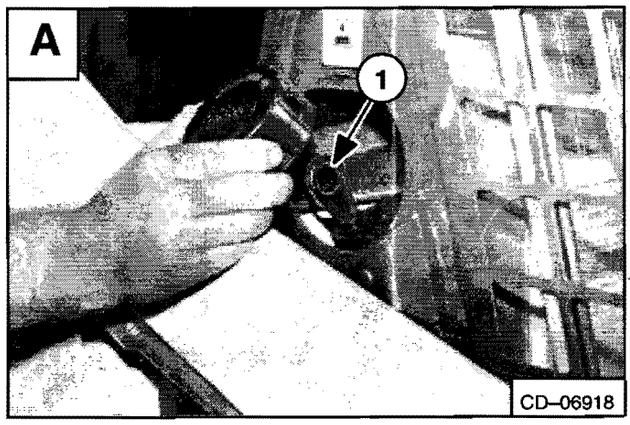
Use only recommended fluid in the hydraulic system (See Specifications, Section 8 for the correct fluid).

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.

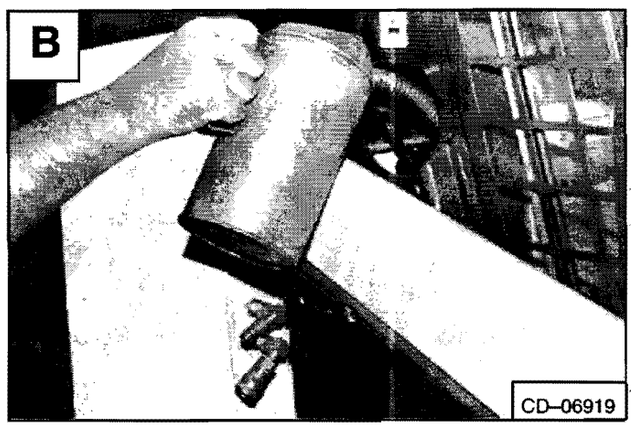
Remove the dipstick (Item 1) **[A]**.

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

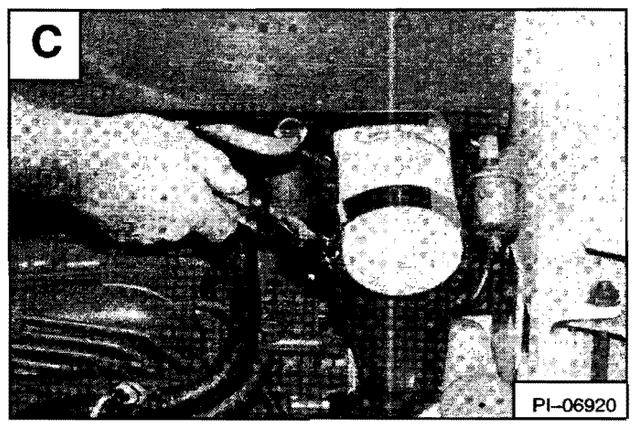
See the Service Schedule (Page 1–1) for the correct service interval.

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.

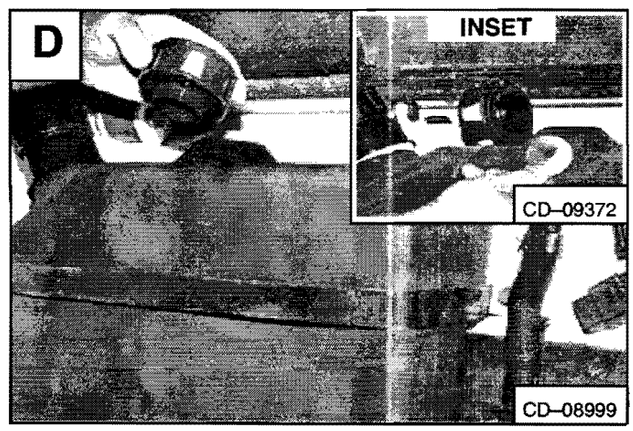



### Hydraulic Reservoir Breather Cap

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]**.



## 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**

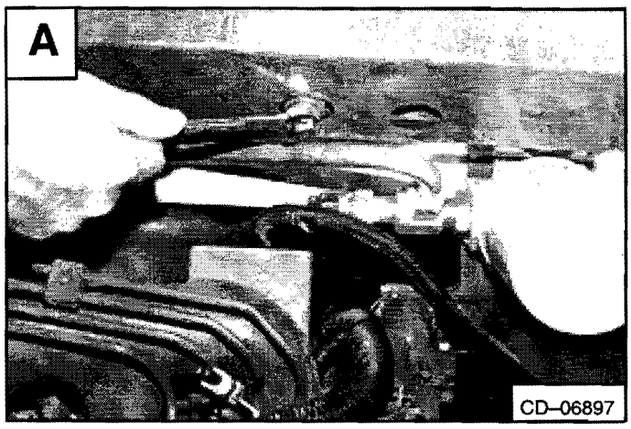
**When the engine is running during service, the steering levers must be in neutral and the parking brake engaged. Failure to do so can cause injury or death.**

**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**

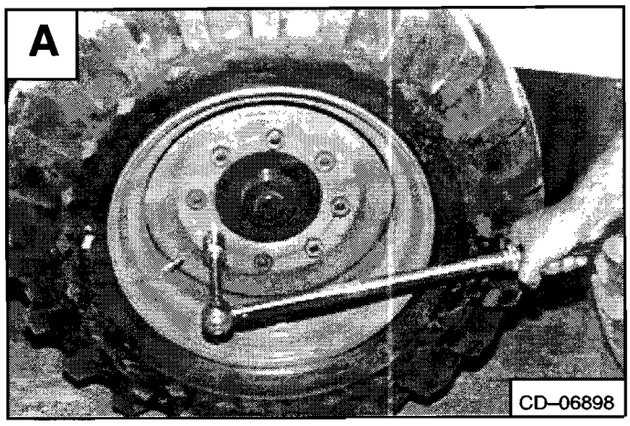
**Never use machine in atmosphere with explosive dust or gases or where exhaust can contact flammable material. Failure to obey warnings can cause injury or death.**

**W–2068–1285**

## TIRE MAINTENANCE

### Wheel Nuts

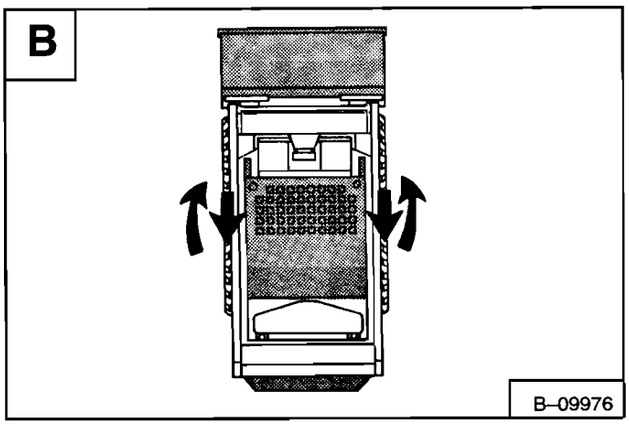
See the Service Schedule (Page 1–1) for the service interval to check the wheel nuts. The correct torque is 105–115 ft.–lbs. (142–156 Nm) **[A]**.




### 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**

## 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).

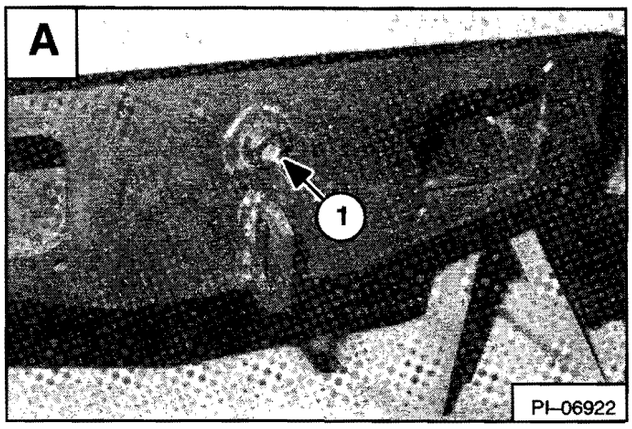
To check the chaincase oil level, use the following procedure:

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

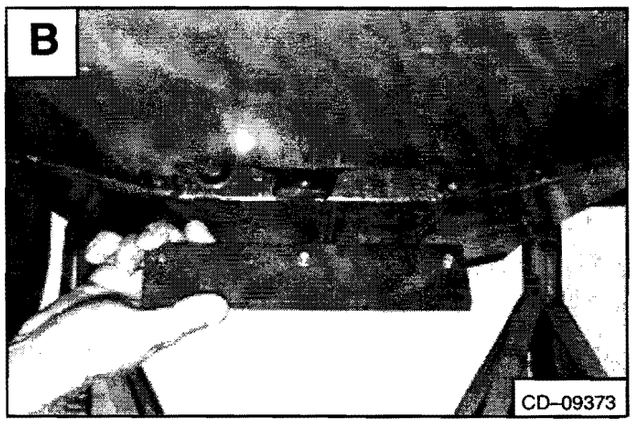
Remove the plug (Item 1) from the front of the chaincase housing **[A]**.

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

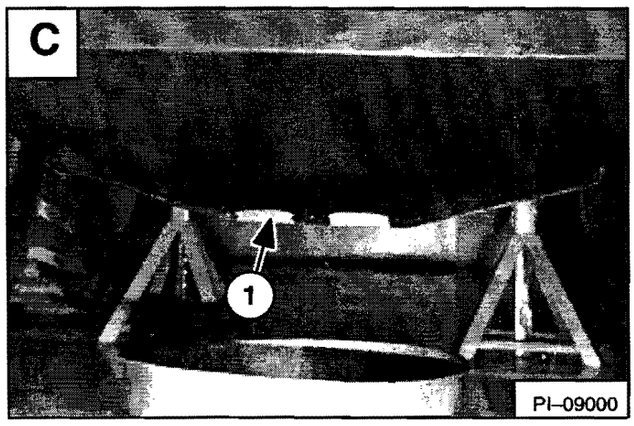
If the level is low, add oil through the check plug hole until the oil flows from the hole. Install and tighten the plug.




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

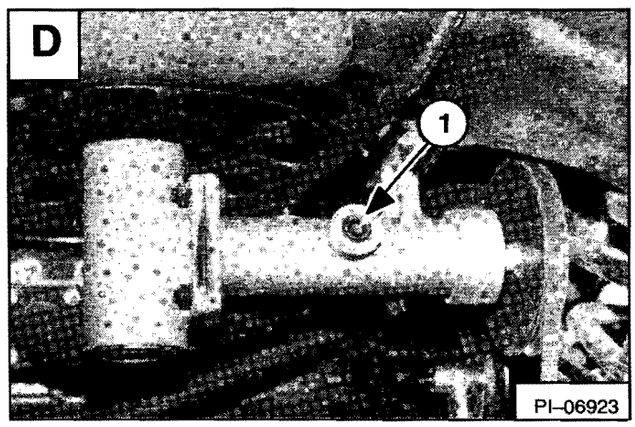
### Checking Grease Level

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.



## DRIVE BELT

### Adjustment

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

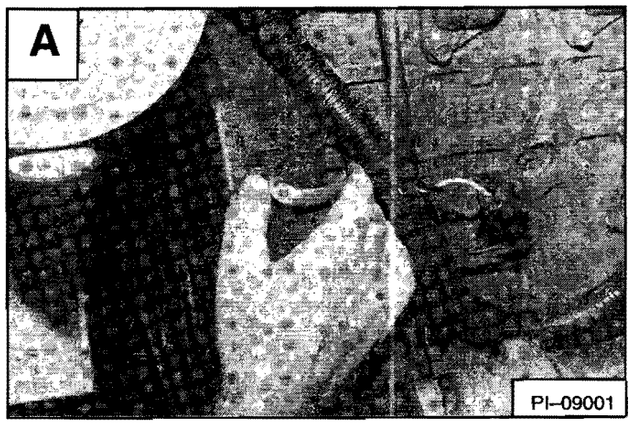
MEL–1405 – Bar
MEL–1406 – Spring Scale

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:

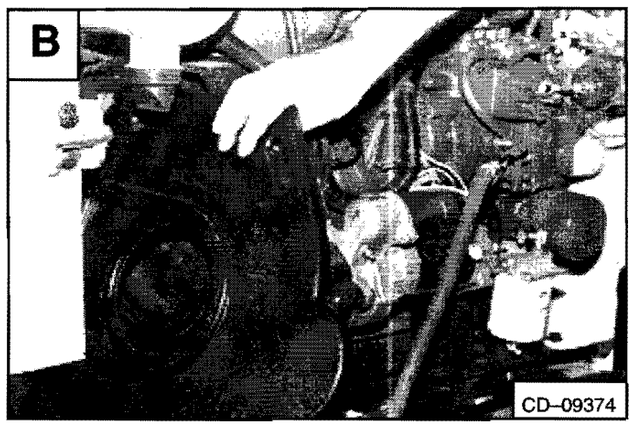
Stop the engine. Open the rear door.

Disconnect the negative (–) cable from the battery.

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

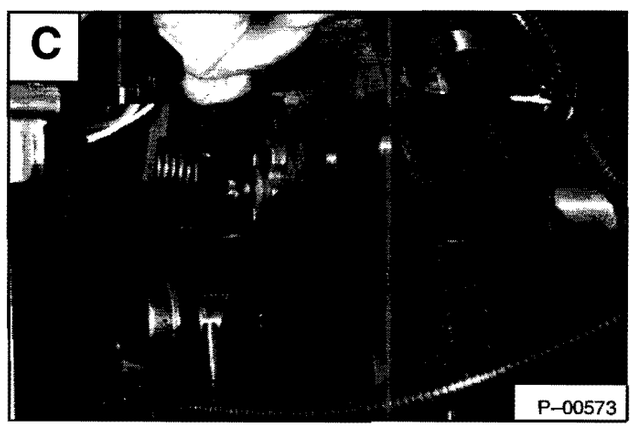



Remove the belt shield **[B]**.




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]**.



**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]**.

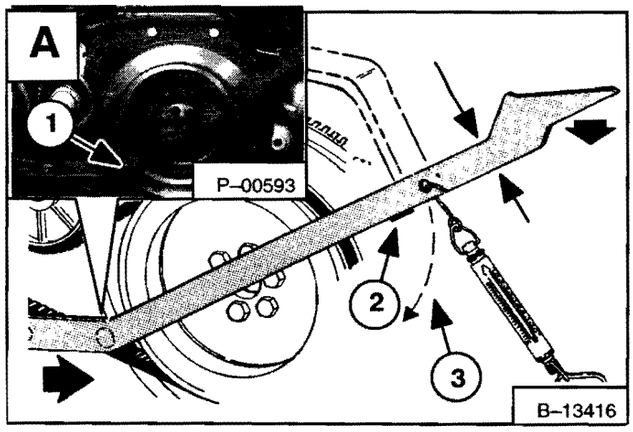
2. Make a mark (Item 2) on the cast flange just below the tool handle **[A]**.

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**

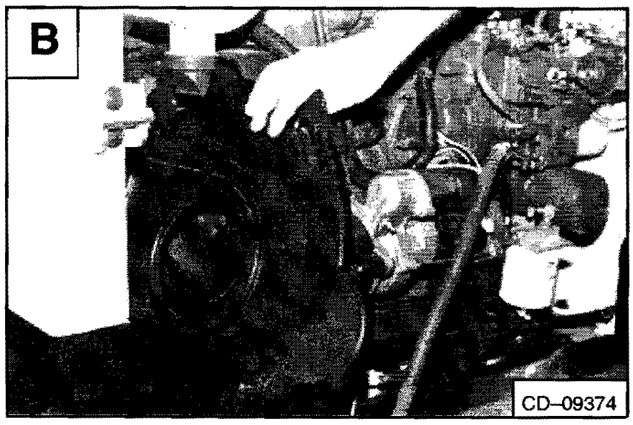
Stop the engine. Open the rear door.

Raise the operator cab (Page 1–5).

Disconnect the negative (–) cable from the battery.

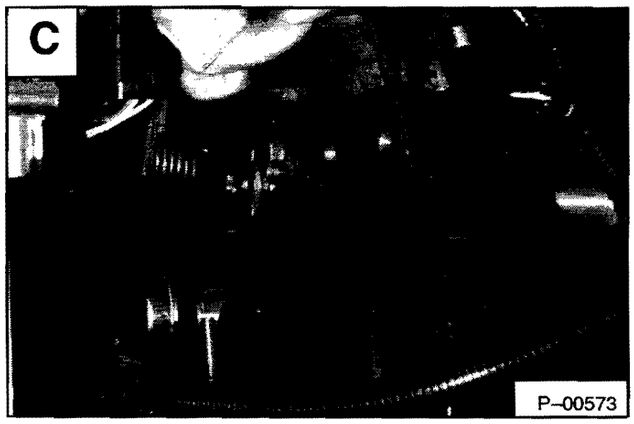
Remove the belt shield holddown clips.

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




Remove the fan drive belt.

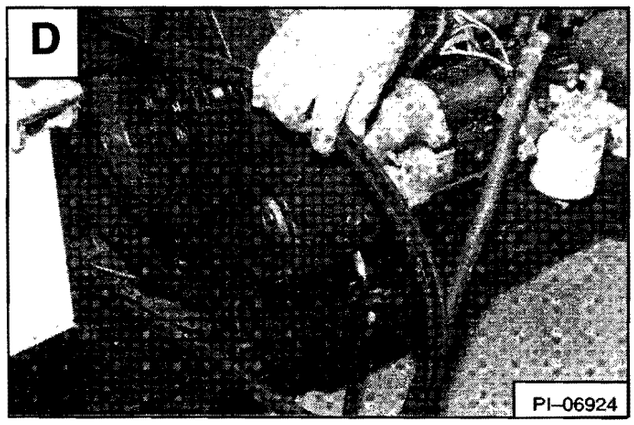
The pulley tensioner is located between the flywheel and pump pulley. Loosen and remove the bolt from the pulley tensioner **[C]**.




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.

## LUBRICATION OF THE LOADER

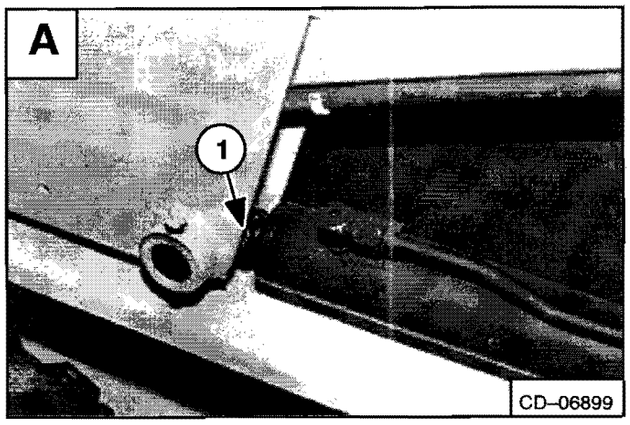
### Procedure

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

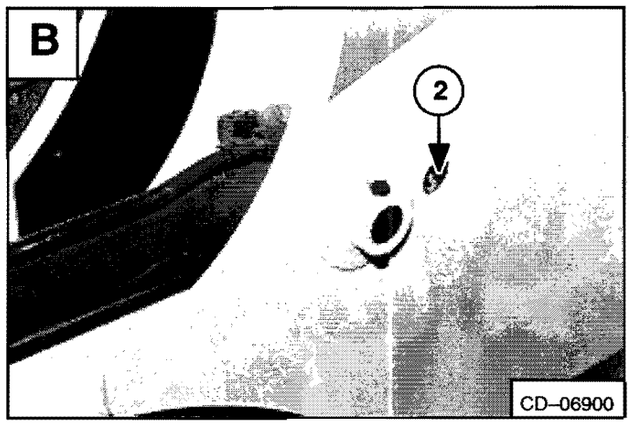
Always use a good quality lithium based multi–purpose grease when you lubricate the loader. Apply the lubricant until extra grease shows.

Lubricate the following locations on the loader:

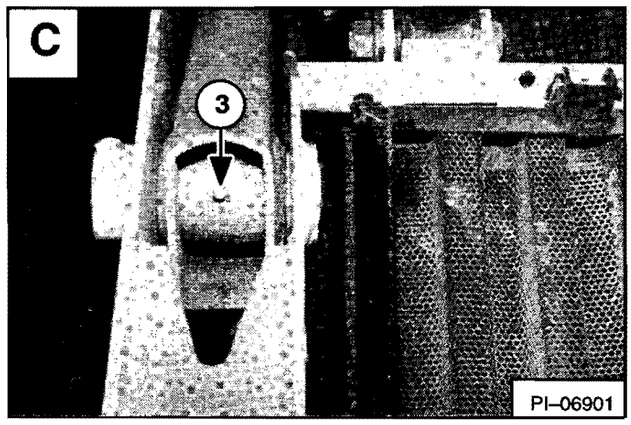
1. Rod End Lift Cylinder (both sides) **[A]**.



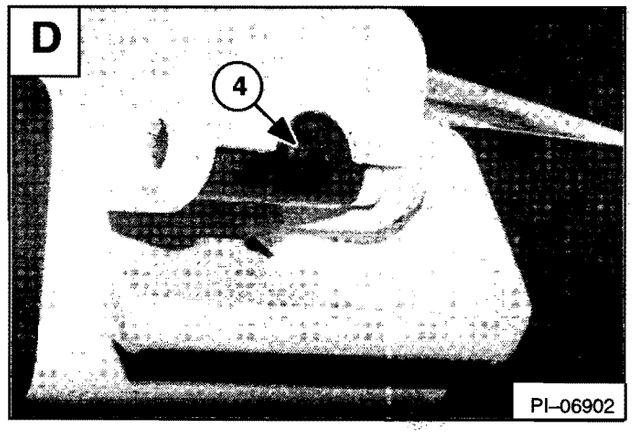

2. Base End Lift Cylinder (both sides) **[B]**.




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

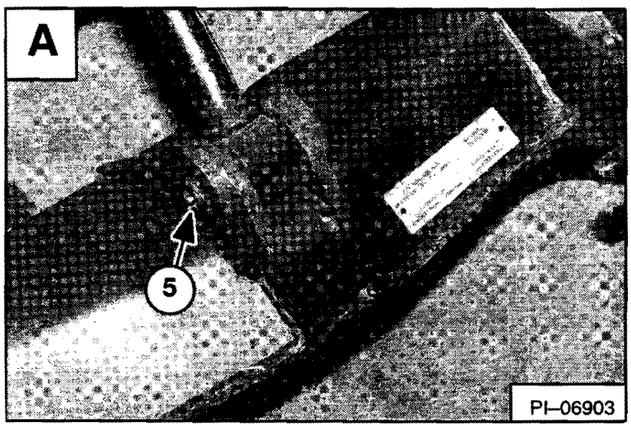



4. Base End Tilt Cylinder **[D]**.

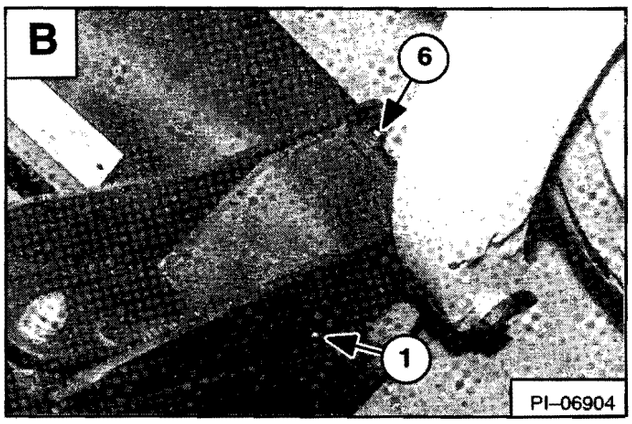


**LUBRICATION OF THE LOADER (Cont'd)**

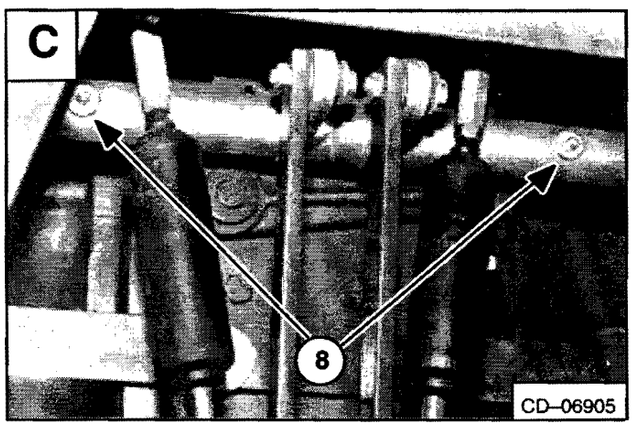
5. Rod End Tilt Cylinder **[A]**.




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




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



## REMOTE START SWITCH

### Procedure

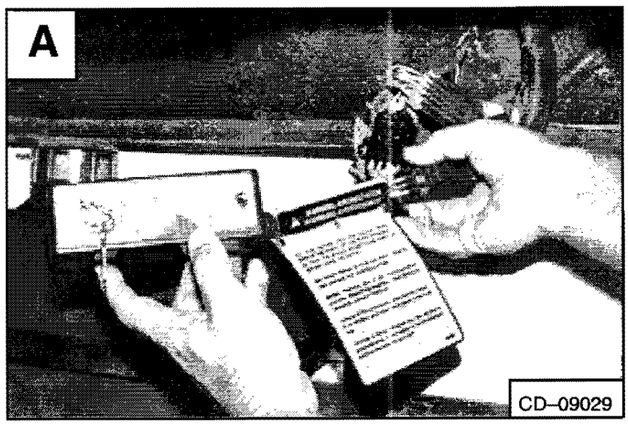
The tool listed will be needed to do the following procedure:

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.



## DIAGNOSTIC TOOL

### Procedure

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

MEL–1400 – Diagnostic Tool

Stop the engine.

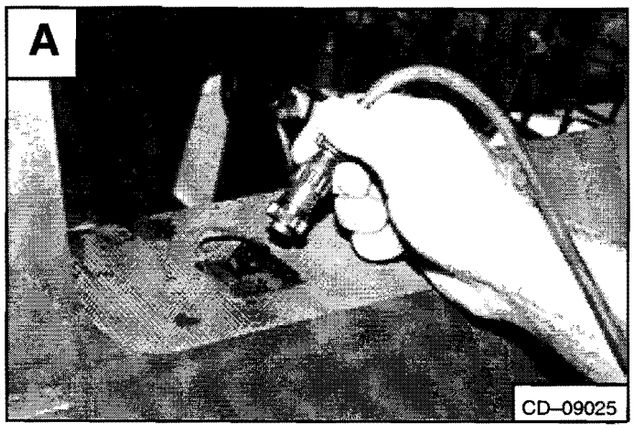
Lift and block the loader (Page 1–2).

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]**

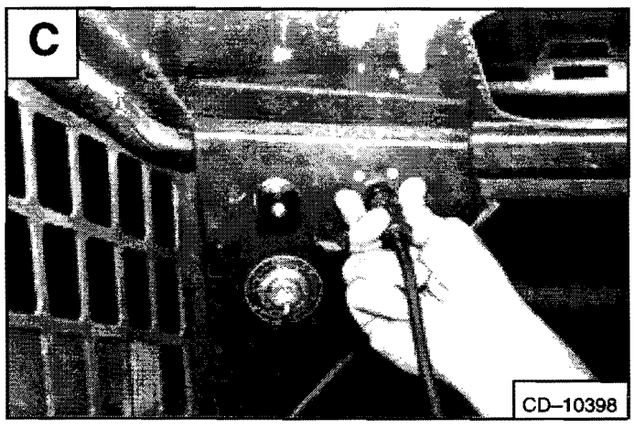
Use the diagnostic tool as instructed by the instructions on the tool and owners manual to make service checks of the system operating unit and other components;

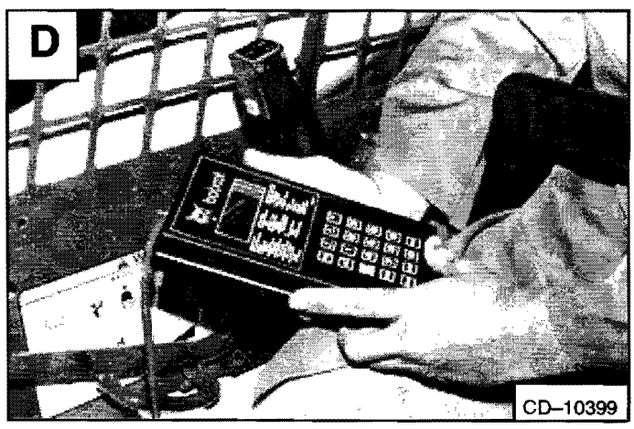
S/N 11078 & Below **[B]**
S/N 11079 & Above **[D]**










## 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)

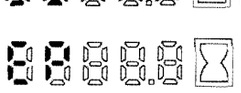
*The plastic tip is used as a gauge to set the RPM SENSOR, the plastic tip is designed to come off after the engine is started.

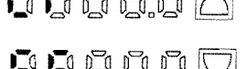
# MONITOR SERVICE CODES

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


Engine Coolant Level

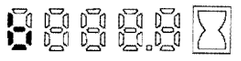

Engine Coolant Temperature


Engine Oil Pressure

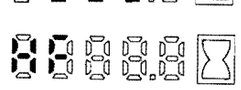

Engine Speed


Air Filter


Hydrostatic Fluid Temperature

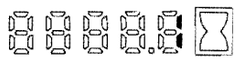

battery

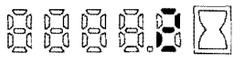

FUEL Level

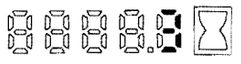

Hydraulic Filter

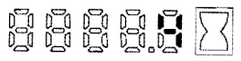

Hydraulic Fluid Pressure

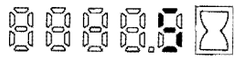
One of the following Numeric Codes will appear following one of the above Alphabetic Codes. Example: 

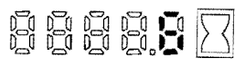

Shut Down


Warning


Wiring Not Connected


Wiring Shorted


High Sensor Voltage


Sensor No Signal


Sensor Out of Range

## MONITOR SERVICE CODES

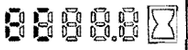
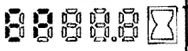
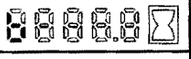
The following list references the defect codes that are transmitted to the instrument panel display which can occur. Some service procedures for correcting the problems can be found in this manual and other procedures must be performed ONLY BY QUALIFIED BOBCAT SERVICE PERSONNEL.

**⚠ 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 |

| SERVICE CODES | | |
|---|---|---|
| **SUBJECT** | **DISPLAY READS** | **CONDITION** |
| Hydrostatic Charge Filter Condition | HF1–2 | WARNING, High Restriction |
| | HF1–6 | Sensor No Signal |
| | | |
| | | |
| Hydrostatic Fluid Pressure | 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 | 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 |



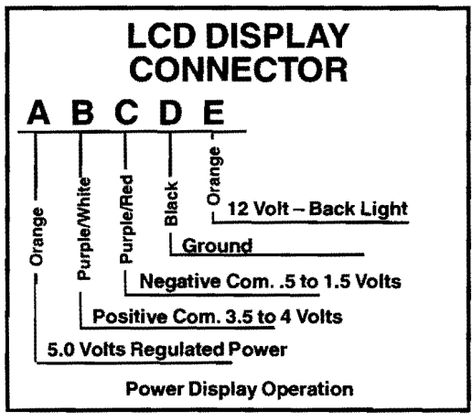
TILT CYLINDER
Checking the Tilt Cylinder ..... 2–5
Removal and Installation ..... 2–5
Rod End Seal ..... 2–5

TROUBLESHOOTING
Chart ..... 2–5

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

## 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.<br>*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.<br>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.<br>2. If no power exists at pin "A", install BOSS back–up to confirm the BOSS system.<br>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.<br>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.<br>2. If data is being received by the BOSS tool, the BOSS unit is not the cause of the problem.<br>3. If no data is received at the BOSS tool. disconnect the LCD display.<br>*4. If messages are now received at the tool, the display is the problem. If problem still exists go to Step 5.<br>5. Check pins "B" & "C" for signal.<br>6. If there is no signal, install BOSS back–up unit.<br>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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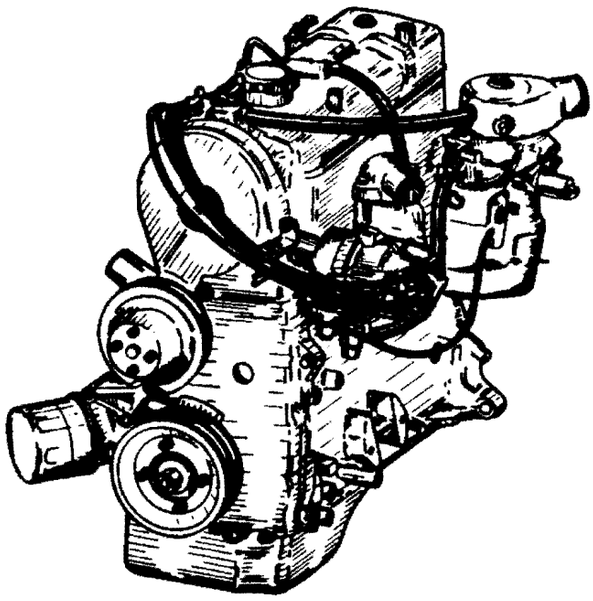
SELECT VALVE
Check the Main Relief Valve in the "High Horsepower" Select Valve ..... 2–8F

TILT CYLINDER
Checking the Tilt Cylinder ..... 2–5
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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.**

**Both new and rebuilt engines are available from Melroe**



**Available at your local Bobcat Dealer.**

MELROE COMPANY

A BUSINESS UNIT OF [illegible] EQUIPMENT COMPANY

# 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

## FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir ❶ 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 ⓬ .

The hydraulic control valve ⓬ has an adjustable relief valve ⓫ . When all spools of the control valve ⓬ are in the neutral position, the fluid goes through the control valve ⓬ 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) ❿ ⓳ . As the fluid goes into one end of the cylinder(s) ❿ ⓳ the fluid from the other side of the cylinder flows back into the control valve ⓬ .

**ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).**

When the cylinder(s) ❿ ⓳ reaches the end of the stroke, the fluid attains the setting of the main relief valve ⓫ , 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 ⓬ . Two sections of the control valve ⓬ can be used at the same time if the main relief valve ⓫ 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 ❾ 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 ❾ . 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 ❾ .

There are two hydrostatic pumps ㉝ and two hydrostatic motors ❾ . 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 ❾ are a "roller-geroler" type. The case drain fluid from the right motor ❾ goes to the hydrostatic pump ㉝ . Case drain fluid from the left motor ❾ joins

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 (5)c 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.

**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 ⑯ , at the control valve ⑫ , 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 ⑫ . When the electrical solenoid ⑯ is energized in the oposite direction (with electrical solenoid ❺c still energized), the fluid flow will change to the opposite diection.

# HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

**753**

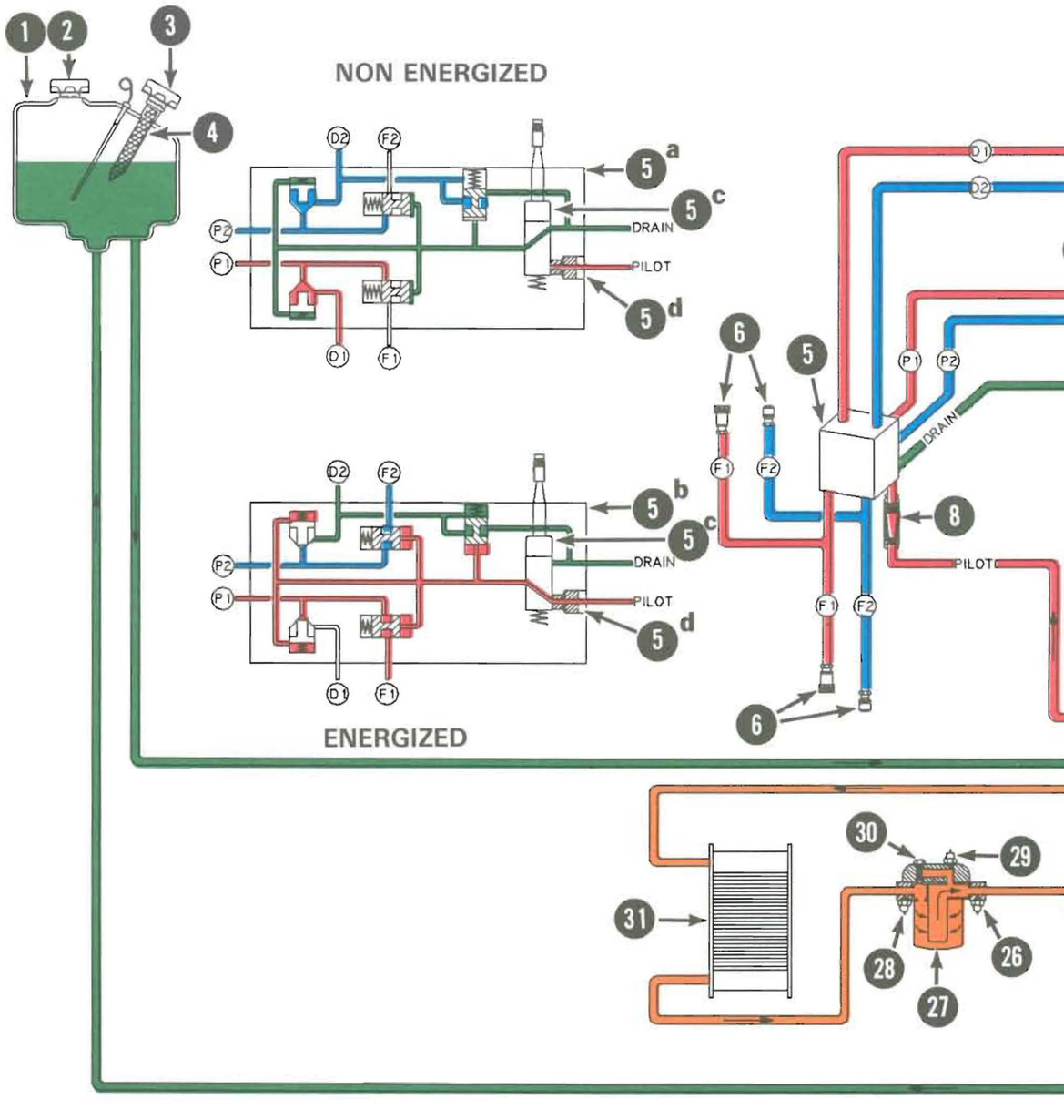
Chart #6720316 (Printed May 1990)

**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.

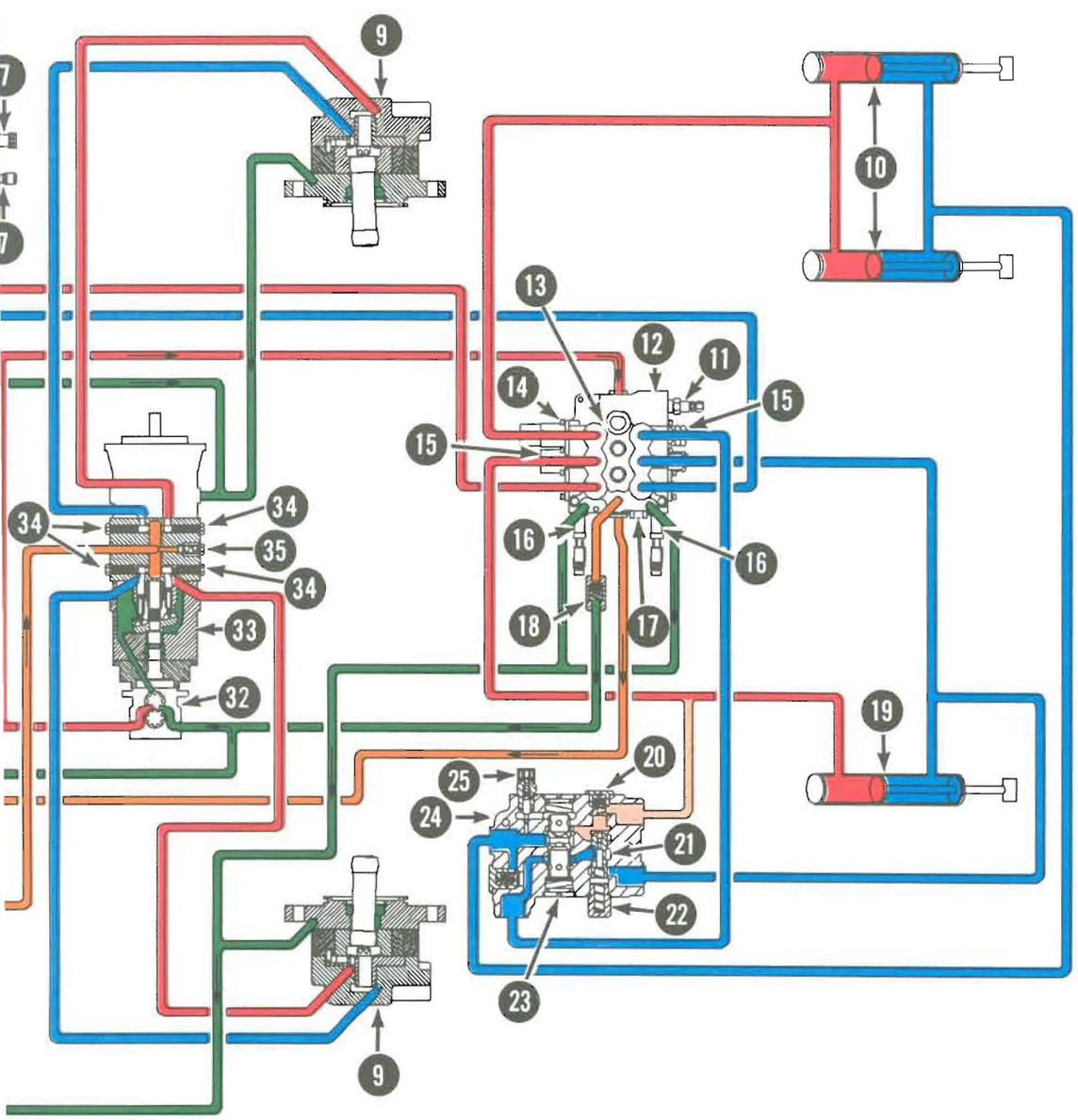
**NOTE**

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



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

v in the Lifting
ucket Postioning




MC1118

# 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**

## FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir ❶ to the hydraulic pump ❸❶ . The hydraulic pump ❸❶ is a "gear type" pump and is driven by a shaft through the hydrostatic pumps ❸❷ . The fluid from the hydraulic pump ❸❶ goes to the hydraulic control valve ❶❷ .

The hydraulic control valve ❶❷ has an adjustable relief valve ❶❶ . When all spools of the control valve ❶❷ are in the neutral position, the fluid goes through the control valve ❶❷ and to the oil cooler ❸❿ . 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) ❶❿ ❶❽ . As the fluid goes into one end of the cylinder(s) ❶❿ ❶❽ the fluid from the other side of the cylinder flows back into the control valve ❶❷ .

**ALSO SEE BUCKET POSITIONING SYSTEM OPERATION (OPTIONAL).**

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

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

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

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

There are two hydrostatic pumps ❸❷ and two hydrostatic motors ❾ . 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 ❾ are a "roller-geroler" type. The case drain fluid from the right motor ❾ goes to the hydrostatic pump ❸❷ . Case drain fluid from the left motor ❾ joins

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.

**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.

# HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

## 753 (S/N 19227 & Above)

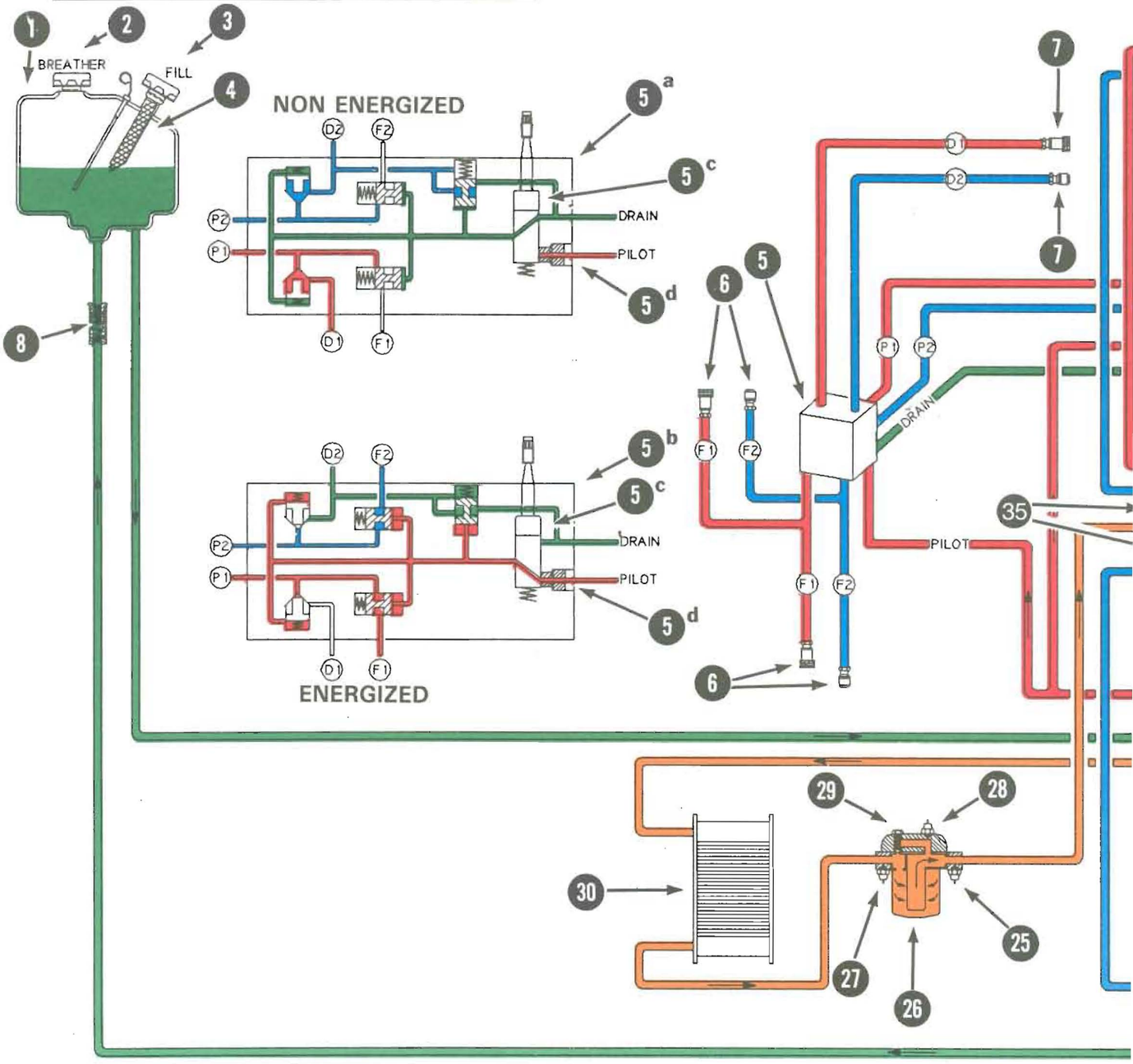
Chart #6722406 (Printed November 1993)

**NOTE**

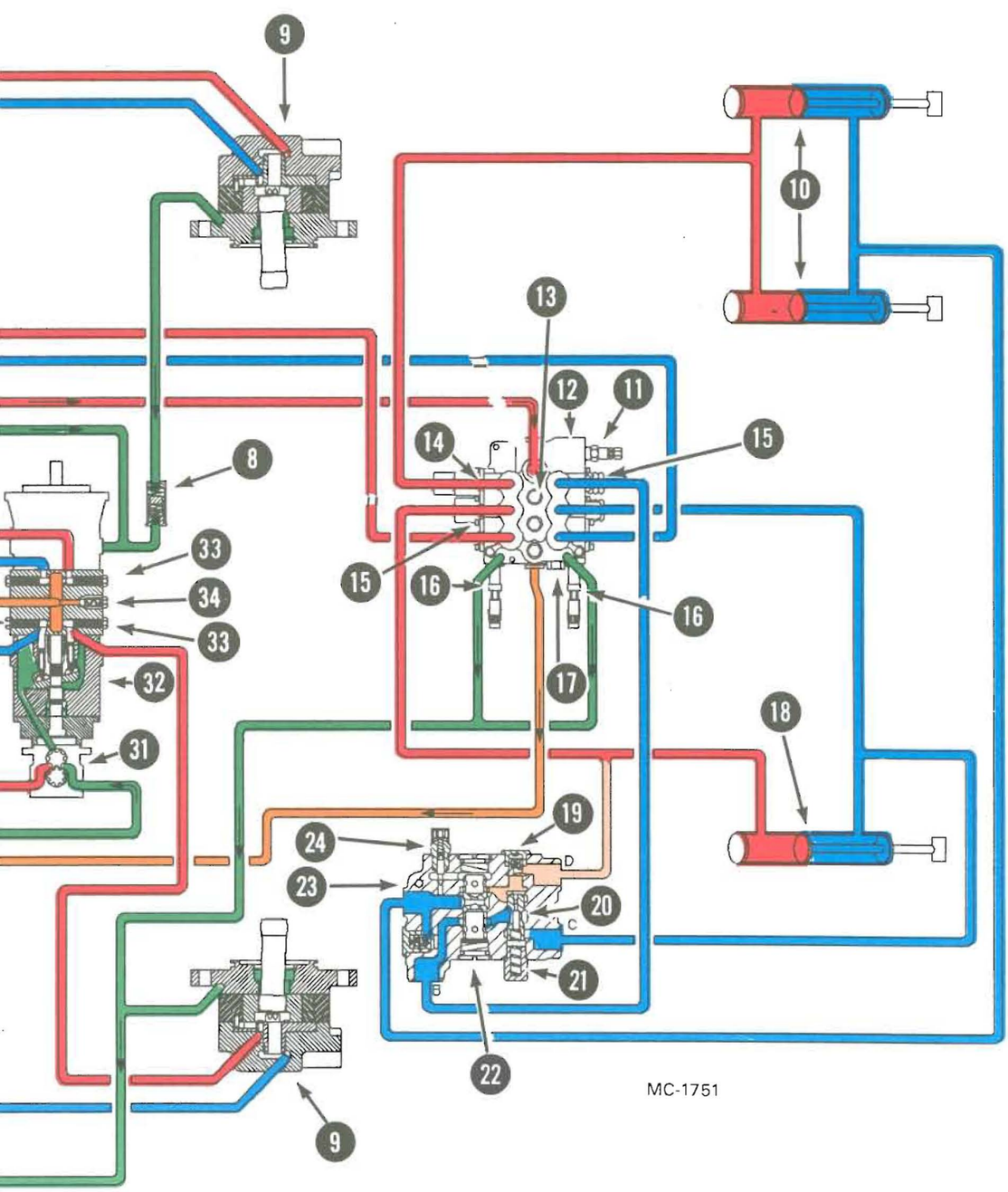
Chart shows fluid flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.

**NOTE**

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



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




MC-1751

# 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**

## FLUID FLOW EXPLANATION

The fluid flows by gravity from the reservoir ❶ 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 ❾ 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 ❾ . 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 ❾ .

There are two hydrostatic pumps ㉜ and two hydrostatic motors ❾ . 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 ❾ are a "roller-geroler" type. The case drain fluid from the right motor ❾ goes to the hydrostatic pump ㉜ . Case drain fluid from the left motor ❾ joins

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.

When the high flow pump pressure exceeds 1200 PSI for any reason, the dual pressure relief valve ⓫ in the main control valve ⓬ 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 ❻ . 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 ❻ 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).

# HYDRAULIC / HYDROSTATIC FLOW CHART

For Model

## 753H (S/N 511011001 & Above)

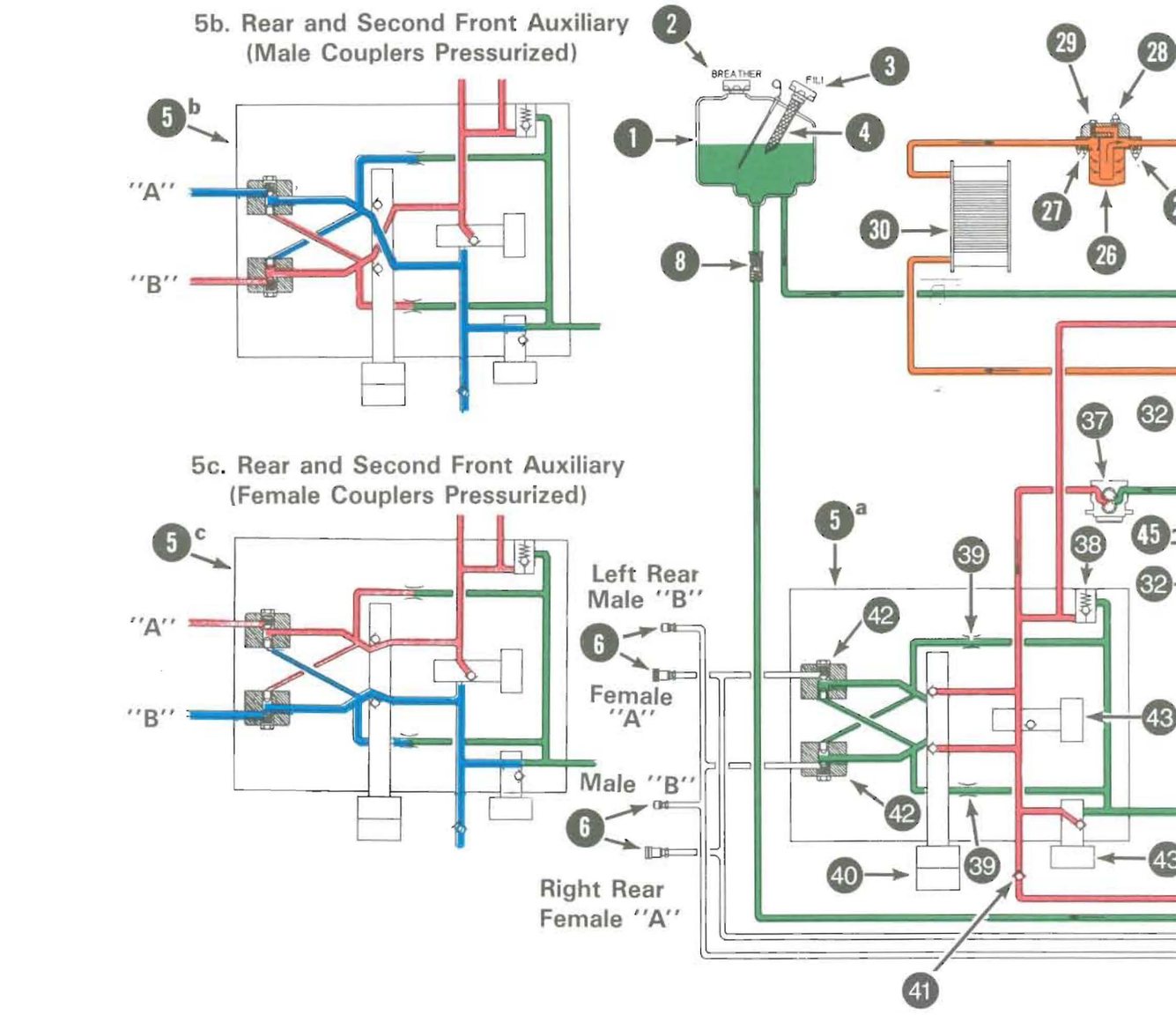
Chart #6722833 (Printed November 1993)

**NOTE**

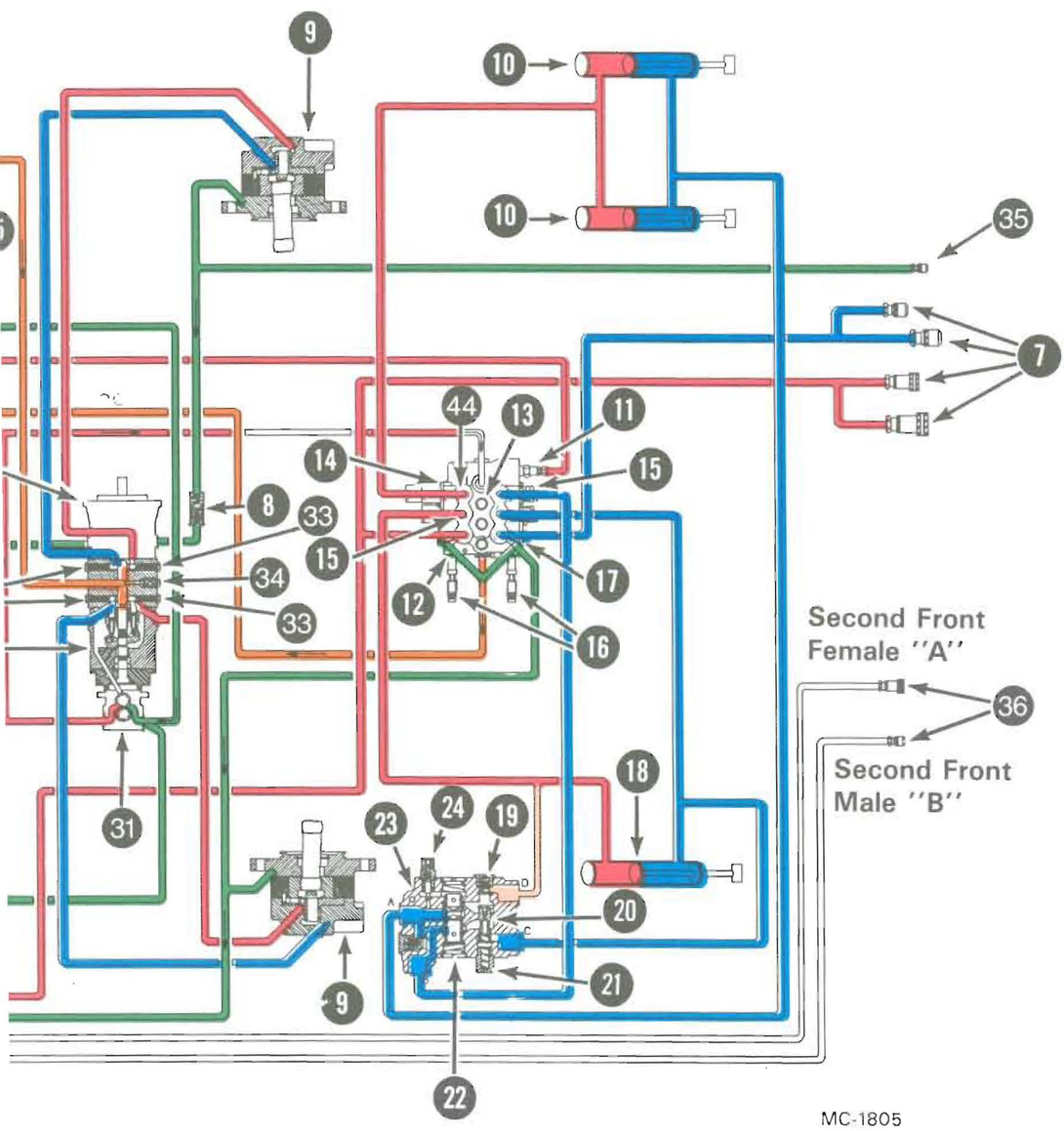
Chart shows fluid flow in Forward Drive Position and with Hydraulic Cylinders Partially Extended. For Hydraulic/ Hydrostatic System Operation, refer to Sheet 2 of this publication.

**NOTE**

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



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




MC-1805

## 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.

**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.

### 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]**.

### 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]**.

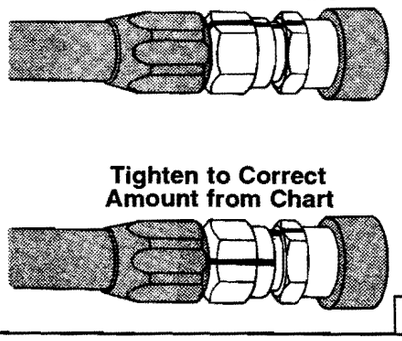
### Tubelines and Hoses

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.

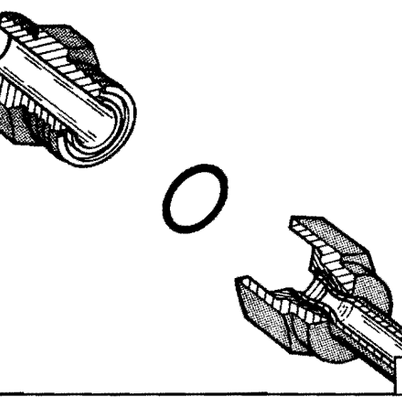
**A**



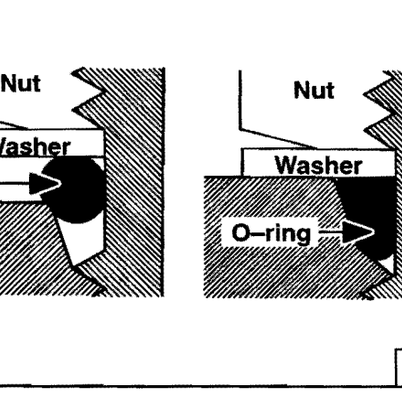

**B**

| 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 |

**C**




**D**



## LIFT CYLINDER(S)

### Checking the Lift Cylinder(s)

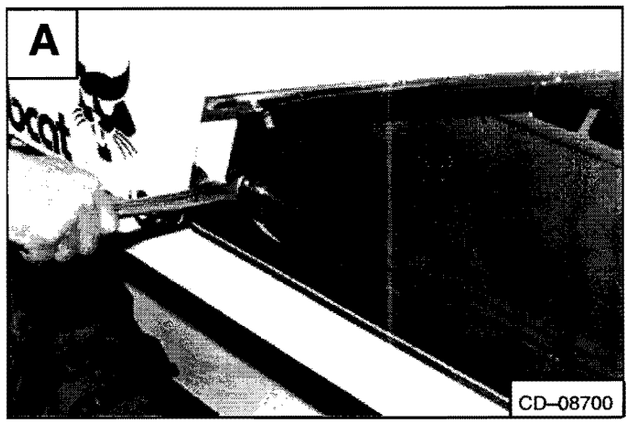
Lower the lift arms. Stop the engine. Move the lift pedal to release the hydraulic pressure. Raise the seat bar.

**⚠ WARNING**

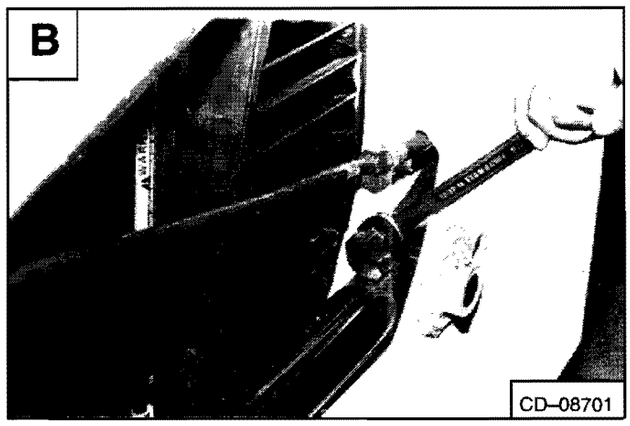
**Diesel fuel or hydraulic fluid under pressure can penetrate skin or eyes, causing serious injury or death. Fluid leaks under pressure may not be visible. Use a piece of cardboard or wood to find leaks. Do not use your bare hand. Wear safety goggles. If fluid enters skin or eyes, get immediate medical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



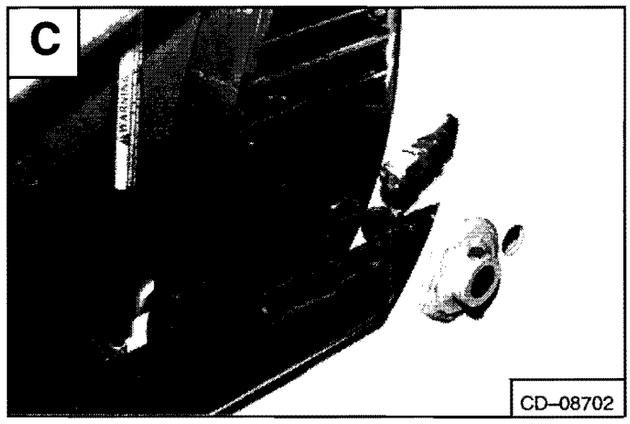

Lift the tubeline up for clearance. Disconnect the hose from the base end of the cylinder **[B]**.




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

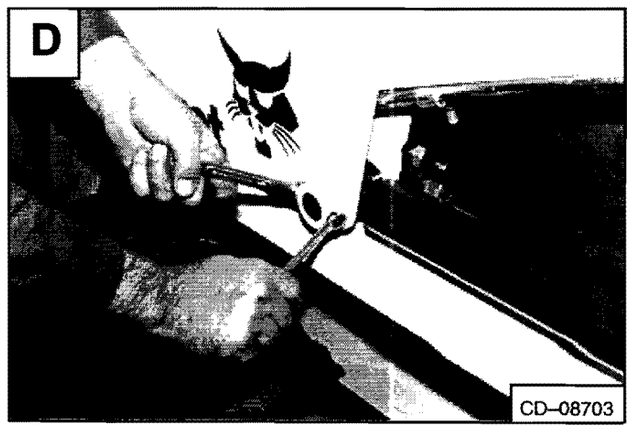
Stop the engine. Move the lift pedal to release the hydraulic pressure. Raise the seat bar. Raise the operator cab (Page 1–5).

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

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

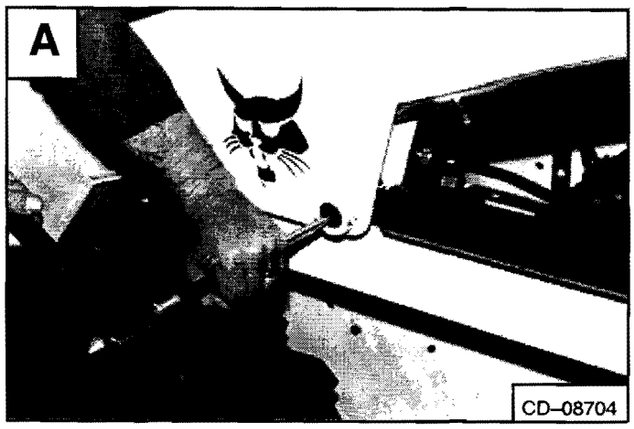
Remove the retainer bolt and nut **[D]**.

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



**LIFT CYLINDER(S) (Cont'd)**

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

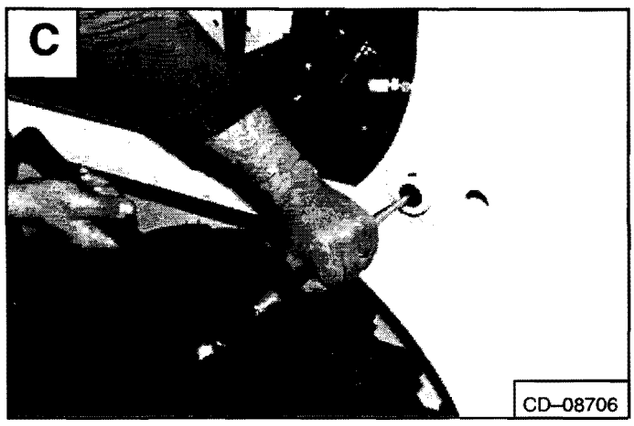



Remove the retainer bolt and nut from the base end pivot pin **[B]**.

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




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



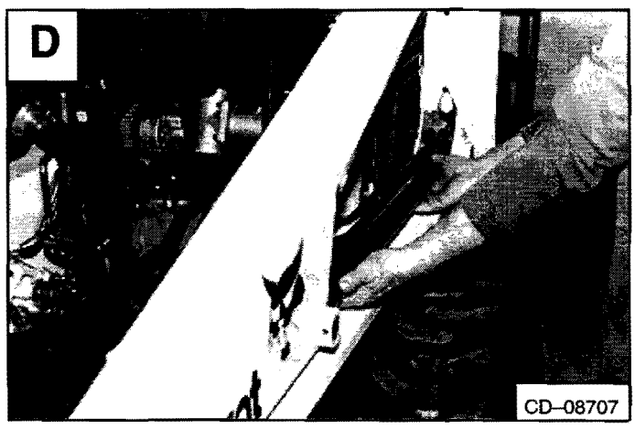

Slide the lift cylinder forward and remove it from the loader **[D]**.

**⚠ 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.**



## 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.

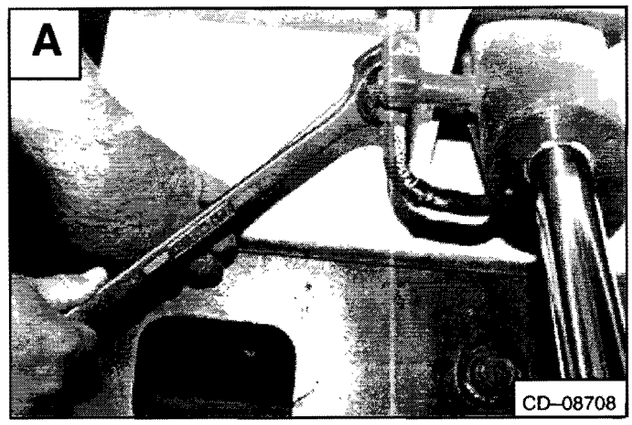
Disconnect both hydraulic hoses **[A]**.

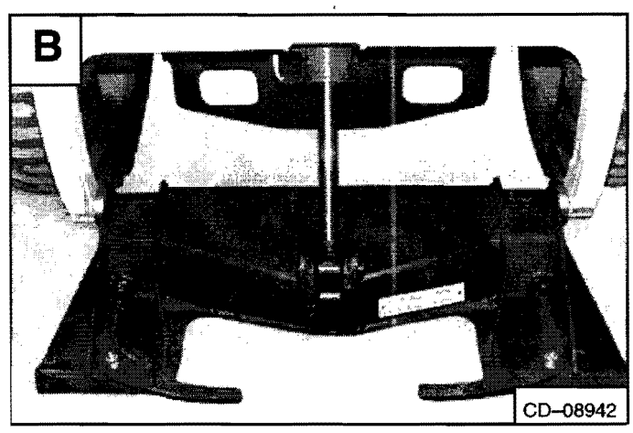
Remove the retainer bolt from the rod end pivot pin **[C]**.

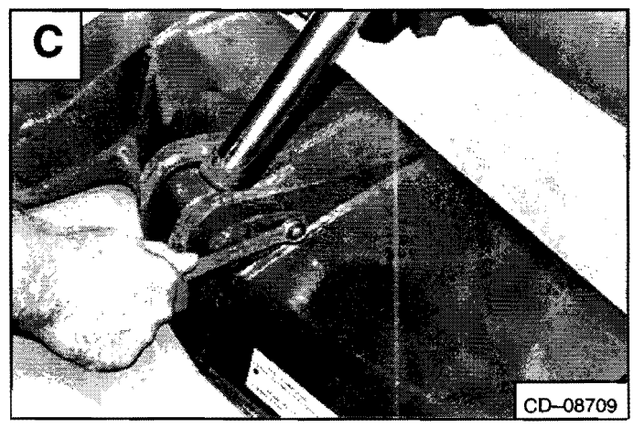
Installation: Tighten the retainer bolt to 18–20 ft.–lbs. (24–27 Nm) torque.

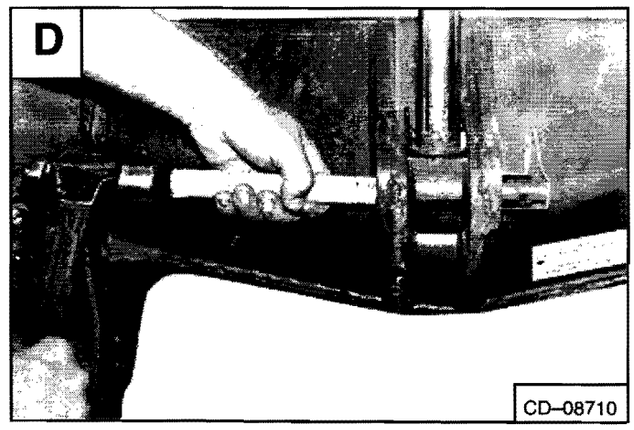
Remove the grease fitting from the rod end pivot pin.

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



**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.

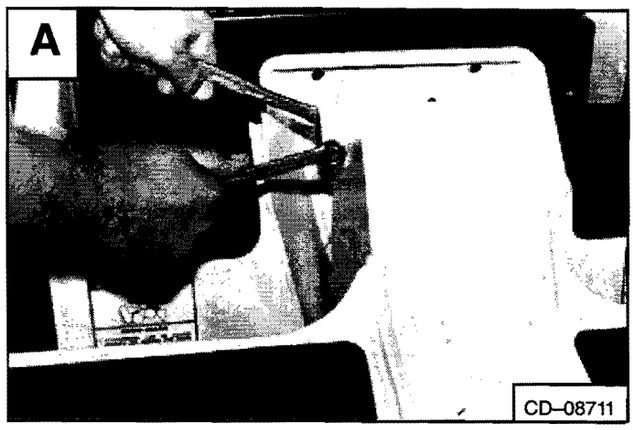
**SEE THE COMPONENT REPAIR MANUAL FOR HYDRAULIC CYLINDERS FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.**

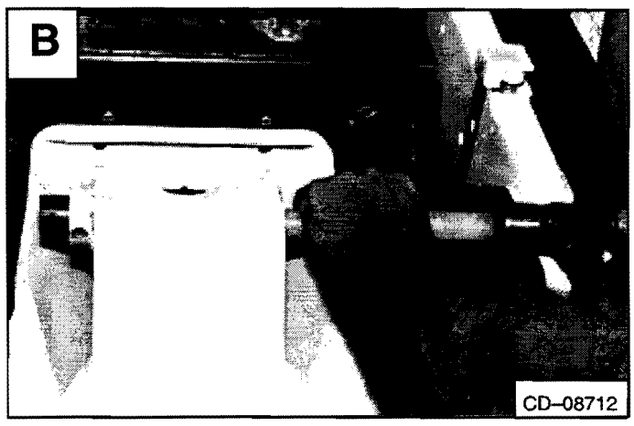
**Rod End Seal**

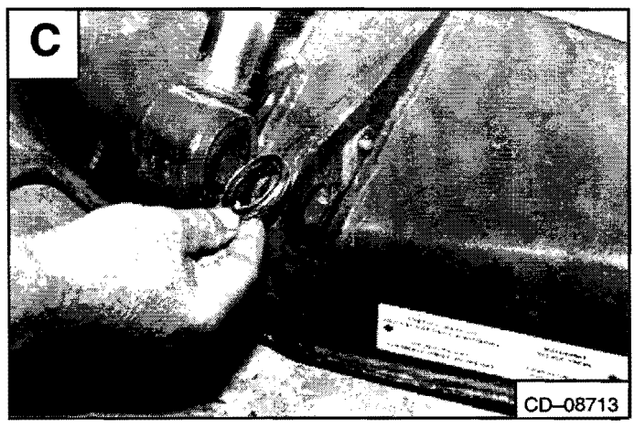
Remove the old seal (both sides) from the rod end of the tilt cylinder.

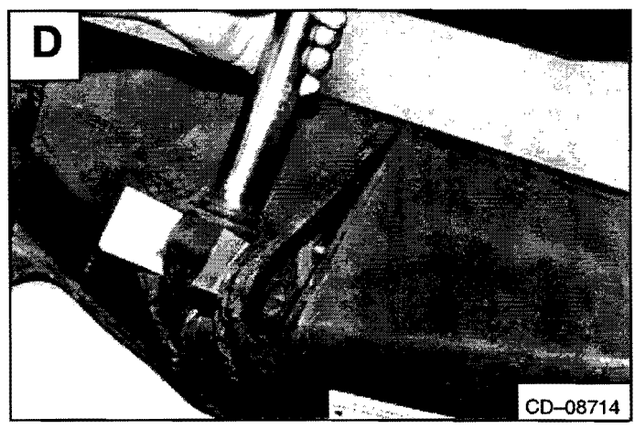
Install the new seals with the lip facing in **[C]**.

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]**.



## 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]**.

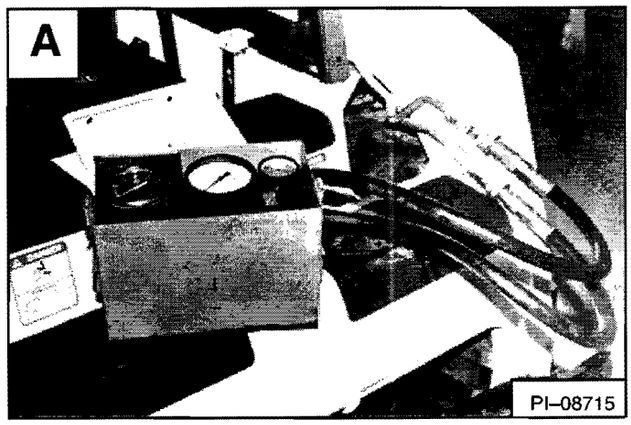
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

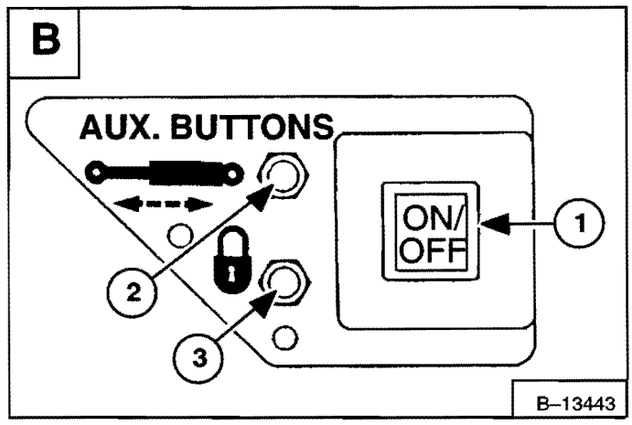
Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

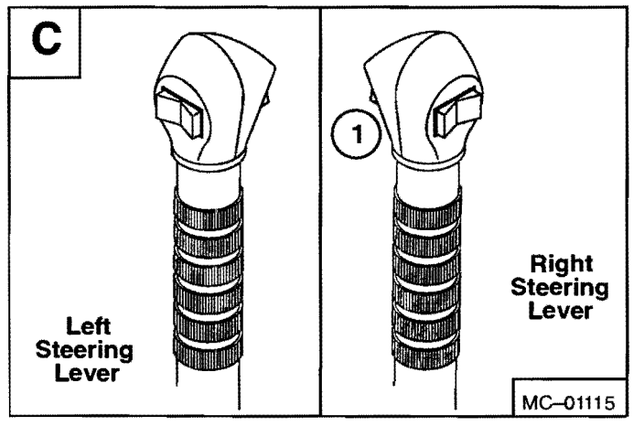
There should be 13 GPM (49 L/min.) free flow. Turn the restrictor control, on the tester, until the main relief valve opens. The correct pressure for the main relief is 2550–2600 PSI (17582–17927 kPa).

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

## 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]**.

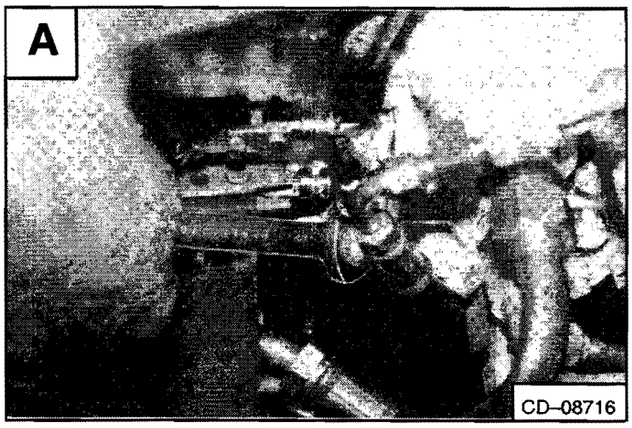
Clean the main relief valve in clean solvent. Use air pressure to dry the valve.

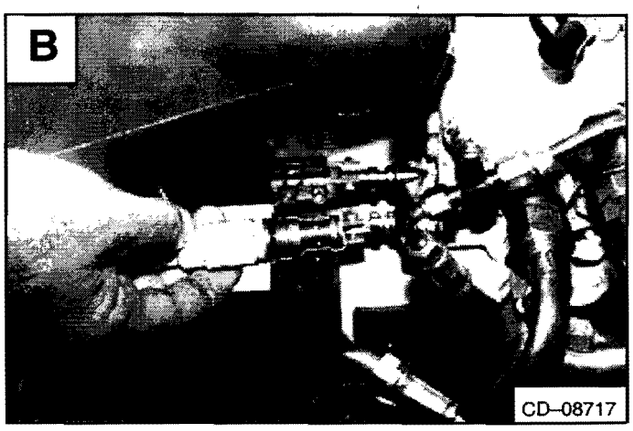
Install new O–rings and back–up washers. Install the main relief valve and tighten **[A]**. Check the pressure again (Page 2–7).

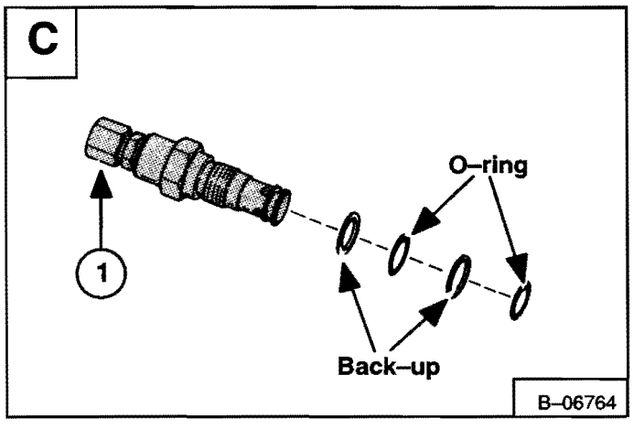
If the pressure is not correct, adjust the main relief valve. Remove the end cap (Item 1) **[C]**.

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.**



**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.**

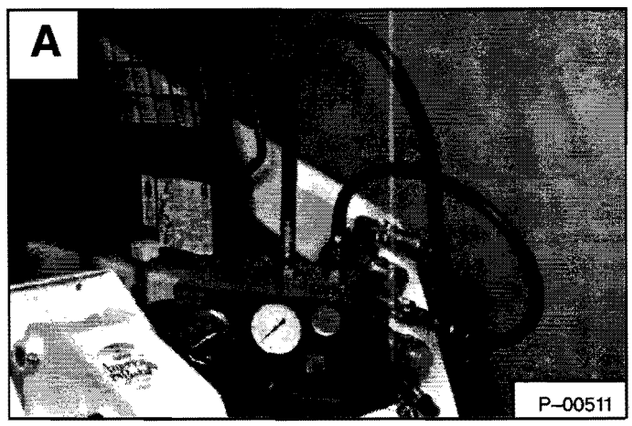
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

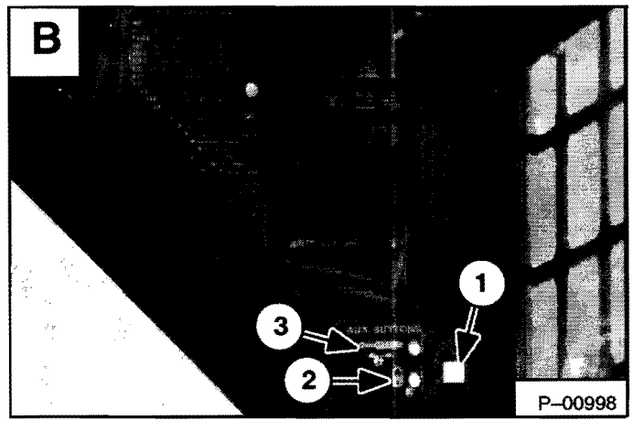
Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

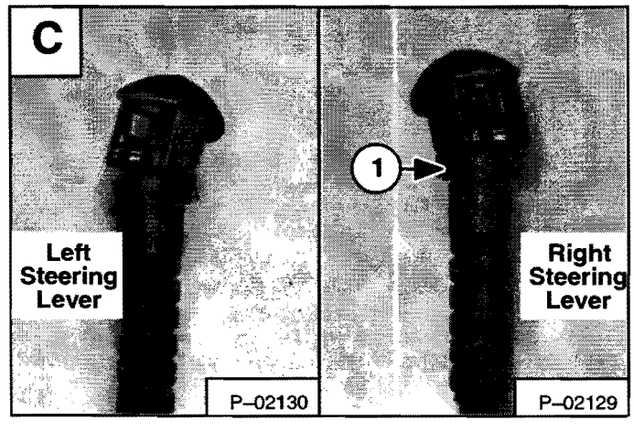
There should be approximately 13 GPM (49 L/min.) free flow. Turn the restrictor control, on the tester, until the main relief valve opens. The correct pressure for the main relief is 2550–2600 PSI (17582–17927 kPa).

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).



## 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

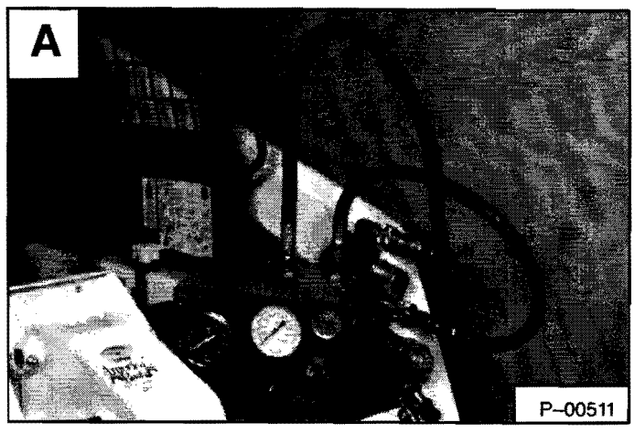
Remove the plug from the center of the auxiliary section on the main control valve (Item 1) **[B]** & **[C]**.

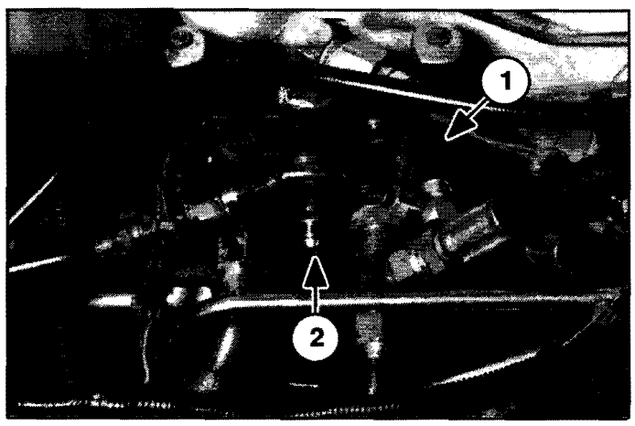
Install a straight fitting (15K–6) (Item 2) into the open port of the auxiliary section **[B]**. Temporarily cap the open port.

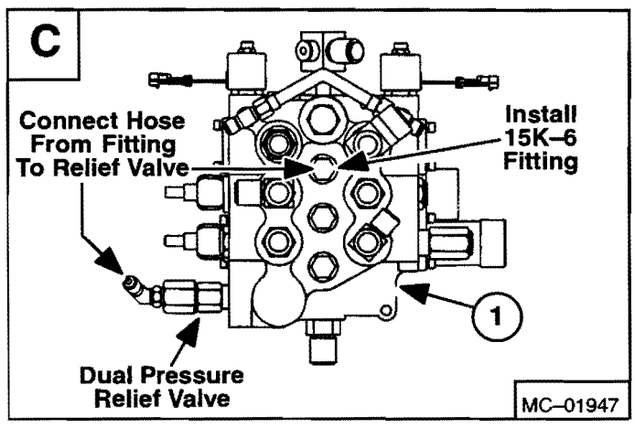
Disconnect the pilot hose (Item 1) from the dual pressure relief valve **[D]**. Plug the pilot hose and cap the relief valve temporarily.

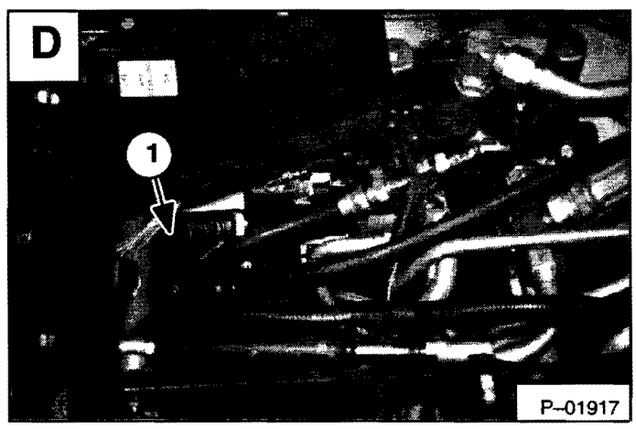
Obtain a 3/8" (9.5 mm) I.D. hose with a 3300 PSI (22754 kPa) or above rating locally.

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

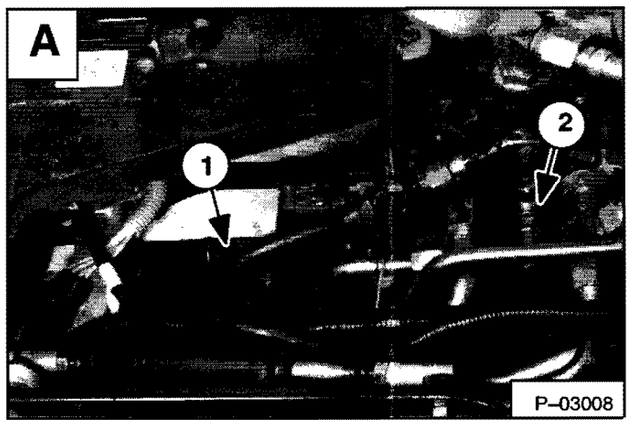


Connect one end of the hose (Item 1) **[A]** on the dual pressure relief valve. Connect the other end of the hose (Item 2) **[A]** on the straight fitting which was installed in the main control valve. See figure **[C]** Page 2–8B also.




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.**

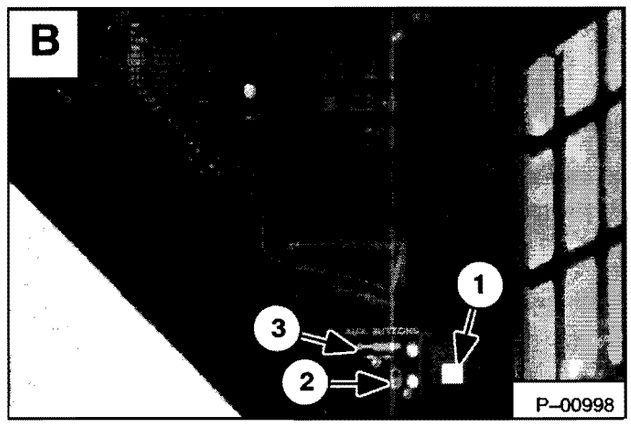
Push the button (Item 1) for fluid pressure to the quick couplers **[C]**.

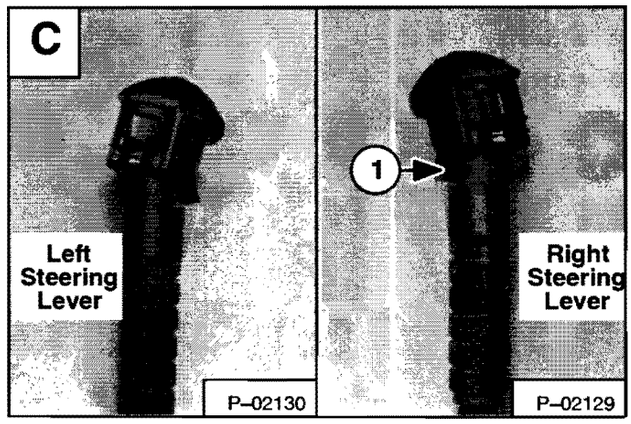
Watch the flow meter on the hydraulic tester to be sure the flow is correct. Increase the engine speed to full RPM.

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).



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

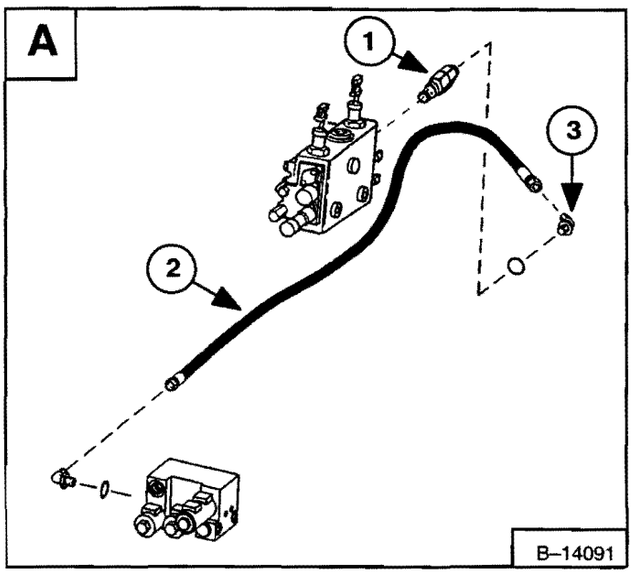
### Adjusting the Dual Pressure Main Relief Valve (Low Setting)

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

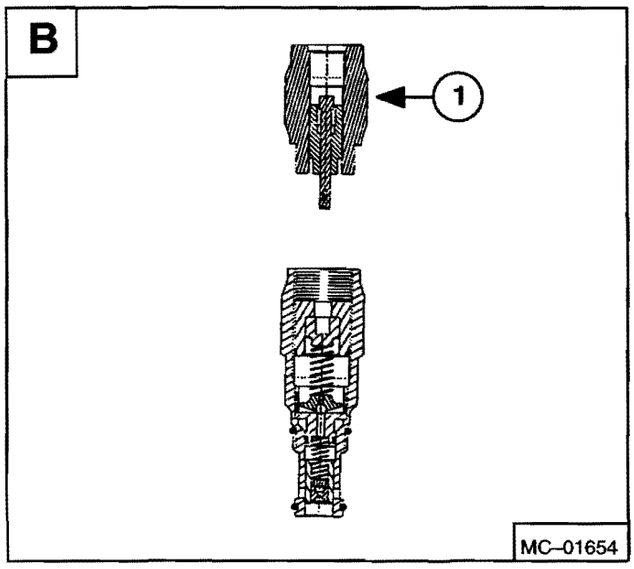
Correct pressure for the low setting is 2550–2600 PSI (17582–17927 kPa). See Page 2–8A for the correct procedure to check the setting.

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.

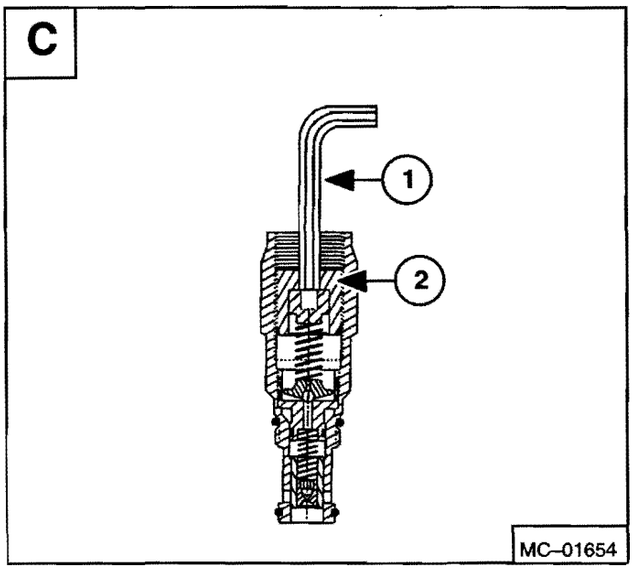
Reconnect the pilot hose.

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.



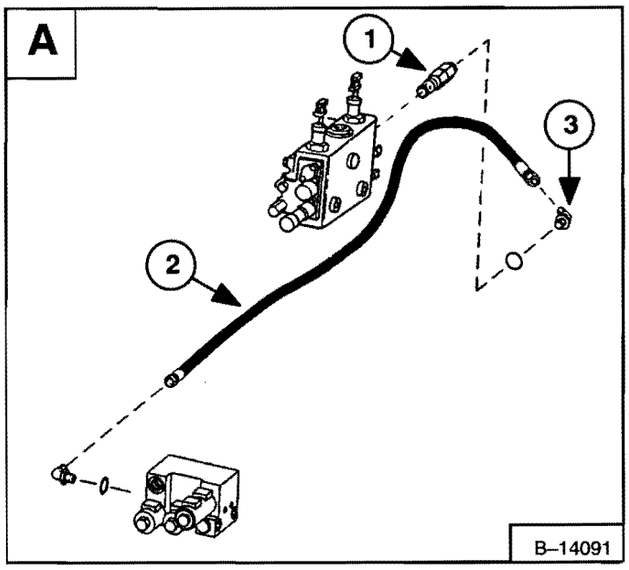
**Adjusting the Dual Pressure Main Relief Valve (High Setting)**

**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]**.

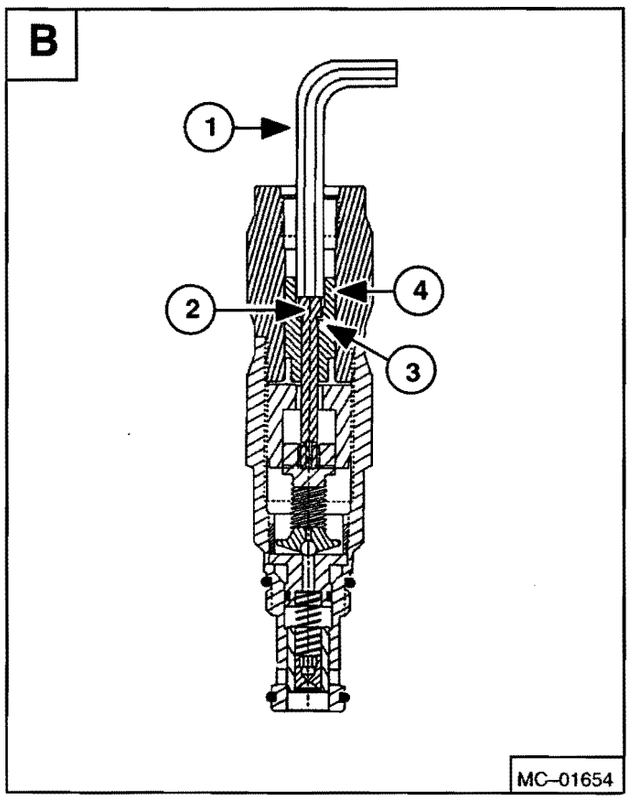
Turn the adjusting guide (Item 4) in to increase pressure or out to decrease pressure **[B]**.

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.



## SELECT VALVE (753H)

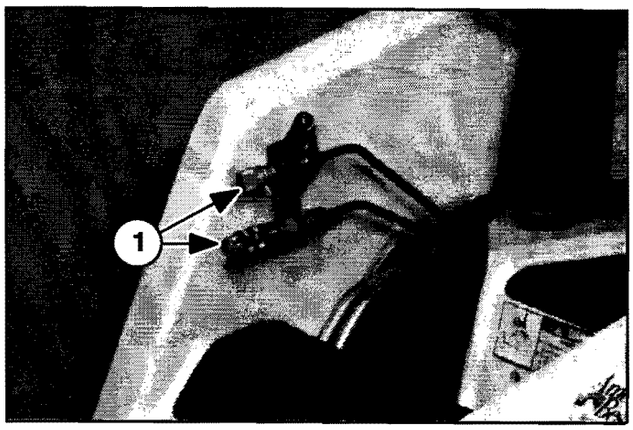
### Checking the Main Relief Valve in High Horsepower Select Valve

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**

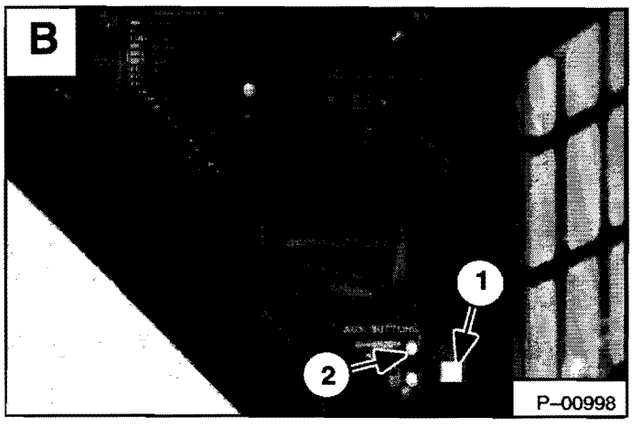
**Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.**

**W–2017–0286**

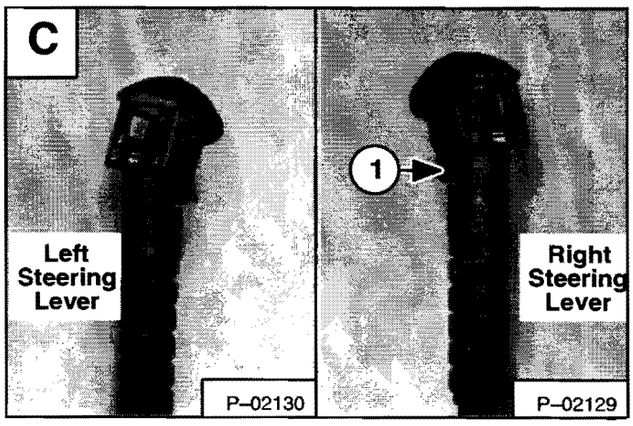
**When the engine is running during service, the steering levers must be in neutral and the parking brake engaged. Failure to do so can cause injury or death.**

**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]**.

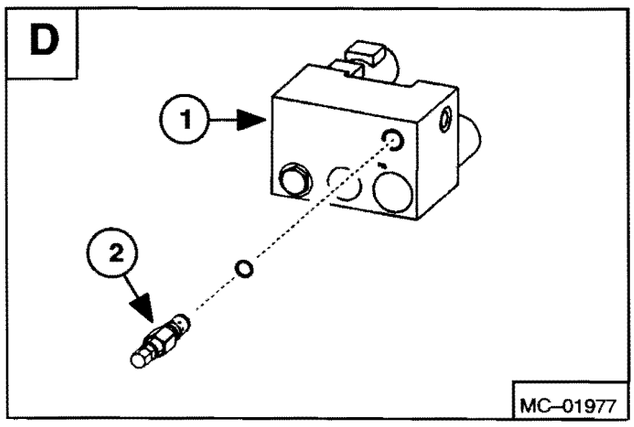



Watch the flow meter on the hydraulic tester to make sure the flow is correct. Increase the engine speed to full RPM.

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]**.

**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.

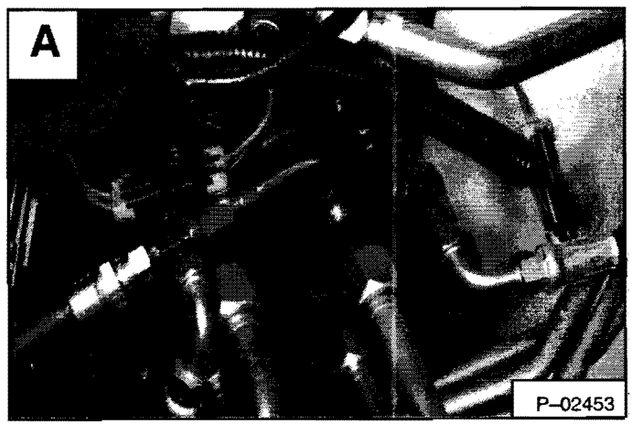
Remove the control valve.

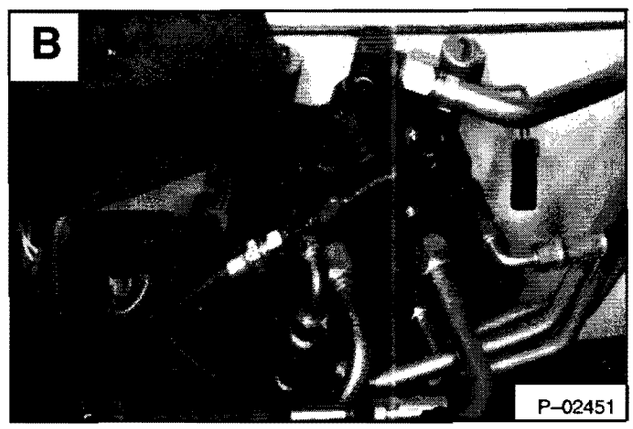
**⚠ WARNING**

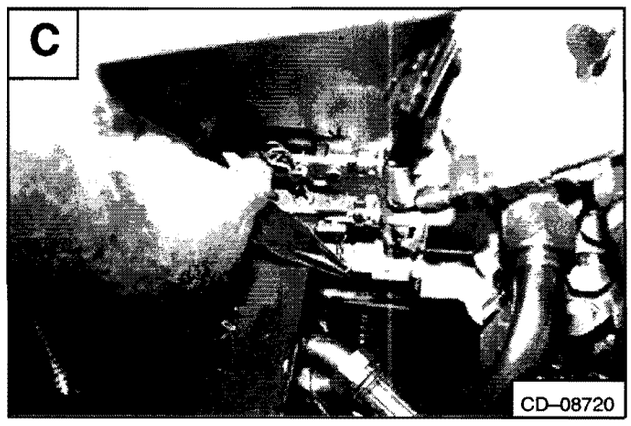
**Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.**

**W–2103–1285**

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



## 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*.

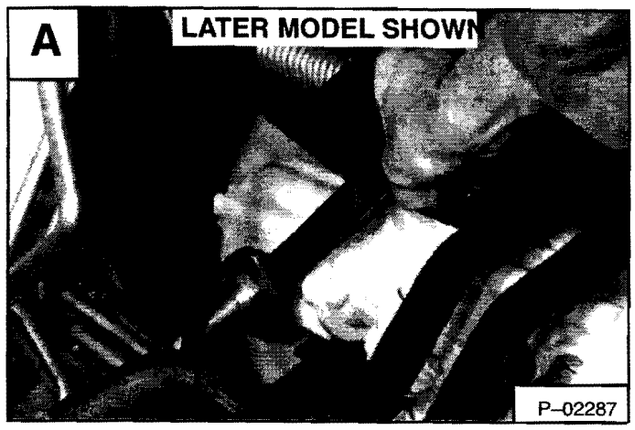
Warm the fluid to 140°F. (60°C.) by turning the restrictor control (Item 1) **[C]** on the tester to about 1000 PSI (6895 kPa). DO NOT exceed system relief pressure. Open the restrictor control and record the free flow (GPM) at full RPM.

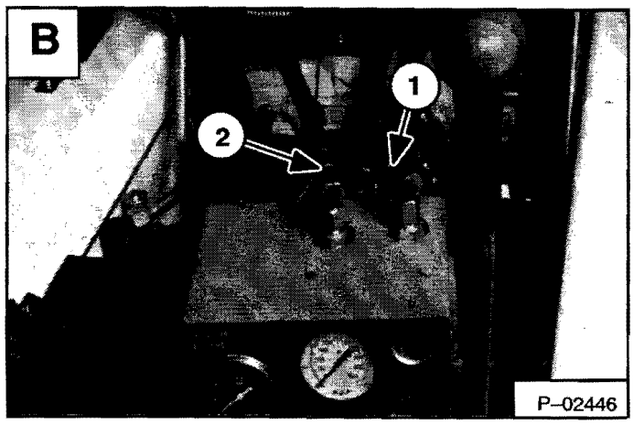
Push the mode switch (on the remote start switch) to engage the front auxiliary hydraulics, the light will come "ON". Push the button (on the right steering lever) for fluid flow to the quick coupler (fluid pressure will go over main relief). Record the highest pressure (PSI) and flow (GPM). The high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

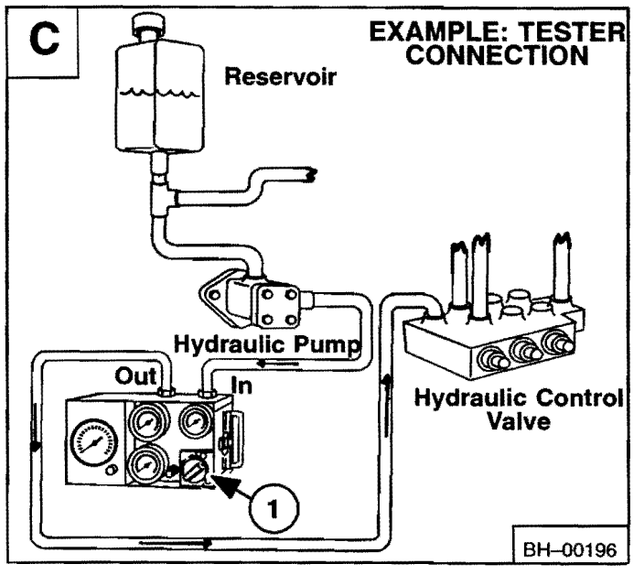
$$\% = \frac{\text{HIGH PRESSURE FLOW (GPM)}}{\text{FREE FLOW (GPM)}} \times 100$$

A low percentage may indicate a failed pump.

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



## 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.

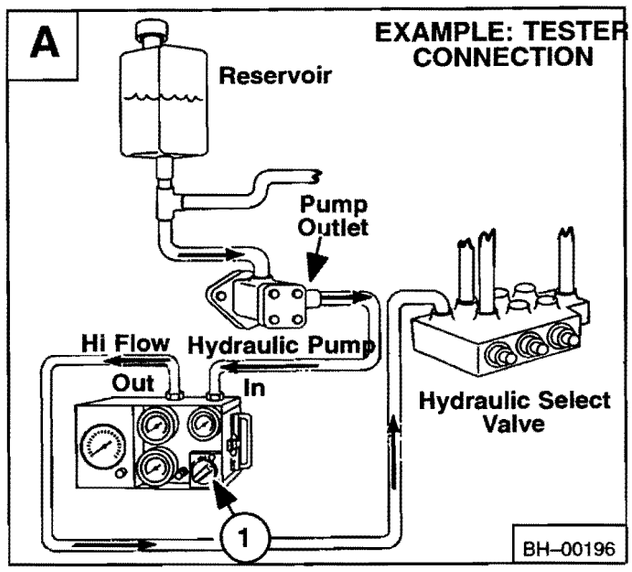
Turn the restrictor control knob (Item 1) **[A]** slowly to relief and record the high pressure flow (GPM). **DO NOT** exceed 3250–3300 PSI (22409–22754 kPa) when turning the restrictor knob. Excessive pressure will cause permanent damage to the hydraulic pump. The high pressure flow (GPM) must be at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

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

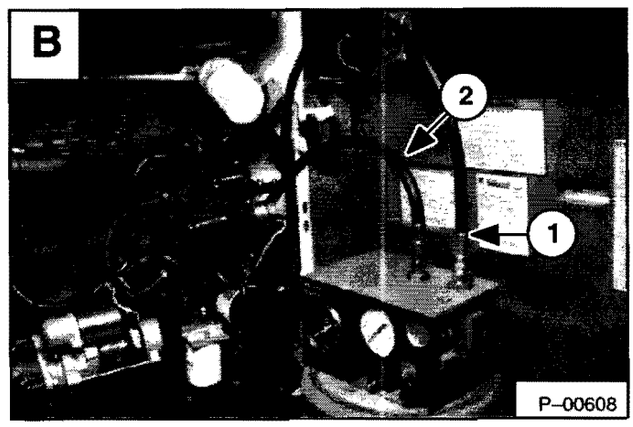
A low percentage may indicate a failed pump.

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

**A**




**B**




bobcat

**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.**

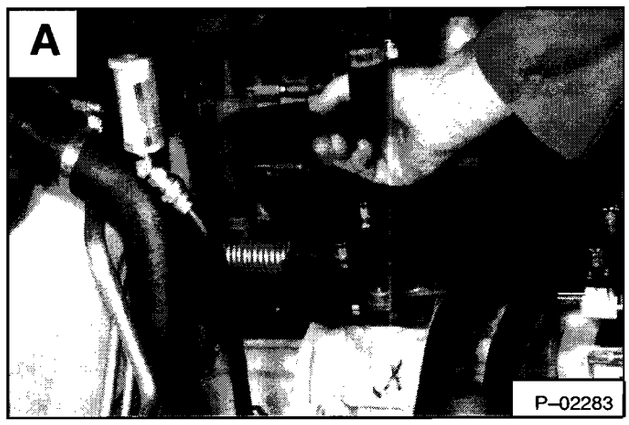
**I–2003–0888**

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]**.



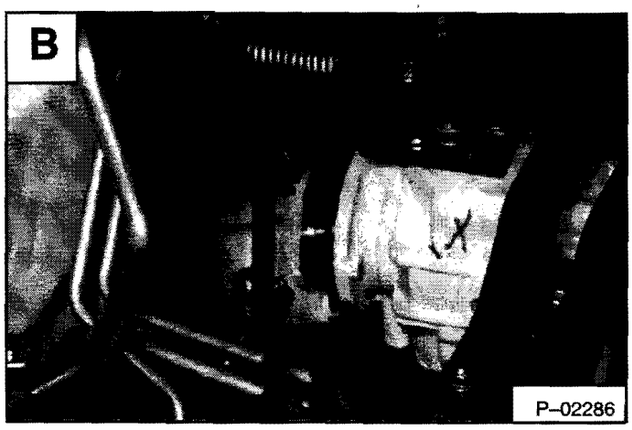



**HYDRAULIC PUMP (Cont'd)**

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]**.

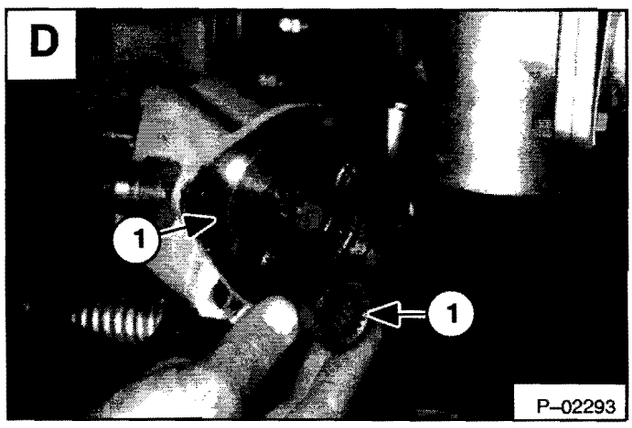
Remove the large O–ring (Item 2) **[D]**.

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.**

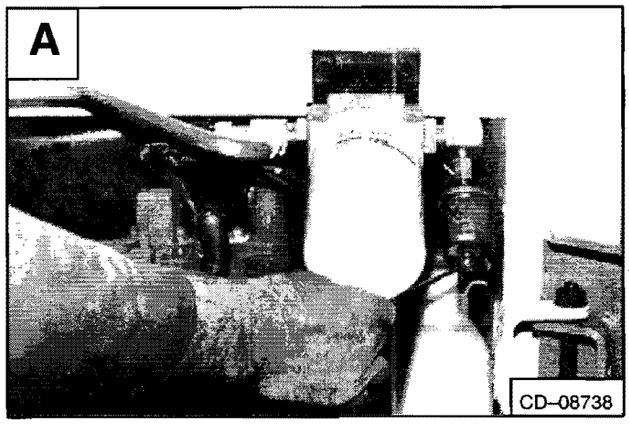
## HYDRAULIC FILTER HOUSING

### Removal and Installation

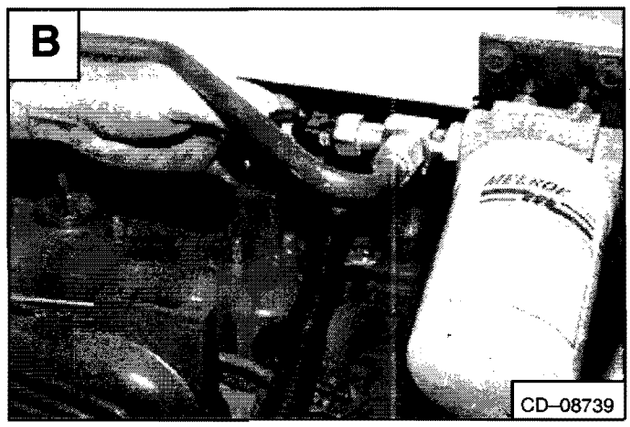
**IMPORTANT**

**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.**

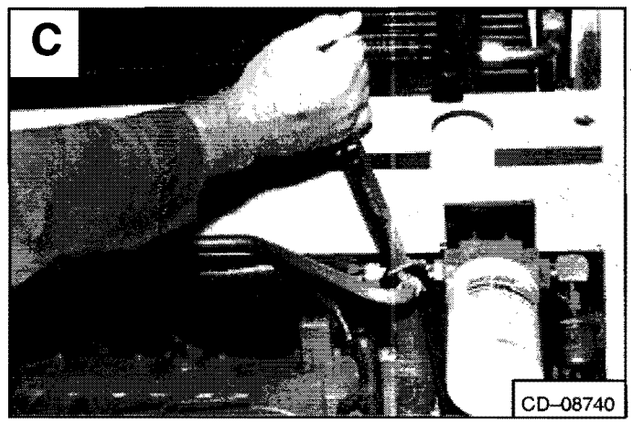
**I–2003–0888**



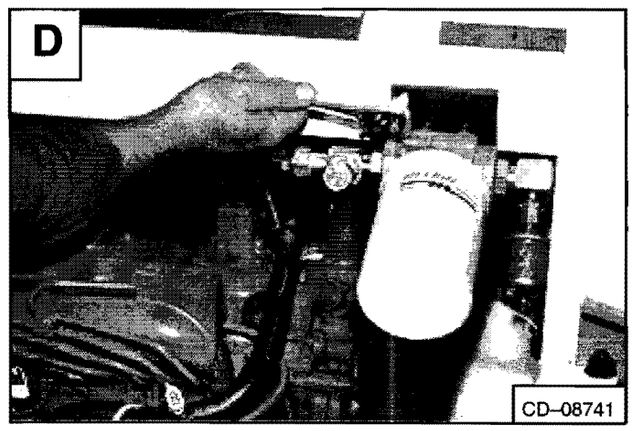

Disconnect the wires from the sender **[A]**.




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




Remove the tubeline **[C]**.

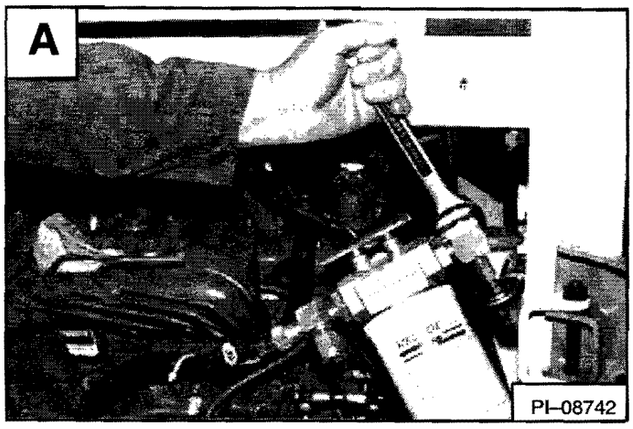



Remove the two mounting bolts **[D]**.

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

**HYDRAULIC FILTER HOUSING (Cont'd)**

Disconnect the hose **[A]**.

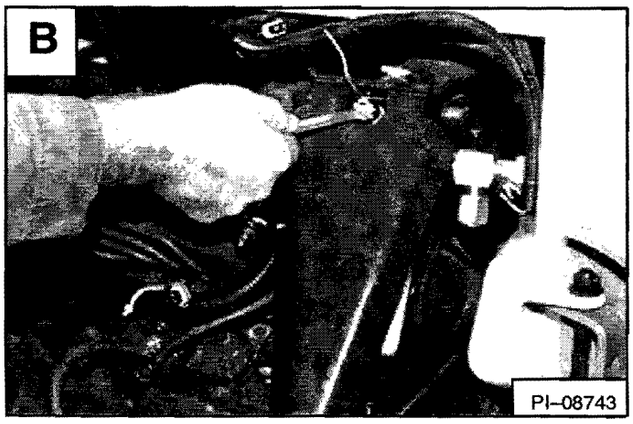



Disconnect the wire (Item 1) from the sender **[B]**.

**⚠ 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**



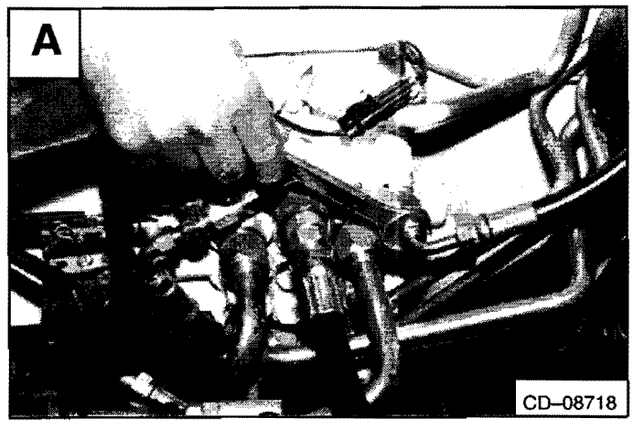
## HYDRAULIC FLUID RESERVOIR

### Removal and Installation

Raise the operator cab (Page 1–5).

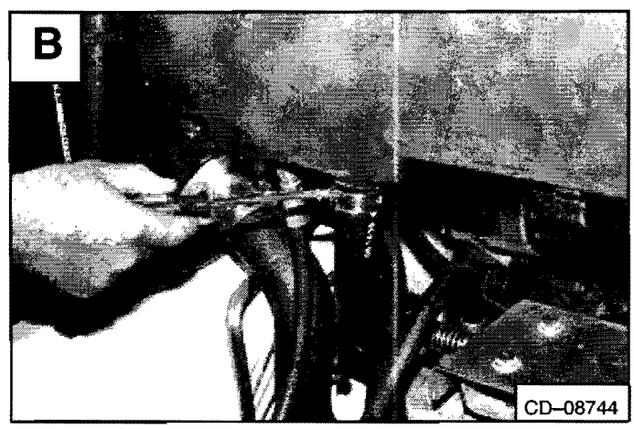
Disconnect the hose which goes from the control valve to the hydraulic reservoir **[A]**.

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



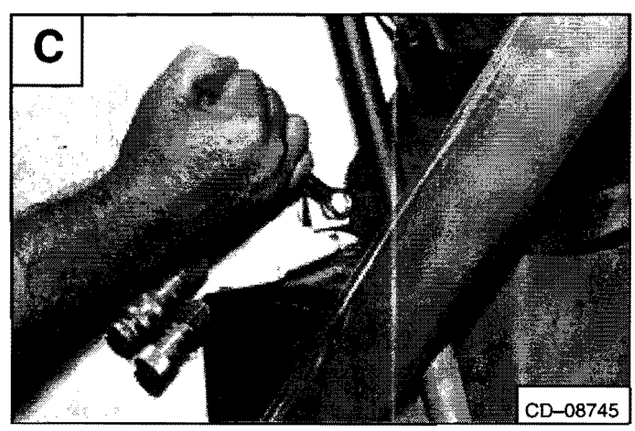

Loosen the hose clamps on the inlet hose to the hydraulic pump **[B]**.

Remove the hose.

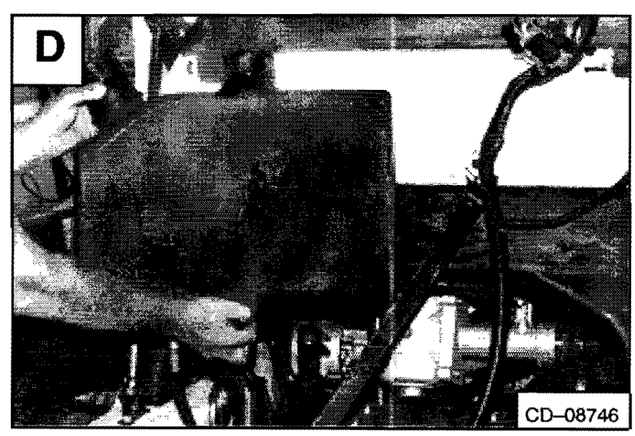



Remove the bolt and plate from the mounting strap **[C]**.

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




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



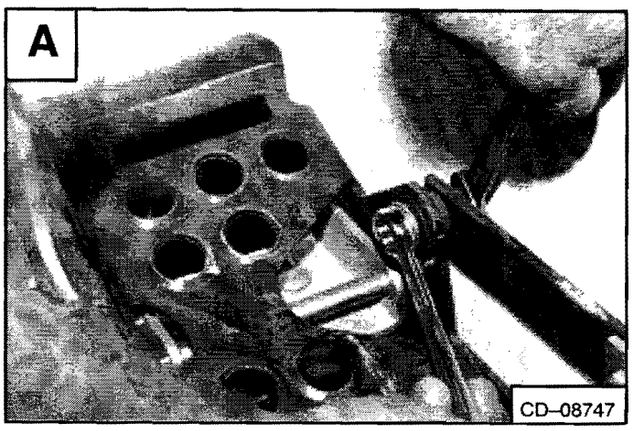
## CONTROL PEDALS

### Removal and Installation

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

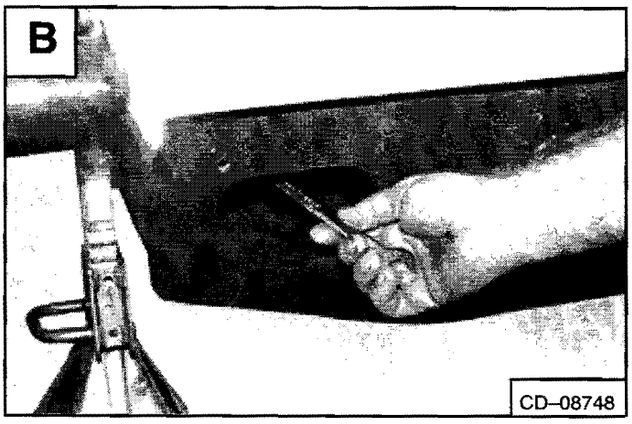
Installation: Tighten the bolt and nut to 21–25 ft.–lbs. (28–34 Nm) torque.

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



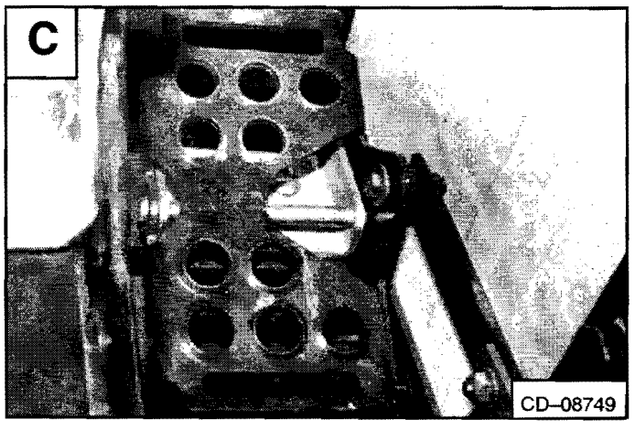

Remove the two mounting bolts **[B]**.

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**

## PEDAL INTERLOCK LINKAGE

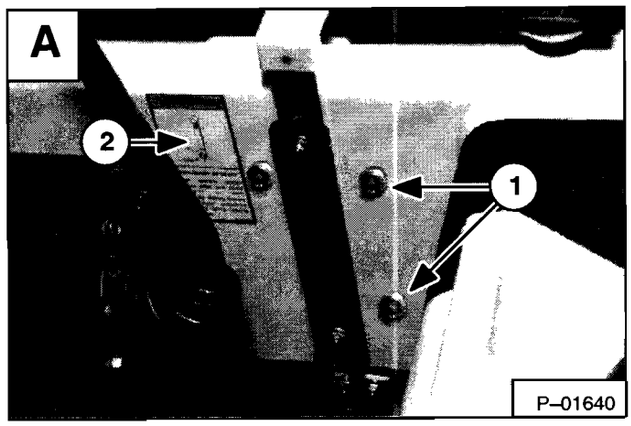
### Removal and Installation

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.



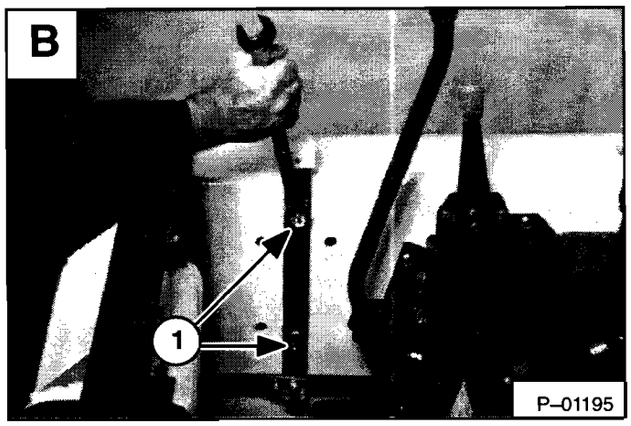

Loosen the lock nut (Item 1) from the interlock bolts **[B]**.

Remove the spring from under the interlock block.

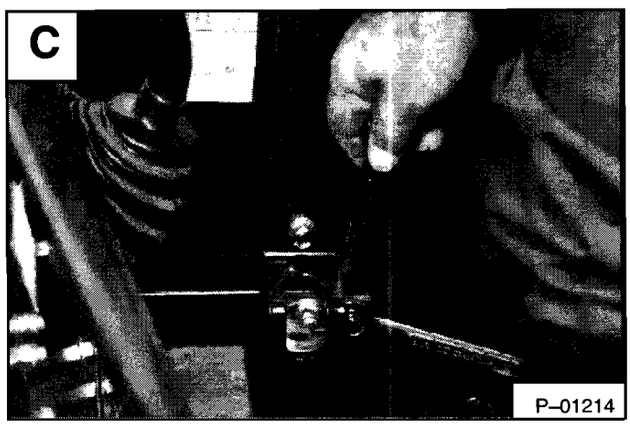
Installation: Tighten the interlock nut to 84–96 in.–lbs. (9,5–10,8 Nm) torque.

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**

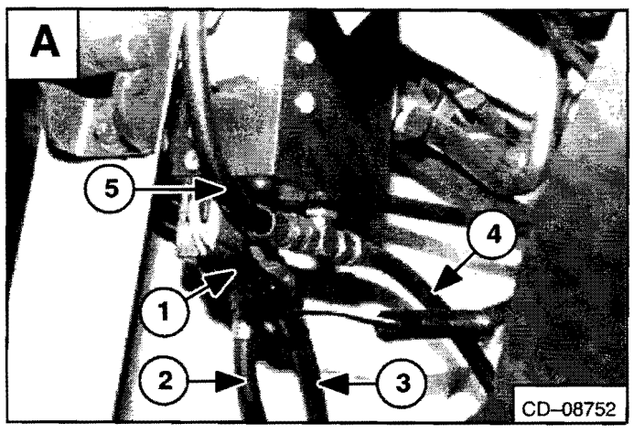
## DIVERTER VALVE (OPT.)

### Removal and Installation

Open the rear door.

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

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



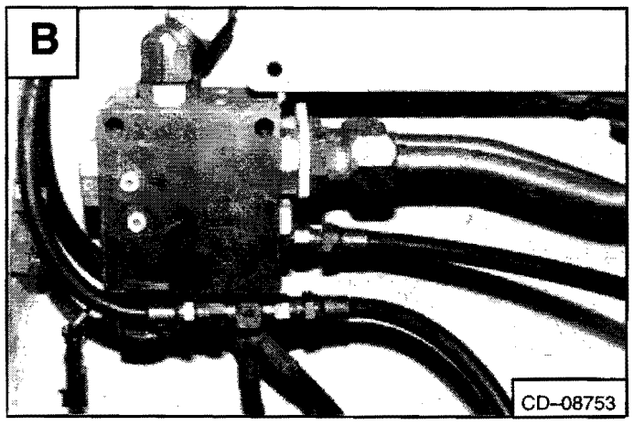

Disconnect the hose (Item 1) **[B]**.

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**

## HAND CONTROLS

### Adjustment

Raise the operator cab (Page 1–5a).

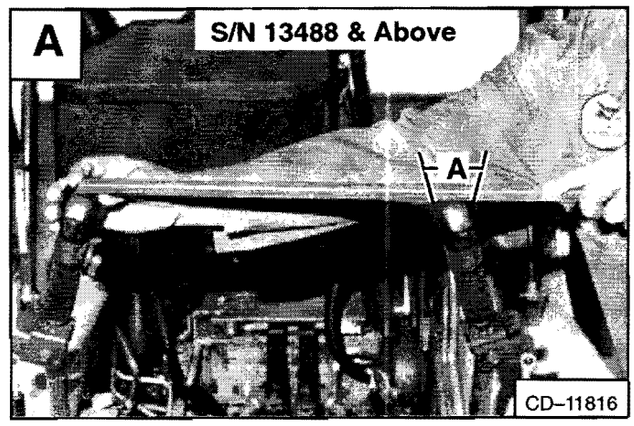
Adjust the tilt and lift control handles for following functions:

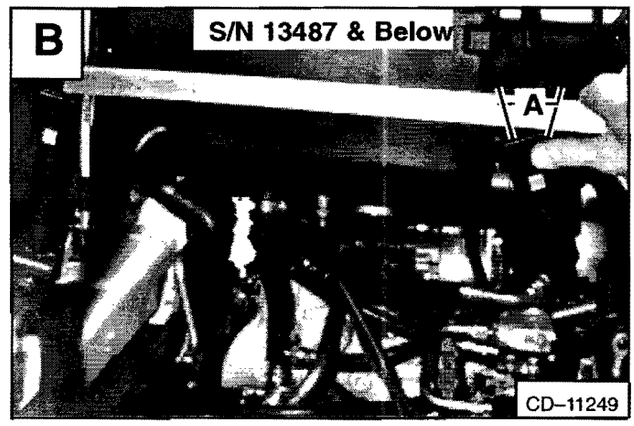
**a.** Make sure there is 16.0–16.5" (406–419 mm) between the two control handles (as measured from the center of the handle) and that they are setting at approximately 15 degree angle (Item A) **[A]** or **[B]**.

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

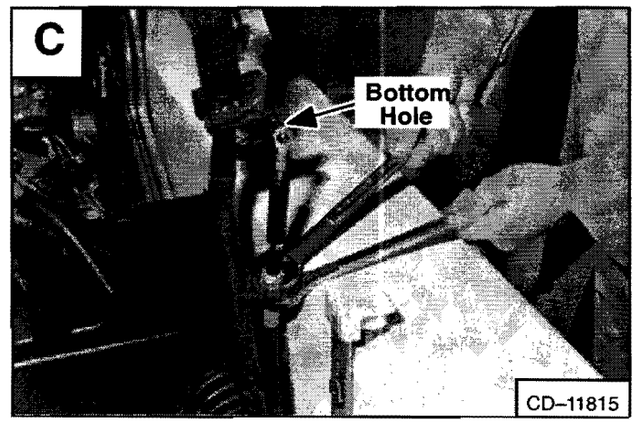
**c.** Make sure the left control handle goes into "detent" position for float position.

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

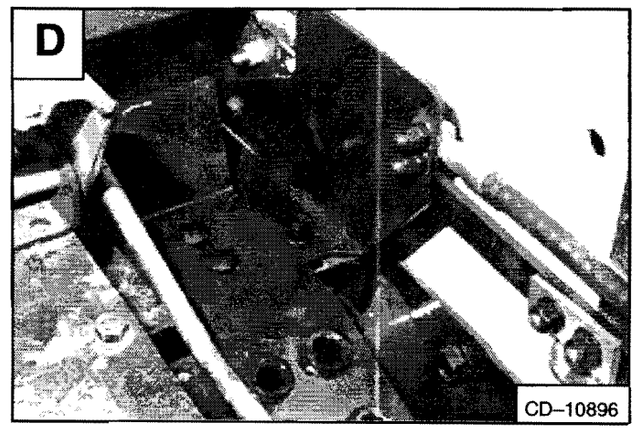



Adjust the cable mounting nuts **[C]** or the control cable mounting brackets to adjust the handles **[D]**.




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



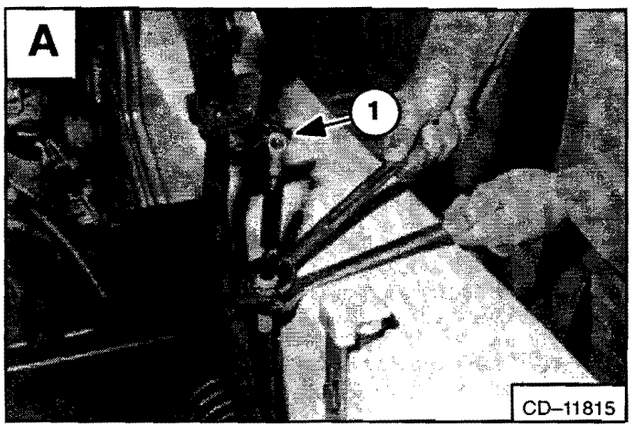
## HAND CONTROLS (Cont'd)

### Removal and Installation

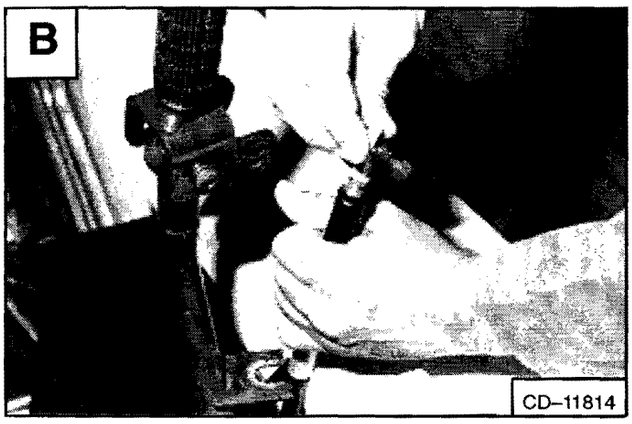
Raise the operator cab (Page 1–5a).

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]**.

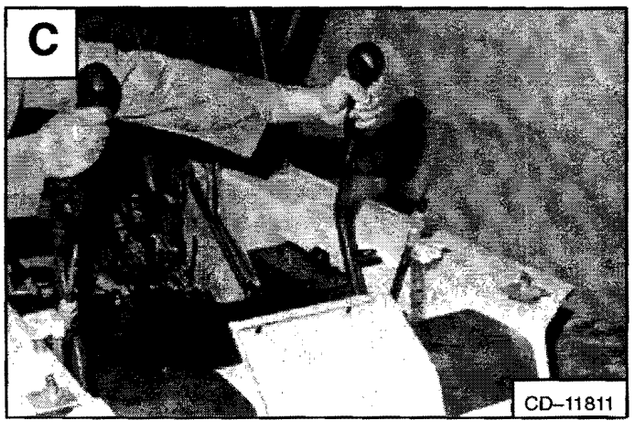



Remove the front panel/steering lever assembly (Page 3–3) **[C]**.

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.

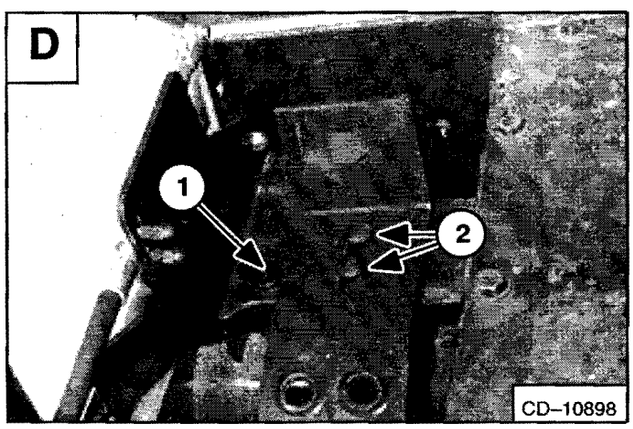
**NOTE: S/N 13487 & Below; For disassembly of the control handle and switches, See Page 3–7.**

**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]**.

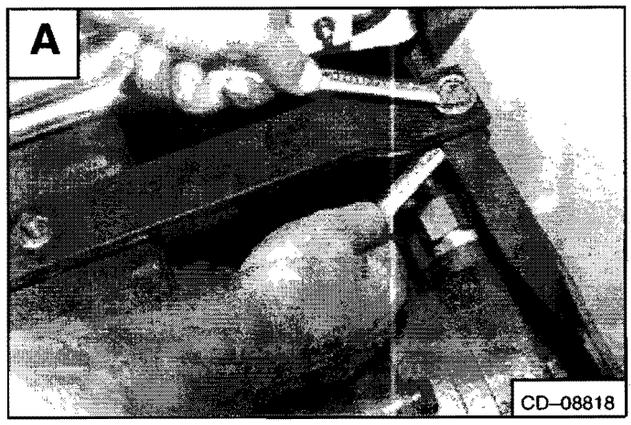
Remove the carriage bolts (Item 2), nuts and foot rest (both sides) **[D]**.



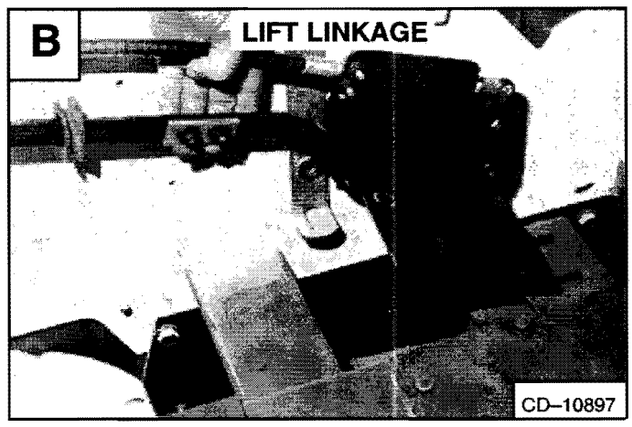
**HAND CONTROLS (Cont'd)**

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

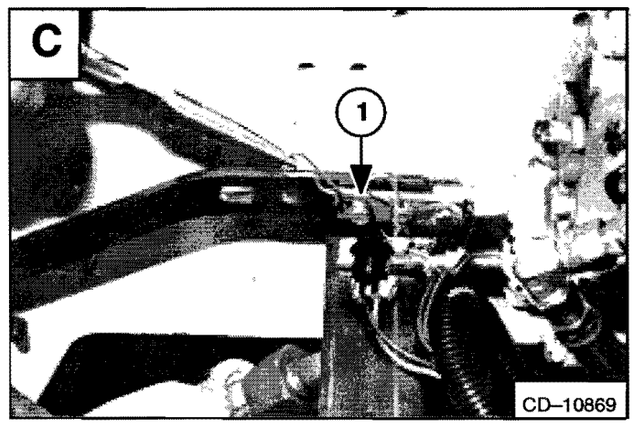
Installation: Put the lift linkage bar UNDER the crossbar.



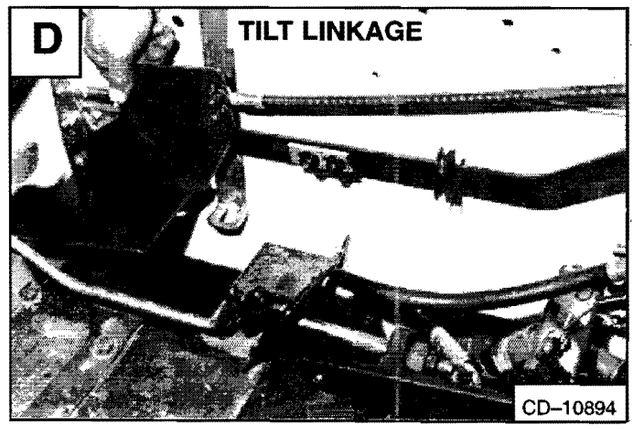

Remove the lift control cable/linkage assembly from the loader **[B]**.



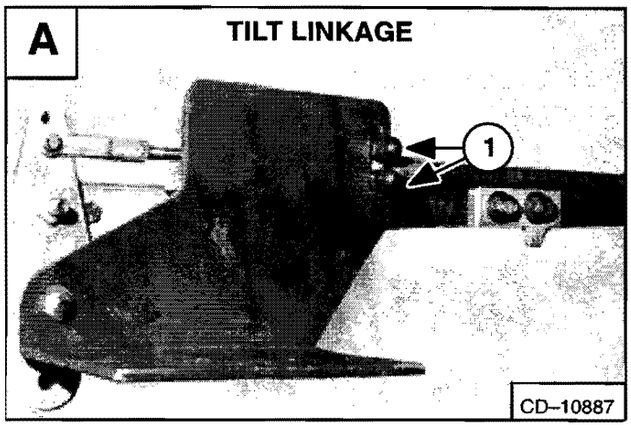

Disconnect the tilt linkage (Item 1) from the control valve **[C]**.




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

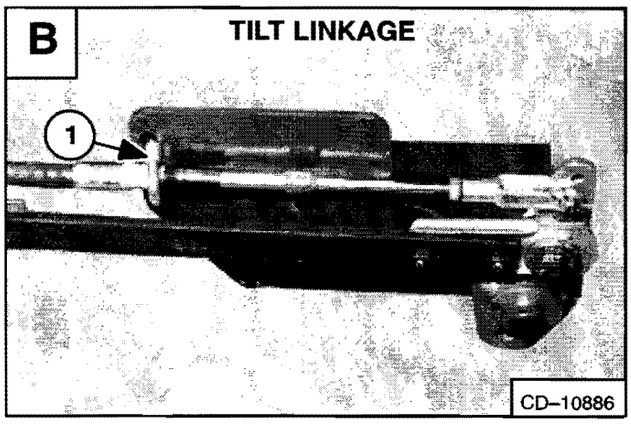


Remove the acorn nuts (Item 1) from the u–bolt **[A]**.

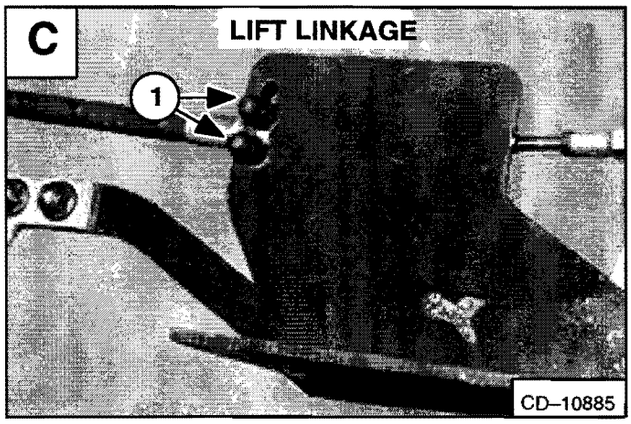



Remove the nuts and u–bolt (Item 1) **[B]**.

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

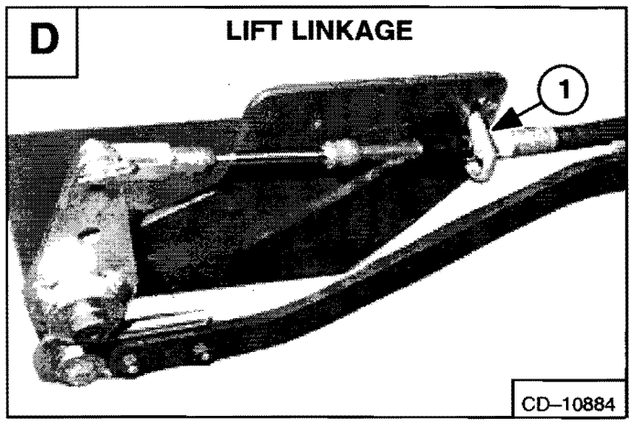



Remove the acorn nuts (Item 1) **[C]**.



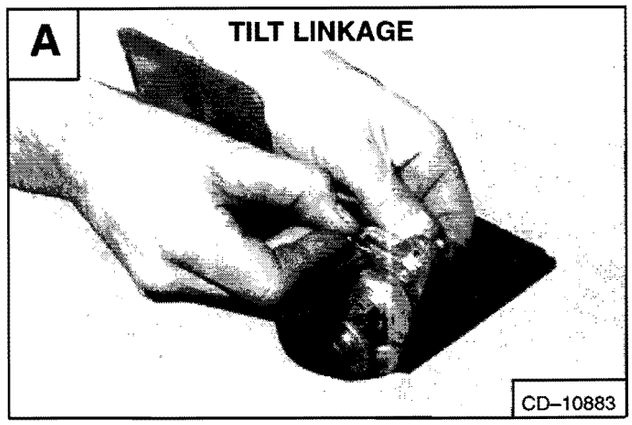

Remove the nuts and u–bolts (Item 1) **[D]**.

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



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

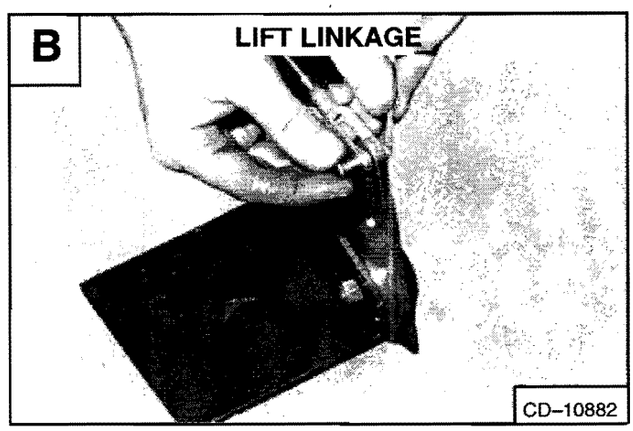
Installation: Install the clevis in the second hole from the top on the bellcrank for the tilt linkage.




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

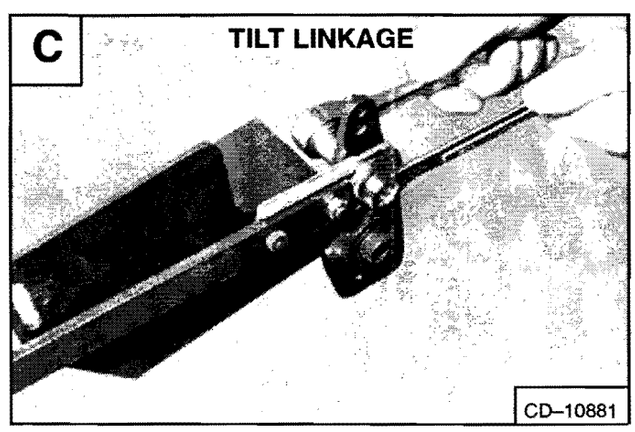
Installation: Install the clevis in the top hole on the bellcrank for the lift linkage.

**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.**

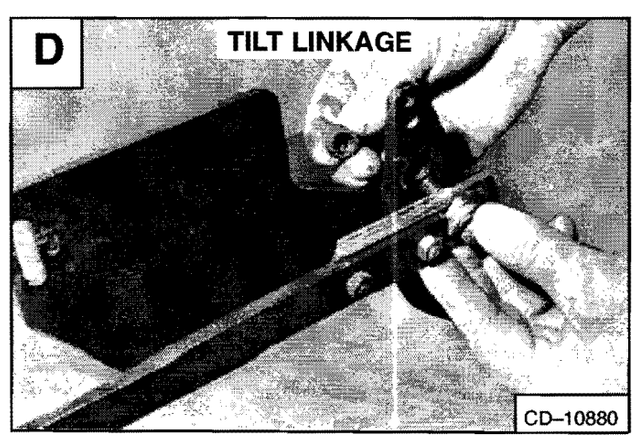



Loosen the bolt and nut on the tilt linkage bar **[C]**.

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

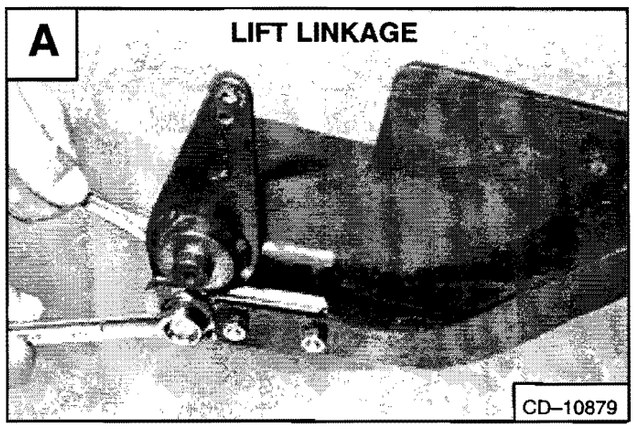



Disconnect the tilt linkage from the middle hole on the bellcrank **[D]**.

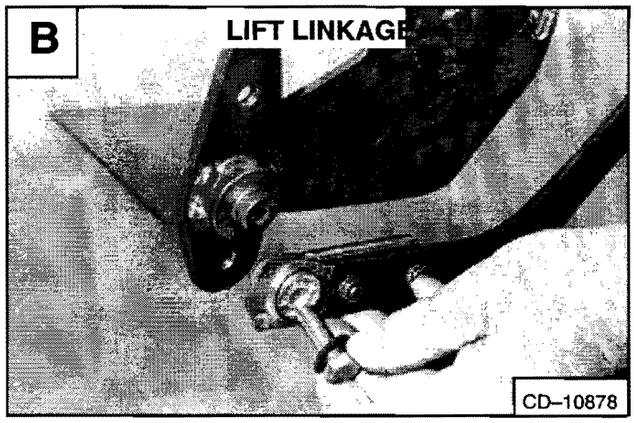


Loosen the bolt and nut on the lift linkage bar **[A]**.

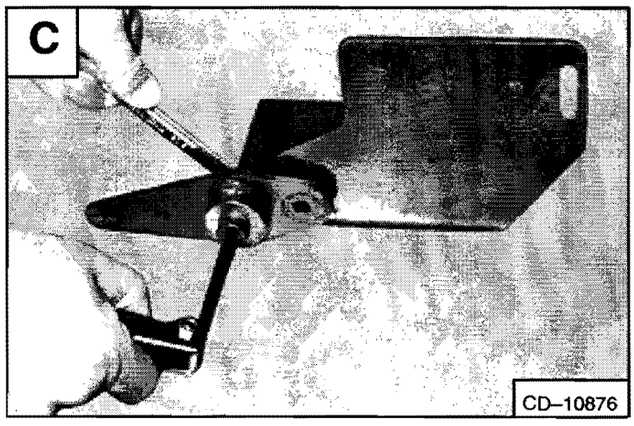
Installation: DO NOT over–tighten the nut because this will distort the swivel bearing and could cause interference in operation of the controls.




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

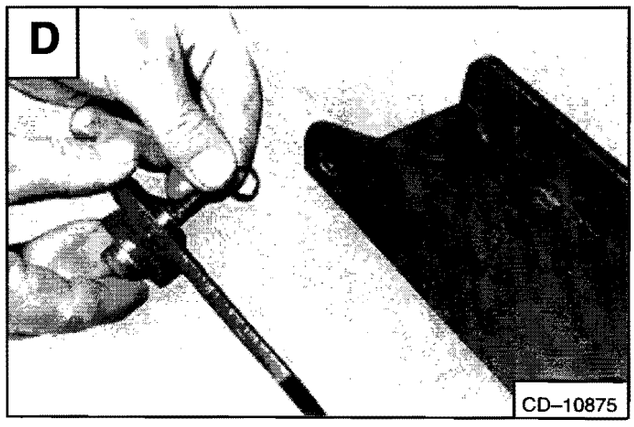



Remove the nut from the bellcrank pivot bolt **[C]**.




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

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



**HAND CONTROLS (Cont'd)**

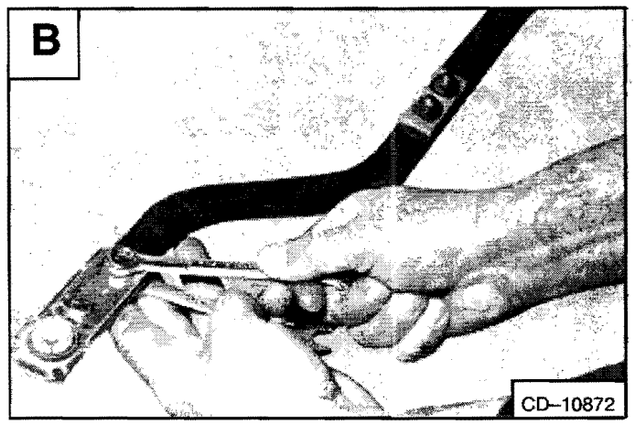
Remove the pivot bolt, washer and O–ring from the bellcrank **[A]**.




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

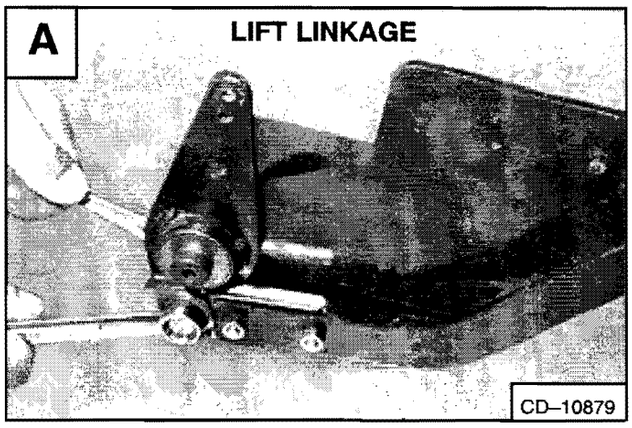
Remove the swivel bearing from the linkage bar.

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

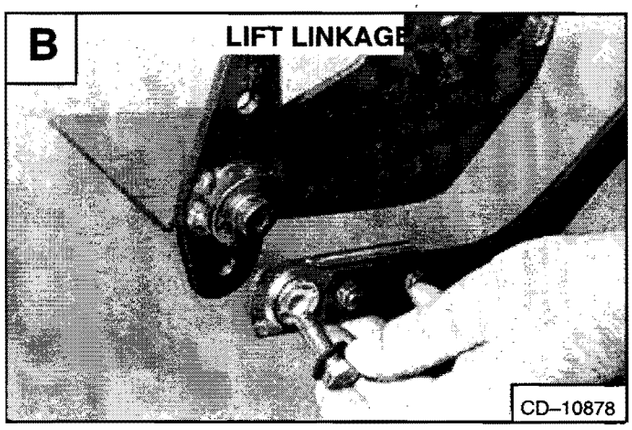


Loosen the bolt and nut on the lift linkage bar **[A]**.

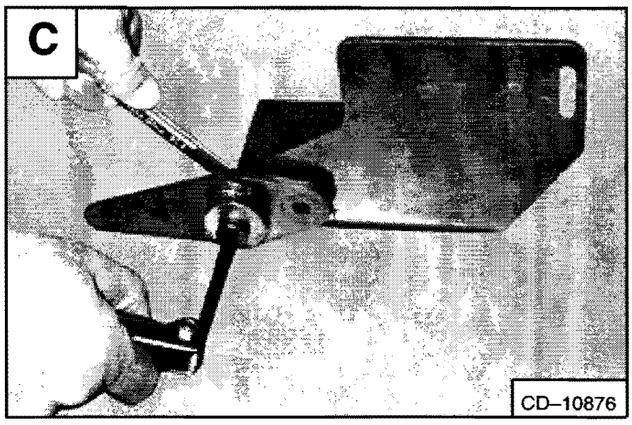
Installation: DO NOT over–tighten the nut because this will distort the swivel bearing and could cause interference in operation of the controls.




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

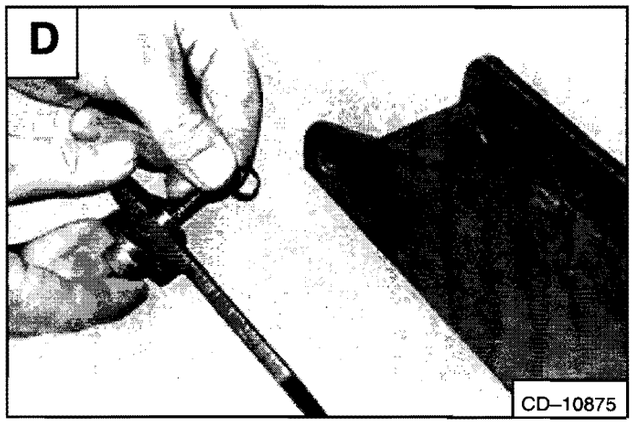



Remove the nut from the bellcrank pivot bolt **[C]**.




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

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



**HAND CONTROLS (Cont'd)**

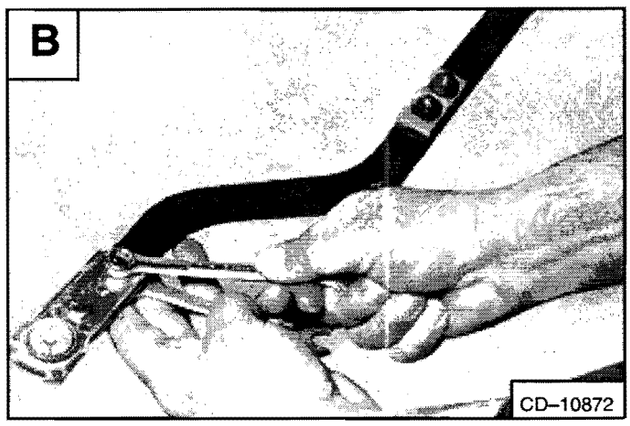
Remove the pivot bolt, washer and O–ring form the bellcrank **[A]**.




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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- Disassembly ..... 3–27

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- Removal and Installation ..... 3–21

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HYDROSTATIC SYSTEM INFORMATION
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STEERING LEVER CONTROL HANDLE
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511350001 & Above
511475001–75023
511525001 & Above
512711001–11125, 11131 & 11139
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STEERING LINKAGE S/N's 512711126–11130, 11132–11138 & 11140 & Above
508690870 & Above
511475024 & Above
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TROUBLESHOOTING
- Chart ..... 3–3


**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.

**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.**

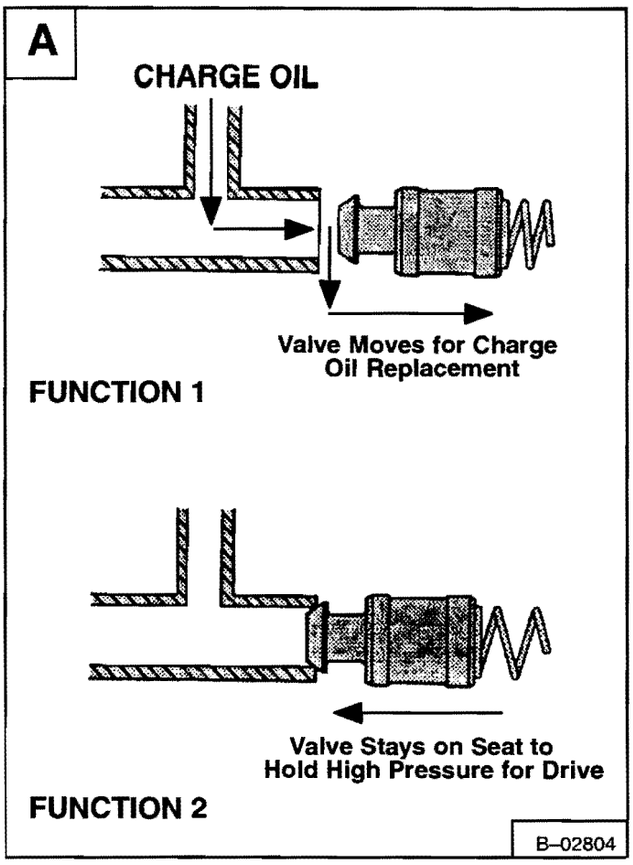
I–2003–0888

### 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]**.



## 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.

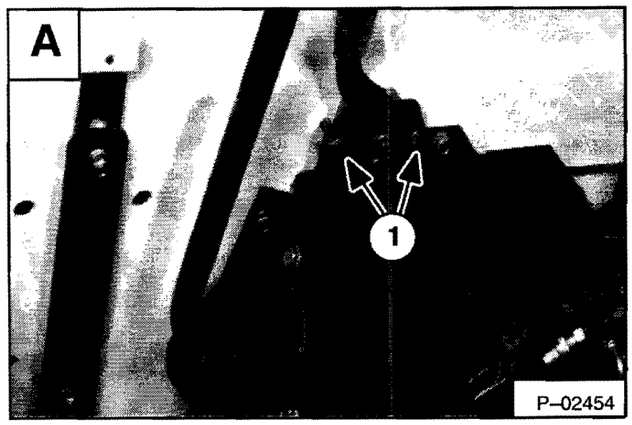
Disconnect the linkage from the throttle lever and remove the lever.

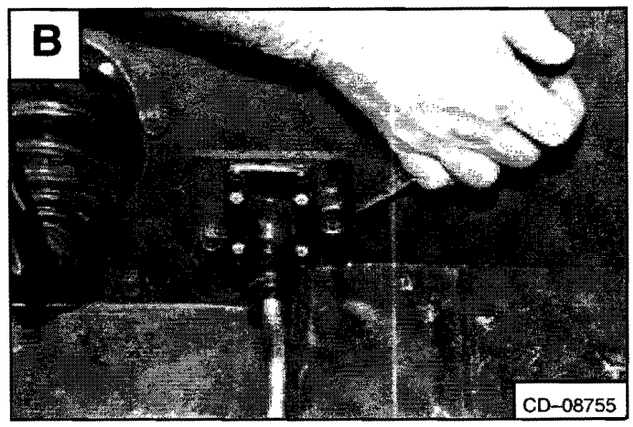
Remove the bolts from the rubber boot retainer plate for the parking brake boot **[B]**.

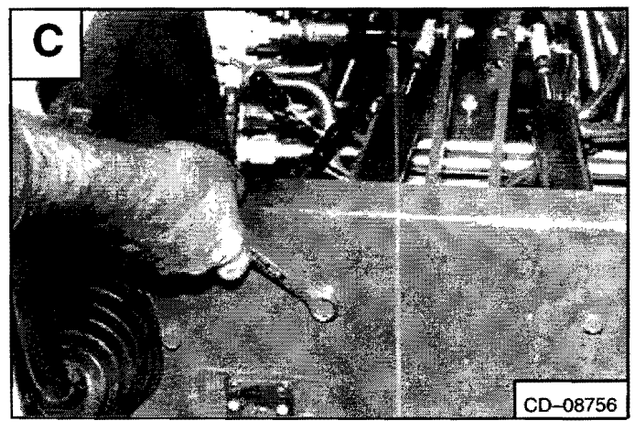
Remove the bolt from the steering shock (both sides) **[C]**.

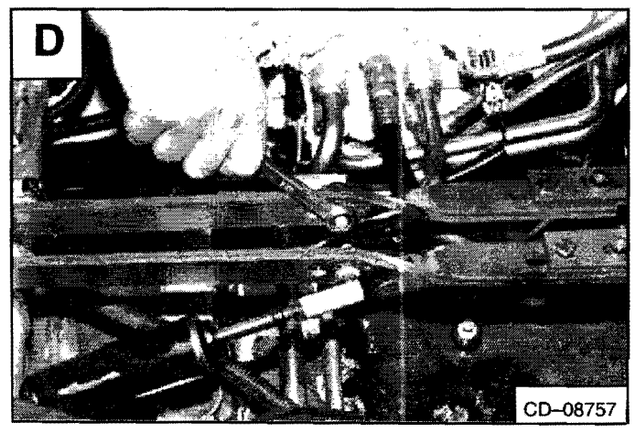
Disconnect the steering shock from the steering linkage (both sides) **[D]**.

Remove the steering shock (both sides).



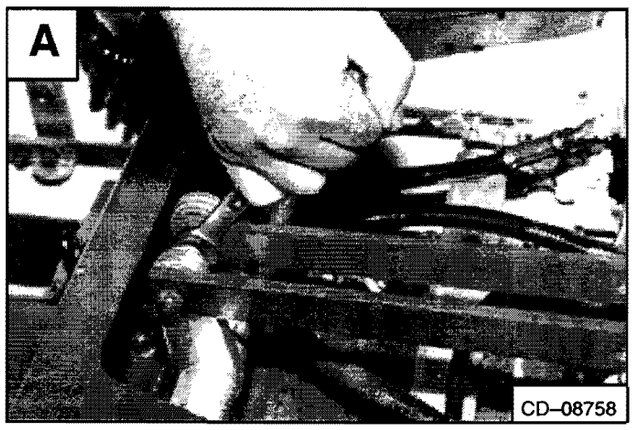



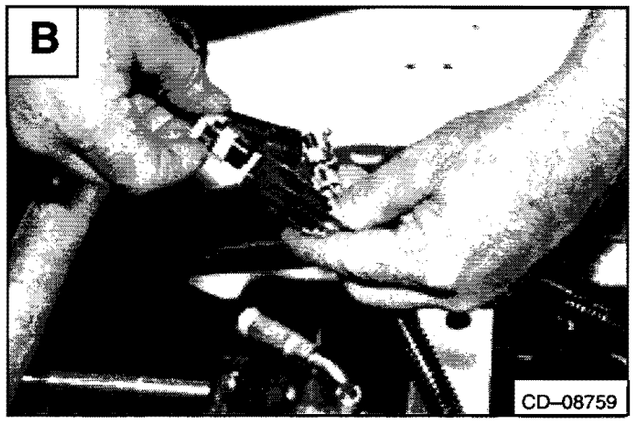
**FRONT PANEL (Cont'd)**

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

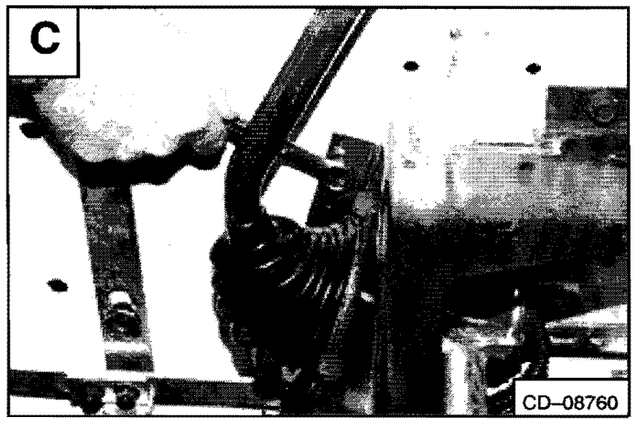
***Installation:*** Install a NEW lock nut and tighten the bolt and nut to 23 ft.-lbs. (31 Nm) torque.



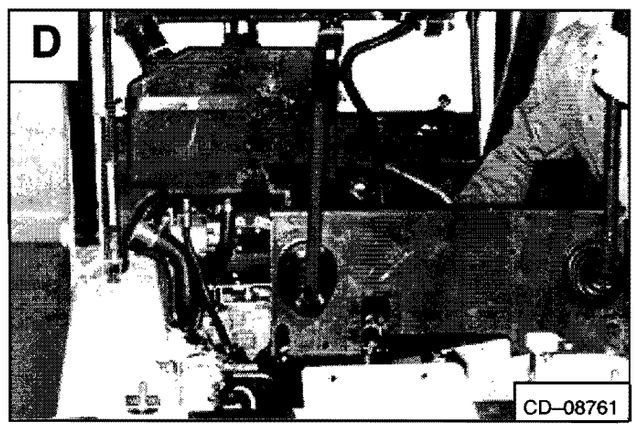

Disconnect the wiring harness from the steering lever (both sides) **[B]**.




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




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



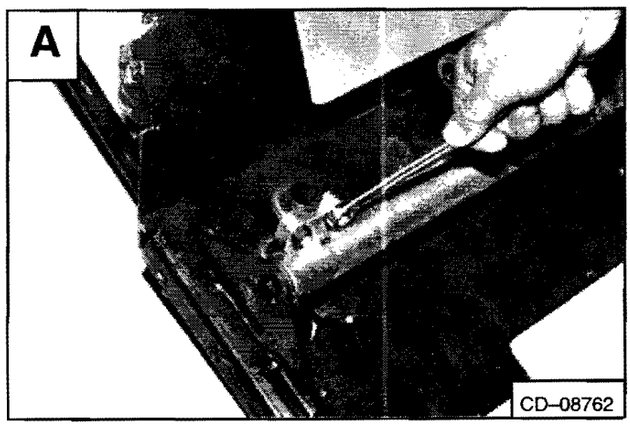
## STEERING LEVERS

### Disassembly and Assembly

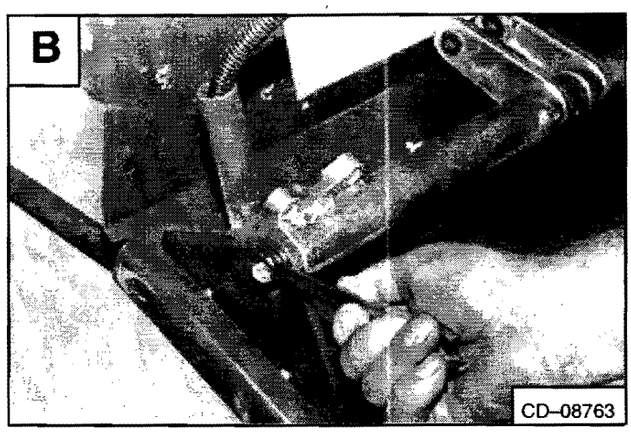
Remove the front panel/steering lever assembly from the loader. (See Page 3–5.)

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

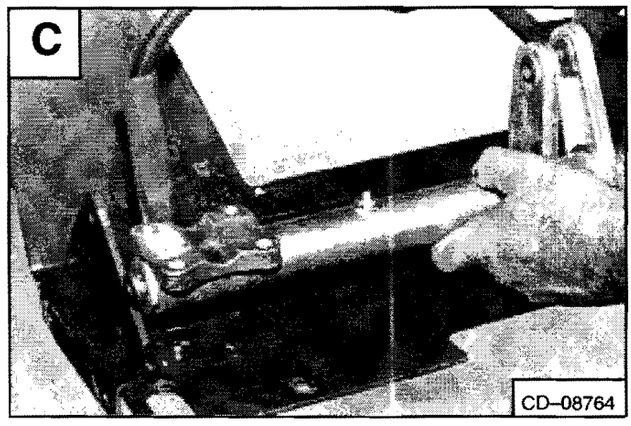
Remove the top half of the clamp.



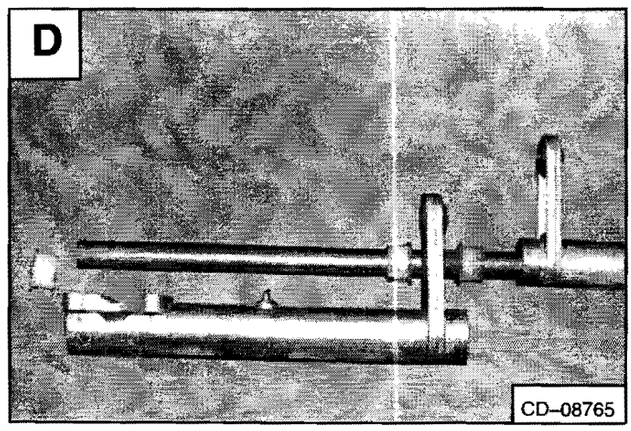

Remove the steering shaft pivot bolt (both sides) **[B]**.




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



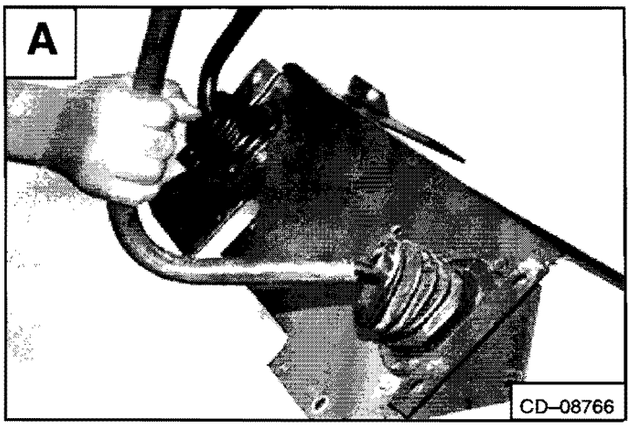

Disassemble the right and left steering shaft from the cross shaft assembly. Install the new nylon bushings, as needed when assembling the steering shaft **[D]**.



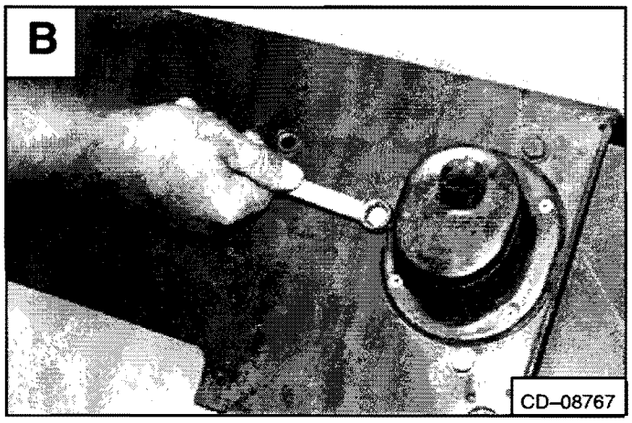
**STEERING LEVERS (Cont'd)**

**Disassembly and Assembly (Cont'd)**

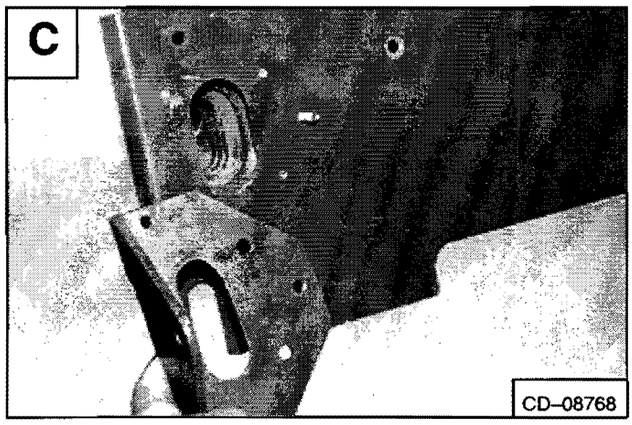
Remove the steering lever from the front panel **[A]**.




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



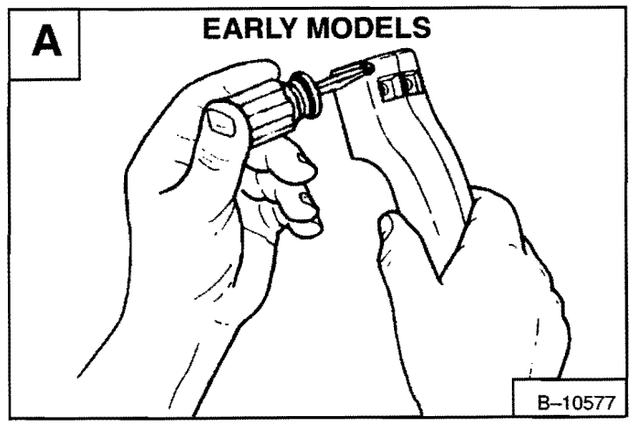

Remove the steering lever stop **[C]**.



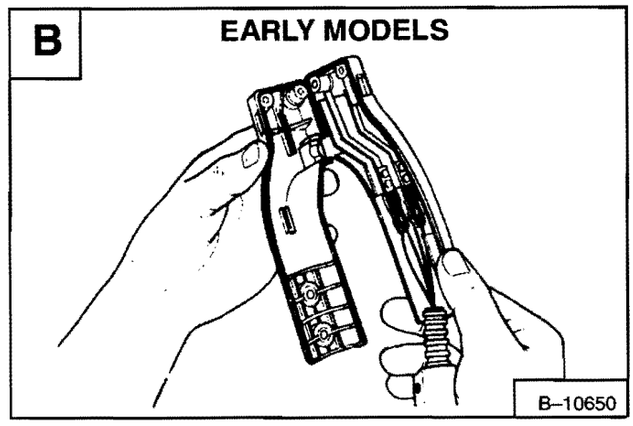
## STEERING LEVER CONTROL HANDLE

### Disassembly and Assembly

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



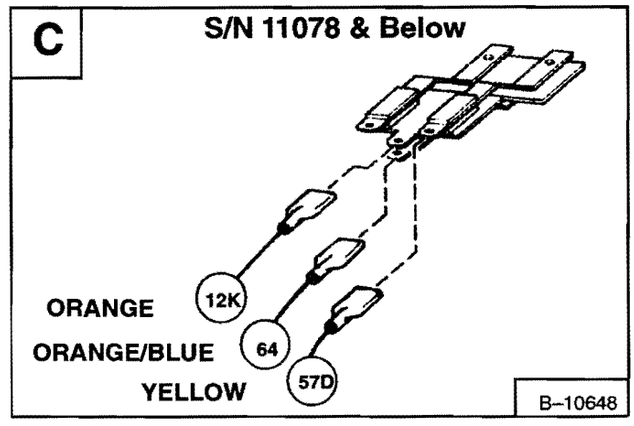

Remove one side of the control handle **[B]**.

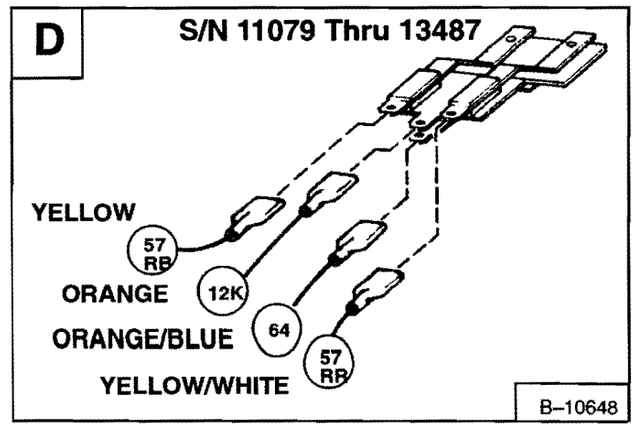



Disconnect the wires and remove the other half of the handle with the switch plate.

***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.**



**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]**.

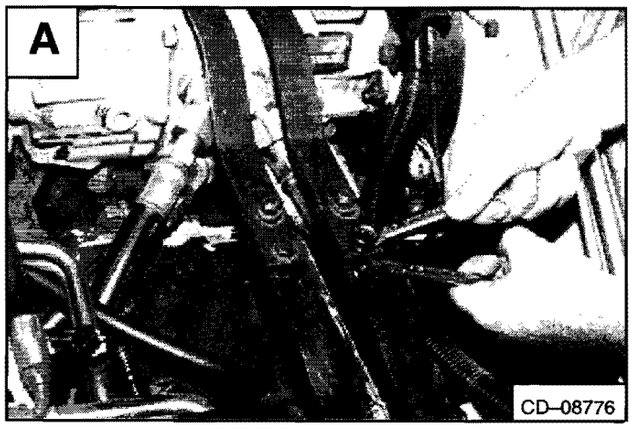
Move the hydrostatic pump pintle arm forward to full stroke. Tighten the nuts and bolts to 23 ft.–lbs. (31 Nm) torque **[A]**.

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.

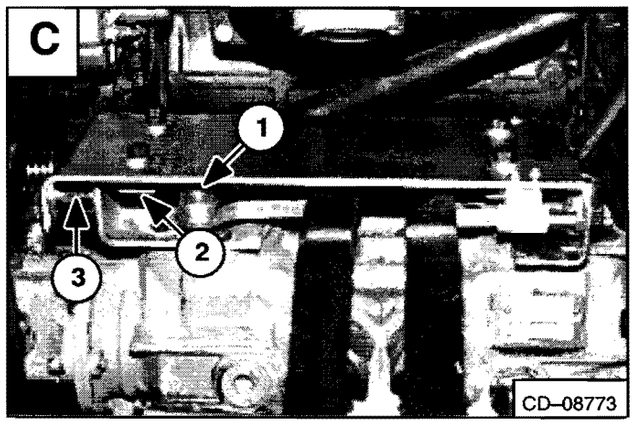
Remove the spacer **[C]**.

Install the fan drive belt.









**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]**.

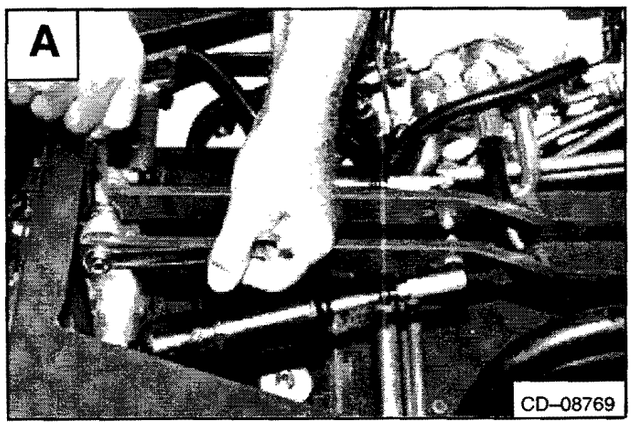
Move the right steering lever until the tires do not turn (neutral).

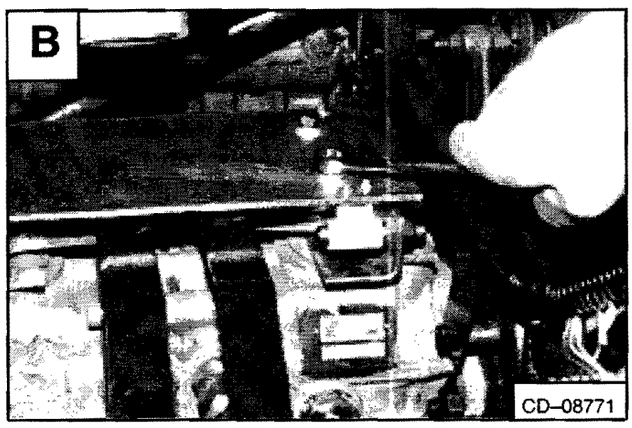
Push the pintle bar against both lobes of the pintle lever. Tighten the bolts to 28 ft.–lbs. (38 Nm) torque **[C]**.

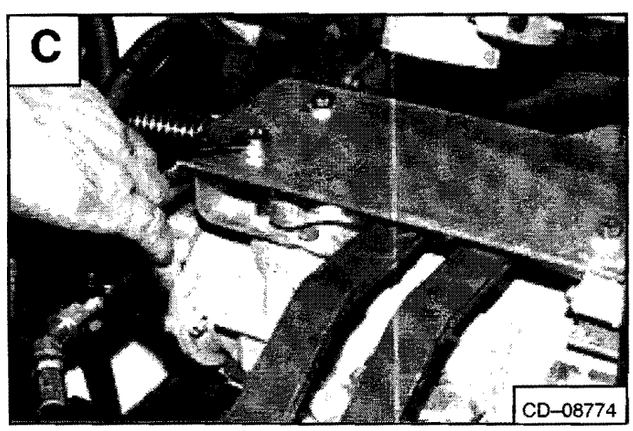
Move both steering levers backward and forward and let the transmission return to neutral. If the transmission does not return to neutral, repeat the above procedure again.

Stop the engine.

Re–install the fan drive belt.



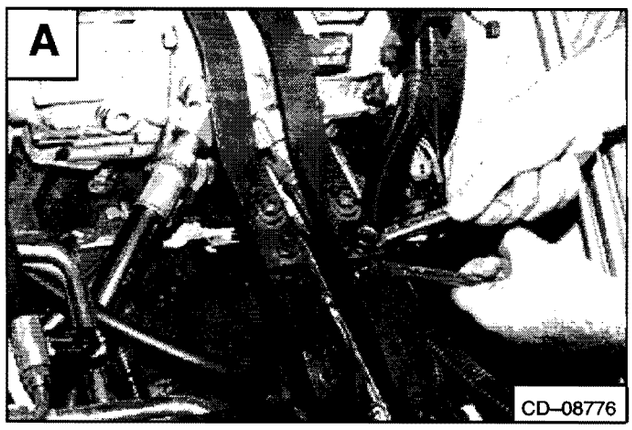



**STEERING LINKAGE (Cont'd)**
**S/N's: 508611001–90879**
**511011001 & Above**
**511350001 & Above**
**511475001–75023**
**511525001 & Above**
**512711001–11125, 11131 & 11139**

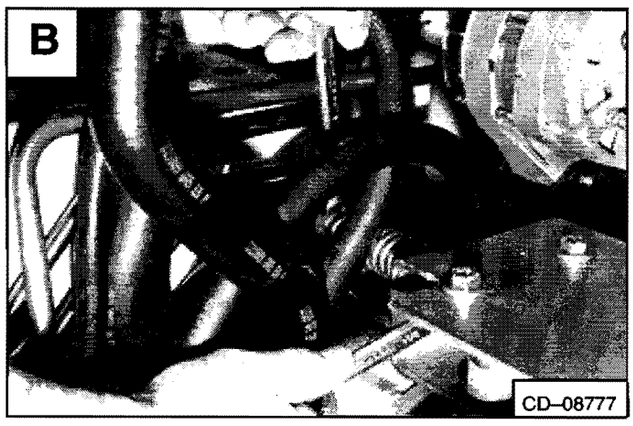
**Removal and Installation**

**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].**

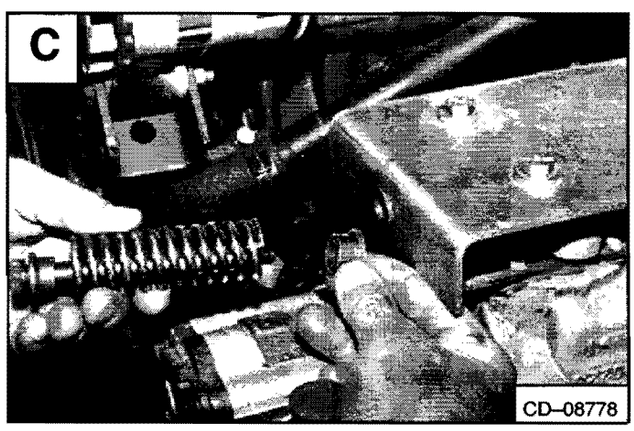



Remove the lock nut from the centering spring bolt **[B]**.

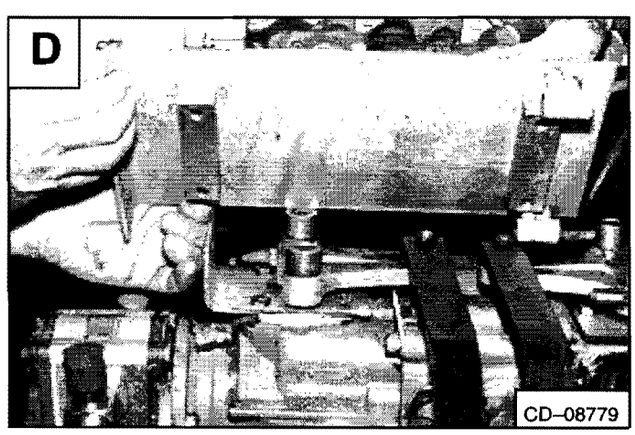
***Installation:*** Tighten the centering spring bolts and a NEW lock nut to 25–28 ft.–lbs. (34–38 Nm) torque.




Remove the centering spring bolt, spring and bushing.



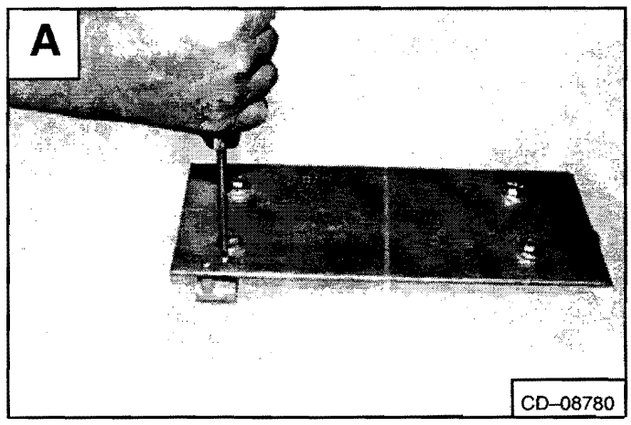

Slide the centering plate/pintle bar assembly from the dowels and remove from the hydrostatic pumps **[D]**.



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

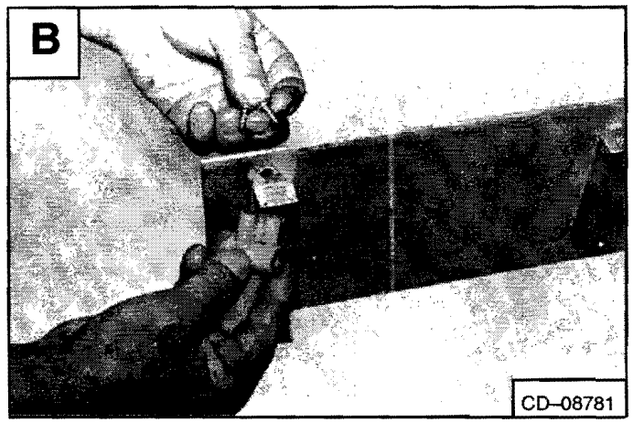
**Centering Plate**

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

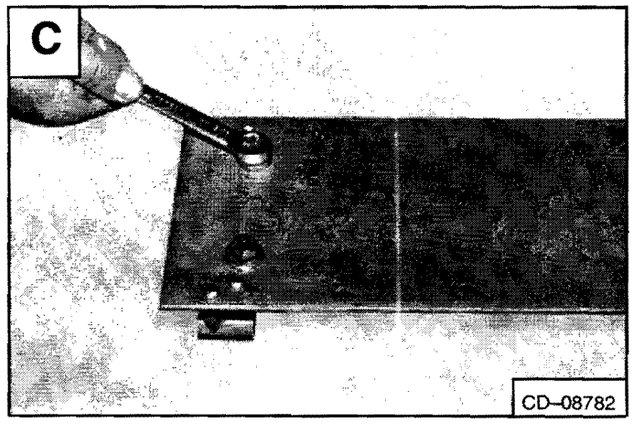



Remove the plastic guide **[B]**.

Replace the guides as needed.



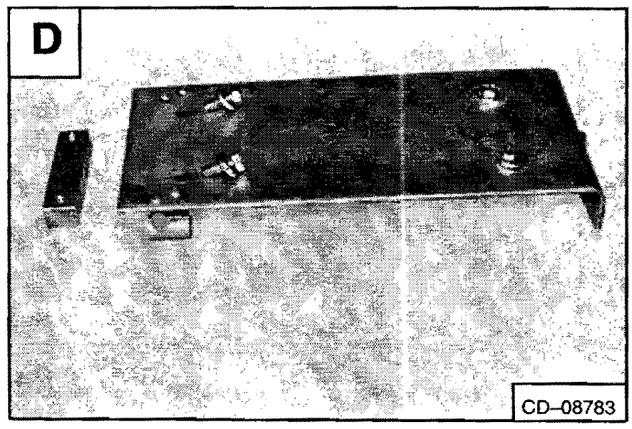

Loosen the two pintle bar bolts **[C]**.




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.

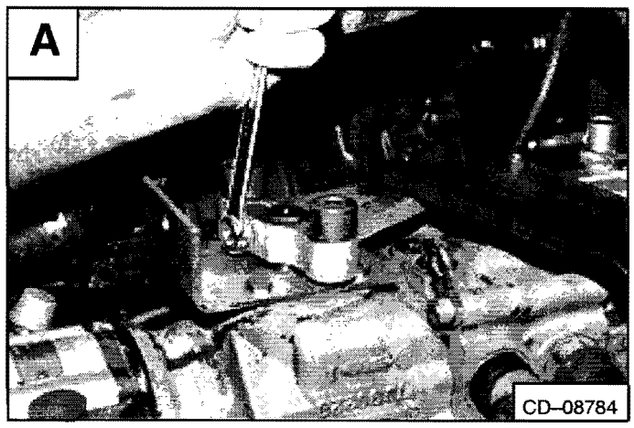
**NOTE: Tighten the pintle bar bolts to the correct torque when the steering linkage adjustment is done.**



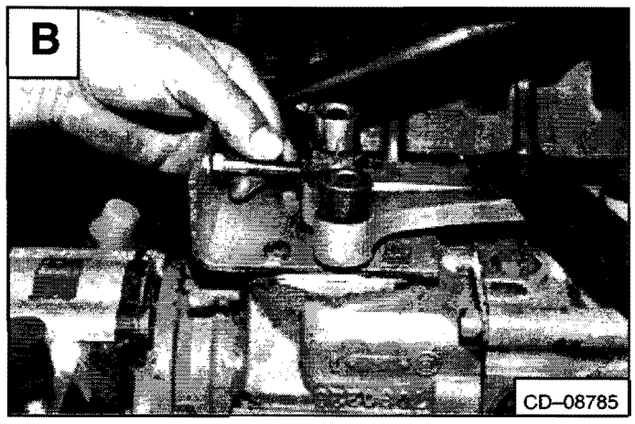
**STEERING LINKAGE (Cont'd)**
**S/N's: 508611001–90879**
**511011001 & Above**
**511350001 & Above**
**511475001–75023**
**511525001 & Above**
**512711001–11125, 11131 & 11139**

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

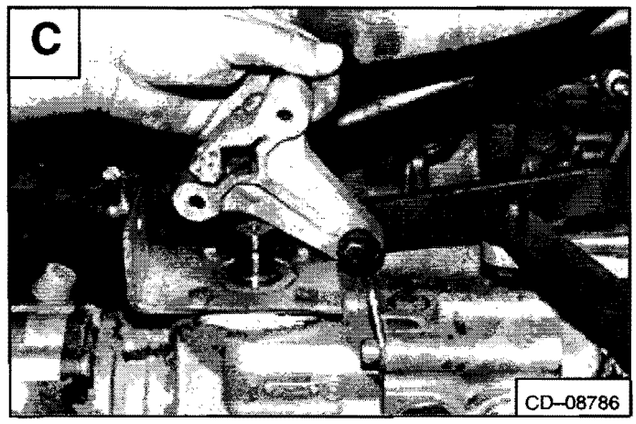
***Installation:*** Tighten the bolt to 40–50 ft.–lbs. (54–68 Nm) torque.



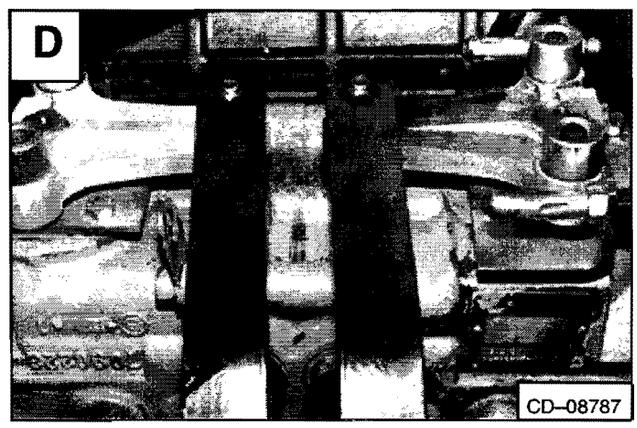

Remove the bolt from the pintle arm **[B]**.




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



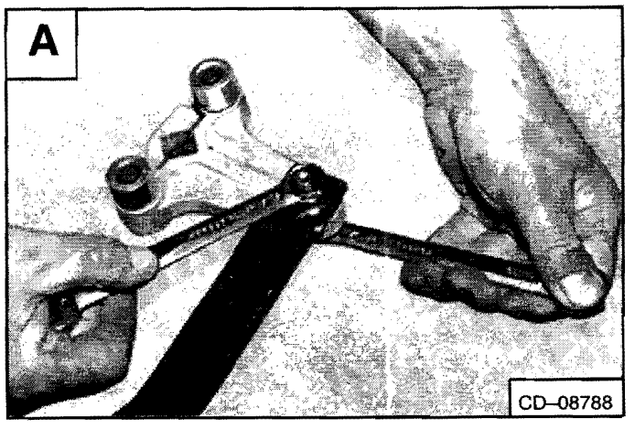

**NOTE: Make sure the steering linkage is parallel with the pintle arm so there is no binding of the rubber bushing [D].**



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

**Pintle Arm Repair**

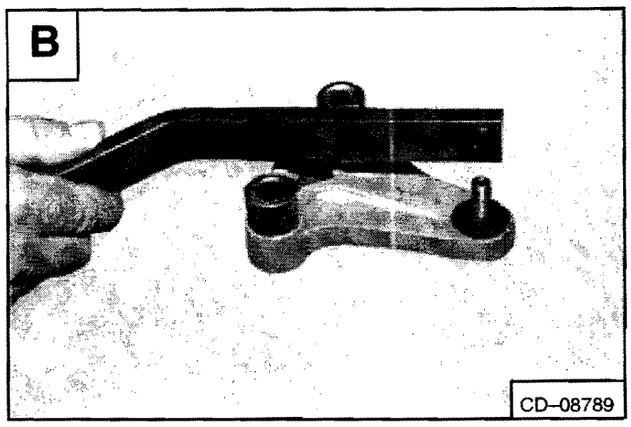
Remove the nut from the pintle arm and steering linkage **[A]**.




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

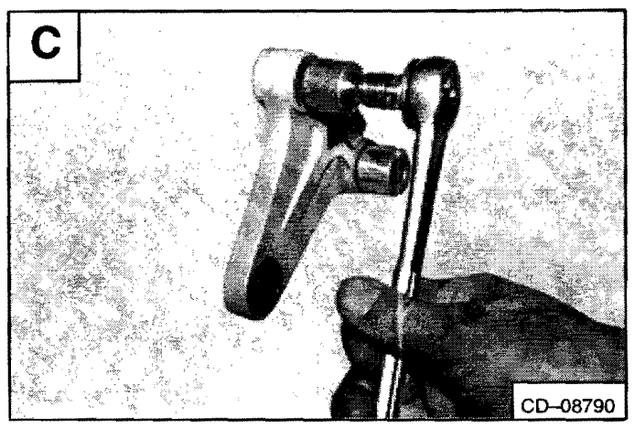
Replace the rubber bushing as needed.

**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]**.

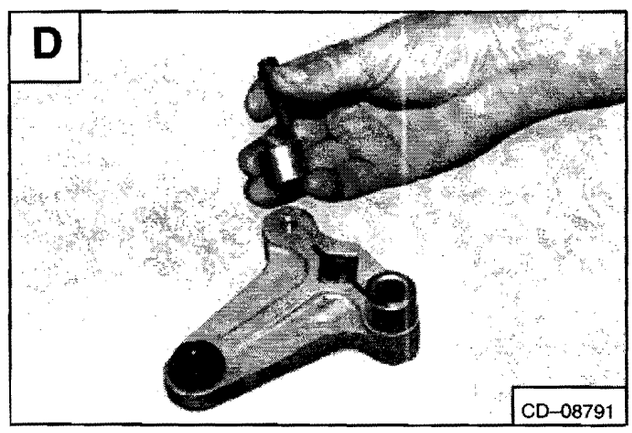
***Assembly:*** Tighten the bolt to 25–28 ft.–lbs. (34–38 Nm) torque.




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.)



**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.

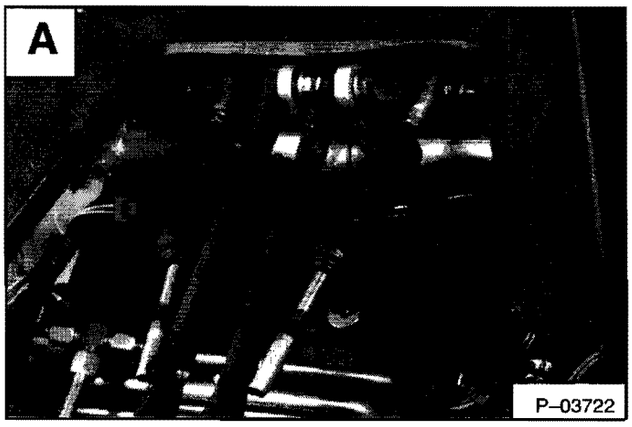
Tighten the bolt to 11–13 ft.–lbs. (15–17 Nm) torque, then tighten the nut to 21–25 ft.–lbs. (28–33 Nm) torque.

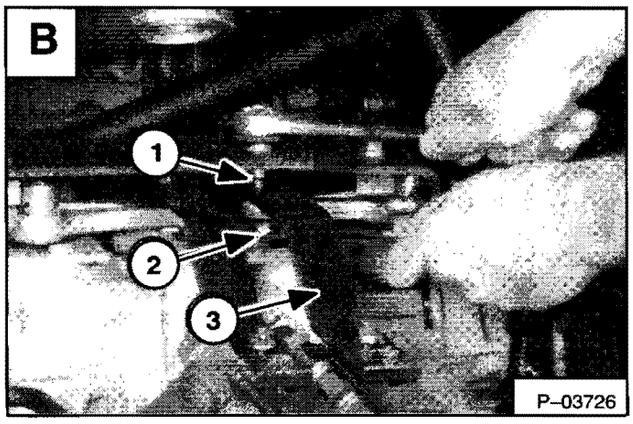
Move the right hand steering lever to the rear and install a 3/8 inch (10 mm) thick spacer (Item 1) **[C]** between the pintle arm cam (Item 2) **[C]** and the centering block (Item 3) **[C]**.

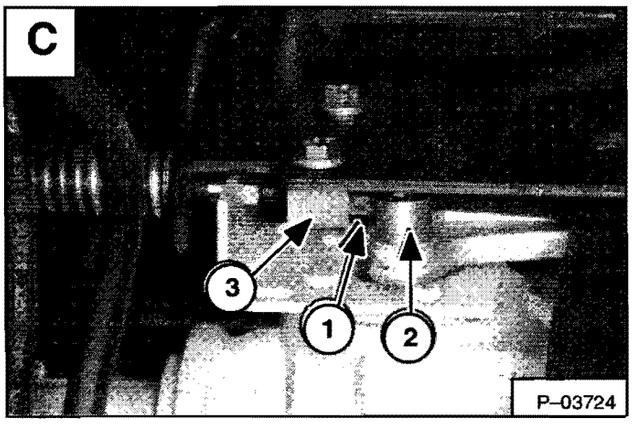
Move the right hand steering lever forward and install a 15/16 inch (24 mm) thick spacer (Item 1) **[D]** between the centering plate (Item 2) **[D]** and the mounting plate (Item 3) **[D]**.

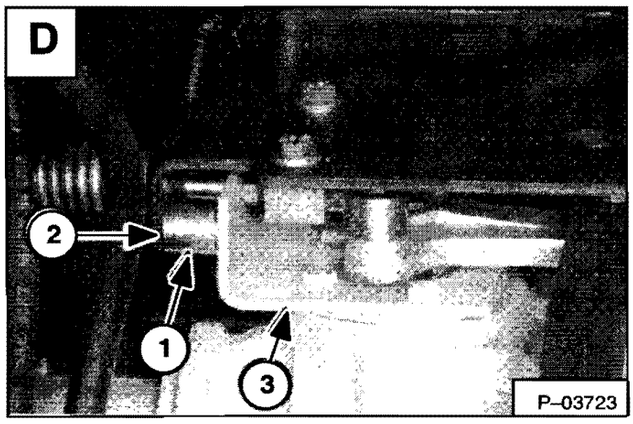
This will allow the pintle arms to move freely while adjusting the steering linkage for full forward travel speed.

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



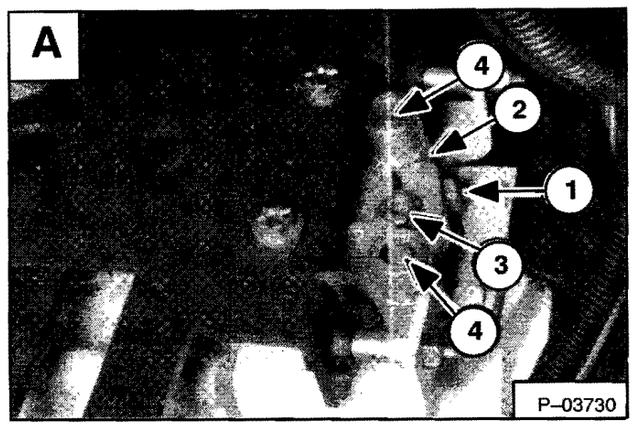



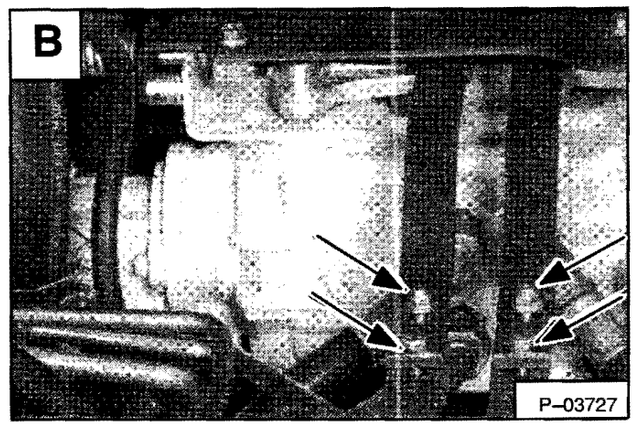
**STEERING LINKAGE (Cont'd)**
**S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above**
**508690870 & Above**
**511475024 & Above**

**Steering Linkage Adjustment (Cont'd)**

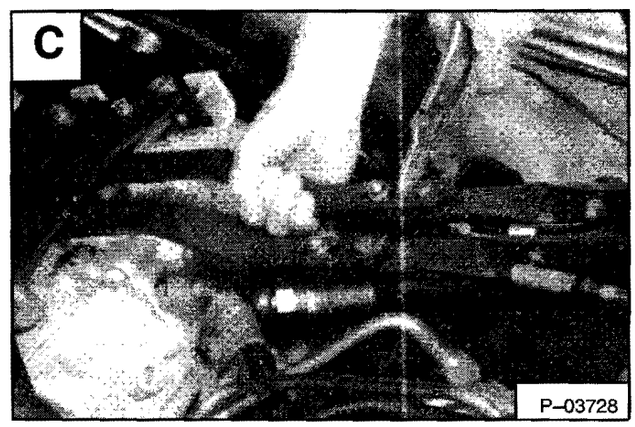
Before adjusting the linkage, check that the pintle arm mounting bolt (Item 1) **[A]** is tight, 25–28 ft.–lbs. (34–38 Nm) torque and that there is no play between the pintle arm (Item 2) **[A]** and the square pump shaft (Item 3) **[A]**. Also check that the cam mounting bolts (Item 4) **[A]** are tight,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



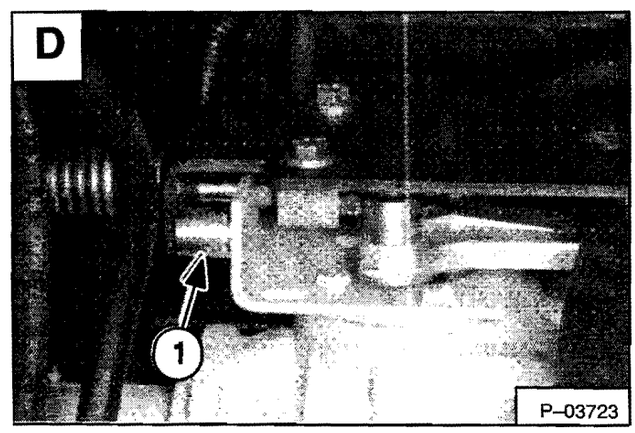

Tighten the nuts and bolts to 25–28 ft.–lbs. (34–38 Nm) torque.

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]**.



**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.

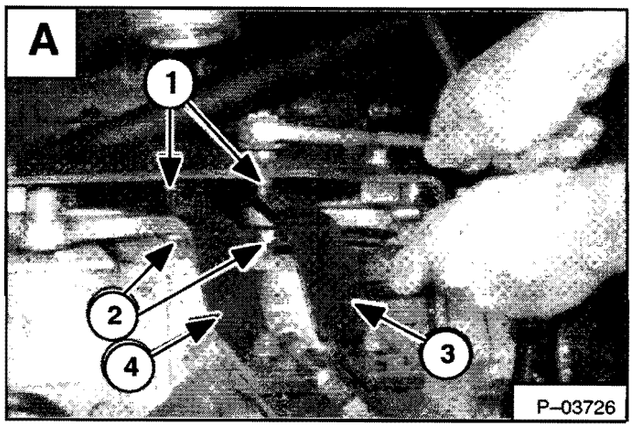
Test both levers by moving them backward and forward and letting them return to neutral by the return spring force.

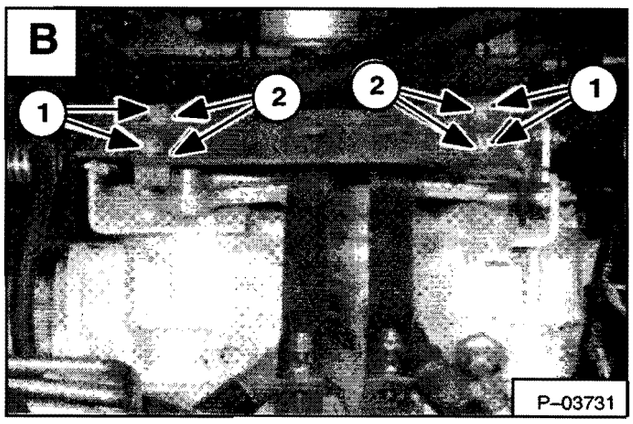
If the levers do not return to neutral and the tires do not come to a complete stop, repeat the adjustment procedure again.

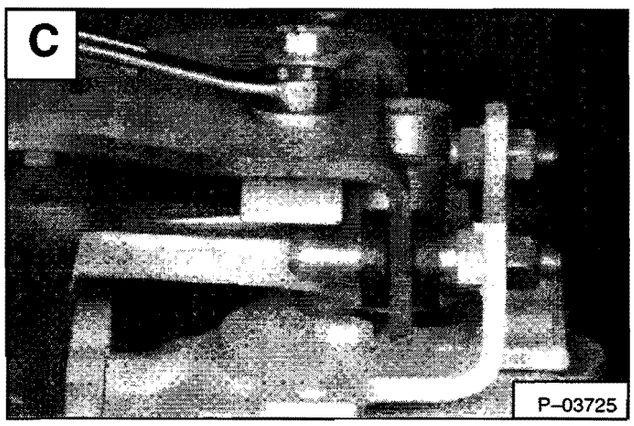
Stop the engine.

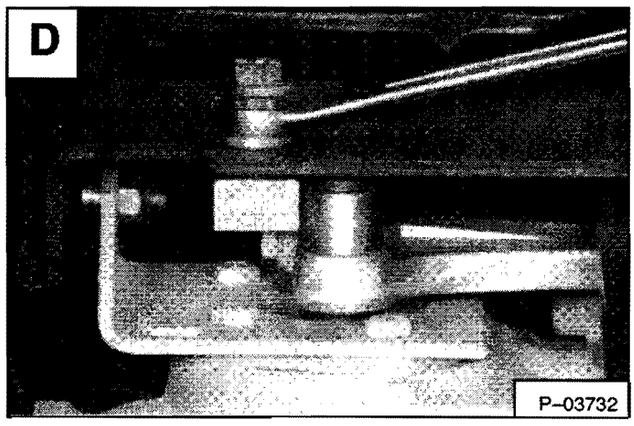
Tighten the two (2) bolts (Item 2) **[A]** to 11–13 ft.–lbs. (15–17 Nm) torque, then tighten the two (2) nuts (Item 1) **[A]** to 21–25 ft.–lbs. (28–33 Nm) torque.

**Install the fan drive belt.**



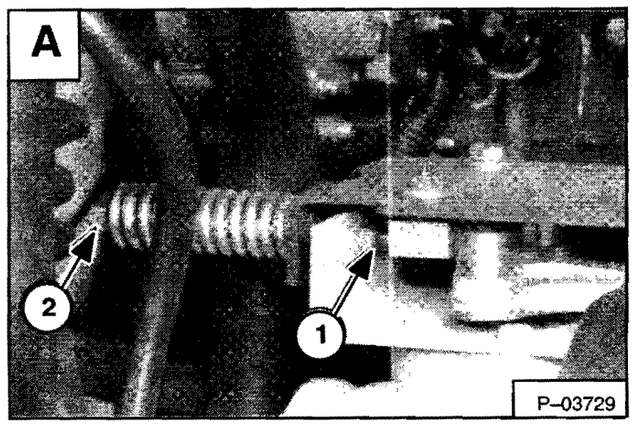
**STEERING LINKAGE (Cont'd)**
**S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above**
**508690870 & Above**
**511475024 & Above**

**Removal and Installation**

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

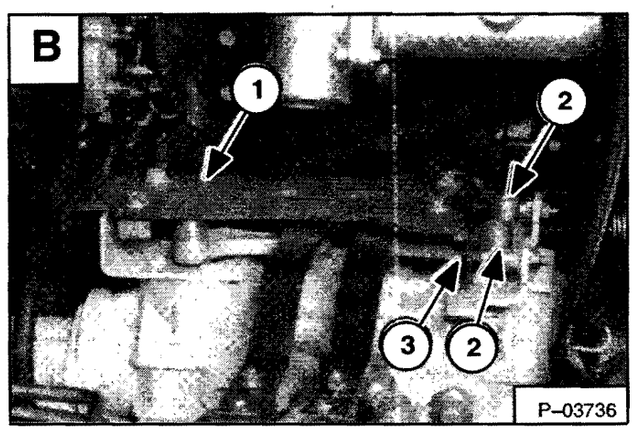
Remove the shoulder bolt/spring assembly.

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

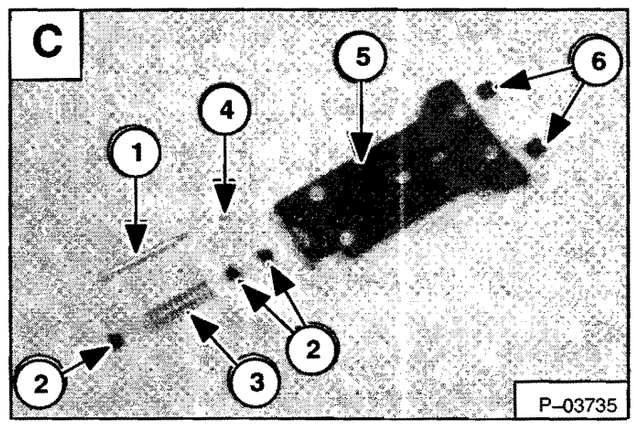



Slide the plate (Item 1) **[B]** to the right and remove it from the two guide pins (Item 2) **[B]**.

**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].**

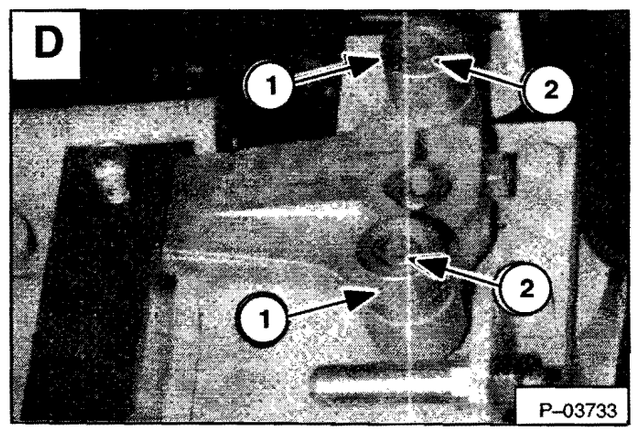



The centering plate/centering spring assembly consists of the following parts; shoulder bolt (Item 1), shoulder bushings (Item 2), spring (Item 3), lock nut (Item 4), centering plate (Item 5) and guide bushings (Item 6) **[C]**.




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.

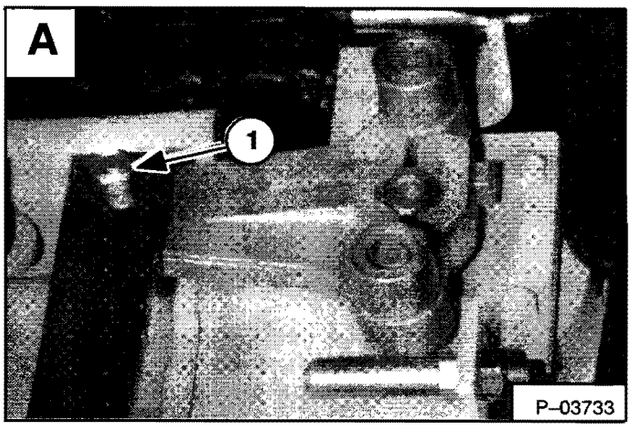


**STEERING LINKAGE (Cont'd)**
**S/N's: 512711126 – 11130, 11132 – 11138 & 11140 & Above**
**508690870 & Above**
**511475024 & Above**

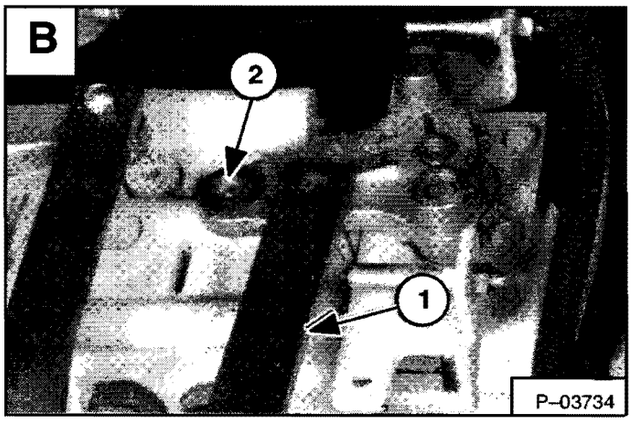
**Removal and Installation (Cont'd)**

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.

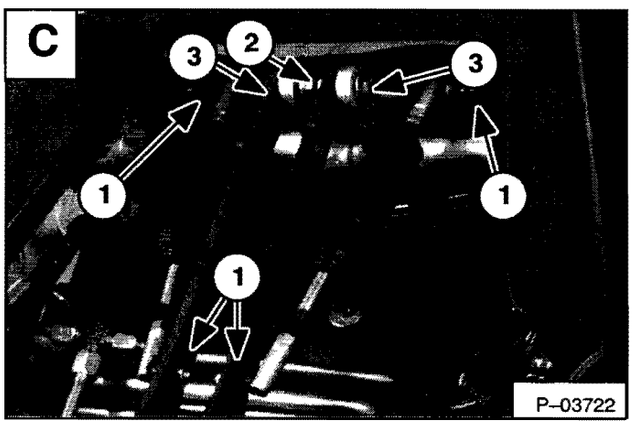
***Installation:*** Tighten the nuts to 25–28 ft.–lbs. (34–38 Nm) torque.

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.



## 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**

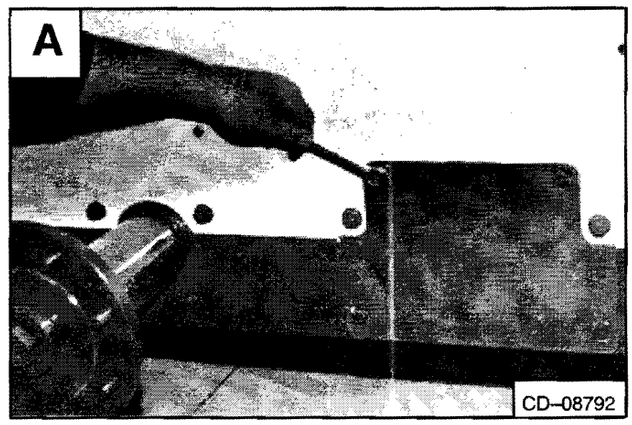
Raise the lift arms. (See Page 1–1).

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

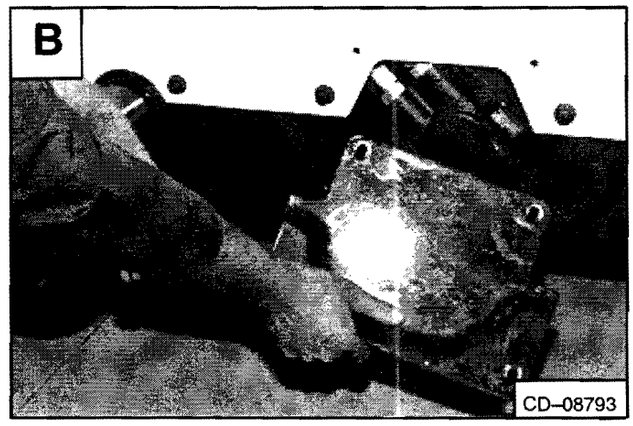
Raise the operator cab. (See Page 1–1).

Remove a wheel/tire assembly.

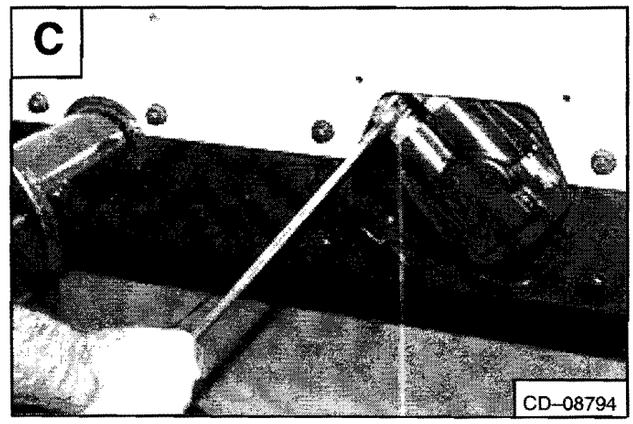
Remove the bolts from the motor cover **[A]**.



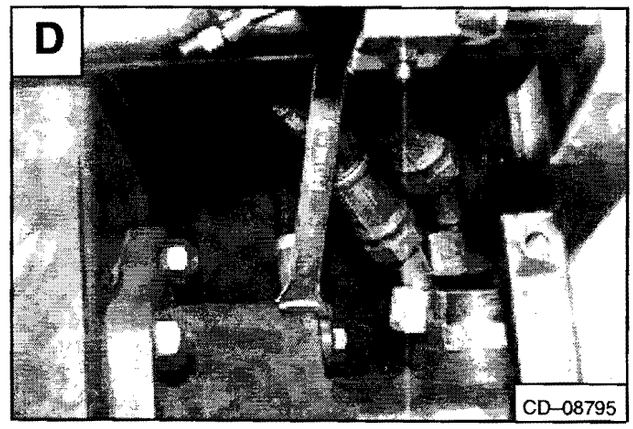

Remove the motor cover **[B]**.




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

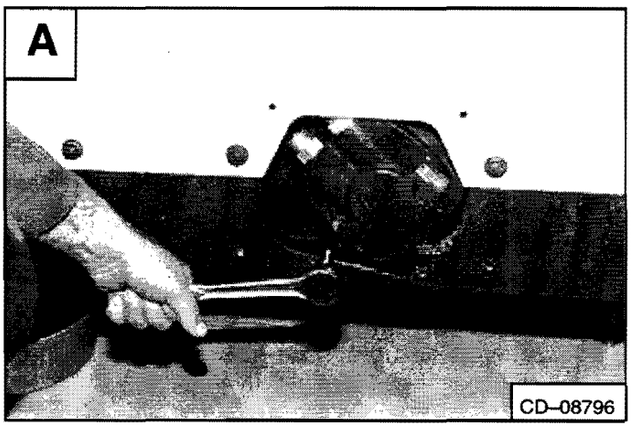



Disconnect the other high pressure hose **[D]**.

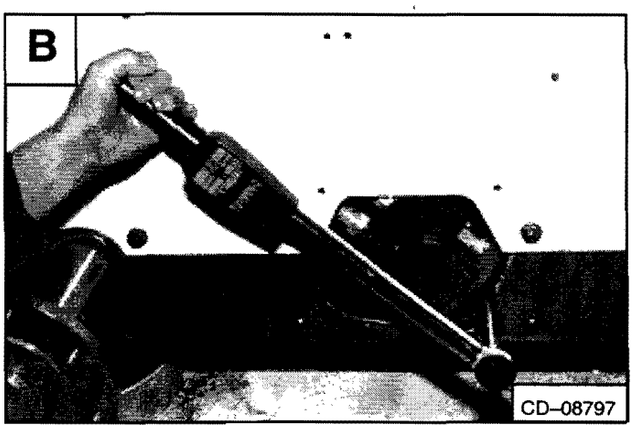


**Removal and Installation (Cont'd)**

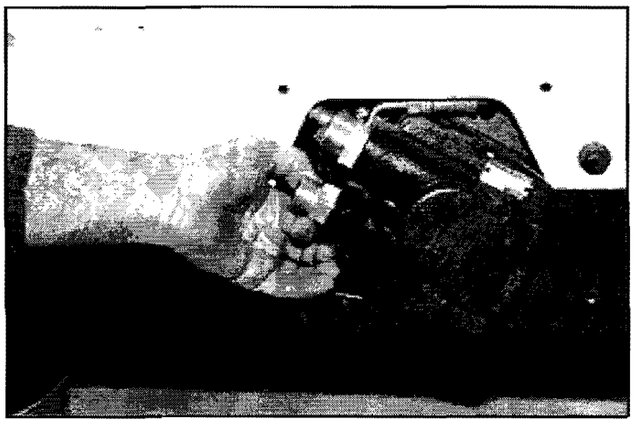
Remove the mounting bolts from the hydrostatic motor **[A]**.



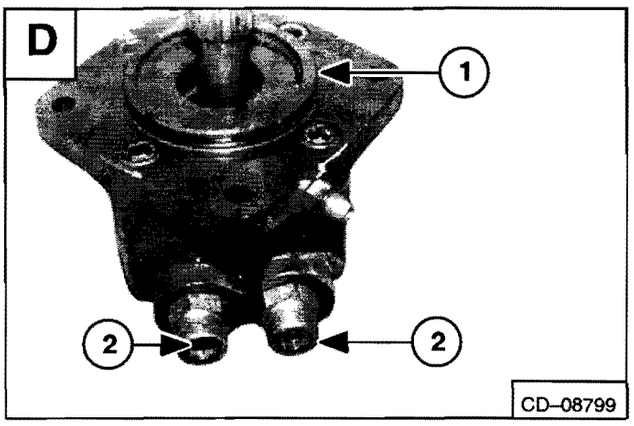

***Installation:*** Tighten the bolts to 90–100 ft.–lbs. (122–136 Nm) torque **[B]**.




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**

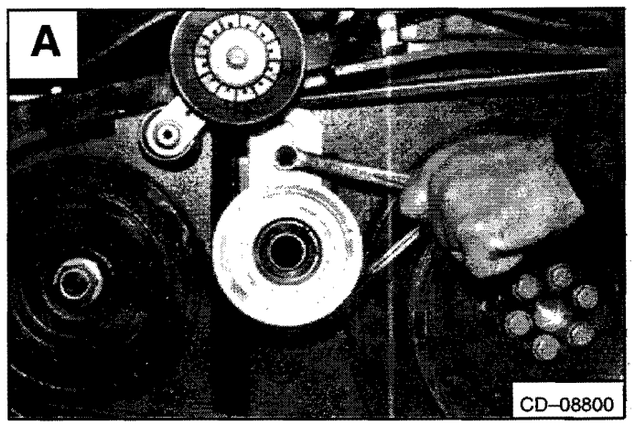
**SEE THE HYDROSTATIC MOTORS COMPONENT REPAIR MANUAL FOR DISASSEMBLY AND ASSEMBLY PROCEDURE.**

## HYDROSTATIC PUMP

### Removal and Installation

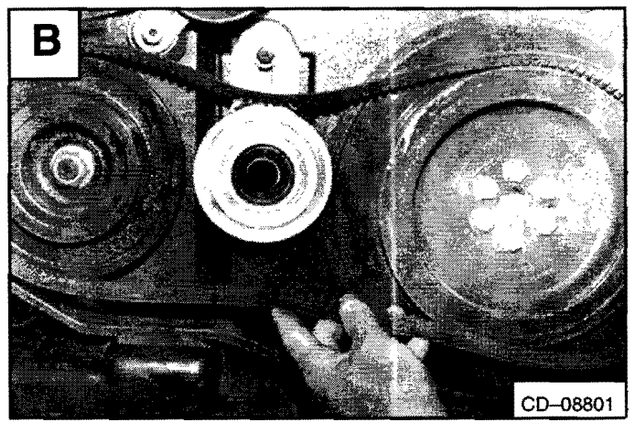
**NOTE: The engine and hydrostatic pump must be removed from the loader as an assembly. (See Page 7–1).**

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

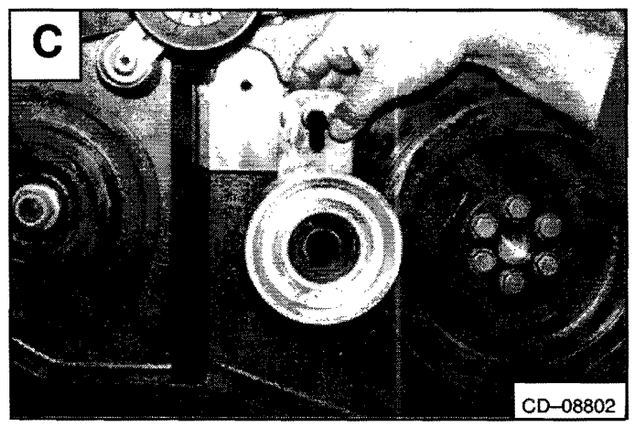



Remove the drive belt **[B]**.

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



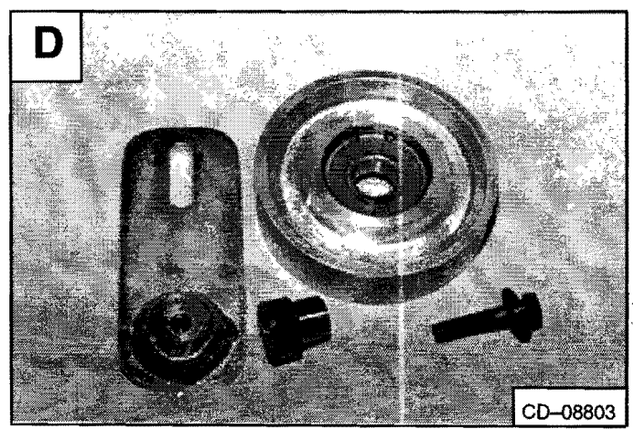

Remove the tension pulley assembly **[C]**.




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.



**Removal and Installation (Cont'd)**

**IMPORTANT**

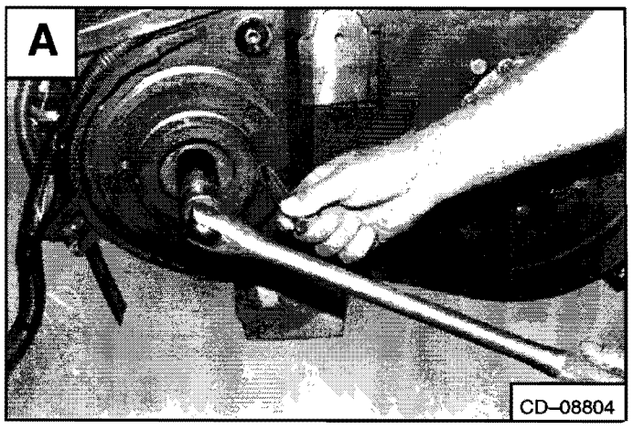
**When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.**

**I–2003–0888**

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

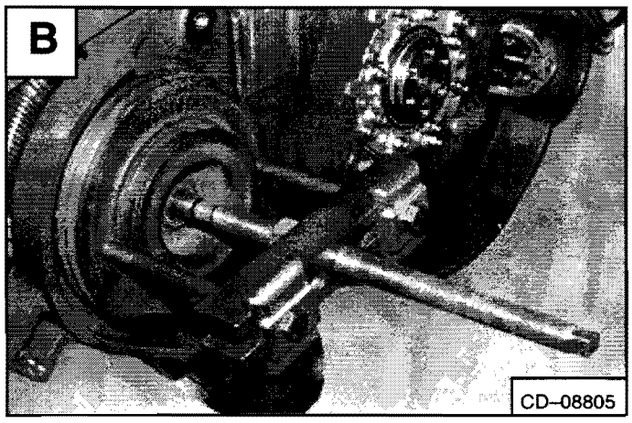
Remove the nut and washer.

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

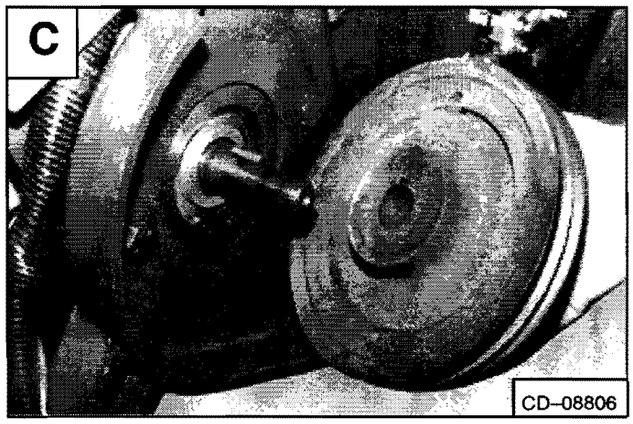



Install a puller and remove the pulley from the pump shaft **[B]**.

Remove the puller.

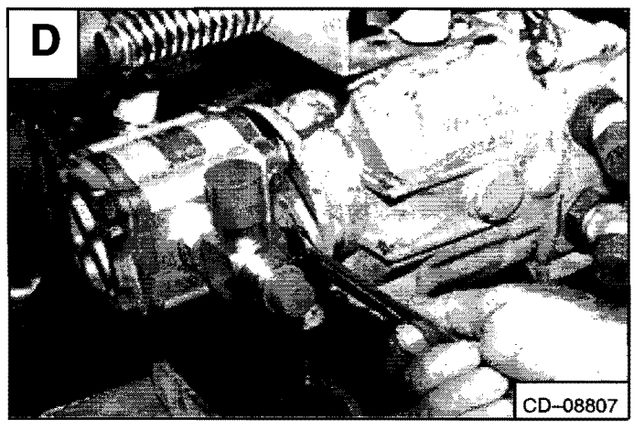



***Installation:*** Make sure the key (Item 1) **[C]** is installed in the shaft.




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

Remove the hydraulic pump.

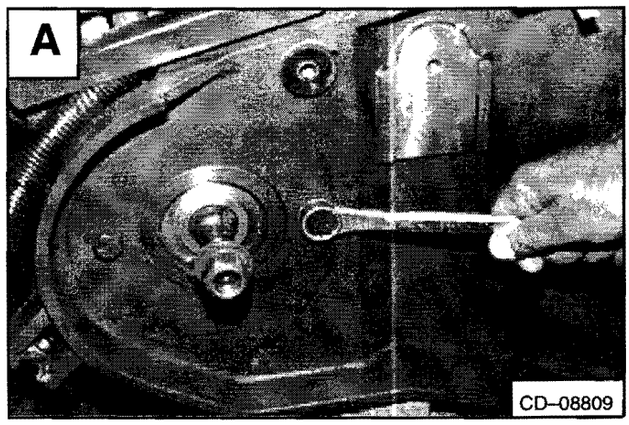


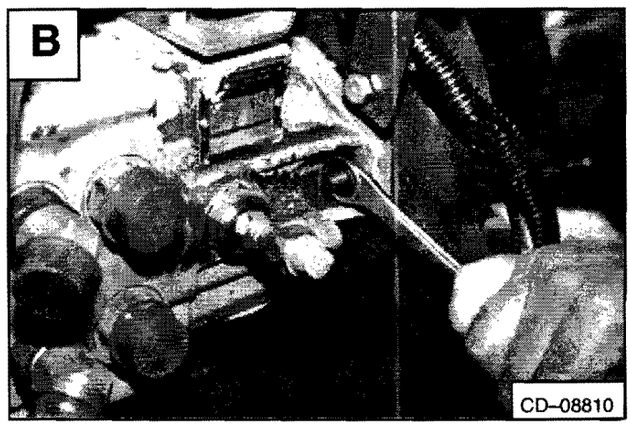
**HYDROSTATIC PUMP (Cont'd)**

**Removal and Installation (Cont'd)**

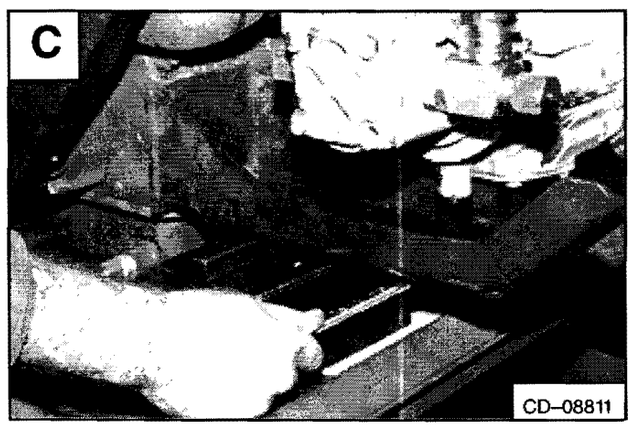
Remove the bolts and nuts from the hydrostatic mounting flange **[A]** & **[B]**.

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

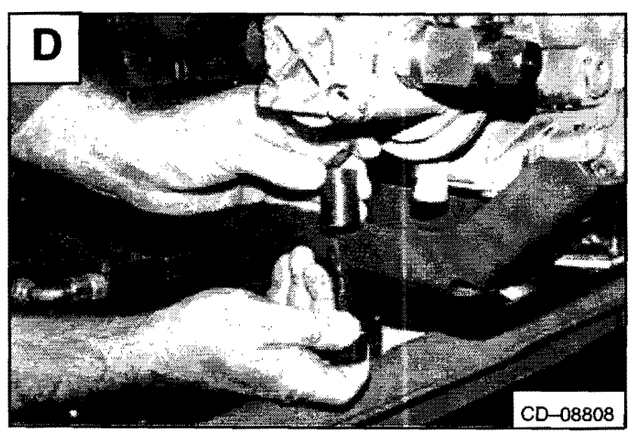



Remove the bolt and washer(s) **[C]**.




***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.**

## OIL COOLER

### Removal and Installation

**IMPORTANT**

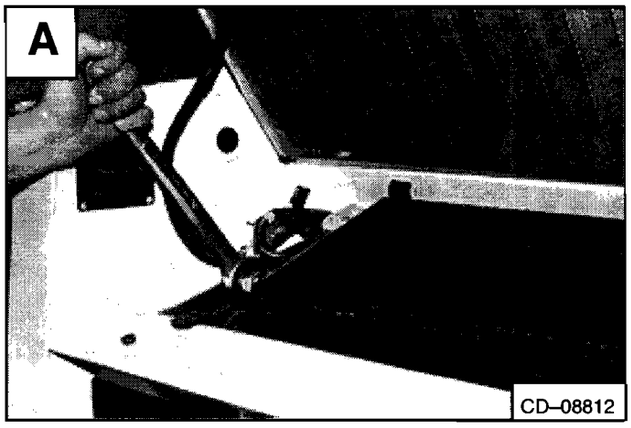
**When repairing hydrostatic and hydraulic systems, clean the work area before disassembly and keep all parts clean. Always use caps and plugs on hoses, tubelines and ports to keep dirt out. Dirt can quickly damage the system.**

**I–2003–0888**

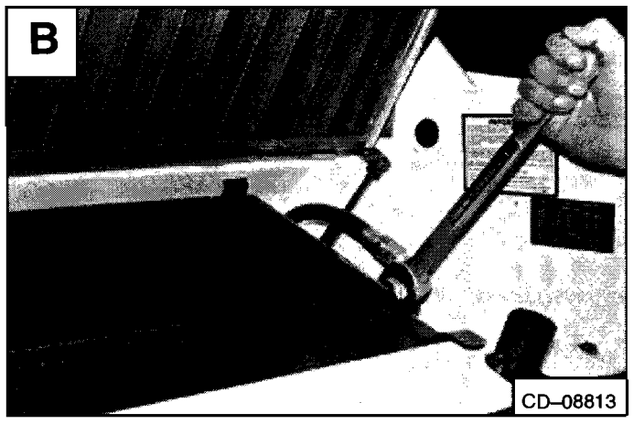
Open the rear door.

Raise the rear grill.

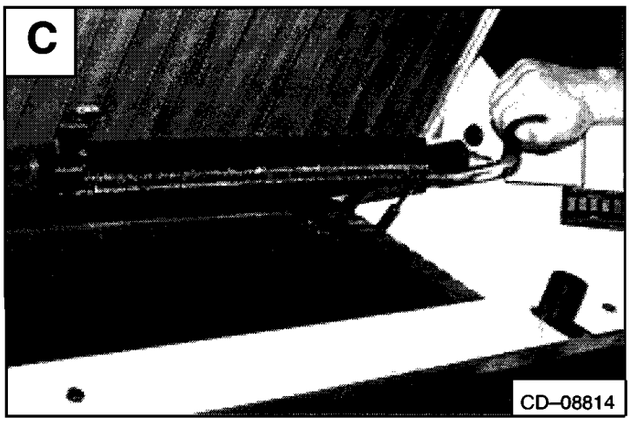
Disconnect the hose at the right side of the oil cooler **[A]**.




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




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

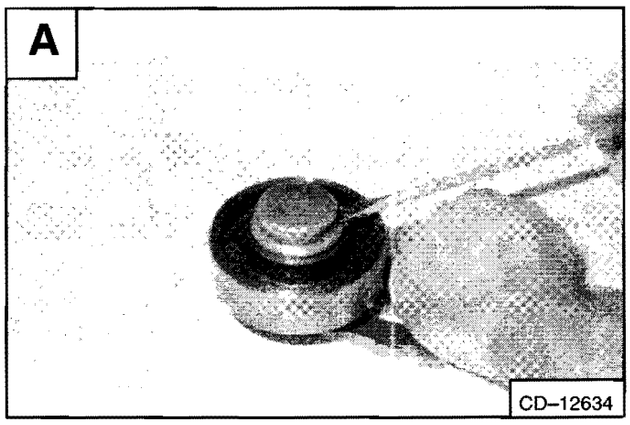


## DRIVE BELT TENSIONER PULLEY

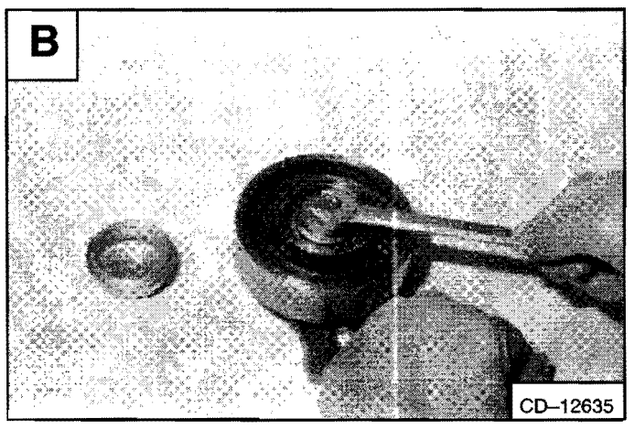
### Disassembly

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

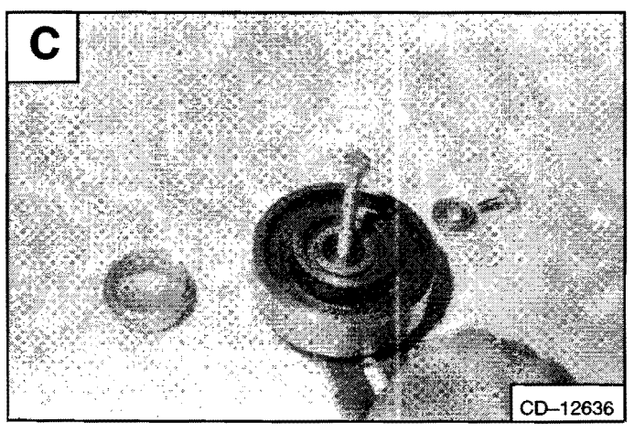
Remove the cap **[A]**.



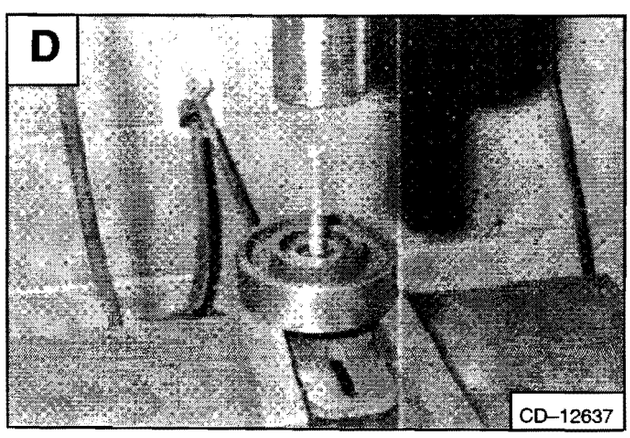

Remove the bolt and washer **[B]**.




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




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



**DRIVE BELT TENSIONER PULLEY (Cont'd)**

**Disassembly (Cont'd)**

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

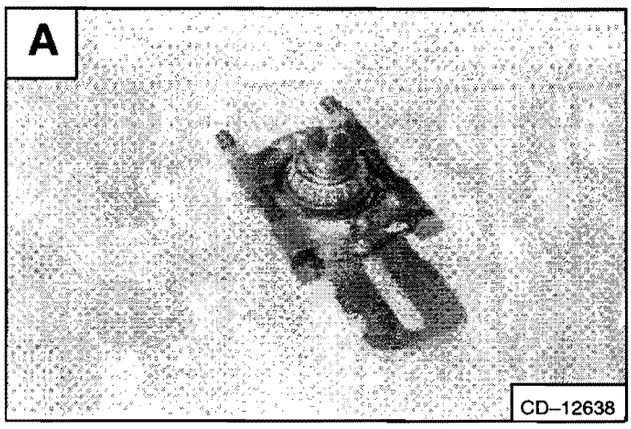
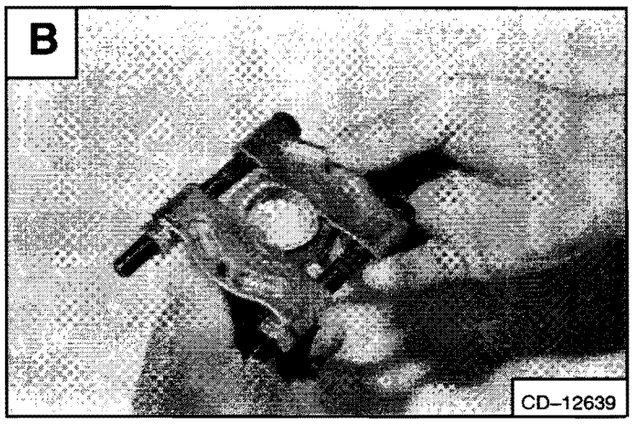
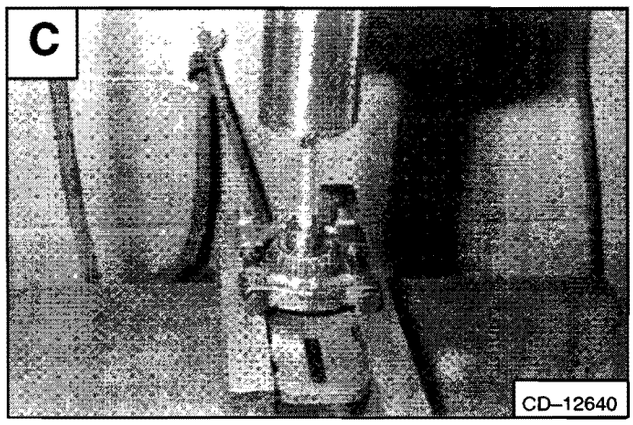



PHOTO CLARITY ONLY: If the bearing puller is installed behind the bearing, seal and wear sleeve, the wear sleeve will also be removed **[B]**.




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

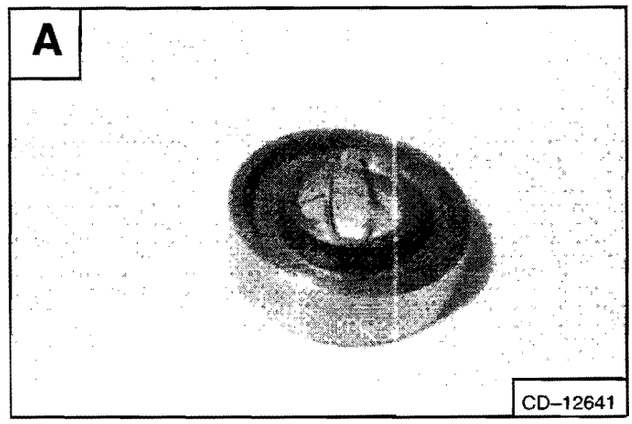


## DRIVE BELT TENSIONER PULLEY (Cont'd)

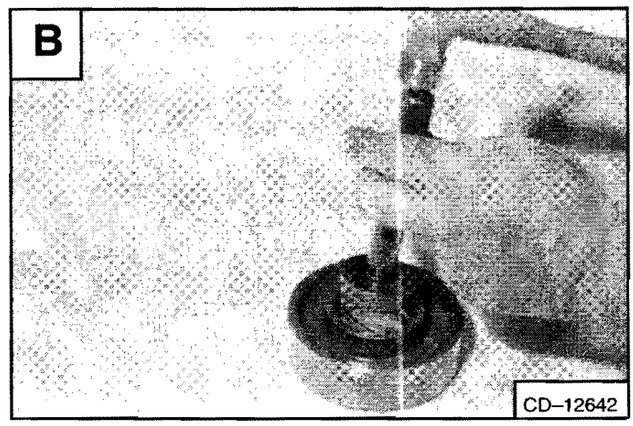
### Assembly

**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]**.

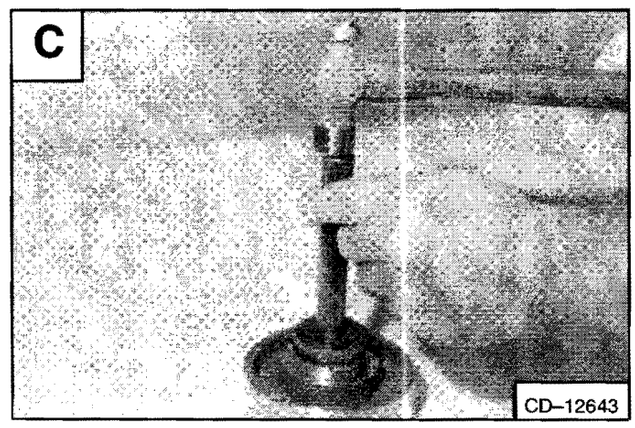



Use a driver tool (1–5/16" diameter) and push the spacer into the matched groove **[B]**.

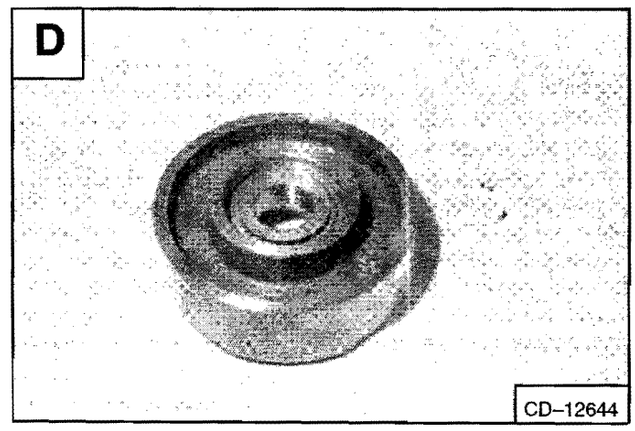



Install the bearing cup using the driver tool (both sides) **[C]**.

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



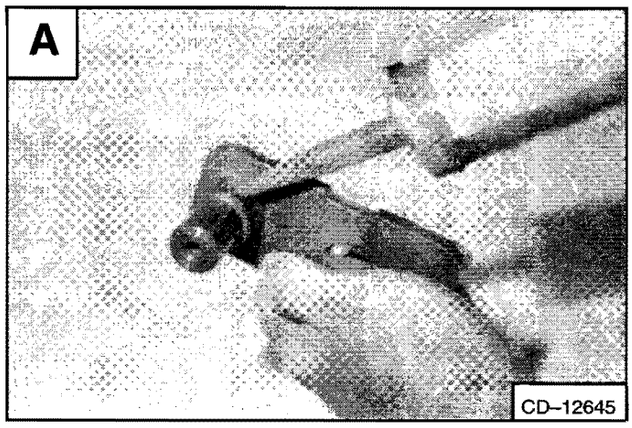

Install the taper roller bearing to the pulley (seal side) **[D]**.



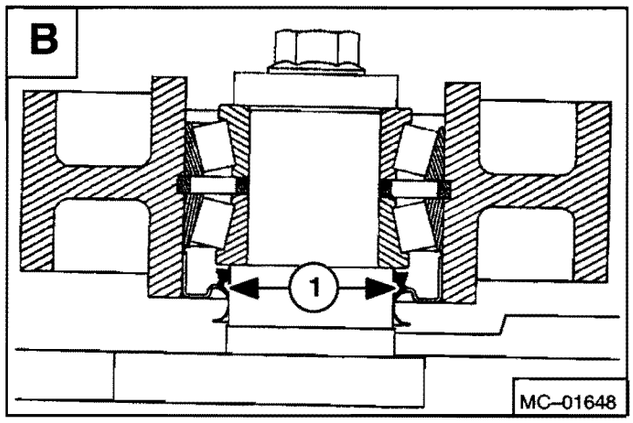
**DRIVE BELT TENSIONER PULLEY (Cont'd)**

**Assembly (Cont'd)**

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



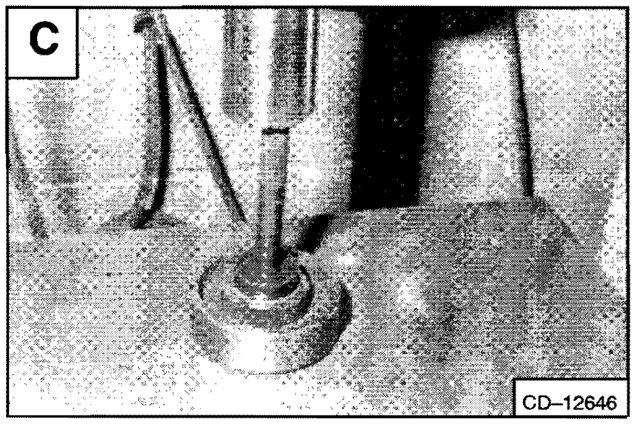

Put grease (P/N 6599719) on the seal lips (Item 1) **[B]**. Make sure the grease is between the outside and inside lips and all the way around the seal.



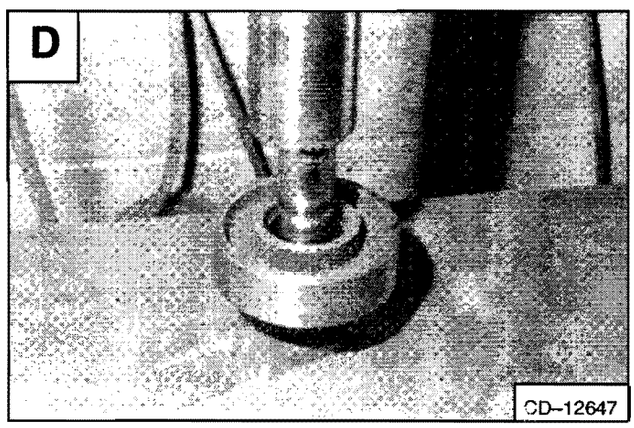

Press the seal into the pulley hub larger diameter using a press **[C]**.

**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.



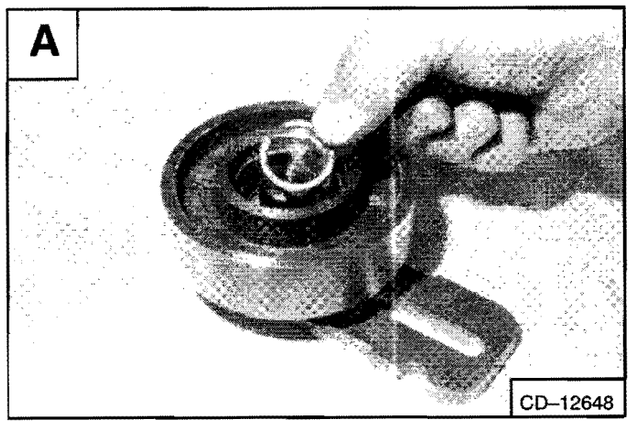

Use a spacer tube which goes over the shaft and pushes on the inside diameter of the taper bearing, install the pulley, seal and wear sleeve onto the shaft **[D]**.



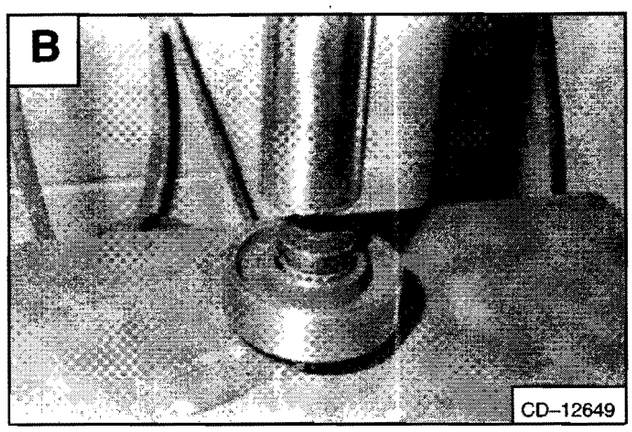
**DRIVE BELT TENSIONER PULLEY (Cont'd)**

**Assembly (Cont'd)**

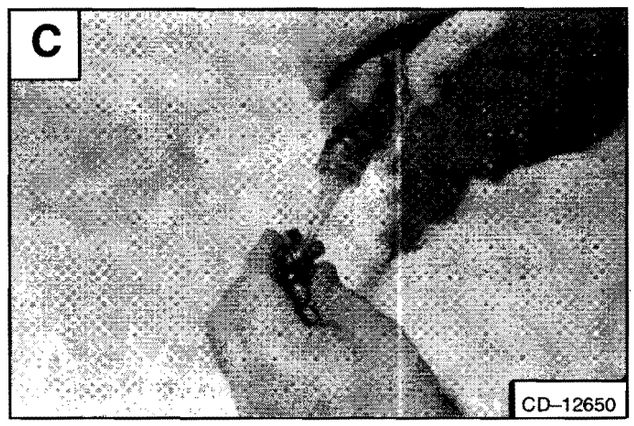
Install the small bearing spacer **[A]**.



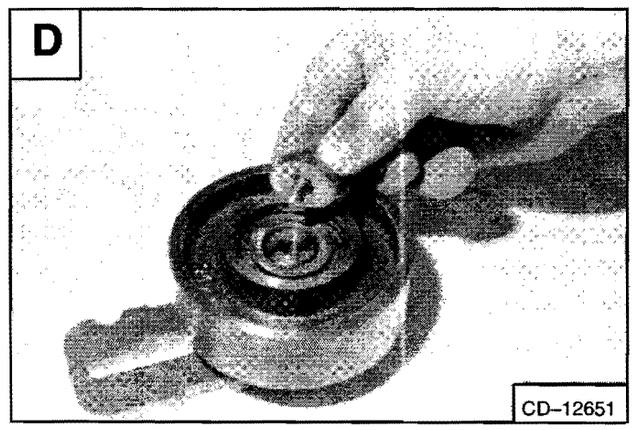

Install the taper roller bearing pushing on the I.D. of the bearing **[B]**.




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



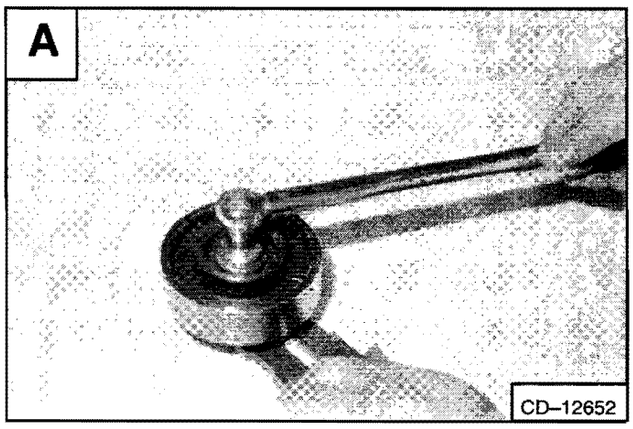

Install the bolt and washer into the shaft **[D]**.



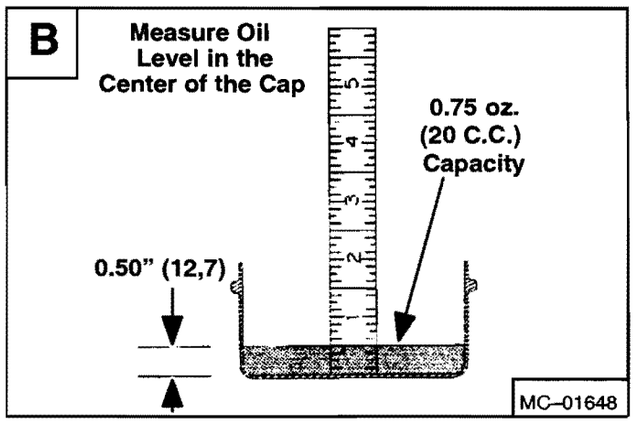
## DRIVE BELT TENSIONER PULLEY (Cont'd)

**Assembly (Cont'd)**

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

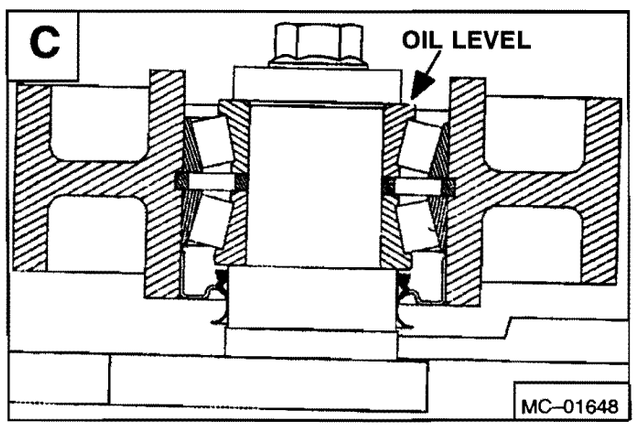



Use only 15W/50 synthetic oil (Example: Mobil One) for the bearings. Use the cap and add oil until it is at the 0.50" (12,7 mm) mark on the scale, which should be 0.75 oz. (20 C.C.) of oil **[B]**.




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

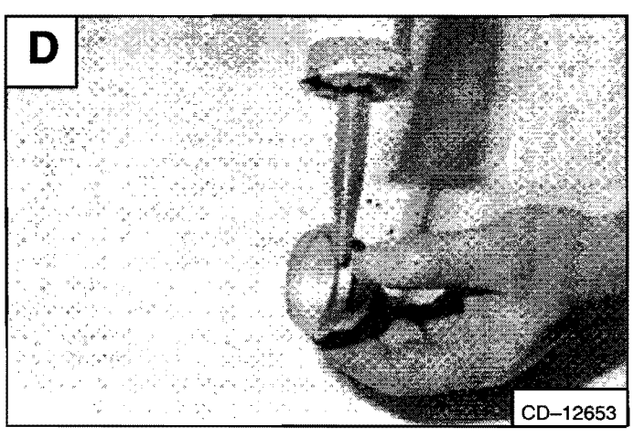
**NOTE: Oil capacity is very critical, do not add any more and/or any less oil to the idler pulley.**




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]**.

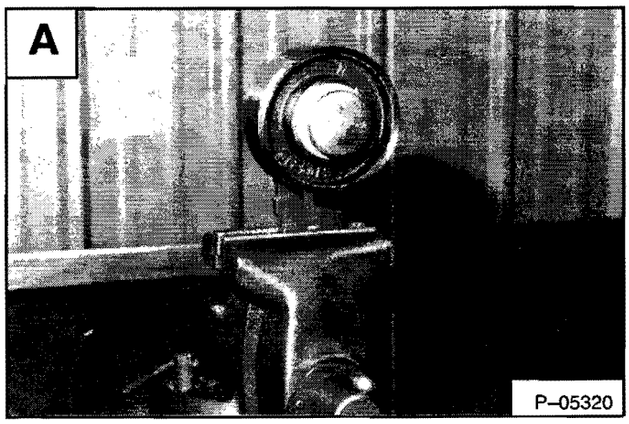
Install the cap.



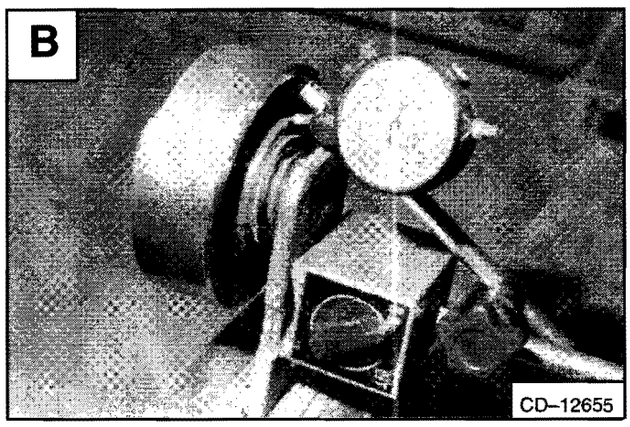
**DRIVE BELT TENSIONER PULLEY (Cont'd)**

**Checking Pulley End Play**

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

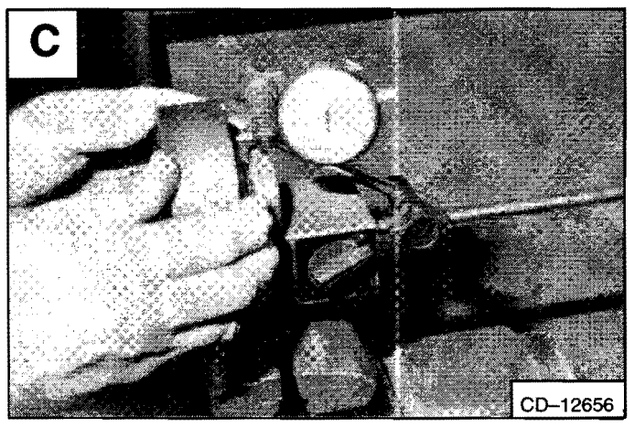



Install a dial indicator on the pulley hub **[B]**.




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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| Checking Axle End Play | 4–19 |
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| REAR CHAINCASE COVER | |
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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.

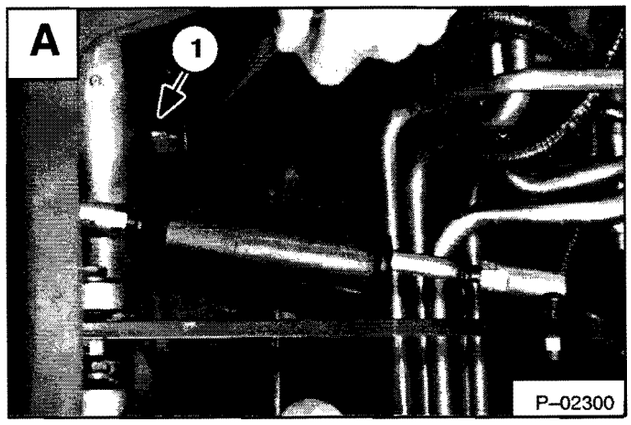
Raise the operator cab. (See Page 1–1).

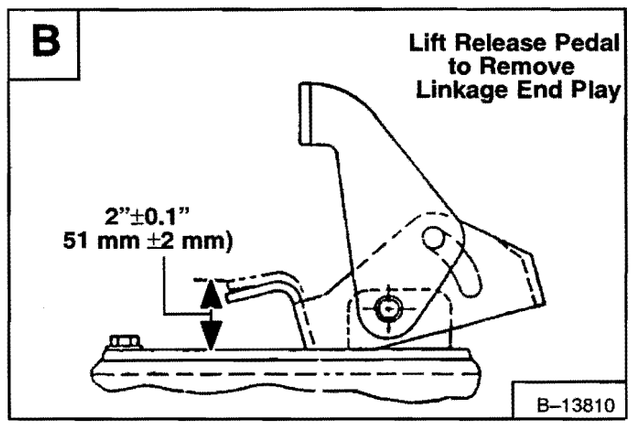
Turn the nut (Item 1) **[A]** to adjust the parking brake.

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.

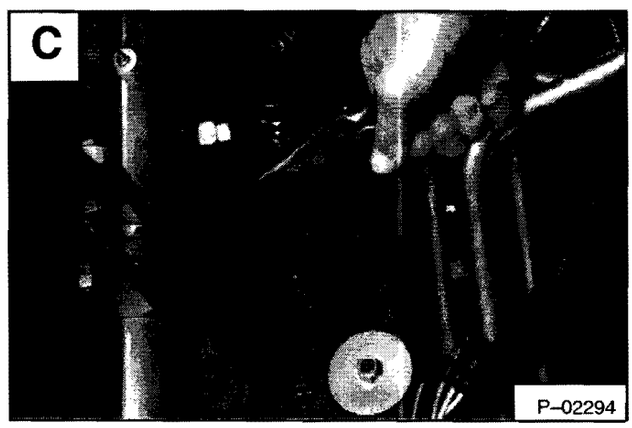
NEW STYLE: Adjust the release pedal so there is 2" ± 0.1" (51 mm ± 2 mm) from the top of the release pedal to the top of the chaincase cover **[B]**.

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

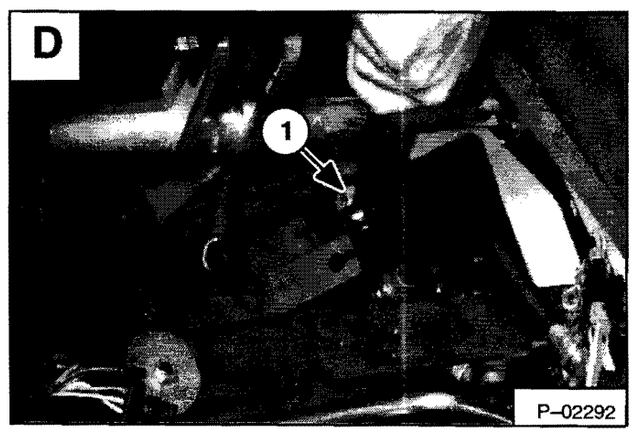



Disconnect the spring from the brake lever **[C]**.



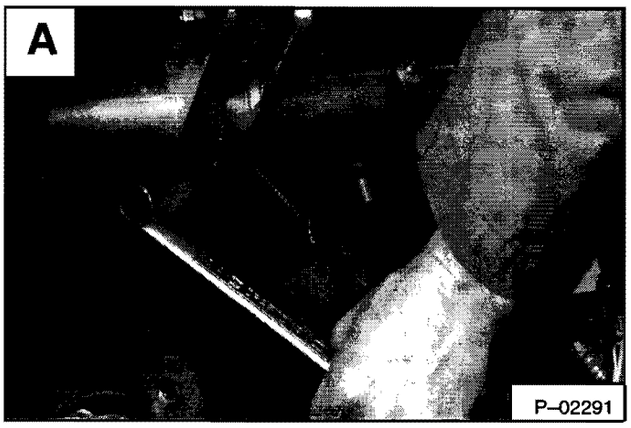

Loosen the nut (Item 1) **[D]**.



**PARKING BRAKE (Cont'd)**

**Adjustment (Cont'd)**

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



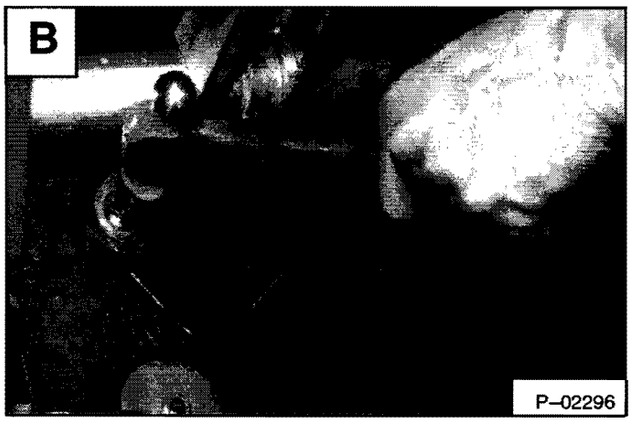

Pry up on the lever and hit the bolt with the hammer until brake lever is loose **[B]**.

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.

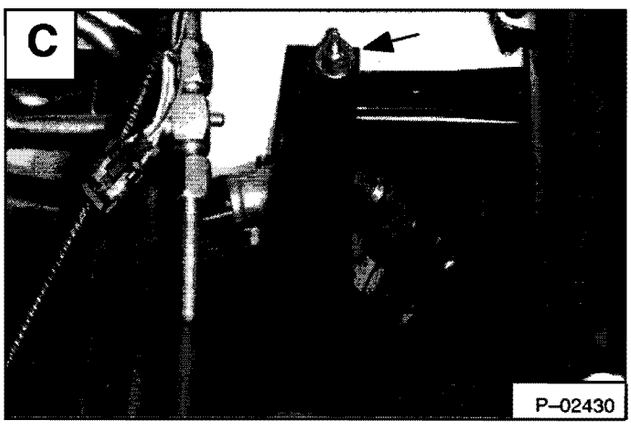



**Removal and Installation**

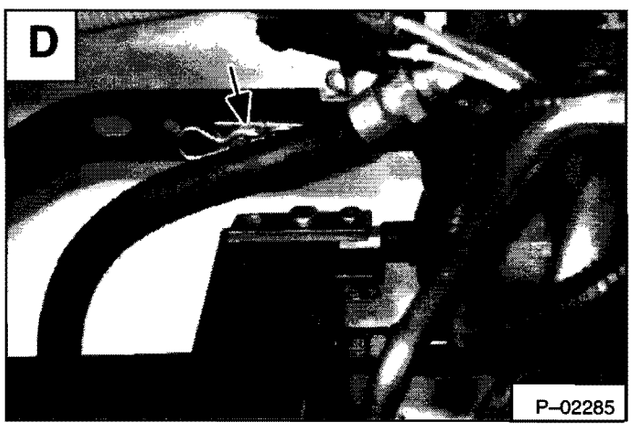
Raise the lift arms. (See Page 1–1).

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

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

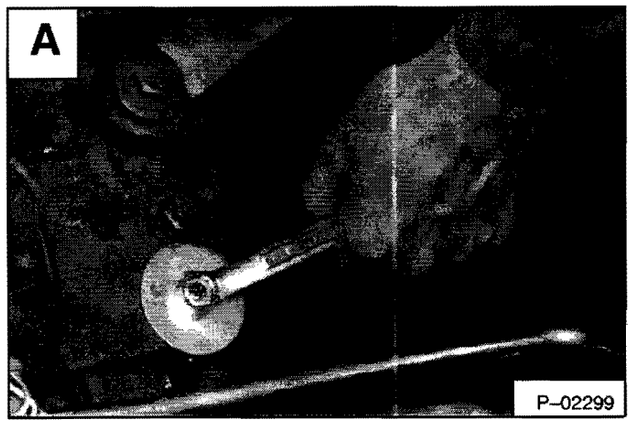



Disconnect the lift linkage from the control valve spool **[D]**.



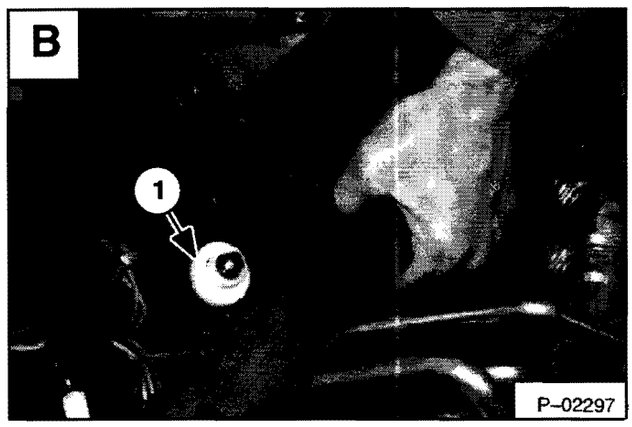
**Removal and Installation (Cont'd)**

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.

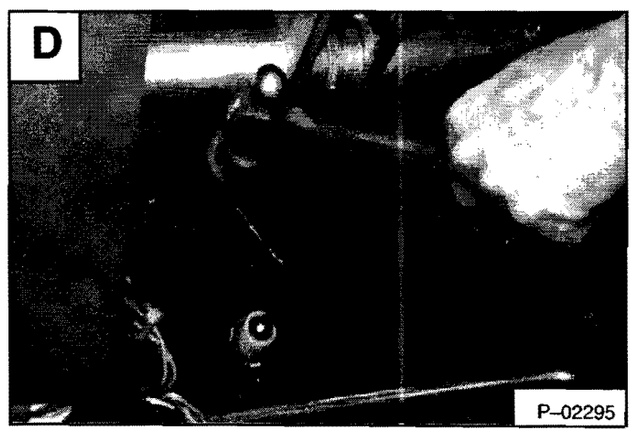



Remove the nuts from the brake linkage rod **[C]**.



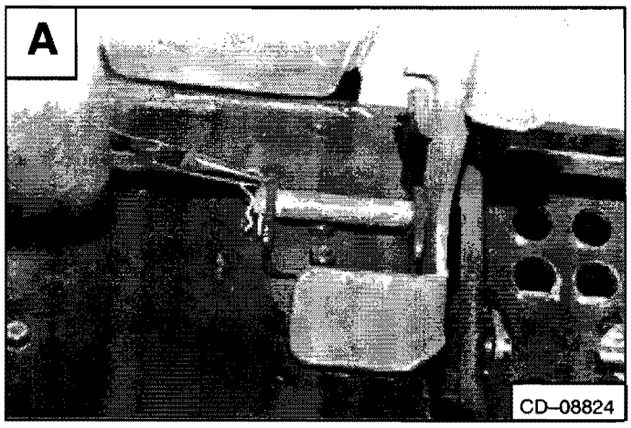

Disconnect the brake lever spring.

**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].**

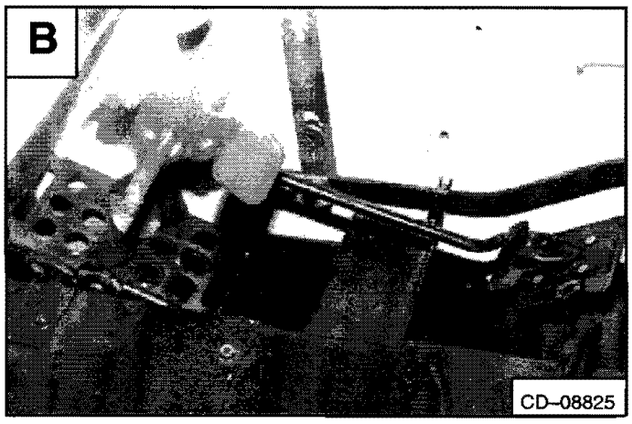


**Removal and Installation (Cont'd)**

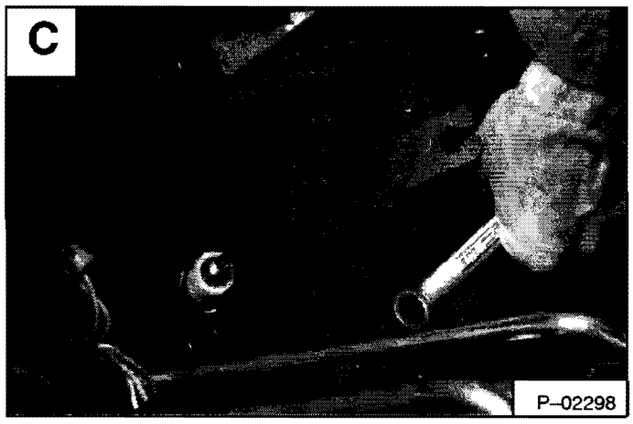
Remove the cotter pin from the brake pedal pivot shaft **[A]**.




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




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

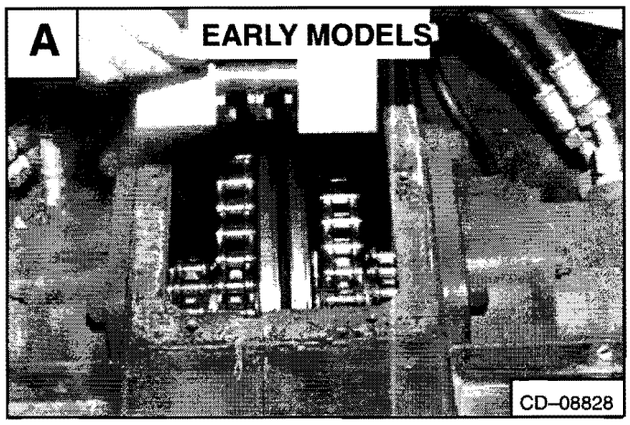


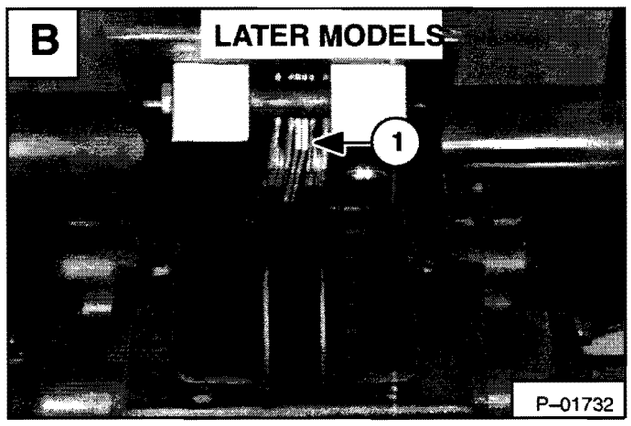
**Removal and Installation (Cont'd)**

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]**.

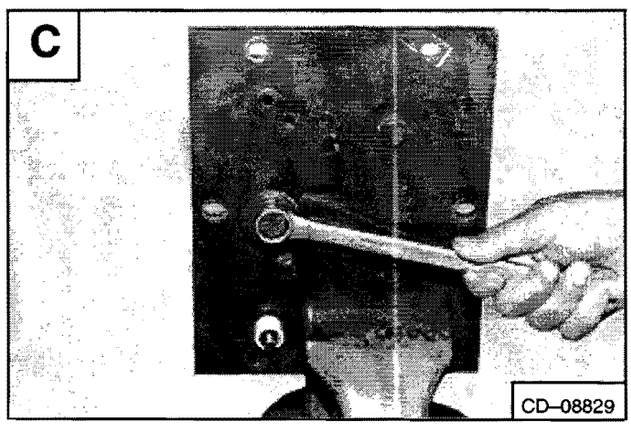


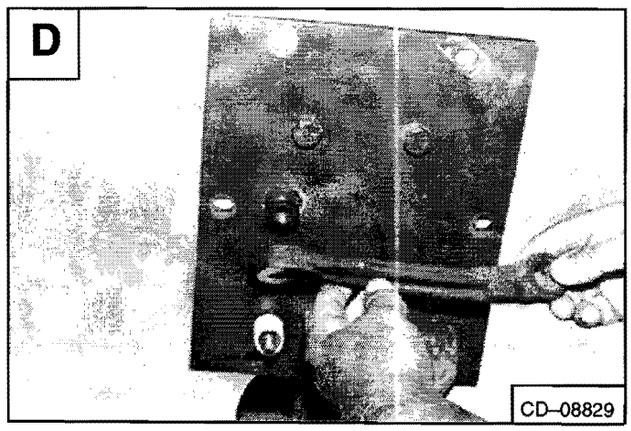

**Brake Block and Pads**

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

***Installation:*** Tighten the bolt to 65–70 ft.–lbs. (88–95 Nm) torque.




Remove the brake lever **[D]**.

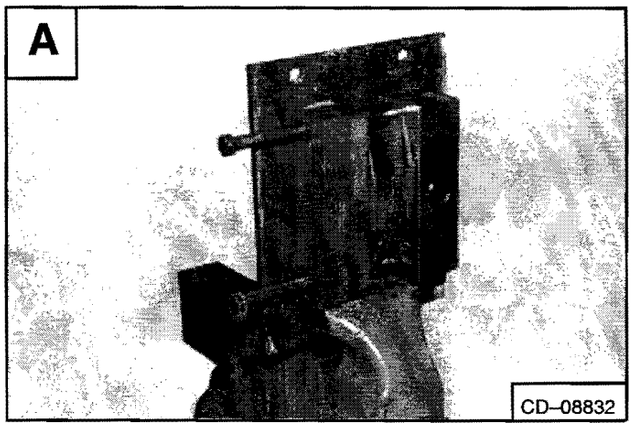


**PARKING BRAKE (Cont'd)**

**Brake Block and Pads (Cont'd)**

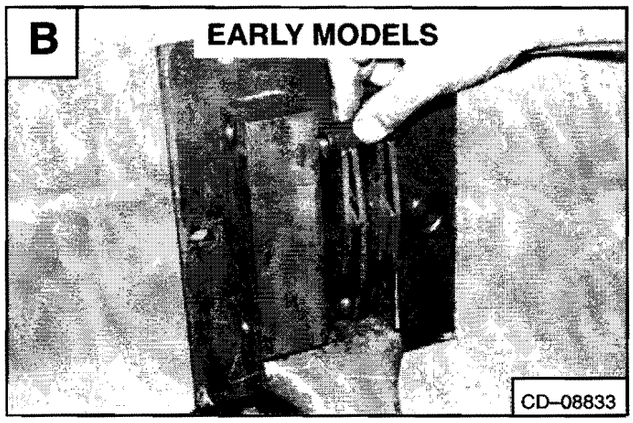
Remove the bolts from the brake block **[A]**.

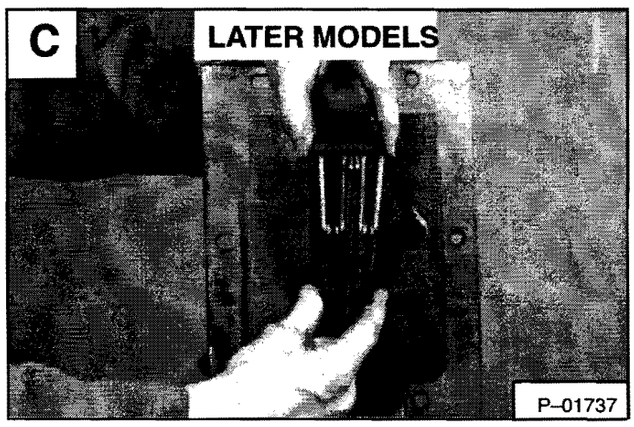
***Installation:*** Tighten the bolts to 65–70 ft.–lbs. (88–95 Nm) torque.




Remove the guide and pads **[B]** & **[C]**.

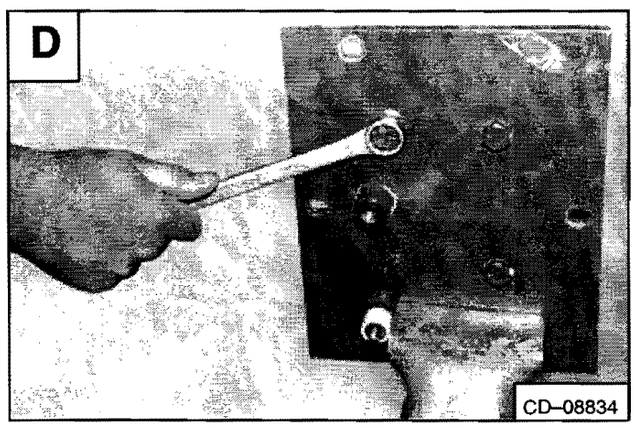
Check the pads for wear and replace them as needed.




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.



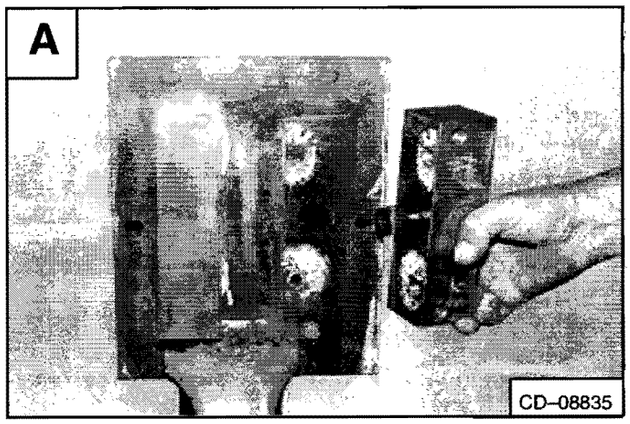
**PARKING BRAKE (Cont'd)**

**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.

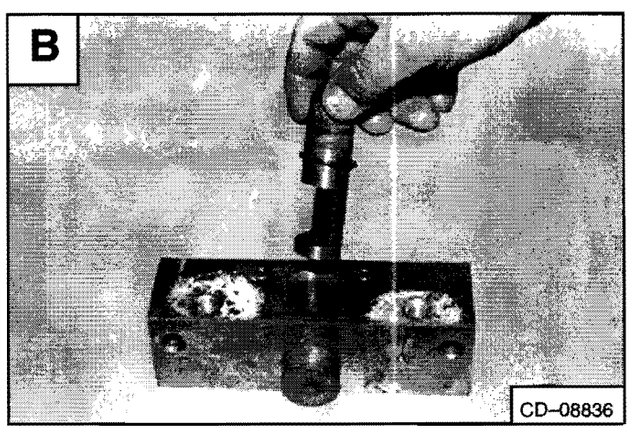
**NOTE: Do Not use excessive R.T.V. sealant on the block. Make sure the brake shaft does not rub.**




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**

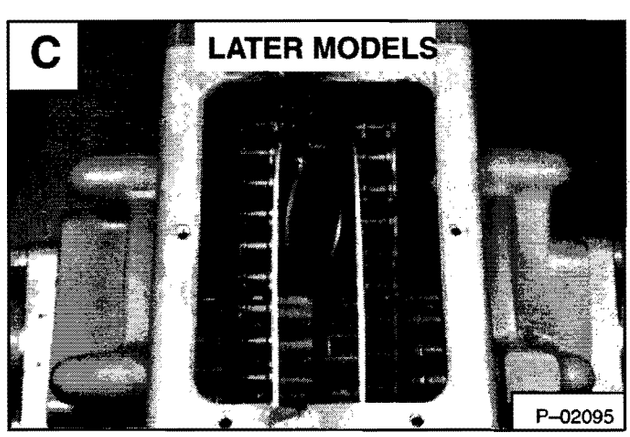
To remove the brake discs, the following items must be removed from the chaincase first:

Remove the front cover. (See Page 4–11).

Remove the motor carrier. (See Page 4–12).

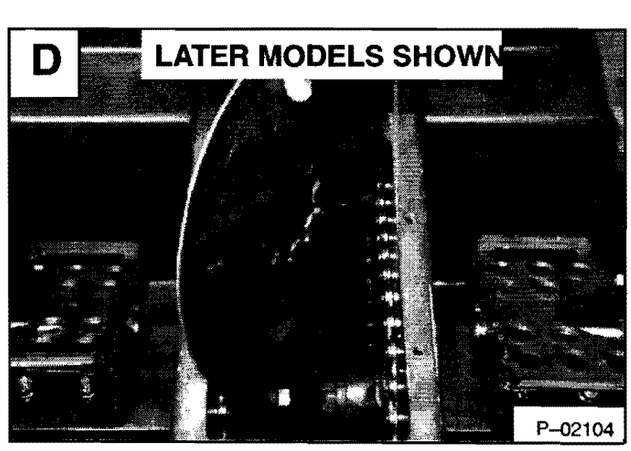
Remove the front axle and sprocket. (See Page 4–16).

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.



## CENTER TRANSMISSION COVER

### Installation

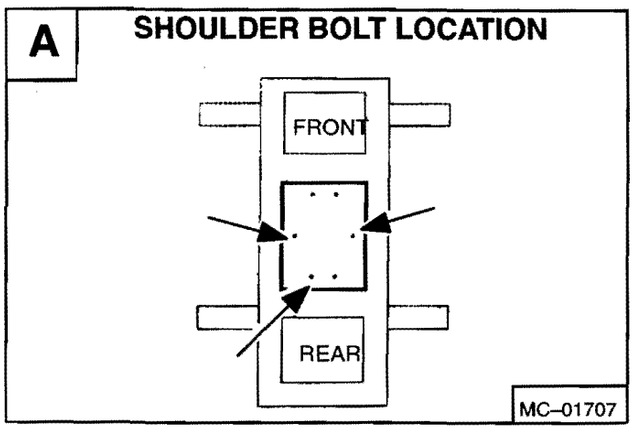
When installing the center cover on the transmission, always use three shoulder bolts where shown.

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.**



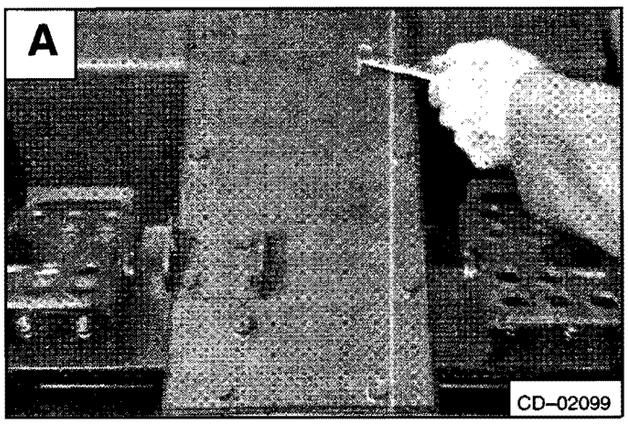
## FRONT CHAINCASE COVER

### Removal and Installation

Remove the front panel/steering lever assembly. (See Page 3–1.)

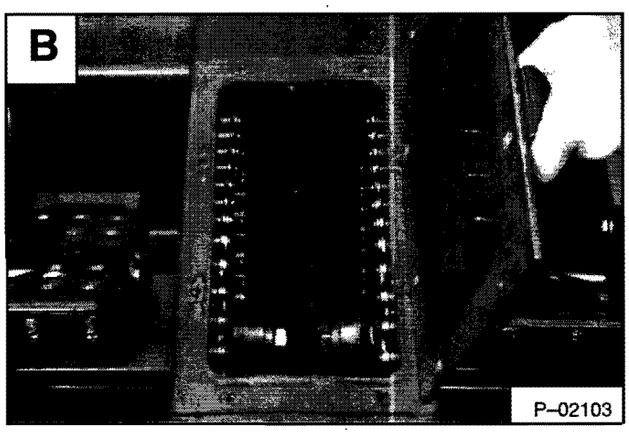
Remove the parking brake pedal.

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.)



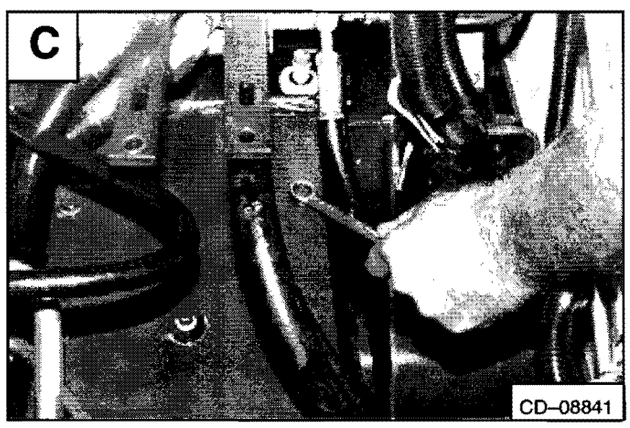

## REAR CHAINCASE COVER

### Removal and Installation

Remove the steering linkage. (See Page 3–1.)

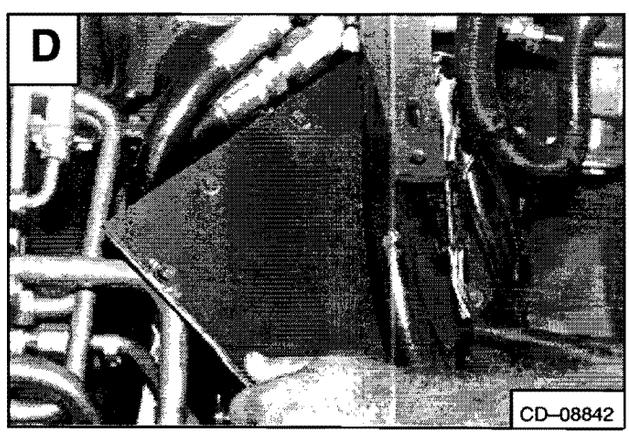
Disconnect the steering linkage.

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.)



## MOTOR CARRIER

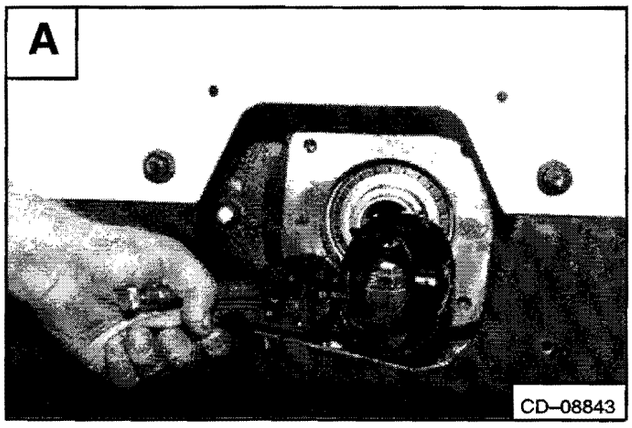
### Shaft Seal Replacement

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

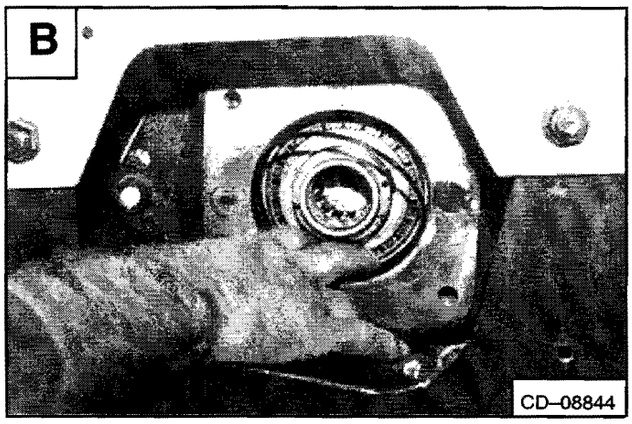
MEL1399 – Axle Seal Tool
MEL1402 – Carrier Seal Tool

Remove the hydrostatic motor. (See Page 3–1.)

Pull the seal carrier from the motor carrier **[A]**.

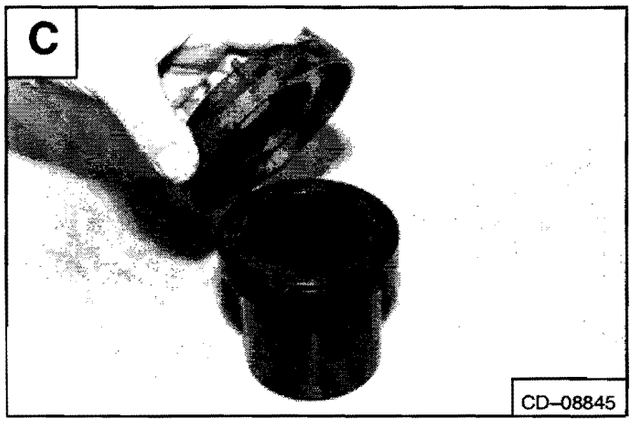



Remove the old O–ring and replace with a new O–ring **[B]**.

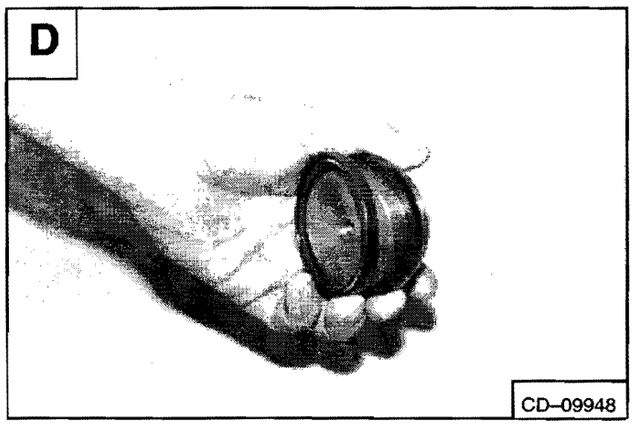



Remove the old seals from the seal carrier.

Install the seal carrier on the axle seal tool (MEL1399) **[C]**.

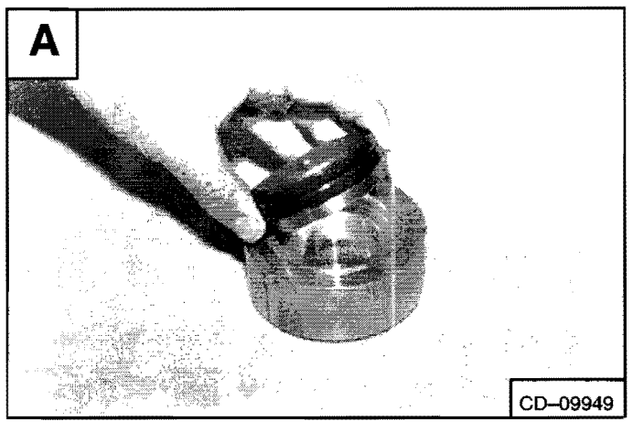



Install two seals on the tube shaft of the motor carrier seal tool (face the seal lips with one inward and one outward) **[D]**.



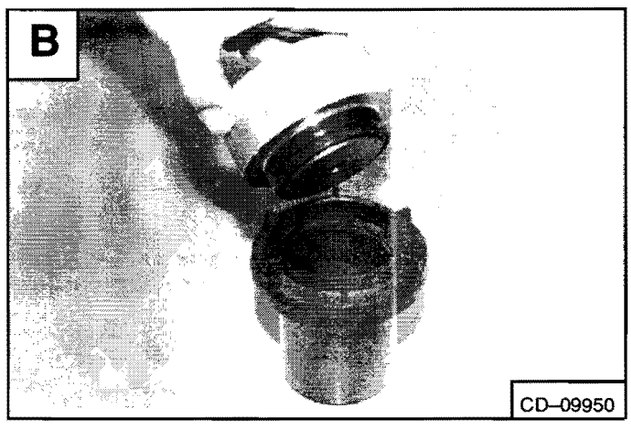
**Shaft Seal Replacement (Cont'd)**

Install the two seals and shaft into the top half of the seal carrier tool **[A]**.

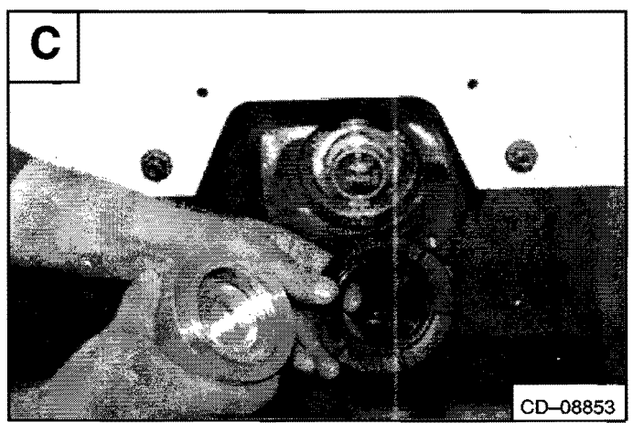



Install the seal/tool assembly into the motor carrier seal housing **[B]**.

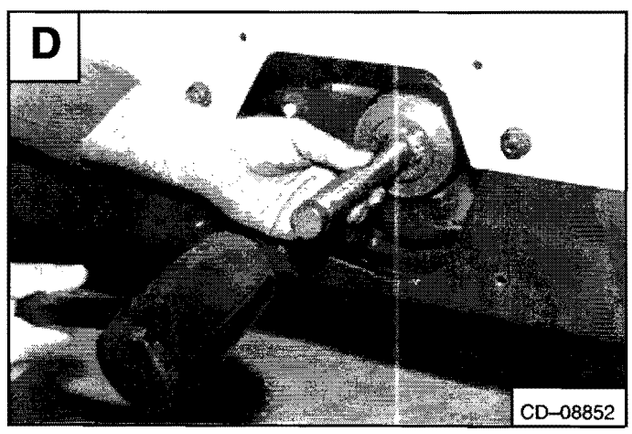
Hit the tool with a hammer to seal the seals in the housing.




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]**.



**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.

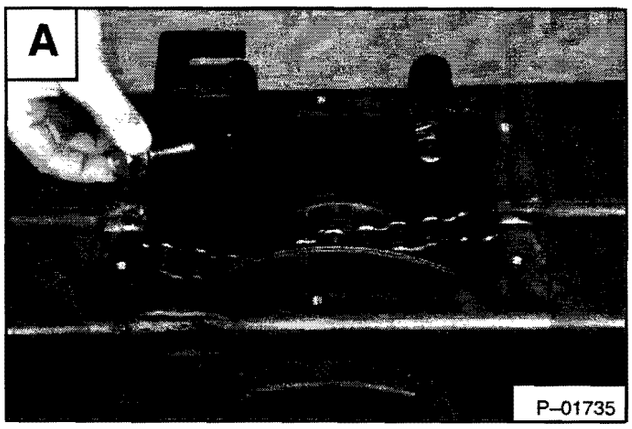
Move the motor carrier housing toward the rear of the chaincase. Remove the rear drive chain from the motor carrier sprockets **[B]**.

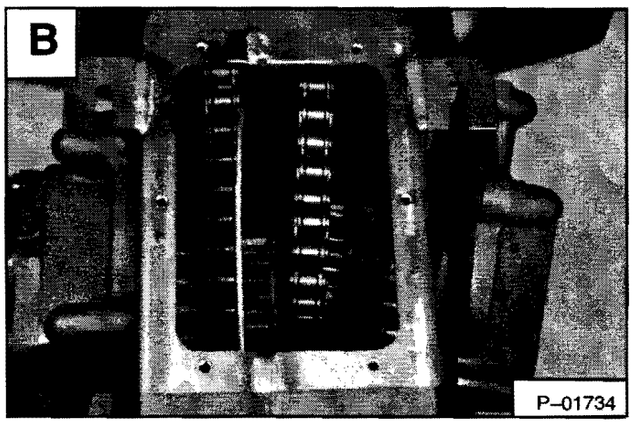
Remove the front drive chain from the motor carrier sprockets.

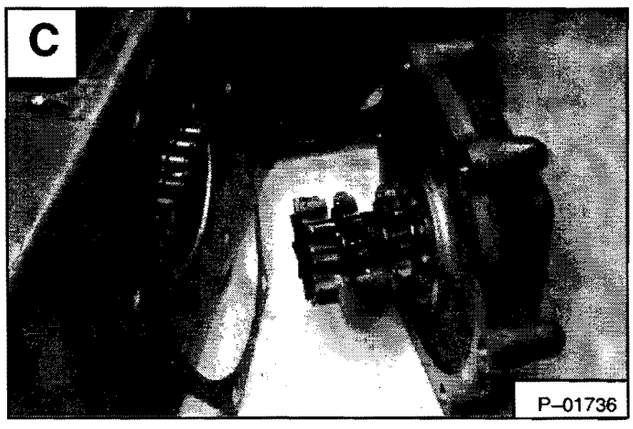
Remove the motor carrier assembly from the chaincase **[C]**.

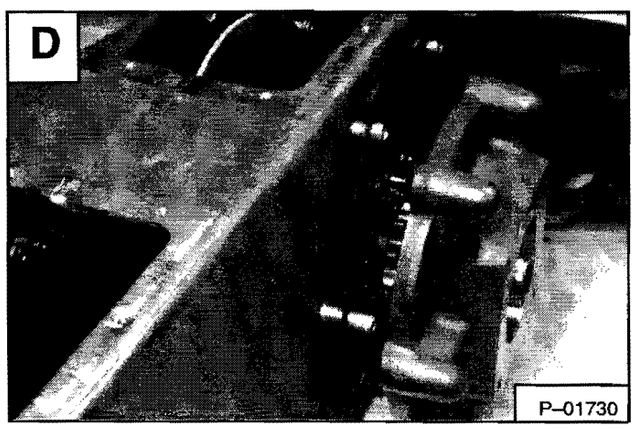
***Installation:*** Clean the motor carrier housing flange. Install the gasket on the mounting surface **[D]**.

**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.**



**MOTOR CARRIER (Cont'd)**

**Disassembly and Assembly (Later Models)**

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

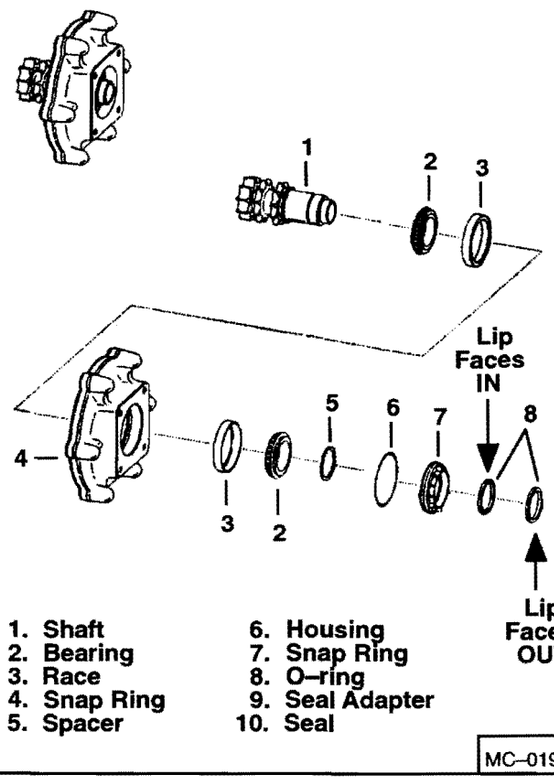
MEL1402 – Carrier Seal Tool

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** **LATER MODELS**




1. Shaft
2. Bearing
3. Race
4. Snap Ring
5. Spacer
6. Housing
7. Snap Ring
8. O–ring
9. Seal Adapter
10. Seal

MC–01936

**Disassembly and Assembly (Early Models)**

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

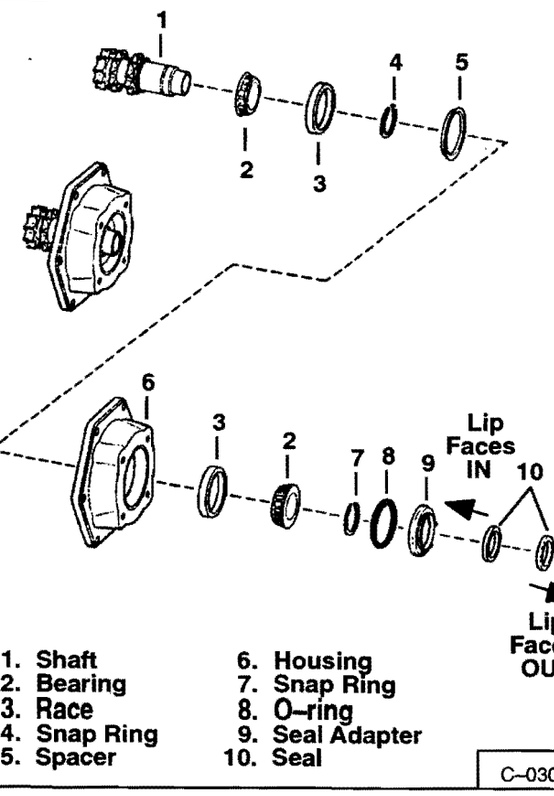
MEL1402 – Carrier Seal Tool

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** **EARLY MODELS**




1. Shaft
2. Bearing
3. Race
4. Snap Ring
5. Spacer
6. Housing
7. Snap Ring
8. O–ring
9. Seal Adapter
10. Seal

C–03083

## 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:

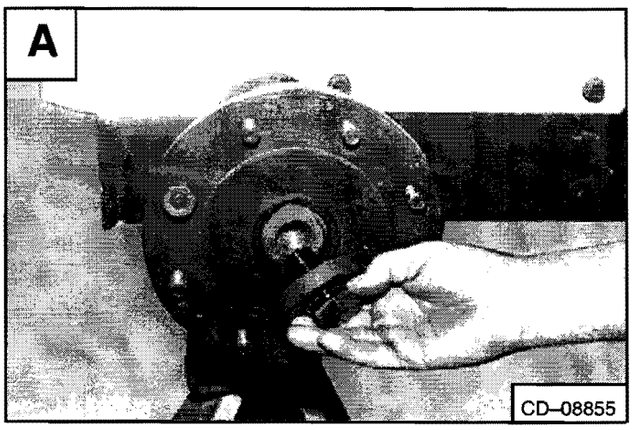
With the tires on the ground, loosen the hub bolt. If the axle and bearings are being replaced, loosen the sprocket bolt while the tires are still on the ground. (See page 4–19.)

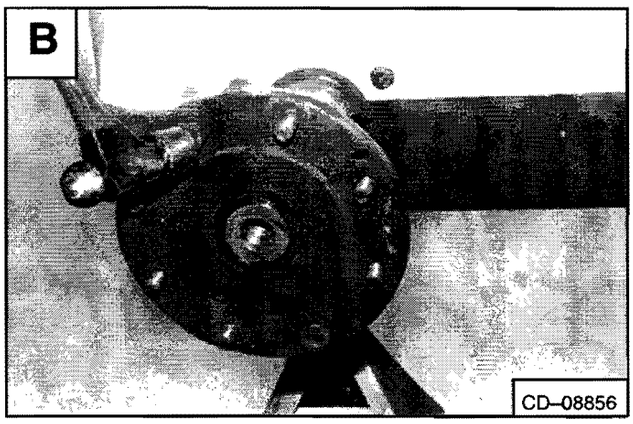
Lift and block the loader. (See Page 1–1.)

Remove the tire/wheel assembly.

***Installation:*** Tighten the bolt to 575–625 ft.–lbs. (780–848 Nm) torque.

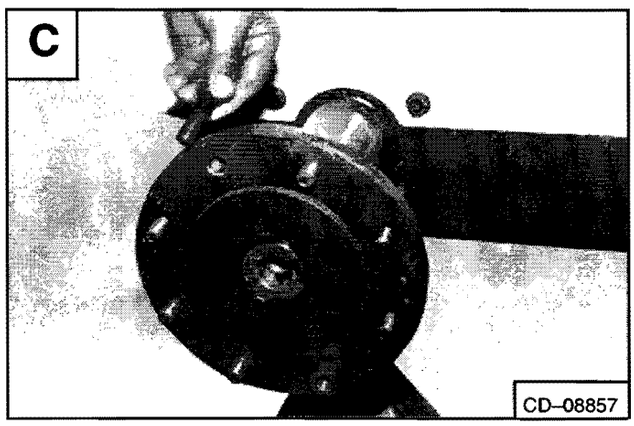
Install wheel nuts on two studs straight across from each other. Use a hammer to remove the wheel studs **[B]**.



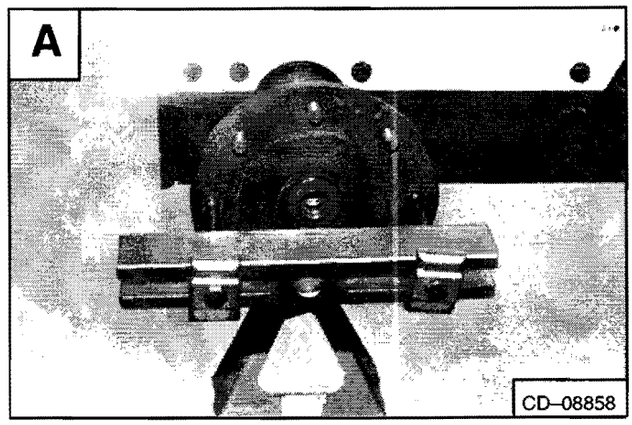

Remove the wheel nut and studs from the hub **[C]**.

***Installation:*** After the hub has been removed, use a hammer to install the wheel stud in the hub.



**Removal and Installation**

Install a puller on the wheel hub **[A]**.



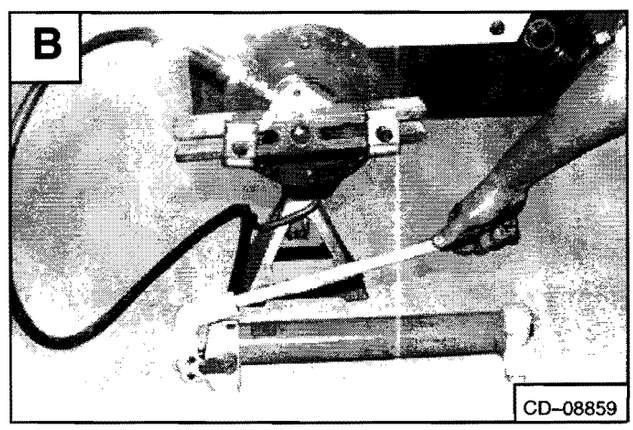

A slide–hammer or Port–a–Power can be used to remove the hub. A Port–a–Power is used in the following sequence:

Install a spacer on the end of the axle and against the Port–a–Power ram **[B]**.

**⚠ WARNING**

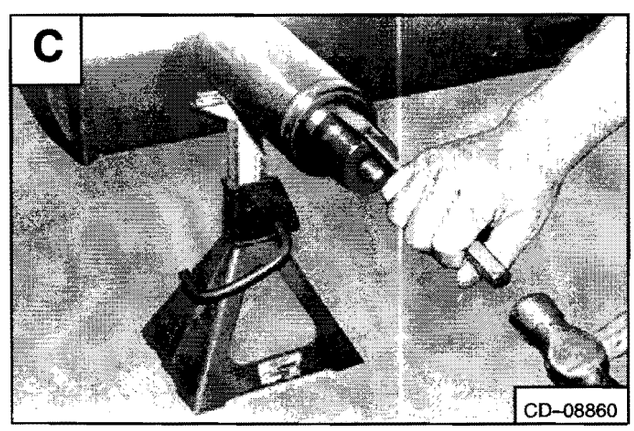
**NEVER STAND IN–LINE OF THE HUB WHEN REMOVING A HUB FROM AN AXLE. The hub has a tapered fit on the axle end and can come off the axle with great force and cause serious injury.**

**W–2186–0395**

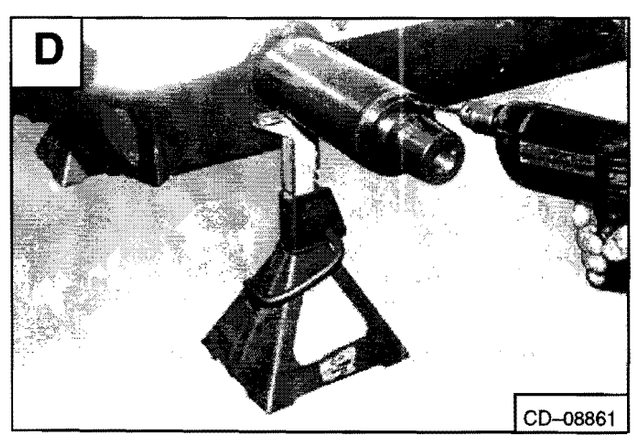



Remove the hub from the axle **[B]**.

Remove the key from the axle **[C]**.




Drill a small hole into the axle seal **[D]**.



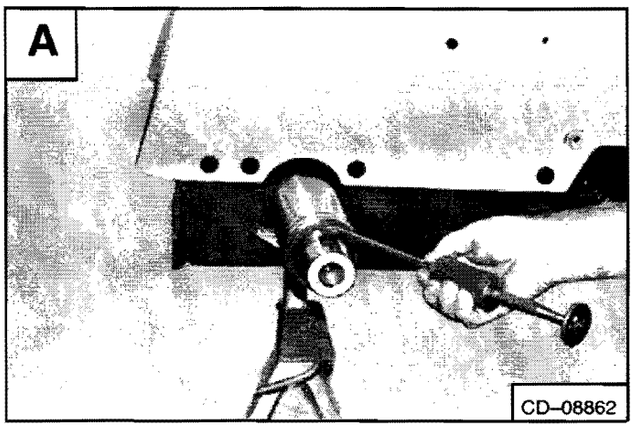
**AXLE SEAL (Cont'd)**

**Removal and Installation (Cont'd)**

Install a puller and remove the axle seal **[A]**.

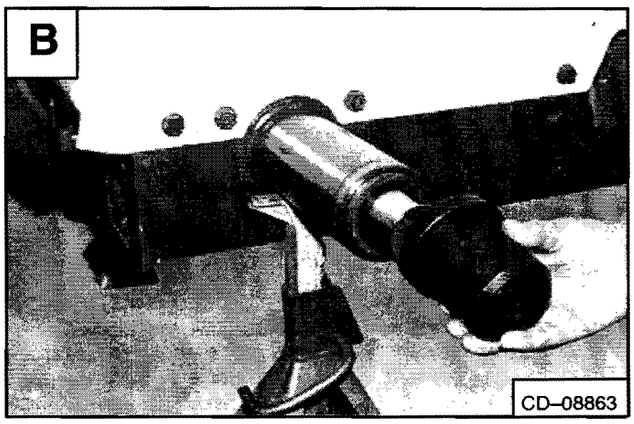
Clean the seal area and inspect the shaft for wear.

If necessary, order an axle repair sleeve from Melroe Parts Sales.

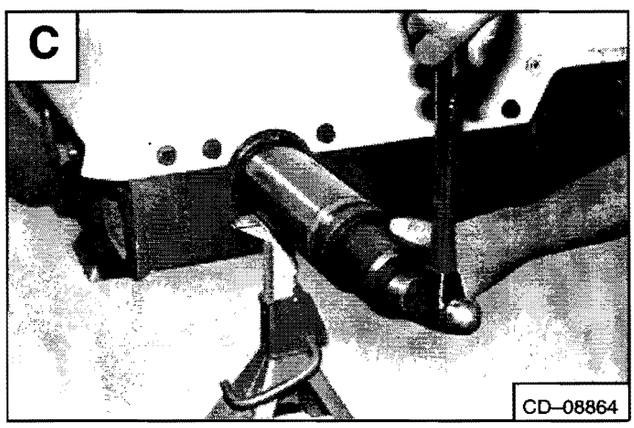



***Installation:*** Install the new seal on the axle and into the axle tube **[B]**.

***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]**.



## 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

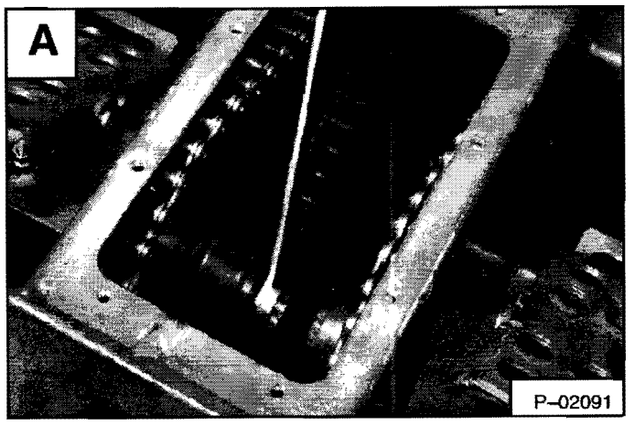
With the axle shafts reinstalled, attach a dial indicator and measure the axle end play.

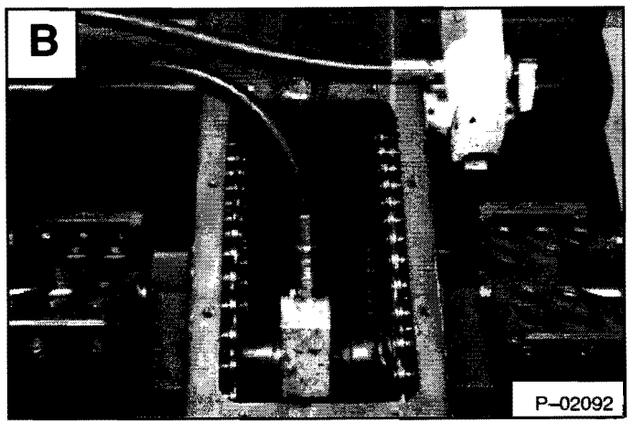
The allowable axle end play is .010 inch (0,254 mm) maximum.

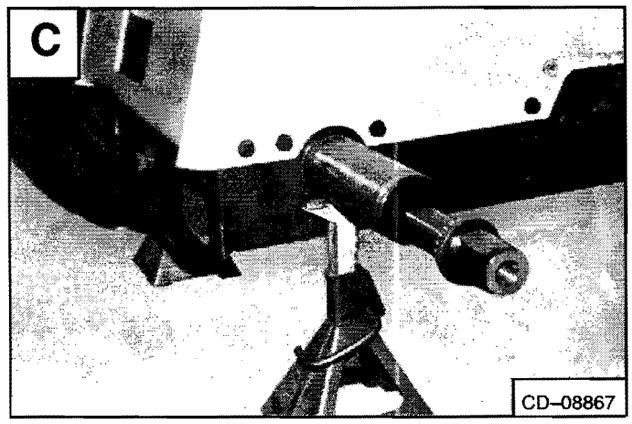
If the axle end play exceeds the maximum range, remove the axle sprocket bolt and washer **[A]**.

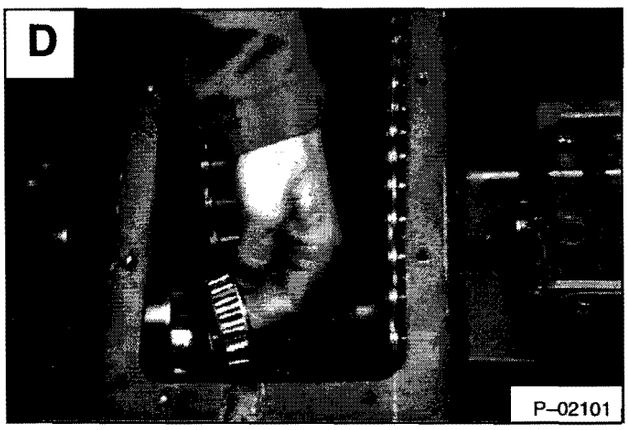
Install new washer (P/N 6563606 available from Melroe Parts Operation) and the bolt and tighten the bolt to 220–245 ft.–lbs. (298–332 Nm) torque.

**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).**



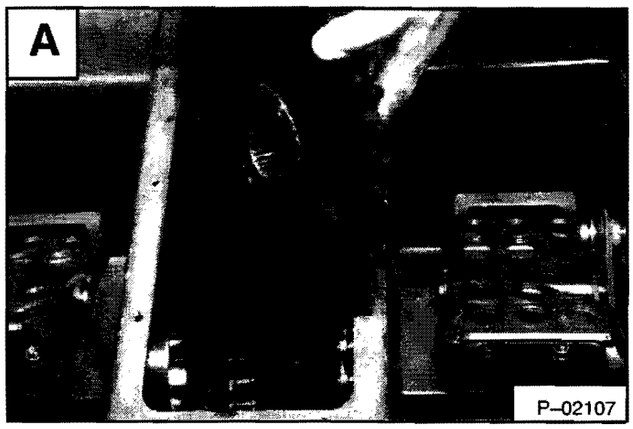



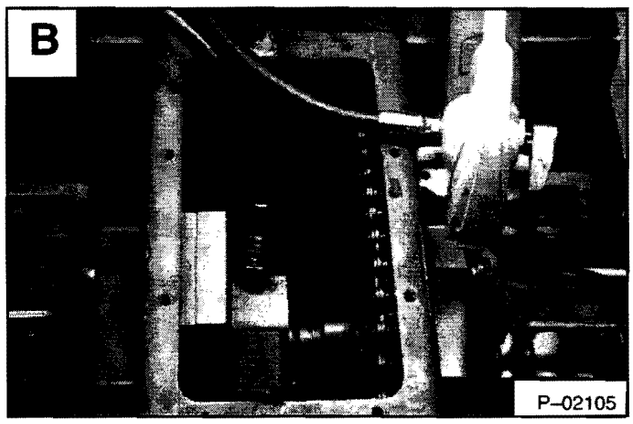



**Removal and Installation (Cont'd)**

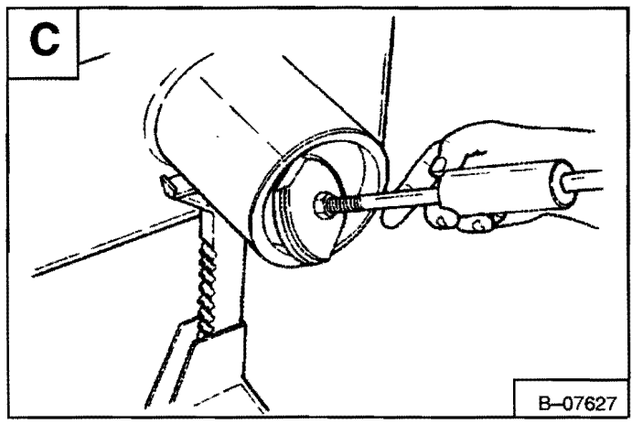
Remove the axle sprocket from the chaincase **[A]**.



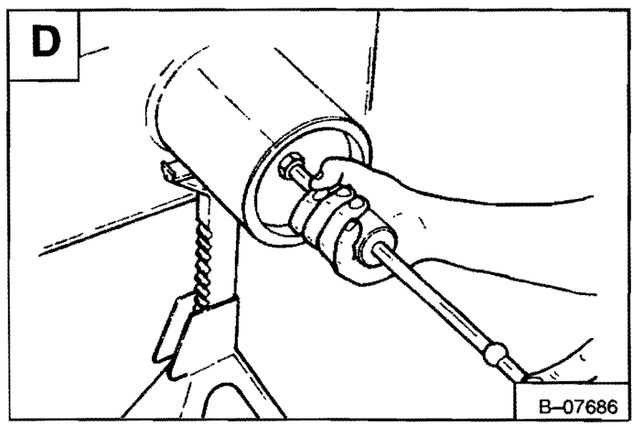

If the other side axle, sprocket and bearings are removed with one axle removed, use spacer plates and the Port–a–Power ram **[B]**.




Install the bearing cup puller tool into the axle tube **[C]**.

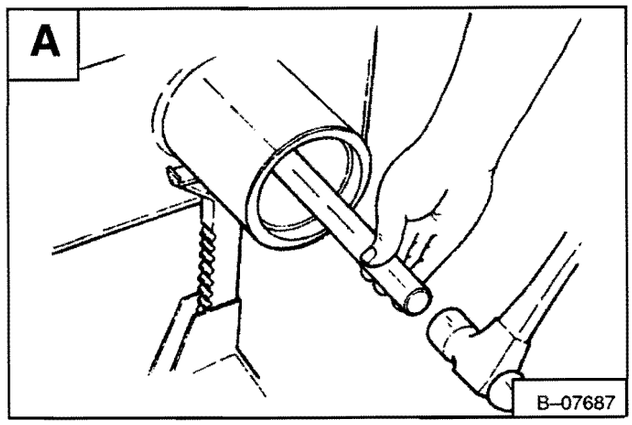



Pull the bearing cup from the axle tube **[D]**.

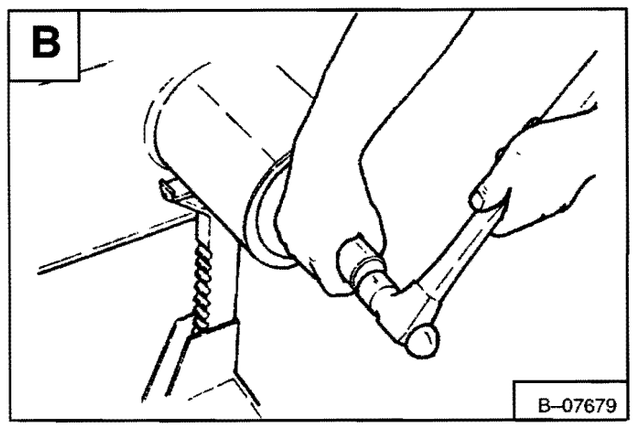


**Removal and Installation (Cont'd)**

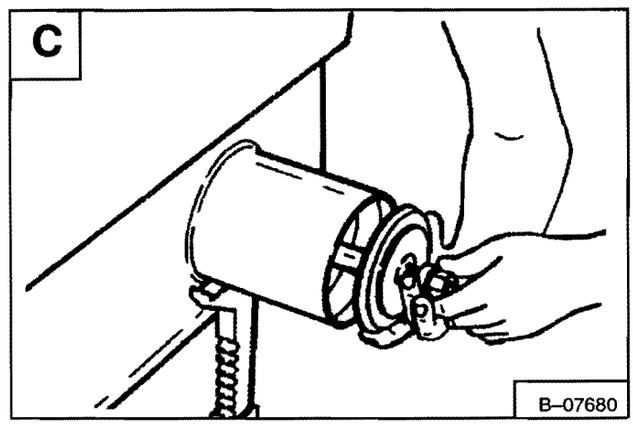
Use a long rod and bearing cup tool to remove the inner bearing cup **[A]**.



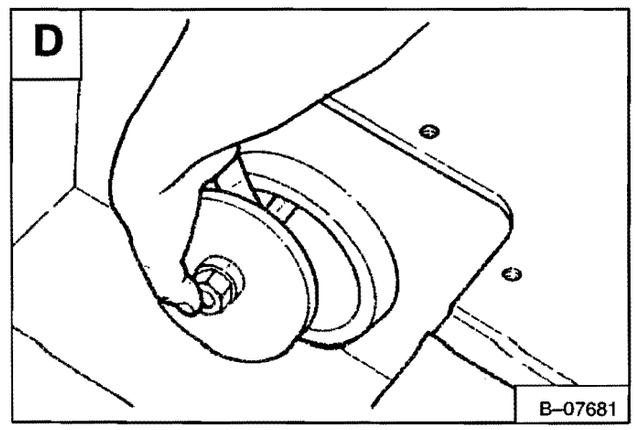

Use the correct size driver, install the outer bearing cup **[B]**.




Install the long threaded rod into the axle tube. Install the correct size bearing cup driver tool. Install the washer and nut **[C]**.

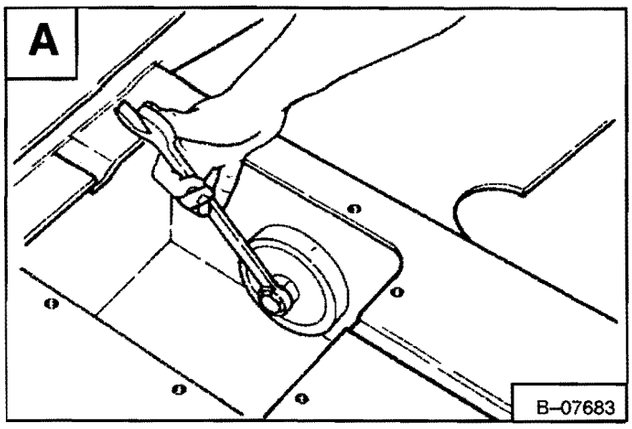



Inside the chaincase, install the bearing cup driver tool, washer and nut **[D]**.

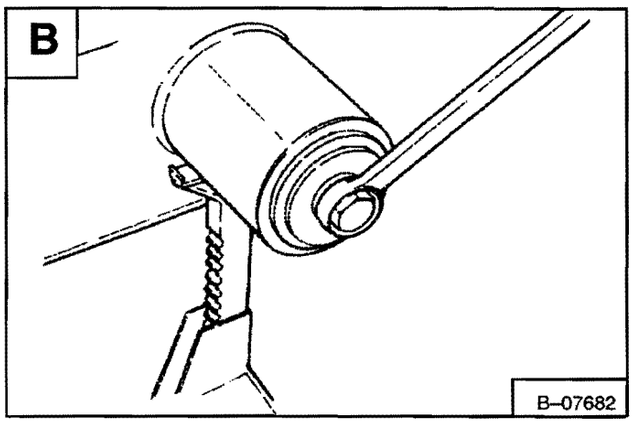


**Removal and Installation (Cont'd)**

Hold the nut inside the chaincase **[A]**.

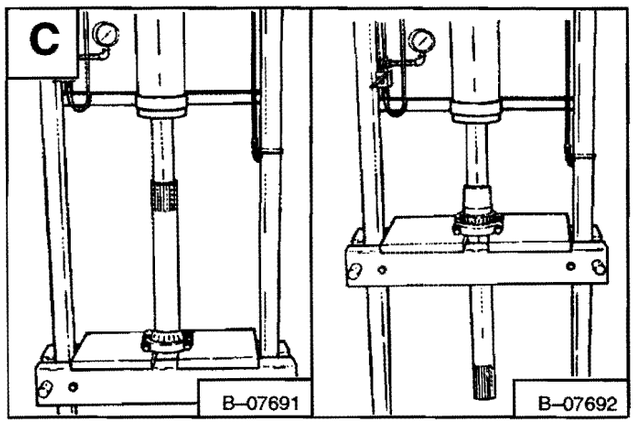



Turn the nut on the outside of the axle tube until the inner bearing cup is on its seat **[B]**.




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]**.



## 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]**.

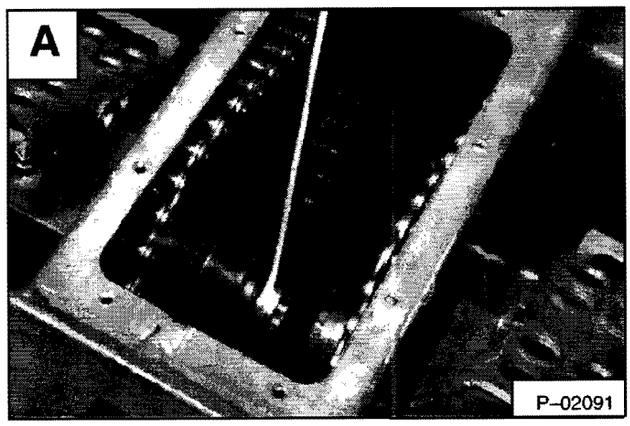
***Installation:*** Tighten the axle sprocket bolt to 220–245 ft.–lbs. (298–332 Nm) torque.

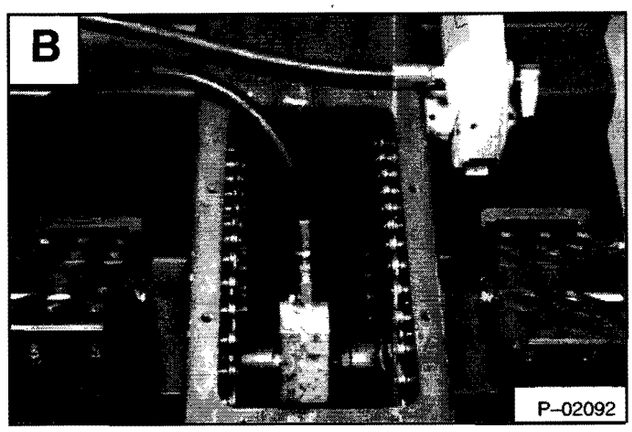
Install a Port–a–Power ram between the two sprockets with a spacer against the end of the axle **[B]**.

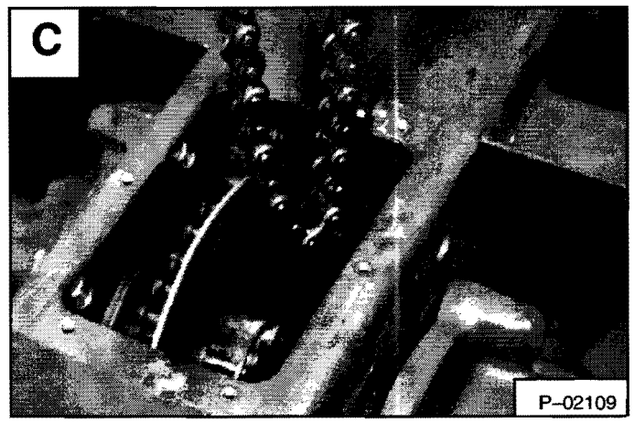
Push the axle out until the ram is at the end of the stroke. Add a spacer and repeat the procedure until the axle is out of the sprocket.

Remove the motor carrier. (See Page 4–14.)

Remove the front and rear drive chain from the chaincase **[C]**.



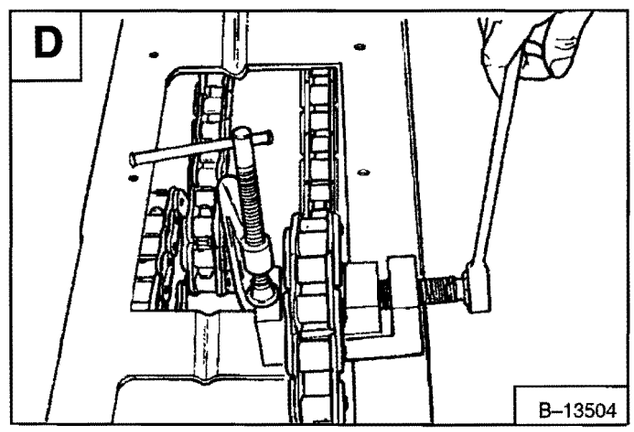




***Installation:*** If a new chain is installed, a connector link must be used to connect the chain together.

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]**.

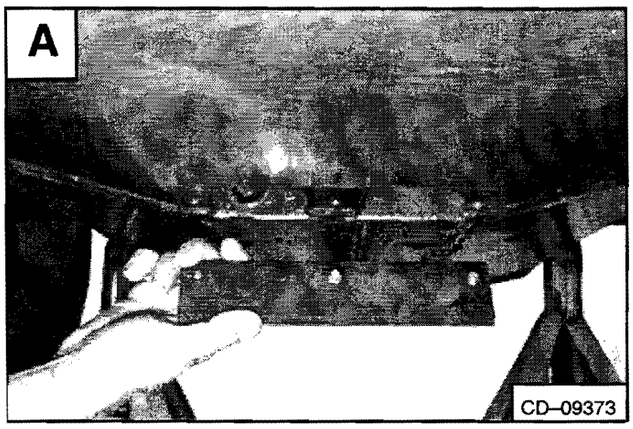


## CHAINCASE FLUID

### Replacing the Chaincase Fluid

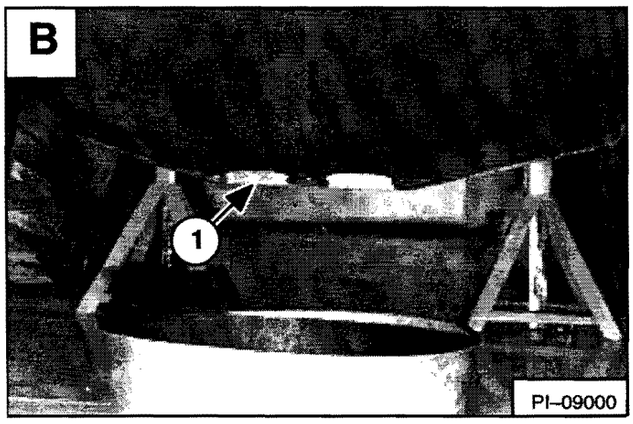
Remove the cover from underneath the engine floor pan and behind the chaincase **[A]**.

**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.)



| | 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.**


bobcat

## 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.**

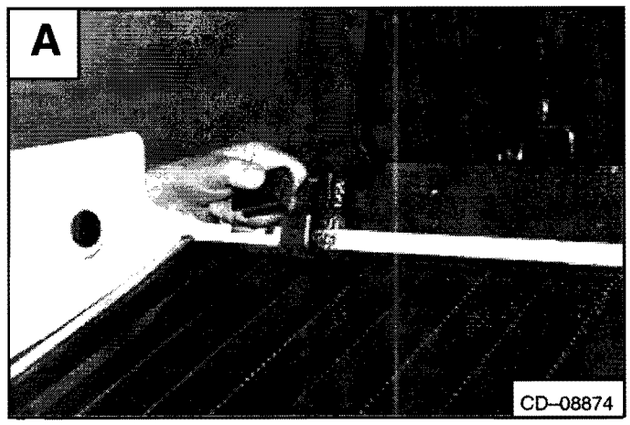
Raise the operator cab. (See Page 1–7.)

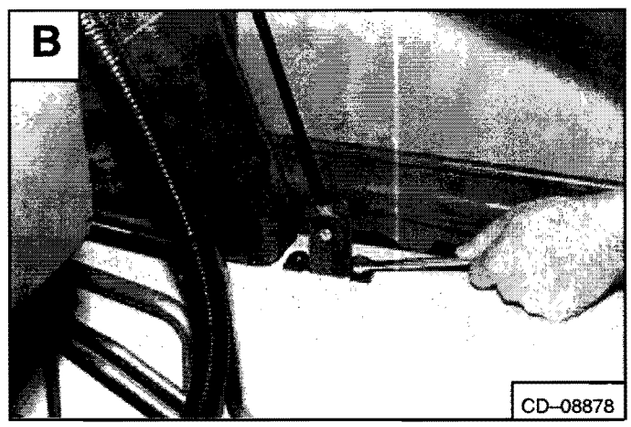
Remove the bolts from the bracket which mounts to the loader fender; Left side **[B]**; Right Side **[C]**.

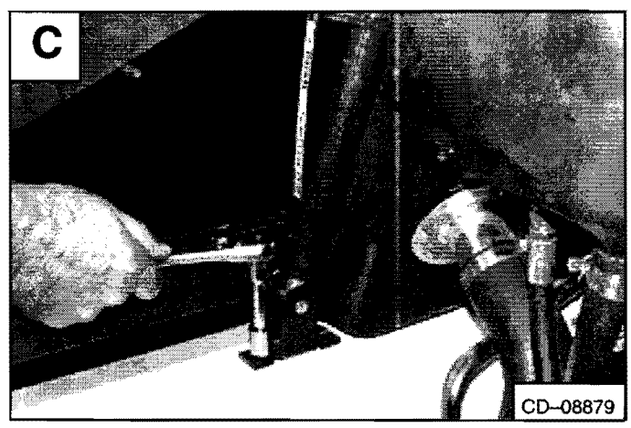
Slide the mounting bracket forward to release the tension on the gas cylinder.

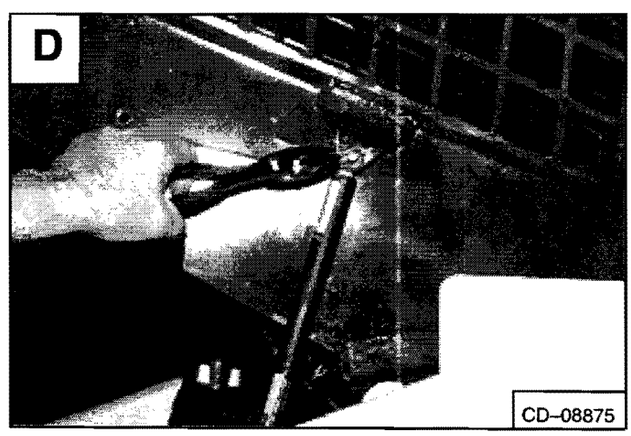
***Installation:*** Use a punch to align the holes in the mounting bracket with the holes in the loader fender.

Remove the cotter pin from the top pivot pin **[D]**.



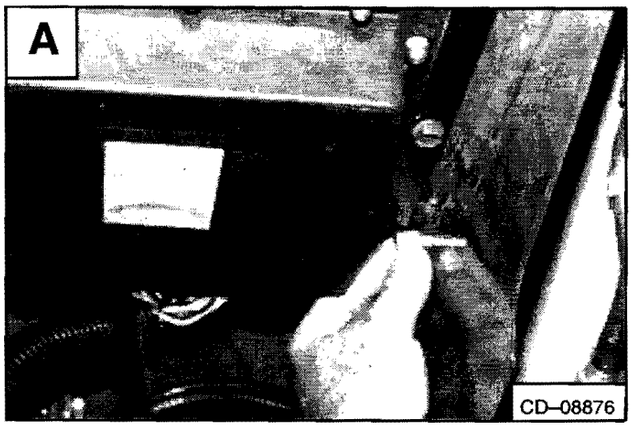
## OPERATOR CAB GAS CYLINDER (Cont'd)

### 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.



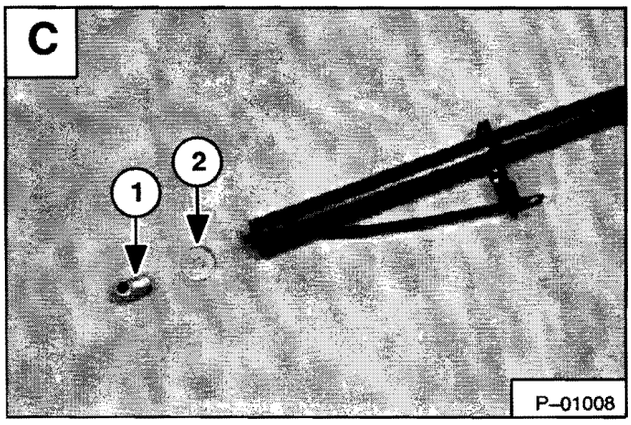




### Disassembly and Assembly

Remove the clevis (Item 1) **[C]** and washer (Item 2) **[C]** from the end of the gas cylinder.

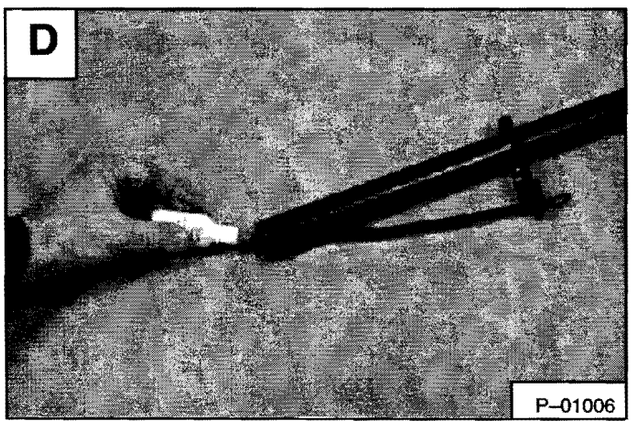
Remove the gas cylinder from the outer housing.




***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.

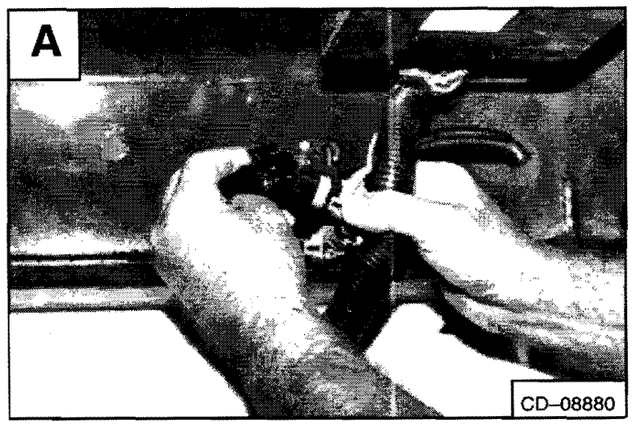


## OPERATOR CAB

### Removal and Installation

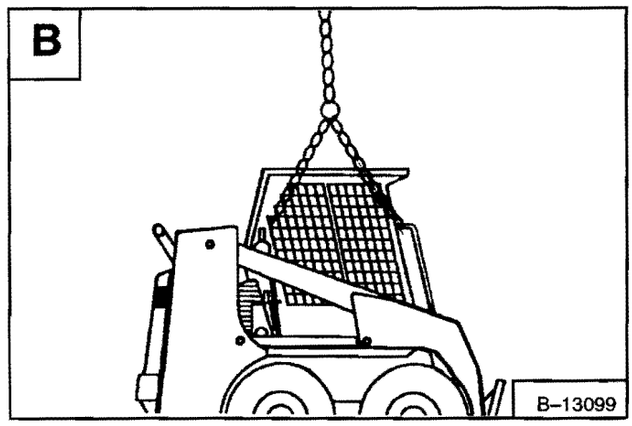
Remove the gas cylinders. (See Page 5–3.)

Disconnect the electrical wiring harness connectors **[A]**.



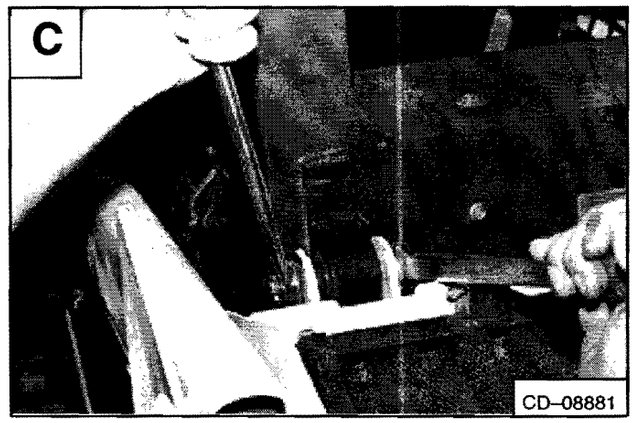

Lower the operator cab.

Connect a chain hoist to the operator cab as shown in figure **[B]**.



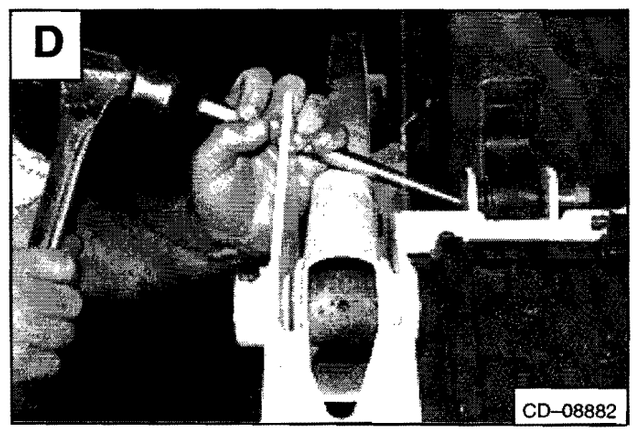

Remove the nut from the pivot bolt (both sides) **[C]**.

***Installation:*** Tighten the pivot bolt and nut to 25–35 ft.–lbs. (34–47 Nm) torque.




Remove the pivot bolt (both sides) **[D]**.

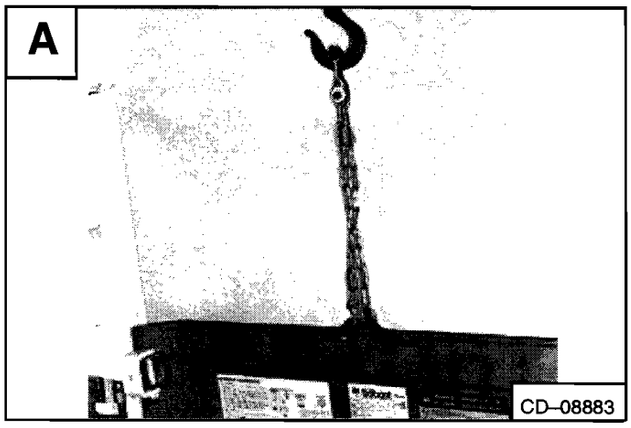
Lift the operator cab and remove it from the loader frame.



## REAR DOOR

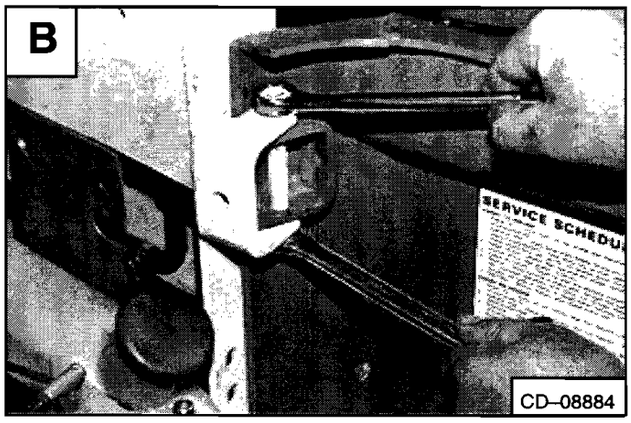
### Removal and Installation

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

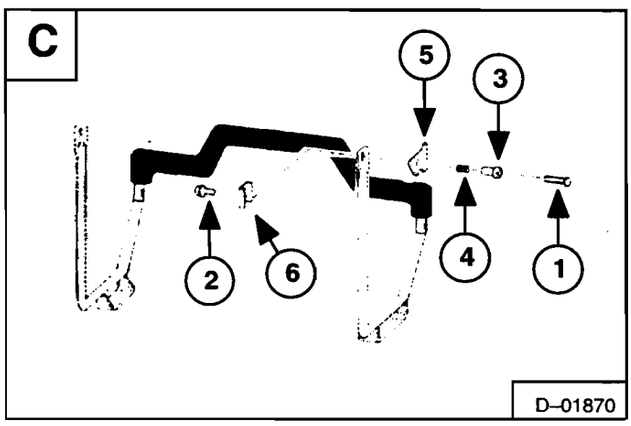
Install the seat bar in the ROPS.

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]**.

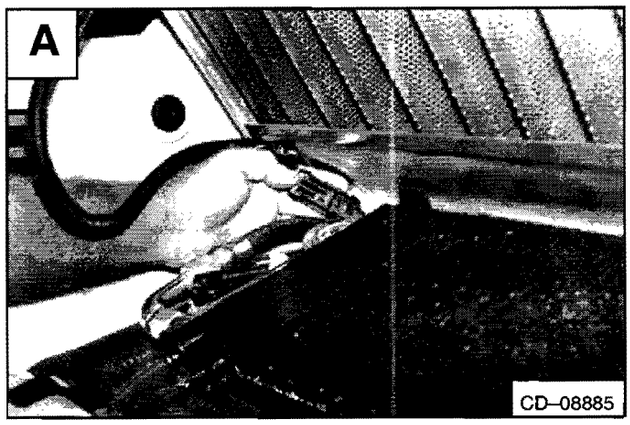


## REAR GRILL

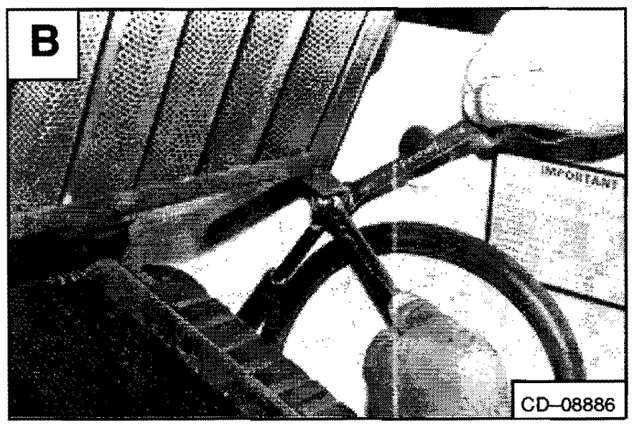
### Removal and Installation

Raise the rear grill.

Disconnect the wiring harness for the lights **[A]**.

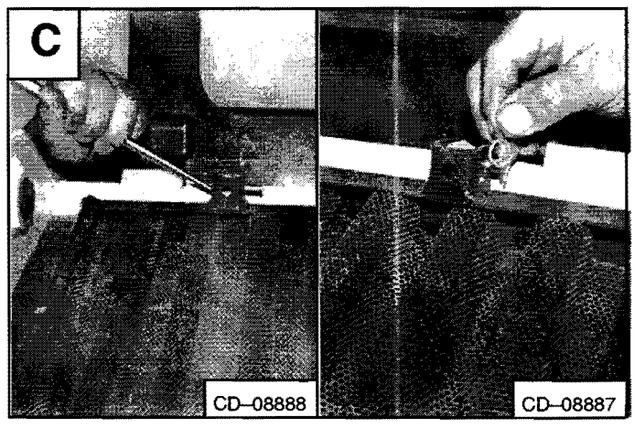



Remove the pivot bolt and nut and disconnect the left gas cylinder from the rear grill **[B]**.

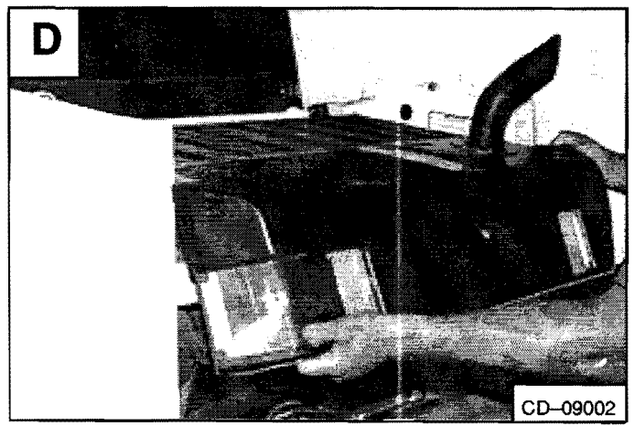



Remove the cotter pin from the pivot pin (both sides) **[C]**.

Remove the pivot pin (both sides) **[C]**.




Lift the rear grill from the loader **[D]**.

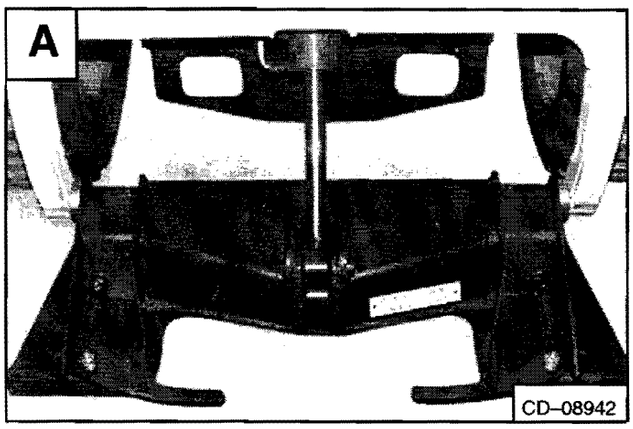


## BOB–TACH

### Removal and Installation

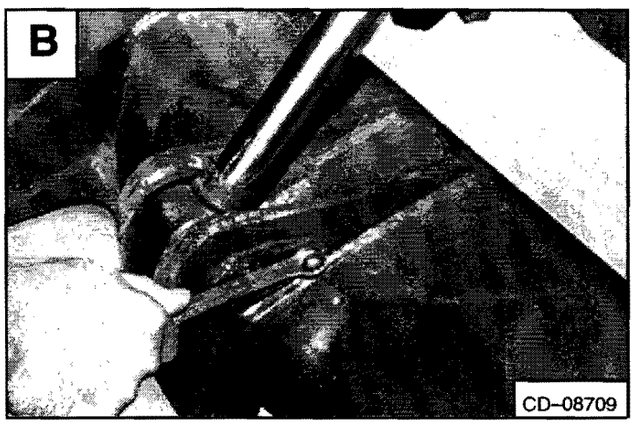
Tilt the Bob–Tach fully forward until the front edge is on the floor **[A]**.

Stop the engine. Move the hydraulic controls to release the hydraulic pressure.

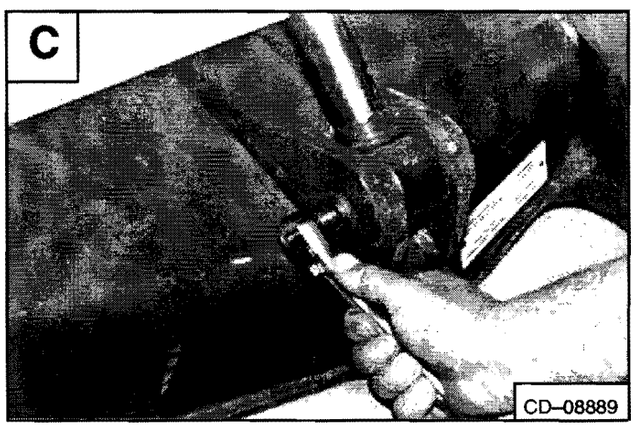



Remove the retainer bolt from the pivot pin **[B]**.

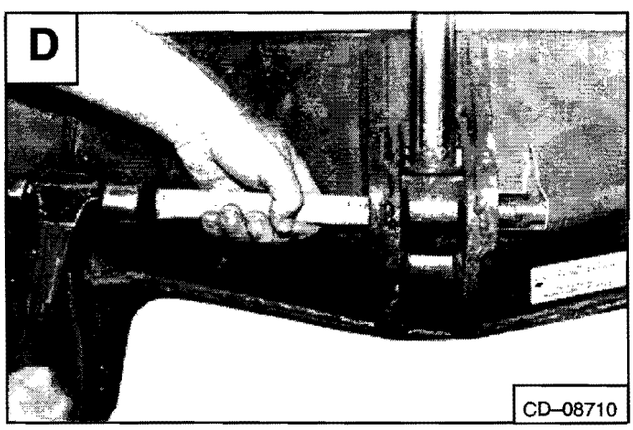
***Installation:*** Tighten the retainer bolt to 18–20 ft.–lbs. (24–27 Nm) torque.




Remove the grease fitting from the pivot pin **[C]**.



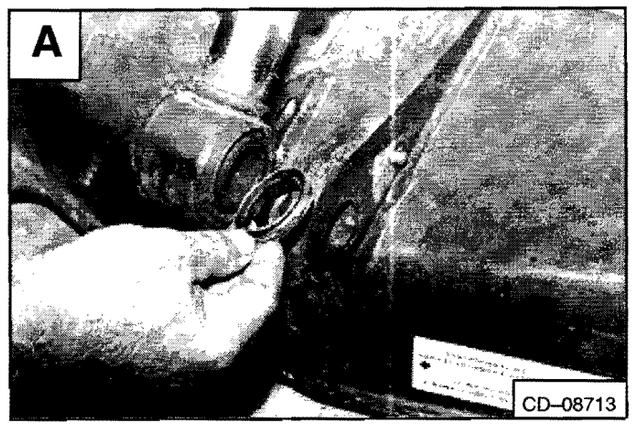

Use a punch and hammer, remove the tilt cylinder rod end pivot pin **[D]**.



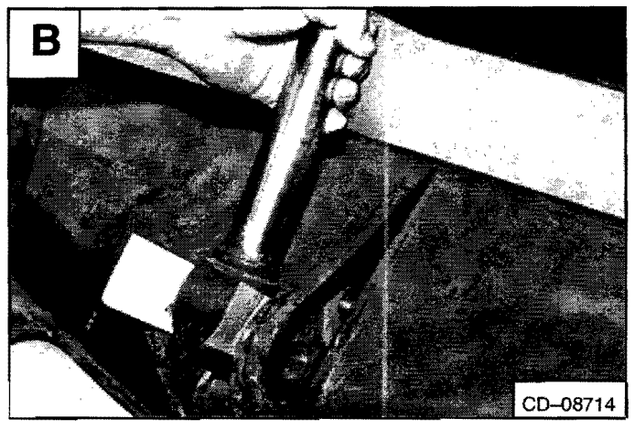
**BOB–TACH (Cont'd)**

**Removal and Installation**

Remove the hydraulic cylinder rod end. Remove the seals **[A]**.

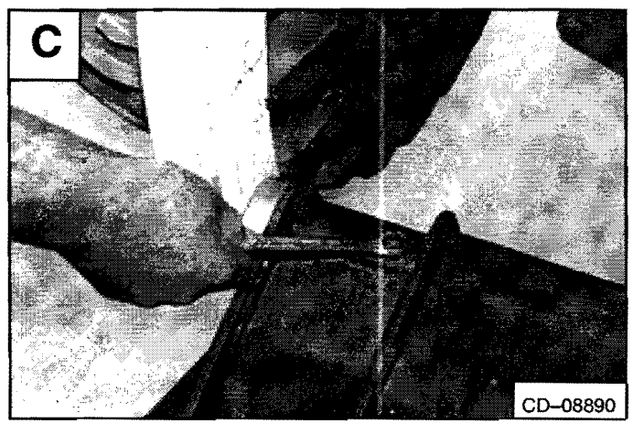



***Installation:*** Put a piece of shim stock on each side over the seals. Install the rod end into the Bob–Tach frame **[B]**.



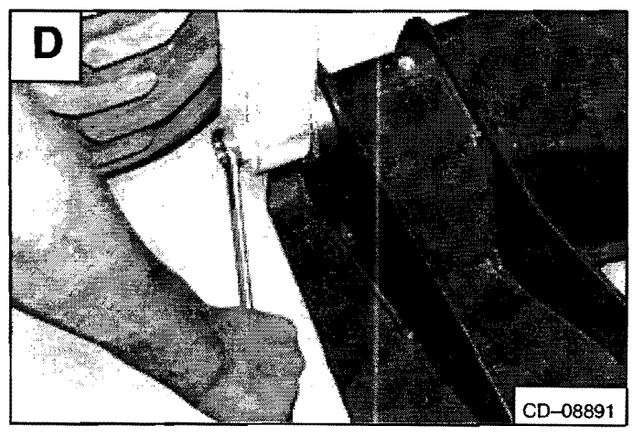

Remove the grease fitting from the Bob–Tach frame for the pivot pin (both sides) **[C]**.

**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.



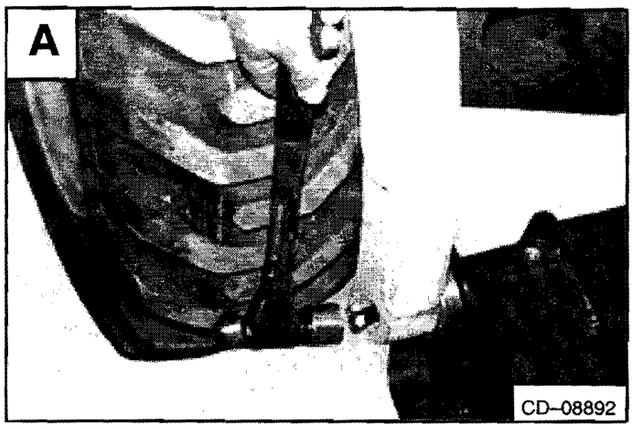
**Removal and Installation (Cont'd)**

Hit the bolt to start the pivot pin into the Bob–Tach frame (both sides) **[A]**.

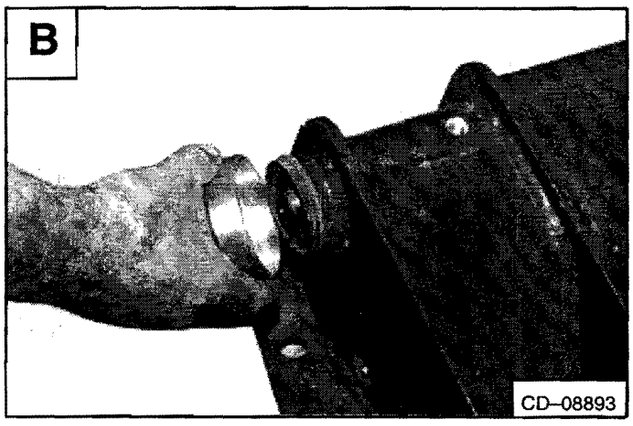
Remove the bolt. Use a punch to push the pivot pin all the say into the Bob–Tach frame.

***Installation:*** A long bolt may be needed to turn into the pivot pin. Pull the pivot pin into the lift arms.

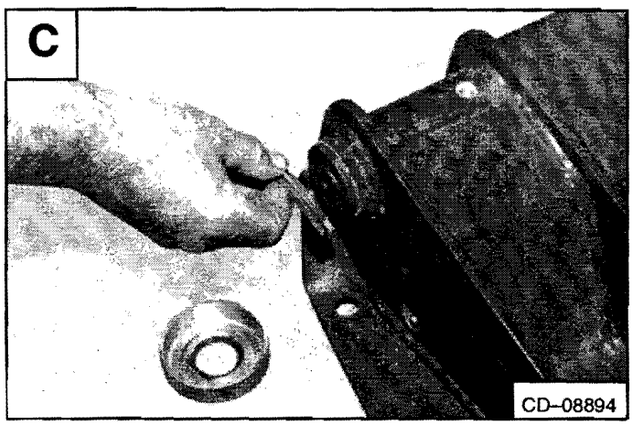
Remove the Bob–Tach frame from the lift arms.




Remove the seal dust cap (both sides) **[B]**.

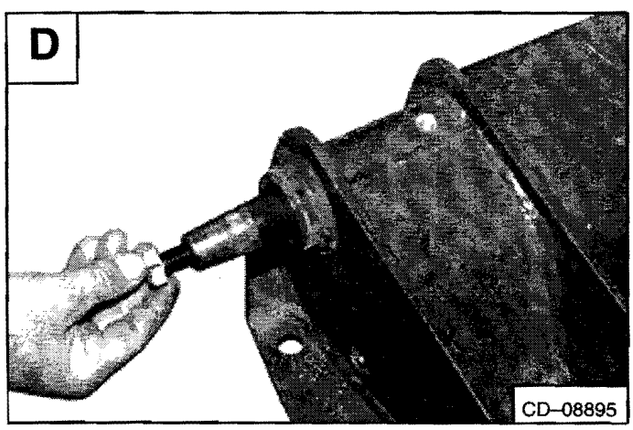



Remove the rubber seal (both sides) **[C]**.




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.

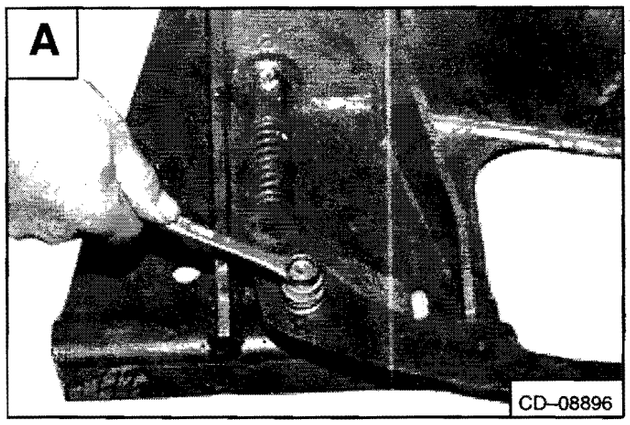


**Bob–Tach Lever and Wedge**

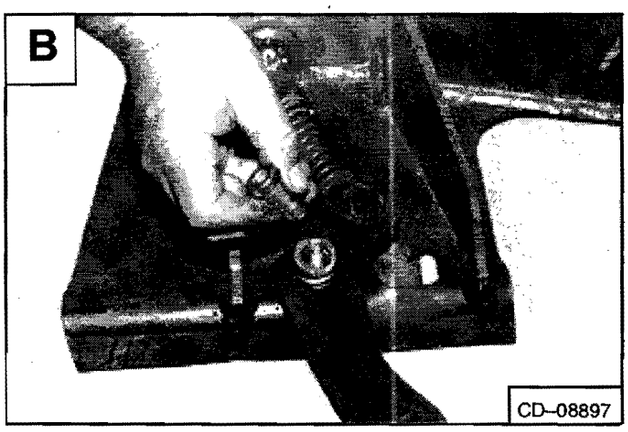
Use the following procedure to remove and install the Bob–Tach lever, spring and wedge:

Remove the nut from the Bob–Tach lever **[A]**.

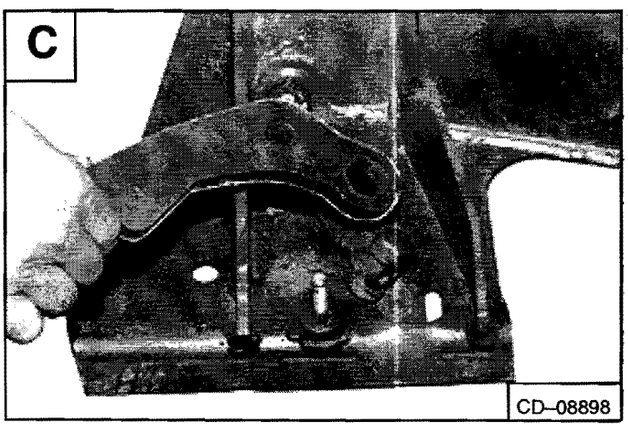
***Installation:*** Tighten the nut to 25–28 ft.–lbs. (34–38 Nm) torque.



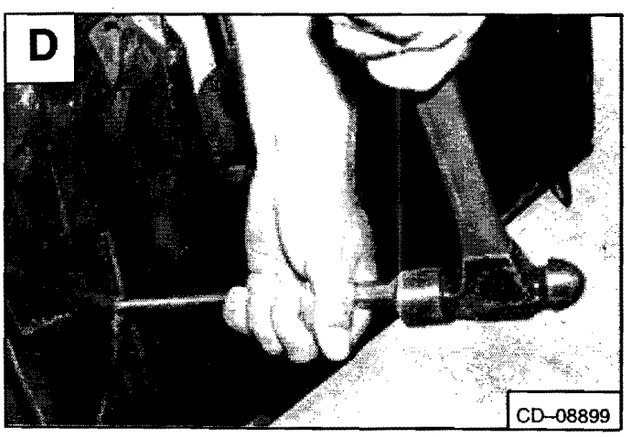

Remove the bushing and spring **[B]**.




Remove the Bob–Tach lever **[C]**.

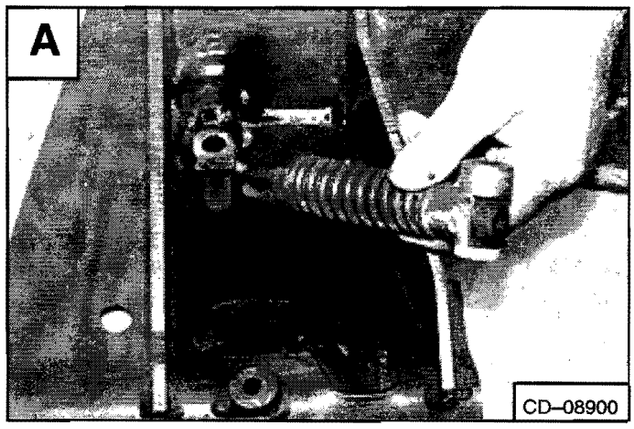



Use a punch and hammer, remove the roll pin from the Bob–Tach wedge and spring bolt clevis assembly **[D]**.



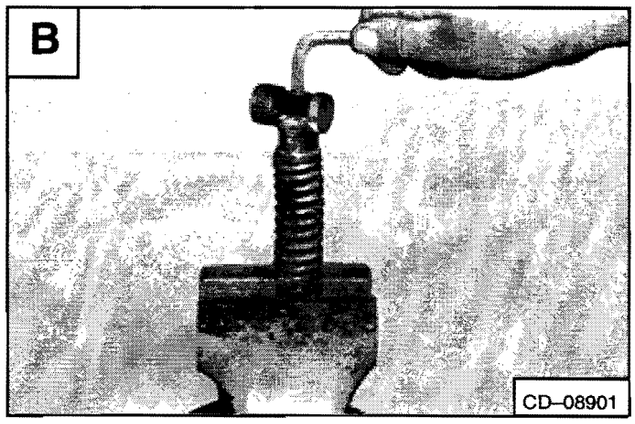
**Bob–Tach Lever and Wedge (Cont'd)**

Remove the spring, bolt and clevis assembly **[A]**.



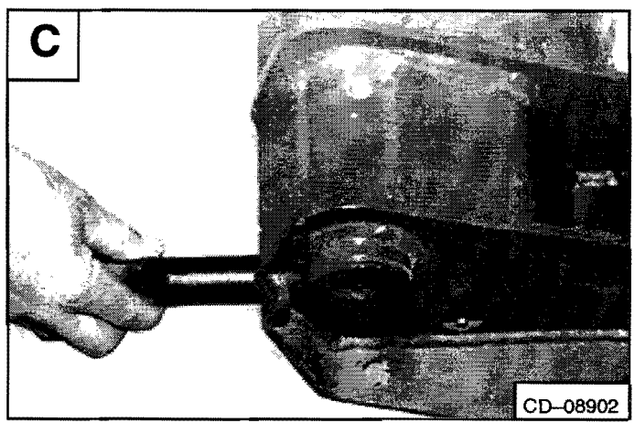

If the spring is damaged, put the assembly in the vise and remove the bolt **[B]**.

Replace the worn or damaged parts as needed.




Remove the wedge from the Bob–Tach frame **[C]**.

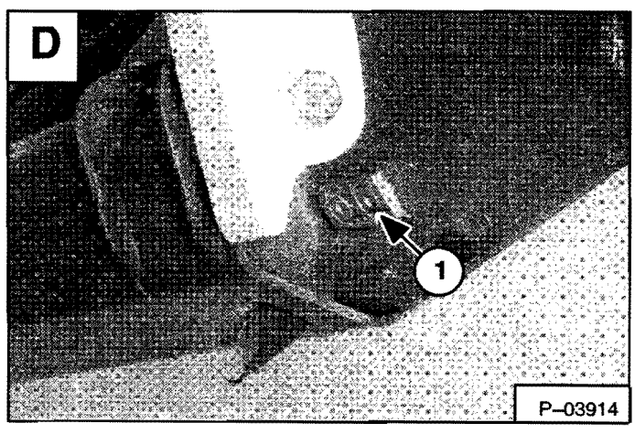
Always replace bent or broken wedges.




**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.**



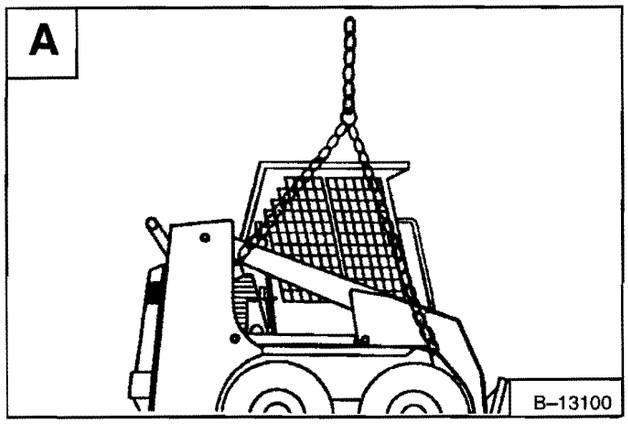
## LIFT ARMS

### Removal and Installation

Tilt the Bob–Tach fully forward. Stop the engine. Move the hydraulic controls to release the hydraulic pressure.

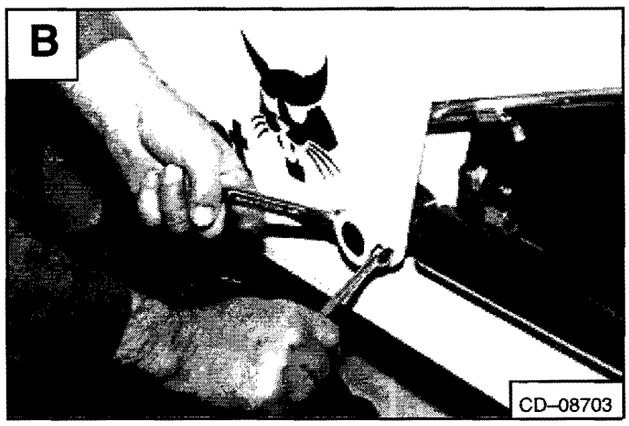
Remove the Bob–Tach frame from the lift arms. (See Page 5–8.)

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]**.

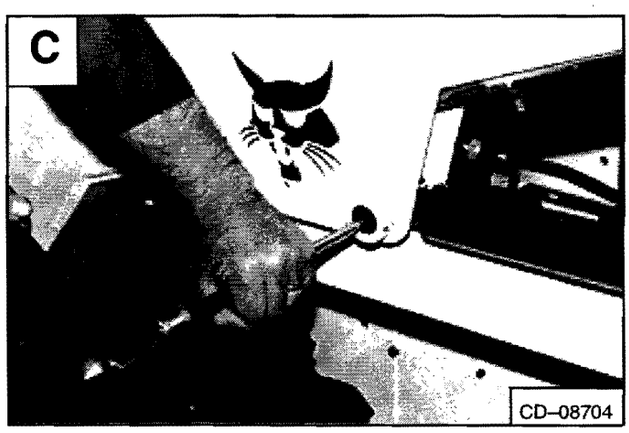



***Installation:*** Tighten the bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.

**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.**

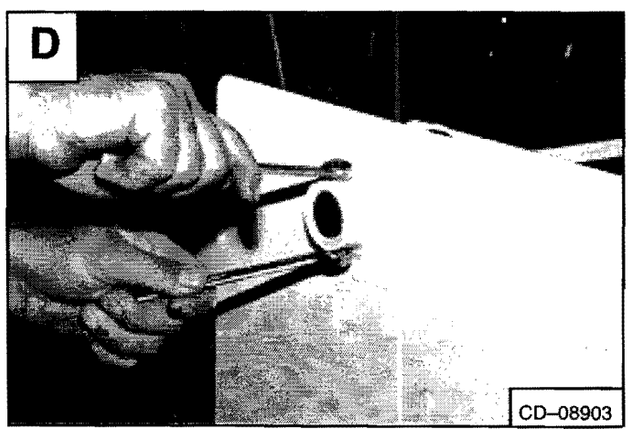
Remove the rod end pivot pin (both sides) **[C]**.

Lower the lift arms. Remove the floor jack.




Remove the retainer bolt and nut from the lift arm link pivot pin (both sides) **[D]**.

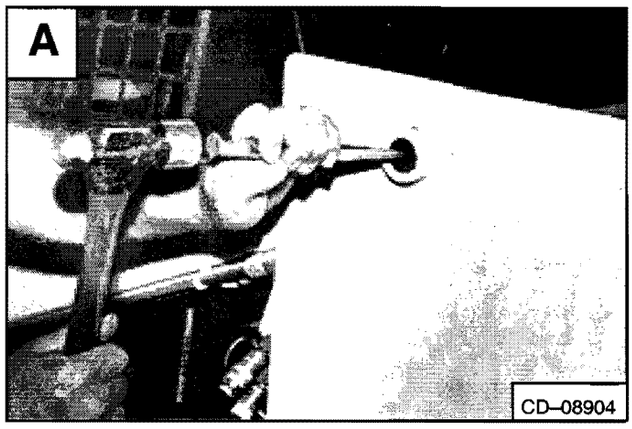
***Installation:*** Tighten the retainer bolt and nut to 18–20 ft.–lbs. (24–27 Nm) torque.



**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.**

**W–2019–1285**

## FUEL TANK

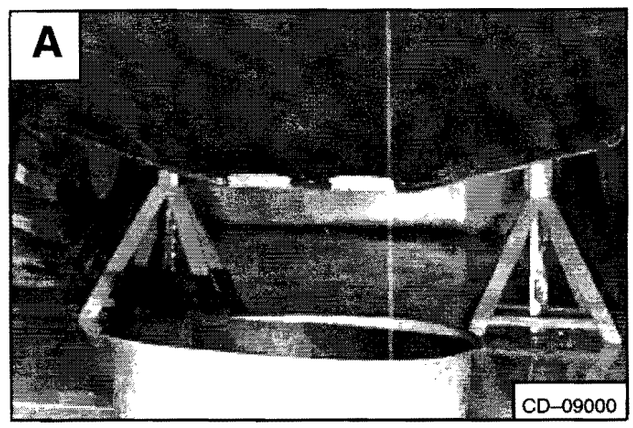
### Removal and Installation

Remove the cover over the drain plug which is located under the loader behind the chaincase.

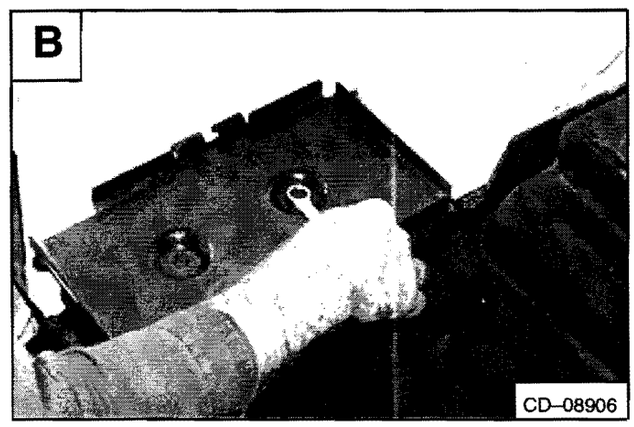
Remove the drain plug (Item 1) **[A]** from the fuel tank.

Drain all the fuel into a container.

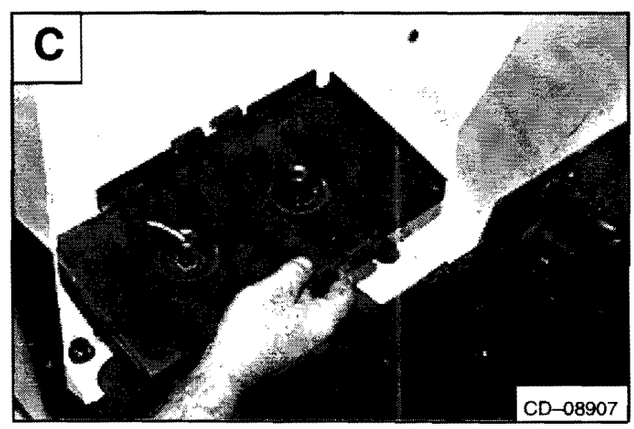
Remove the engine/hydrostatic pumps assembly from the loader. (See Page 7–1.)



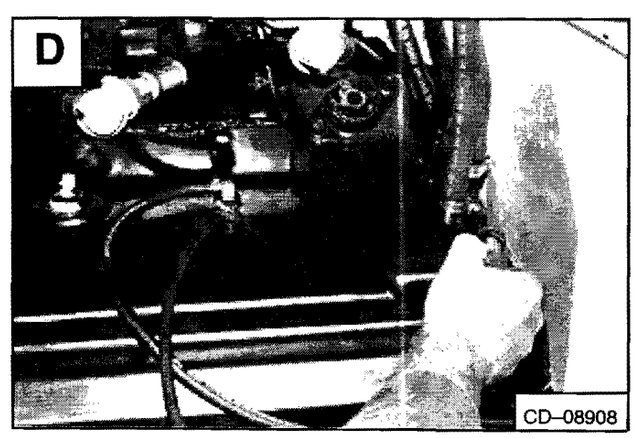

Remove the bolts from the battery holddown plate **[B]**.




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.**

## 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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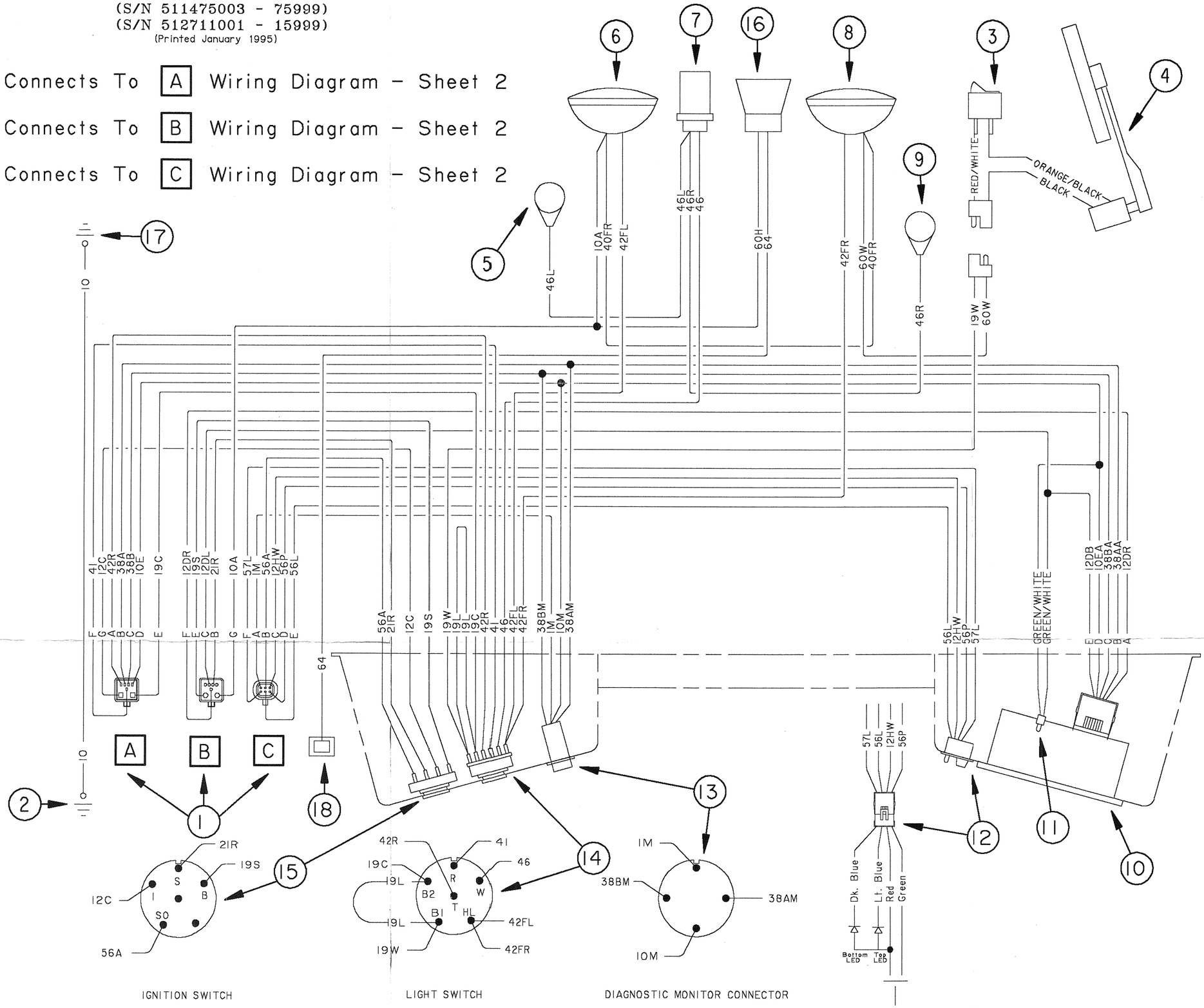
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WIRING DIAGRAM (P/N 6724018) Sheet 1 Of 3
With BOSS - With Hi-Flow Hydraulics
Operator Cab
753 (S/N 511011007 & Above)
(S/N 511475003 - 75999)
(S/N 512711001 - 15999)
(Printed January 1995)

[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

# 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 |

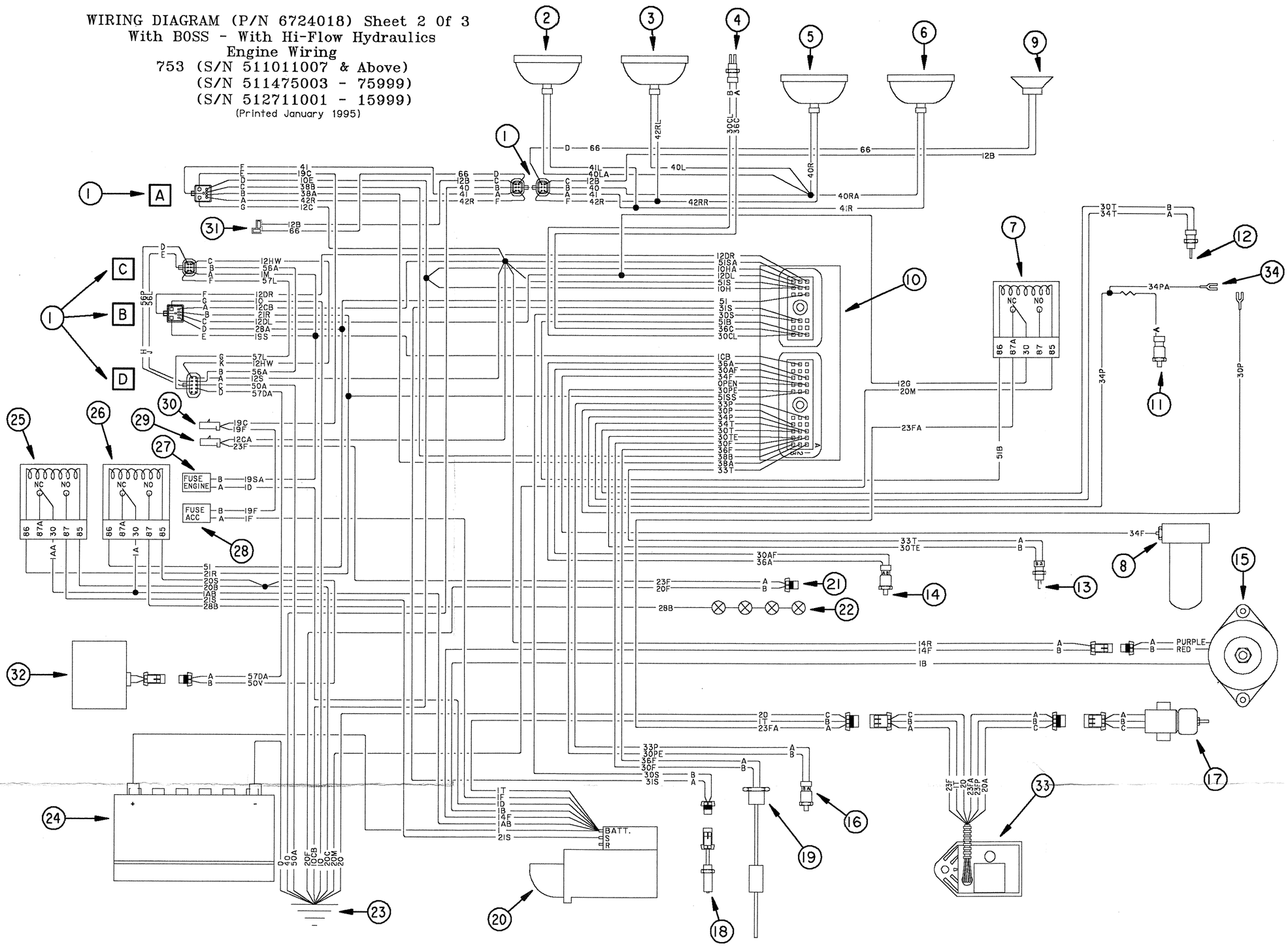
## PARTS LEGEND

(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)
(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 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)

(Printed January 1995)

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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 |

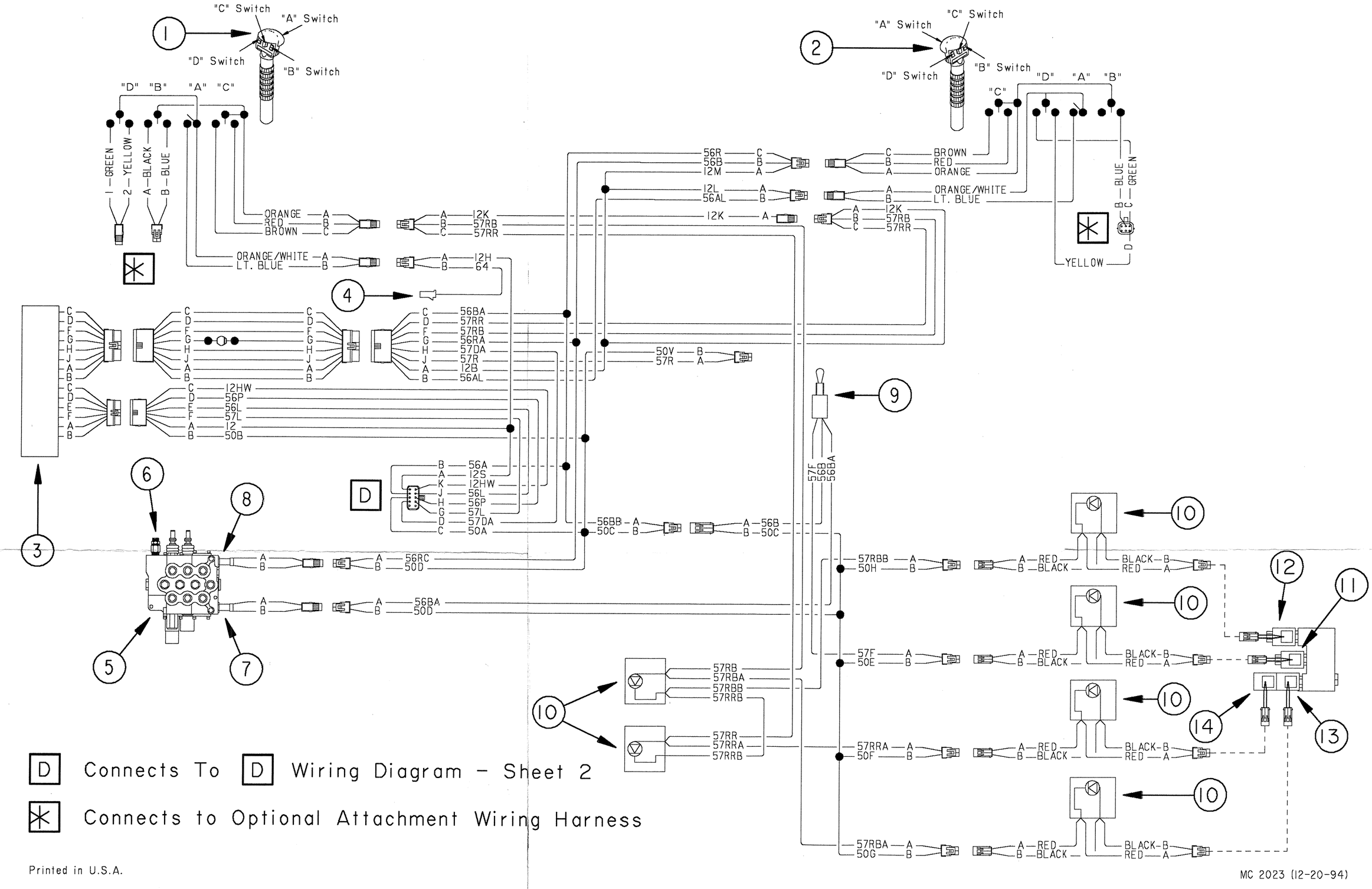
## PARTS LEGEND

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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# 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)

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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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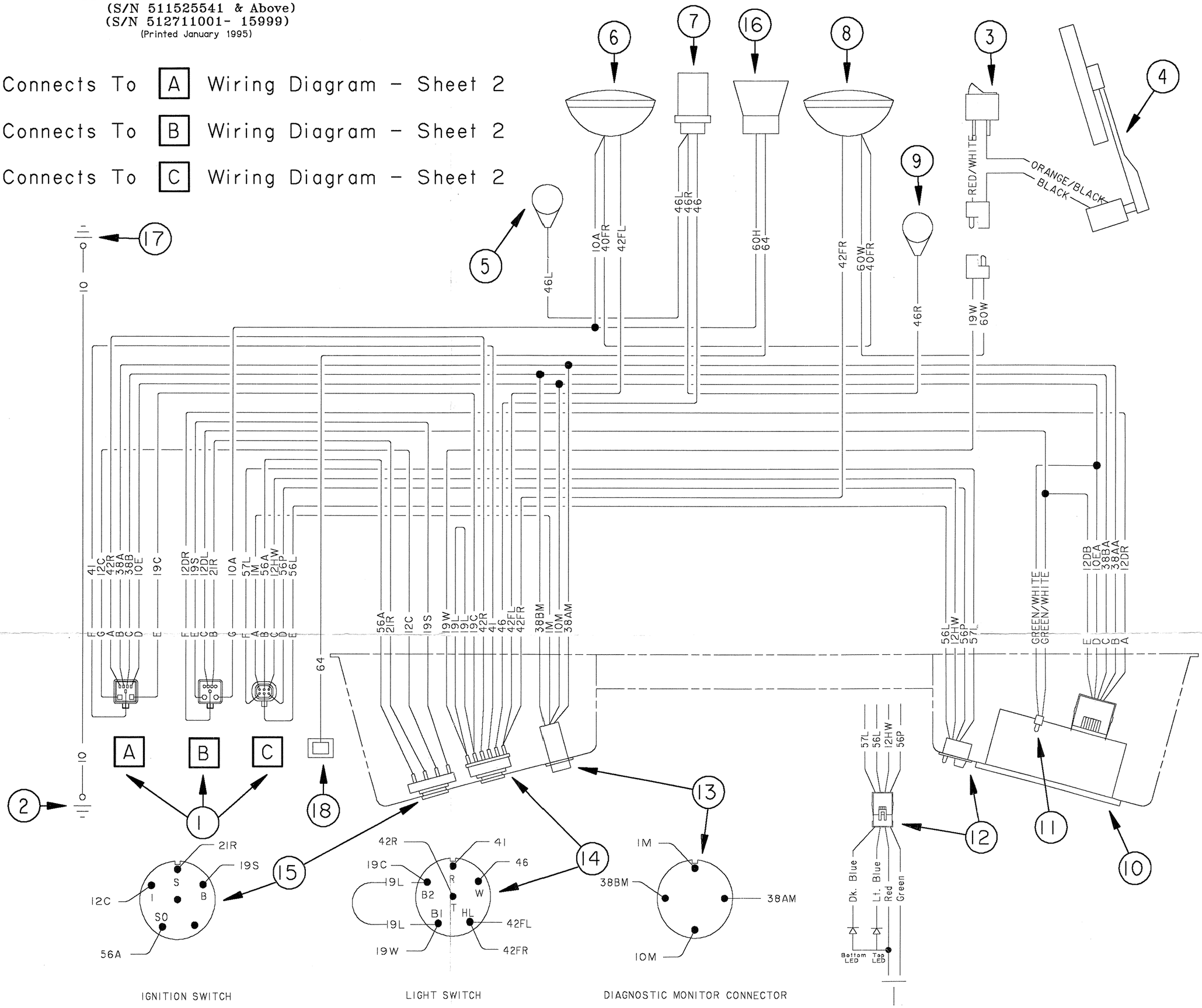
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WIRING DIAGRAM (P/N 6724019) Sheet 1 Of 3
With BOSS - Without Hi-Flow Hydraulics
Operator Cab
753 (S/N 508690400 - 92999)
(S/N 511525541 & Above)
(S/N 512711001- 15999)
(Printed January 1995)

[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

# 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 |

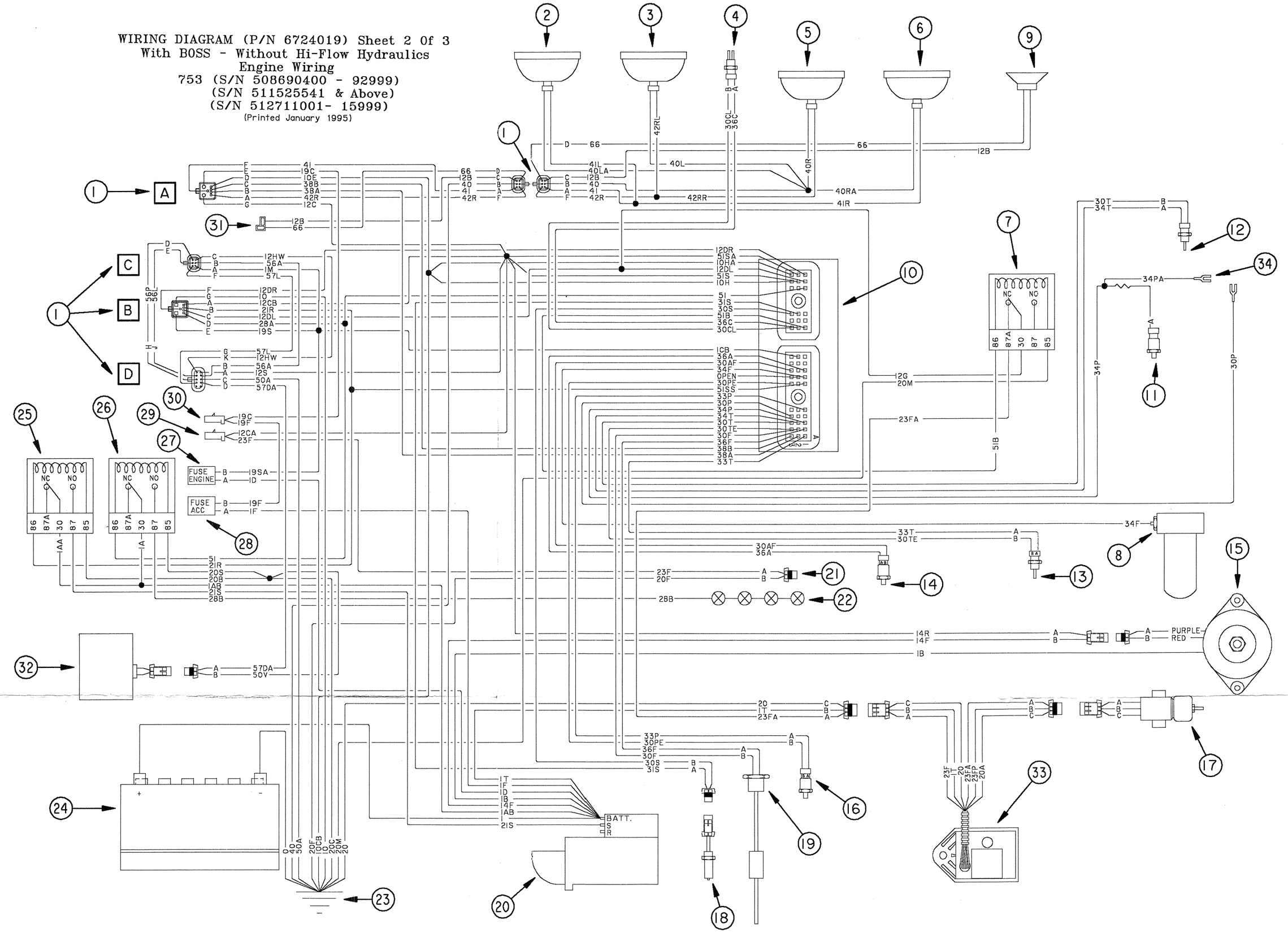
## PARTS LEGEND

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

# 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

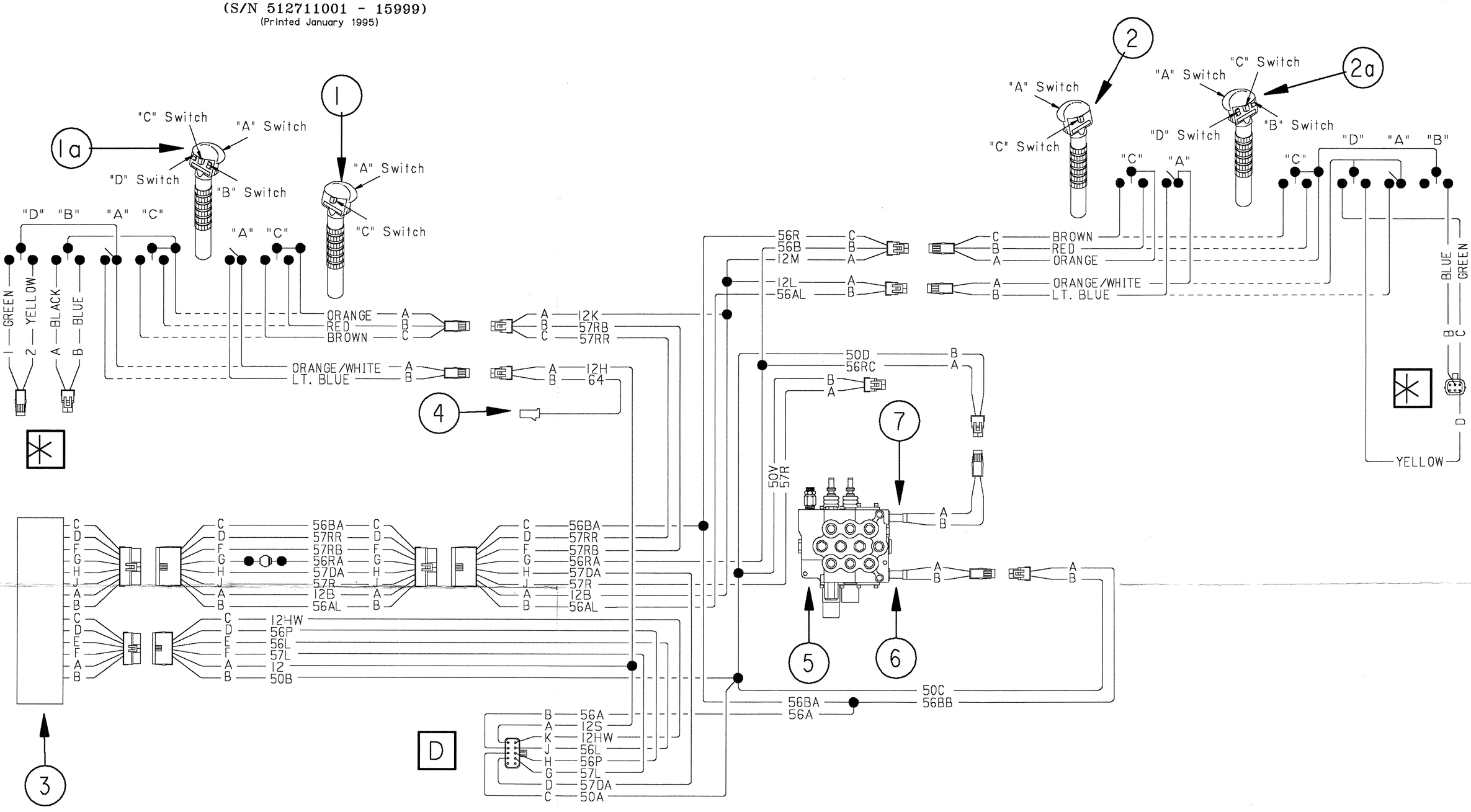
(6) Front Auxiliary Solenoid (Base End/Female Coupler)

(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)
(Printed January 1995)




D Connects To D Wiring Diagram - Sheet 2

Connects To Optional Attachment Wiring Harness

# 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

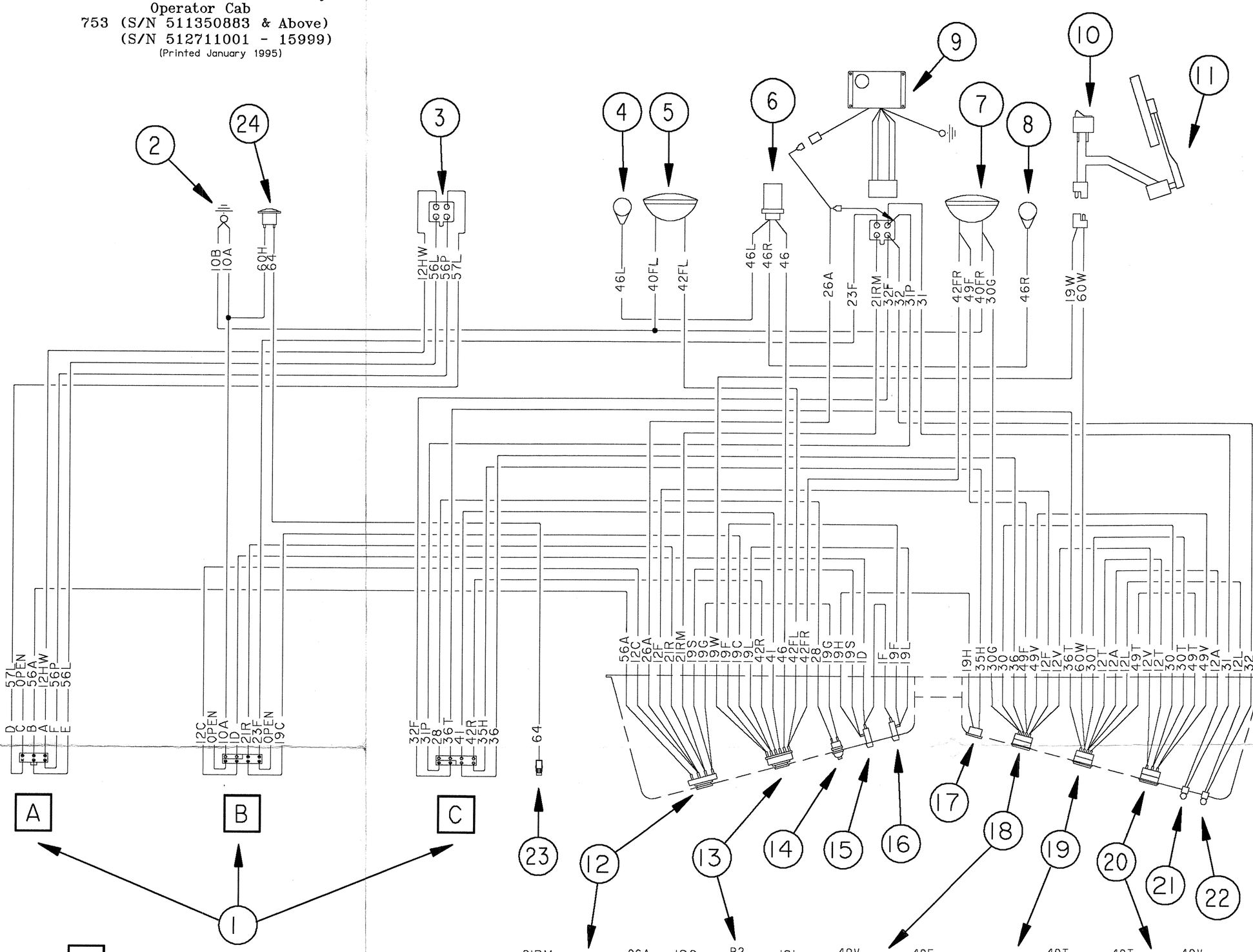
1. Harness Connectors
2. Operator Cab Ground
3. Auxiliary Hydraulics Connector
4. Left Flasher Light (Opt.)
5. Left Front Light (Opt.)
6. Flasher
7. Right Front Light (Opt.)
8. Right Flasher Light (Opt.)
9. Shutdown Module (Opt.)
10. Wiper Switch (Opt.)
11. Wiper (Opt.)
12. Ignition Switch
13. Light 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)
(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 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)

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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

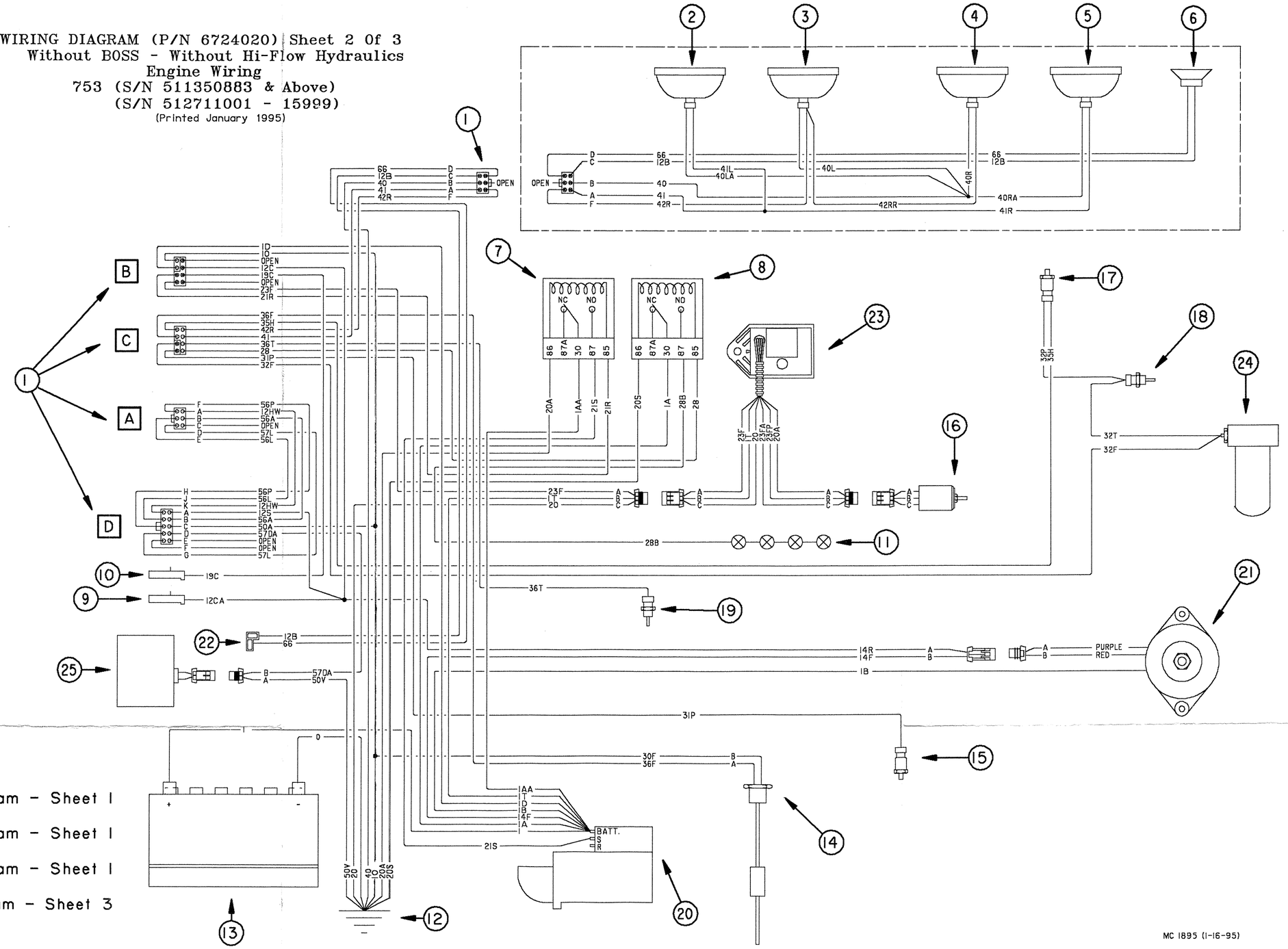
1. Harness Connectors
2. Left Tail Light (Opt.)
3. Left Rear Work Light (Opt.)
4. Right Rear Work Light (Opt.)
5. Right Tail Light (Opt.)
6. Back-Up Alarm (Opt.)
7. Starter Relay
8. Glow Plug Relay
9. Fused and Switch Power
10. Fused Accessory Power
11. Glow Plugs
12. Ground
13. Battery
14. Fuel Sender
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)

(Printed January 1995)

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MC 2021120

## 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)

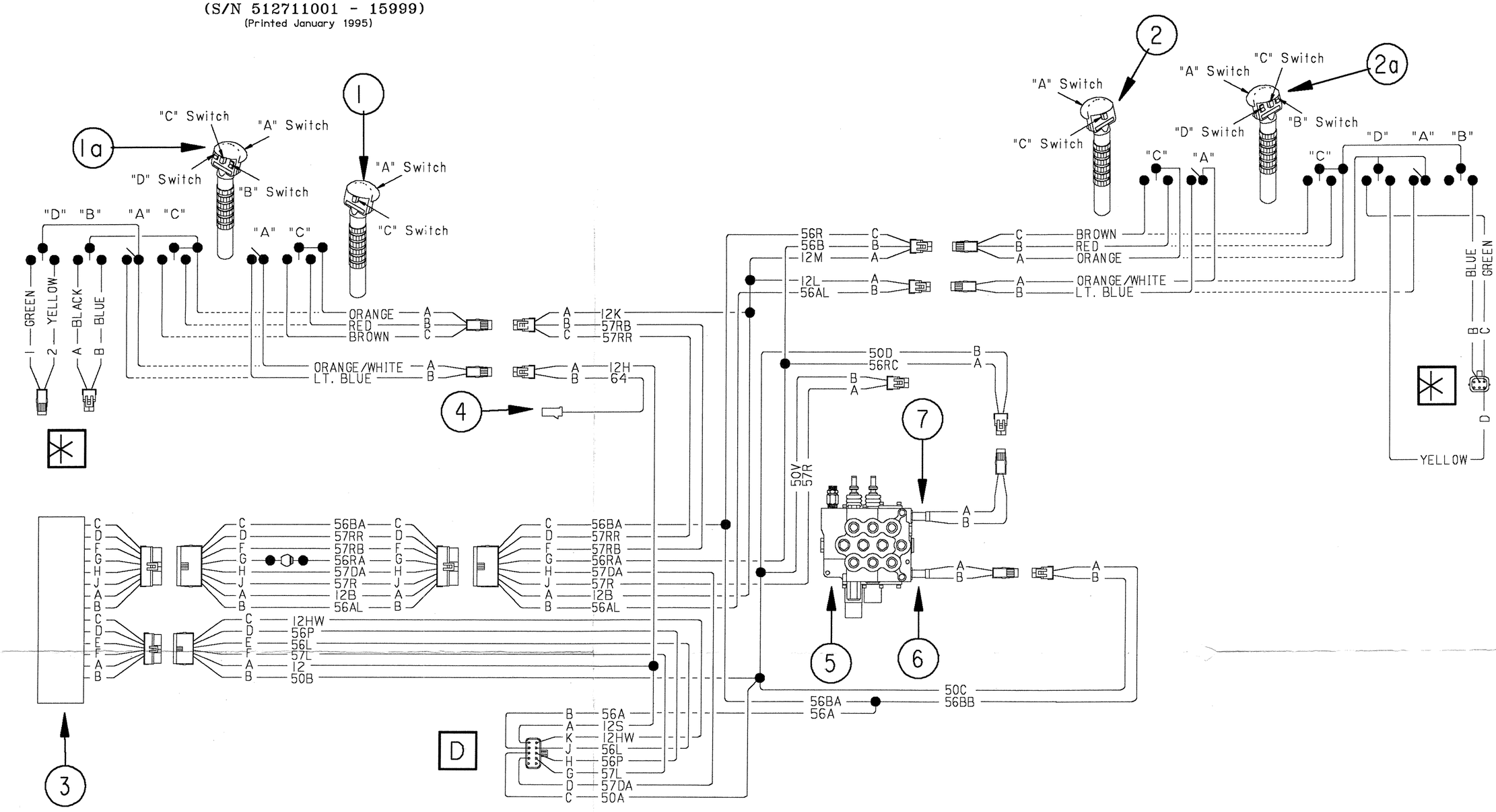
(7) Front Auxiliary Solenoid (Rod End/Male Coupler)

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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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M/C 1704121

## 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

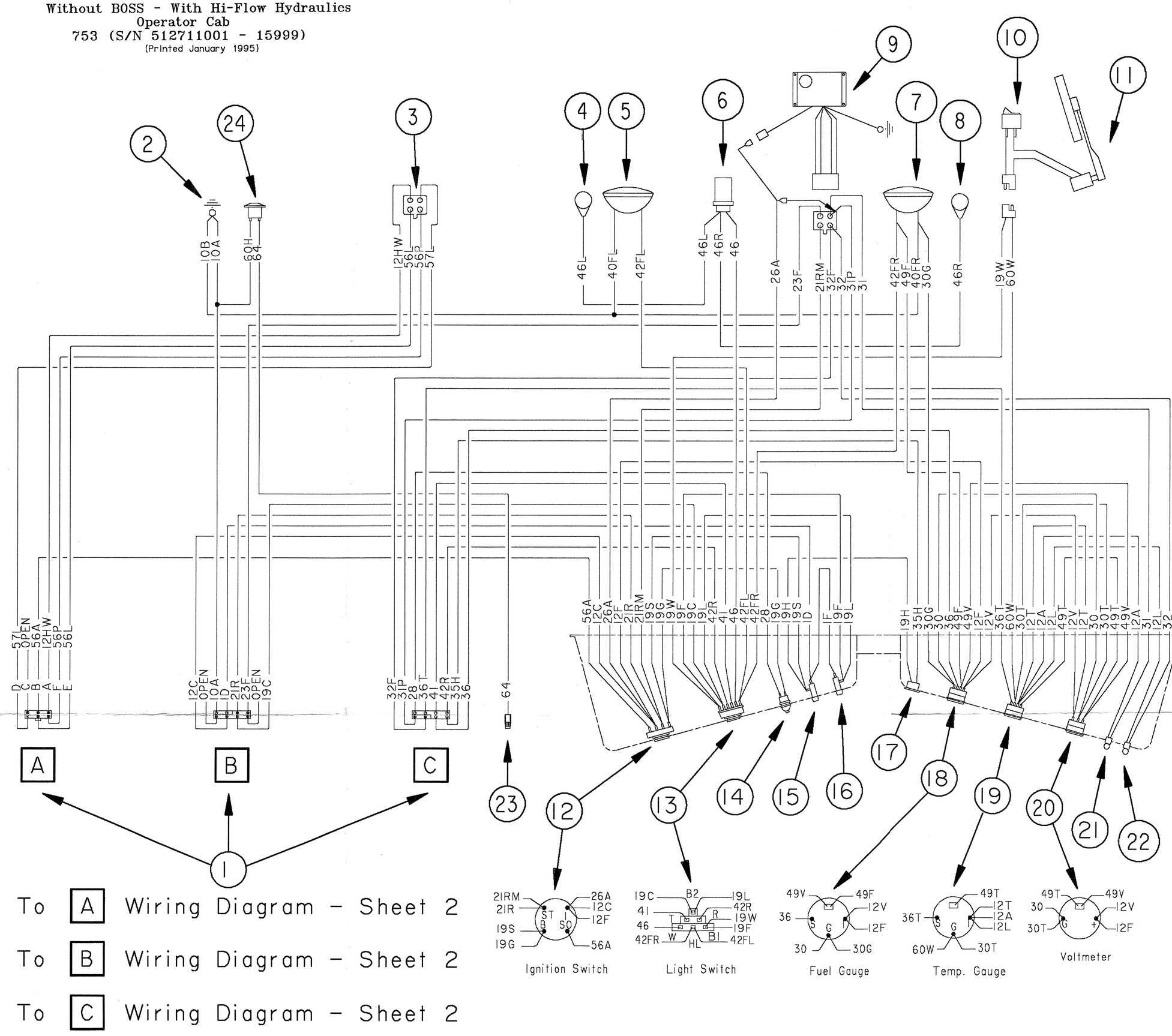
1. Harness Connectors
2. Operator Cab Ground
3. Auxiliary Hydraulics Connector
4. Left Flasher Light (Opt.)
5. Left Front Light (Opt.)
6. Flasher
7. Right Front Light (Opt.)
8. Right Flasher Light (Opt.)
9. Shutdown Module (Opt.)
10. Wiper Switch (Opt.)
11. Wiper (Opt.)
12. Ignition Switch
13. Light 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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MC 1704le

# 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

# 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)

Printed in U.S.A.

M3 1895ti21

## WIRE LEGEND

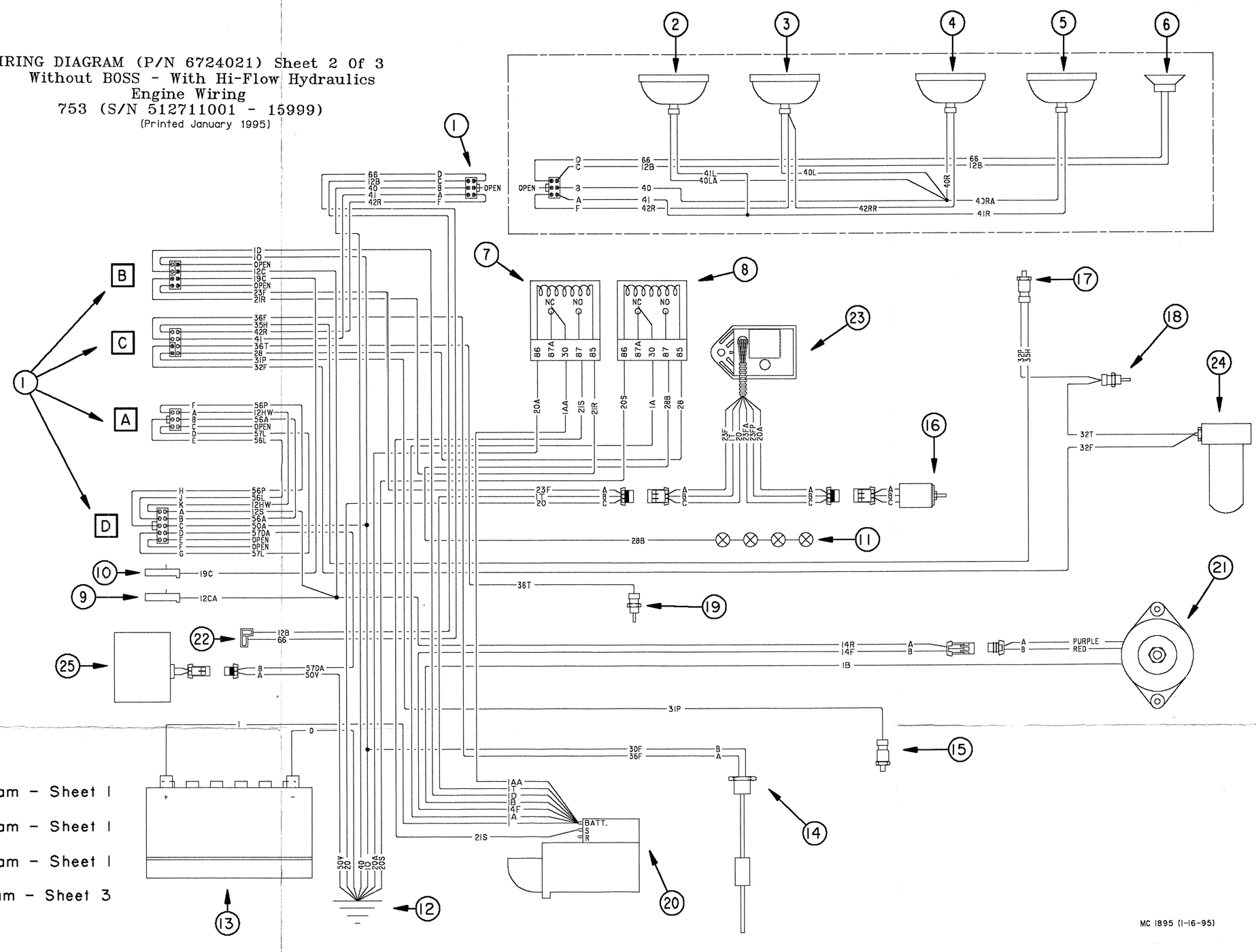
| NO.'s | COLOR | GAUGE |
|---|---|---|
| 1A | Red | 12 |
| 1AA | Red | 14 |
| 1B | Red | 10 |
| 1D | Red | 12 |
| 1T | Red | 14 |
| 10 | Black | 14 |
| 12B | Orange | 16 |
| 12C | Orange | 14 |
| 12CA | Orange | 16 |
| 12HW | Orange | 16 |
| 12S | Orange | 16 |
| 14F | Lt. Green | 16 |
| 14R | Lt. Green/White | 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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MC 1895 (1-16-95)

# 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

## 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

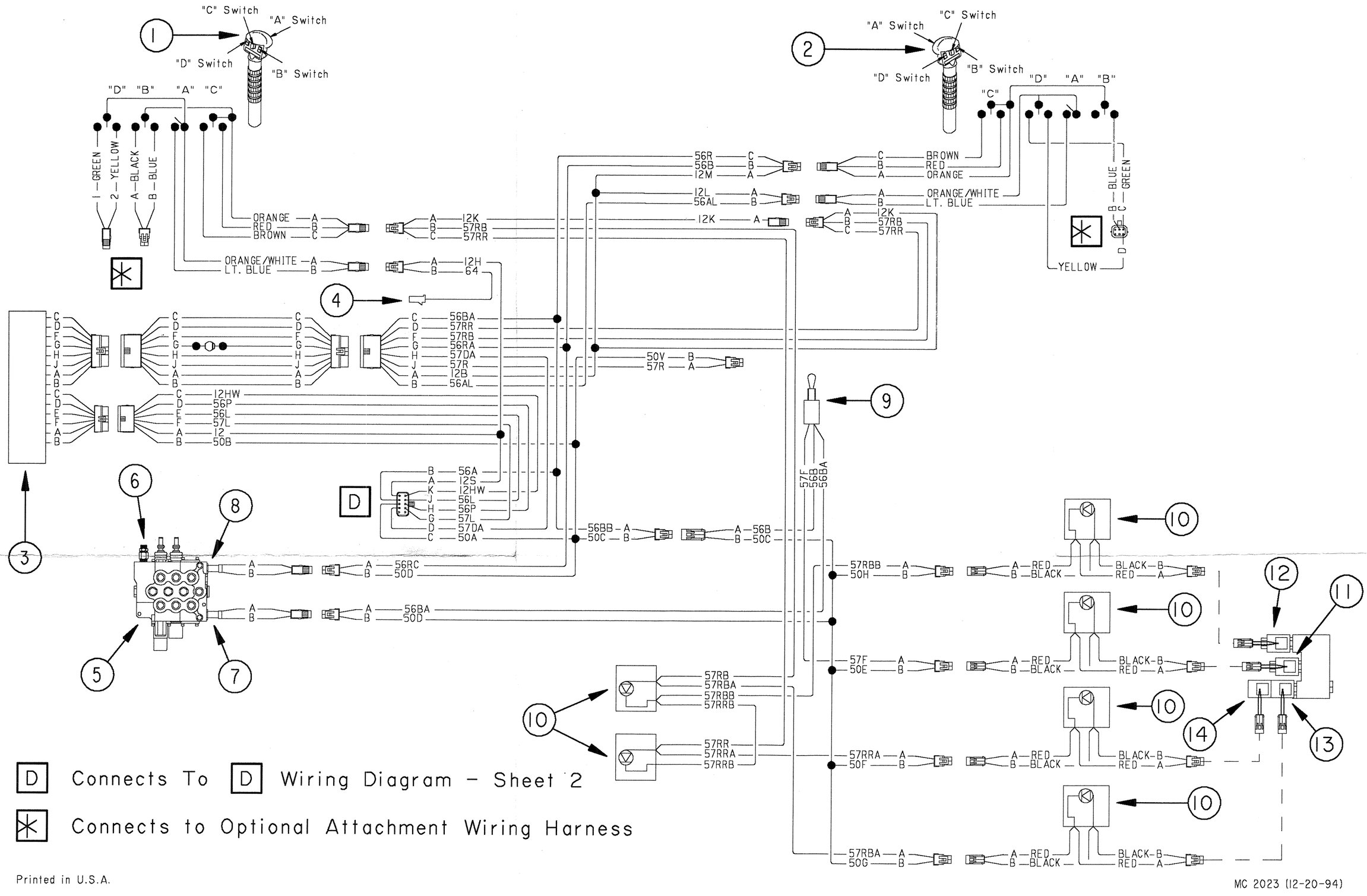
1. Left Multi-Switch Control Handle
2. Right Multi-Switch Control Handle
3. Auxiliary Control Module
4. Horn Connector
5. Hydraulic Control Valve
6. High Pressure Relief Valve
7. Front Auxiliary Solenoid (Base End/Female Coupler)
8. Front Auxiliary Solenoid (Rod End/Male Coupler)
9. Hi-Flow On/Off Switch
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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MC 2023le

# 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)




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MC 2023 (12-20-94)

# 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)

Printed in U.S.A.

MC 20631i22

## 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

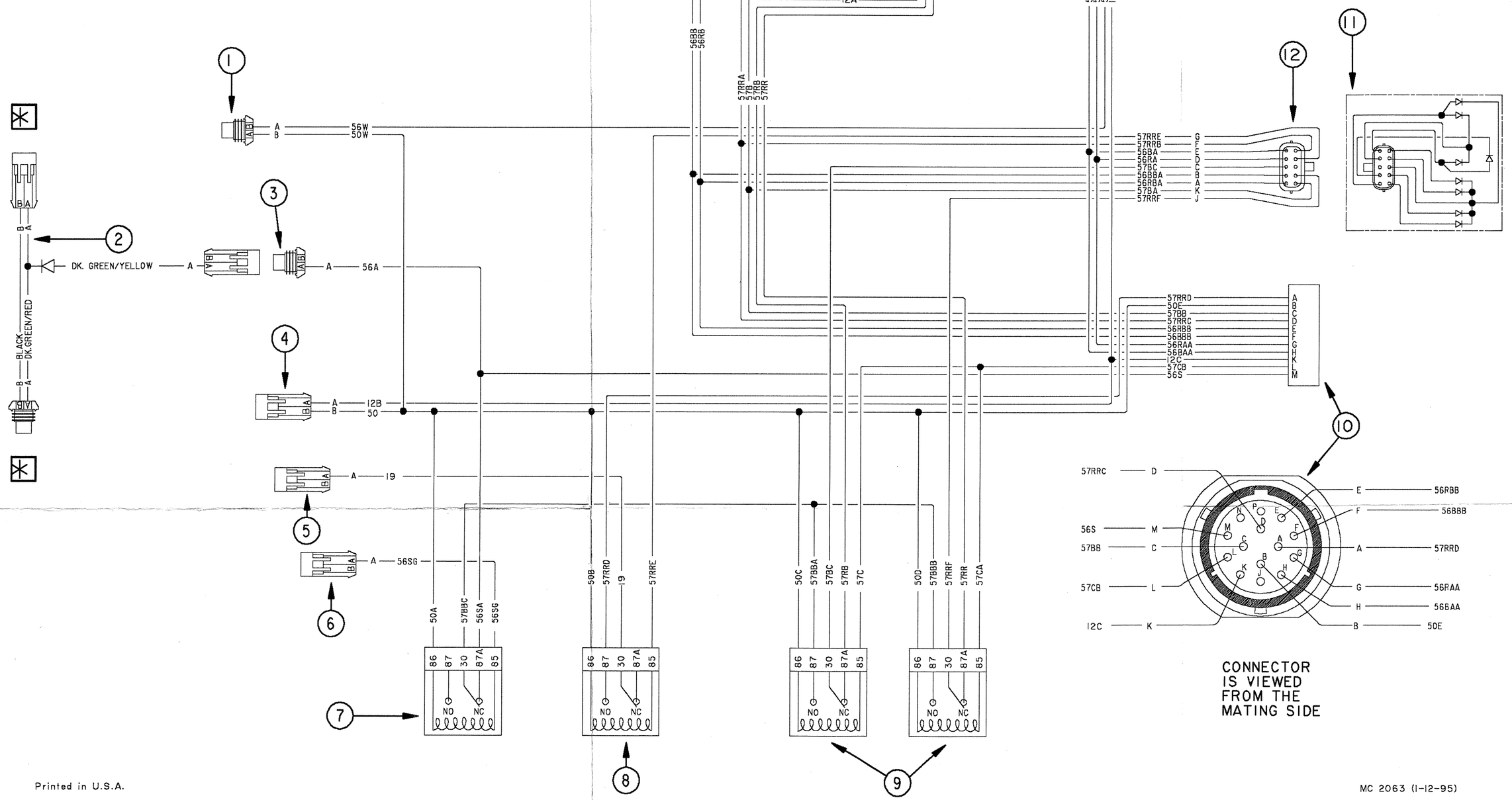
1. Connector-Water Kit
2. Wiring Harness
3. Connector - Auxiliary Bleed
4. Connector - Fused and Switche
5. Connector - Hot and Fused (Angle Broom)
6. Connector-Stump Grinder (High Flow Valve)
7. Power Relay - Stump Grinder
8. Power Relay - Angle Broom
9. Power Relay - Front/Rear Auxiliary
10. Plug-In 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)

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

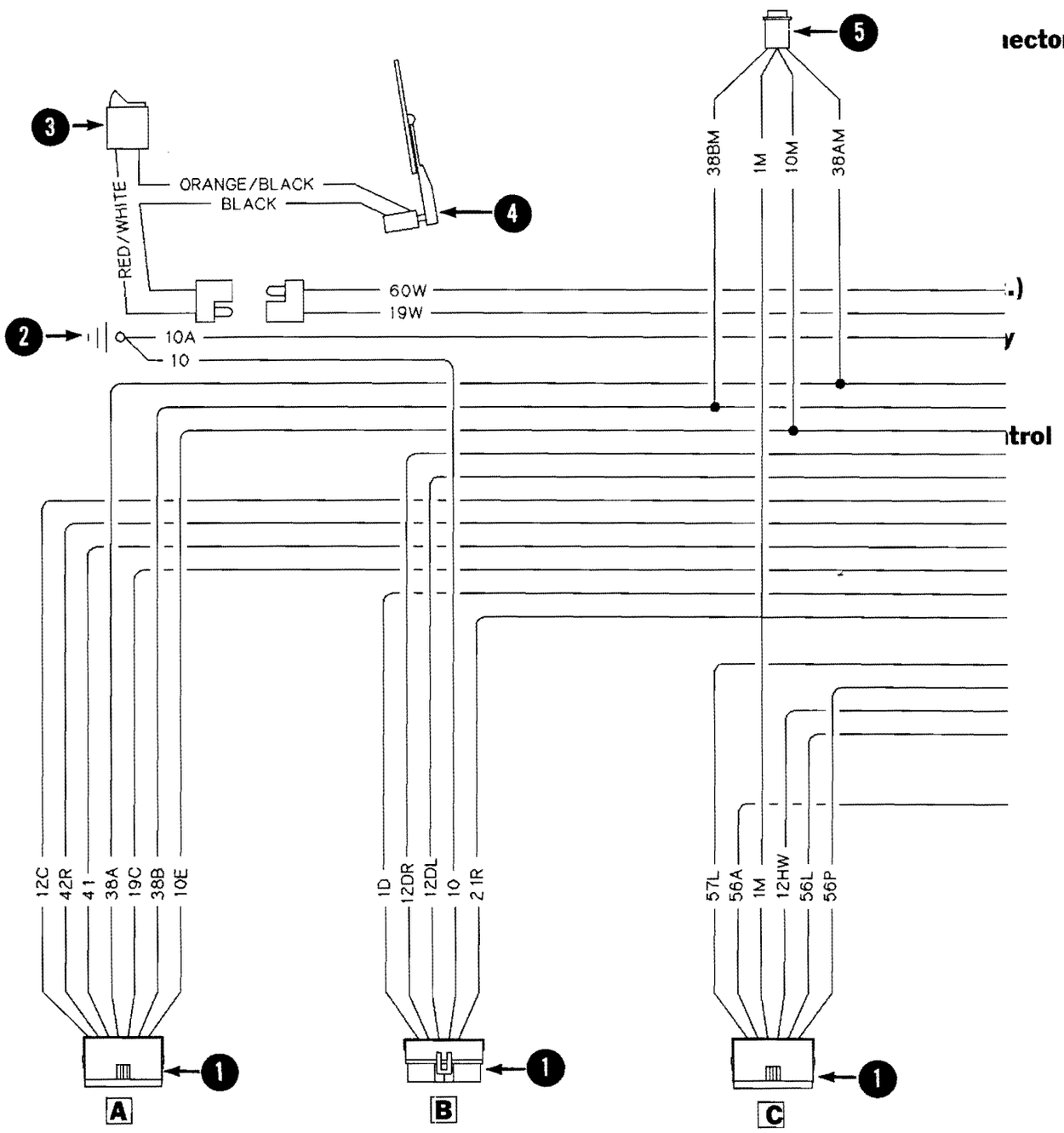
Printed in U.S.A.

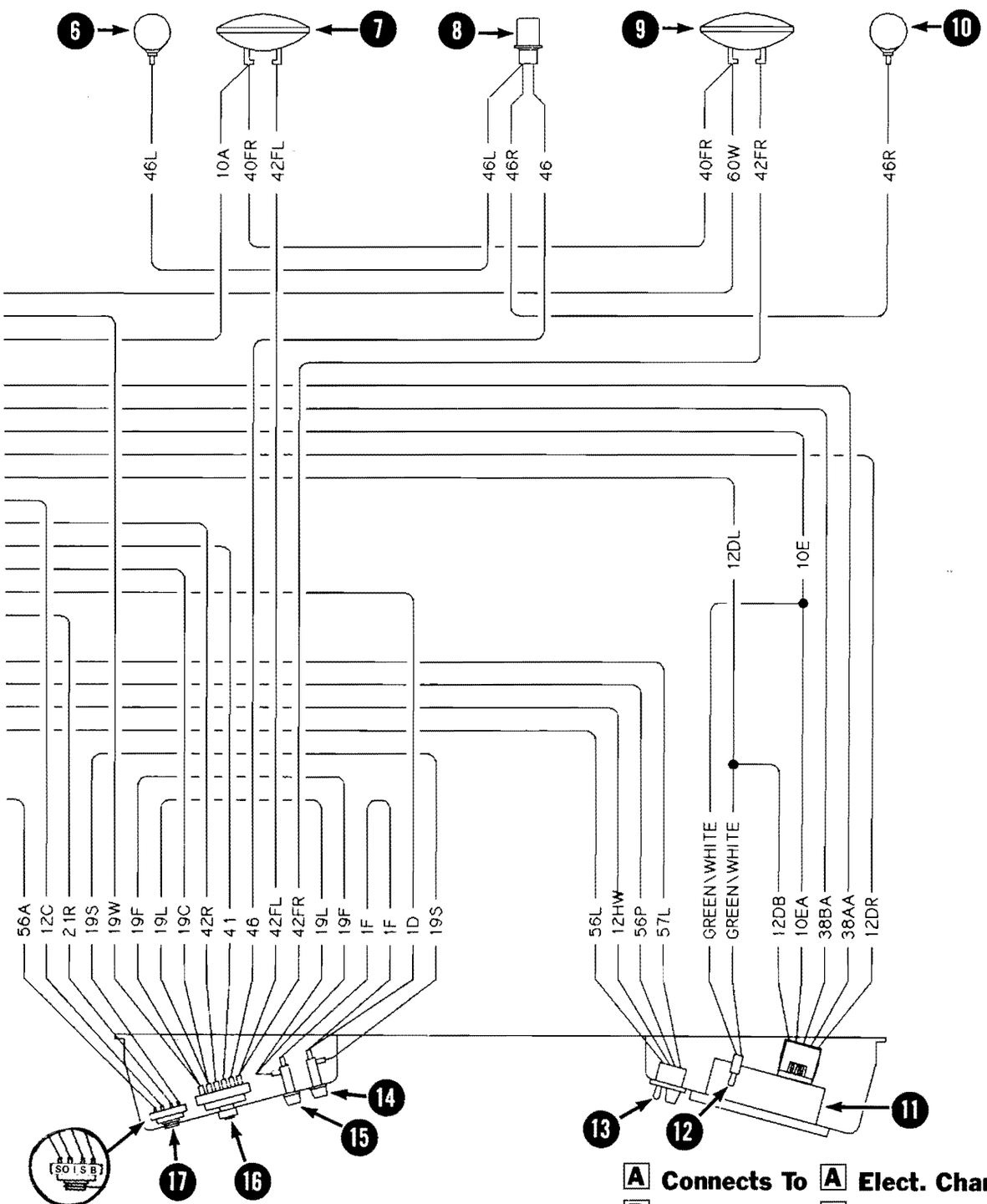
MC 2063 (1-12-95)

# OPERATOR CAB WIRING DIAGRAM (P/N 6720317)

## Model 753 (S/N 11078 & Below)

### (Printed August 1990) 1 Of 3 Pages






A Connects To A Elect. Chart—Page 2

B Connects To B Elect. Chart—Page 2

C Connects To C Elect. Chart—Page 2

MC-1111

## 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

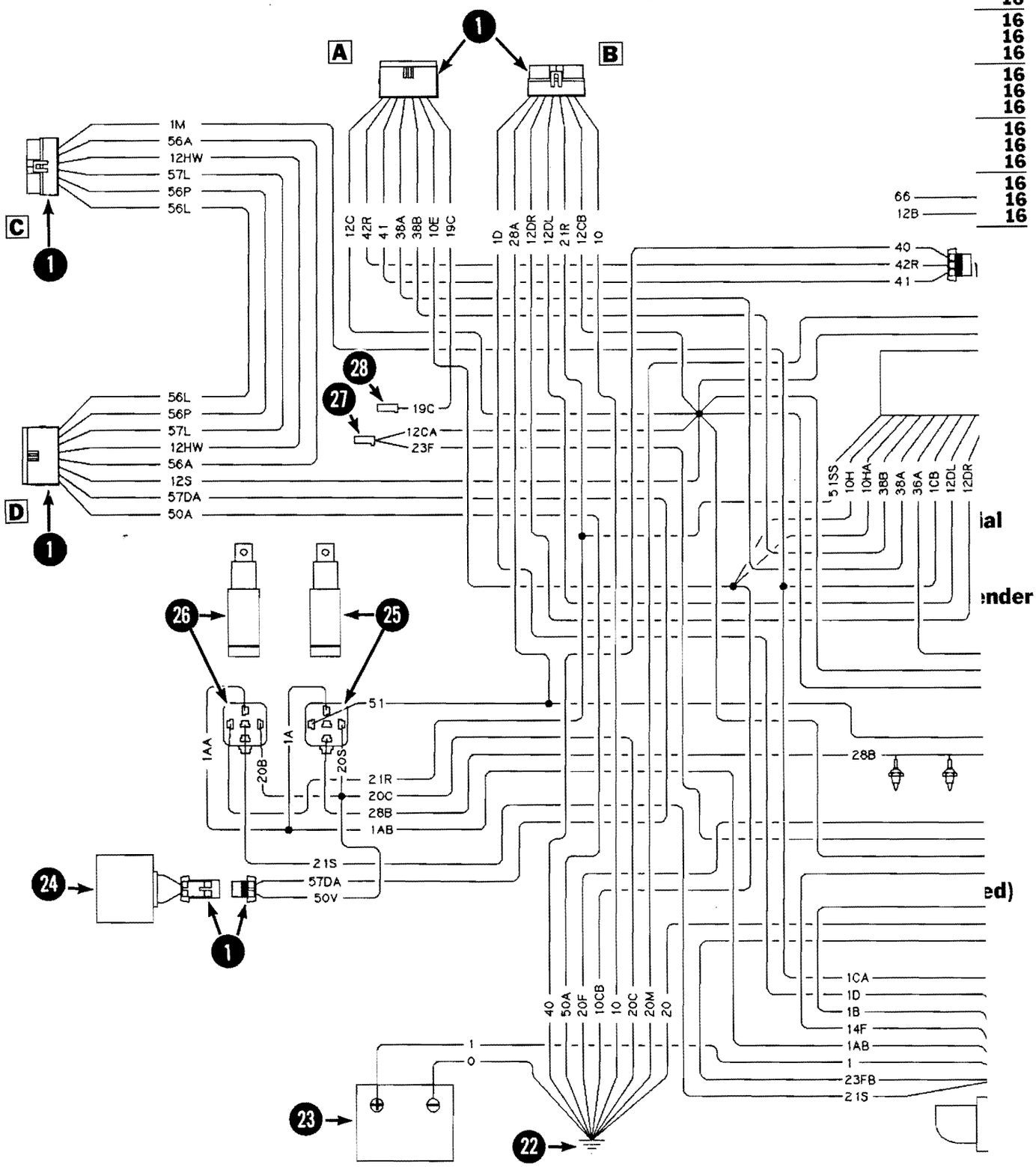
1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Diagnostic Monitor Connector
6. Left Flasher Light (Opt.)
7. Left Front Light
8. Flasher (Opt.)
9. Right Front Light
10. Right Flasher Light (Opt.)
11. Instrument Panel Display
12. Display Back Light
13. Auxiliary Hydraulics Control Switch
14. Fuse - Ignition
15. Fuse - Accessory
16. Light Switch
17. Ignition Switch

e 2
e 2
e 2

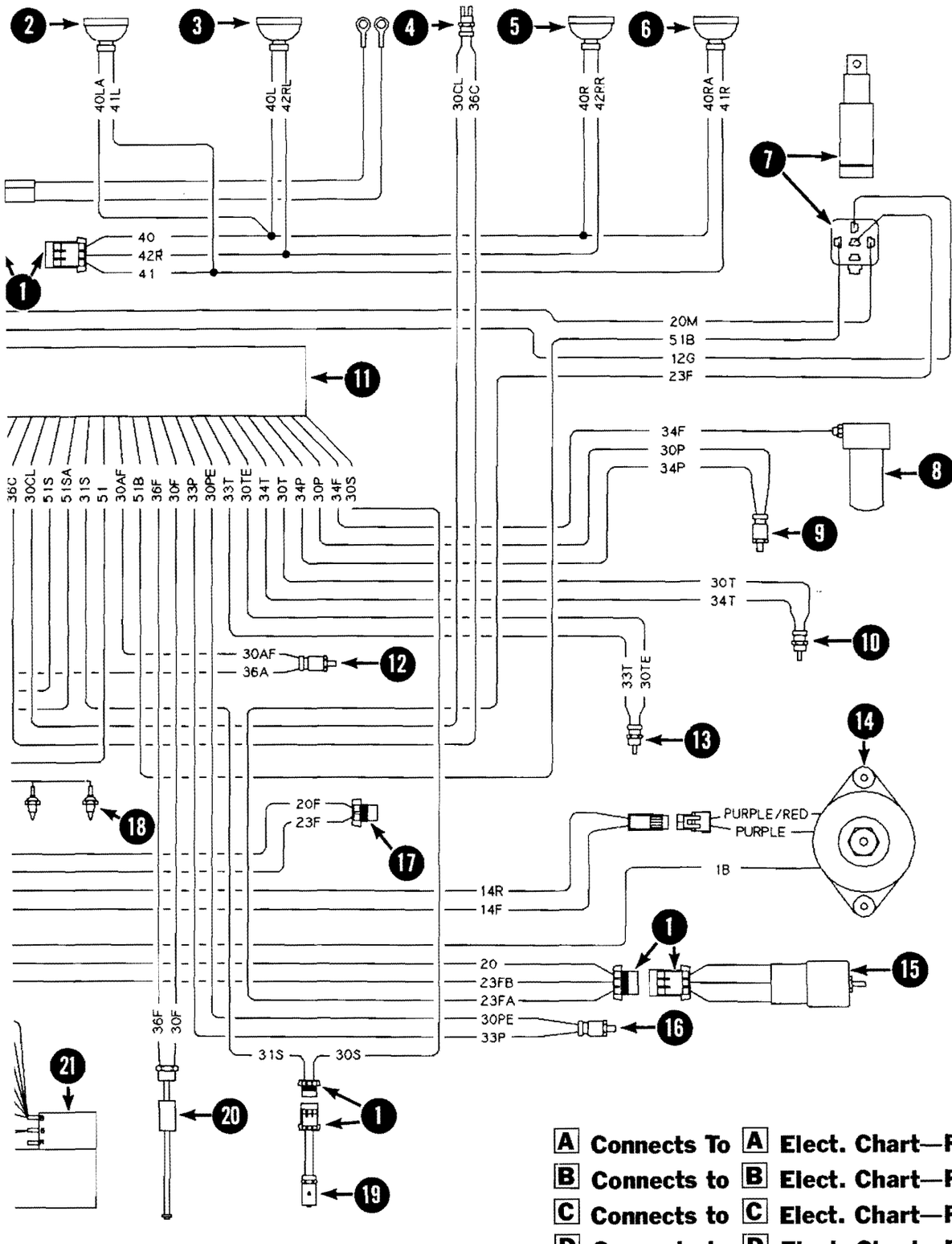
# ENGINE WIRING DIAGRAM (P/N 6720317)

## Model 753 (S/N 11078 & Below)

### (Printed August 1990) 2 Of 3 Pages




Electrical Chart
- Page 2 -




MC-1112

**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**

## 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 |

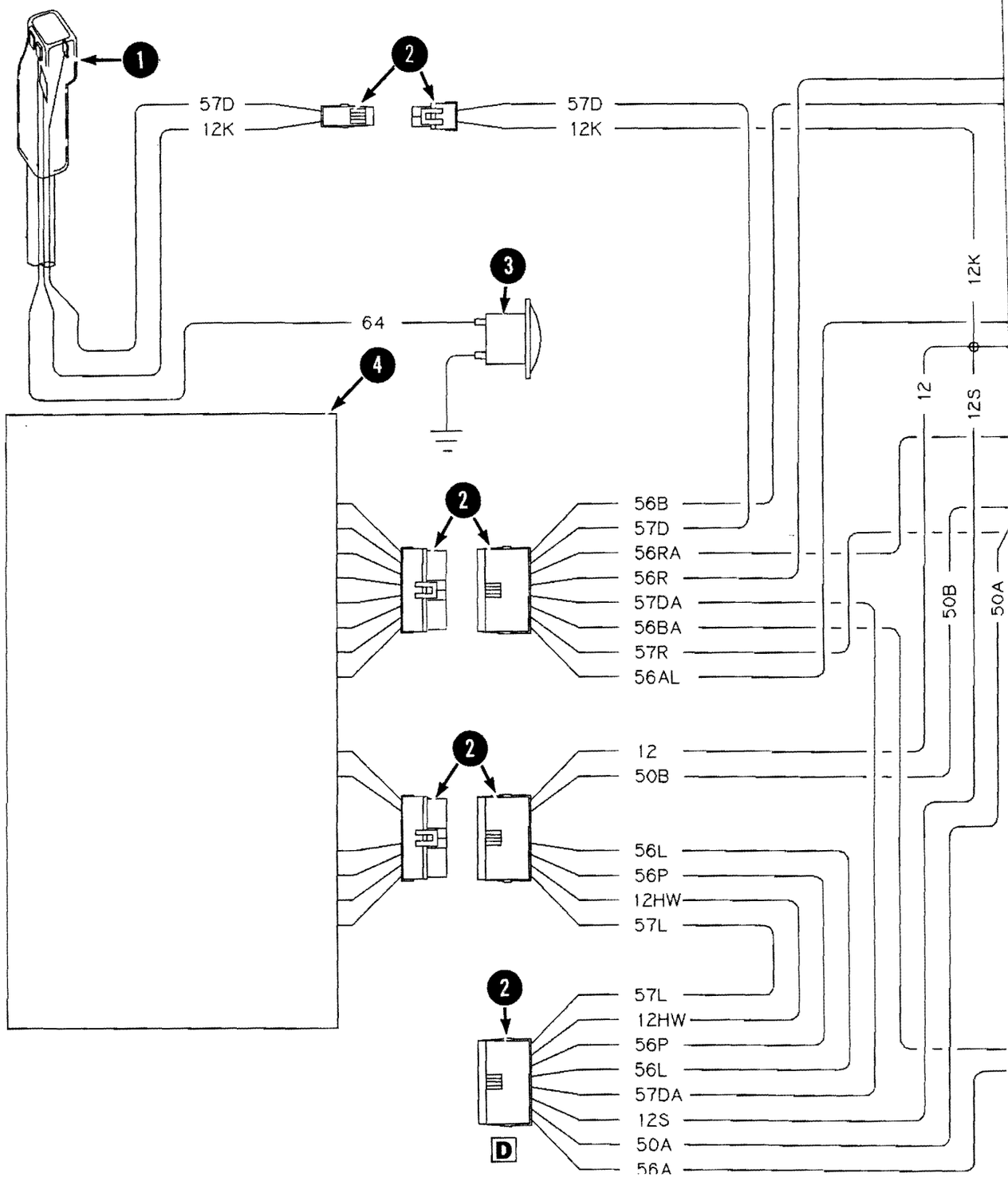
## PARTS LEGEND

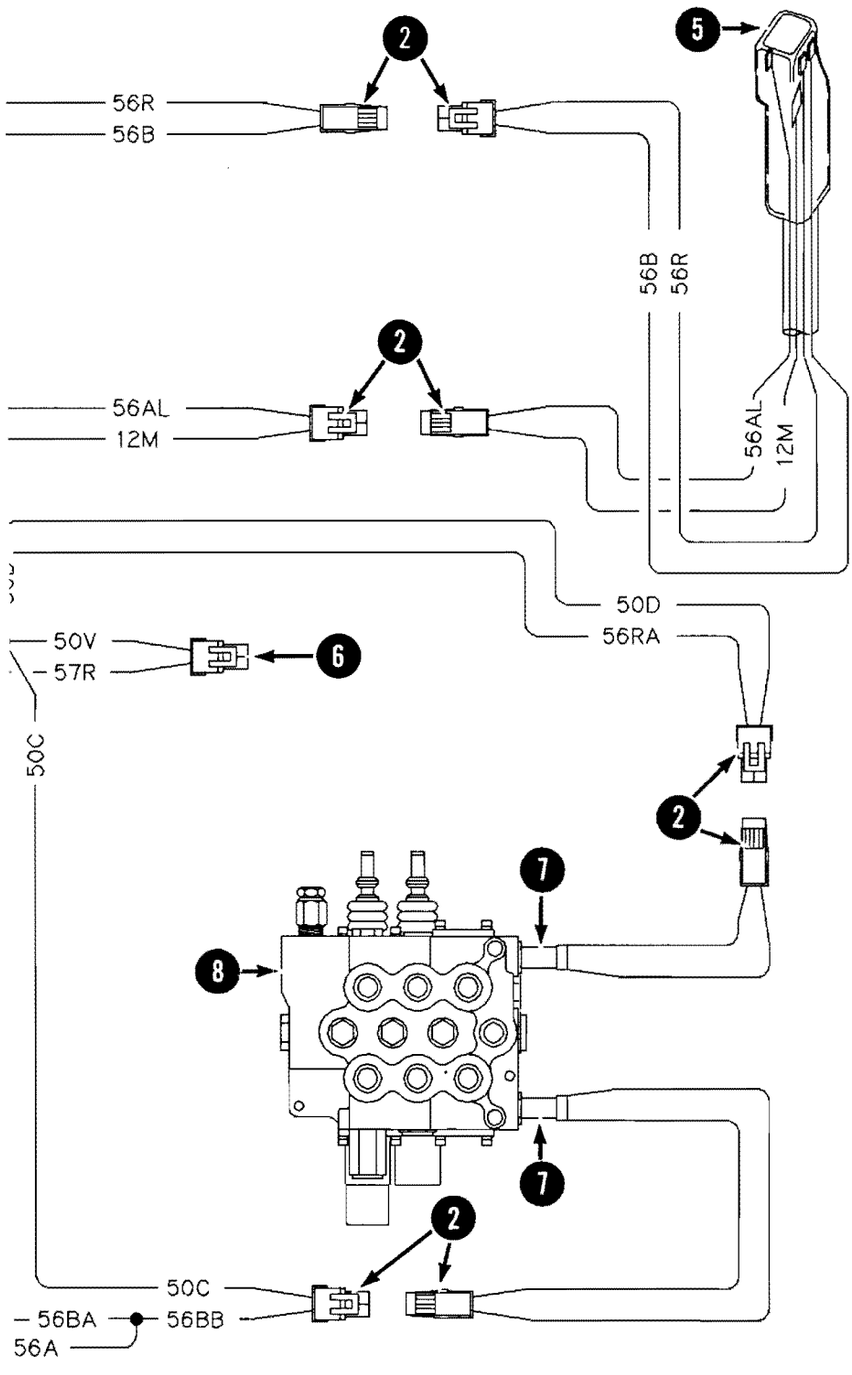
1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Fluid Filter Differential Pressure Switch
9. Charge Pressure Sender
10. Hydraulic Fluid Temperature Sender
11. System Operating 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

# AUXILIARY HYD. WIRING DIAGRAM (P/N 6720317)

## Model 753 (S/N 11078 & Below)

### (Printed August 1990) 3 Of 3 Pages








D Connects To D Elect. Chart—Page 2

## 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 |

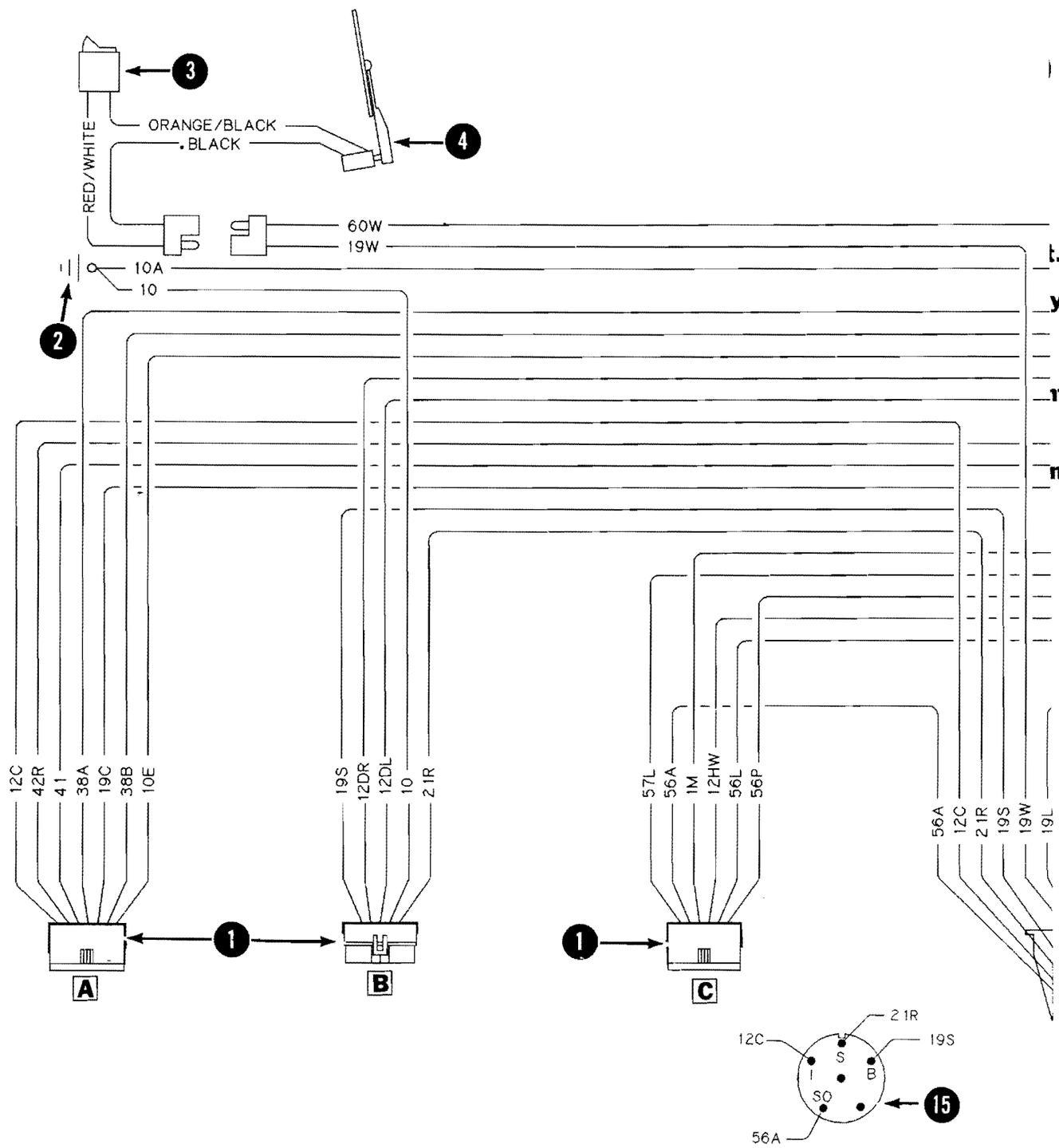
## PARTS LEGEND

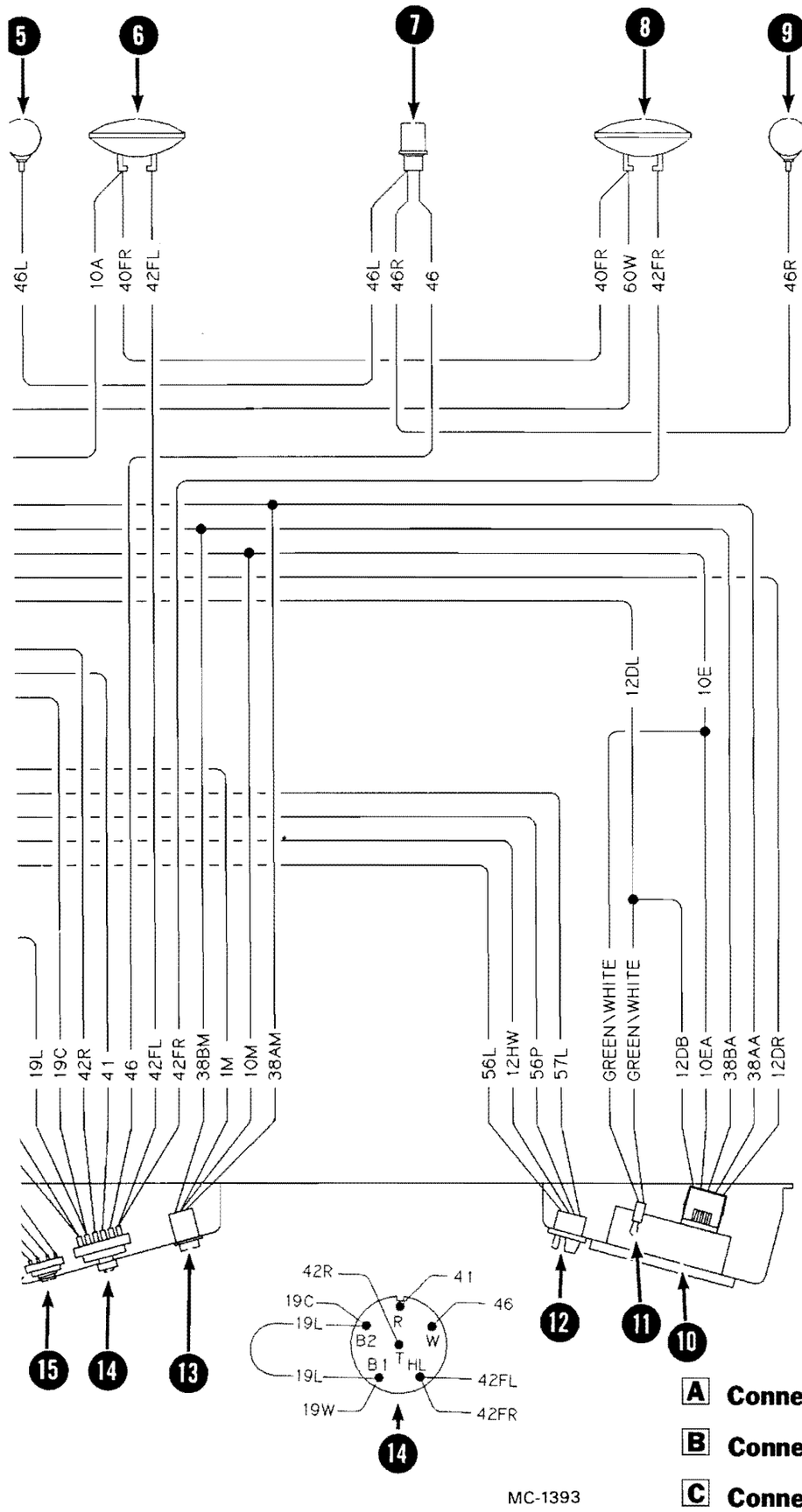
1. Left Steering Lever Control
2. Harness Connectors
3. Horn
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve

# OPERATOR CAB WIRING DIAGRAM (P/N 6720582)

## Model 753 (S/N 11079 Thru 13487)

### (Printed September 1991) 1 Of 3 Pages






MC-1393

A Connects To A Elect. Chart—P

B Connects To B Elect. Chart—P

C Connects To C Elect. Chart—P

## 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

ge 2

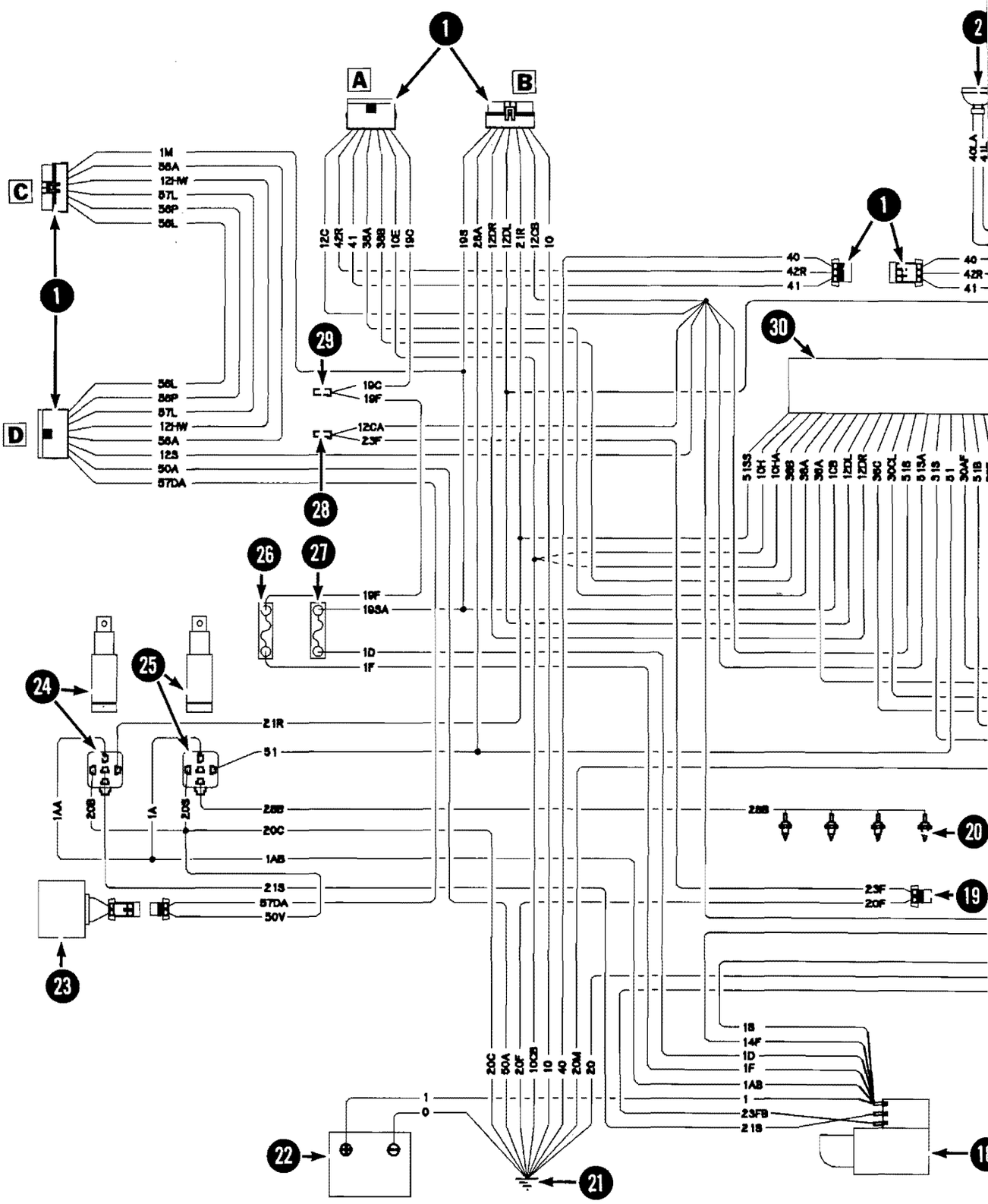
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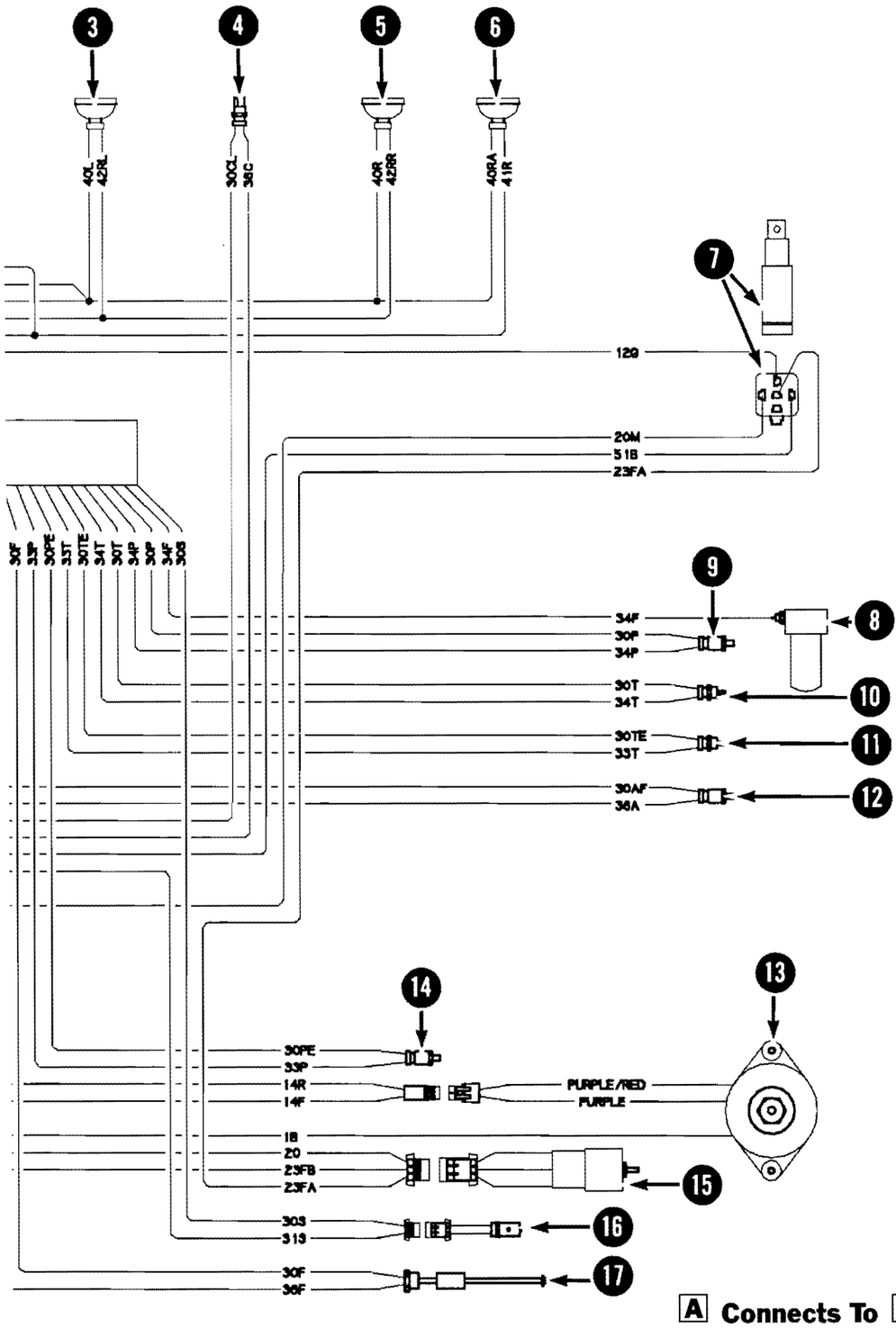
ge 2

# ENGINE WIRING DIAGRAM (P/N 6720582)

## Model 753 (S/N 11079 Thru 13487)

### (Printed September 1991) 2 Of 3 Pages






**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

MC-1392

## 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

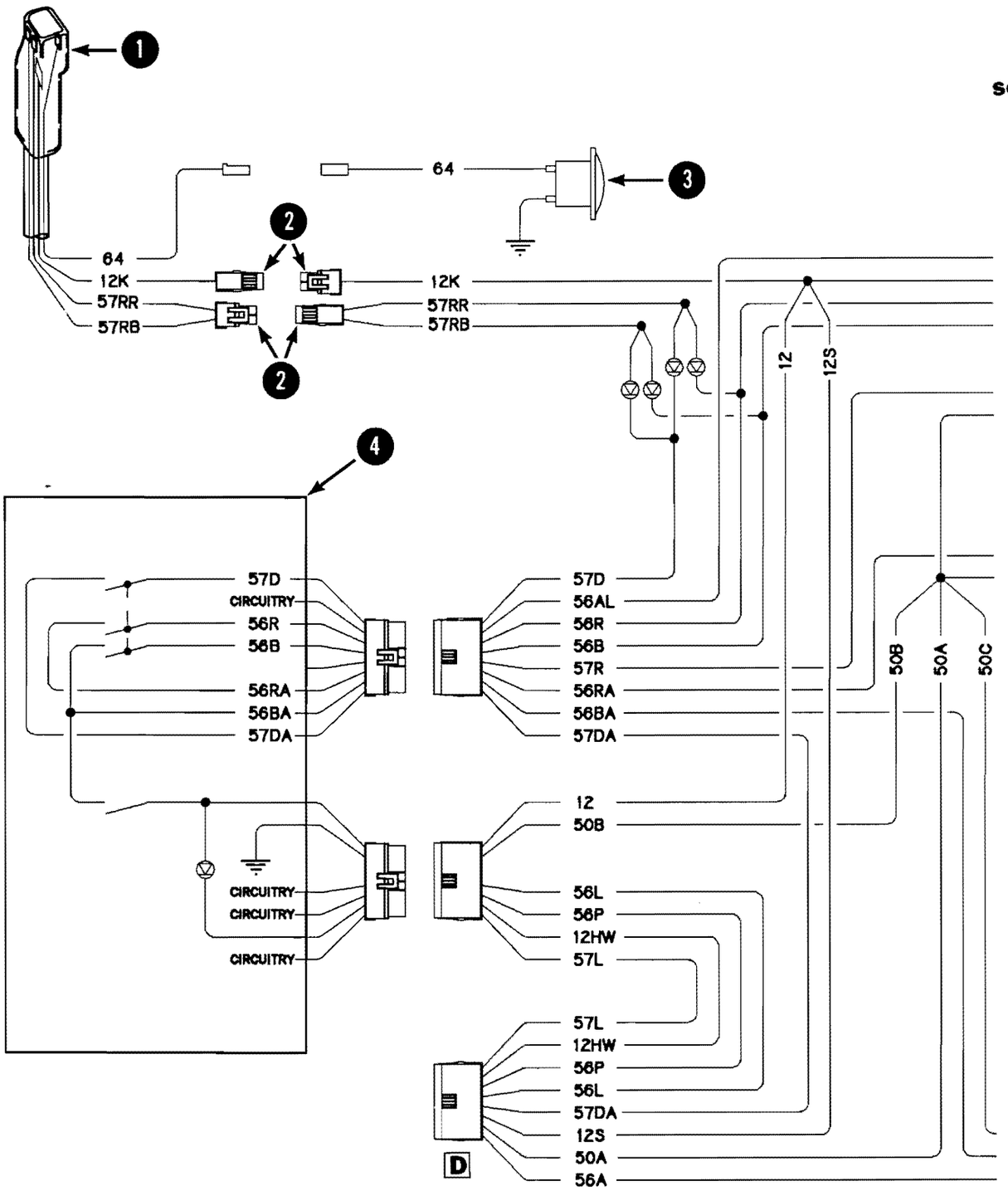
1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Radiator Coolant Level Sender
5. Right Rear Work Light
6. Right Tail Light
7. Shut-Down Relay
8. Hydraulic Fluid Filter Differential Pressure Switch
9. Charge Pressure Sender
10. Hydraulic Fluid Temperature Sender
11. Engine Coolant 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

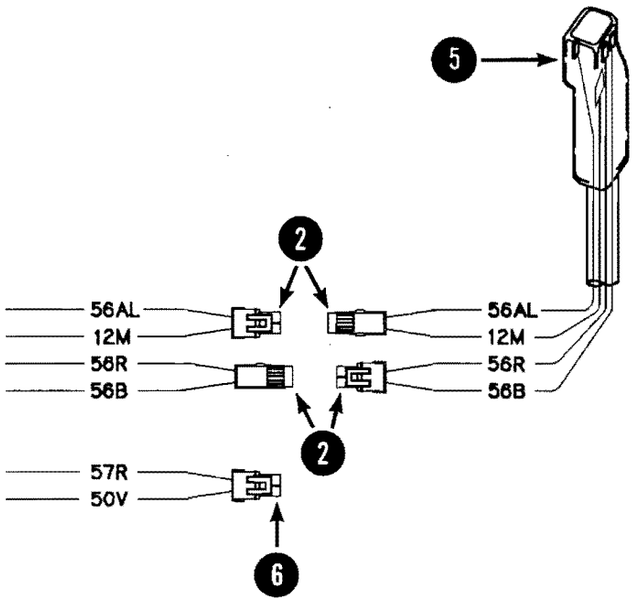
# AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720582)

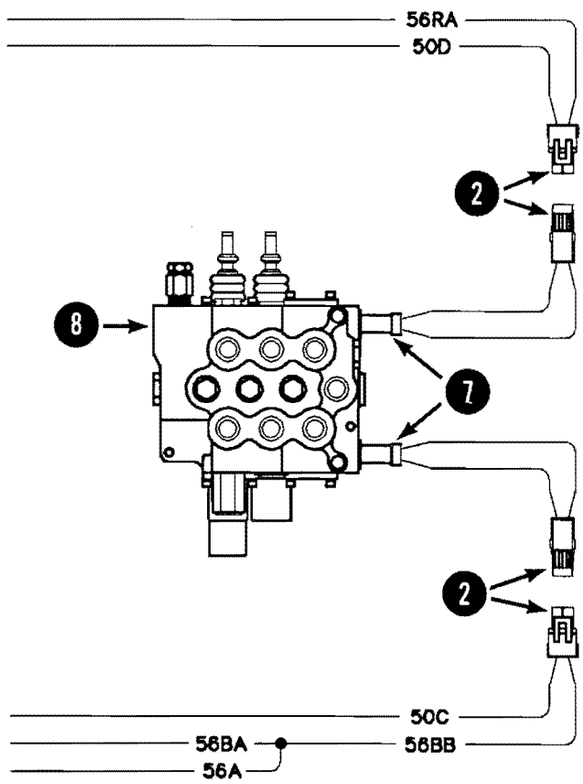
## Model 753 (S/N 11079 Thru 13487)

### (Printed September 1991) 3 Of 3 Pages

se)






MC-1416

D Connects To D Elect. Chart—Page 2

## 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 |

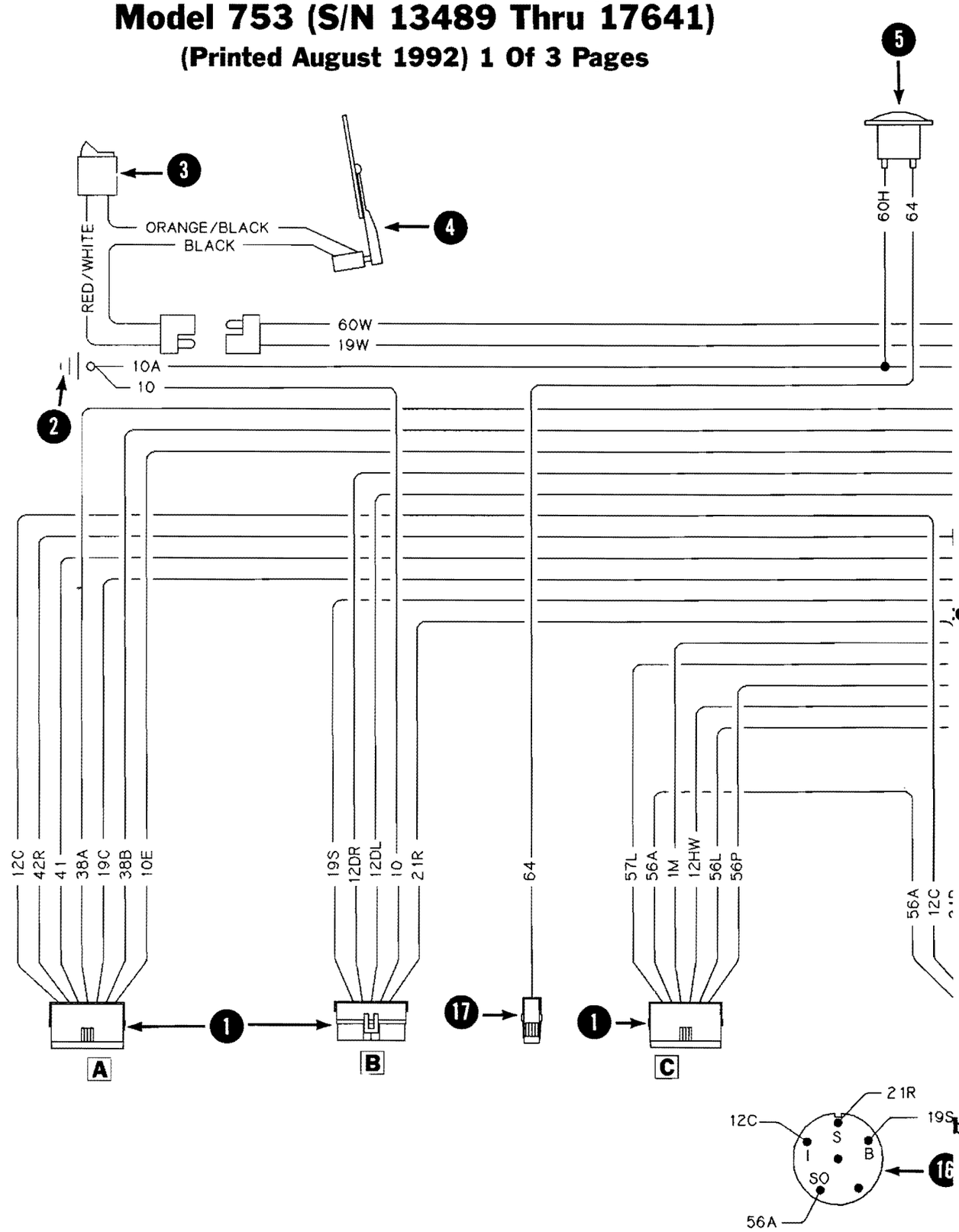
## PARTS LEGEND

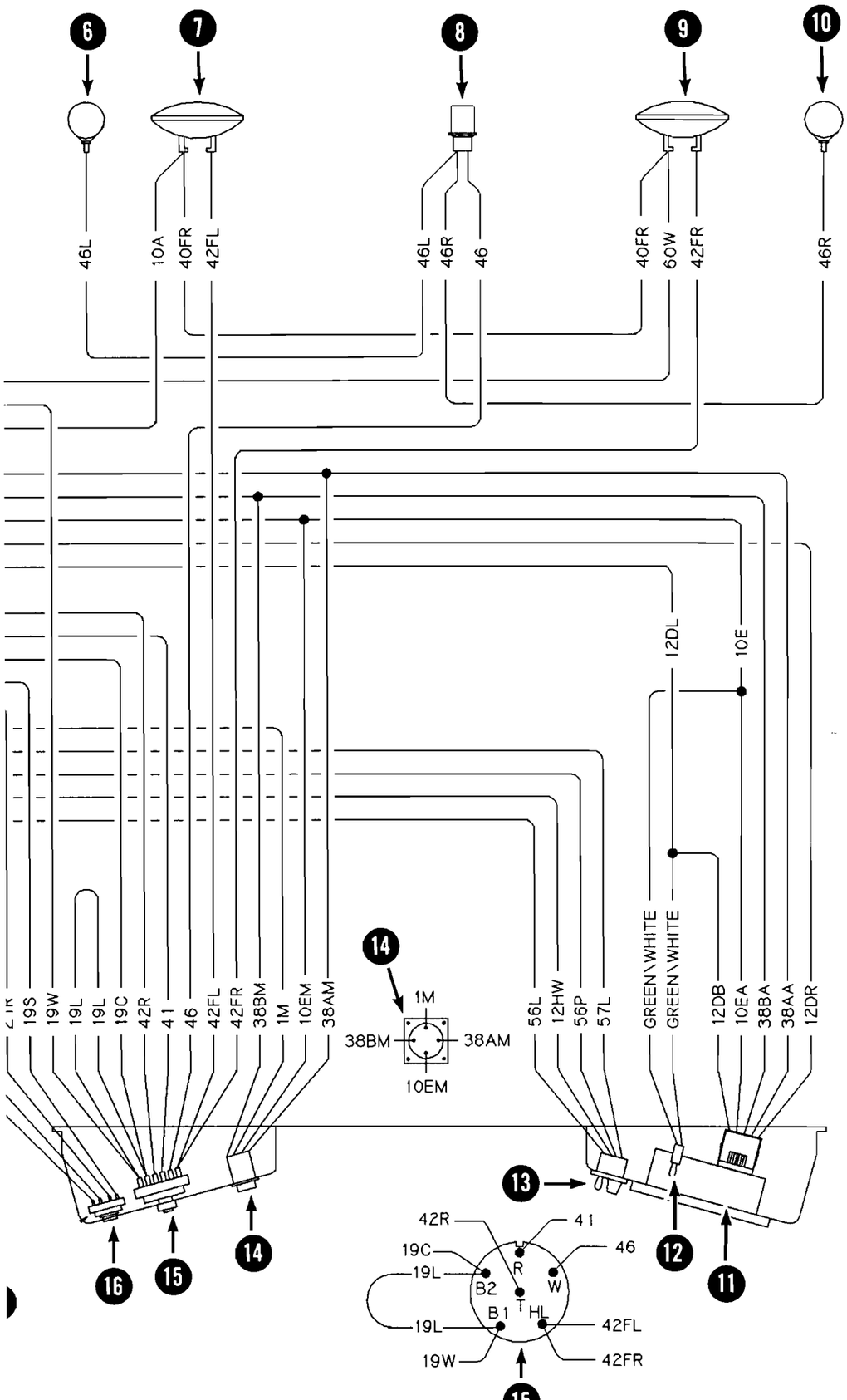
1. Left Steering Lever Control
2. Harness Connectors
3. Horn
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve

# OPERATOR CAB WIRING DIAGRAM (P/N 6720959)

## Model 753 (S/N 13489 Thru 17641)

**(Printed August 1992) 1 Of 3 Pages**






**A** Connects To **A**

**B** Connects To **B**

**C** Connects To **C**

## 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

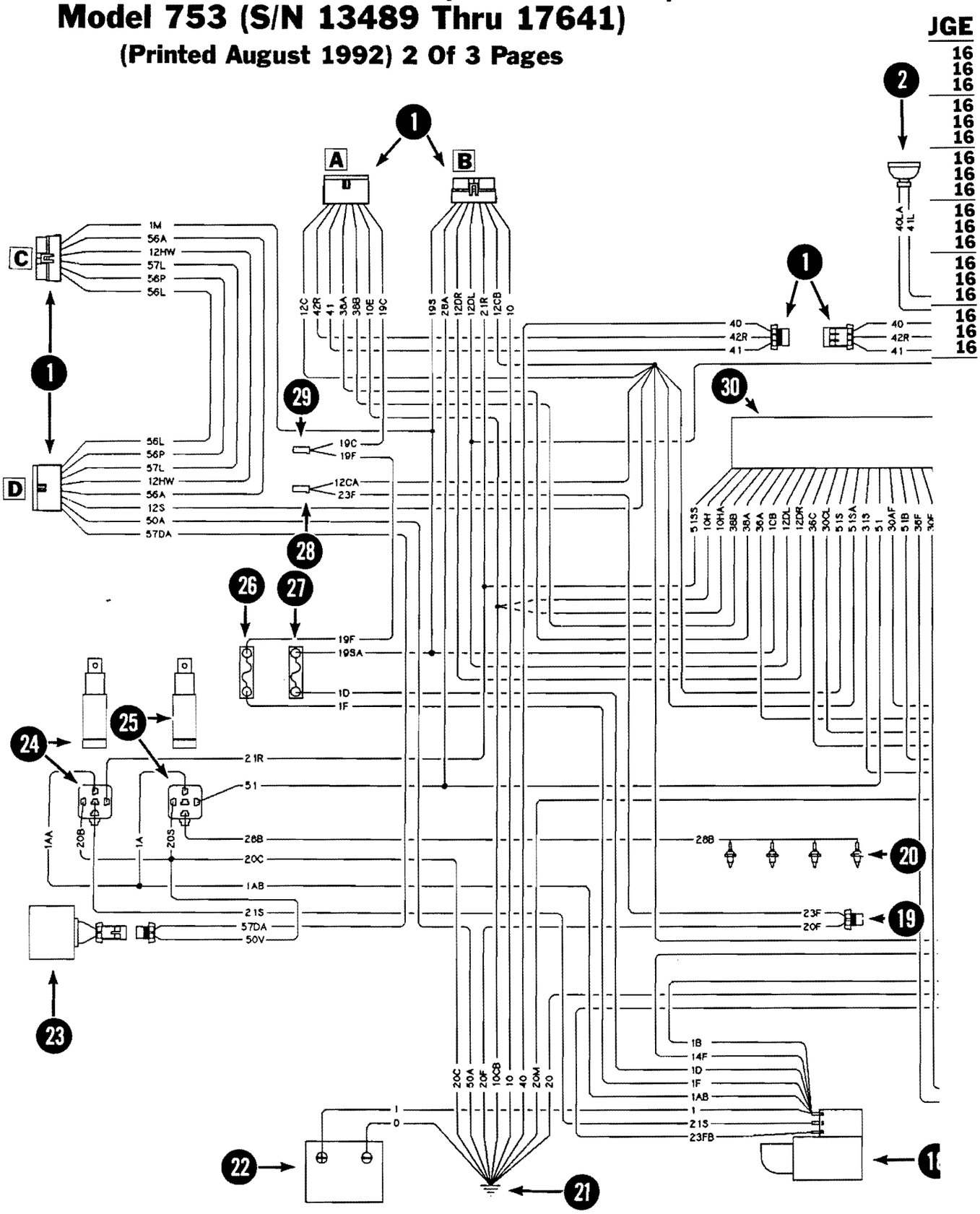
B Elect. Chart—Page 2

C Elect. Chart—Page 2

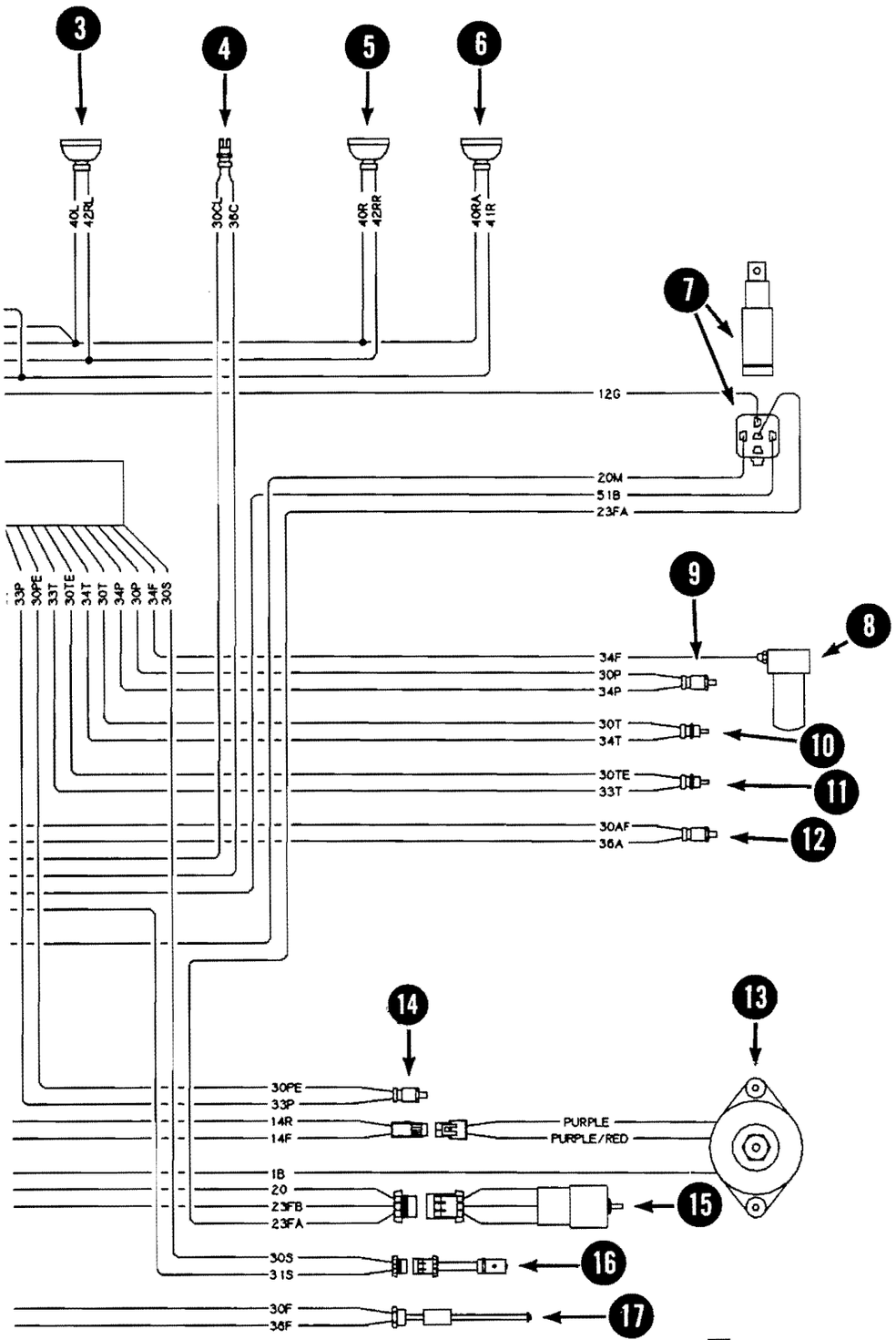
# ENGINE WIRING DIAGRAM (P/N 6720959)

## Model 753 (S/N 13489 Thru 17641)

**(Printed August 1992) 2 Of 3 Pages**




Electrical Chart




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

MC-1392

## 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 |

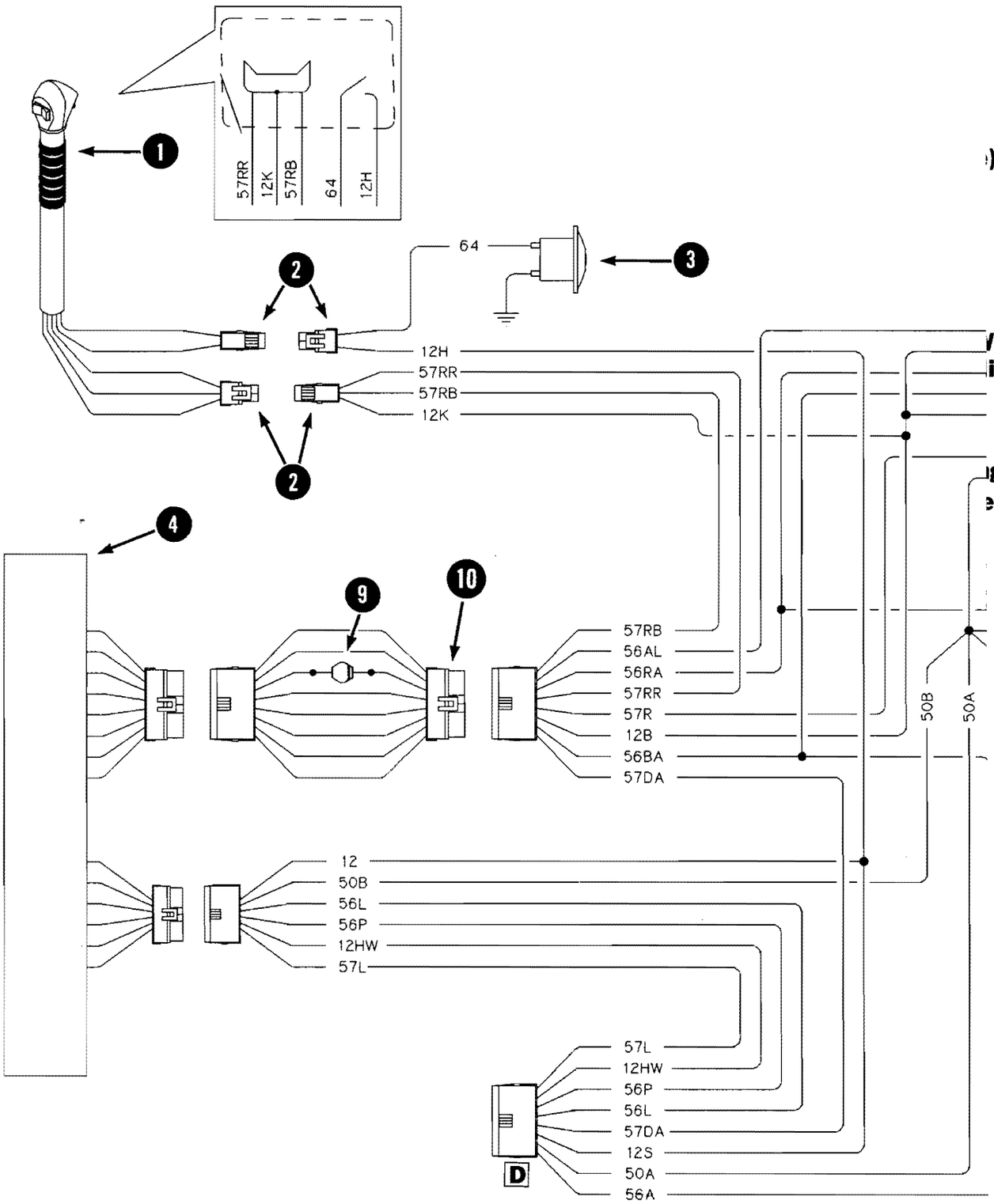
## WIRE LEGEND (Cont'd)

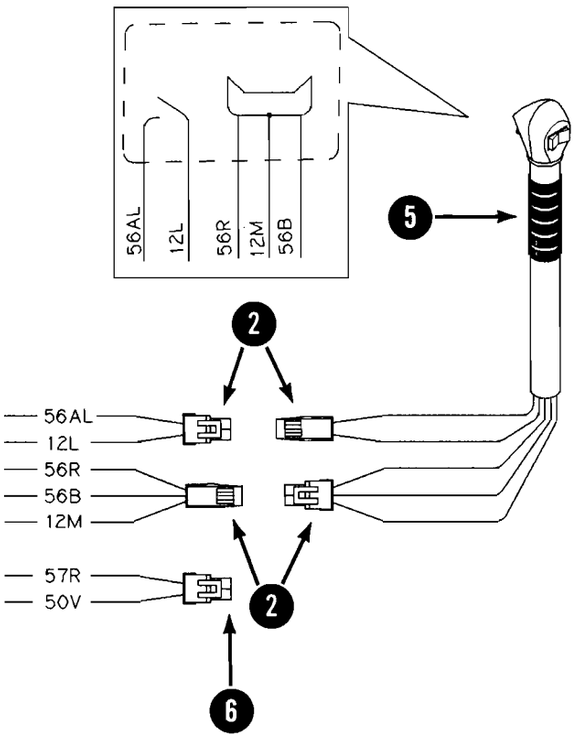
| NO.'s | COLOR | GAUGE |
|---|---|---|
| 41 | Pink | 16 |
| 41L | Pink | 16 |
| 41R | Pink | 16 |
| 42R | Dk. Blue/White | 16 |
| 42RL | Dk. Blue/White | 16 |
| 42RR | Dk. Blue/White | 16 |
| 50A | Black | 16 |
| 50V | Black | 16 |
| 51 | Lt. Blue/White | 16 |
| 51B | Orange/Blue | 16 |
| 51S | Orange/White | 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 |

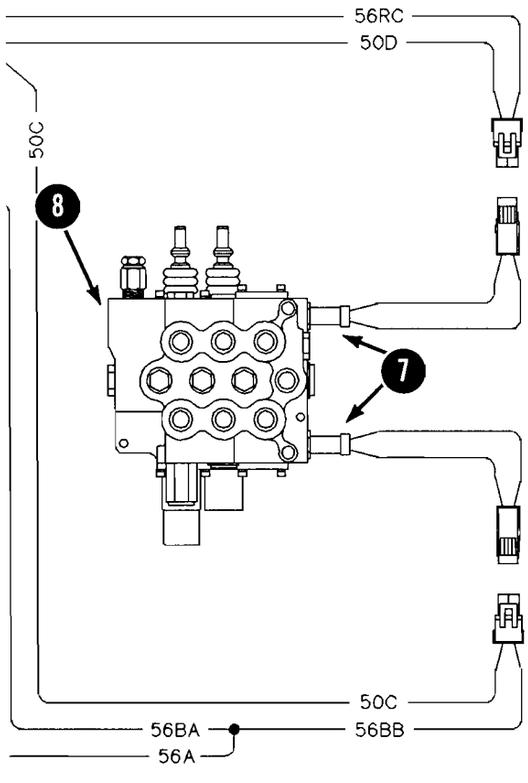
## PARTS LEGEND

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

# AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959)
## Model 753 (S/N 13489 Thru 17641)
### (Printed August 1992) 3 Of 3 Pages






MC-1543

D Connects To D Elect. Chart—Page 2

## 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)

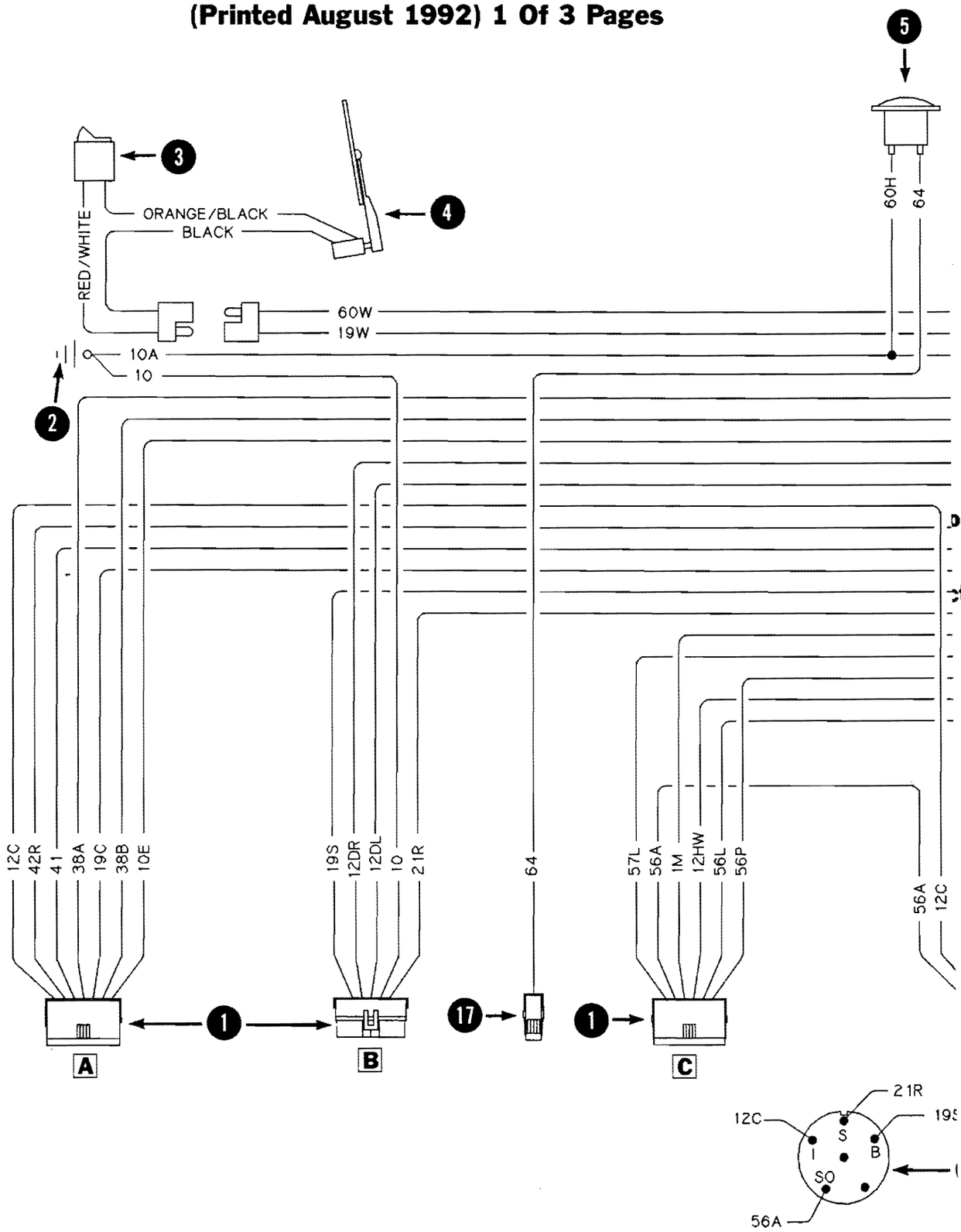
**NOTE: See Operator Cab Wiring Diagram (Page 1) for serial number break for Horn wire change.**

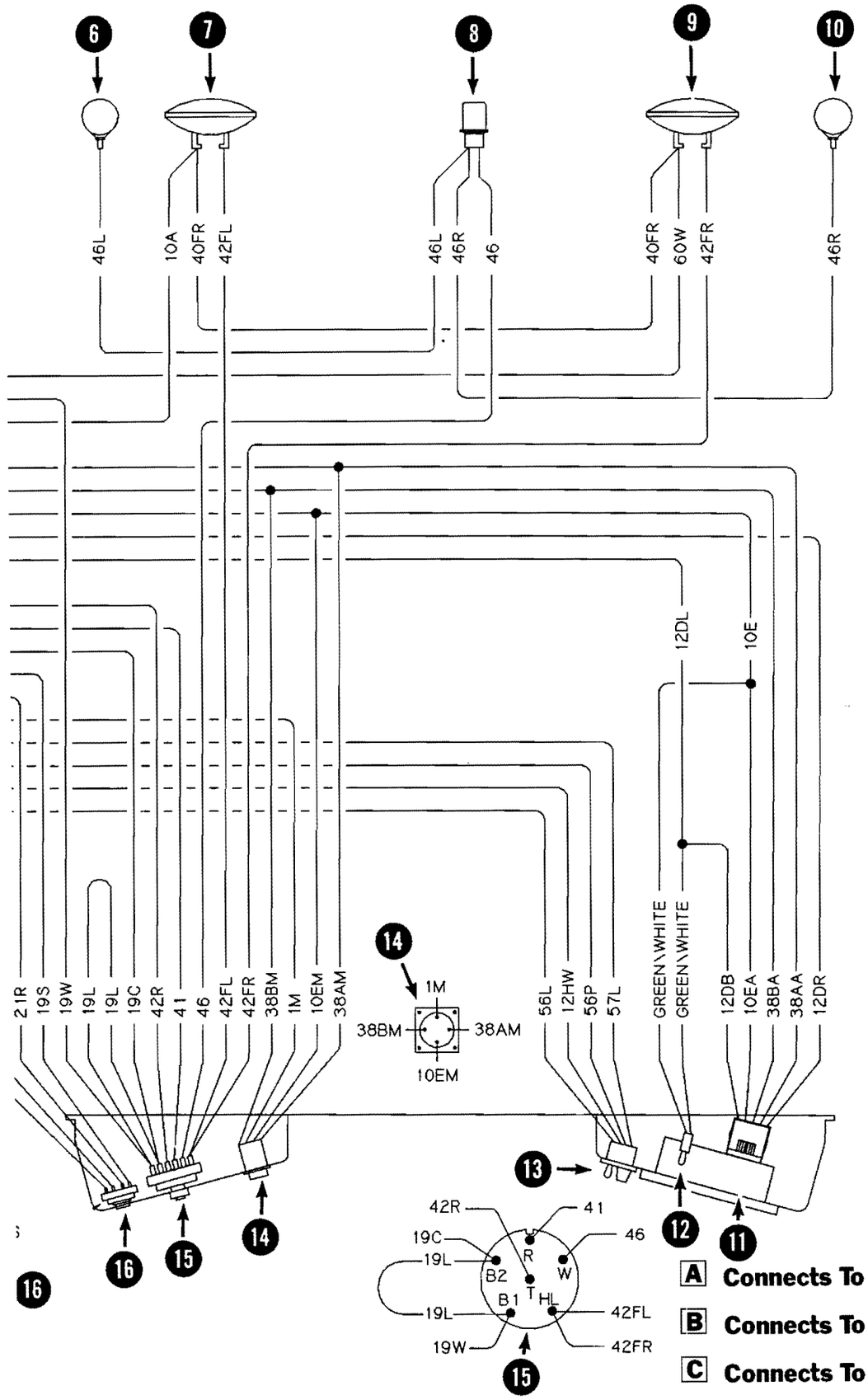
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# OPERATOR CAB WIRING DIAGRAM (P/N 6722301)

## Model 753 (Starting With S/N 17642)

### (Printed August 1992) 1 Of 3 Pages




6
7
8
9
10
46L
10A
40FR
42FL
46L
46R
46
40FR
60W
42FR
46R
12DL
10E
21R
19S
19W
19L
19L
19C
42R
41
46
42FL
42FR
38BM
1M
10EM
38AM
14
1M
38BM
38AM
10EM
56L
12HW
56P
57L
GREEN\WHITE
GREEN\WHITE
12DB
10EA
38BA
38AA
12DR
13
16
16
15
14
12
11
42R
41
19C
46
19L
R
W
B2
B1
T
HL
19L
42FL
19W
42FR
15
MC-1702
A Connects To A Elect. Chart—
B Connects To B Elect. Chart—
C Connects To C Elect. Chart—

## 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

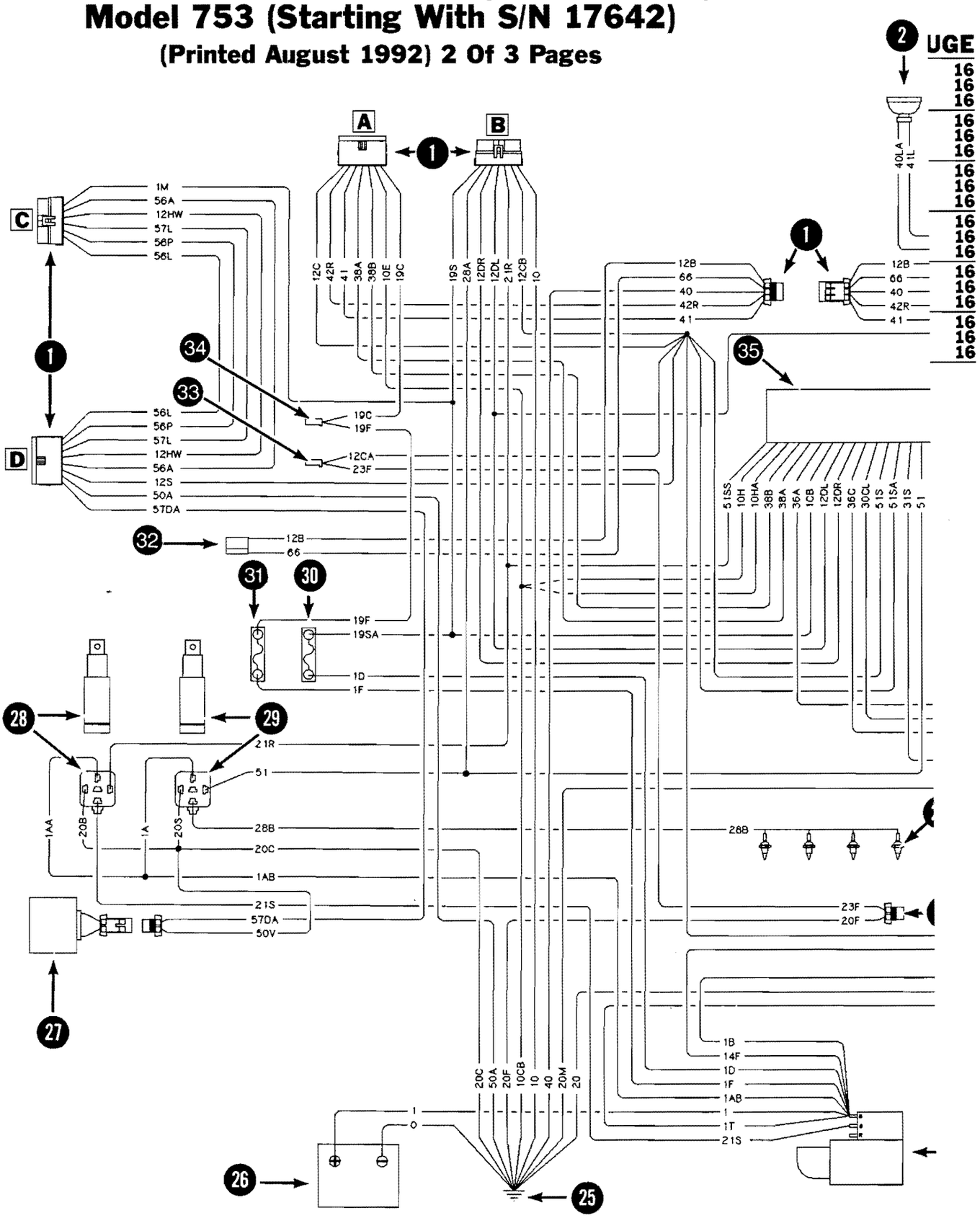
1. Harness Connectors
2. Operator Cab Ground
3. Wiper Switch (Opt.)
4. Wiper (Opt.)
5. Horn (Opt.)
6. Left Flasher Light (Opt.)
7. Left Front Light
8. Flasher (Opt.)
9. Right Front Light
10. Right Flasher Light (Opt.)
11. Instrument Panel Display
12. Display Back Light
13. Auxiliary Hydraulics Control Switch
14. Diagnostic Monitor Connector
15. Light Switch
17. Ignition Switch
18. Horn Connector

-Page 2
-Page 2
-Page 2

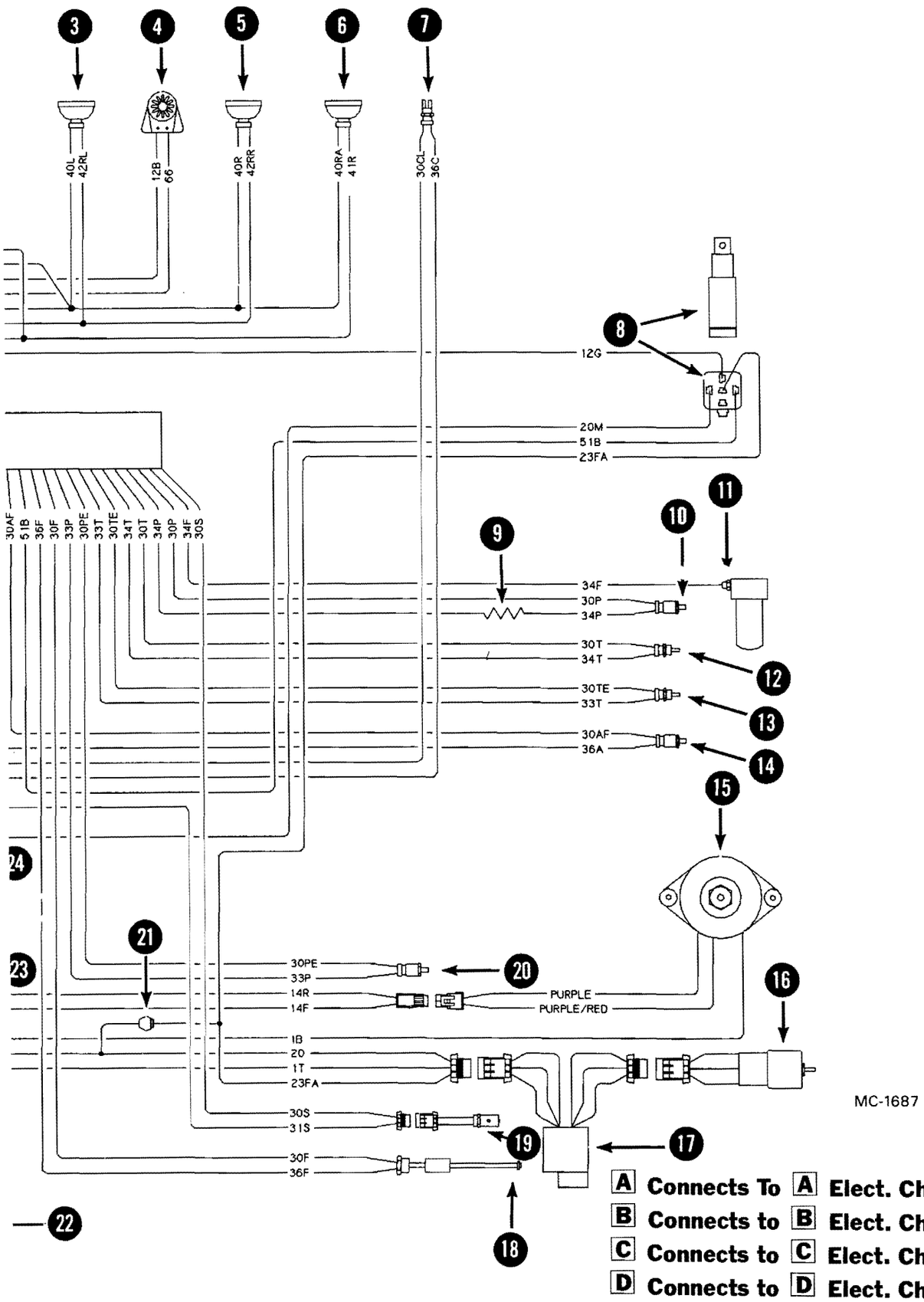
# ENGINE WIRING DIAGRAM (P/N 6722301)

## Model 753 (Starting With S/N 17642)

### (Printed August 1992) 2 Of 3 Pages




Electrical Chart
- Page 2 -


3
4
5
6
7
40L
42RL
12B
66
40R
42RR
40RA
41R
30CL
36C
8
12G
20M
51B
23FA
30AF
51B
36F
30F
33P
30PE
33T
30TE
34T
30T
34P
30P
34F
30S
9
10
11
34F
30P
34P
30T
34T
12
30TE
33T
13
30AF
36A
14
15
24
21
23
30PE
33P
14R
14F
20
PURPLE
PURPLE/RED
16
1B
20
1T
23FA
30S
31S
19
17
30F
36F
18
22
MC-1687
A Connects To A Elect. Chart—P
B Connects to B Elect. Chart—P
C Connects to C Elect. Chart—P
D Connects to D Elect. Chart—P

## 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

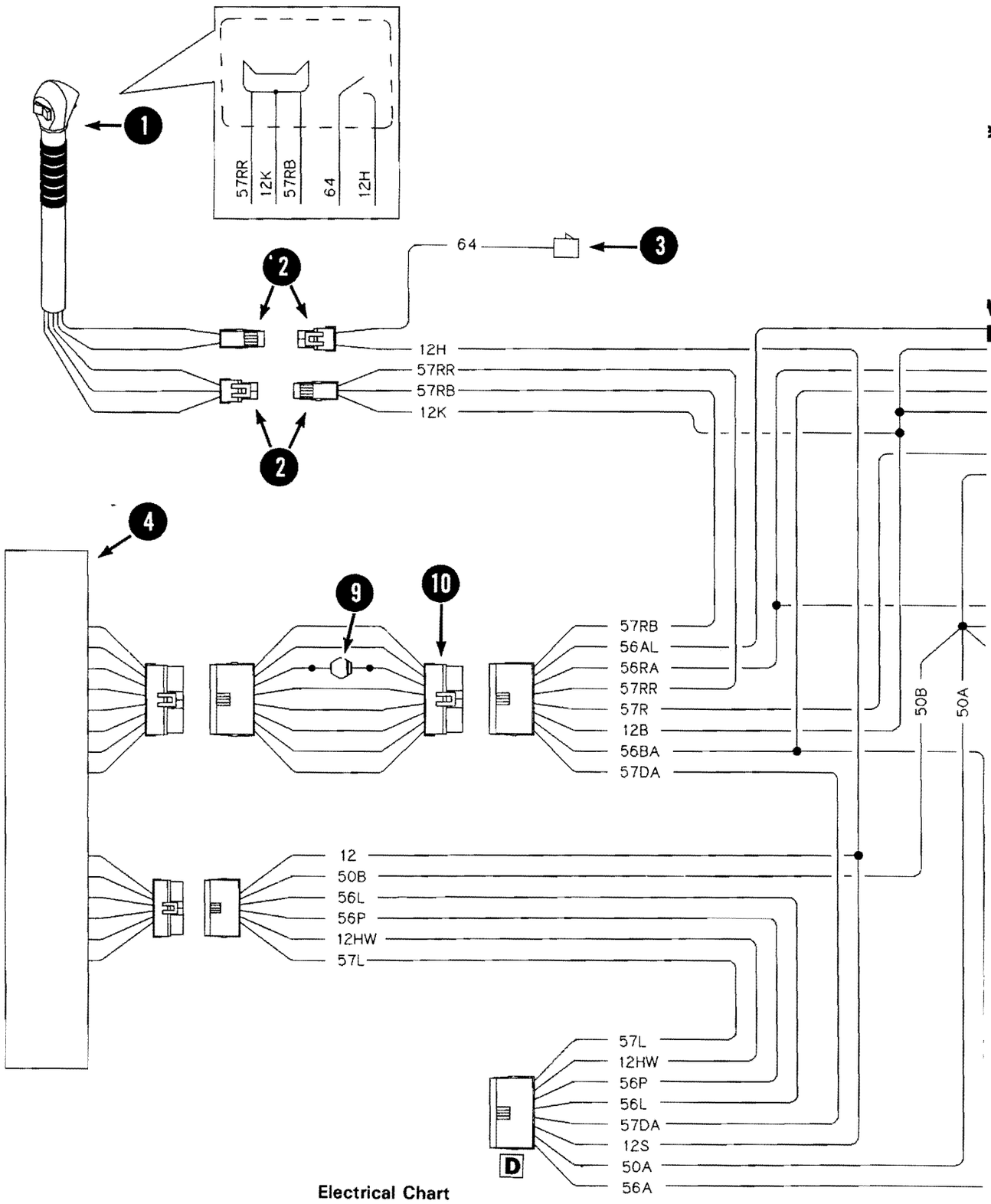
1. Harness Connectors
2. Left Tail Light
3. Left Rear Work Light
4. Back-Up Alarm (Opt.)
5. Right Rear Work Light
6. Right Tail Light
7. Radiator Coolant Level Sender
8. Shut-Down Relay
9. Resistor
10. Charge Pressure Sender
11. Hydraulic Fluid Filter Differential Pressure Switch
12. Hydraulic Fluid 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

age 1
age 1
age 1
age 3

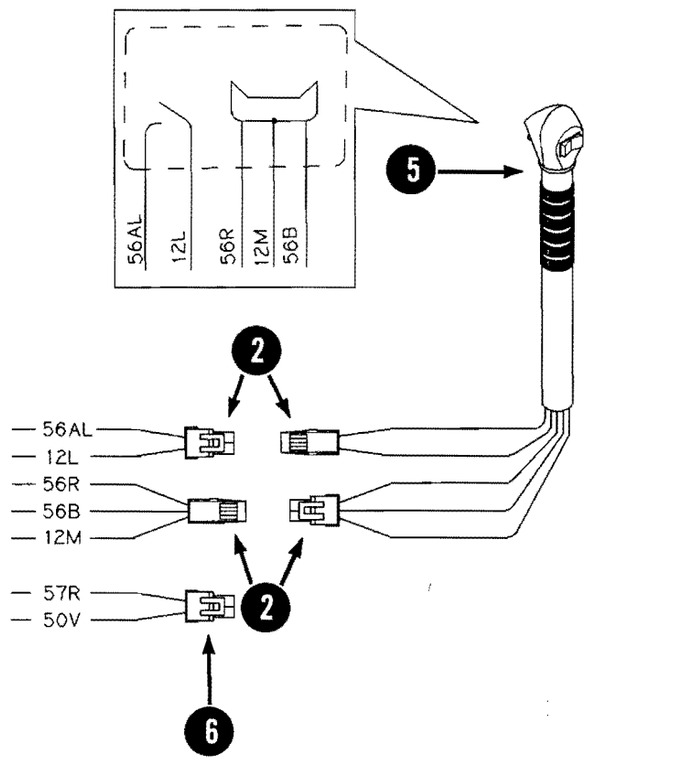
# AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6722301)

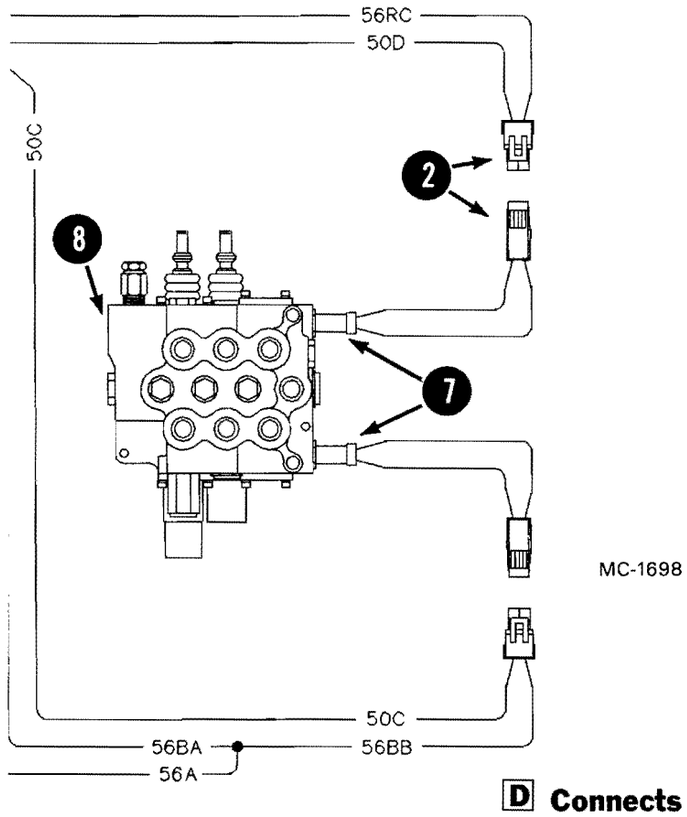
## Model 753 (Starting With S/N 17642)

### (Printed August 1992) 3 Of 3 Pages




Electrical Chart




MC-1698

**D Connects To D Elect. Chart—Page 2**

## 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

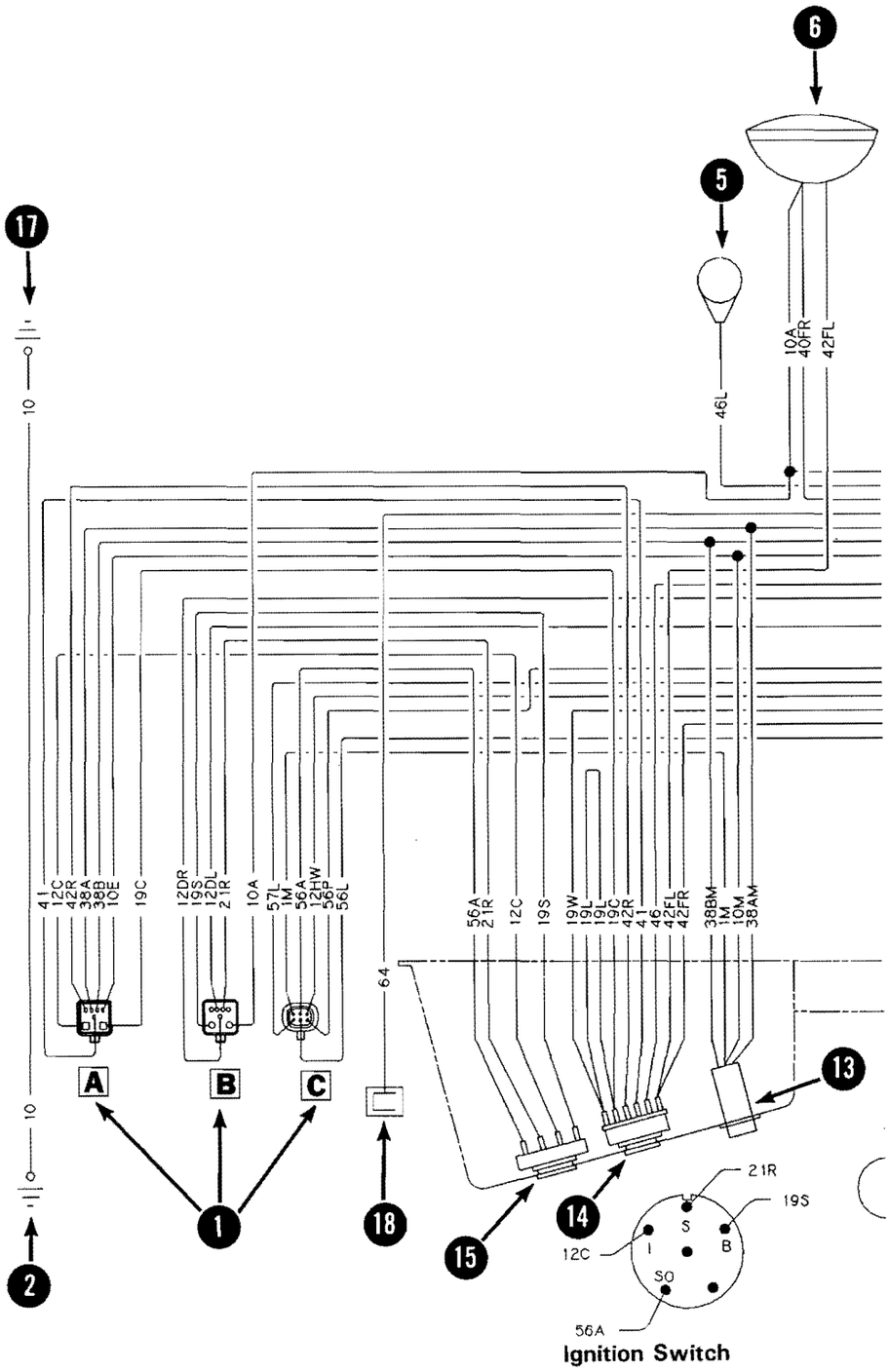
1. Left Steering Lever Control
2. Harness Connectors
3. Horn Connector
4. Relay Switch Box
5. Right Steering Lever Control
6. Harness Connector (Future Use)
7. Auxiliary Solenoids
8. Hydraulic Control Valve
9. Diode
10. Harness (P/N 6704114) (Used When Optional Rear Auxiliary Hydraulics Are Installed)

# OPERATOR CAB WIRING DIAGRAM (P/N 6722827)

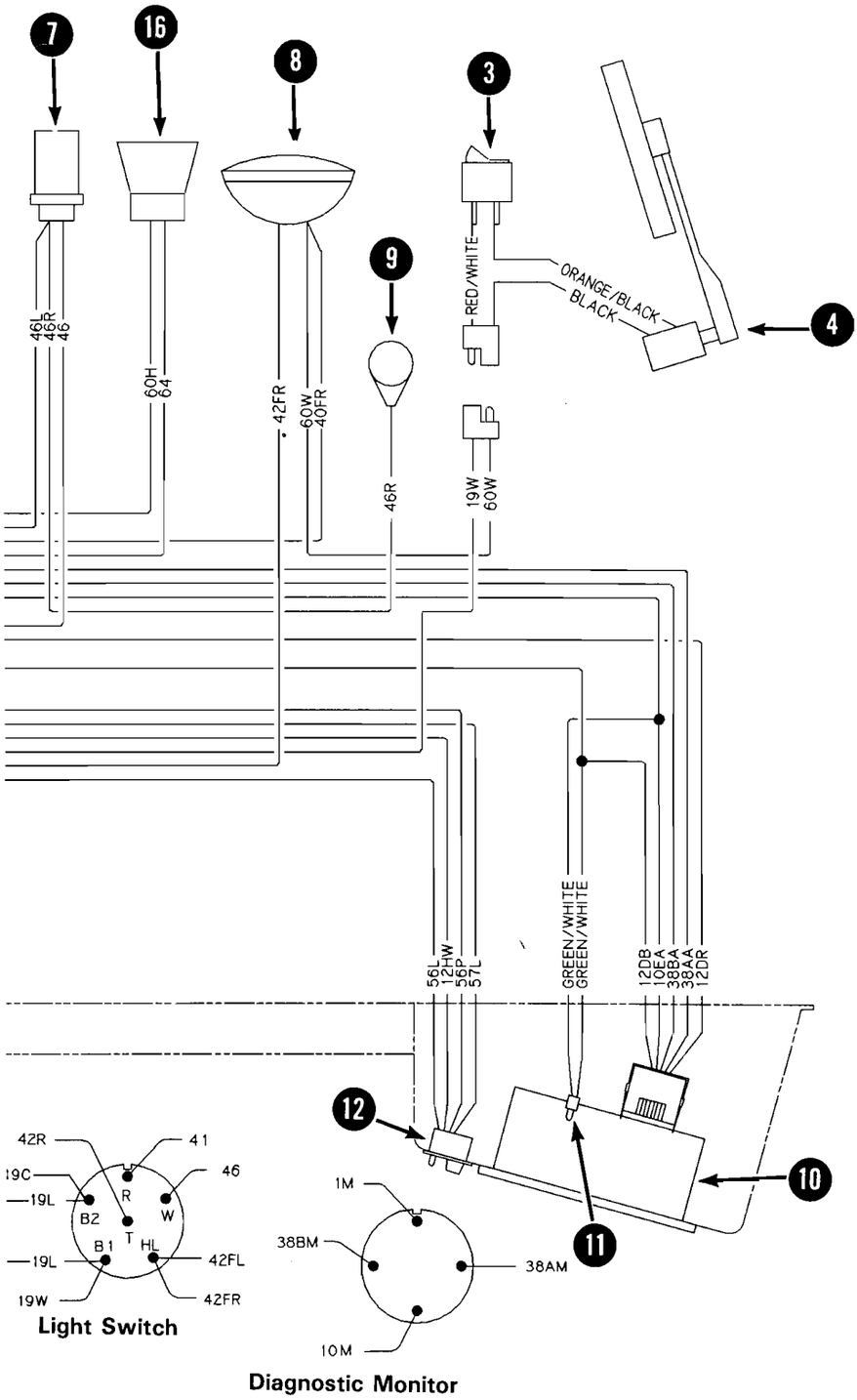
## Model 753 (S/N 511525001 Thru 511525540)

## Model 753H (S/N 511011001 Thru 511911006)

**(Printed November 1993) 1 Of 4 Pages**




Electrical Chart
- Page 1 -




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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**

## 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

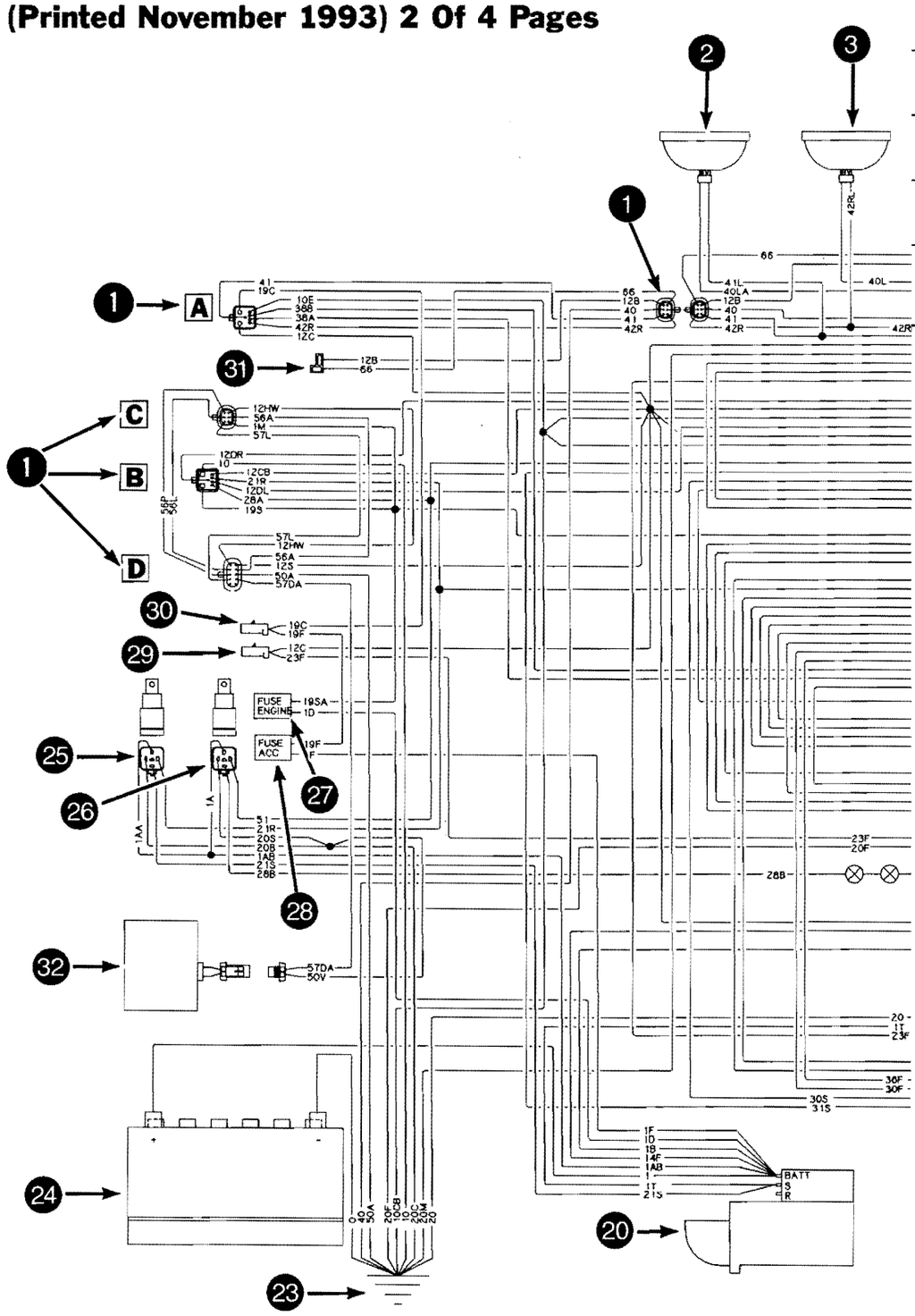
# ENGINE WIRING DIAGRAM (P/N 6722827)

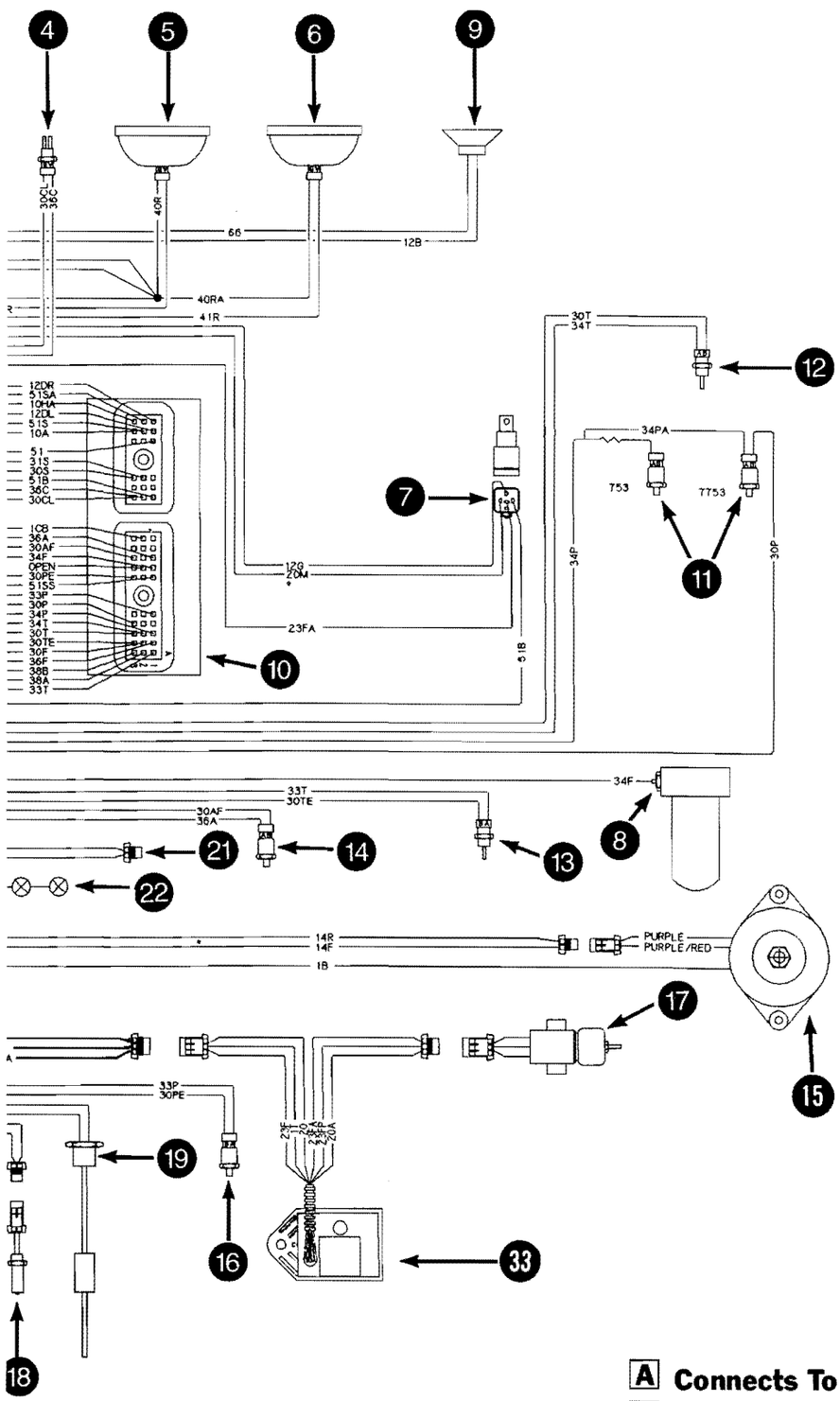
## Model 753 (S/N 511525001 Thru 511525540)

## Model 753H (S/N 511011001 Thru 511011006)

**(Printed November 1993) 2 Of 4 Pages**

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MC-1876

**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**

## 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

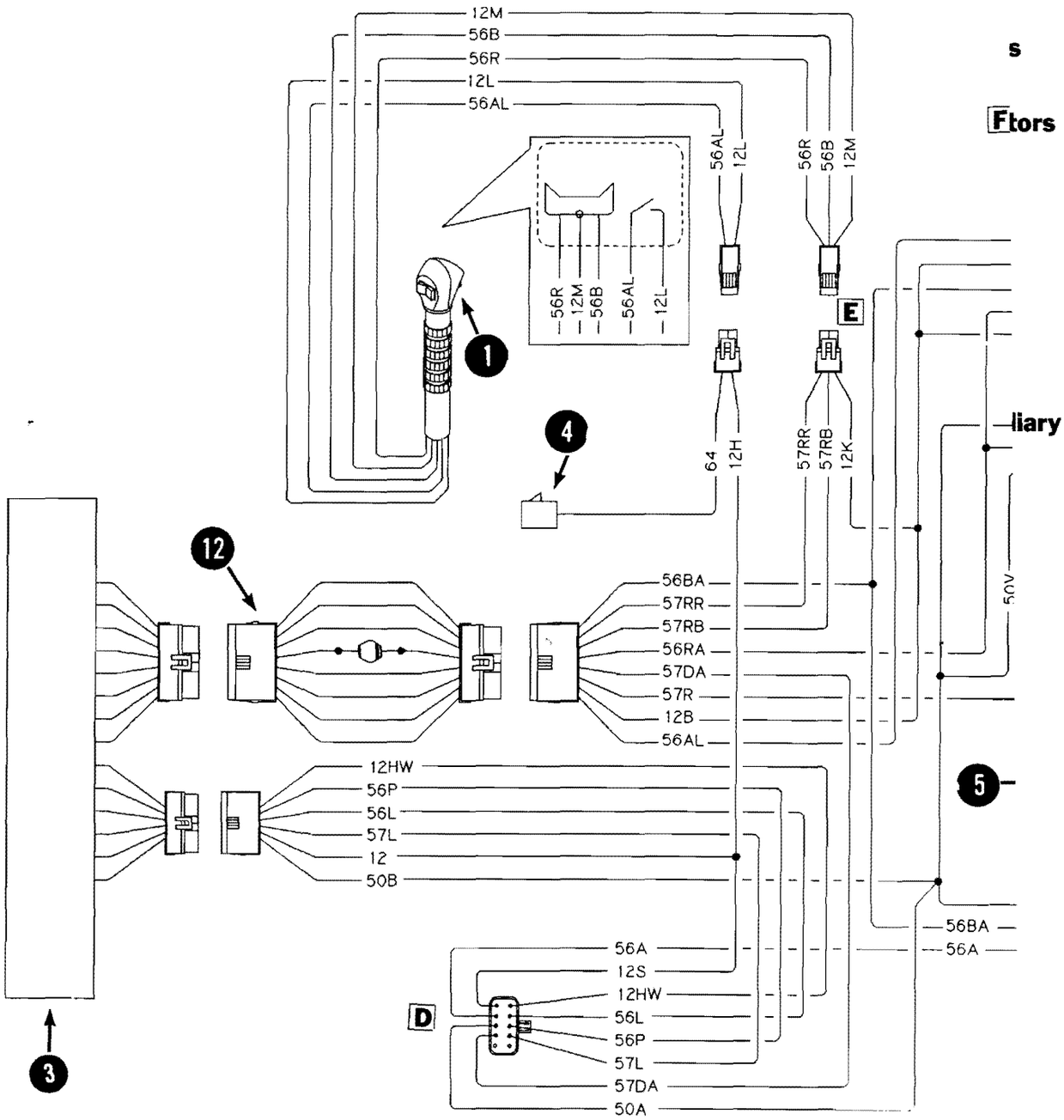
# AUXILIARY HYD. WIRING DIAGRAM (P/N 6722827)

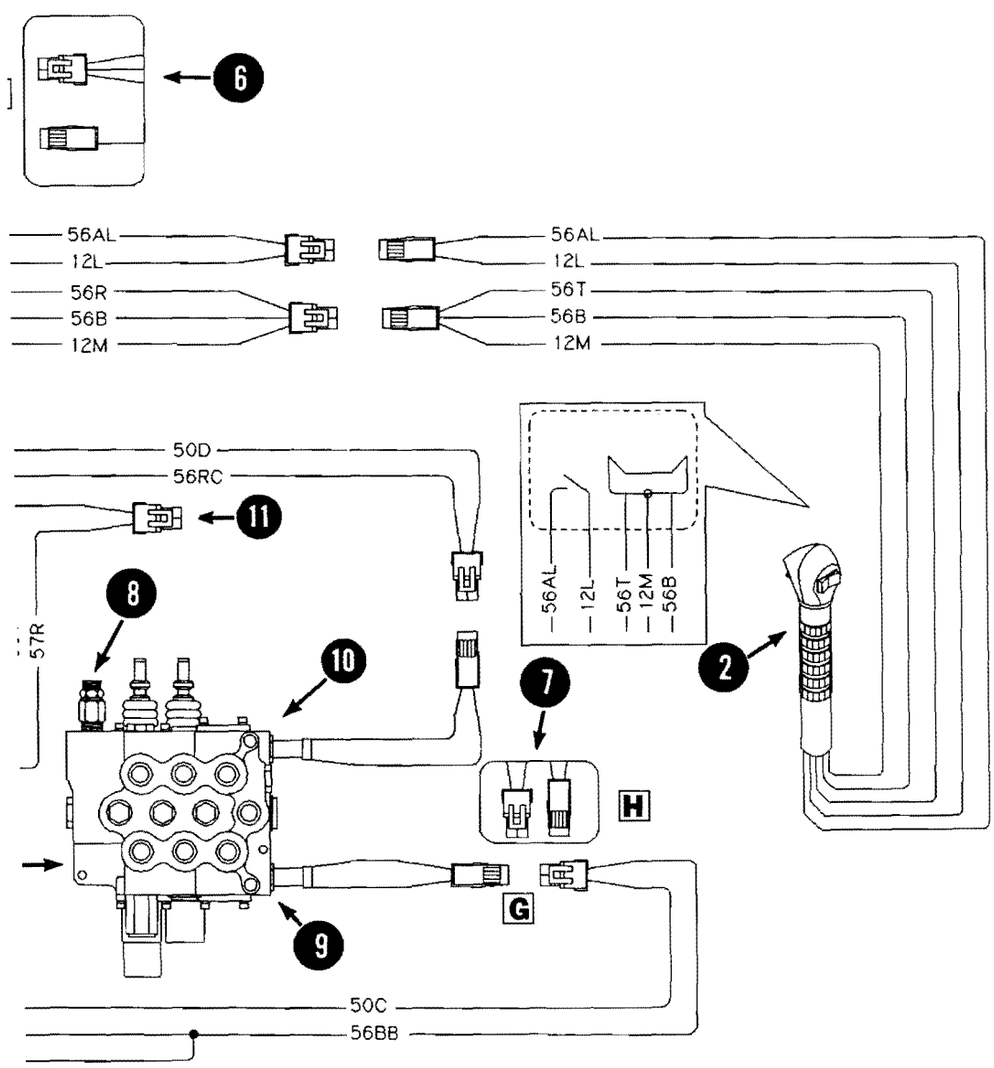
## Model 753 (S/N 511350001 Thru 511350882)

## Model 753 (S/N 511525001 Thru 511525540)

## Model 753H (S/N 511011001 Thru 511011006)

**(Printed November 1993) 3 Of 4 Pages**






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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 &**

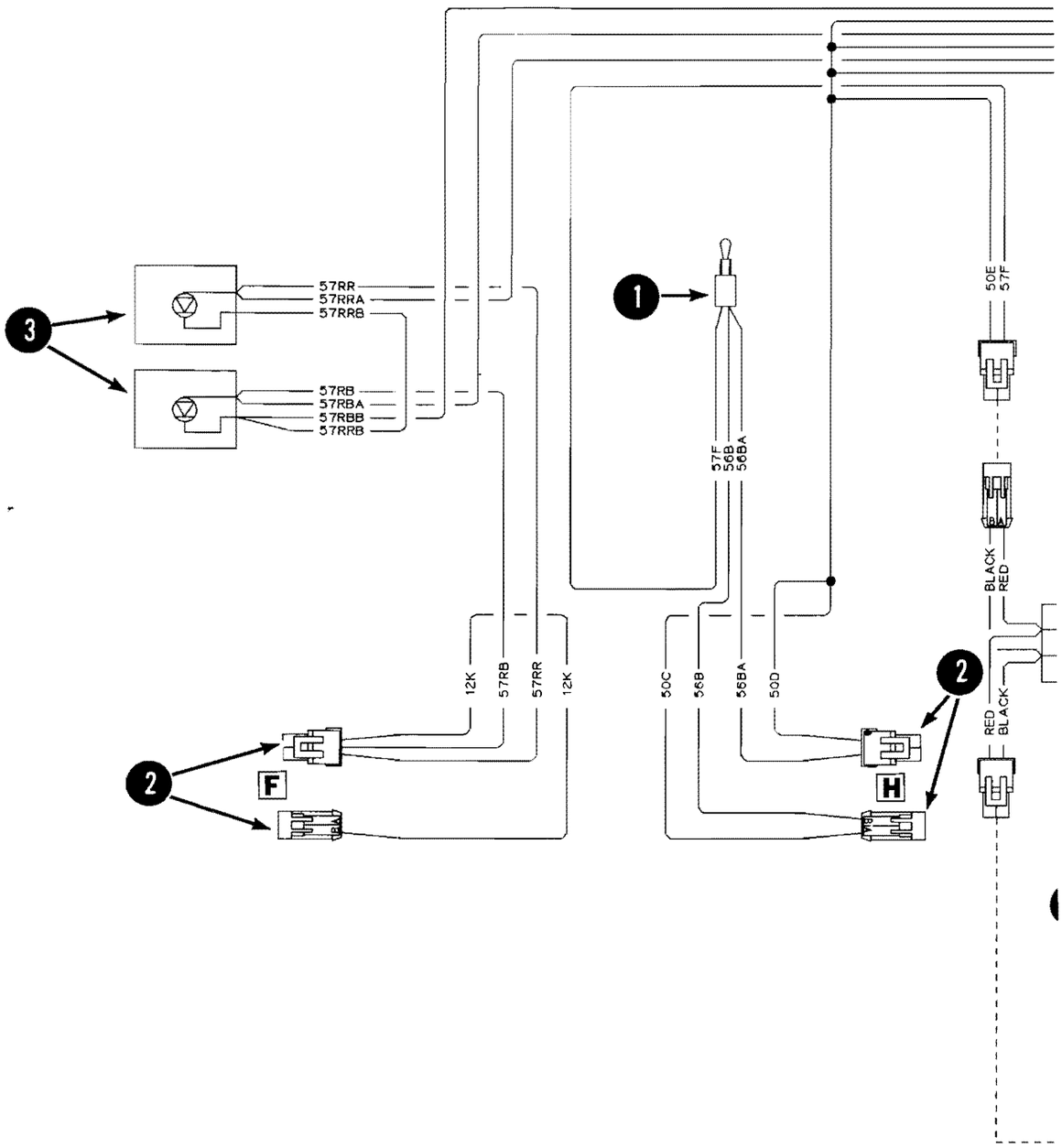
## WIRE LEGEND

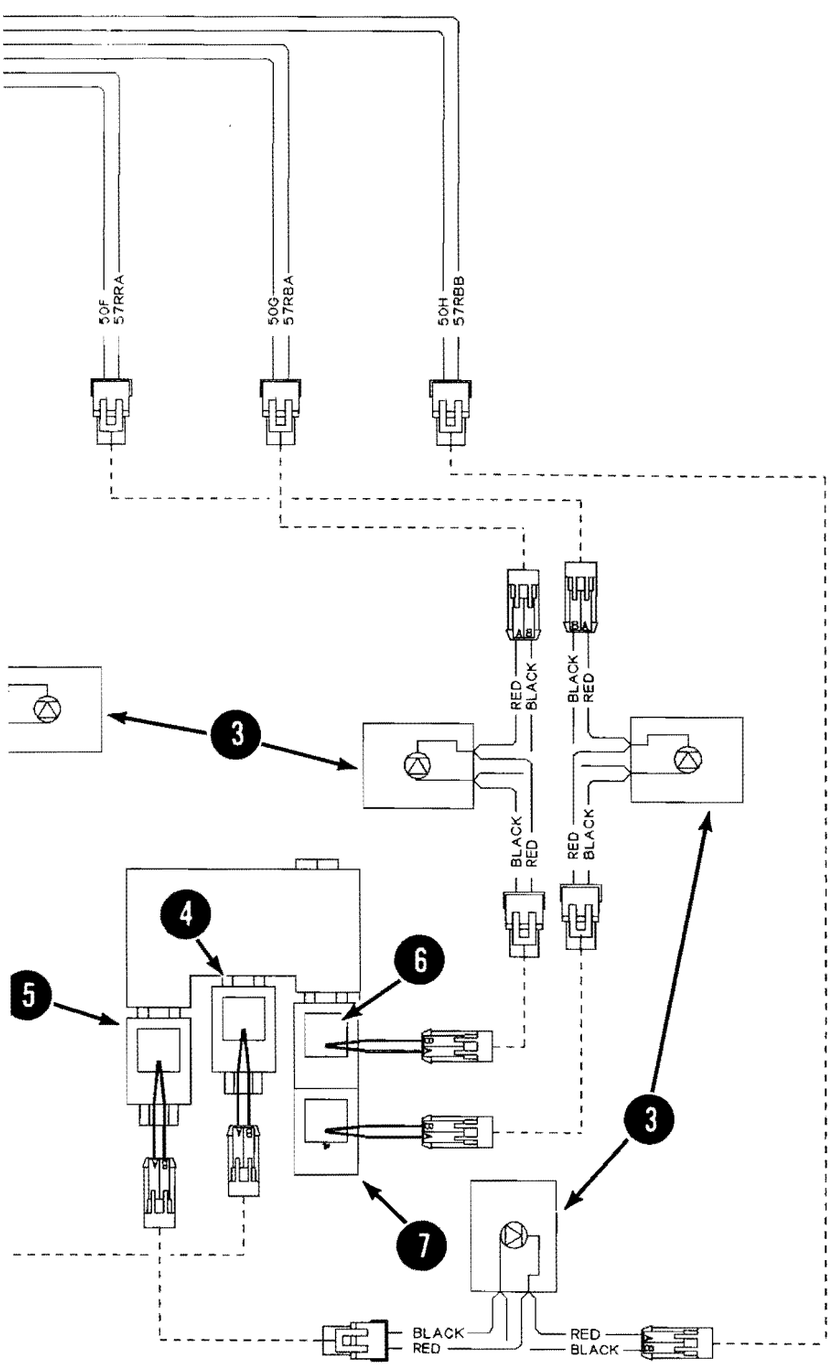
| NO.'s | COLOR | GAUGE |
|---|---|---|
| 12 | Orange | 16 |
| 12B | Orange | 16 |
| 12H | Orange | 16 |
| 12HW | Orange | 16 |
| 12K | Orange | 16 |
| 12L | Orange | 16 |
| 12M | Orange | 16 |
| 12S | Orange | 16 |
| 50A | Black | 16 |
| 50B | Black | 16 |
| 50C | Black | 16 |
| 50D | Black | 16 |
| 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)

# 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**

## 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

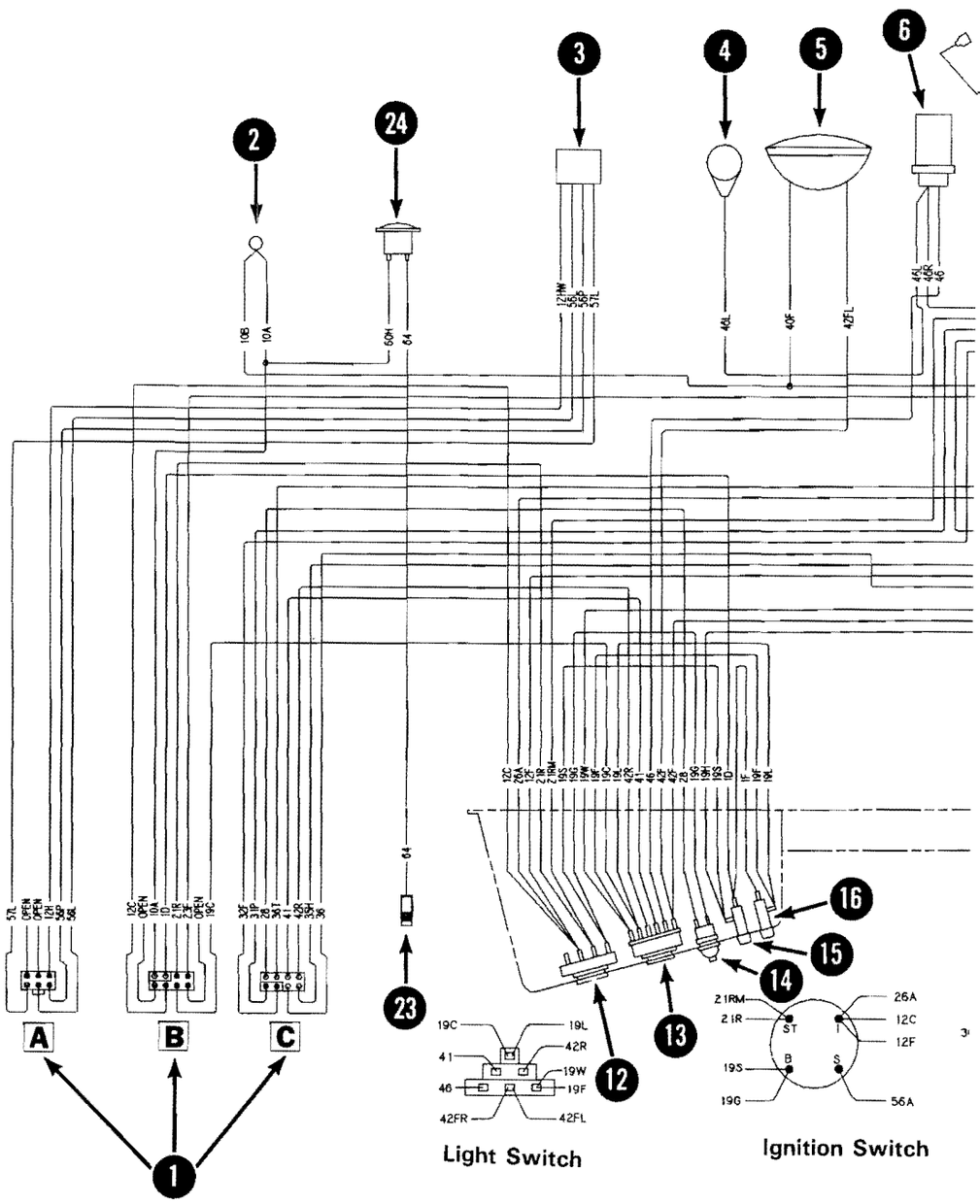
1. Hi Flow On/Off Switch
2. Auxiliary Control Harness Connectors
3. Diodes
4. Hi Flow Solenoid
5. Diverter Solenoid
6. Rear/Secondary Front Auxiliary Solenoid (Base)
7. Rear/Secondary Front Auxiliary Solenoid (Rod)

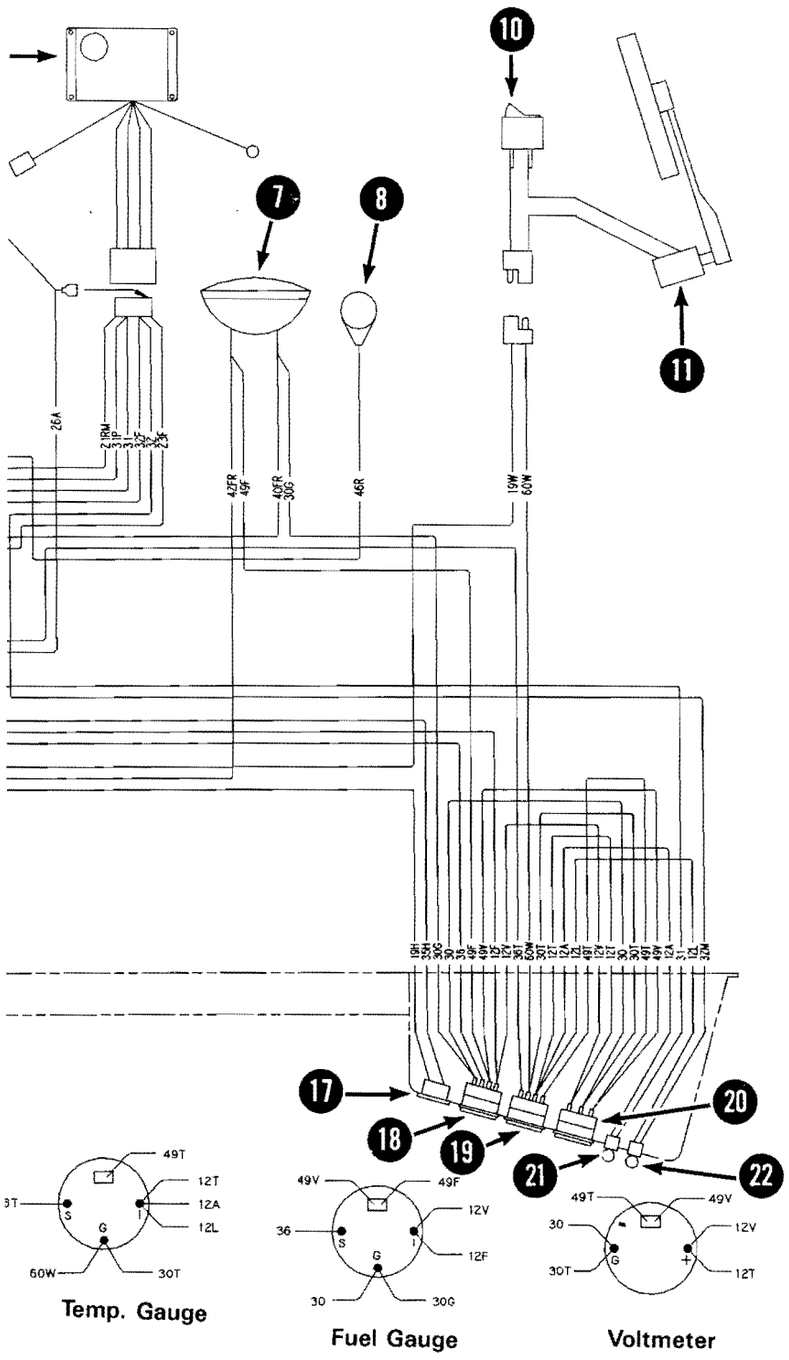
# OPERATOR CAB WIRING DIAGRAM (P/N 6722831)

## Model 753 (S/N 511350001 Thru 511350882)

**(Printed November 1993) 1 Of 2 Pages**


IGE
16
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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

## 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 |

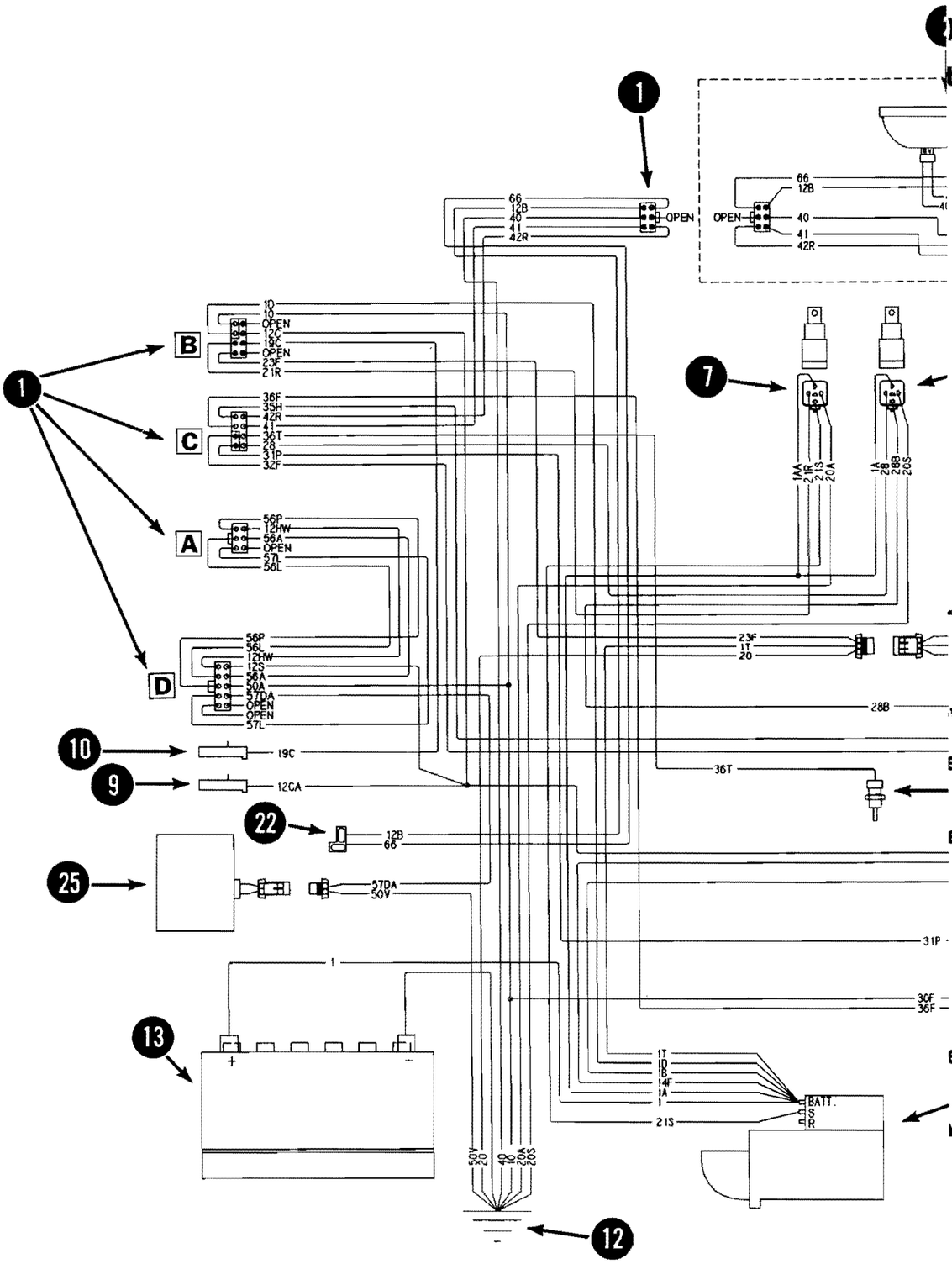
## WIRE LEGEND (Cont'd)

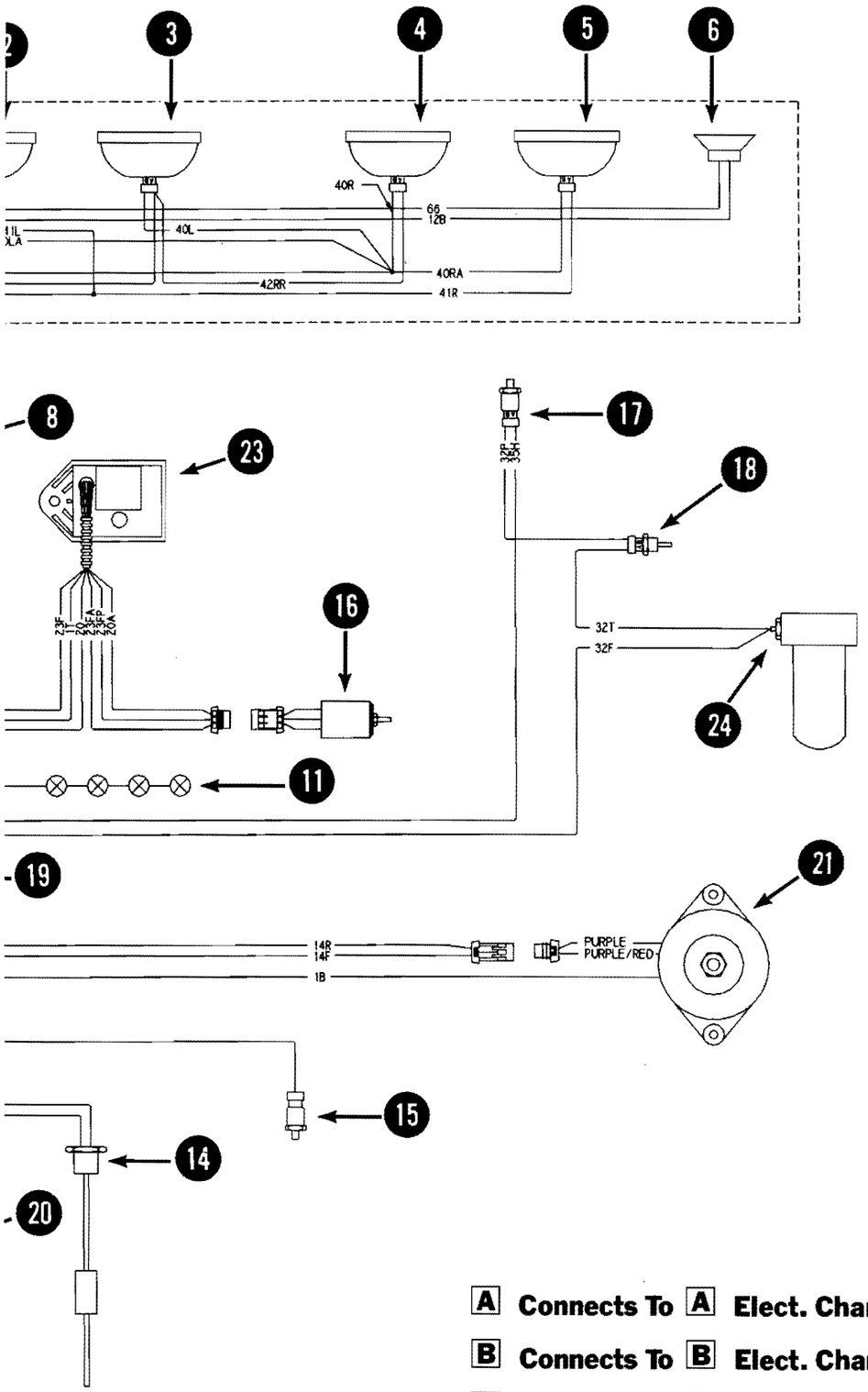
| NO.'s | COLOR | GAUGE |
|---|---|---|
| 56A | Dk. Green/Yellow | 16 |
| 56L | Lt. Green/Blue | 16 |
| 56P | Lt. Green/Red | 16 |
| 57L | Lt. Green/Pink | 16 |
| 60H | Black | 16 |
| 60W | Black | 16 |
| 64 | Orange/Blue | 16 |

## 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.)

# ENGINE WIRING DIAGRAM (P/N 6722831)
## Model 753 (S/N 511350001 Thru 511350882)
### (Printed November 1993) 2 Of 2 Pages






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**

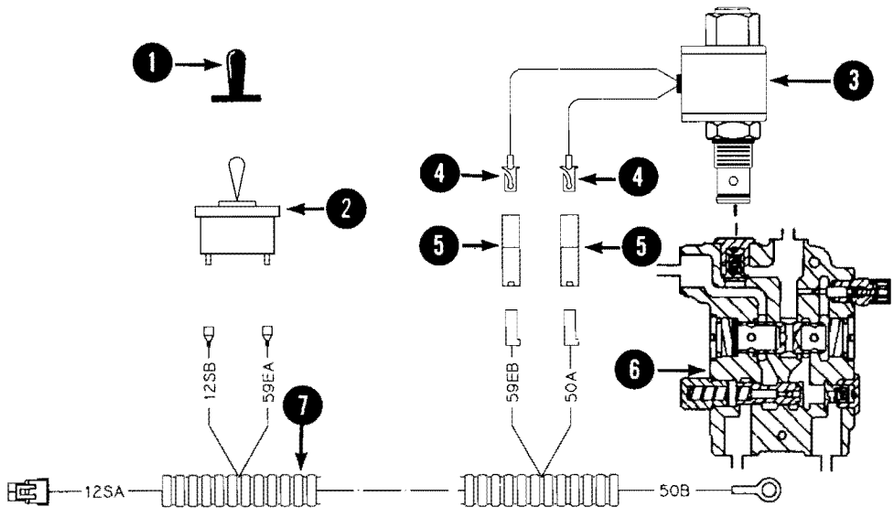
## WIRE LEGEND

| 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

# 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

# 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.

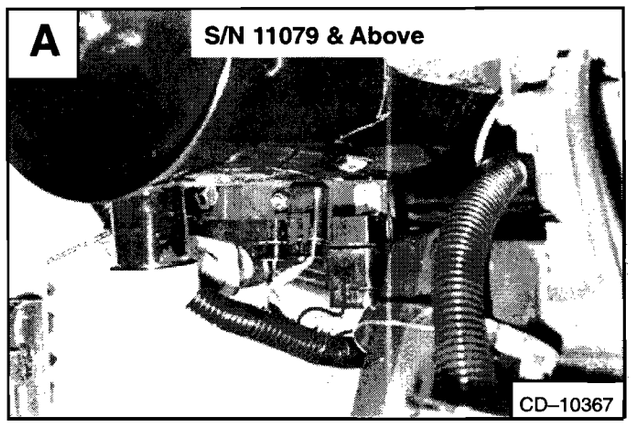
S/N 11079 & Above: The electrical system is protected by two fuses in the wiring harness **[A]**.

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.

## 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]**.

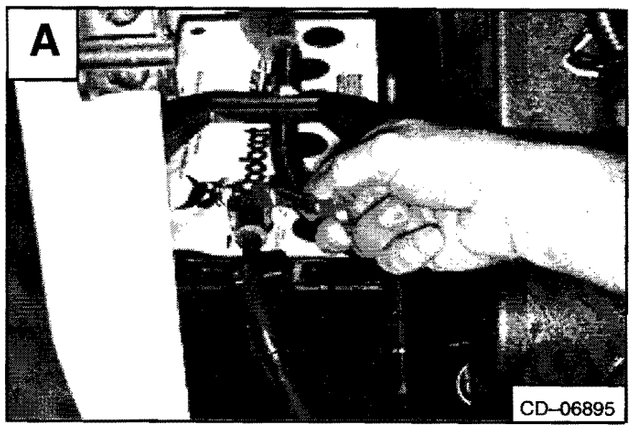
**⚠ WARNING**

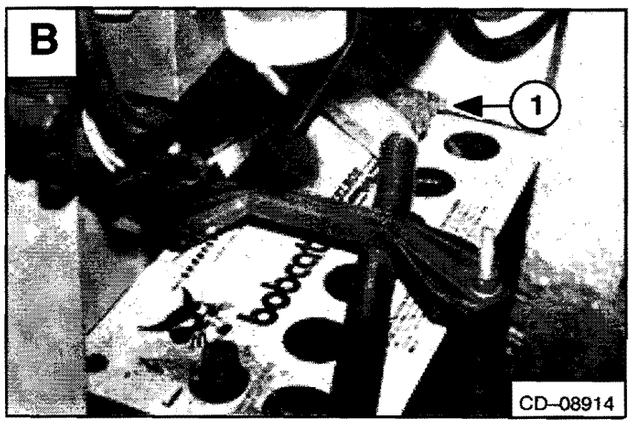
**Keep arcs, sparks, flames and lighted tobacco away from batteries. When *jumping* from booster battery make final connection (negative) at engine frame.**

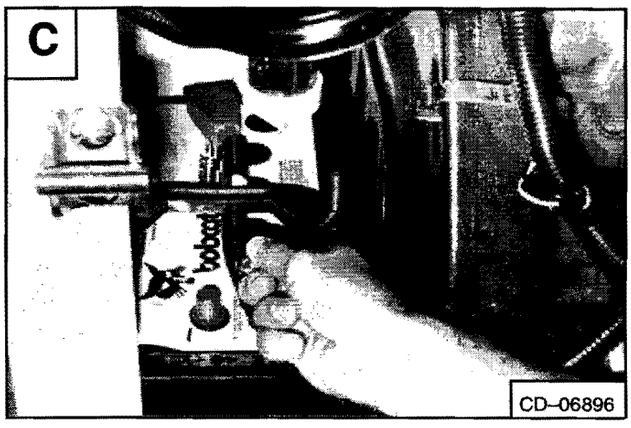
**Do not jump start or charge a frozen or damaged battery. Warm battery to 60°F. (16°C.) before connecting to a charger. Unplug charger before connecting or disconnecting cables to battery. Never lean over battery while boosting, testing or charging.**

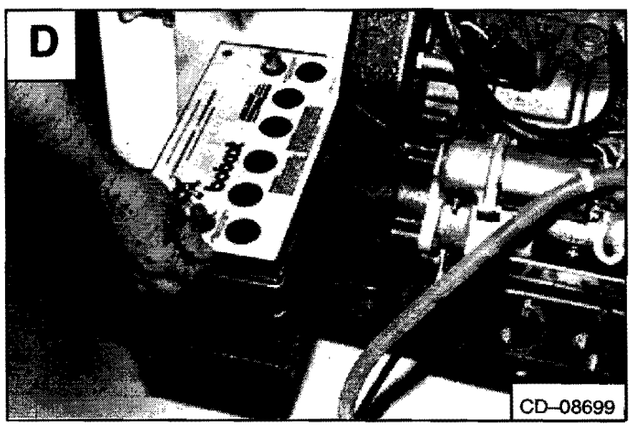
**Battery gas can explode and cause serious injury.**

**W–2066–1296**



## 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.

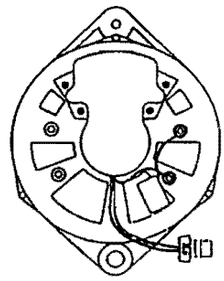
If the reading is low, remove the screws and pull the regulator cover away from the alternator.

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.

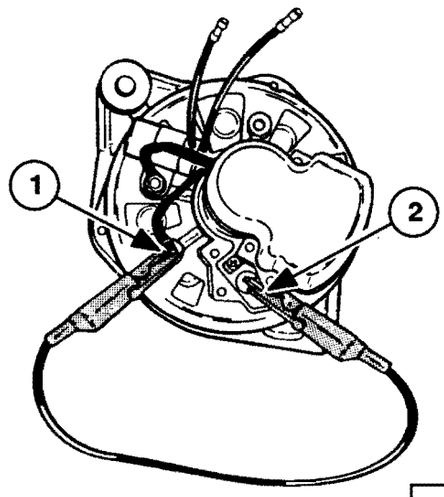
**A**

**REAR VIEW OF ALTERNATOR**
**OLD 6632211**



MC–01813

**B**




B–09570

**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]**.

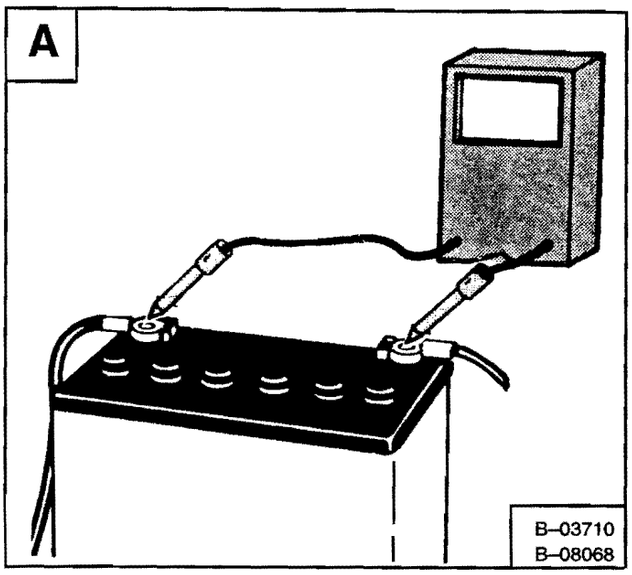
If the reading is low, stop the engine and disconnect the battery.

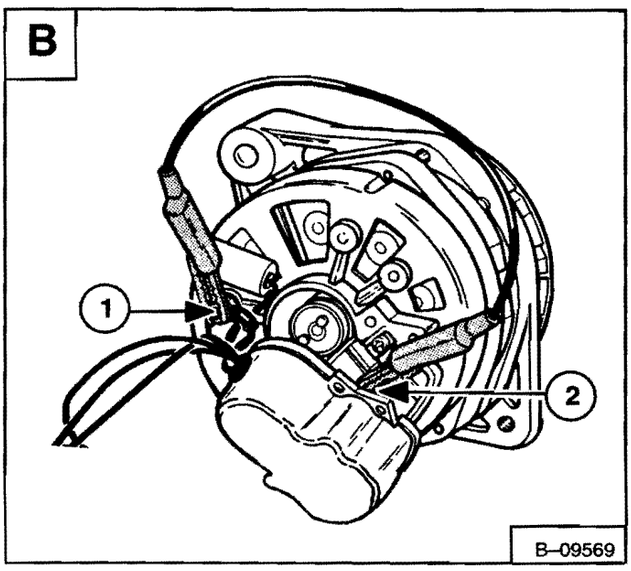
Remove the screws and pull the regulator cover away from the alternator. Connect the jumper wire from the ground stud (Item 1) to the brush terminal (Item 2) (the tan wire) **[B]**.

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.



## 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.

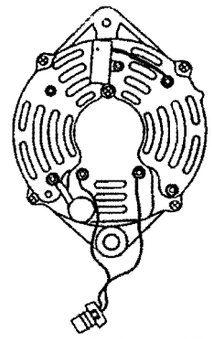
Start the engine and run at 2600 RPM.

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.

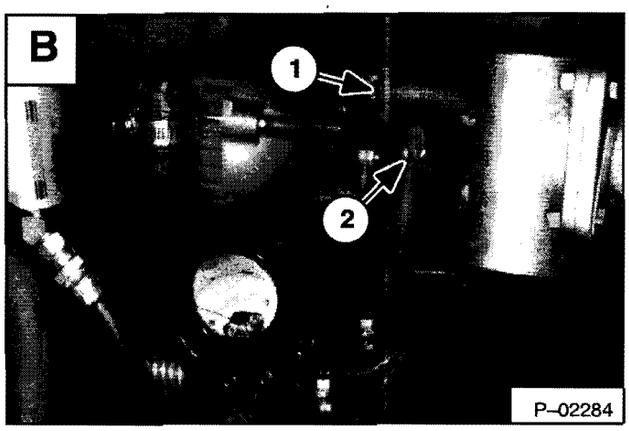
**A**

**REAR VIEW OF ALTERNATOR**
**OLD 6661611**



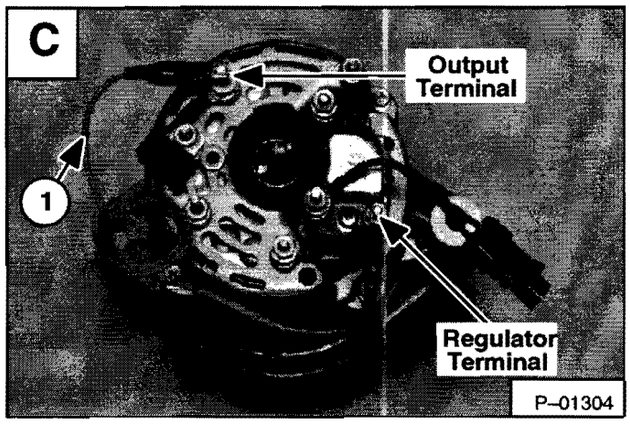
MC–01813

**B**




P–02284

**C**




P–01304

**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 altemator 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.

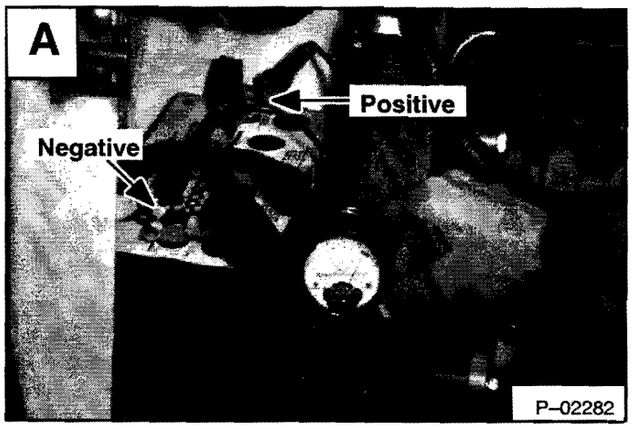
Install the wires on the back of the alternator.

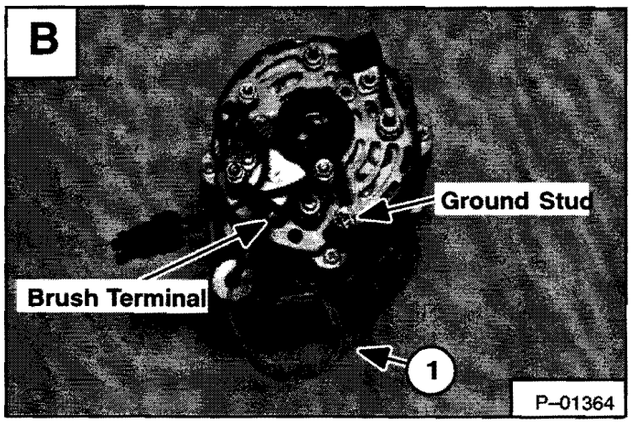
Connect a jumper wire (Item 1) from the brush terminal to the ground stud **[B]**.

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.



## 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.**

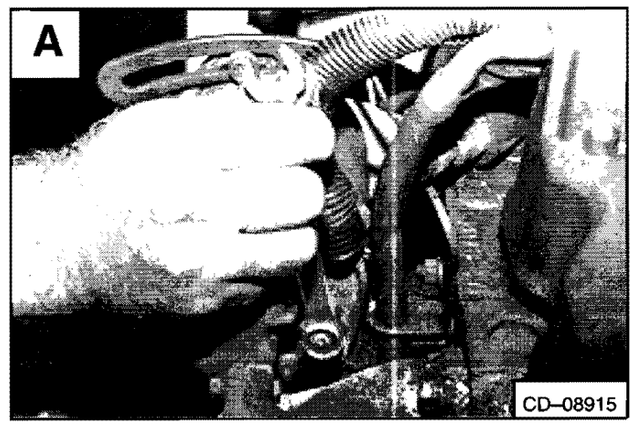
**I–2023–1285**

Raise the operator cab (Page 1–5).

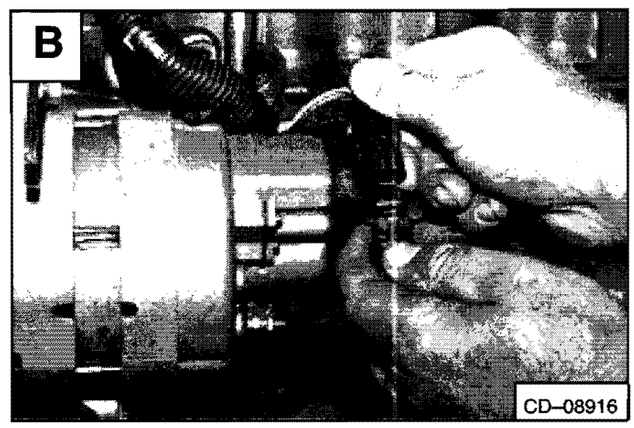
Open the rear door.

Disconnect the negative (–) battery cable.

Disconnect the orange lead from the alternator **[A]**.



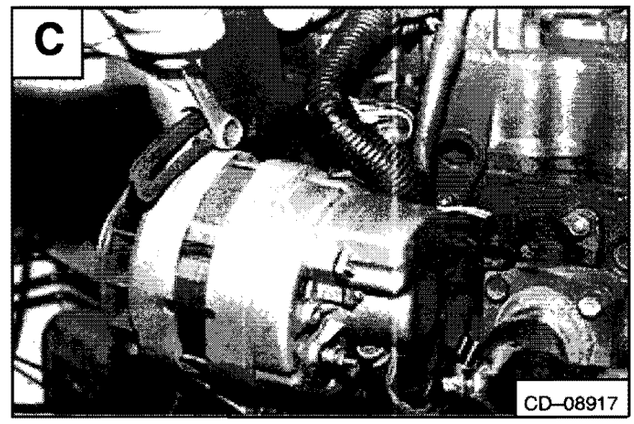

Disconnect the wire harness connectors **[B]**.




Remove the adjustment bolt **[C]**.

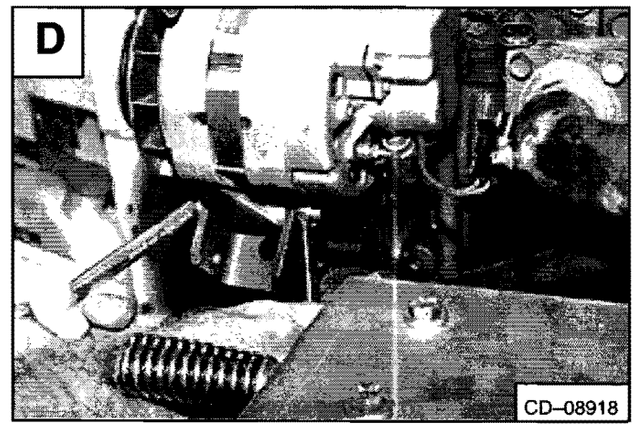
Remove the alternator belt from the alternator pulley.

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.



## ALTERNATOR (Cont'd)

### Disassembly (Old Style)

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

Remove the three bolts (Item 4) holding halves together **[A]**.

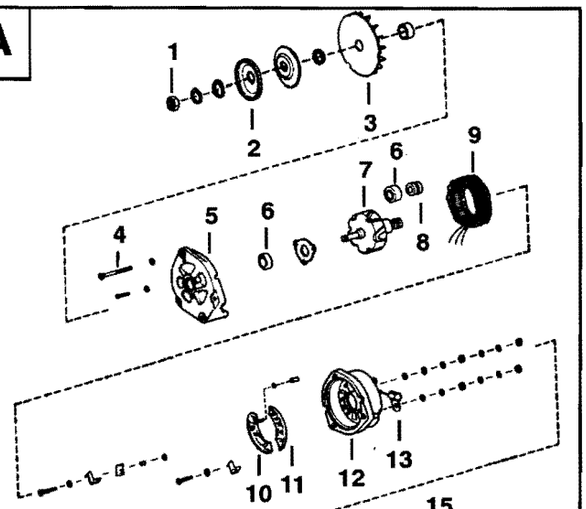
Pry the halves apart. Use a soft jaw vise to hold the rotor while removing the pulley nut (Item 1) **[A]**.

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

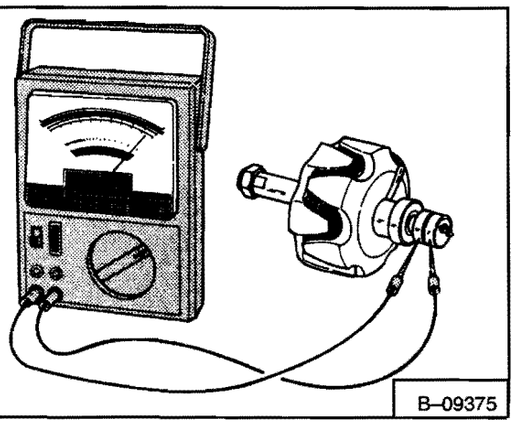
D–01760

### 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]**.

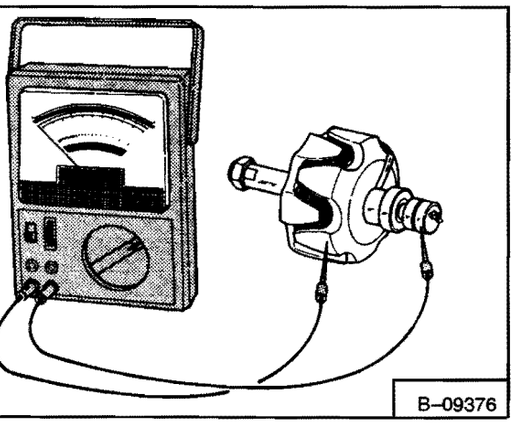
**B**



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**

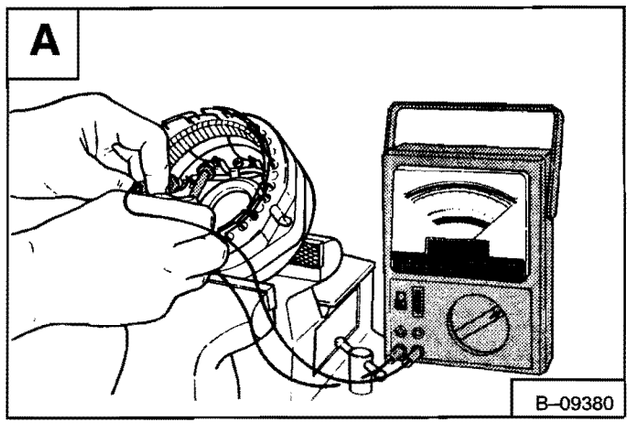


B–09376

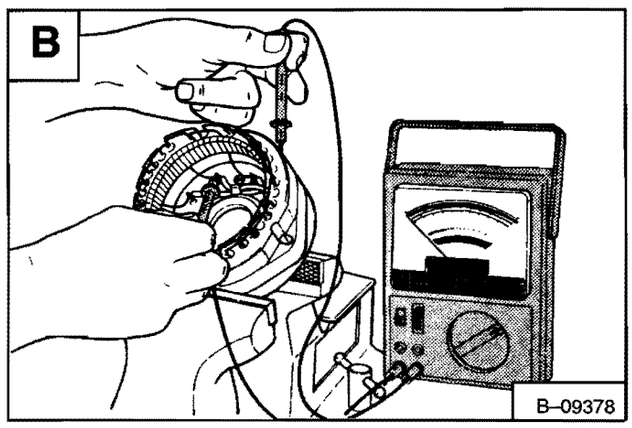
### Checking the Stator (Old Style)

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]**.



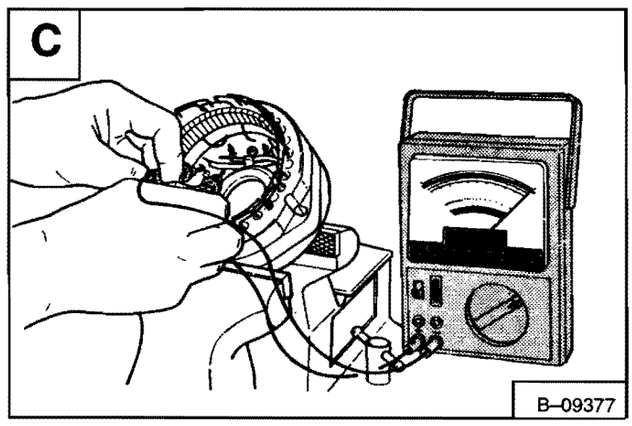

Test the ground by touching one probe on the metal surface of the stator and the other probe on the bare wire. There must be no needle movement **[B]**.



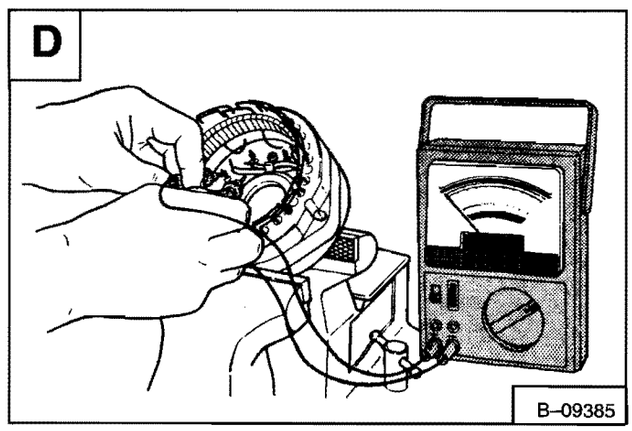

### Checking the Rectifier (Old Style)

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]**.



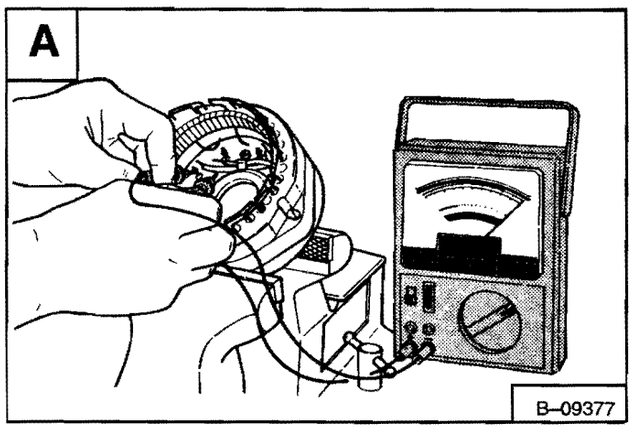

Reverse the probes and check the continuity in the other direction. There must be no continuity **[D]**.



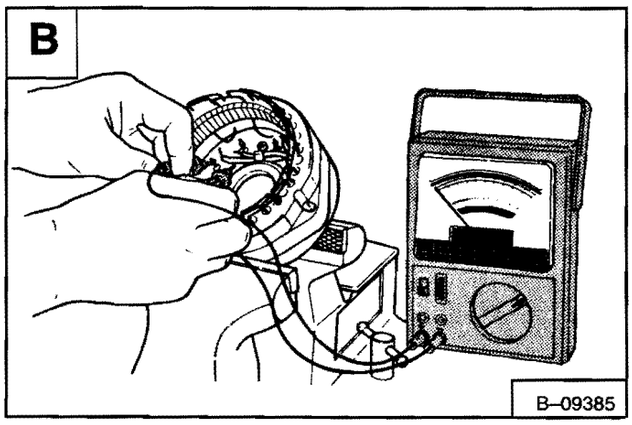
**ALTERNATOR (Cont'd)**

**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.

**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).

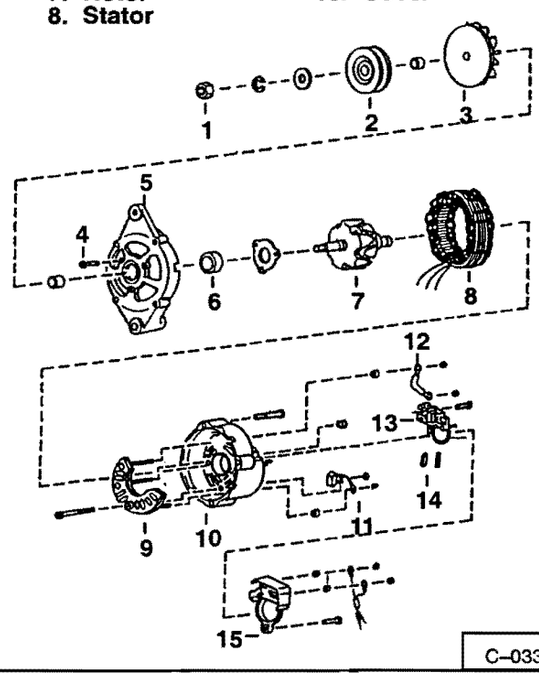
Use a soft jaw vise to hold rotor while removing pulley nut.

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.

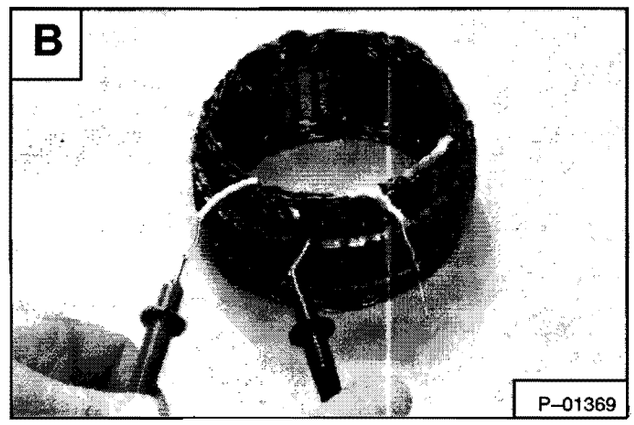
Touch the probes to two of the bare stator wires **[B]**.

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

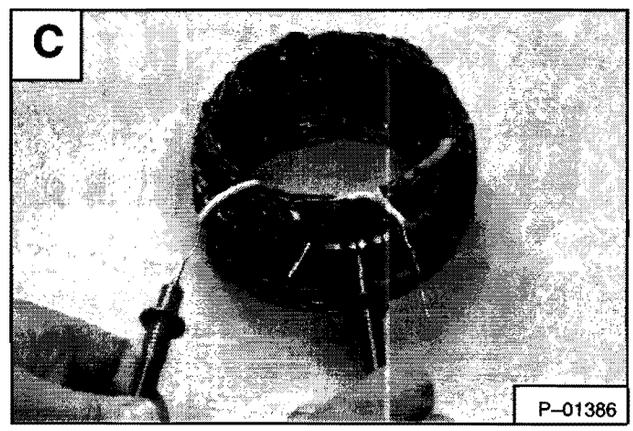
**Stator Ground Test (New Style)**

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**



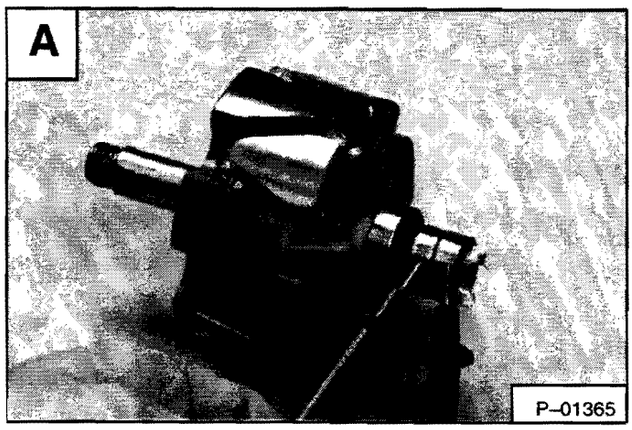
P–01386

**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.

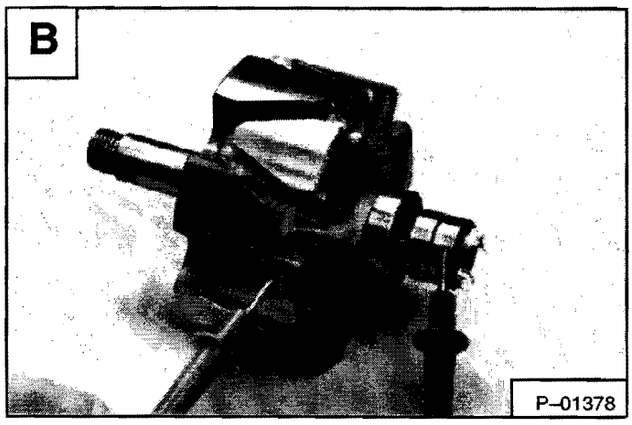



**Rotor Ground Test (New Style)**

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.



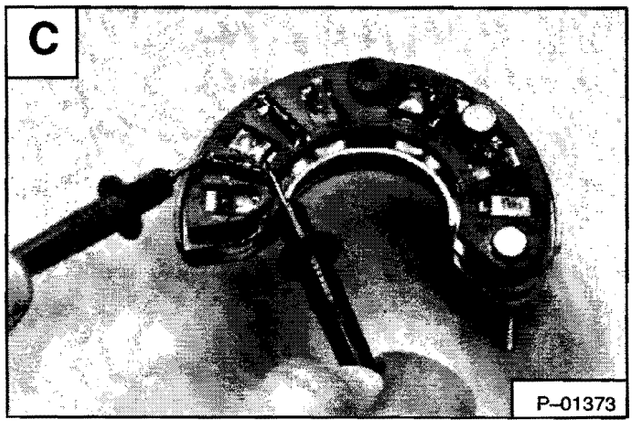

**Rectifier Continuity (Diode) Test (New Style)**

**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.



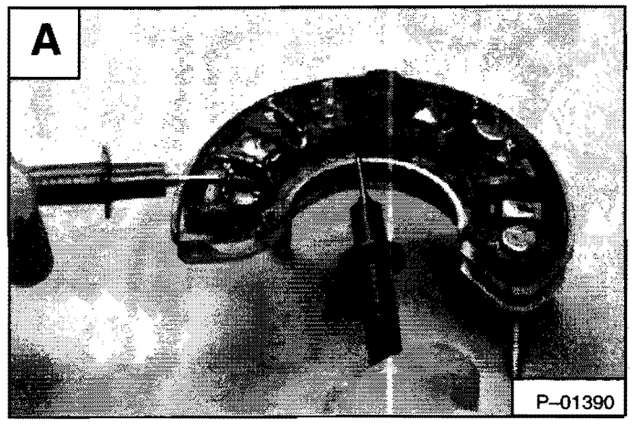
**ALTERNATOR (Cont'd)**

**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.



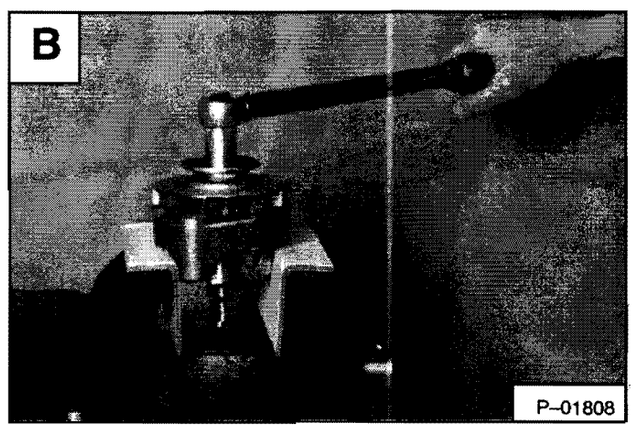

**Assembly (New Style)**

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.



## STARTER

### Checking the Starter

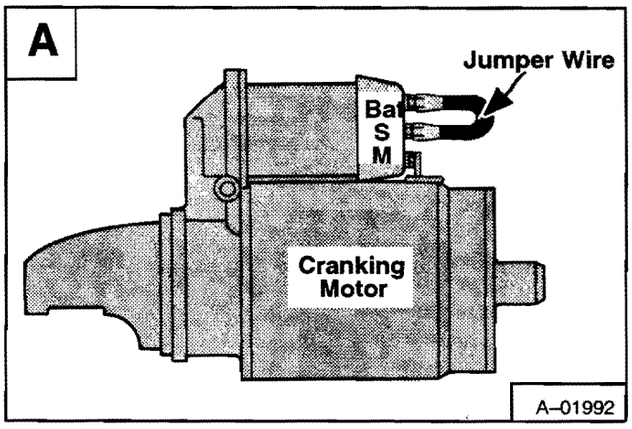
The key switch must be in the "OFF" position.

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]**.

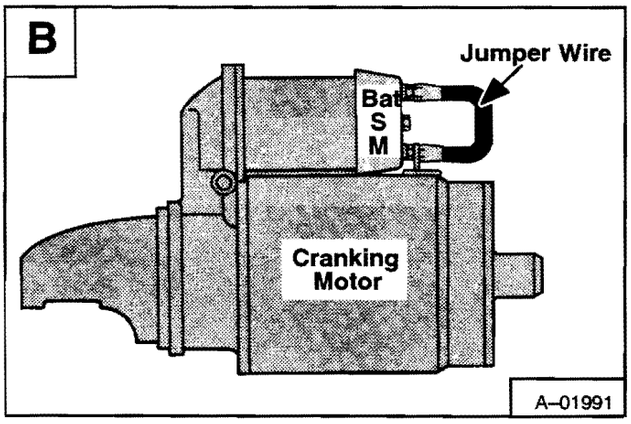
If the starter turns but does not turn the engine, the starter drive has a defect.




Connect a jumper wire between the "M" terminal and the "BAT" terminal **[B]**.

If the starter turns, the defect is in the solenoid.

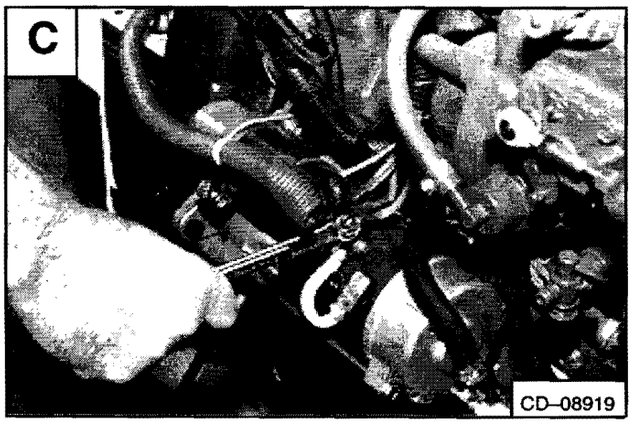
If the starter does not turn, the starter is defective.



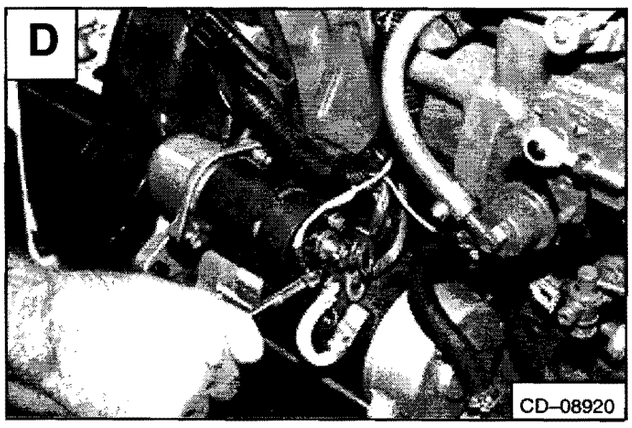

### Removal and Installation

Disconnect the negative (–) cable from the battery.

Disconnect the positive (+) cable from the starter solenoid **[C]**.

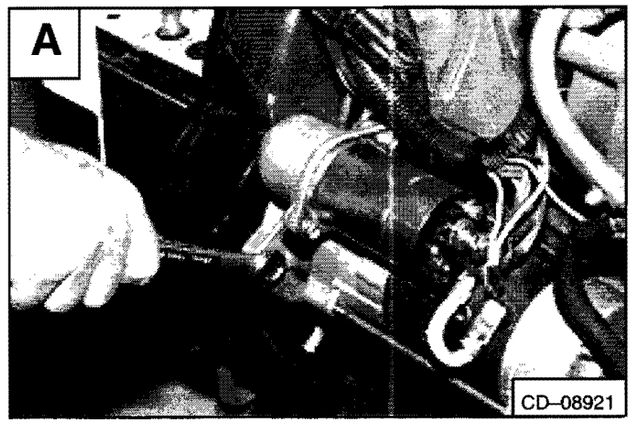



Disconnect all the wires from the starter solenoid **[D]**.

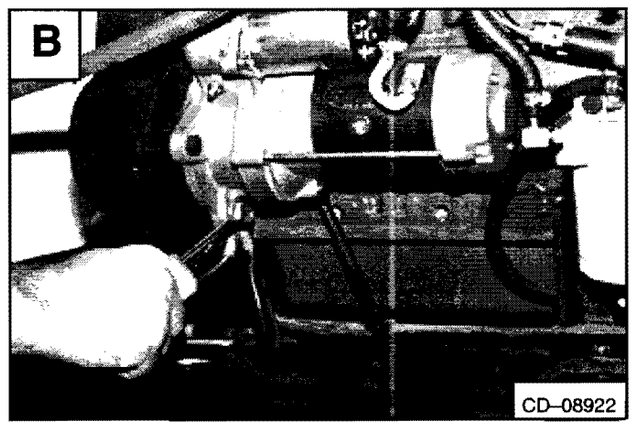


**STARTER (Cont'd)**

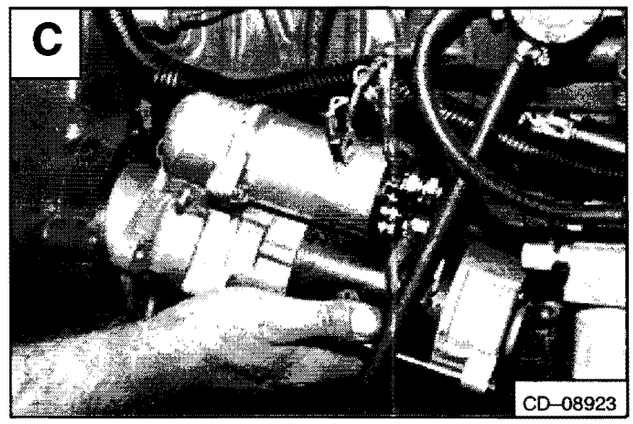
Remove the top and side mounting bolts **[A]**.




Remove the bottom mounting bolt and ground cable **[B]**.

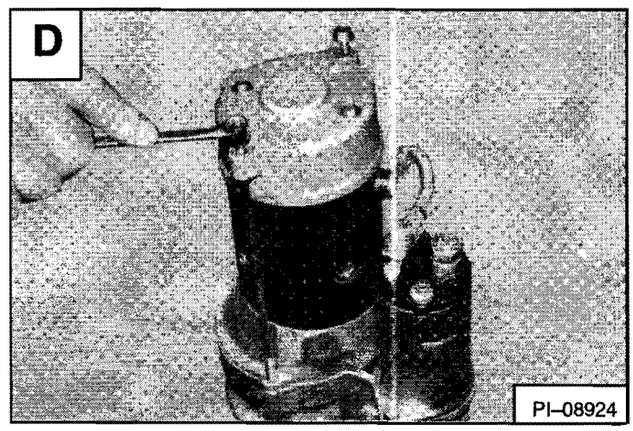



Remove the starter from the engine **[C]**.



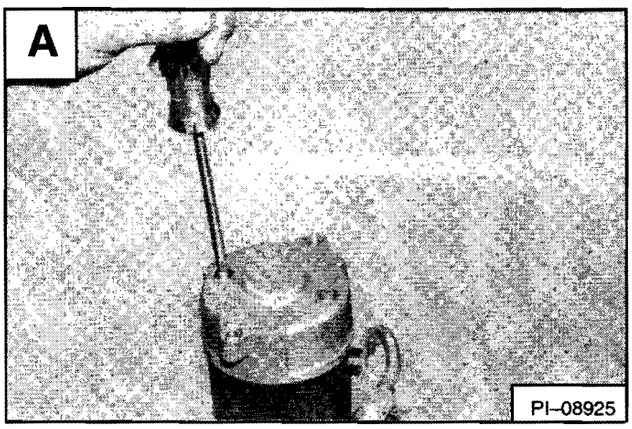

**Disassembly and Assembly**

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

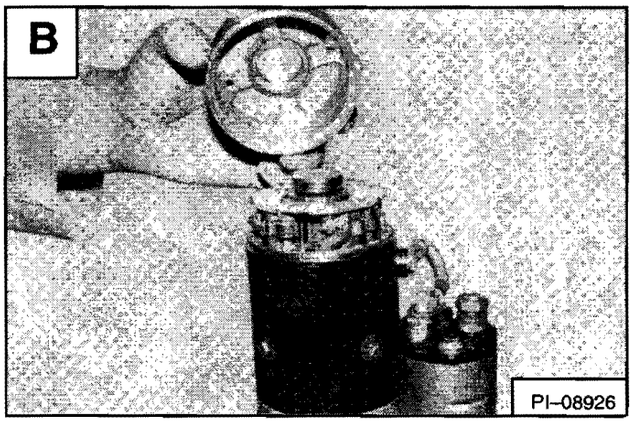


**STARTER (Cont'd)**

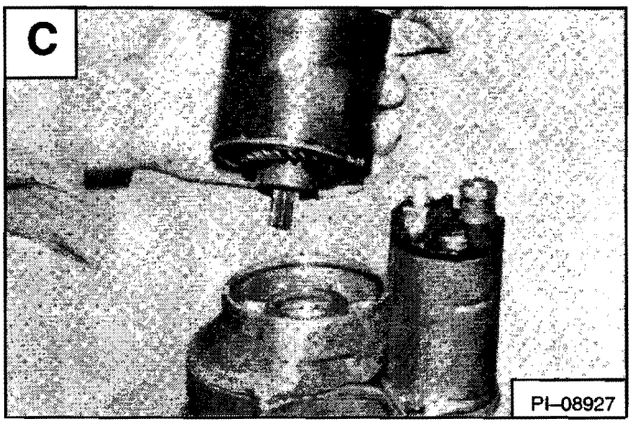
Remove the screws for the brush holders **[A]**.



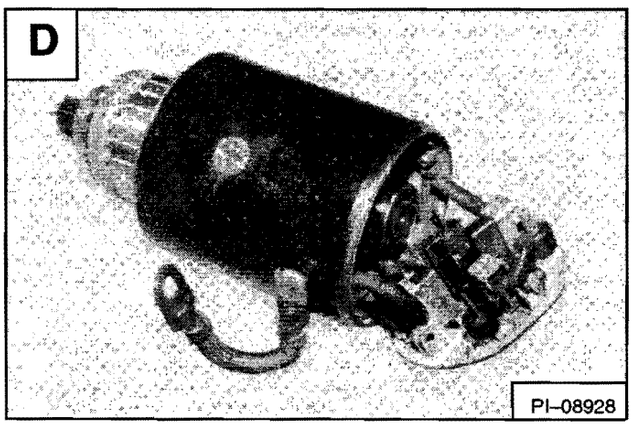

Remove the starter end cap **[B]**.




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

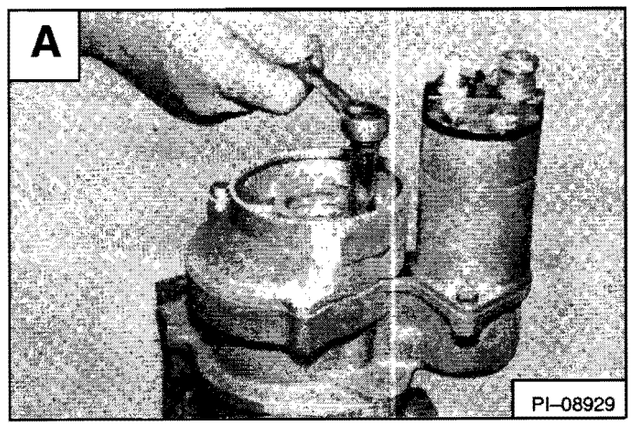



Remove the armature and brushes from the starter housing **[D]**.

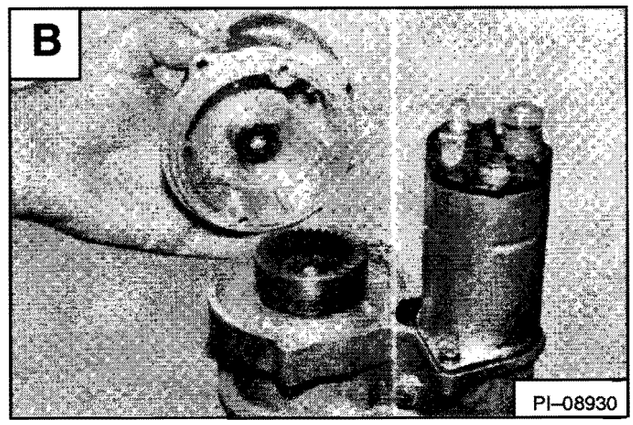


**STARTER (Cont'd)**

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.**

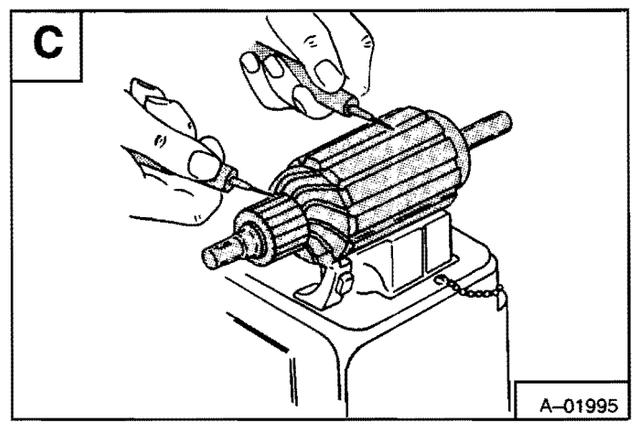
Check the following items:

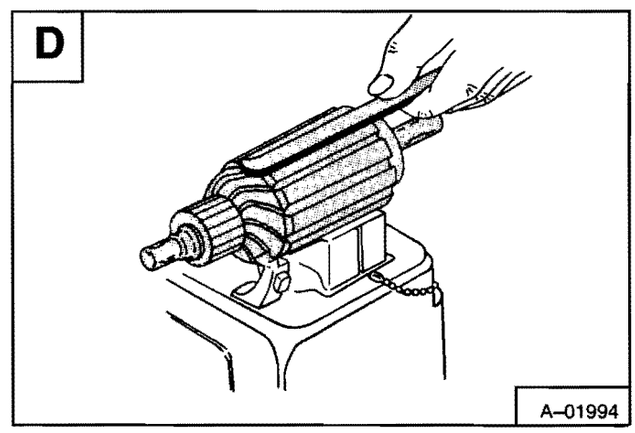
Armature
- Broken or burned insulation
- Loose connections at commutator
- Open or grounded circuits **[C]** & **[D]**.
- Worn shaft or bearings
- Rough commutator

Brush Holders
- Broken springs
- Broken insulation
- Spring Tension

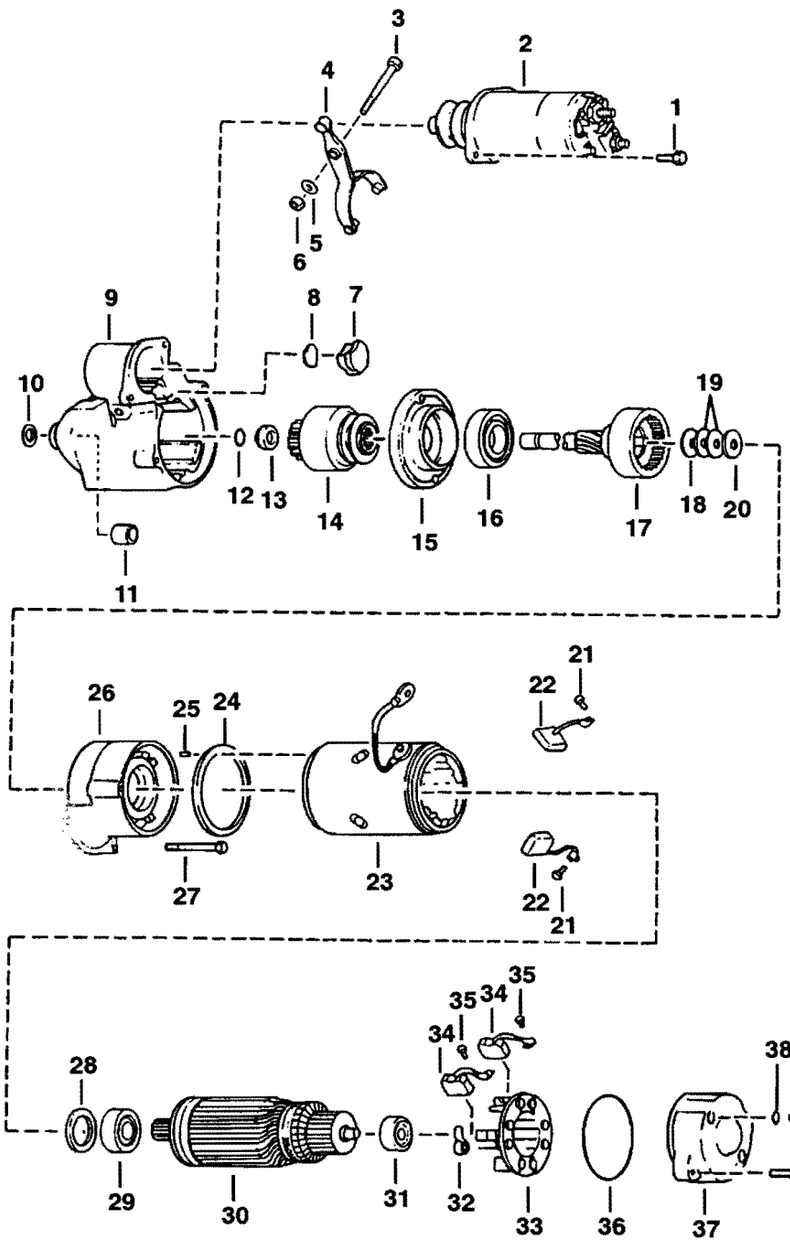
Field Coils
- Broken or burned insulation
- Electrical continuity
- Brush connections

Drive Gears
- Worn Teeth
- Tooth engagement



**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

D–02119

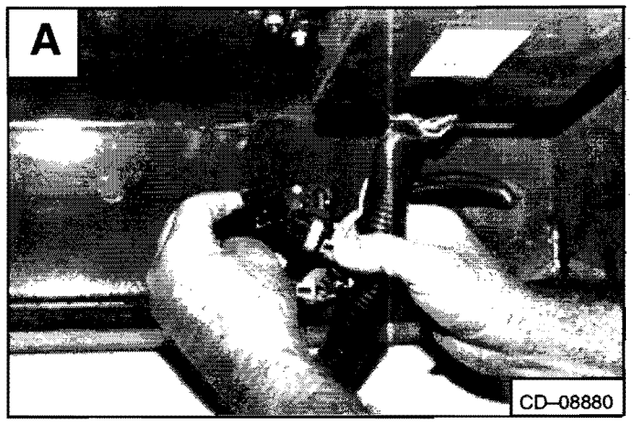
## OPERATING SYSTEM UNIT

### Removal and Installation

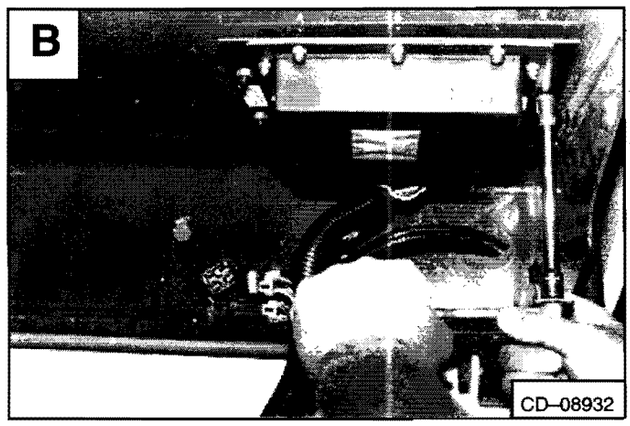
Raise the operator cab (Page 1–5).

Disconnect the negative (–) cable from the battery.

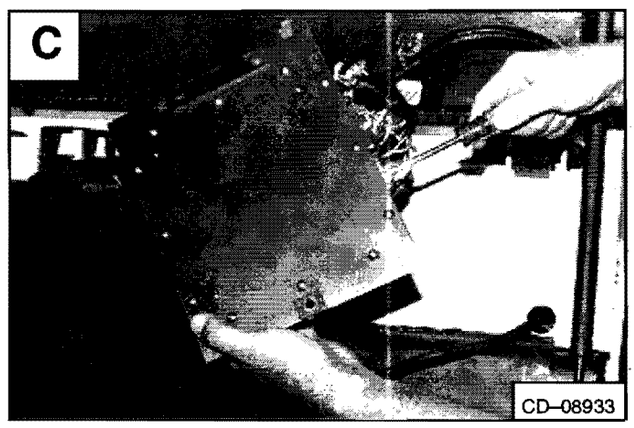
Disconnect the wire harness connectors from the operator cab wiring harness **[A]**.



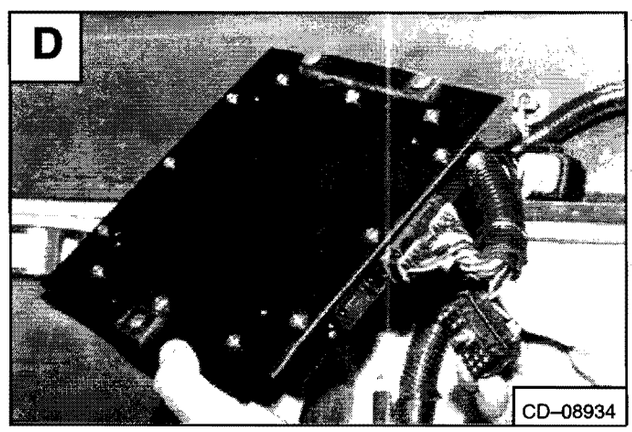

Loosen the mounting bolt **[B]**.




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]**.



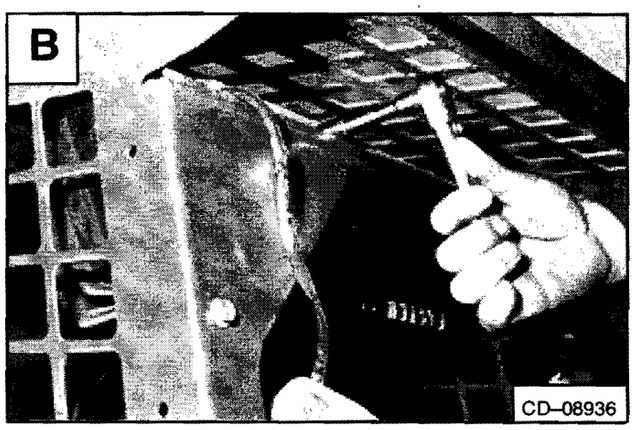
## INSTRUMENT PANEL (S/N 11079 & Above)

### Removal and Installation

Remove the front light from the operator cab (both sides) **[A]**.

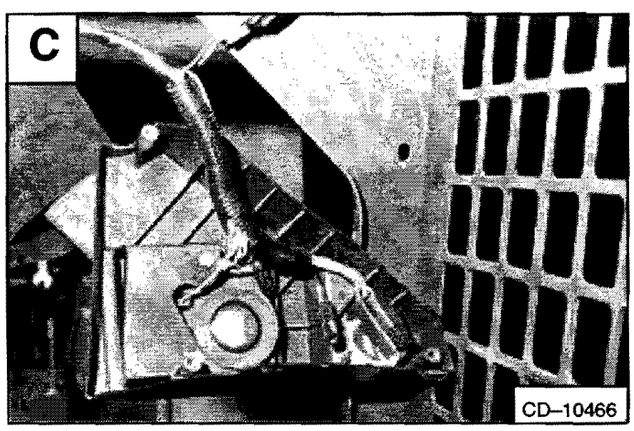



Remove the instrument panel mounting bolts (both sides) **[B]**.



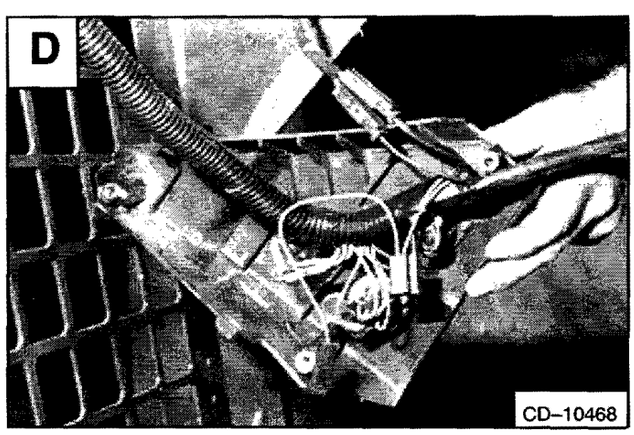

Pull the right side instrument panel down and away from the operator cab **[C]**.

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.



# 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.

## 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**

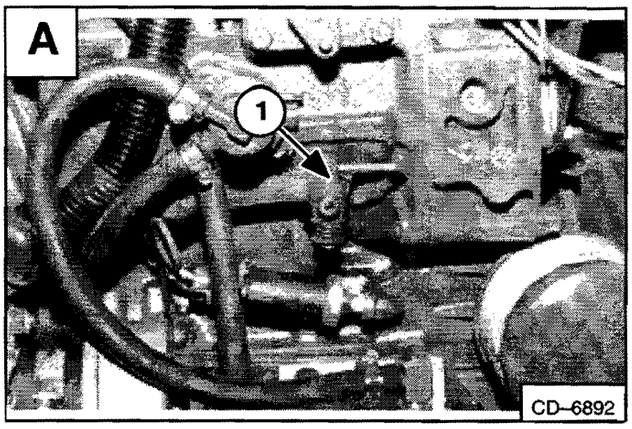
Remove the oil cooler. (See Page 3–1.)

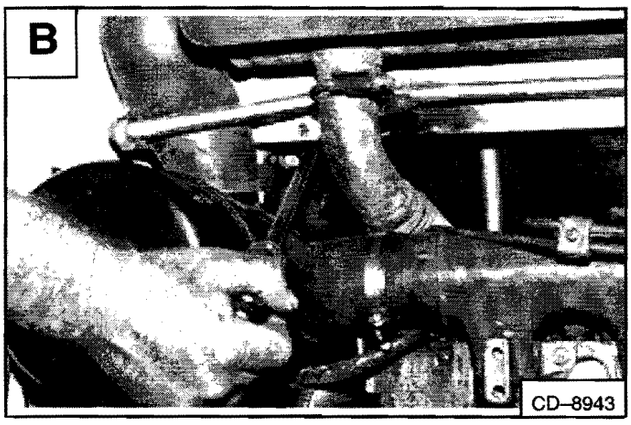
Disconnect the radiator hoses (both sides) **[B]**.

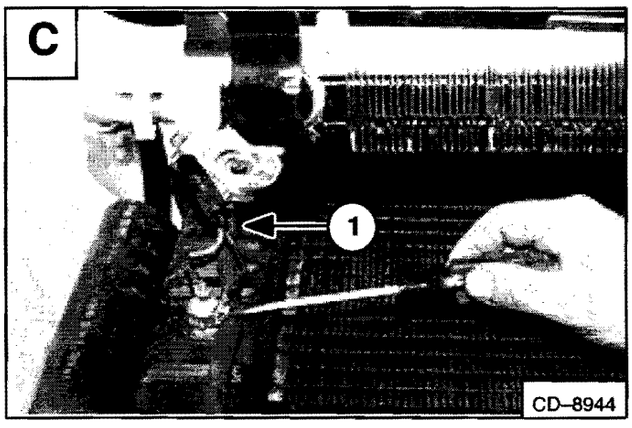
Disconnect the wires from the low water level sender unit **[C]**.

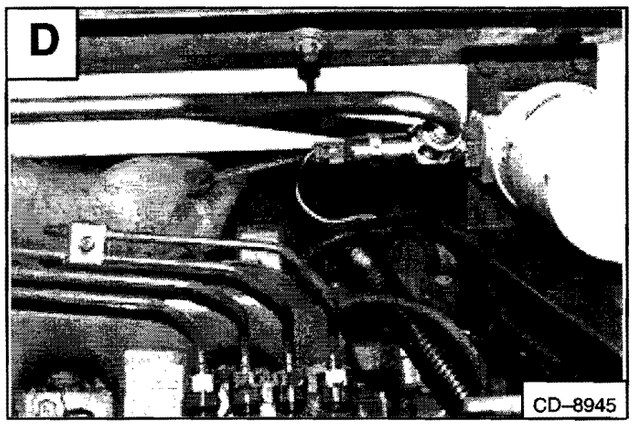
Disconnect the over–flow hose (Item 1) **[C]** from the radiator filler neck.

Remove the radiator mounting bolts (both sides) **[D]**.



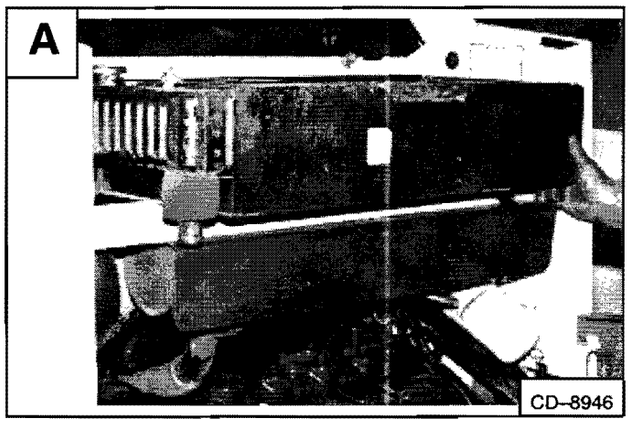



**RADIATOR (Cont'd)**

**Removal and Installation (Cont'd)**

Lift the radiator up and out of the loader frame **[A]**.

Remove the radiator from the loader.

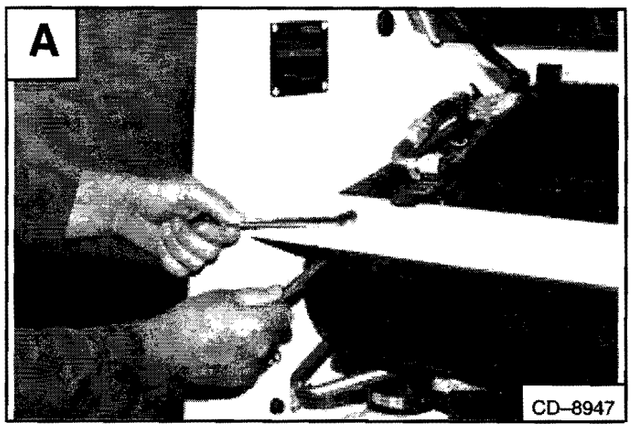


## ENGINE MUFFLER

### Removal and Installation

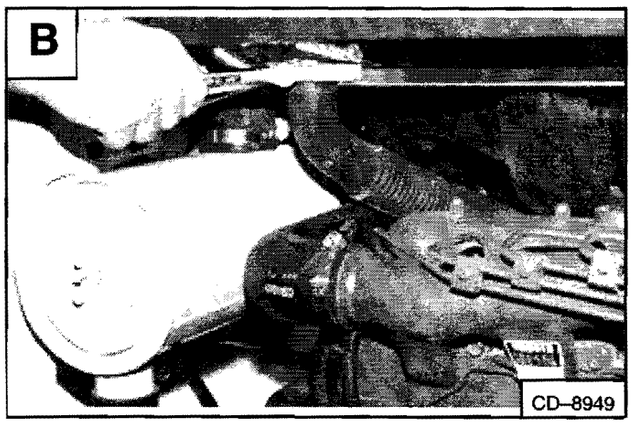
Open the rear door. Raise the rear grill.

Loosen the muffler and shield mounting bolts (both sides) **[A]**.

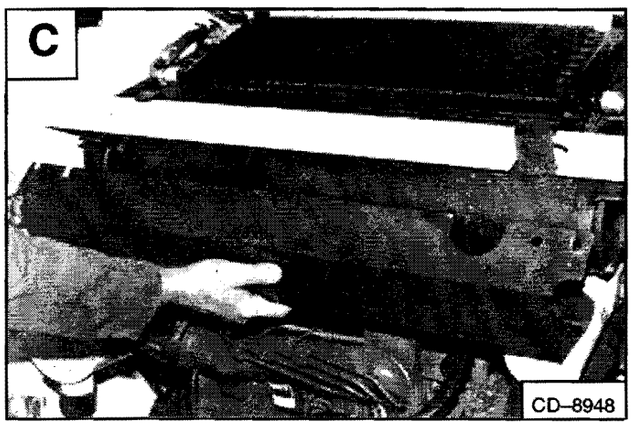



Remove the exhaust pipe clamp **[B]**.

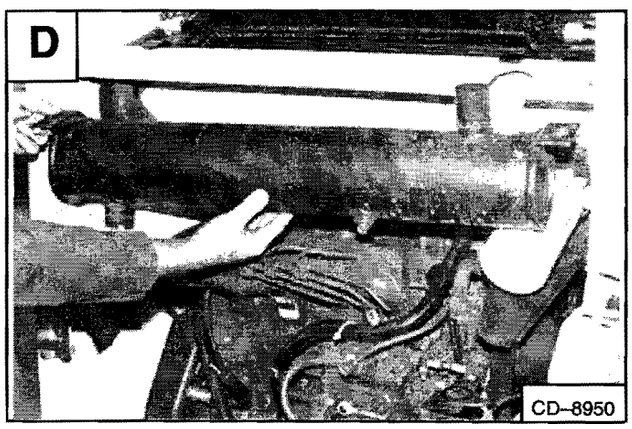
Disconnect the exhaust pipe from the muffler.




Remove the muffler from the shield **[C]**.




Remove the mounting bolts. Remove the muffler from the loader **[D]**.



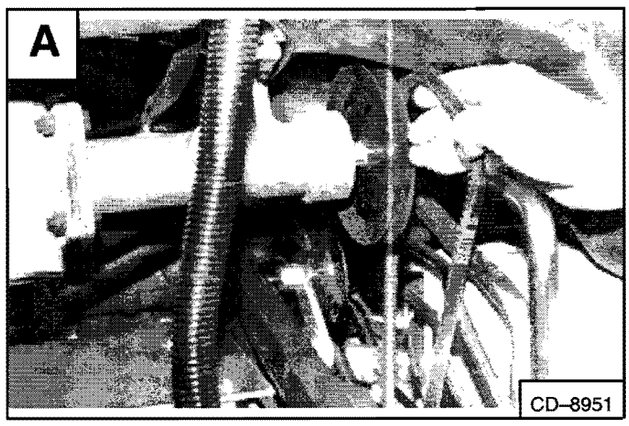
## BLOWER HOUSING/FAN GEARBOX

### Removal and Installation

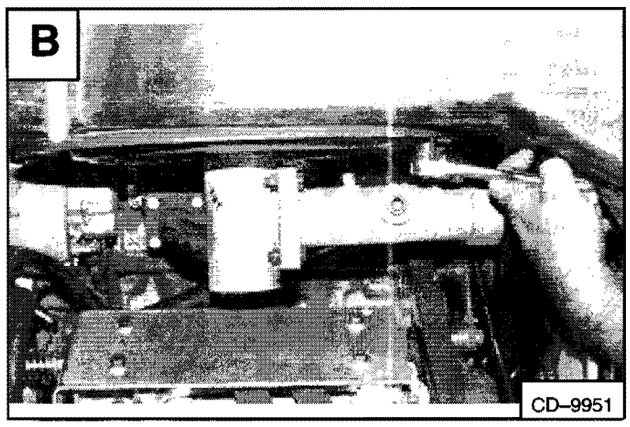
Raise the operator cab. (See Page 1–7.)

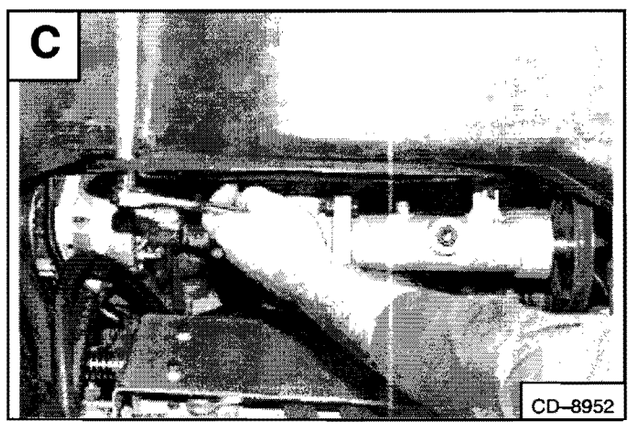
Lift up on the tension pulley and remove the fan drive belt **[A]**.

Remove the hydraulic fluid reservoir. (See Page 2–1.)



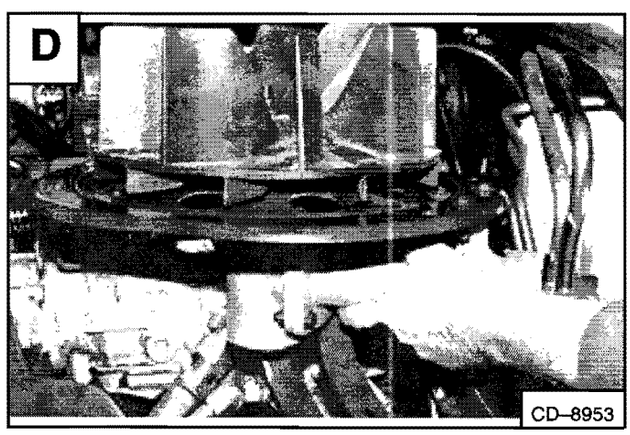

Remove the four mounting bolts from the fan blower housing **[B]** & **[C]**.




Pull the fan/gearbox assembly down and out of the loader frame **[D]**.

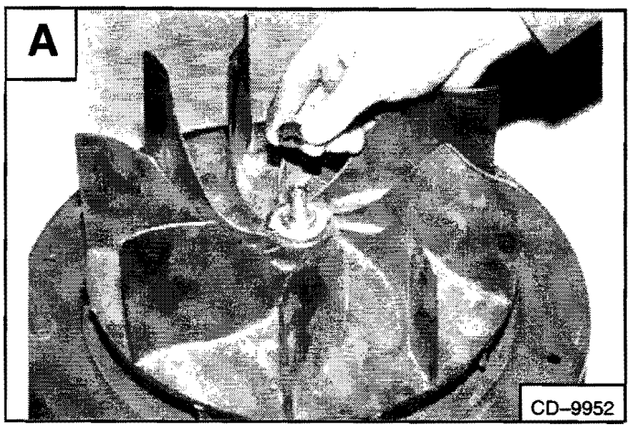
Remove the blower housing from the loader frame.



**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:

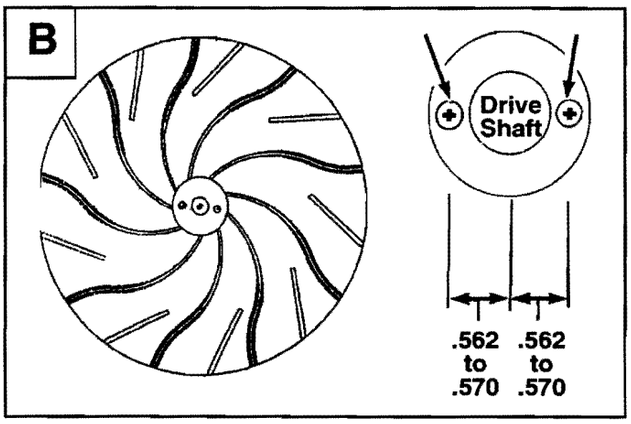
Use a center punch to mark the aluminum bushing in the fan where shown **[B]**.

**⚠ WARNING**

**AVOID INJURY OR DEATH**

**Wear safety goggles to prevent eye injury when drilling or grinding.**

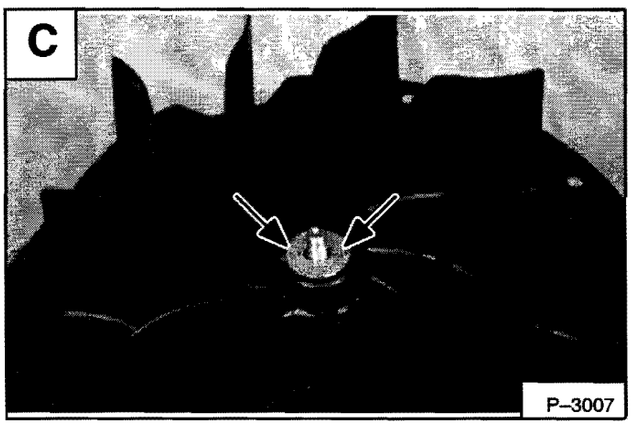
**W–2108–1186**




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]**.

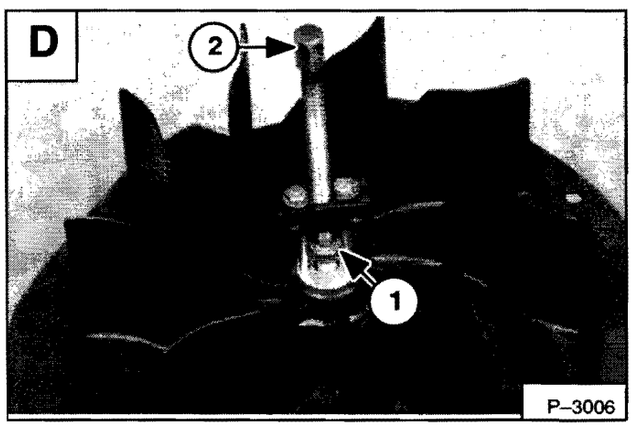
Use a 1/4" NC bottom tap to cut maximum threads in the holes.




Install the nut (Item 1) **[D]** on the tapered shaft to protect the shaft and threads.

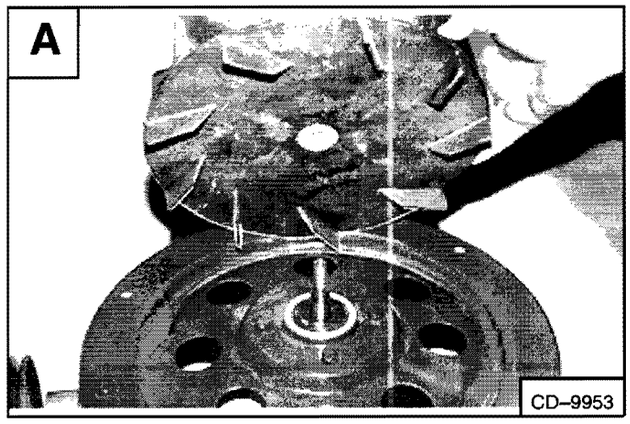
Install the puller on the fan as shown **[D]**.

As the center bolt (Item 2) **[D]** is tightened, periodically strike the bolt head to loosen the fan from the shaft.

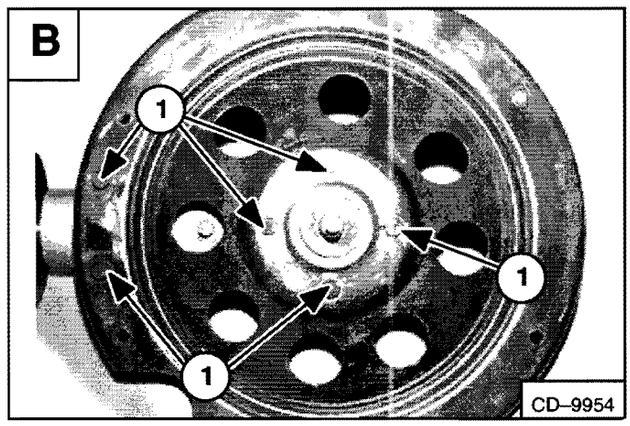


**Removal and Installation (Cont'd)**

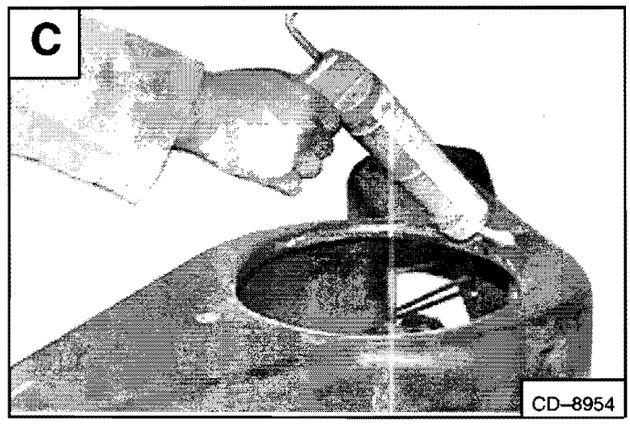
Remove the fan from the tapered shaft **[A]**.




To remove the blower housing mounting plate, remove the six bolts (Item 1) **[B]**.



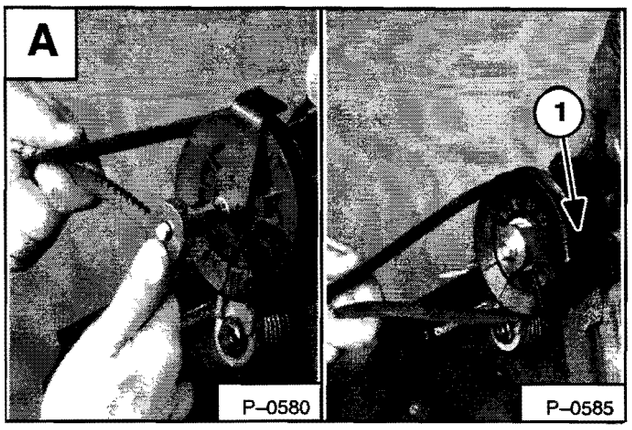

***Installation:*** Clean the surface where the blower housing contacts the loader frame. Put a bead of R.T.V. sealant on the blower housing **[C]**.



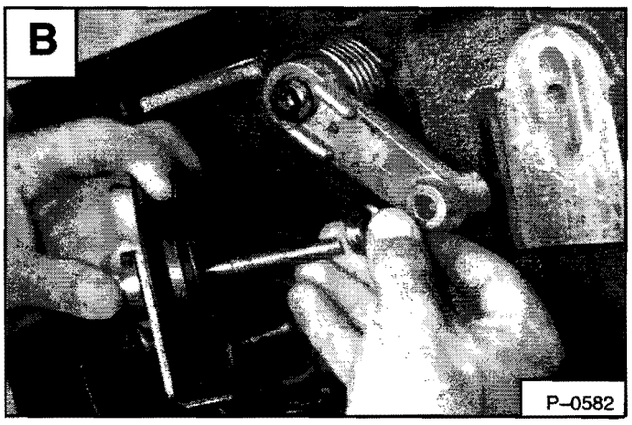
**Tension Pulley Removal and Installation**

Loosen the idler pulley bolt **[A]**.

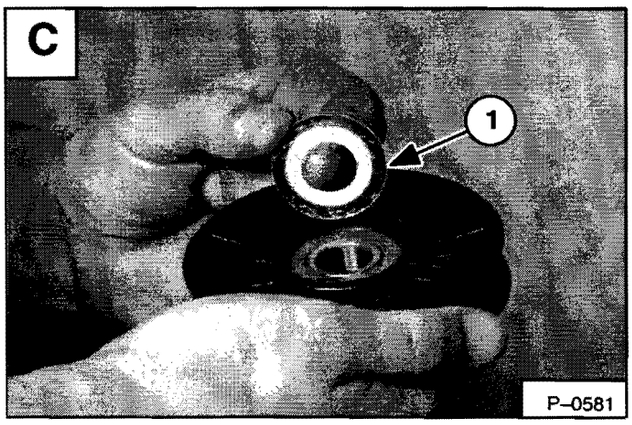
***Installation:*** Install the retainer bracket (Item 1) **[A]** for the fan belt at the three o'clock position.




Remove the spacers, bolt and washer from the arm **[B]**.

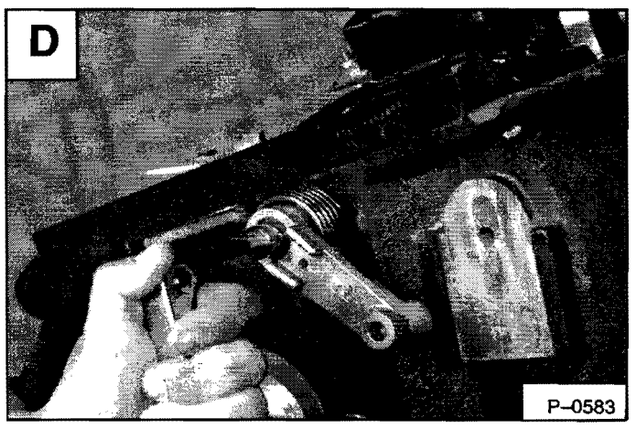



***Installation:*** Put a small amount of grease around the outside edge (Item 1) **[C]** on the grease rings.




Remove the bolt, spring and arm for the idler pulley **[D]**.

Check all parts for damage or worn and replace them as needed.



## 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**

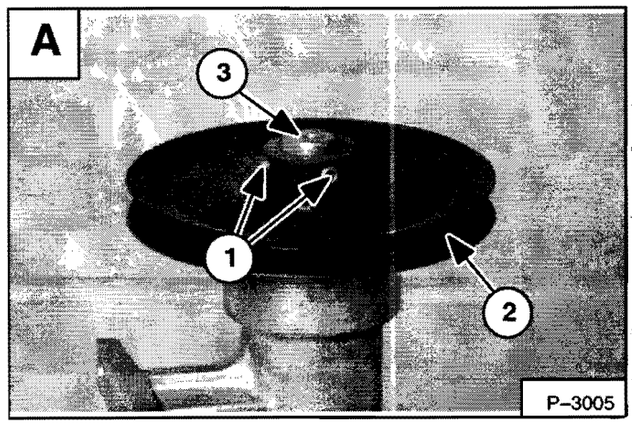
**AVOID INJURY OR DEATH**

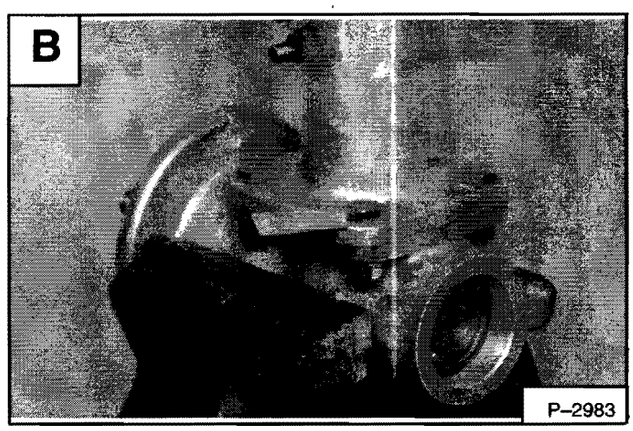
**Wear safety goggles to prevent eye injury when drilling or grinding.**

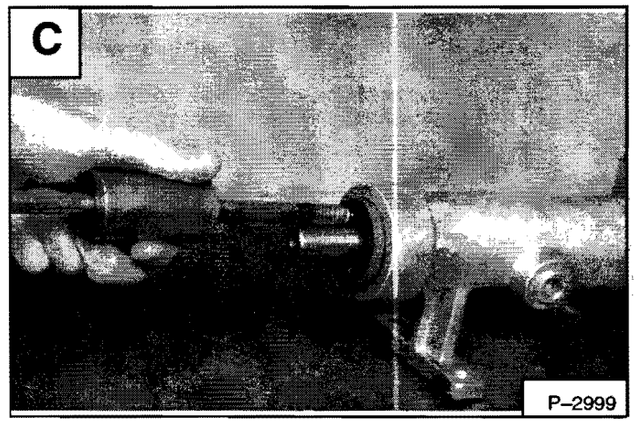
**W–2108–1186**

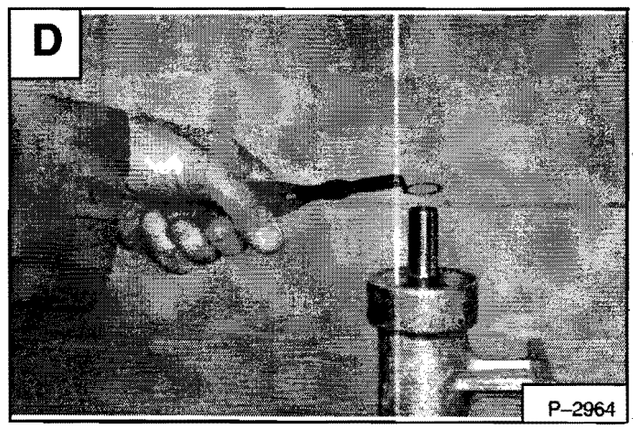
Drill an 1/8 inch (13 mm) hole in the seal. Use a slide hammer tool to remove the seal **[C]**.

Remove the small snap ring **[D]**.



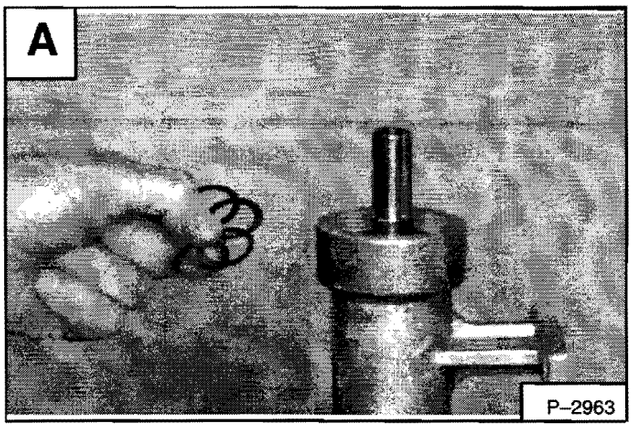



**FAN GEARBOX (Cont'd)**

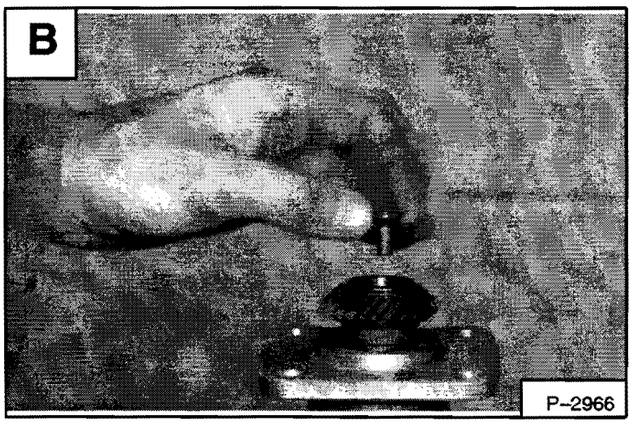
**Disassembly (Cont'd)**

Remove the small shims **[A]**.

**NOTE: Use the same size and thickness of shims during assembly.**

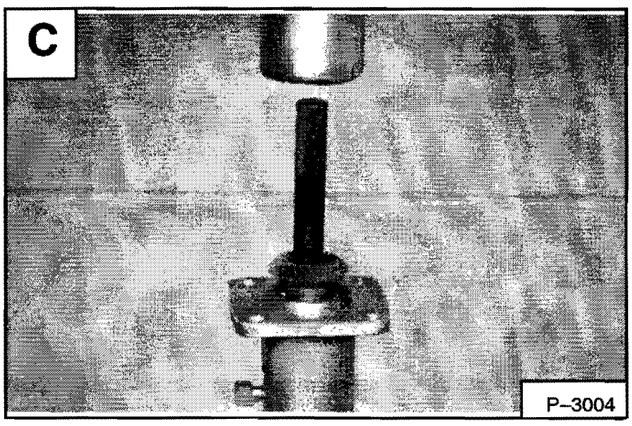



Remove the screw and washer from the shaft **[B]**.

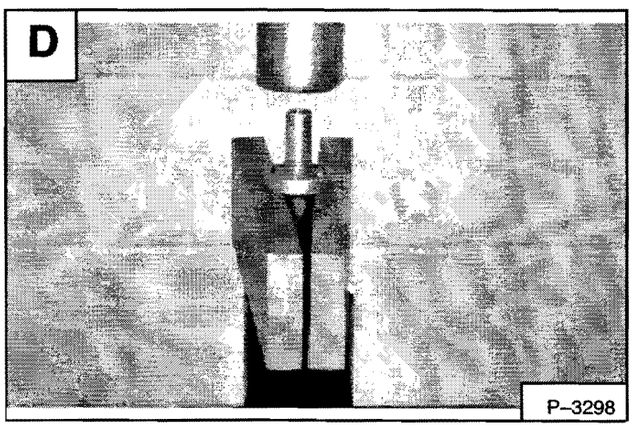



Support the lower flange and press the shaft from the bearing **[C]**.

**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]**.



**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.**

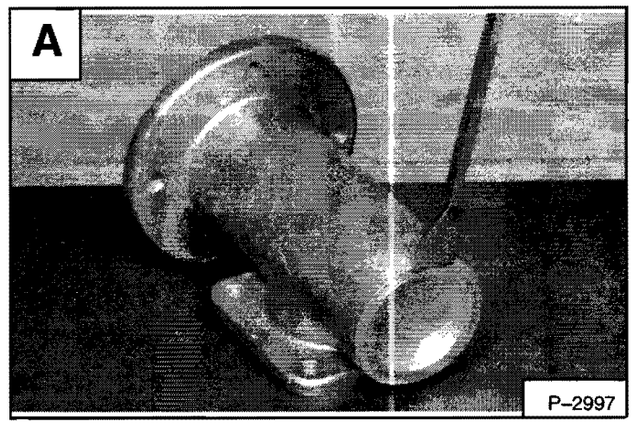
**W-2108-1186**

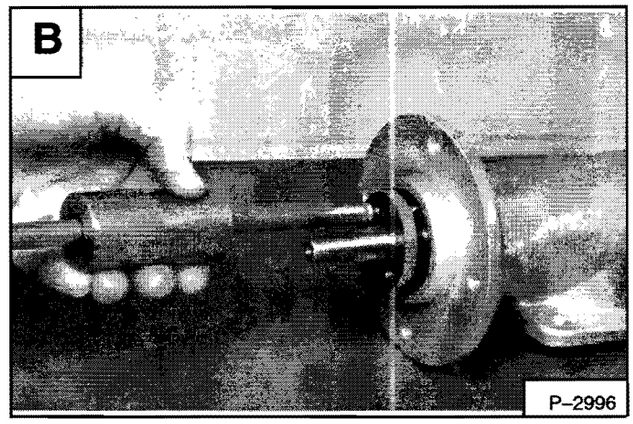
Drill an 1/8 inch (3 mm) hole in the seal. Use a slide hammer tool to remove the seal **[B]**.

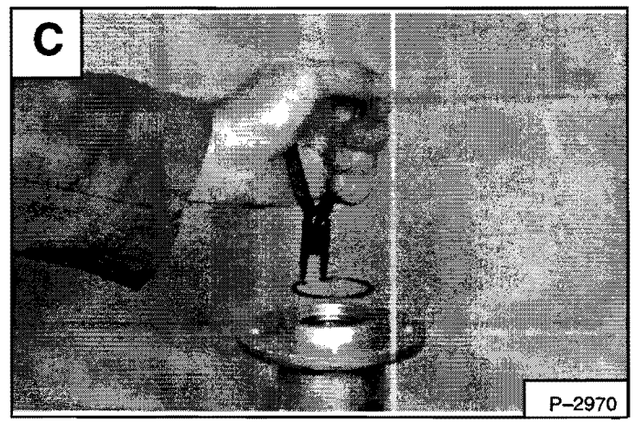
Remove the large snap ring from the flange end of the housing **[C]**.

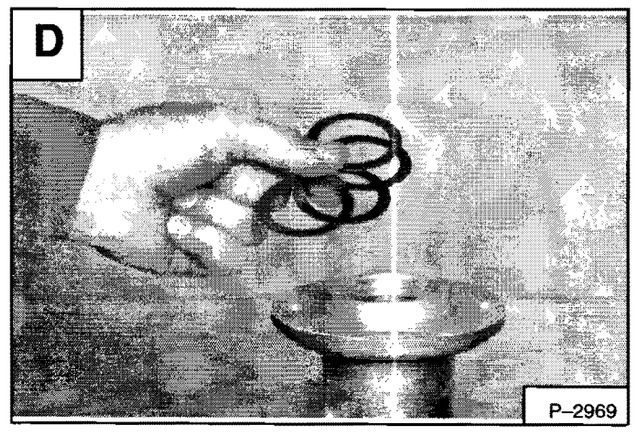
Remove the large shims from the housing **[D]**.

**NOTE: Use the same size and thickness of shims during assembly.**



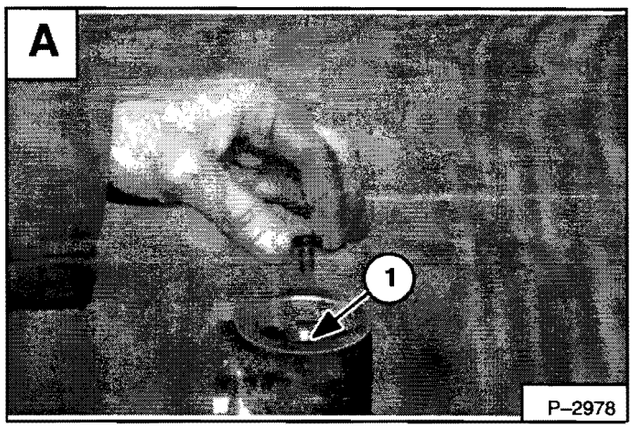



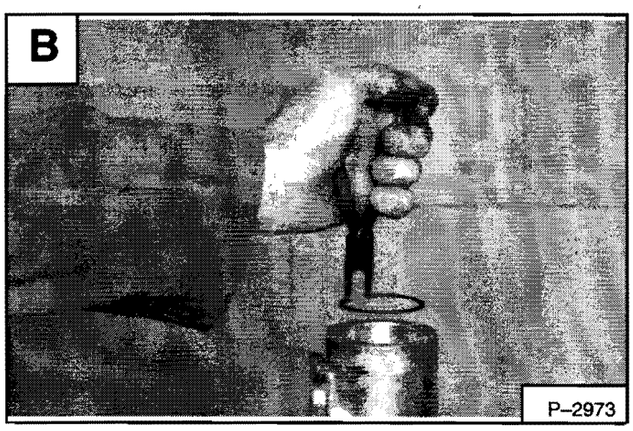
**FAN GEARBOX (Cont'd)**

**Disassembly (Cont'd)**

Remove the screw and washer (Item 1) **[A]** from the shaft.

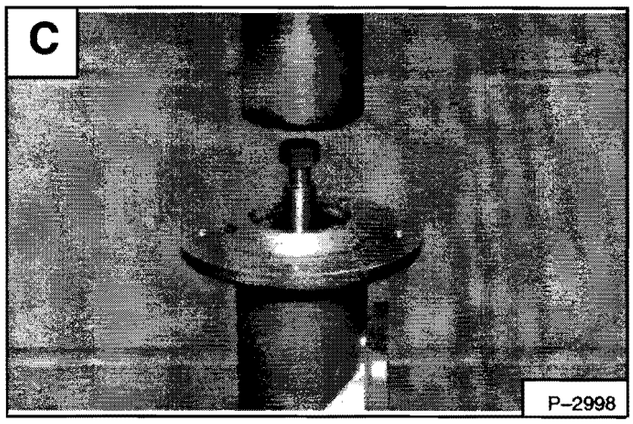



Remove the snap ring from the cap end of the housing **[B]**.

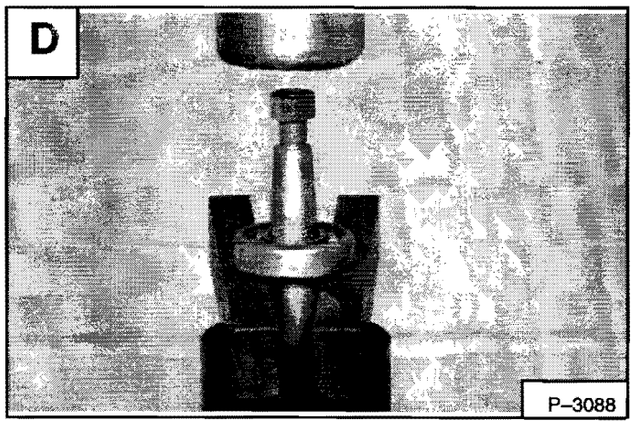



Press the shaft from the housing **[C]**.

**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.**



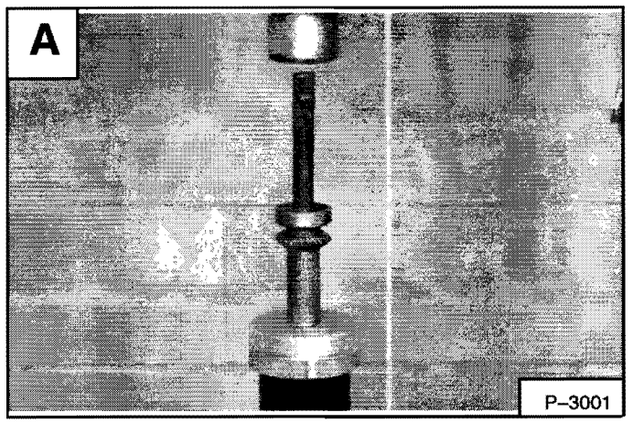

Press the bearing from the tapered end of the shaft **[D]**.



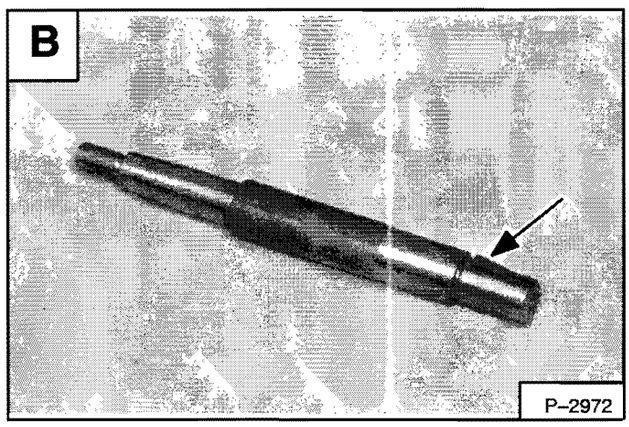
**FAN GEARBOX (Cont'd)**

**Disassembly (Cont'd)**

Press the bearing, shims and gear from the shaft **[A]**.




Remove the key from the shaft **[B]**.



**FAN GEARBOX (Cont'd)**

**Assembly**

**NOTE: See Note Page 7–9 when ordering parts for the Fan Gearbox.**

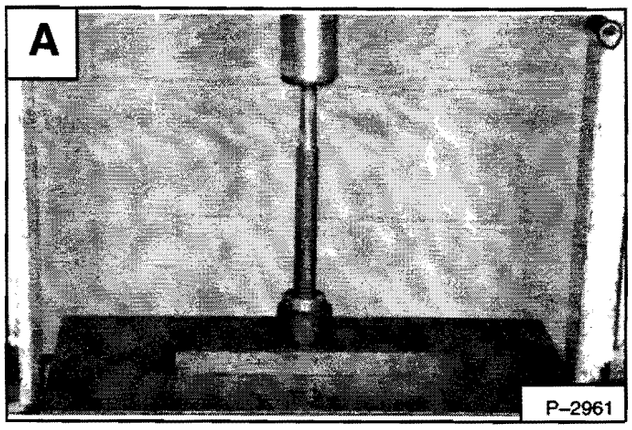
**NOTE: Do not install the seals and cap in the housing until after the backlash has been checked.**

**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.**

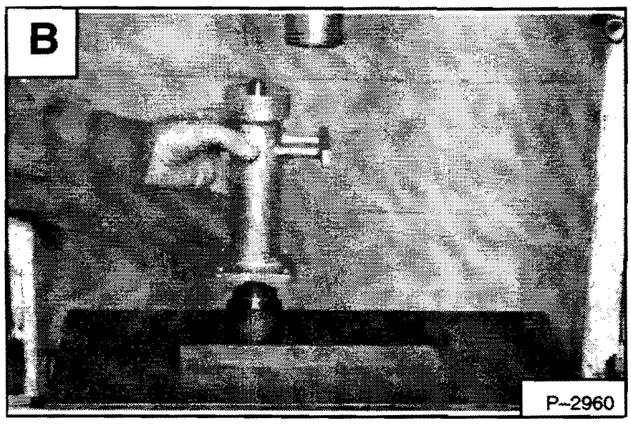
**Long Housing**

Press a bearing on the short keyed end of the long shaft **[A]**.



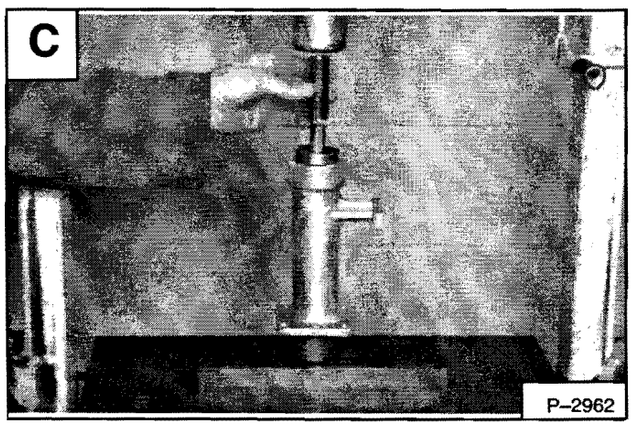

Install the long housing on the shaft **[B]**.

Be sure the bearing is seated in the bore at the lower end of the housing.

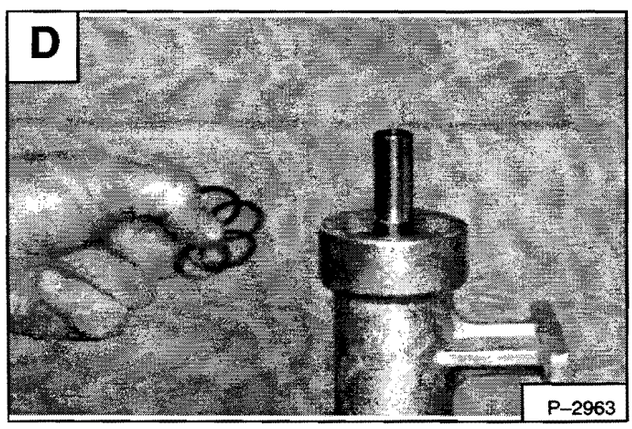



Install a bearing on the long keyed end of the shaft **[C]**.

Support the lower bearing and press the other bearing in the housing until the bearings seat in the housing **[C]**.



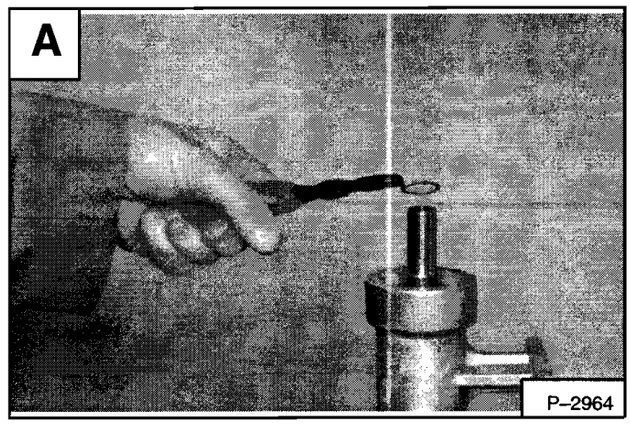

Install on the bearing, the same number and size shims that were removed during disassembly **[D]**.



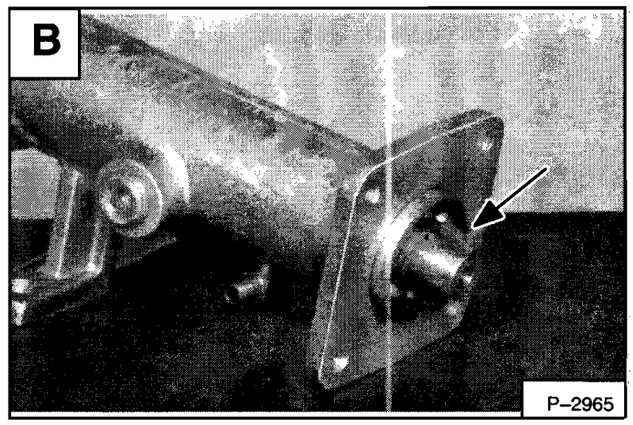
**FAN GEARBOX (Cont'd)**

**Assembly (Cont'd)**

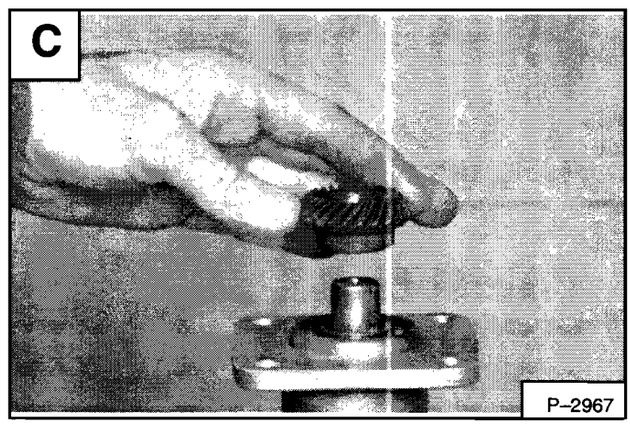
Install the small snap ring in the groove above the shims **[A]**.




Install the gear key in the flange end of the shaft **[B]**.

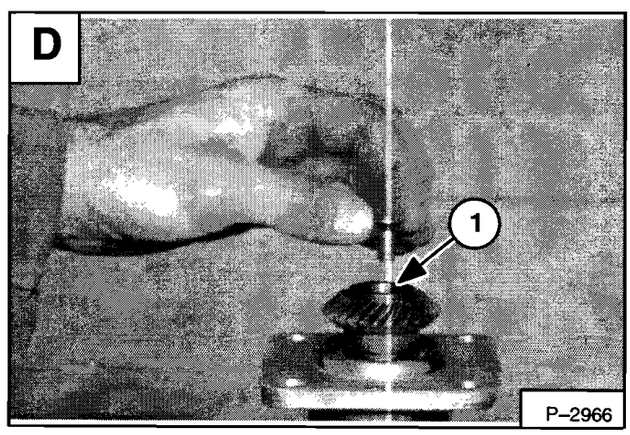



Align the key and gear. While supporting the bearing on the other end, press the gear on the shaft until it seats against the bearing **[C]**.




Install the washer (Item 1) **[D]**.

Put liquid adhesive (LOCTITE 242) on the screw threads. Install and tighten the screw **[D]**.

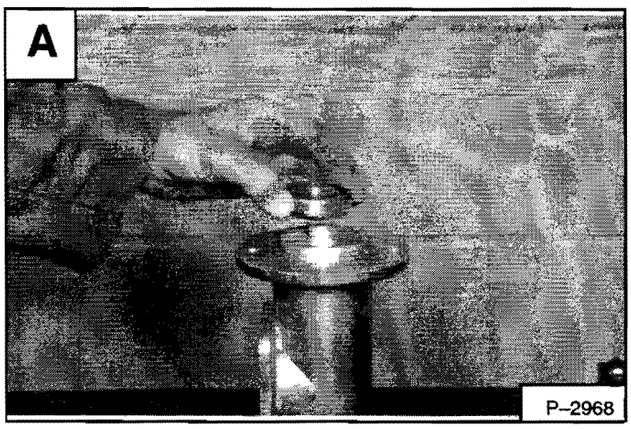


**FAN GEARBOX (Cont'd)**

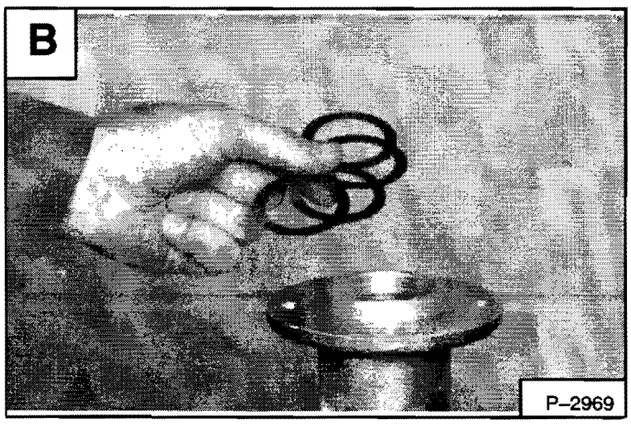
**Assembly (Cont'd)**

**Short Housing**

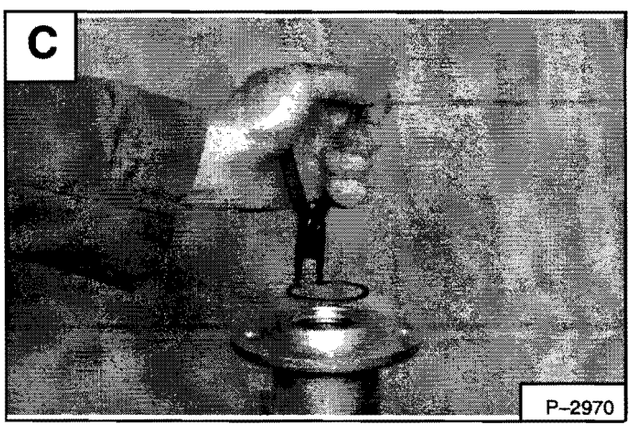
Install a bearing in the flanged end of the housing **[A]**.




Install the large shims on the bearing (flanged end) **[B]**.

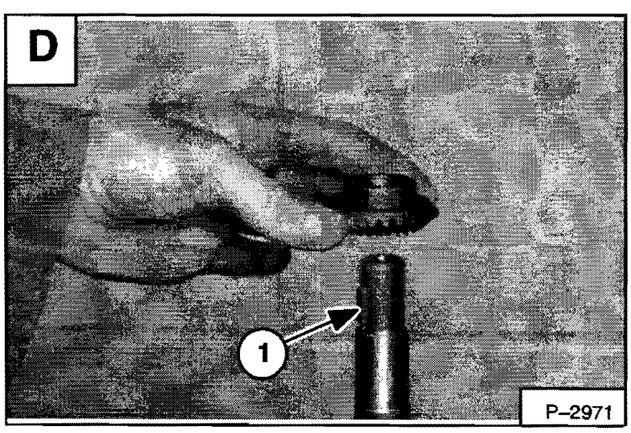



Install the large snap ring in the groove above the shims **[C]**.




Install the short key (Item 1) **[D]**.

Align and press the gear on the shaft (teeth toward the tapered end of the shaft) **[D]**.

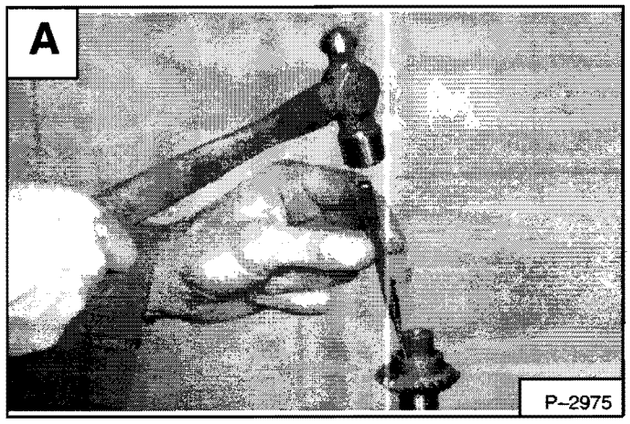


**FAN GEARBOX (Cont'd)**

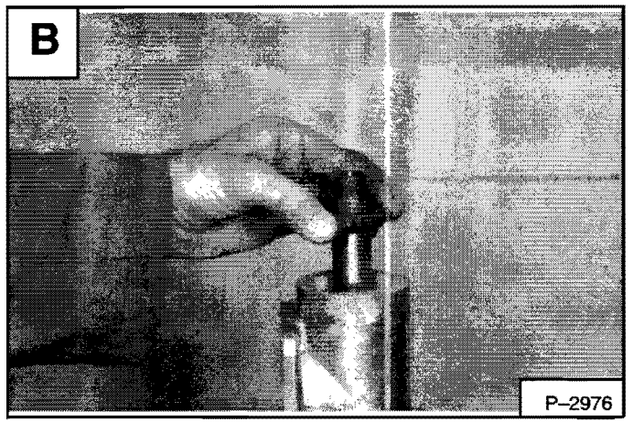
**Assembly (Cont'd)**

After the gear is seated, drive the key down inside the gear key way **[A]**.

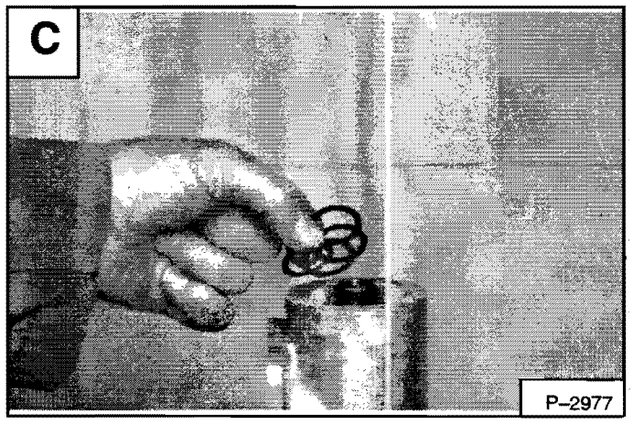
**NOTE: This will prevent damage to the shims when the bearing is installed later.**



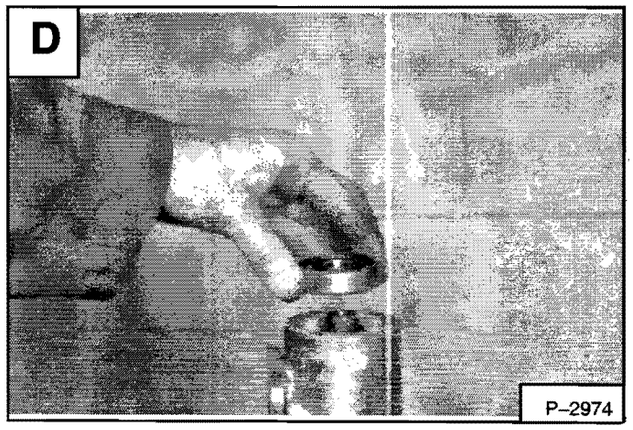

Install the shaft in the housing, tapered end in the bearing at the round flange end of the housing **[B]**.




Install on the shaft, the same number and size shims that were removed during disassembly **[C]**.



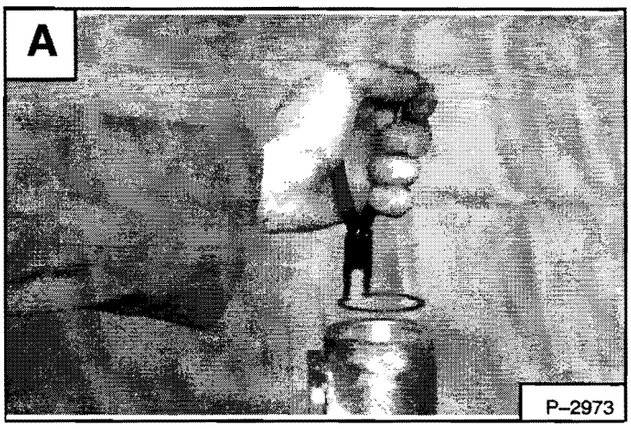

Install a bearing on the gear end of the shaft **[D]**.



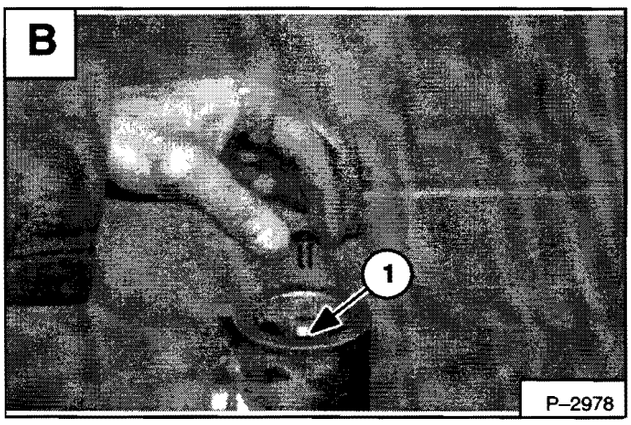
**FAN GEARBOX (Cont'd)**

**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]**.



**FAN GEARBOX (Cont'd)**

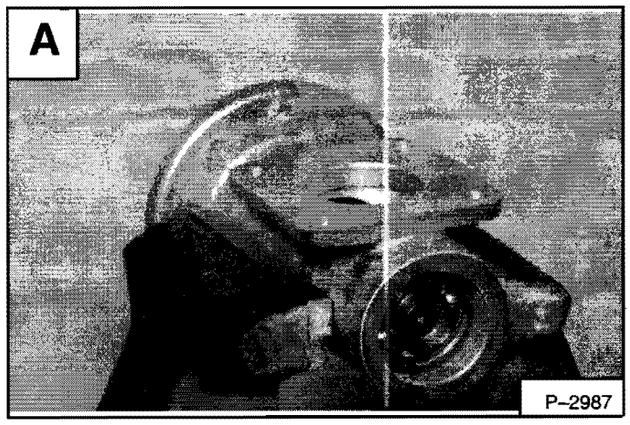
**Checking Backlash**

**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:

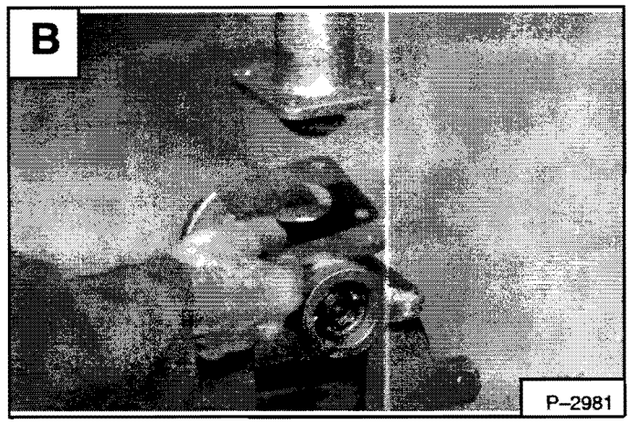
Put the short housing in a vise, square flange facing up as shown **[A]**.




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.

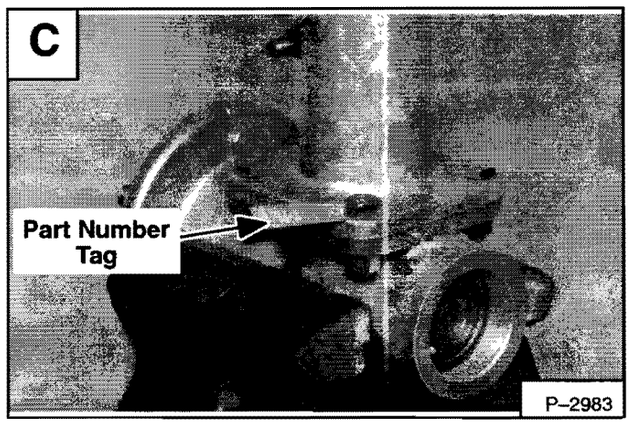
**NOTE: If square shims are used, put a small amount of the liquid adhesive on both sides of all shims.**




Install the four mounting bolts through the flange holes **[C]**.

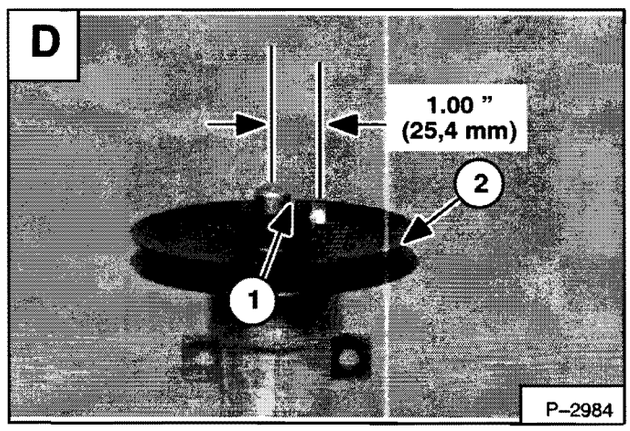
Install the part number tag **[C]**.

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]**.

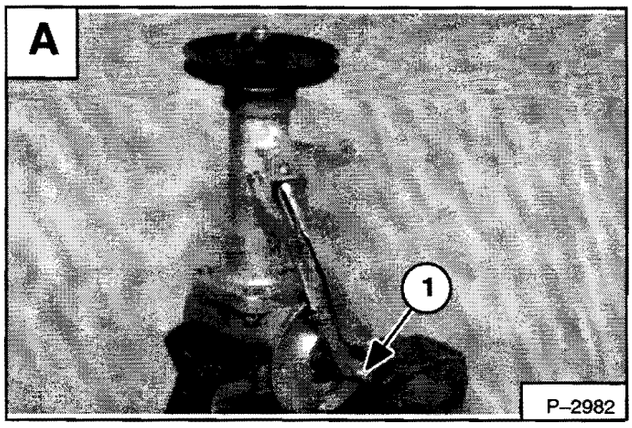


**FAN GEARBOX (Cont'd)**

**Checking Backlash (Cont'd)**

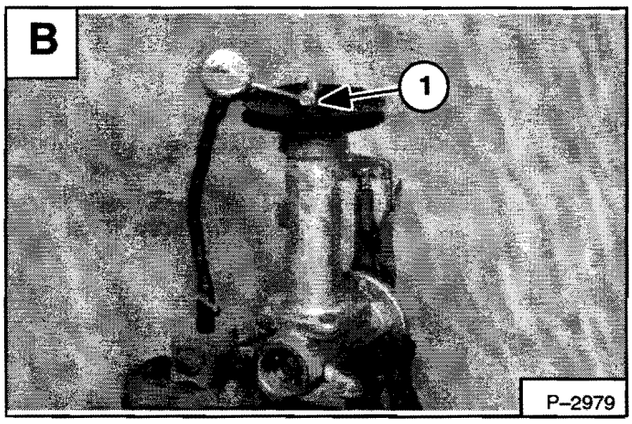
Put the fan nut (Item 1) **[A]** on the shaft and tighten snugly.

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.

**FAN GEARBOX (Cont'd)**

**Checking Backlash (Cont'd)**

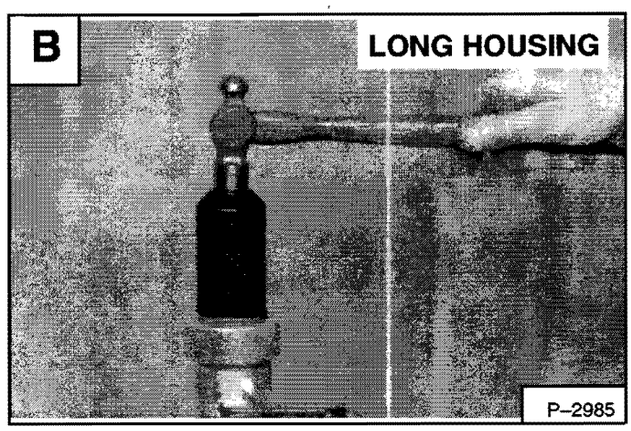
When the backlash is correct, install the seals, cap and gear oil as follows:

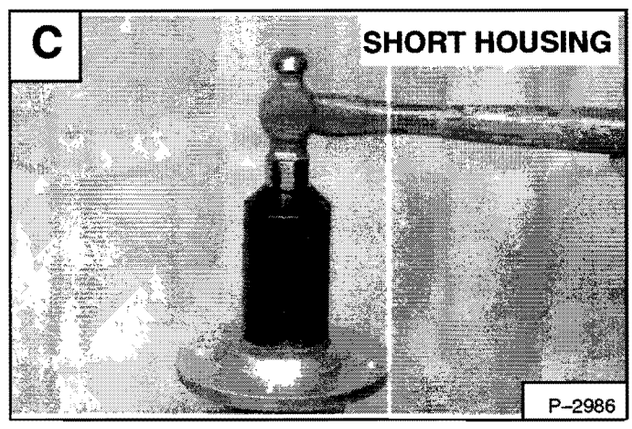
Remove the bolts from the flanges and separate the two housings.

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]**.



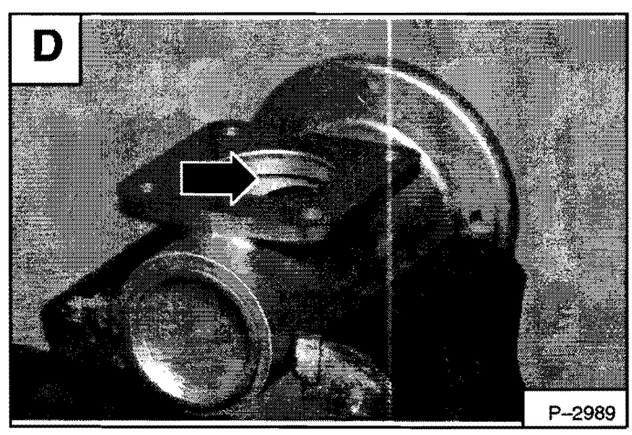

Add SAE 90 gear oil in the short housing to about 1/2" (12 mm) below the flange surface **[D]**.

Clean any oil from the flange surface.

Install the long housing on the short housing flange.

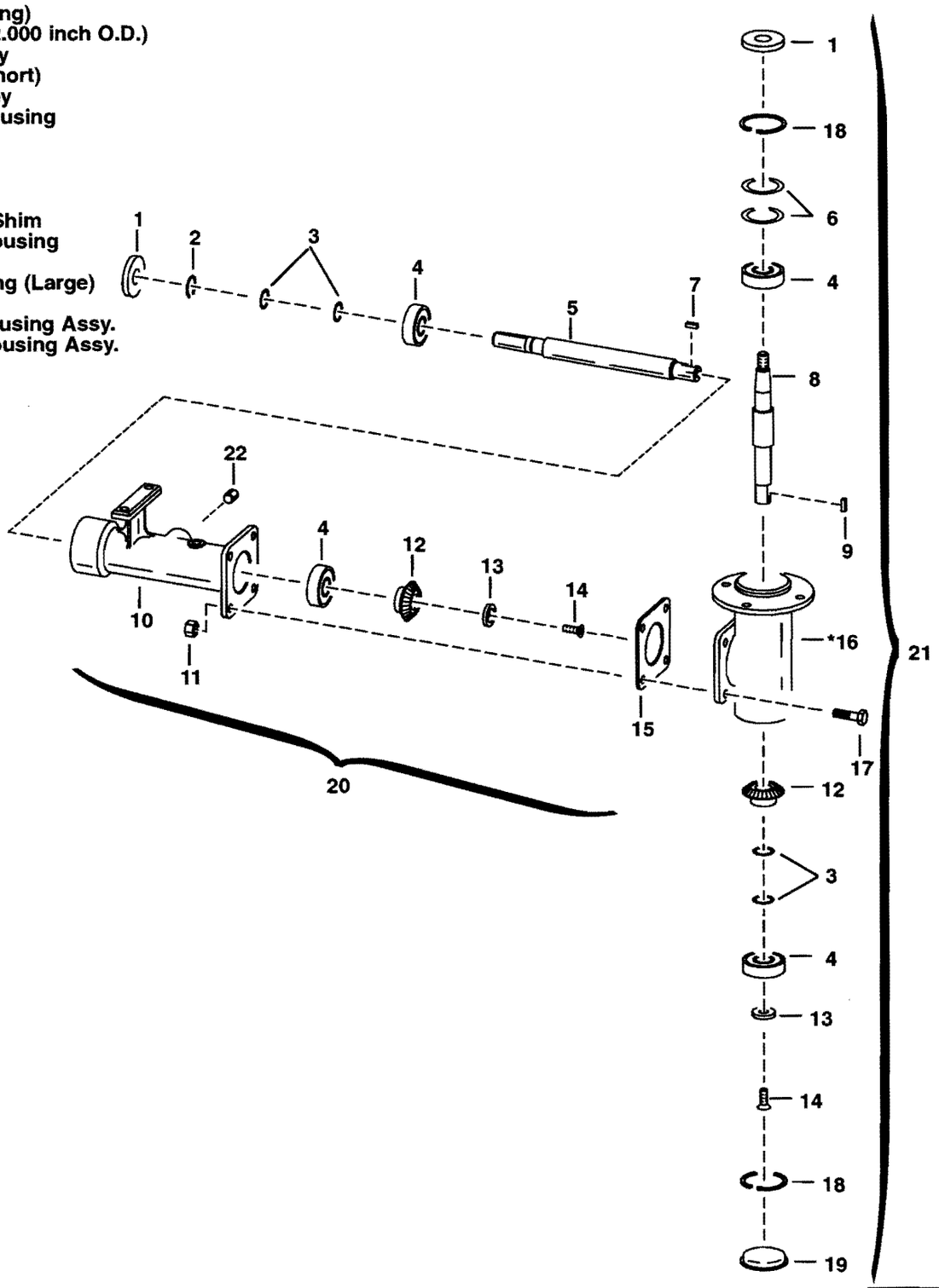
Install the four bolts and part number tag.

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



**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).

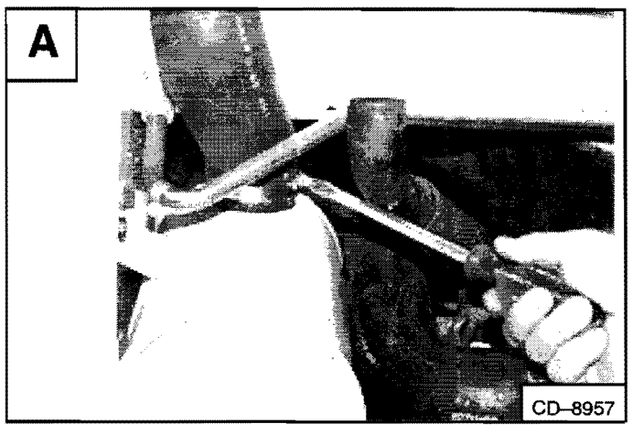
TS–1002

## AIR CLEANER

### Removal and Installation

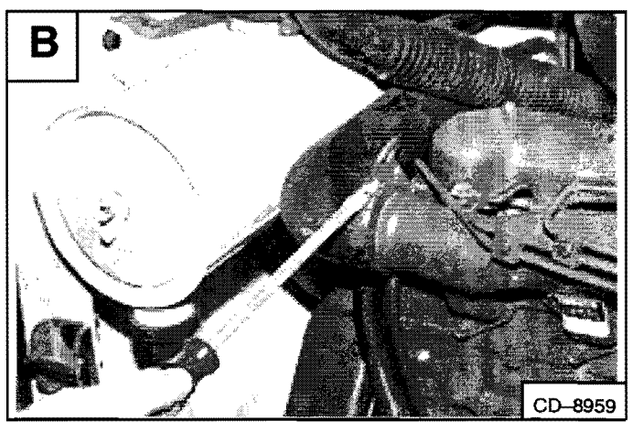
Remove the muffler. (See Page 7–6.)

Remove the hose clamp from the air cleaner intake hose **[A]**.



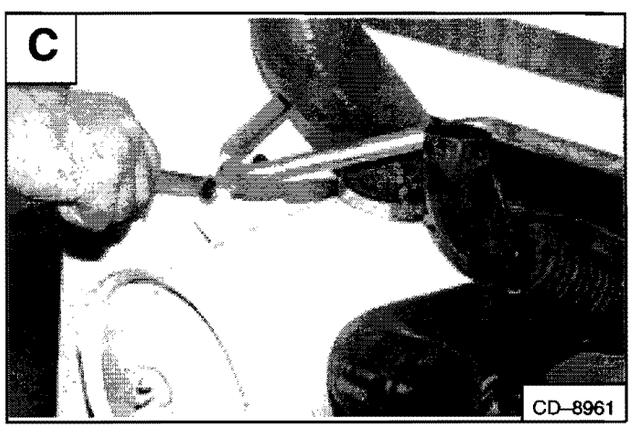

Loosen the hose clamp on the intake hose **[B]**.

Disconnect the hose from the manifold.



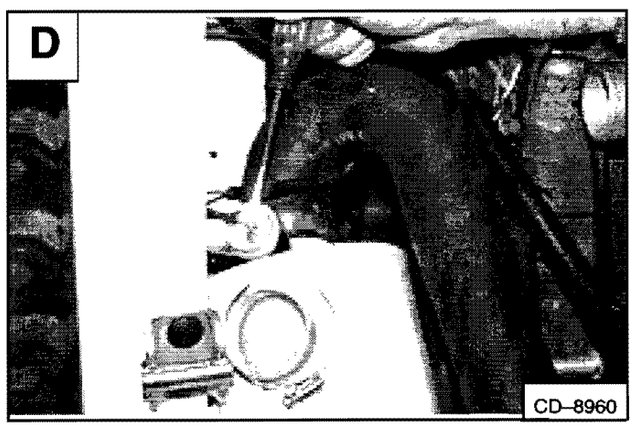

Remove the air cleaner housing mounting bolts **[C]**.

***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.

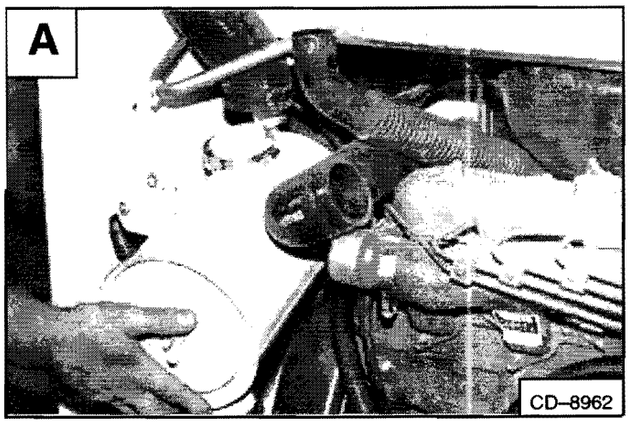
Disconnect the wires from the sender unit **[D]**.



**AIR CLEANER**

**Removal and Installation (Cont'd)**

Remove the air cleaner housing assembly from the loader **[A]**.



## 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.)

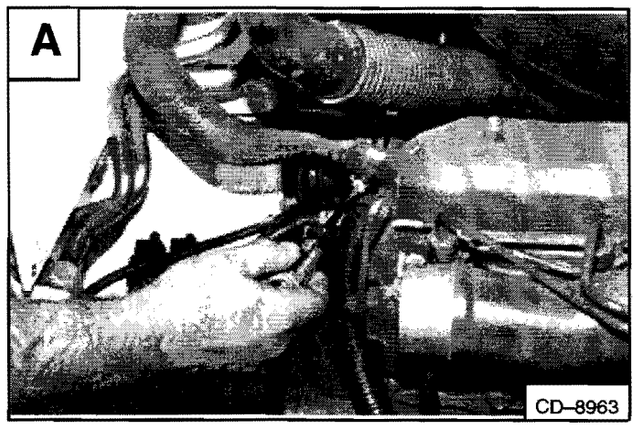
Remove the battery. (See Page 6–1.)

Remove the muffler. (See Page 7–6.)

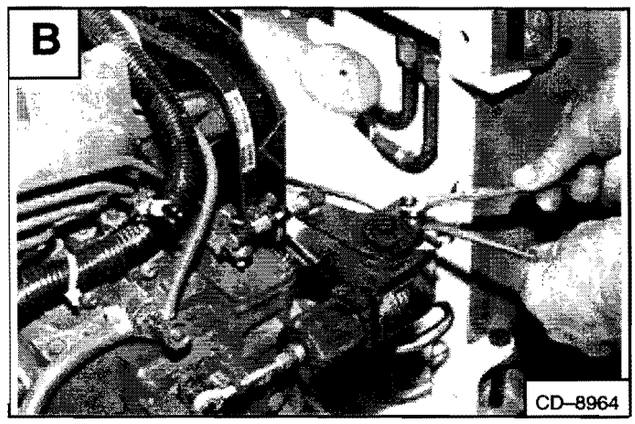
Remove the air cleaner. (See Page 7–10.)

Remove the coolant from the cooling system.

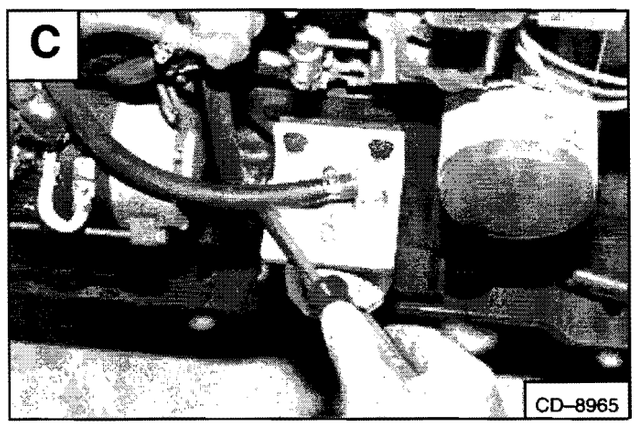
Disconnect the radiator hose from the engine (both sides) **[A]**.



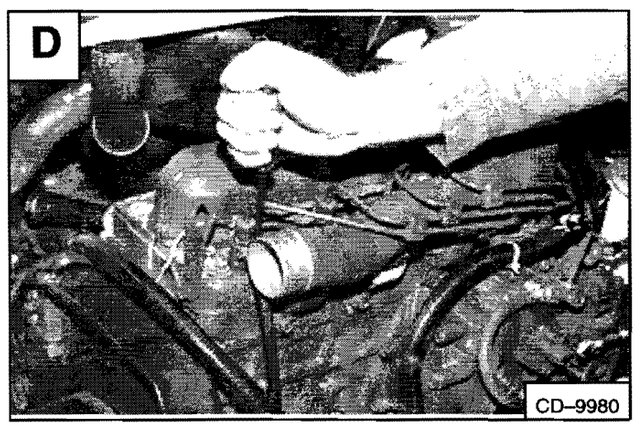

Disconnect the throttle linkage **[B]**.




Disconnect the fuel hose from the fuel filter **[C]**.



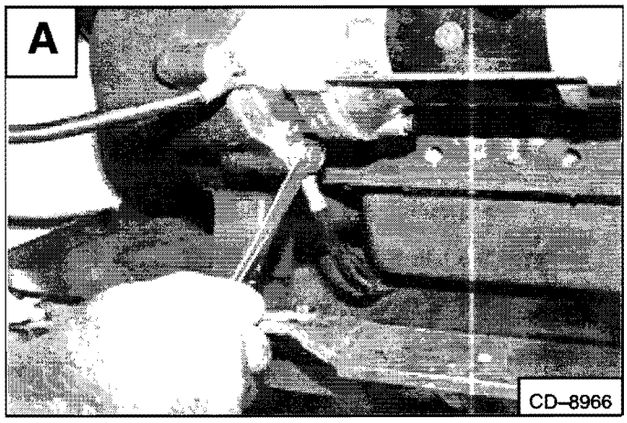

Disconnect the fuel return hose **[D]**.



**ENGINE (Cont'd)**

**Removal and Installation (Cont'd)**

Disconnect the ground cable from the start mounting bolt **[A]**.



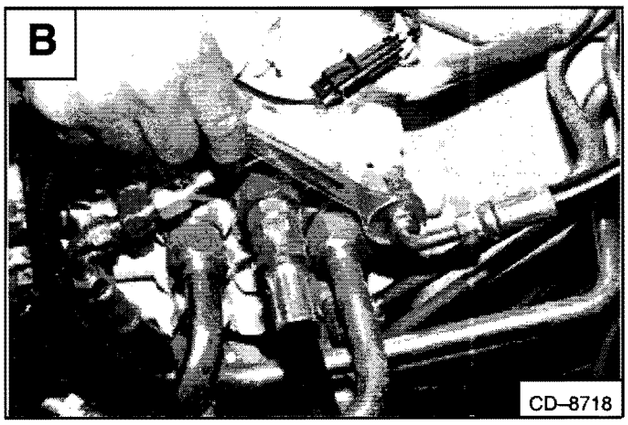

**IMPORTANT**

**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.**

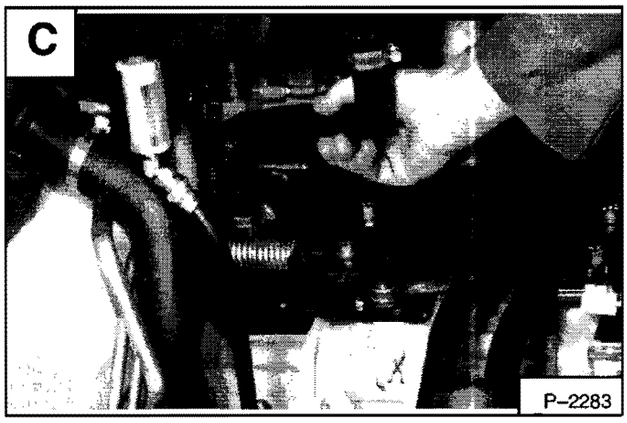
**I–2003–0284**

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]**.



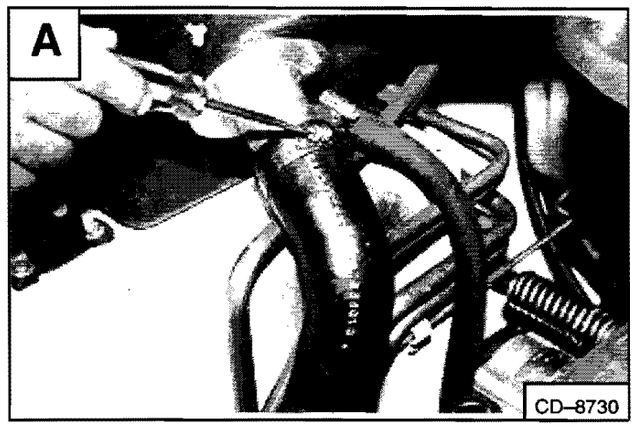

Disconnect the outlet high pressure tubeline **[D]**.



**ENGINE (Cont'd)**

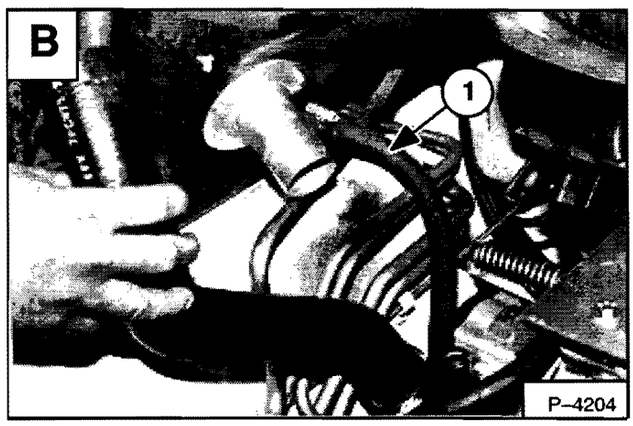
**Removal and Installation (Cont'd)**

Loosen the hose clamps on the fuel tank fill hose **[A]**.



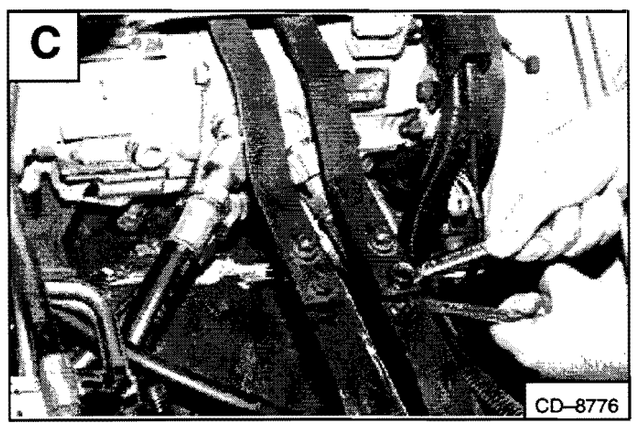

Remove the fuel fill hose **[B]**.

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.

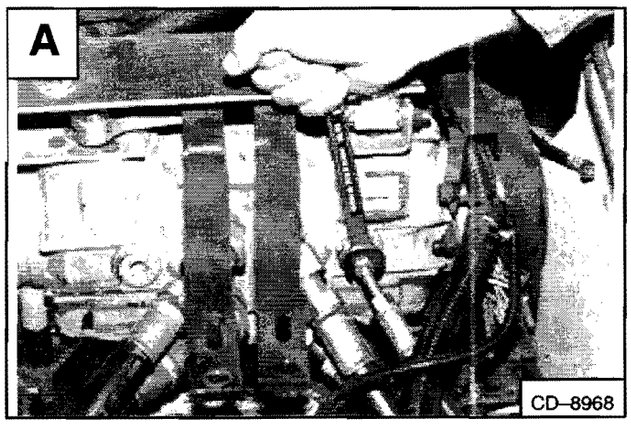
Disconnect the steering linkage **[C]**.



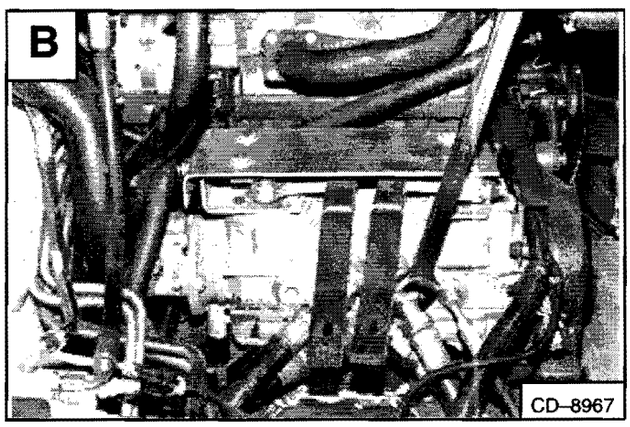
**ENGINE (Cont'd)**

**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]**.

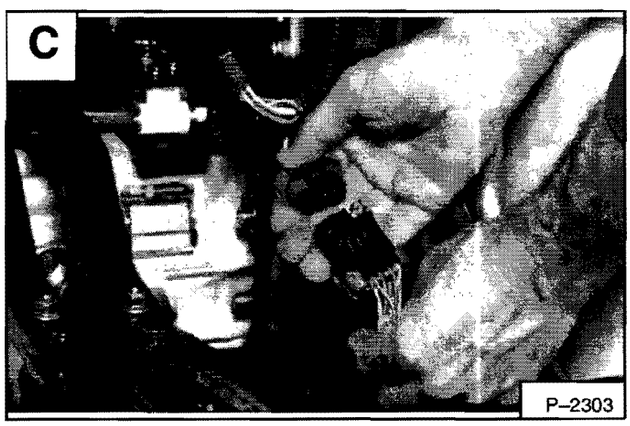



**⚠ WARNING**

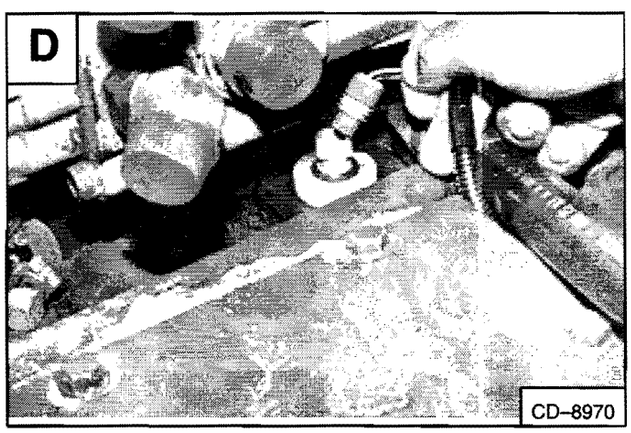
**Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.**

**W–2103–1285**

Disconnect the wire harness connectors in front of the hydrostatic pump **[C]**.



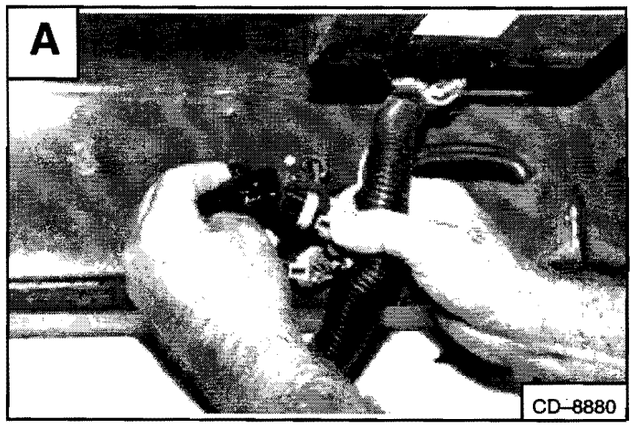

Disconnect the fuel level sender wire **[D]**.



**ENGINE (Cont'd)**

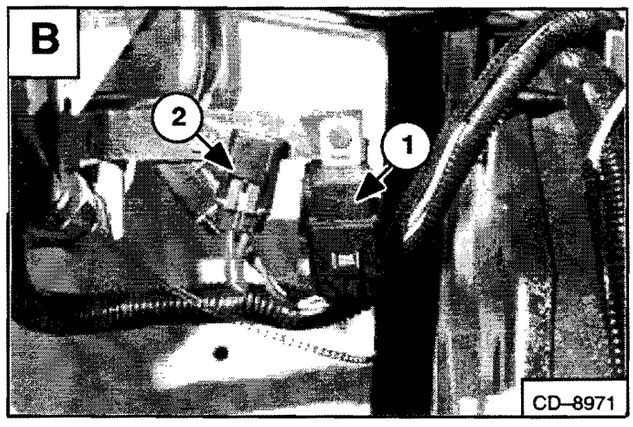
**Removal and Installation (Cont'd)**

Disconnect the engine wiring harness from the operator cab wiring harness **[A]**.

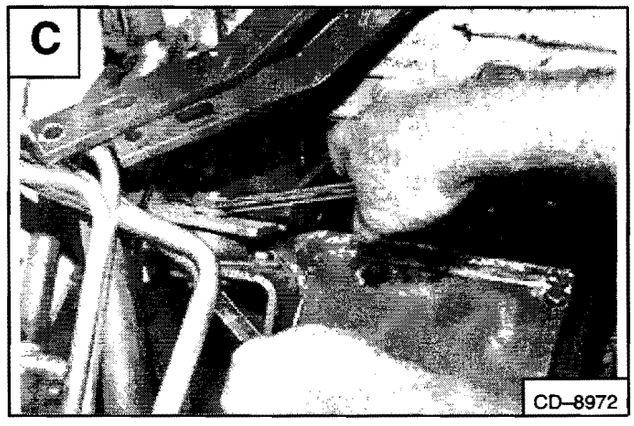



**S/N 11079 & Above**

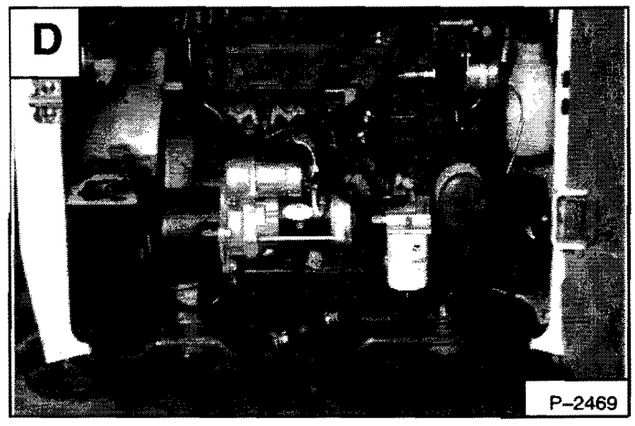
The relays (Item 1) **[B]** and fuses (Item 2) **[B]** are loosened when air cleaner is removed and are removed with the engine wiring harness when the engine/hydrostatic pumps are removed.




Remove the bolt and nut from the engine/hydrostatic pump mount (both sides) **[C]**.



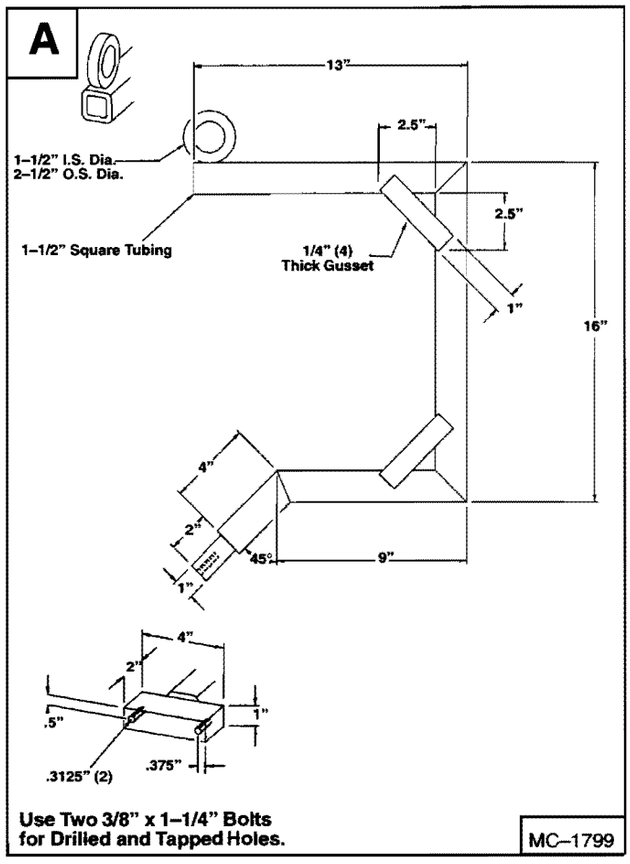

Remove the bolt and nut at the rear engine mount (both sides) **[D]**.



**ENGINE (Cont'd)**

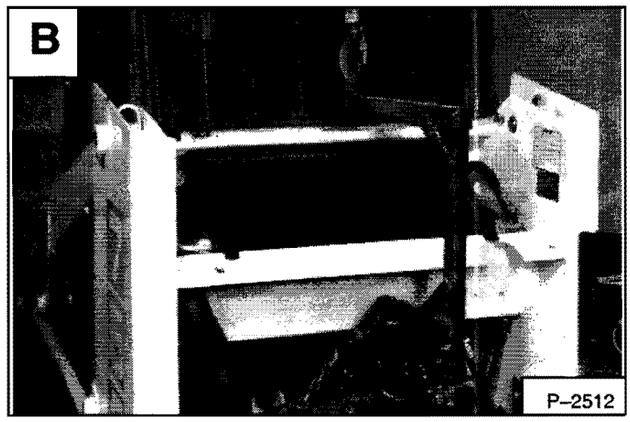
**Removal and Installation (Cont'd)**

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.



**ENGINE (Cont'd)**

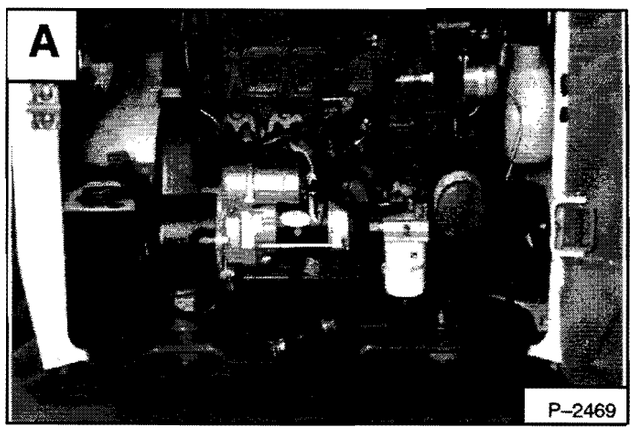
**Installation**

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

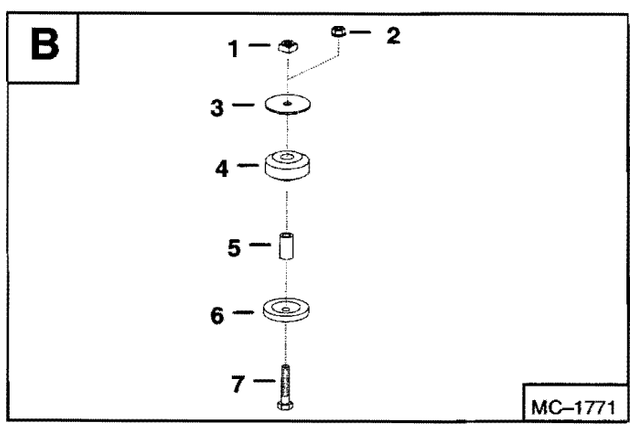
Item 3 – mount washer

Item 4 – engine mount

Item 5 – tube spacer (front mount) – 1.47" (37,3 mm)
tube spacer (rear mount) – 1.57" (39,9 mm)

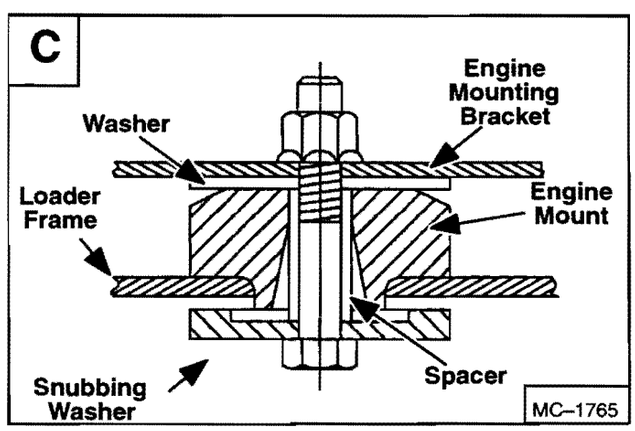
Item 6 – snubbing washer

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.



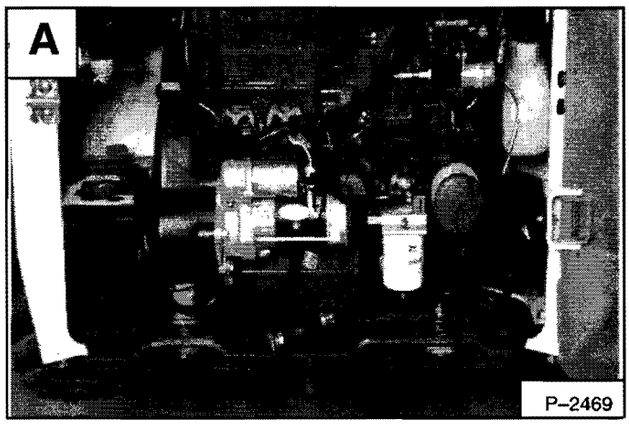
**Installation**

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

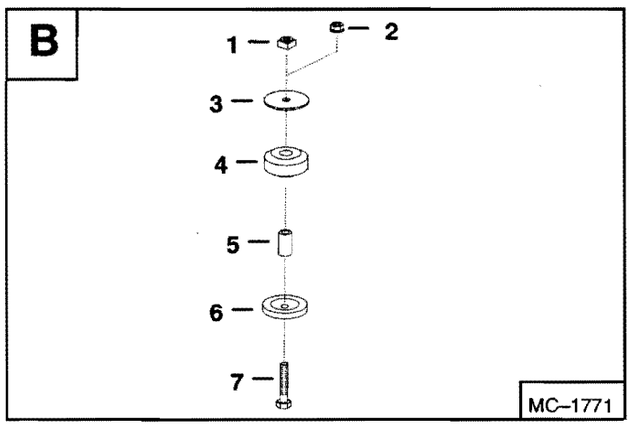
Item 3 – mount washer

Item 4 – engine mount

Item 5 – tube spacer (front mount) – 1.47" (37,3 mm)
tube spacer (rear mount) – 1.57" (39,9 mm)

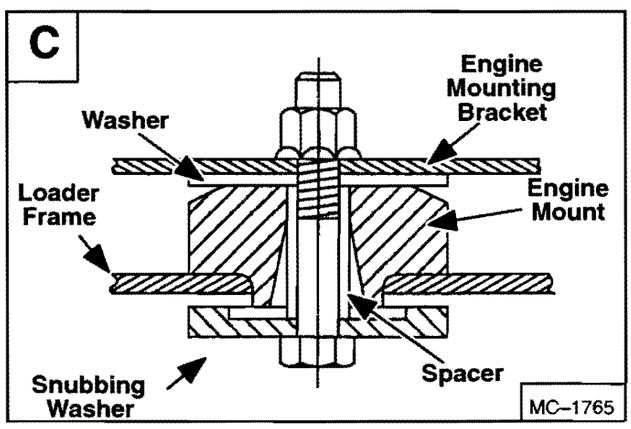
Item 6 – snubbing washer

Item 7 – mounting bolt




Install the new engine mount as shown in the cut away side view **[C]**.

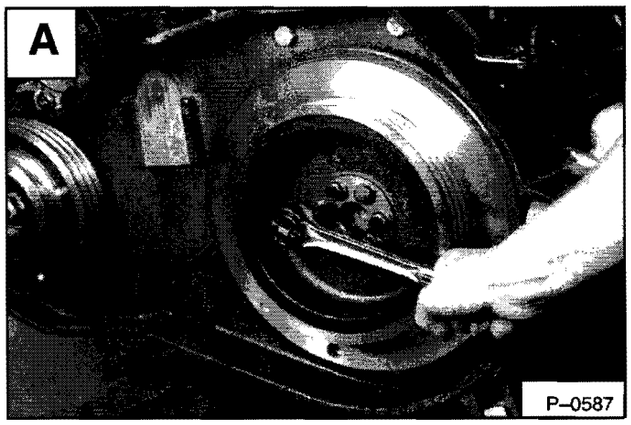
Tighten the mounting bolts to 90–100 ft.-lbs. (125–130 Nm) torque.



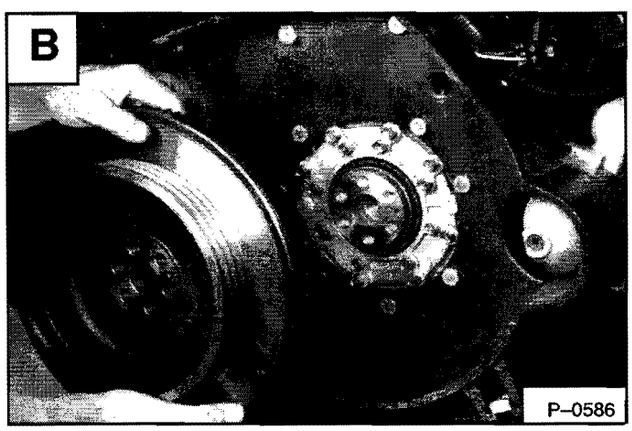
## FLYWHEEL

### Removal and Installation

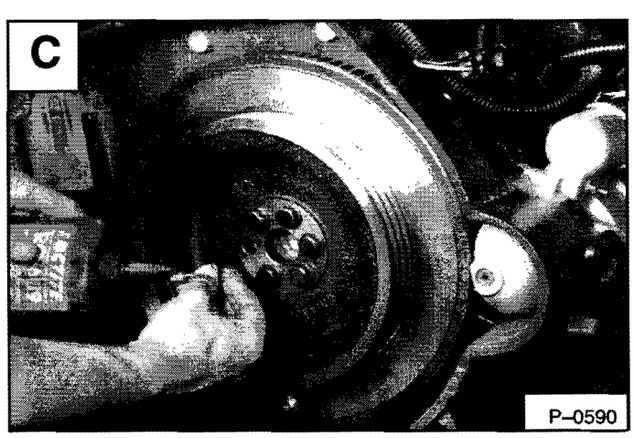
Remove the bolts from the flywheel **[A]**.



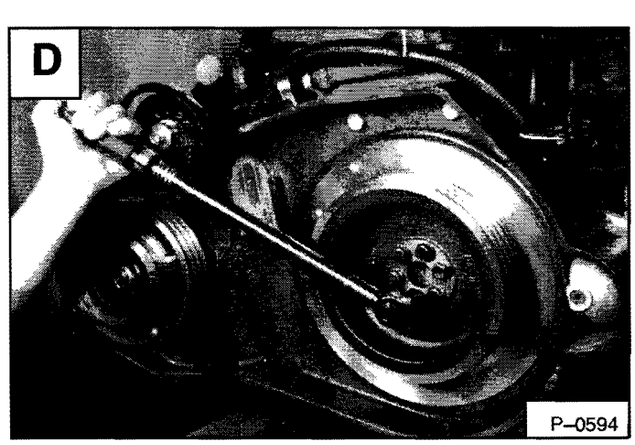

Remove the flywheel from the crankshaft **[B]**.




***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.

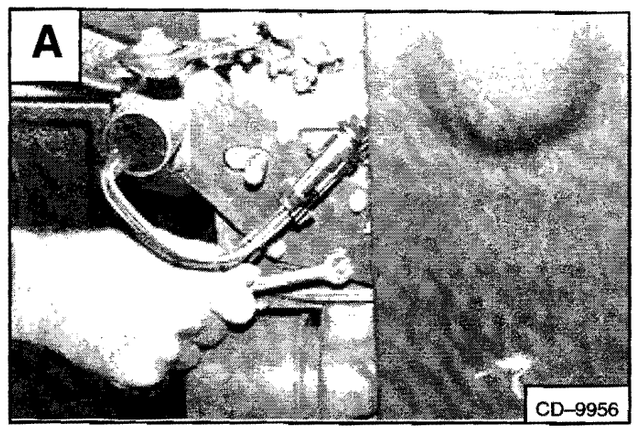
Clean the new ring gear and heat it to a temperature of 450–500°F (232–260°C).

Fit the ring gear over the flywheel. Make sure the gear is on the seat correctly.

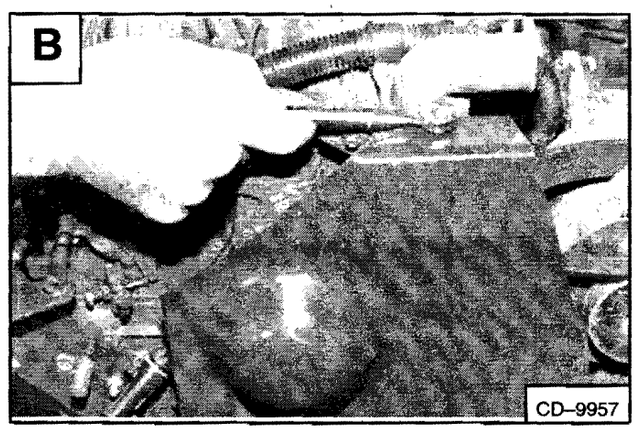
## BELT SHIELD

### Removal and Installation

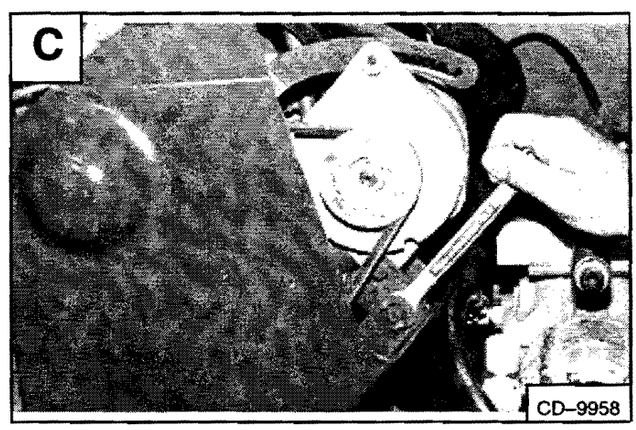
Remove the bolt from the timing gearcase cover **[A]**.



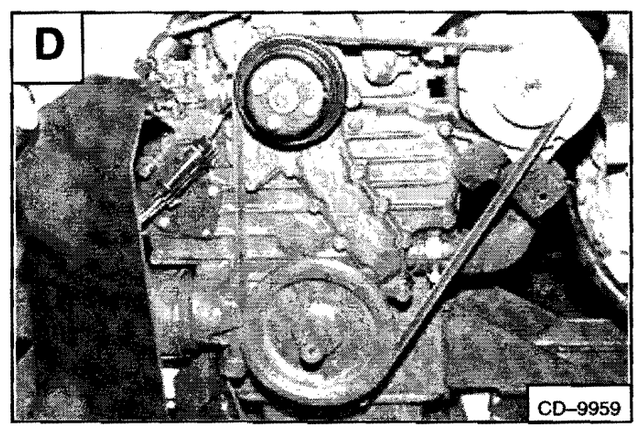

Remove the bolt from the thermostat housing **[B]**.




Remove the bolt from the alternator mounting bracket **[C]**.




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



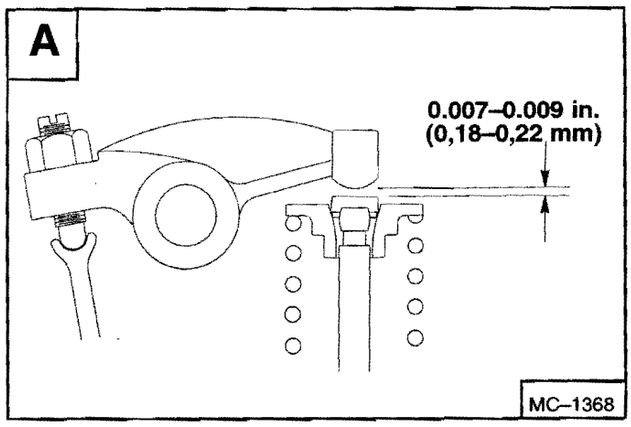
## VALVE CLEARANCE

### Adjustment

Make the valve clearance adjustment with the engine stopped and cold.

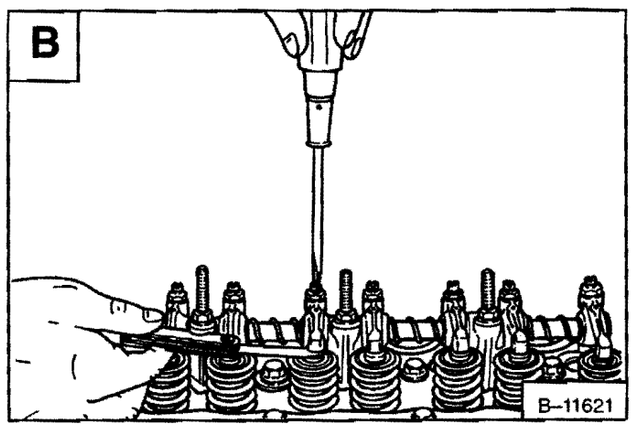
The correct valve clearance is 0.007–0.009" (0,18–0,22 mm) **[A]**.

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.

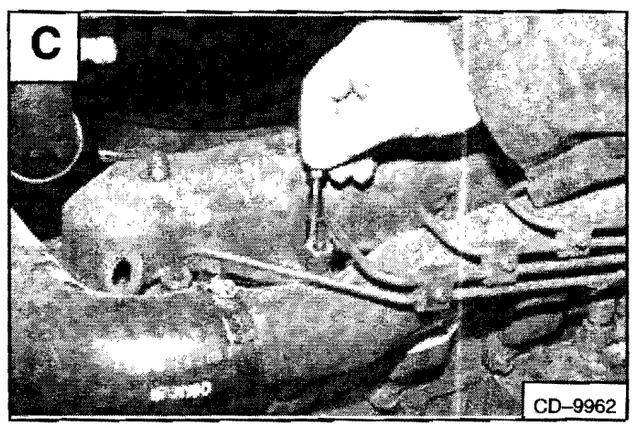
Crank the engine with the starter at 200–300 RPM.

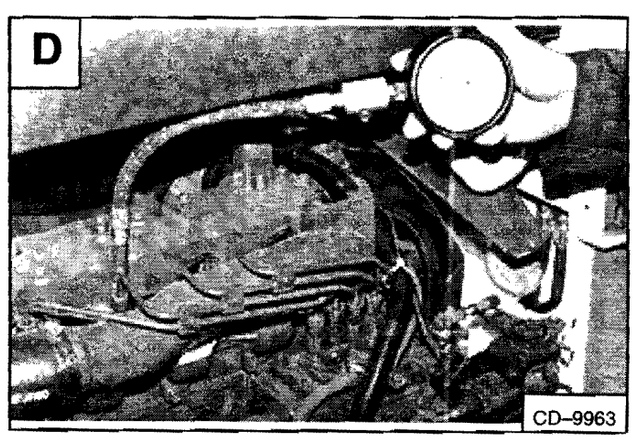
If the measurement is below the allowable limit, check the cylinder, piston ring, top clearance, valve and cylinder head.

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.



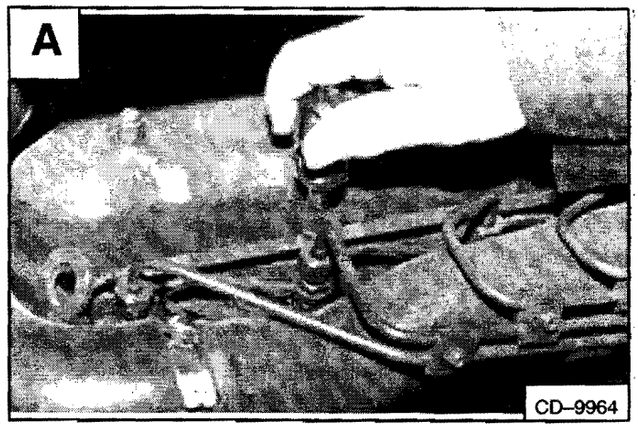



## GLOW PLUGS

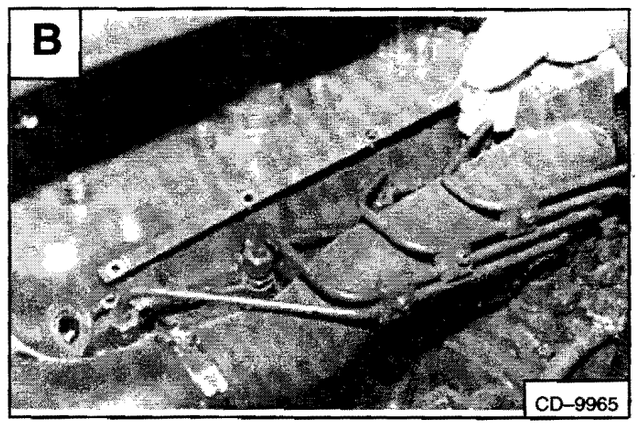
### Removal and Installation

Disconnect the negative (–) cable from the battery.

Remove the nut from the glow plugs **[A]**.

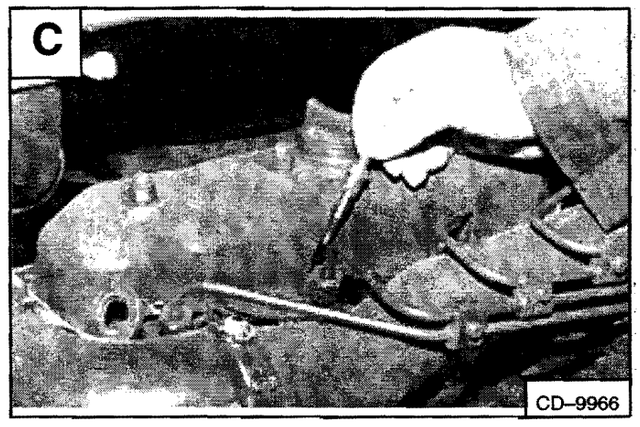



Remove the glow plug connecting strap **[B]**.




Loosen and remove the glow plug **[C]**.

***Installation:*** Tighten the glow plug 15–18 ft.–lbs. (20–24 Nm) torque.




### Checking

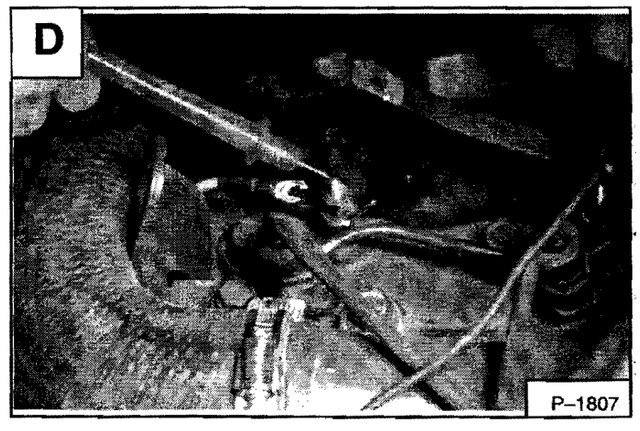
Disconnect the glow plug cables and leads.

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.



## 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.

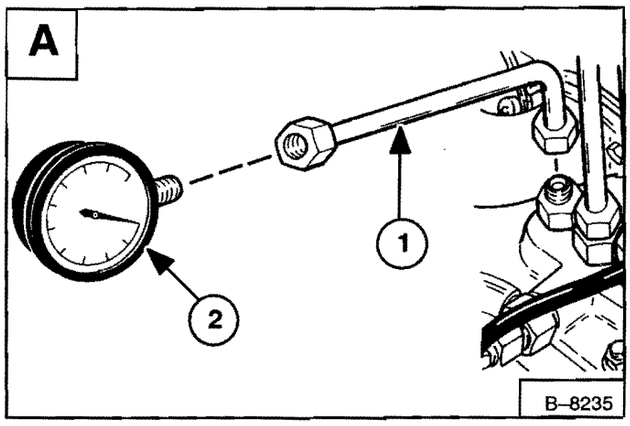
Fuel Tightness of Pump Element
Allowable Limit ..... 2133 PSI (14707 kPa)

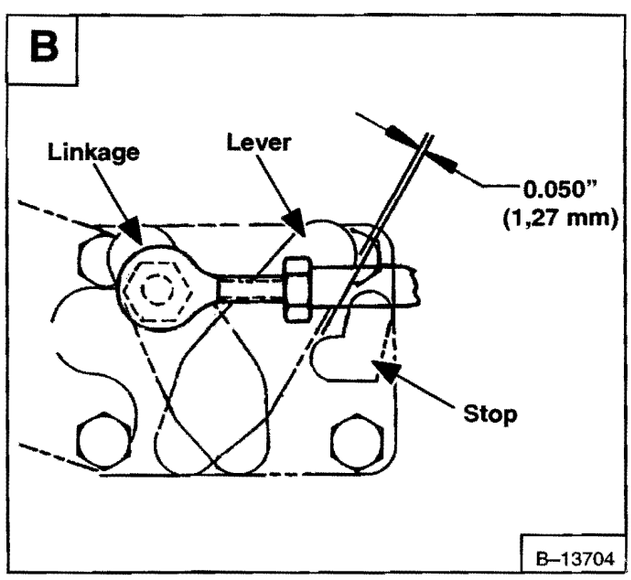
Measure the time needed to decrease the pressure from 2133–1990 PSI (14707–13721 kPa). If the measurement is less than the allowable limit, replace the delivery valve.

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]**.

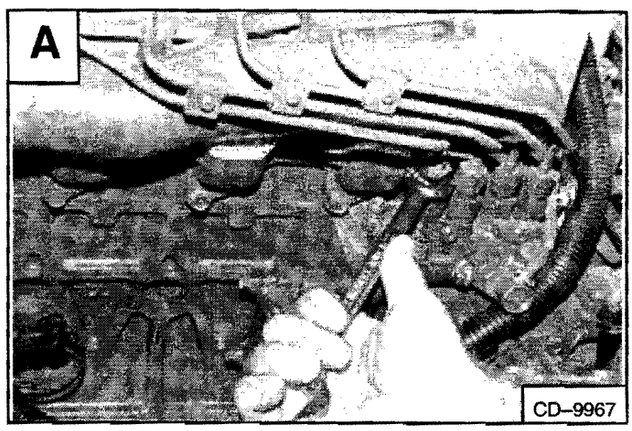


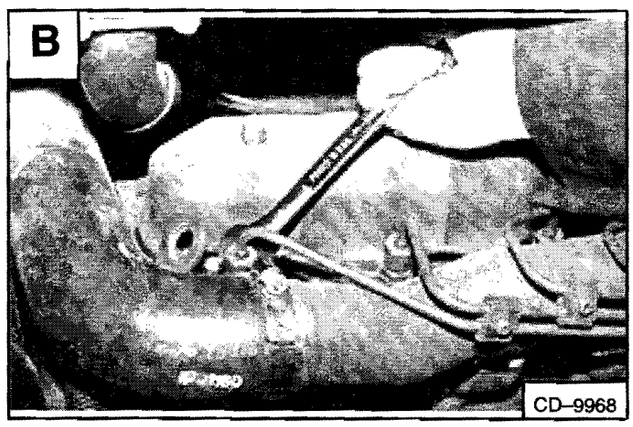
**FUEL INJECTION PUMP (Cont'd)**

**Removal and Installation**

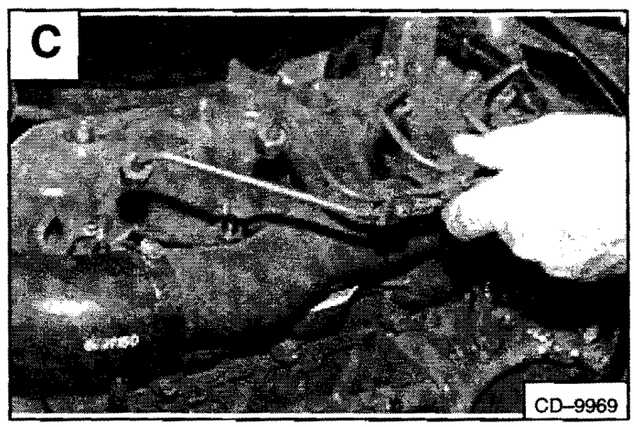
Clean around the injection pump. Disconnect the high pressure fuel lines from the injection pump **[A]**.




Disconnect the high pressure fuel lines from the fuel injectors **[B]**.




Remove the high pressure fuel lines **[C]**.



**FUEL INJECTION PUMP (Cont'd)**

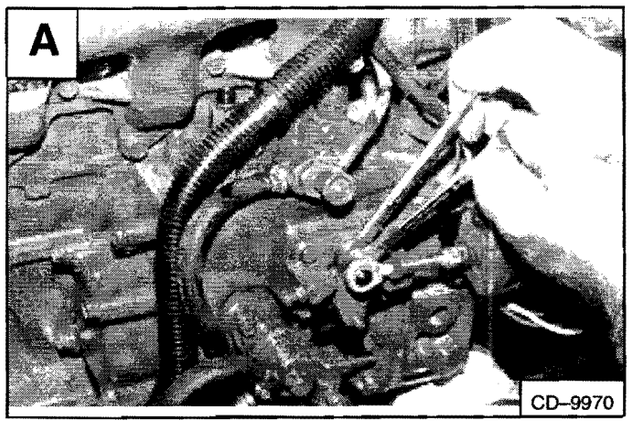
**Removal and Installation (Cont'd)**

**IMPORTANT**

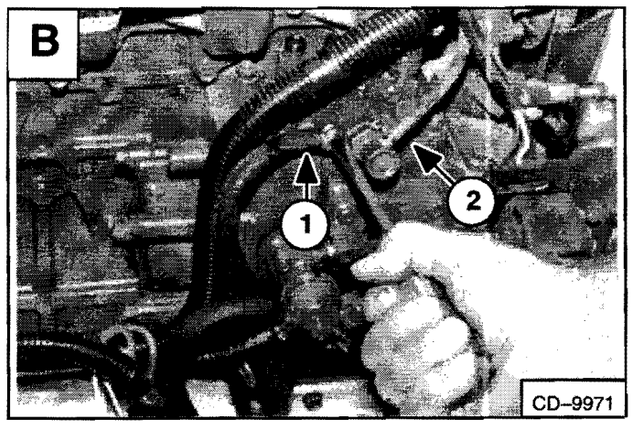
**Do not bend the high pressure fuel injection tubes when removing or installing them.**

I–2029–0289

Disconnect the fuel shut–off linkage **[A]**.

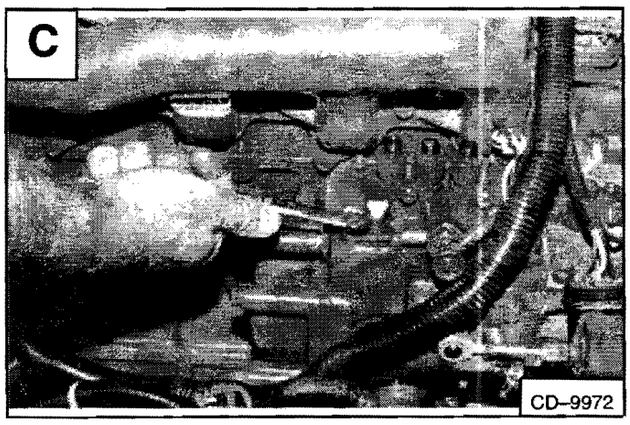



Disconnect the fuel inlet hose (Item 1) **[B]** and fuel return hose (Item 2) **[B]**.




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.**

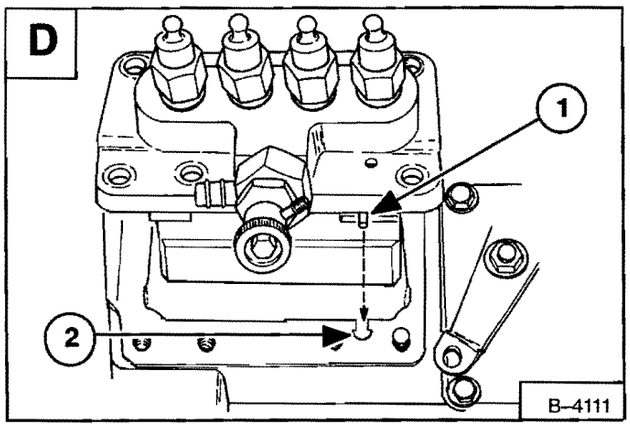
**IMPORTANT**

**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.



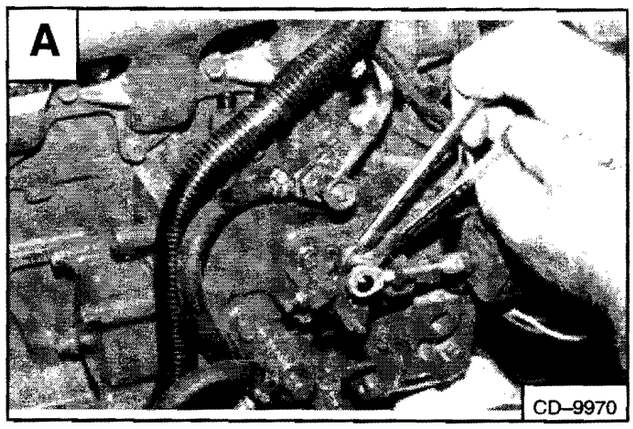
## FUEL INJECTION PUMP (Cont'd)

### Timing the Injection Pump

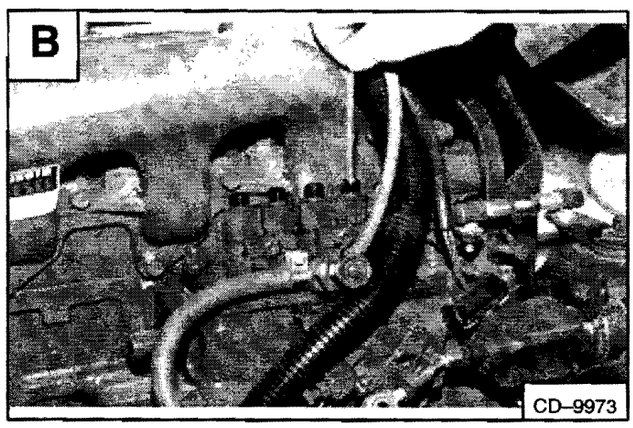
Timing the injection pump is done by changing the number of shims between the injection pump and engine block.

Remove the number one cylinder high pressure line from the injection pump.

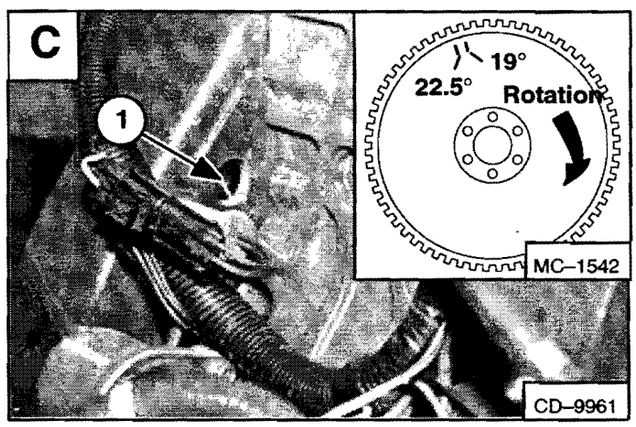
Disconnect the fuel shut–off linkage from the injection pump **[A]**.




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]**.

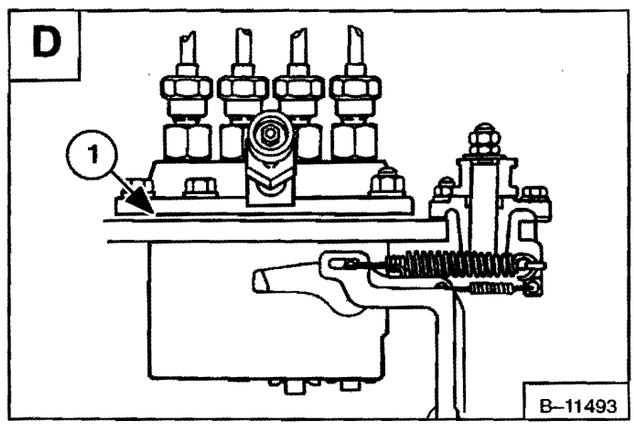



Rotate the engine in a clockwise direction (Viewed from crankshaft pulley). Fuel must flow from the pipe when the timing mark (19 degrees) on the flywheel shows in the flywheel housing window (Item 1) **[C]**.




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°.**



## 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.**

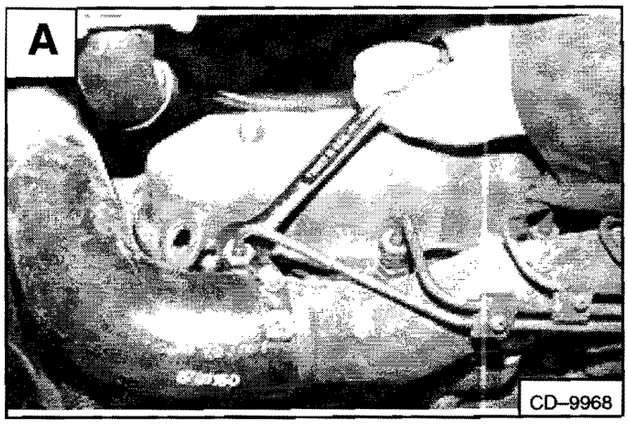
**I–2029–0289**

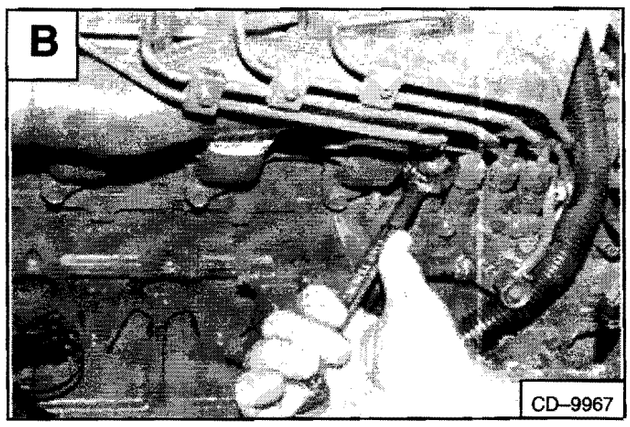
Disconnect the high pressure fuel lines from the fuel injectors **[A]**.

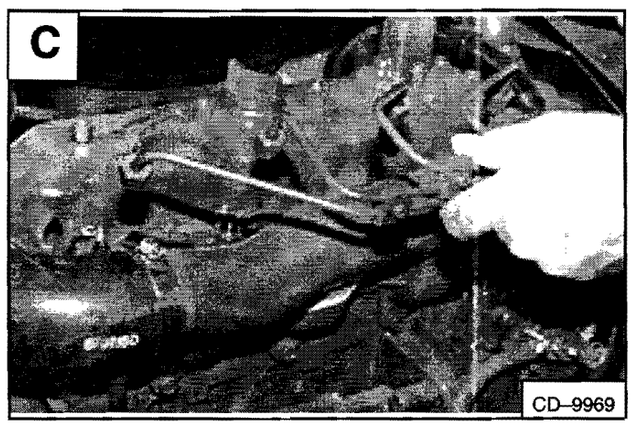
Disconnect the high pressure fuel lines form the fuel injection pump **[B]**.

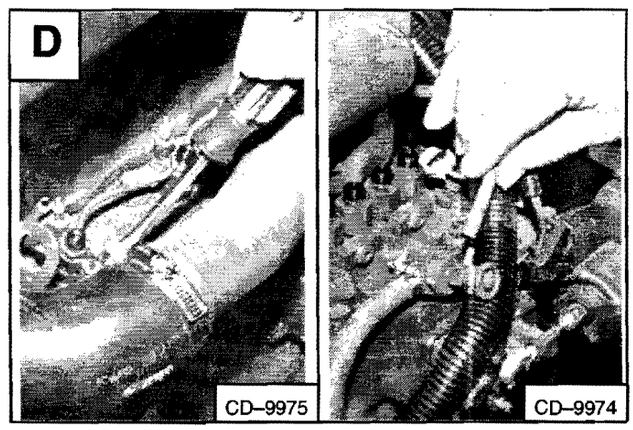
Remove the high pressure fuel lines **[C]**.

Disconnect the fuel return hose from the fuel injector and bleed screw **[D]**.



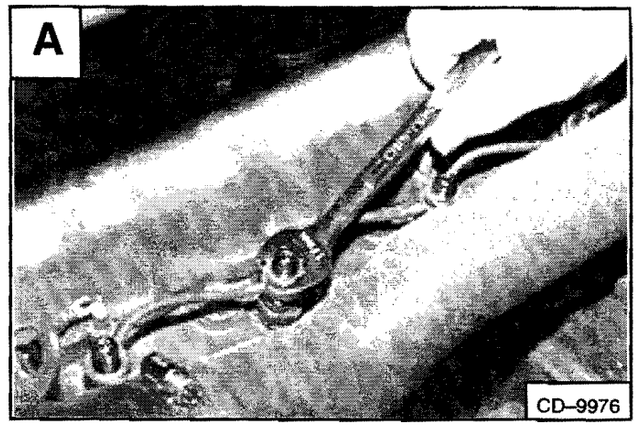



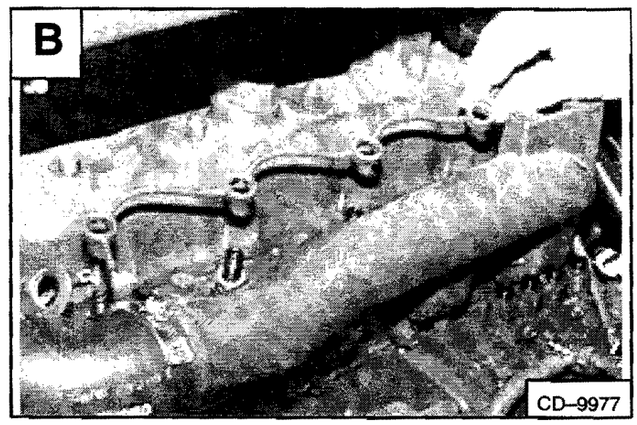
**FUEL INJECTOR NOZZLES (Cont'd)**

**Removal and Installation (Cont'd)**

Remove the retainer nut from the top of the fuel injectors **[A]**.

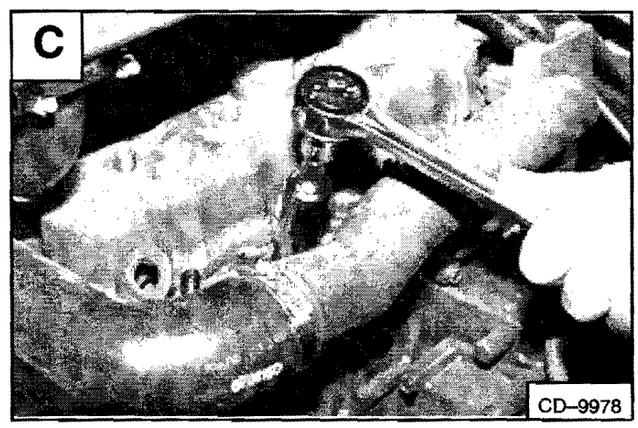



Remove the fuel return pipe from the fuel injectors **[B]**.




Use a socket and rachet and loosen the fuel injector nozzle **[C]**.

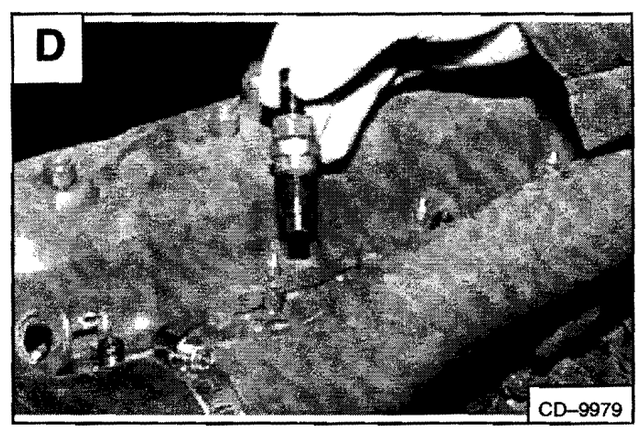
***Installation:*** Tighten the fuel injector nozzle to 36–51 ft.–lbs. (46–69 Nm) torque.




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.**



**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:

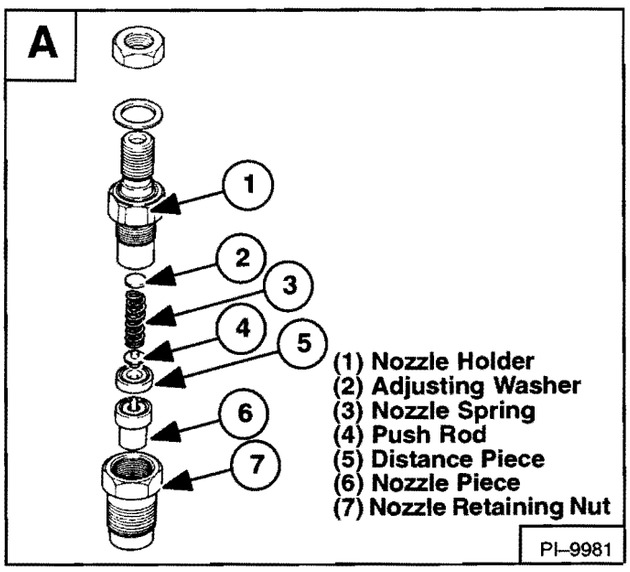
MEL10018 – Injector Nozzle Tester

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)

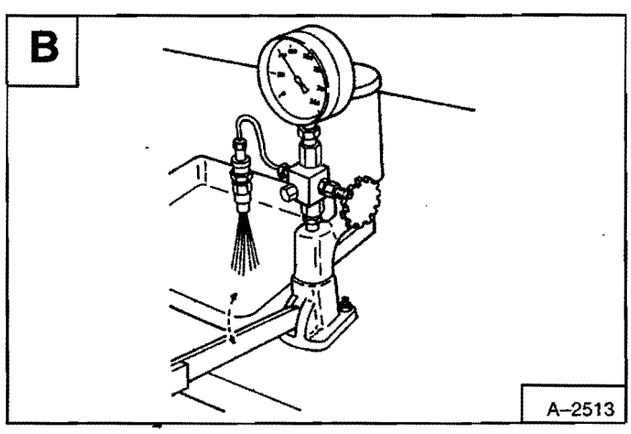



Assemble the injector nozzle. Connect the nozzle to the tester with the nozzle down **[B]**.

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.

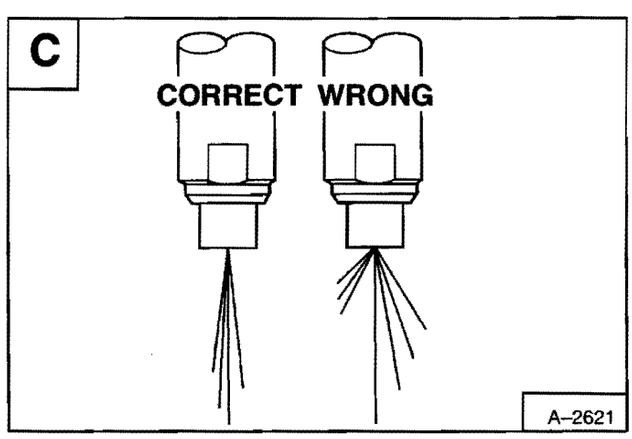
When the injector nozzle is assembled, tighten the nozzle body to 43–58 ft.–lbs. (59–79 Nm) torque.

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.




Check that the spray pattern is correct **[C]**:

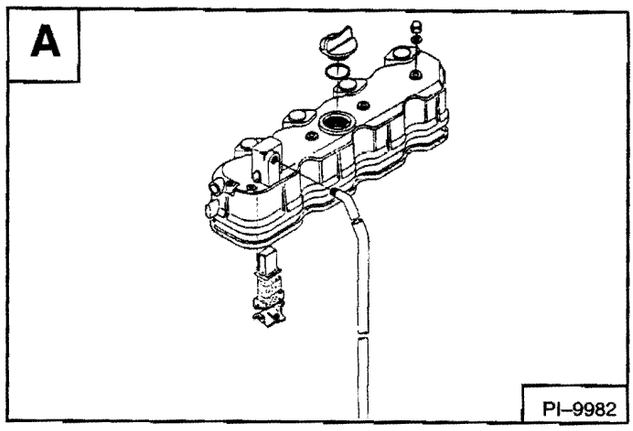
1. Fuel does not come out the side of the nozzle.
2. Drops of fuel are not present at the nozzle.
3. The injector has an even flow coming from the nozzle.



## 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.)

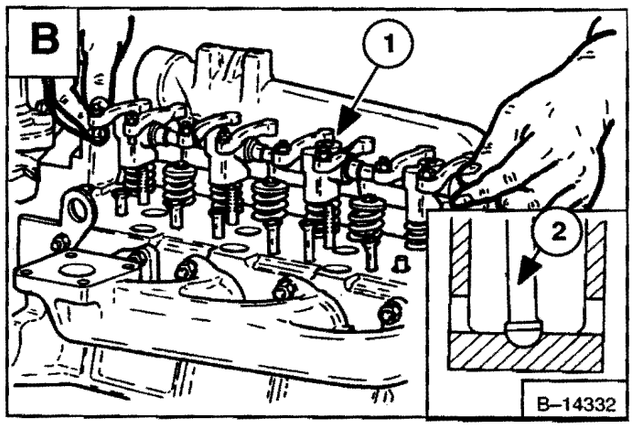
Remove the belt shield. (See Page 7–34.)

Remove the alternator. (See Page 6–1.)

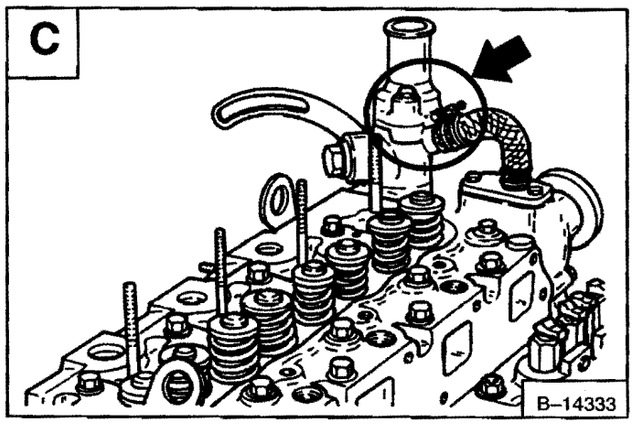
Remove the rocker arm and shaft assembly (Item 1) **[B]**.

Remove the push rods (Item 2) **[B]**.

Remove the intake and exhaust manifolds.



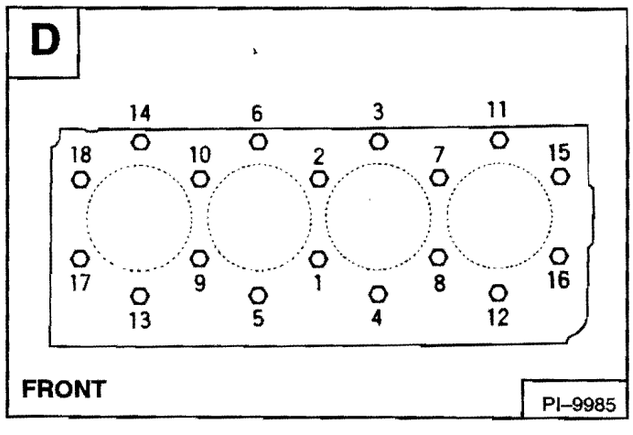

Remove the water return hose **[C]**.




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.**

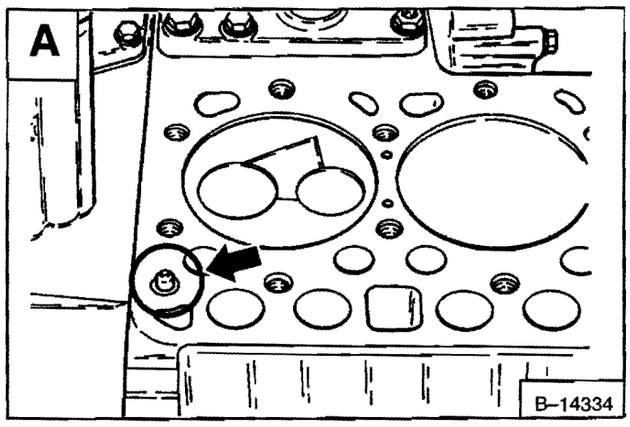


**CYLINDER HEAD (Cont'd)**

**Removal and Installation (Cont'd)**

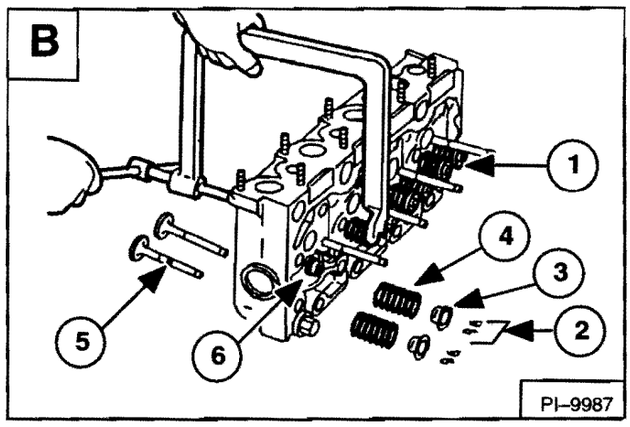
Remove the cylinder head from the engine block.

***Installation:*** Always use new head gasket and new O–ring. Make sure the O–ring is seated over the dowel **[A]**.




**Disassembly and Assembly**

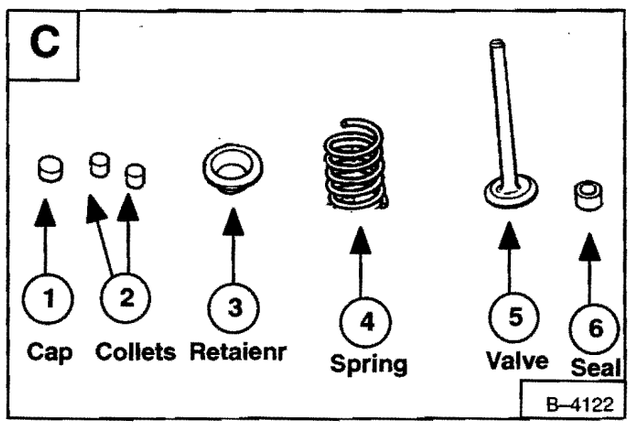
Use a valve spring compressor to compress the valve spring **[B]**.



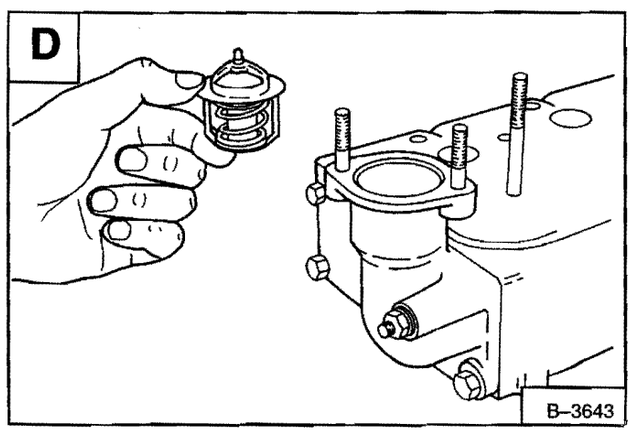

Remove the valve cap (Item 1) and valve spring collet (Item 2) **[B]** & **[C]**.

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]**.



**CYLINDER HEAD (COnt'd)**

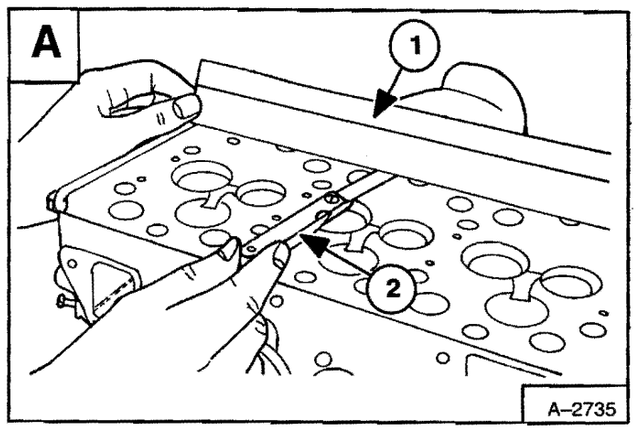
**Servicing the Cylinder Head**

Clean the surface of the cylinder head.

Put a straight edge (Item 1) on the cylinder head **[A]**.

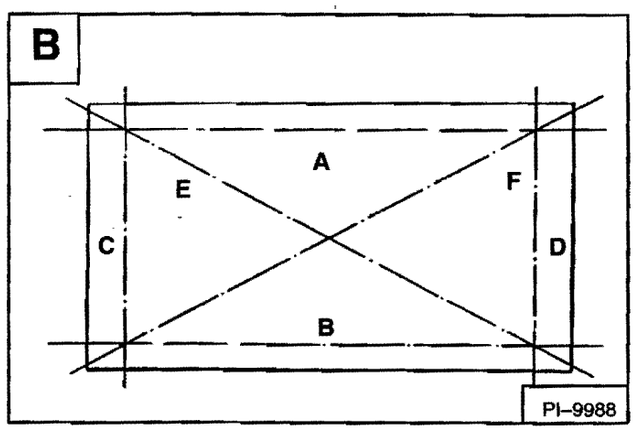
**NOTE: Do not put the straight edge across combustion chambers.**

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.

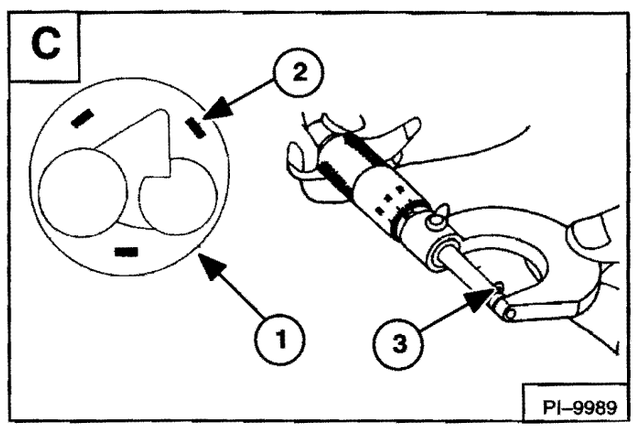



**Top Clearance**

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)

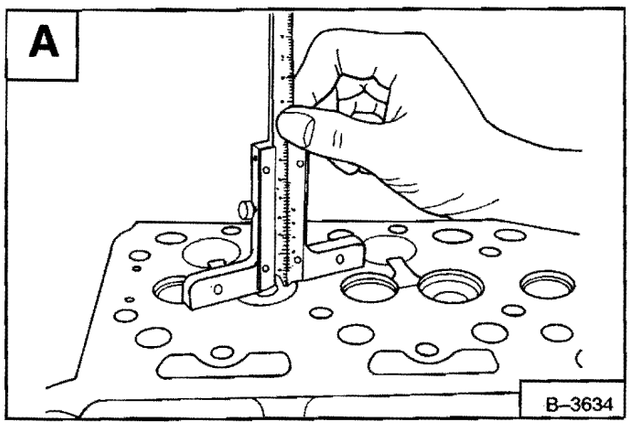
## VALVE, VALVE SEAT AND GUIDE

### Checking the Valve Guide

Remove the valve and spring from the cylinder head. (See Page 7–20.)

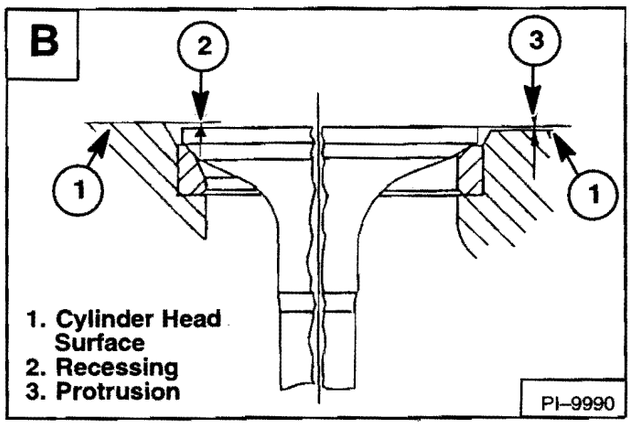
Clean the valve seat and combustion chamber.

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)



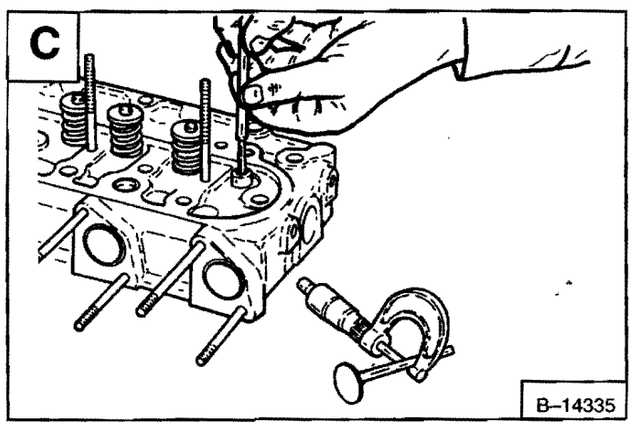

Remove the carbon from the valve guide.

Measure the valve stem O.D. **[C]**.

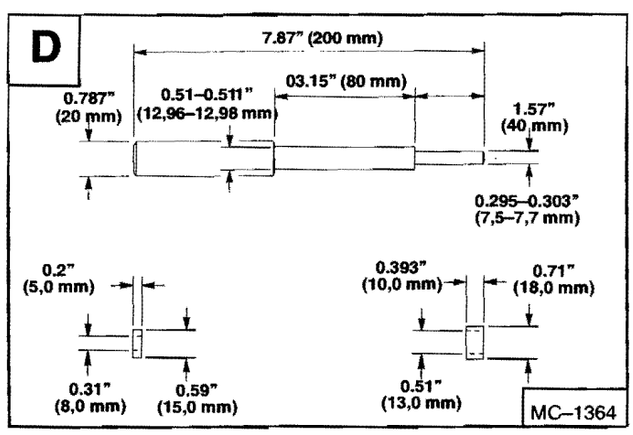
Measure the valve guide I.D. **[C]**.

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]**.



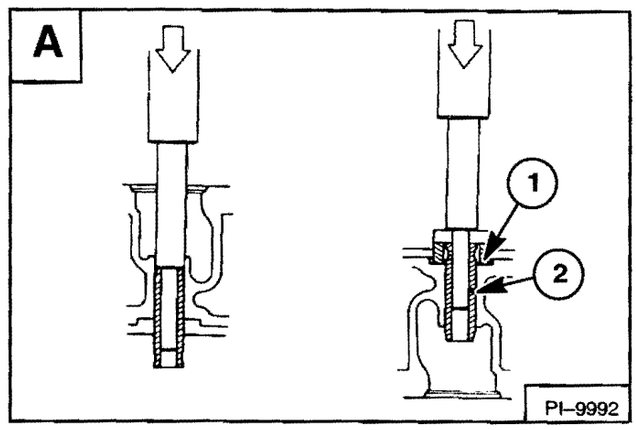
**VALVE, VALVE SEAT AND GUIDE (Cont'd)**

**Checking the Valve Guide (Cont'd)**

Press the used valve guide out of the cylinder head using the special driver tool **[A]**.

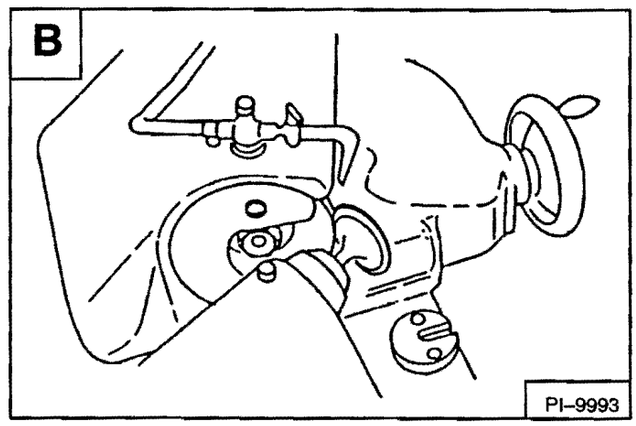
Put oil on the outside diameter of the new valve guide. Press the new valve guide into the cylinder head from the top side. Use the special driver tools (Item 1 & 2) **[A]**, press the new guide until the tool contacts the cylinder head.

Ream the valve guide to the correct specifications.

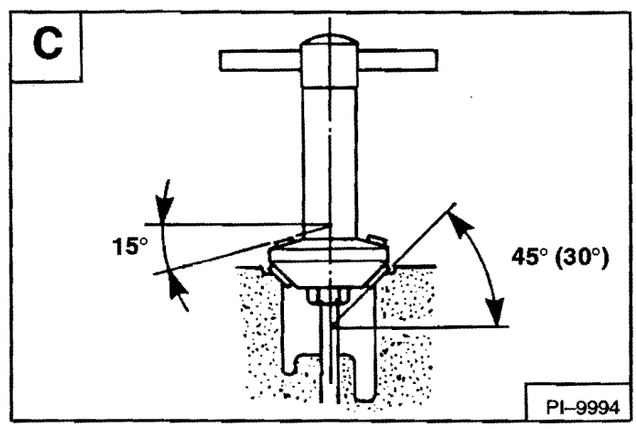



**Reconditioning the Valve and Valve Seat**

Grind the valve face to the correct angle using a valve refacer **[B]**.

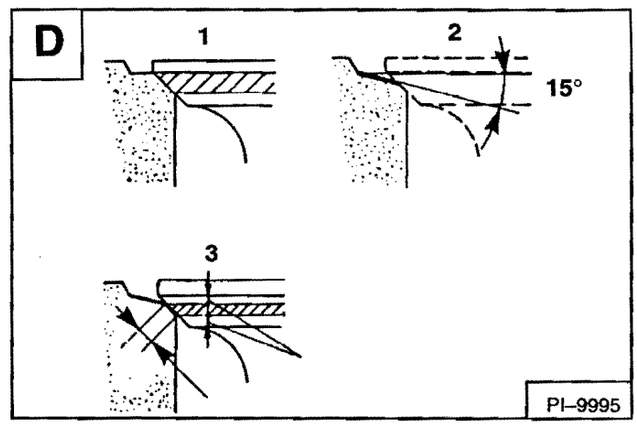



Grind the valve seat surface in the cylinder head to the correct angle **[C]**.




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°

**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]**.

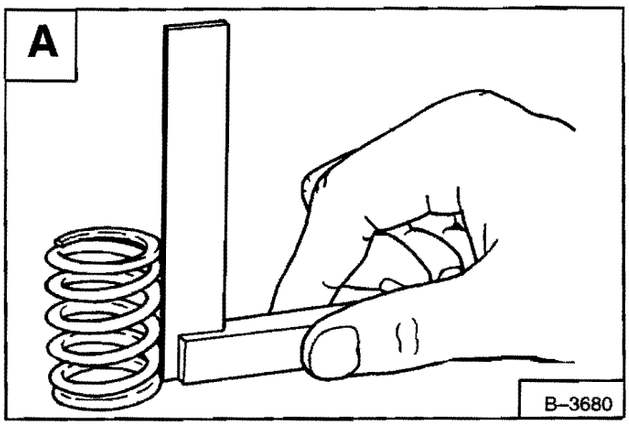
Rotate the spring and measure the maximum tilt. If the measurement exceeds the allowable limit, replace the spring.

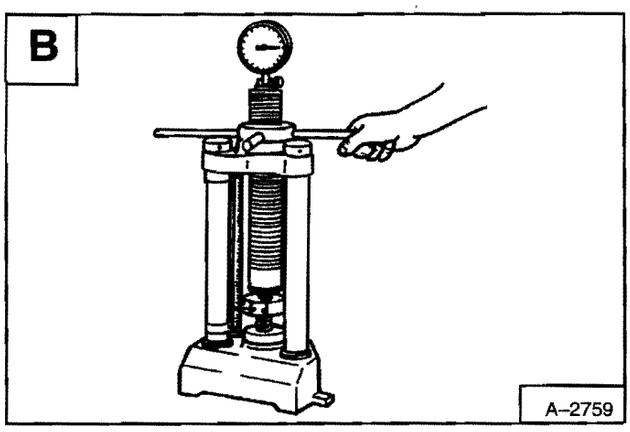
Tilt ..... 0.04 inch (1,0 mm)

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)



## ROCKER ARM AND SHAFT

### Checking

Measure the rocker arm I.D. (Item 1) **[A]** with an inside micrometer.

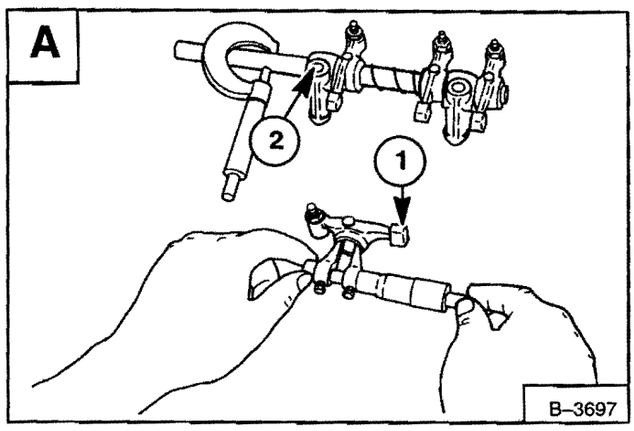
Measure the rocker arm shaft O.D. (Item 2) **[A]** with an outside micrometer.

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)



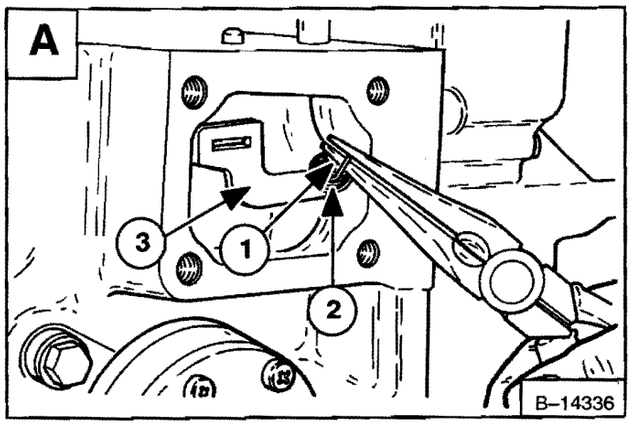
## TIMING GEARCASE COVER

### Removal and Installation

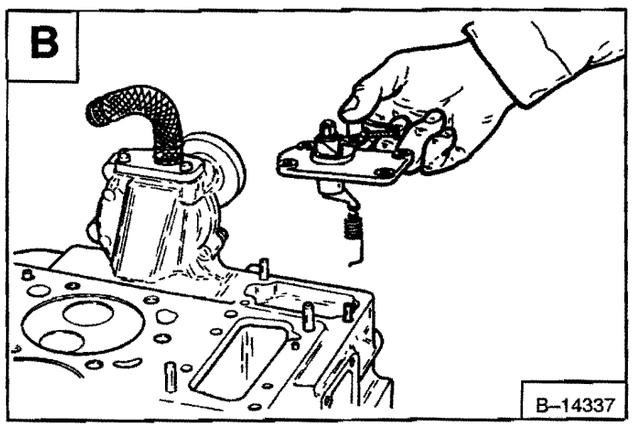
Remove the fuel injection pump. (See Page 7–39.)

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]**.

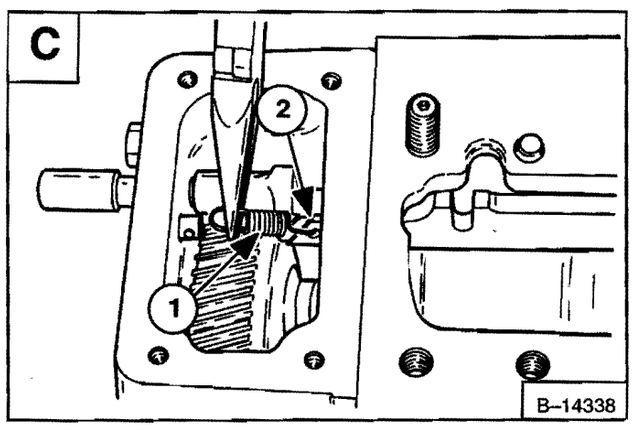



Remove the speed control plate with the governor springs **[B]**.




Remove the start spring (Item 1) **[C]** from the fork lever (Item 2) [C].

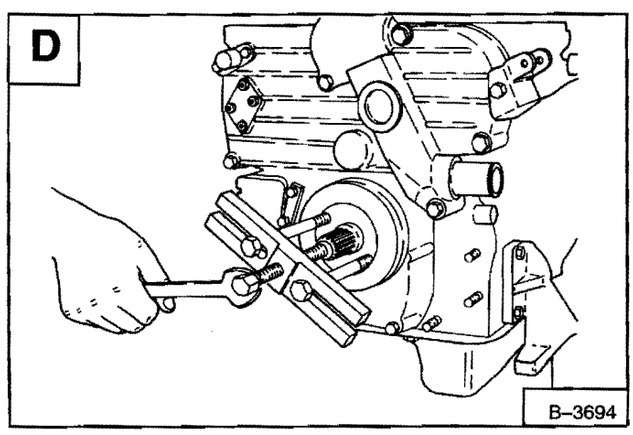
***Installation:*** Be careful; do not drop the spring into the gearcase.




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]**.



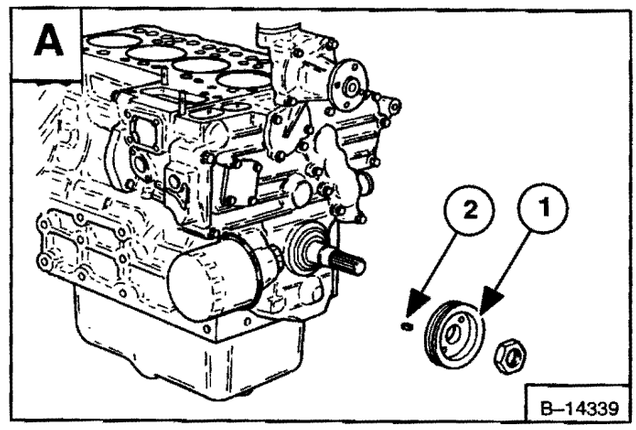
**TIMING GEARCASE COVER (Cont'd)**

**Removal and Installation (Cont'd)**

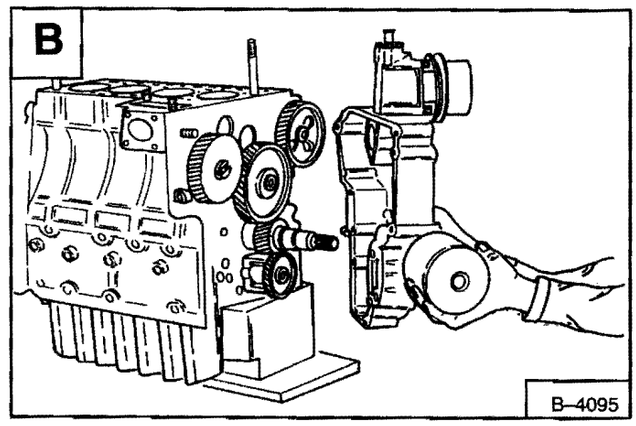
Remove the crankshaft pulley (Item 1) **[A]** and key (Item 2) **[A]**.

Remove the bolts from the timing gearcase cover.

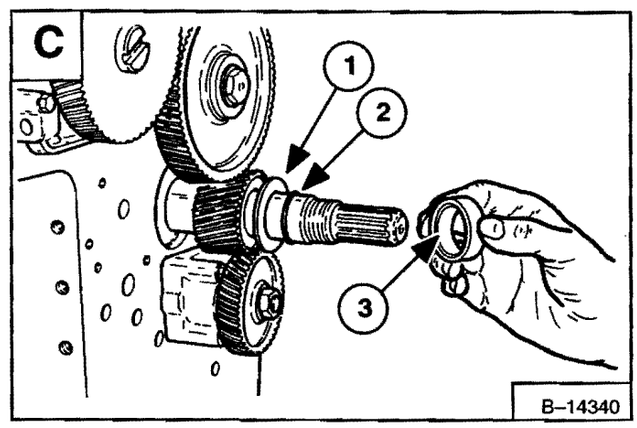
***Installation:*** Tighten the bolts to 13–15 ft.–lbs. (18–20 Nm) torque.




Remove the timing gearcase cover **[B]**.

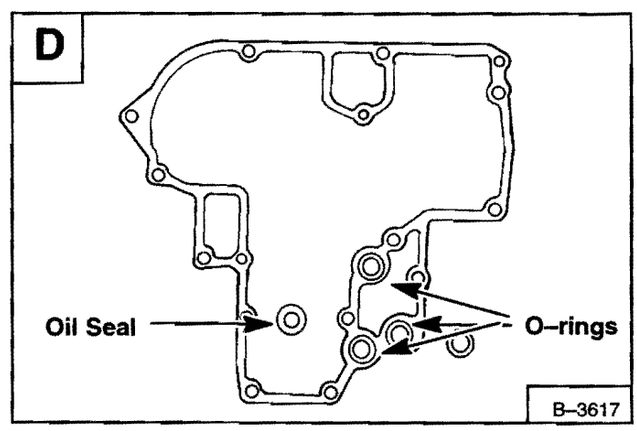



Remove the crankshaft oil slinger (Item 1) **[C]**, O–ring (Item 2) **[C]** and collar (Item 3) **[C]**.




***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.**



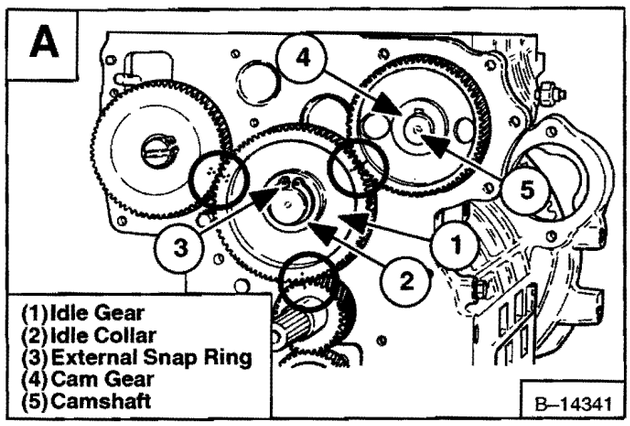
## IDLER GEAR AND CAMSHAFT

### 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]**.

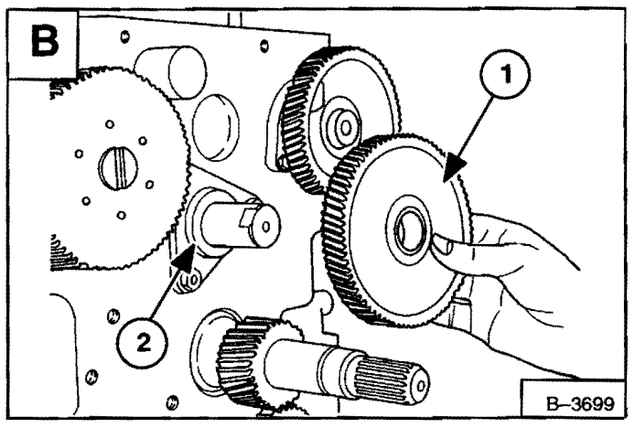
Remove the idler gear shaft mounting bolts.

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

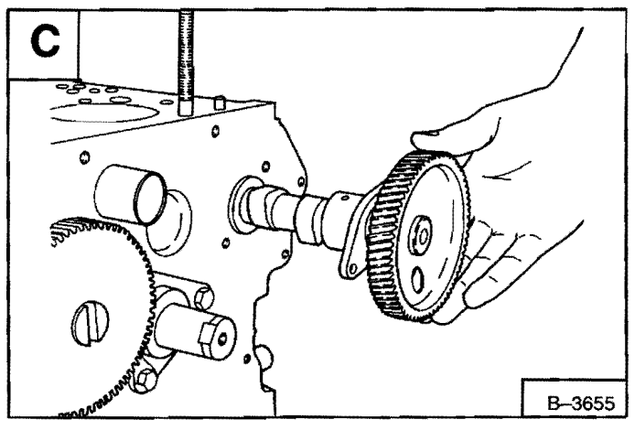
Align the holes on the camshaft gear with the camshaft retainer plate bolts.

Remove the bolts.

***Installation:*** Tighten the camshaft retainer bolts to 17–20 ft.–lbs. (23–27 Nm) torque.

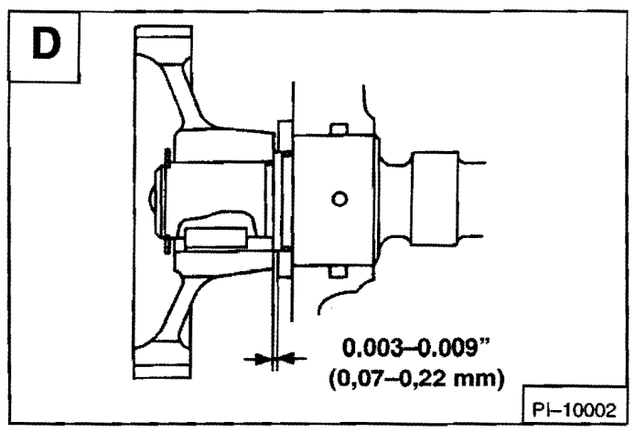



Remove the camshaft from the engine block **[C]**.




***Installation:*** Check the camshaft end play, if the clearance exceeds the allowable limit, replace the camshaft retainer plate **[D]**.

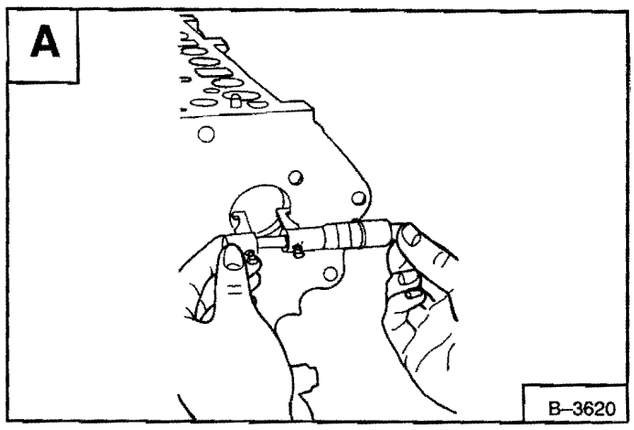
Camshaft End Play .... 0.003–0.009" (0,07–0,22 mm)
Allowable Limit ..... 0.012" (0,3 mm)



## IDLER GEAR AND CAMSHAFT (Cont'd)

### Servicing the Camshaft

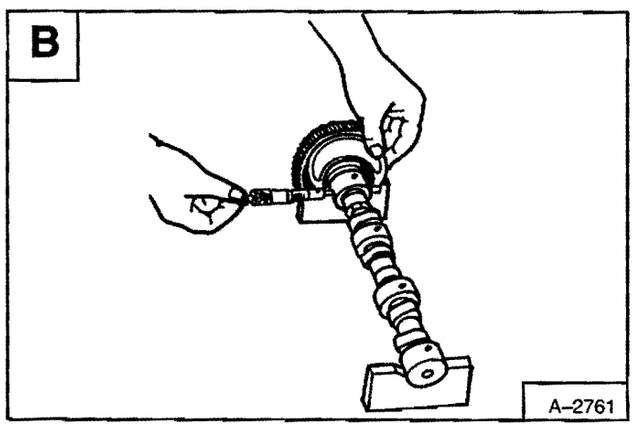
Measure the camshaft bearing in the engine block **[A]**.




Measure the camshaft journal **[B]**.

Calculate the oil clearance. If the clearance exceeds the allowable limit, replace the camshaft.

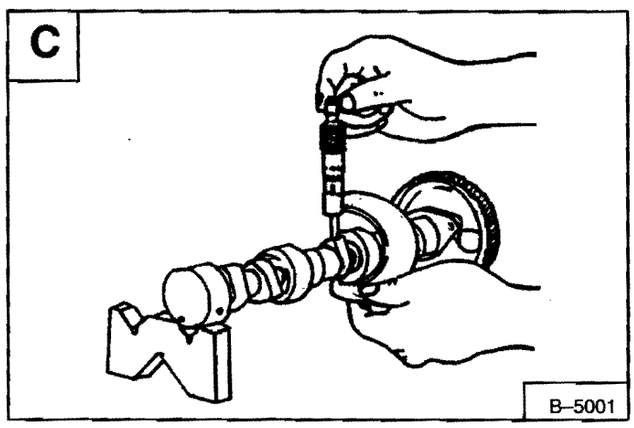
Bearing I.D. ..... 1.575–1.576" (40,0–40,03 mm)
Journal O.D. ..... 1.572–1.573" (39,93–39,95 mm)
Oil Clearance of Camshaft
Journal ..... 0.002–0.004" (0,05–0,09 mm)
Allowable Limit ..... 0.006" (0,15 mm)




Measure the cam lobes at their highest point **[C]**.

If the measurement is less than the allowable limit, replace the camshaft.

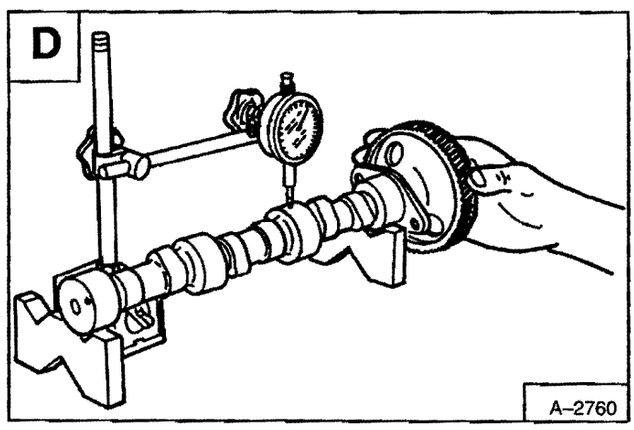
Cam Lob Height ..... 1.318" (33,47 mm)
Allowable Limit ..... 1.316" (33,42 mm)




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)



**IDLER GEAR AND CAMSHAFT (Cont'd)**

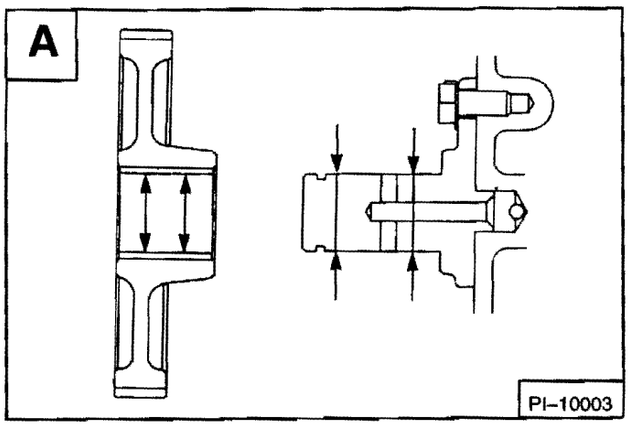
**Servicing the Idler Gear and Shaft**

Measure the O.D. of the idler gear shaft **[A]**.

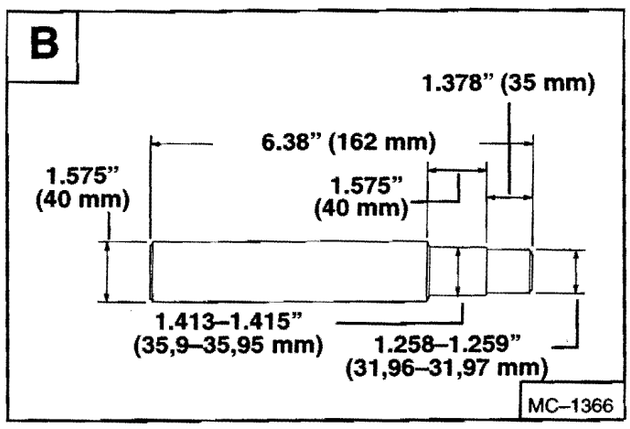
Measure the I.D. of the idler gear bushing **[A]**.

If the clearance exceeds the allowable limit, replace the bushing.

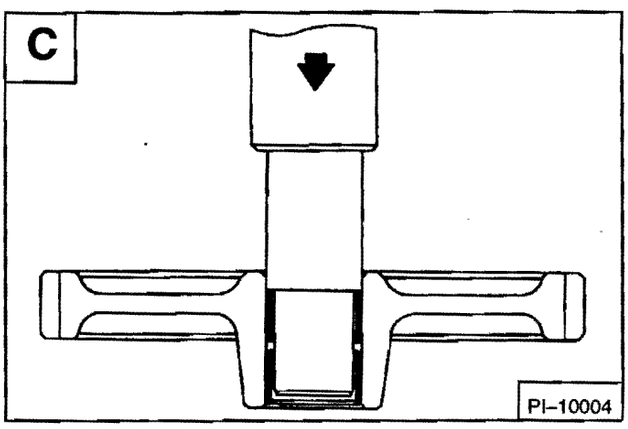
Idler Gear Shaft O.D. 1.258–1.259" (31,96–31,97 mm)
Idler Gear Bushing I.D. 1.259–1.261" (32,0–32,03 mm)
Clearance between Idler Shaft &
Gear Busing ..... 0.001–0.003" (0,025–0,07 mm)
Allowable Limit ..... 0.004" (0,1 mm)




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]**.



## 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]**.

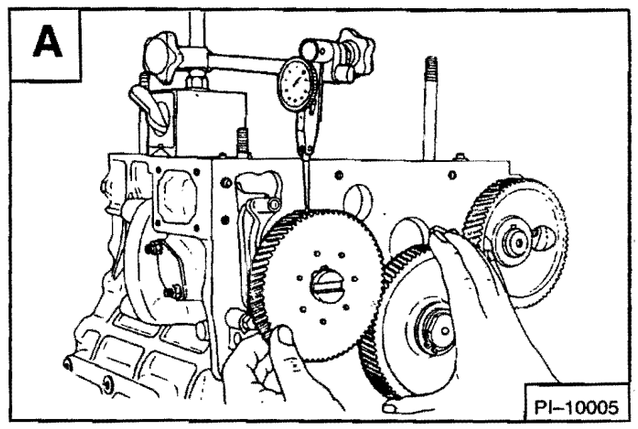
If the backlash exceeds the allowable limit, check the oil clearance of the shaft and gear. If the oil clearance is correct, replace the gear.

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)



## FUEL CAMSHAFT

### Removal and Installation

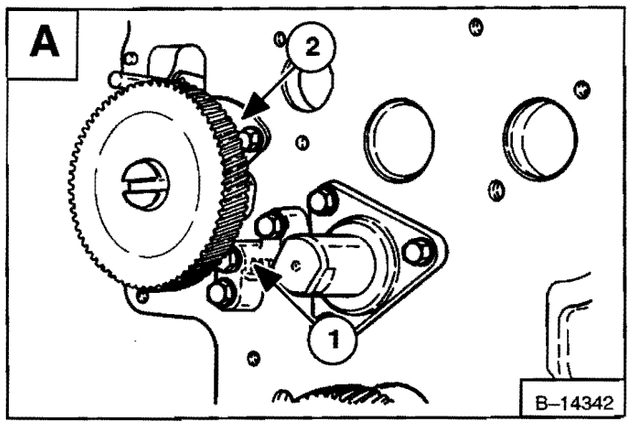
Remove the timing gearcase cover. (See Page 7–52.)

Remove the idler gear. (See Page 7–54.)

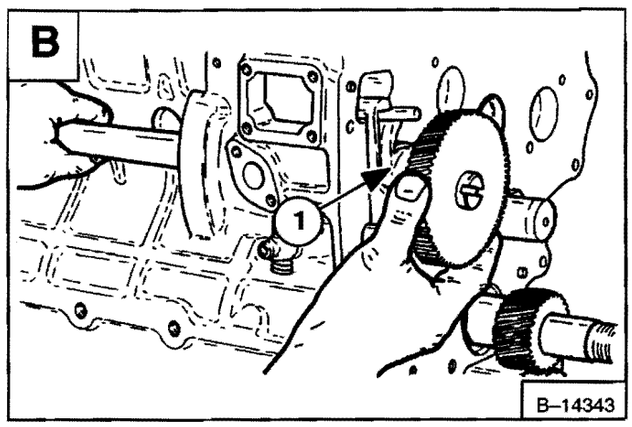
Remove the bolt (Item 1) **[A]** from the retainer plate (Item 2) **[A]**.

***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.

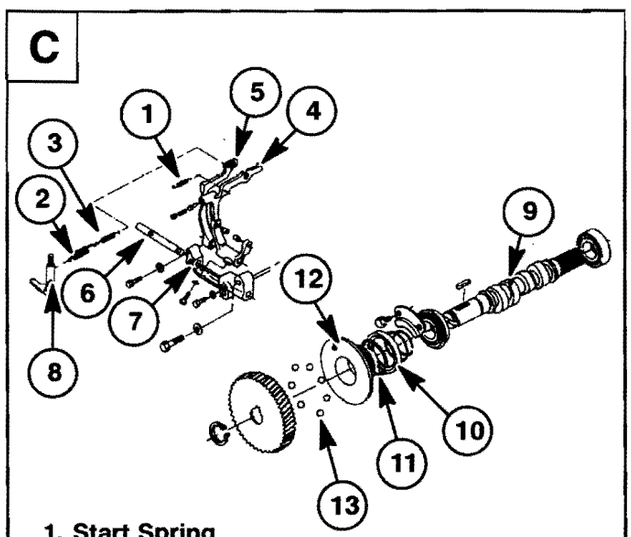



### Governor

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

## CRANKSHAFT GEAR

### Removal and Installation

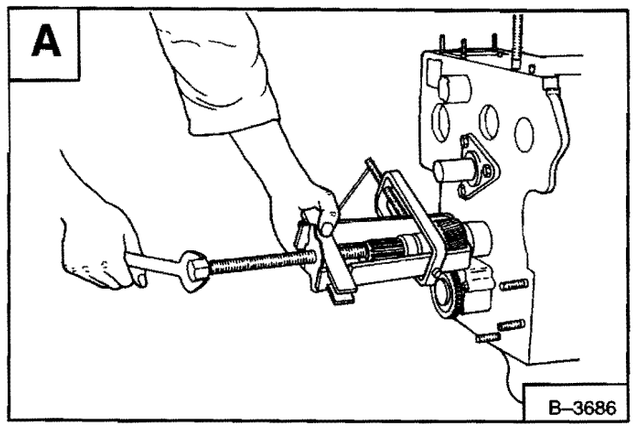
Remove the timing gearcase cover. (See Page 7–52.)

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

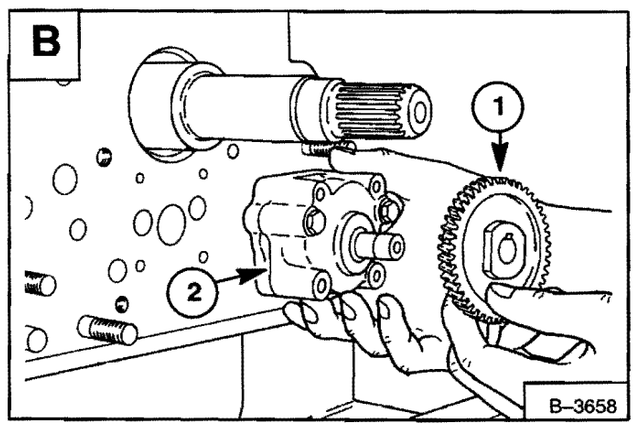
Remove the timing gearcase cover. (See Page 7–52.)

Remove the crankshaft gear.

Remove the nut from the oil pump shaft. Use a puller to remove the oil pump gear (Item 1) **[B]**.

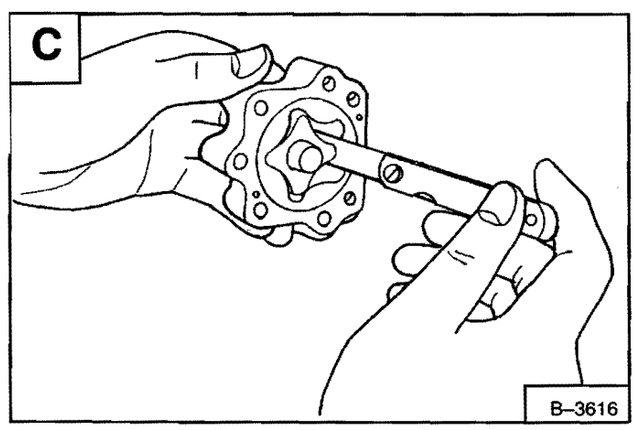
Remove the oil pump mounting bolts. Remove the oil pump (Item 2) **[B]**.

***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]**.

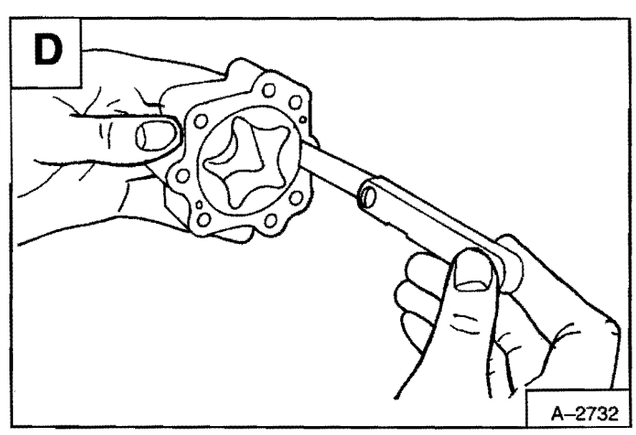



Measure the clearance between the outer rotor and pump body **[D]**.

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)



**OIL PUMP (Cont'd)**

**Oil Pump Service (Cont'd)**

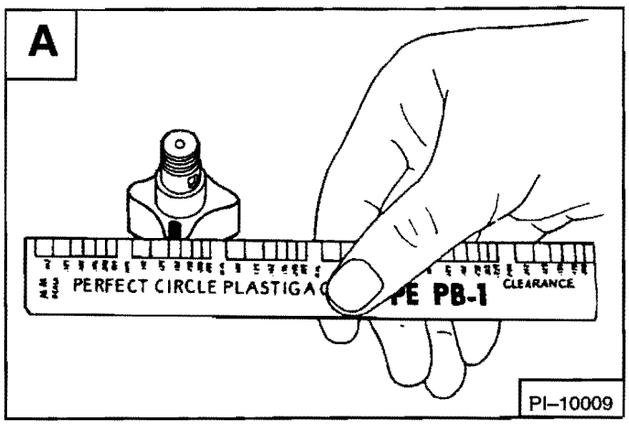
Put a piece of press gauge on the rotor face **[A]**.

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]**.

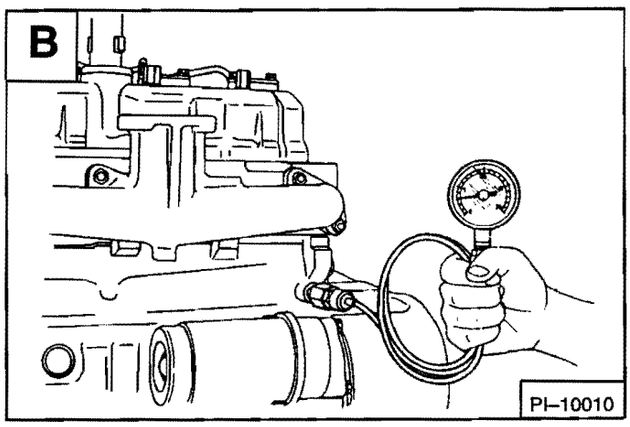
Start the engine and run until it is at operating temperature.

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)

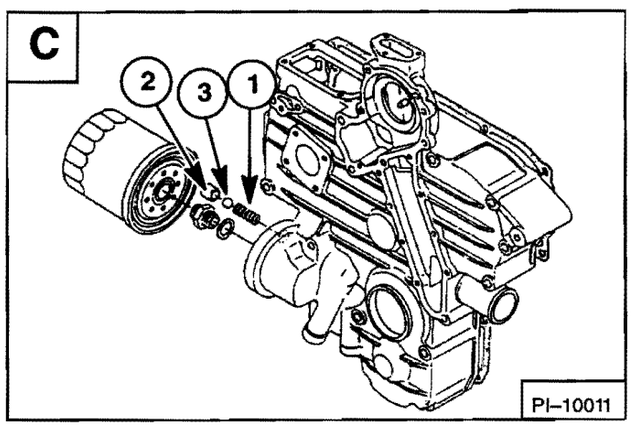



**Relief Valve**

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.



## 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.**

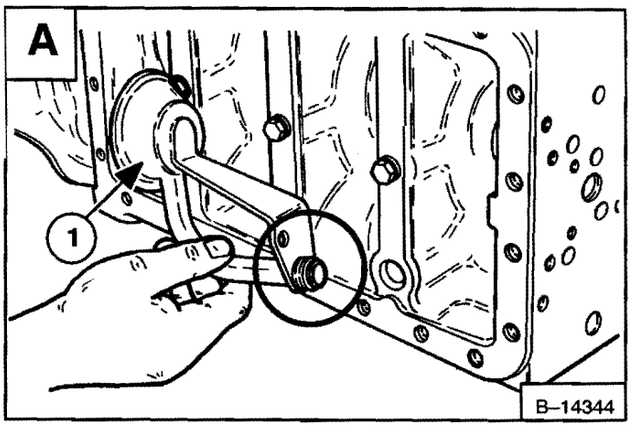
***Installation:*** Make sure the marks on the connecting rod and bearing are aligned when installing the bearing cap **[C]**.

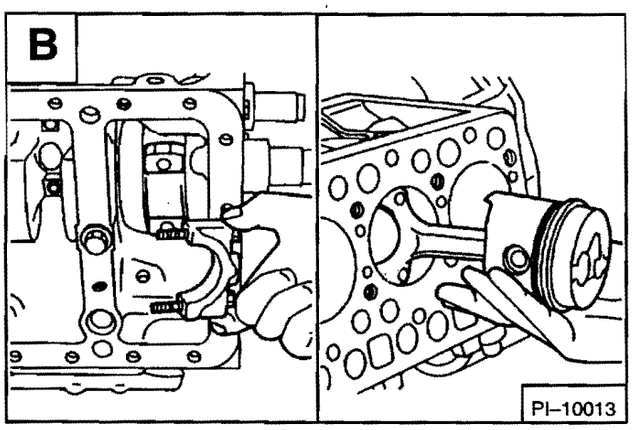
Repeat the procedure to remove the other piston/connecting rod assemblies from the engine block.

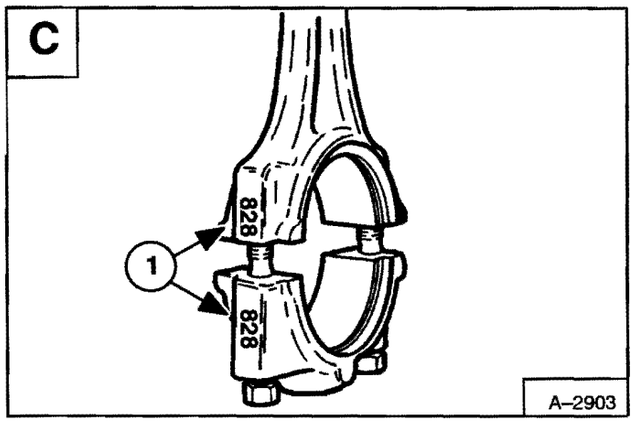
Remove the piston rings **[D]**.

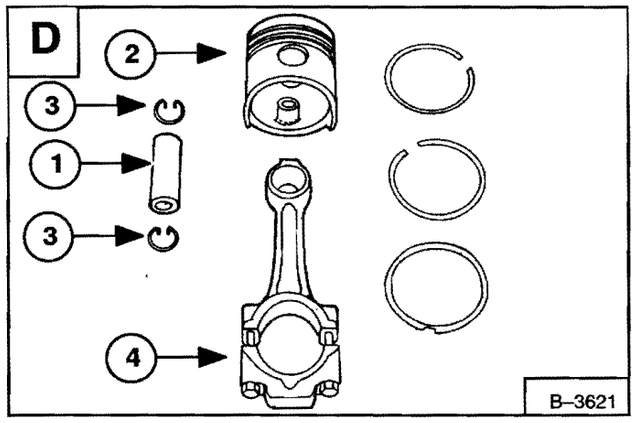
Remove the snap rings (Item 3) **[D]** and piston pin (Item 1) **[D]**.

Separate the piston (Item 2) **[D]** from the connecting rod (Item 4) **[D]**.



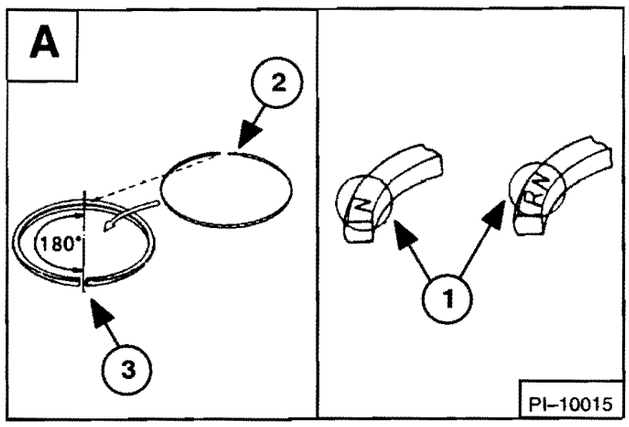



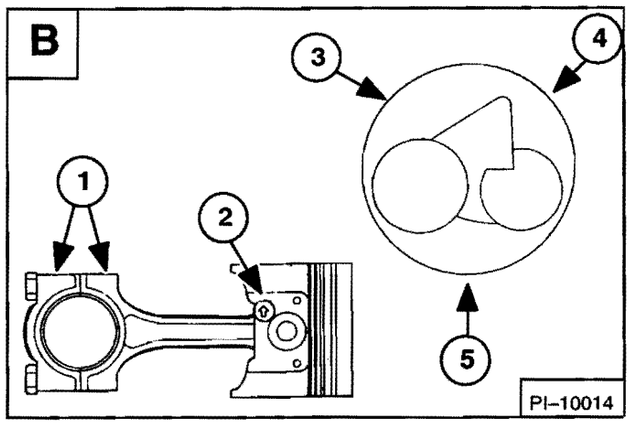
**PISTON AND CONNECTING ROD (Cont'd)**

**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.

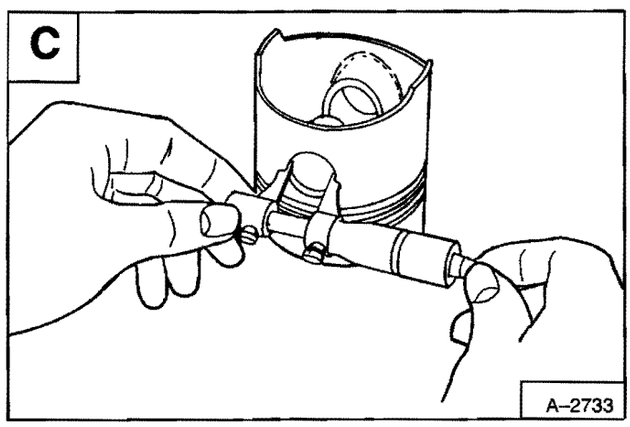



**Servicing the Piston and Connecting Rod**

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)

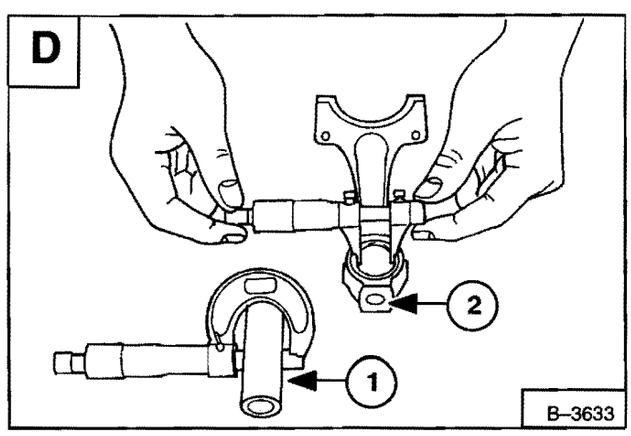



Measure the O.D. of the piston pin (Item 1) **[D]**.

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.

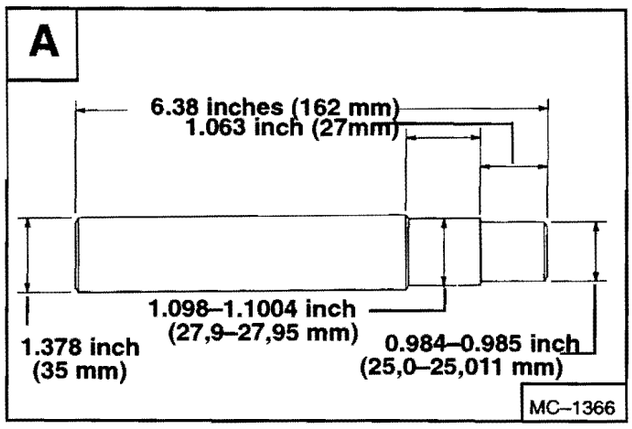
Piston Pin O.D. . . . . 0.984–0.985" (25,0–25,011 mm)
Bushing I.D. . . . . 0.985–0.986" (25,03–25,04 mm)
Oil Clearance between Piston Pin
& Bushing . . . . . 0.0006–0.0015" (0,014–0,038 mm)
Allowable Limit . . . . . 0.006" (0,15 mm)
Service Replacement Part . . . . . 0.0006–0.003"
(0,015–0.07 mm)



**PISTON AND CONNECTING ROD (Cont'd)**

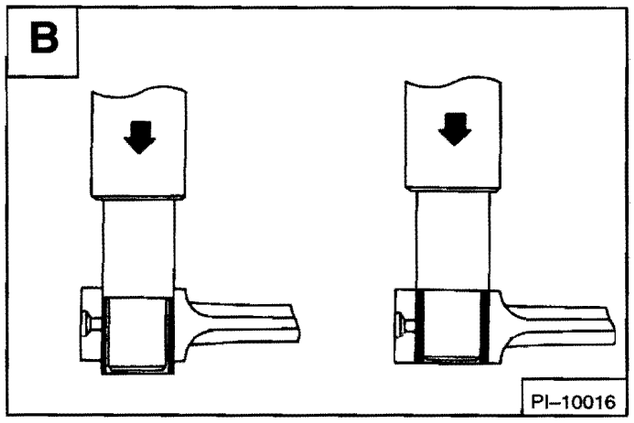
**Servicing the Piston and Connecting Rod (Cont'd)**

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]**.

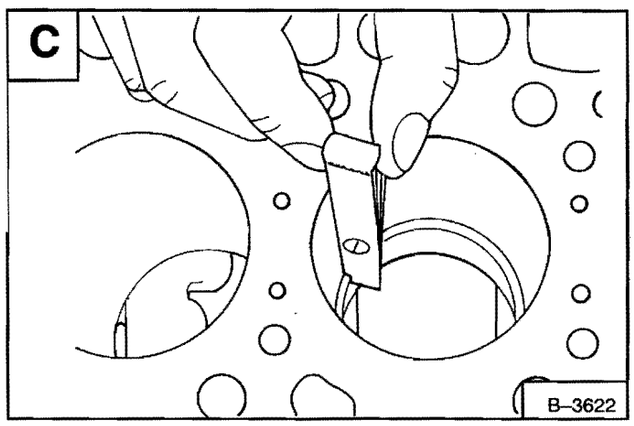
***Installation:*** Clean the small end bushing and bore. Put oil on the bushing and press into the connecting rod until it is flush **[B]**.




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.

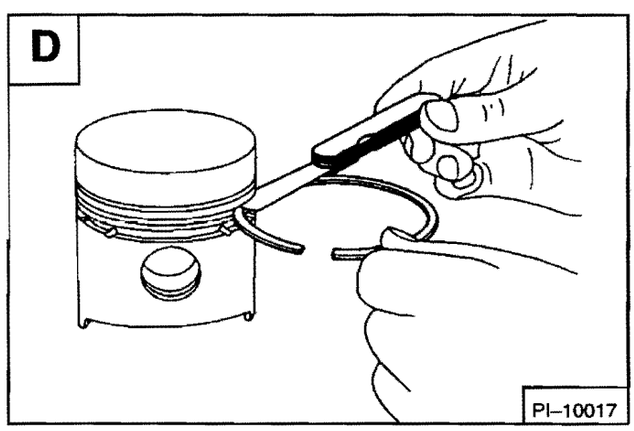
Compression Ring Gap .. 0.012–0.019" (0,3–0,5 mm)
Oil Ring Gap ..... 0.010–0.016" (0,25–0,4 mm)
Allowable Limit ..... 0.05" (1,25 mm)




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)



**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.

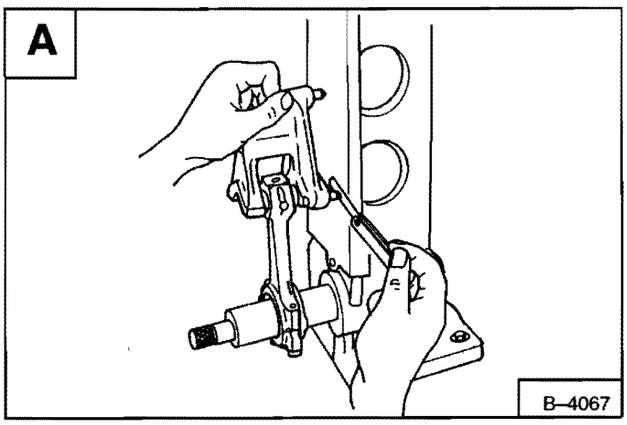
Install the connecting rod on an alignment tool.

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)



## CRANKSHAFT AND BEARINGS

### Removal and Installation

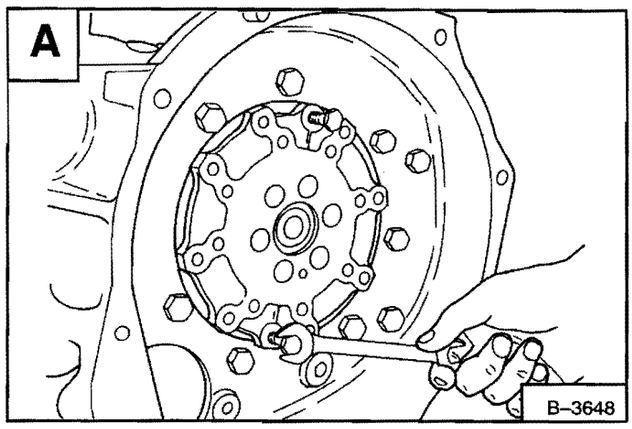
Remove the piston and connecting rod assemblies. (See Page 7–60.)

Remove the engine flywheel. (See Page 7–33.)

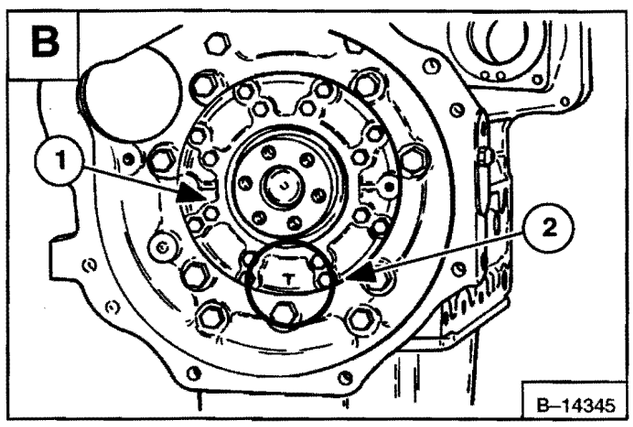
Remove the bolts which fasten the bearing case cover to the block.

***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]**.



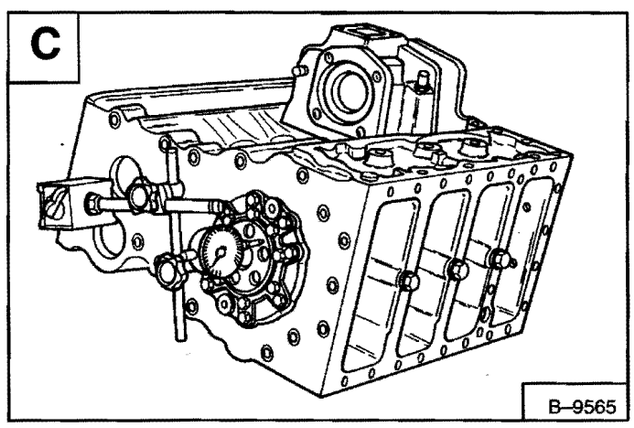

***Installation:*** When installing the cover (Item 1) **[B]**, make sure the casting mark (Item 2) **[B]** is in the down position.




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]**.

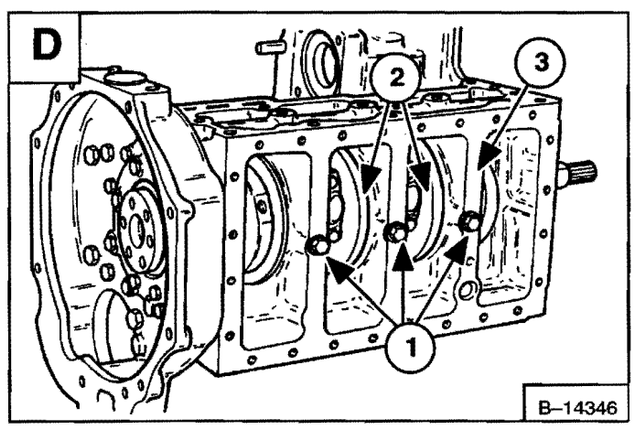
If the measurement exceeds the allowable limit, replace the thrust washers.

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.

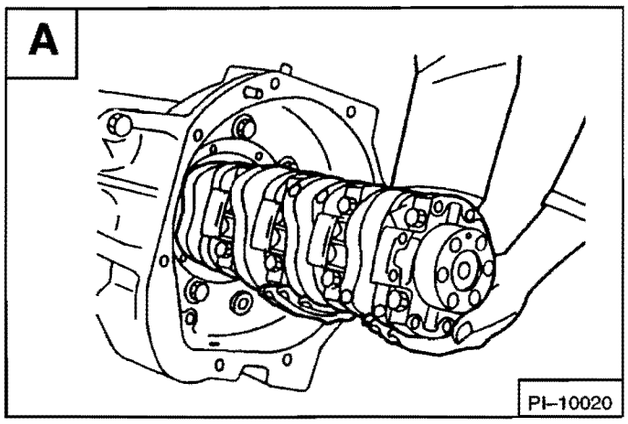


**CRANKSHAFT AND BEARINGS (Cont'd)**

**Removal and Installation (Cont'd)**

Remove the crankshaft/main bearing assembly from the engine block **[A]**.

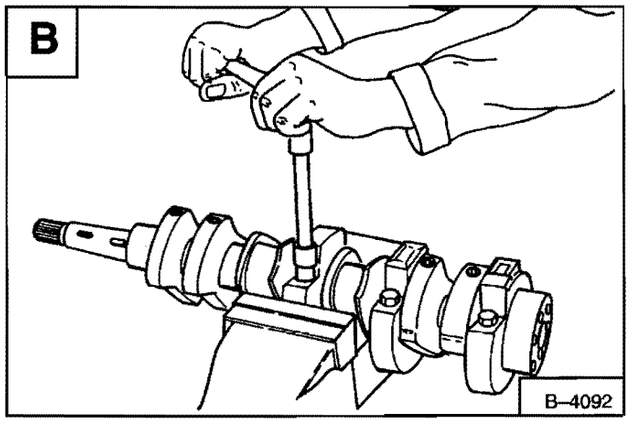
Mark the bearing case halves for correct installation.



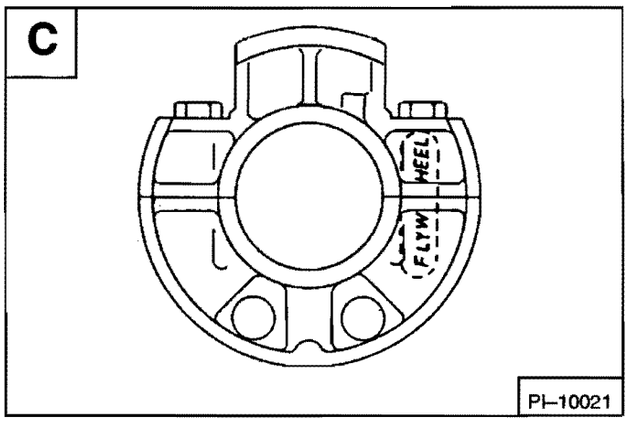

Remove the two bearing case bolts **[B]**.

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.



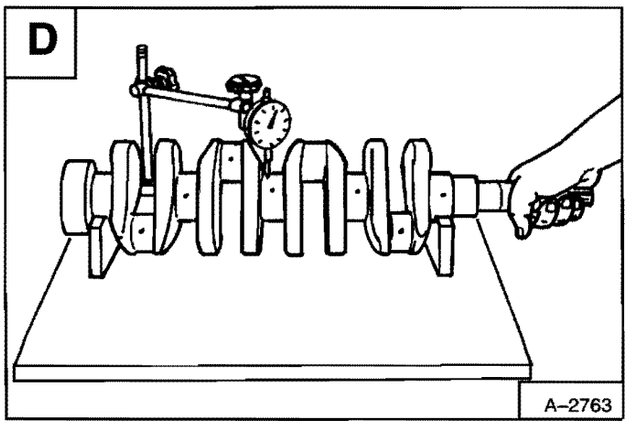

**Servicing the Crankshaft and Bearings**

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)



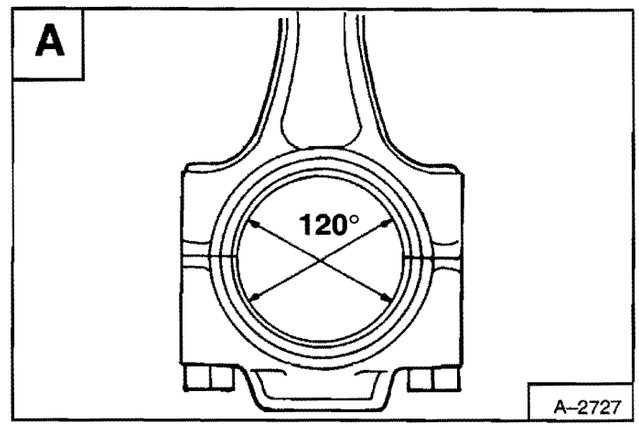
**CRANKSHAFT AND BEARINGS (Cont'd)**

**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)

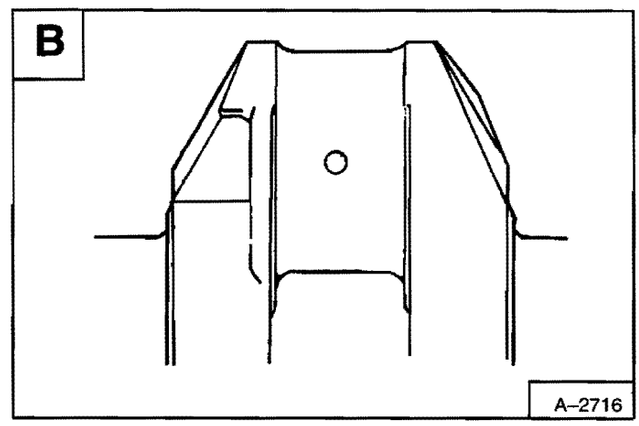
Measure the crankpin bearing I.D. **[A]**.




Measure the crankpin O.D. **[B]**.

Calculate the oil clearance.

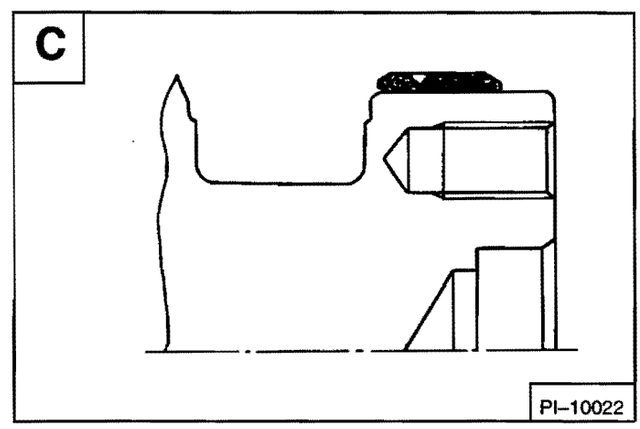
Crankpin Bearing I.D. . 1.850–1.852" (47,0–47,05 mm)
Crankpin O.D. ..... 1.849–1.850" (49,96–46,98 mm)
Oil Clearance ..... 0.0009–0.003" (0,025–0,087 mm)




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)

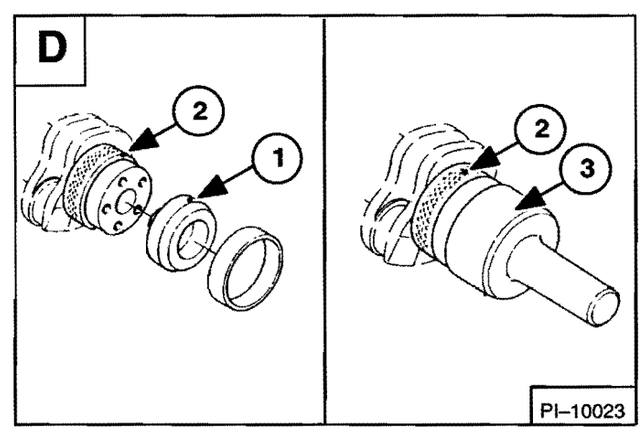



The special tool set will be needed to replace the crankshaft sleeve. The tool is available through Kubota, P/N 07916–32091.

Remove the sleeve.

Install the sleeve guide (Item 1) **[D]** and stop (Item 2) **[D]**.

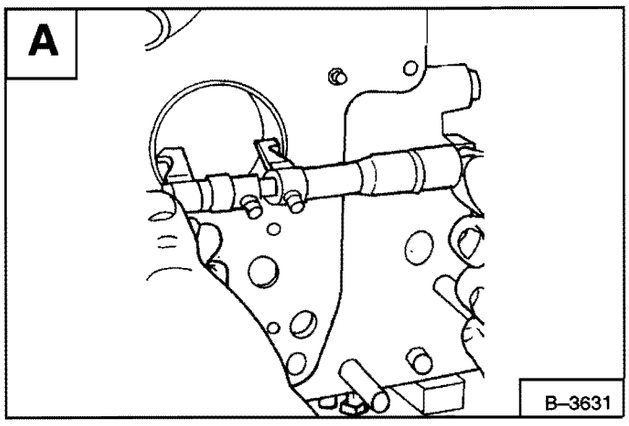
Heat the sleeve to about 300°F (150°C). Install the sleeve on the crankshaft using the special driver tool (Item 3) **[D]**.



**CRANKSHAFT AND BEARINGS (Cont'd)**

**Servicing the Crankshaft and Bearings (Cont'd)**

Measure the I.D. of the No. 1 crankshaft bearing **[A]**.

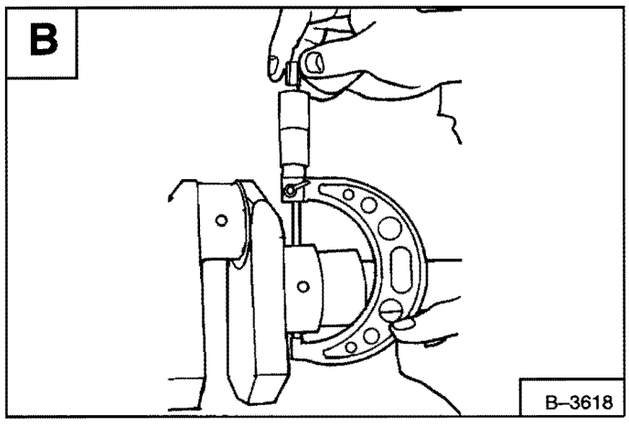



Measure the O.D. of the crankshaft journal **[B]**.

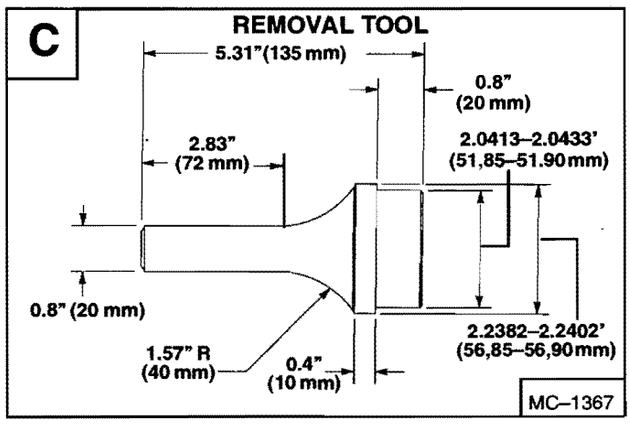
Calculate the oil clearance.

If the clearance exceeds the allowable limit, replace the crankshaft bearing.

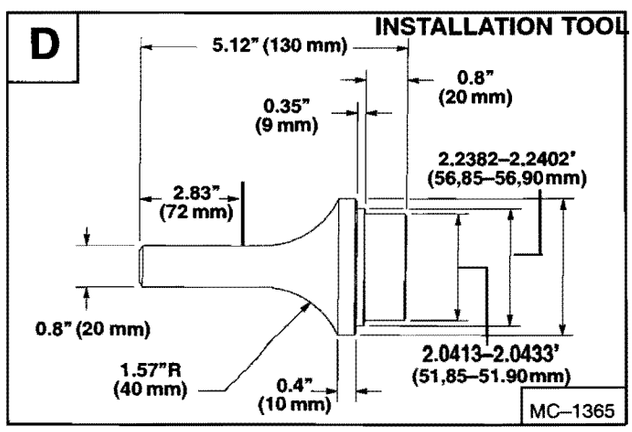
Bearing I.D. ..... 2.046–0.049" (51,98–52,04 mm)
Journal O.D. ..... 2.044–2.045" (51,92–51,94 mm)
Oil Clearance ..... 0.002–0.005" (0,04–0,12 mm)
Allowable Limit ..... 0.008" (0,2 mm)




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]**.

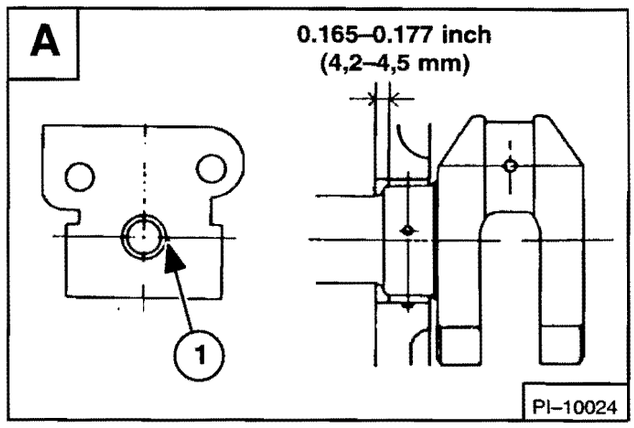


**CRANKSHAFT AND BEARINGS (Cont'd)**

**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]**.



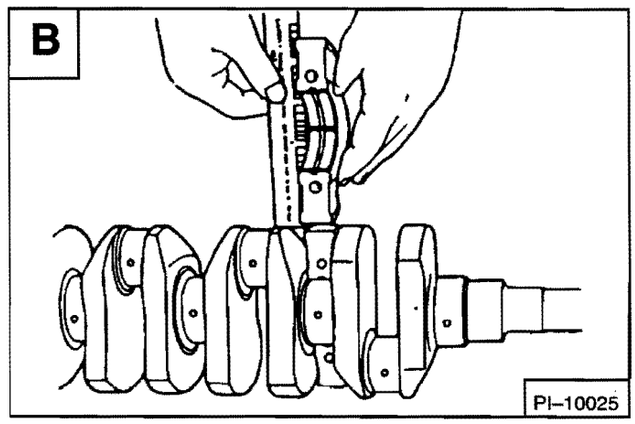

Clean the crankshaft journal and bearing. Put a strip of press gauge on the center journal.

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.

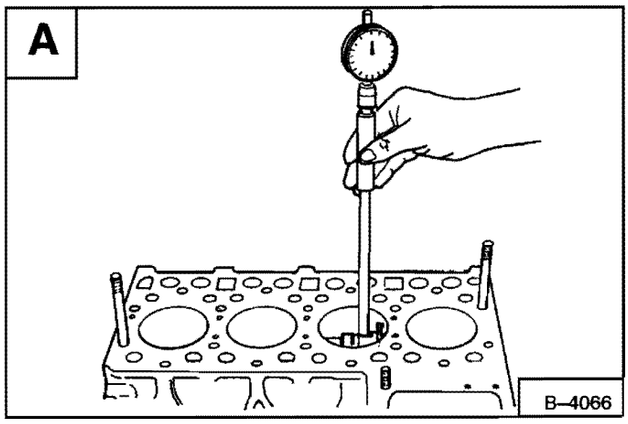
Crankshaft Journal O.D. . . . . 2.044–2.045" (51,92–51,94 mm)
Bearing I.D. . . . . 2.046–2.048" (51,98–52,03 mm)
Oil Clearance . . . . . 0.002–0.004" (0,04–0,10 mm)
Allowable Limit . . . . . 0.008" (0,2 mm)



## CYLINDER BORE

### Checking the Cylinder Bore

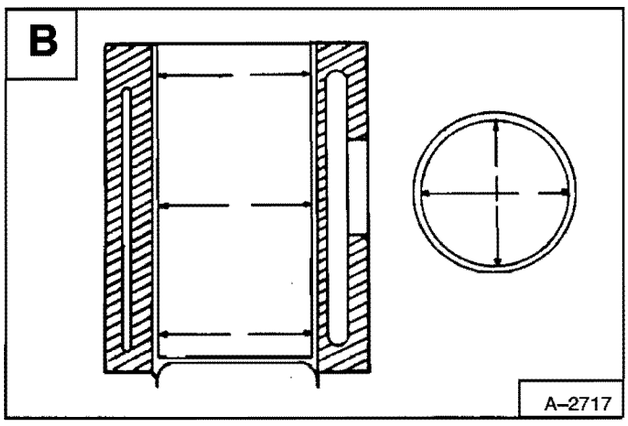
Use a gauge to check the inside measurement of the cylinder bore **[A]**.




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).

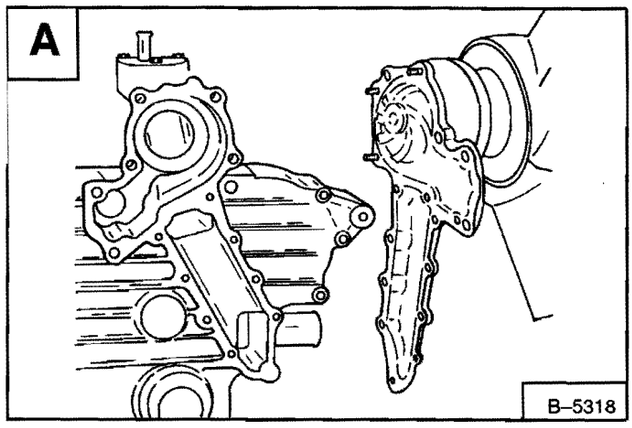
If the cylinder bore is not within specifications, re–bore the cylinder for oversized piston.



## WATER PUMP

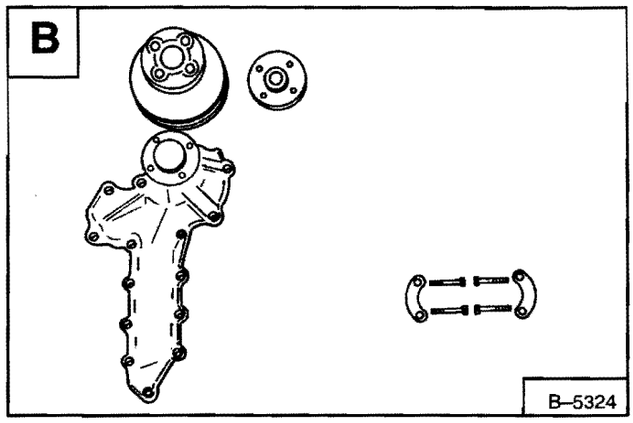
### Disassembly and Assembly

Remove the water pump from the timing gearcase cover **[A]**.

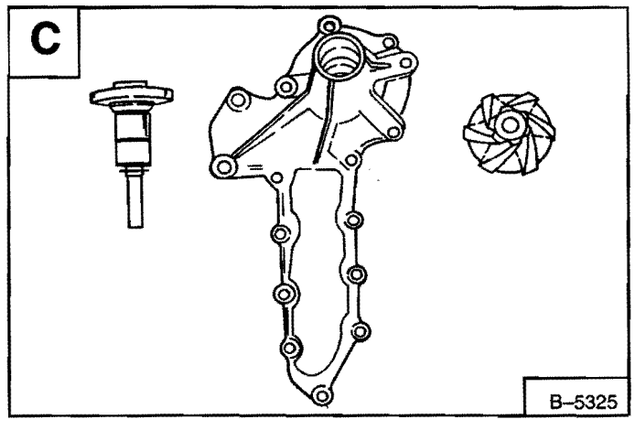



Put the water pump in a vise and remove the nut **[B]**.

Remove the pulley using a puller. Remove the key and snap ring.

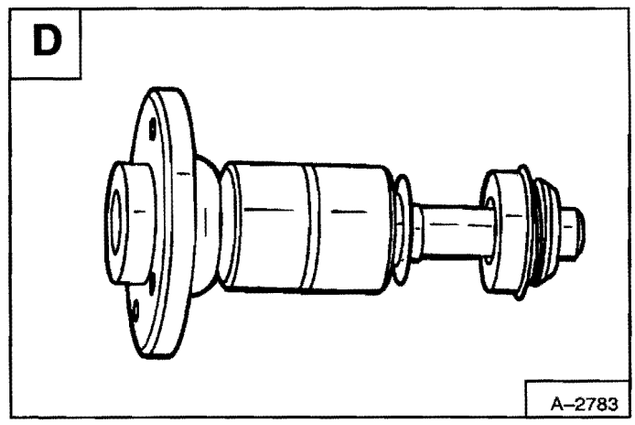



Drive the shaft out of the impeller side of the water pump housing **[C]**.




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.




bobcat

## SPECIFICATIONS

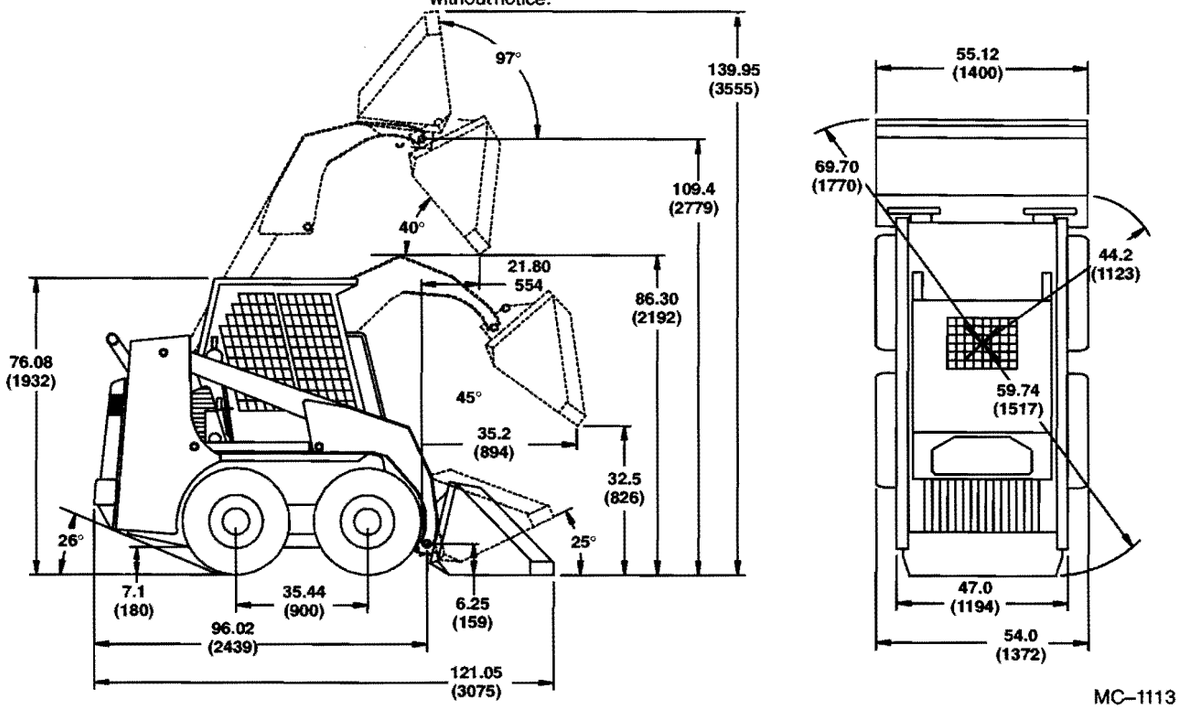

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bobcat

## 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.**

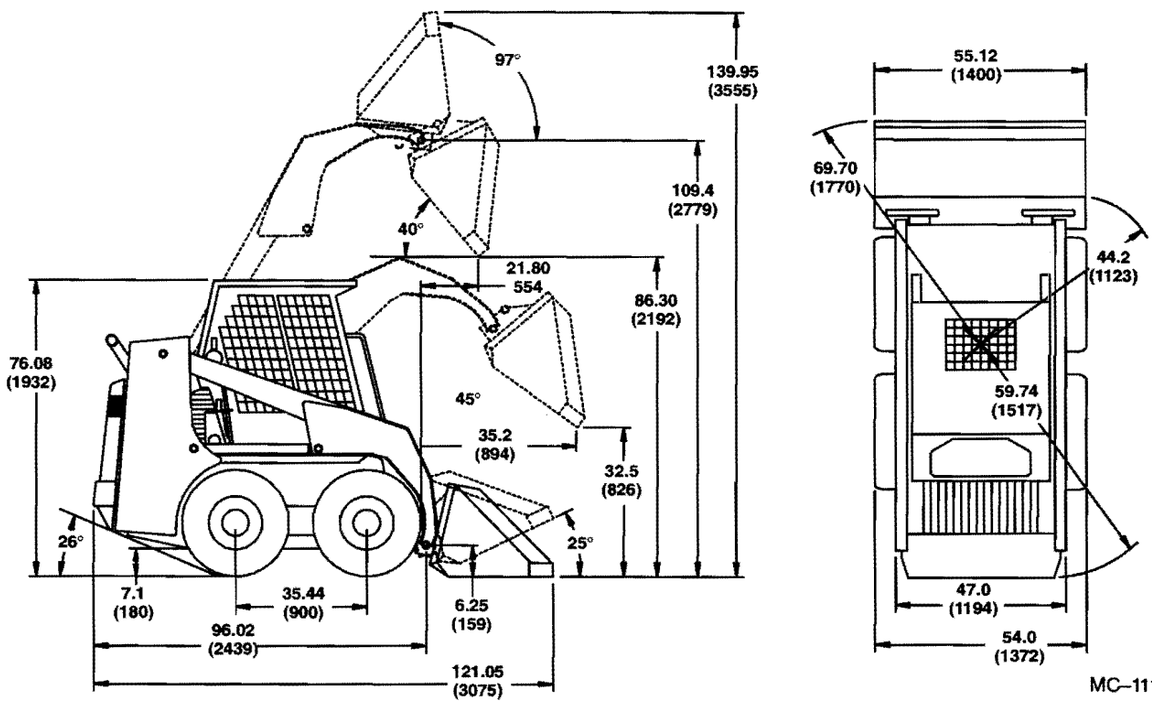
| OPERATIONS & PERFORMANCE | 753 |
|---|---|
| **Weights** | |
| Operating Weight | 4732 lbs. (2148 kg) |
| Rated Operating Capcity | 1300 lbs. (590 kg) |
| Tipping Load | 2600 lbs. (1180 kg) |
| **Travel Speed** | Infinitely variable 0–6.0 MPH (9,7 km/hr.) |
| **Controls** | |
| Vehicle | Direction & 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 |

| LOADER SPECIFICATIONS (Cont'd) | 753 |
|---|---|
| **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) |

## 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 |

| 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) |

## 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) |

## 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) |

## 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) |

**ENGINE SPECIFICATIONS (Cont'd)**

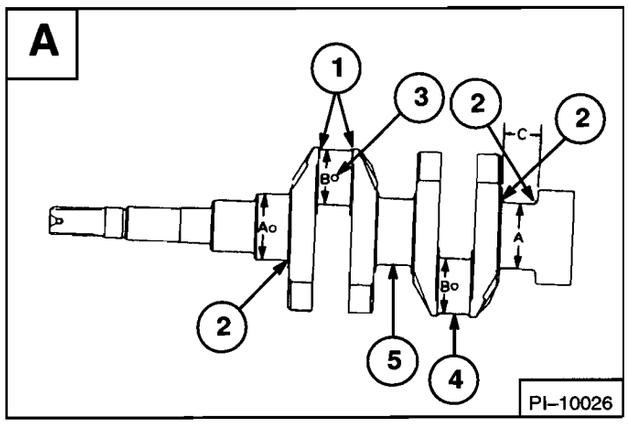
**Crankshaft Re–Grind Data**

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) | | | |

## 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) |

## 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 |

## 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**

## 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) |

## 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°<br>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

| ROUTE TO ATTENTION | |
| --- | --- |
| PARTS MANAGER | ☐ |
| SERVICE MANAGER | ☑ |
| SALES MANAGER | ☐ |
| | ☐ |

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 753

**Manual No.** 6720326 (8-90)

The attached pages are a revision to the 753 Service Manual (P/N 6720326).

Take out and put in the pages as listed below:

| TAKE OUT | PUT IN |
| --- | --- |
| PREVENTIVE MAINTENANCE - TAB PAGE | PREVENTIVE MAINTENANCE - TAB PAGE (Revised Mar. 91) |
| 1—3, 1—4 | 1—3 (Revised Mar. 91), 1—4 |
| 1—9, 1—10 | 1—9 (Revised Mar. 91), 1—10 |
| 1—11, 1—12 | 1—11, 1—12 (Revised Mar. 91) |
| 1—17, 1—18 | 1—17 (Revised Mar. 91), 1—18 |
| 1—21, 1—22 | 1—21 (Revised Mar. 91), 1—22 (Revised Mar. 91) |
| 1—25, 1—26 | 1—25, 1—26 (Revised Mar. 91) |
| 1—27, 1—28 | 1—27 (Revised Mar. 91), 1—28 (Revised Mar. 91) |
| 1—29 | 1—29 (Revised Mar. 91) |
| HYD./HYDRO. SYSTEM OPERATION<br>For Model 753<br>Chart #6720316 (Printed May 1990)<br>CHART LEGEND | HYD./HYDRO. SYSTEM OPERATION<br>For Model 753<br>Chart #6720316 (Printed May 1990)<br>CHART LEGEND (Revised Mar. 91) |
| 2—7, 2—8 | 2—7 (Revised Mar. 91), 2—8 |
| HYDROSTATIC SYSTEM - TAB PAGE | HYDROSTATIC SYSTEM - TAB PAGE (Revised Mar. 91) |
| 3—7, 3—8 | 3—7 (Revised Mar. 91), 3—8 (Revised Mar. 91) |
| 3—9, 3—10 | 3—9 (Revised Mar. 91), 3—10 (Revised Mar. 91) |
| 3—11, 3—12 | 3—11 (Revised Mar. 91), 3—12 |
| 3—15, 3—16 | 3—15 (Revised Mar. 91), 3—16 |
| 4—1, 4—2 | 4—1 (Revised Mar. 91), 4—2 |
| 4—5, 4—6 | 4—5 (Revised Mar. 91), 4—6 |
| 4—7, 4—8 | 4—7 (Revised Mar. 91), 4—8 (Revised Mar. 91) |
| 4—11, 4—12 | 4—11, 4—12 (Revised Mar. 91) |
| 4—13, 4—14 | 4—13 (Revised Mar. 91), 4—14 (Revised Mar. 91) |
| 4—15, 4—16 | 4—15 (Revised Mar. 91), 4—16 |
| 4—19, 4—20 | 4—19, 4—20 (Revised Mar. 91) |
| Auxiliary Hydraulic Wiring Diagram<br>Model 753 (S/N 11079 & Above)<br>(Printed August 1990) 3 of 3 Pages | Auxiliary Hydraulic Wiring Diagram<br>Model 753 (S/N 11079 & Above)<br>(Printed March 1991) 3 of 3 Pages |
| 7—5, 7—6 | 7—5 (Revised Mar. 91), 7—6 |
| 7—13, 7—14 | 7—13, 7—14 (Revised Mar. 91) |
| 7—19, 7—20 | 7—19 (Revised Mar. 91), 7—20 |
| 7—45, 7—46 | 7—45 (Revised Mar. 91), 7—46 |
| 8—1, 8—2 | 8—1 (Revised Mar. 91), 8—2 (Revised Mar. 91) |
| 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

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 753

**Manual No.** 6720326 (8-90)

| ROUTE TO ATTENTION | |
|---|---|
| PARTS MANAGER | ☐ |
| SERVICE MANAGER | ☑ |
| SALES MANAGER | ☐ |
| | ☐ |

Revise your Service Manual with the enclosed pages as shown below.

| TAKE OUT | PUT IN |
|---|---|
| 1—11, 1—12 (Revised Mar. 91) | 1—11, 1—12 (Revised Apr. 91) |
| 8—1, 8—2 (Revised Mar. 91) | 8—1, 8—2 (Revised Apr. 91) |


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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)

**ROUTE TO ATTENTION**

| | |
| --- | --- |
| PARTS MANAGER | ☐ |
| SERVICE MANAGER | ☑ |
| SALES MANAGER | ☐ |
| | ☐ |

Revise your Service Manual with the enclosed pages as shown below.

| TAKE OUT | PUT IN |
| --- | --- |
| 1—19, 1—20<br>1—25, 1—26 (Revised Mar. 91) | 1—19, 1—20 (Revised June 91)<br>1—25, 1—26 (Revised June 91) |
| 7—23, 7—24<br>7—29, 7—30<br>7—45 (Revised Mar. 91), 7—46<br>7—53, 7—54 | 7—23, 7—24 (Revised June 91)<br>7—29 (Revised June 91), 7—30 (Revised June 91)<br>7—45 (Revised June 91), 7—46 (Revised June 91)<br>7—53 (Revised June 91), 7—54 |
| 8—3 (Revised Mar. 91), 8—4 (Revised Mar. 91)<br>8—5, 8—6 | 8—3 (Revised June 91), 8—4 (Revised Mar. 91)<br>8—5 (Revised June 91), 8—6 |

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# SERVICE MANUAL REVISION

750—004
Revision Number

10 September 1991
Date

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 753

**Manual No.** 6720326 (8-90)

**ROUTE TO ATTENTION**

- PARTS MANAGER ☐
- SERVICE MANAGER ☑
- SALES MANAGER ☐
- ☐

Revise your Service Manual with the enclosed pages as shown below.

| TAKE OUT | PUT IN |
|---|---|
| PREVENTIVE MAINTENANCE - TAB PAGE<br>(Revised Mar. 1991)<br>1—5, 1—6 | PREVENTIVE MAINTENANCE - TAB PAGE<br>(Revised September 91)<br>1—5, 1—5a (Added Sept. 91)<br>1—5b (Added Sept. 91), 1—6 |
| 1—25, 1—26 (Revised Mar. 91) | 1—25, 1—26 (Revised Sept. 91) |
| | 2—21 Thru 2—27 (Added Sept. 91) |
| 3—7 (Revised Mar. 91), 3—8 (Revised Mar. 91) | 3—7 Revised Sept. 91), 3—8 (Revised Mar. 91) |
| WIRING DIAGRAM (P/N 6720582)<br>Model 753 (S/N 11079 & Above)<br>(Printed Aug. 1990) 3 of 3 Pages. | WIRING DIAGRAM (P/N 6720582)<br>Model 753 (S/N 11079 Thru 13487)<br>(Printed Sept. 1991) 3 of 3 Pages. |
| | WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13488 & Above)<br>(Printed Sept. 91) 3 of 3 Pages. |


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MELROE COMPANY

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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)

**ROUTE TO ATTENTION**

| | |
|---|---|
| PARTS MANAGER | ☐ |
| SERVICE MANAGER | ☑ |
| SALES MANAGER | ☐ |
| | ☐ |

Revise your Service Manual with the enclosed pages as shown below.

| TAKE OUT | PUT IN |
|---|---|
| MAINTENANCE SAFETY,<br>MAINTENANCE SAFETY (Cont'd) | MAINTENANCE SAFETY (Revised Jan. 92)<br>MAINTENANCE SAFETY (Cont'd) |
| PREVENTIVE MAINTENANCE - TAB PAGE (Revised Sept. 91) | PREVENTIVE MAINTENANCE - TAB PAGE (Revised Jan. 92) |
| 1—1, 1—2<br>1—3 (Revised Mar. 91), 1—4<br>1—5, 1—5a (Added Sept. 91)<br>1—5b (Added Sept. 91), 1—6<br>1—11, 1—12 (Revised Apr. 91)<br>1—21 (Revised Mar. 91), 1—22 (Revised Mar. 91)<br>1—25, 1—26 (Revised Sept. 91) | 1—1 (Revised Jan. 92), 1—2<br>1—3 (Revised Mar. 91), 1—4 (Revised Jan. 92)<br>1—5 (Revised Jan. 92), 1—5a (Revised Jan. 92)<br>1—5b (Added Sept. 91), 1—6 (Revised Jan. 92)<br>1—11 (Revised Jan. 92), 1—12 (Revised Apr. 91)<br>1—21 (Revised Jan. 92), 1—22 (Revised Jan. 92)<br>1—25, 1—26 (Revised Jan. 92) |
| HYDRAULIC SYSTEM - TAB PAGE<br>2—19, 2—20 | HYDRAULIC SYSTEM - TAB PAGE (Revised Jan. 92)<br>2—19 (Revised Jan. 92), 2—20 |
| ENGINE SERVICE - TAB PAGE<br>7—21, 7—22 | ENGINE SERVICE - TAB PAGE (Revised Jan. 92)<br>7—21 (Revised Jan. 92), 7—22 |
| 8—1 (Revised Mar. 91), 8—2 (Revised Apr. 91) | 8—1 (Revised Jan. 92), 8—2 (Revised Apr. 91) |

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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**

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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 |
|---|---|
| PREVENTIVE MAINTENANCE - TAB PAGE (Revised Jan. 92) | PREVENTIVE MAINTENANCE - TAB PAGE (Revised Apr. 92) |
| 1—29 (Revised Mar. 91) | 1—29 (Revised Mar. 91), 1—30 (Added Apr. 92) |
| HYDROSTATIC SYSTEM - TAB PAGE (Revised Mar. 91) | HYDROSTATIC SYSTEM - TAB PAGE (Revised Apr. 92) |
| 3—15 (Revised Mar. 91), 3—16<br>3—19 | 3—15 (Revised Mar. 91), 3—16 (Revised Apr. 92)<br>3—19 Thru 3—26 (Added Apr. 92) |
| | * WIRING DIAGRAM (P/N 6722195)<br>BUCKET POSITION VALVE LOCKOUT (OPTIONAL)<br>Model 753, 7753, 843, 843B & 853)<br>(Printed April 92) |
| 7—19 (Revised Mar. 91), 7—20<br>7—25, 7—26 | 7—19 (Revised Mar. 91), 7—20 (Revised Apr. 92)<br>7—25 (Revised Apr. 92), 7—26 (Revised Apr. 92) |

*NOTE: Put the WIRING DIAGRAM (P/N 6722195) at the beginning of Section 6.


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# SERVICE MANUAL REVISION

750—007
Revision Number

6 August 1992
Date

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 750 SERIES

**Manual No.** 6720326 (8-90)

**ROUTE TO ATTENTION**

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)<br>Model 753 (S/N 13488 & Above)<br>(Printed September 1991) 1 Of 3 Pages | OPERATOR CAB WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13488 Thru 17641)<br>(Printed August 1992) 1 Of 3 Pages |
| ENGINE WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13488 & Above)<br>(Printed September 1991) 2 Of 3 Pages | ENGINE WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13489 Thru 17641)<br>(Printed August 1992) 2 Of 3 Pages |
| AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13488 & Above)<br>(Printed September 1991) 3 Of 3 Pages | AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6720959)<br>Model 753 (S/N 13489 Thru 17641)<br>(Printed August 1992) 3 Of 3 Pages |
| | OPERATOR CAB WIRING DIAGRAM (P/N 6722301)<br>Model 753 (Starting With S/N 17642)<br>(Printed August 1992) 1 Of 3 Pages |
| | ENGINE WIRING DIAGRAM (P/N 6722301)<br>Model 753 (Starting With S/N 17642)<br>(Printed August 1992) 2 Of 3 Pages |
| | AUXILIARY HYDRAULIC WIRING DIAGRAM (P/N 6722301)<br>Model 753 (Starting With S/N 17642)<br>(Printed August 1992) 3 Of 3 Pages |
| 7—7, 7—8<br>7—15, 7—16 | 7—7 (Revised Aug. 92), 7—8<br>7—15, 7—16 (Revised Aug. 92) |


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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 | ☐ |
| _____ | ☐ |

Revise your Service Manual with the enclosed pages as shown below.

| TAKE OUT | PUT IN |
|---|---|
| FOREWARD<br>iii | FOREWORD(Rev. Dec. 92)<br>iii (Rev. Dec. 92) |
| 1—1 (Rev. Jan. 92), 1—2<br>2—7 (Rev. Mar. 91), 2—8 | 1—1 (Rev. Dec. 92), 1—2<br>2—7 (Rev. Dec. 92), 2—8 |
| | HYDRAULIC/HYDROSTATIC FLOW CHART<br>Model 753 (S/N 19227 & Above)<br>P/N 6722407 (Printed Dec. 92) |


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750—009
Revision Number

30 September 1993
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 following is a revision to the 753 Service Manual P/N 6720326 (8-90).
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 |
| Section 2, Content Page | Section 2, Content Page (Revised Sept. 93) |
| 2—9, 2—10 | 2—9 (Revised Sept. 93), 2—10 (Revised Sept. 93) |
| 2—11 thru 2—27 | 2—11 thru 2—25 (Revised Sept. 93) |
| 3—3, 3—4 | 3—3 (Revised Sept. 93), 3—4 |
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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) |
| 5—3, 5—4 | 5—3 (Revised Sept. 93), 5—4 (Revised Sept. 93) |
| 5—11, 5—12 | 5—11 (Revised Sept. 93), 5—12. |
| 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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| 7—13, 7—14 | 7—13 (Revised Sept. 93), 7—14 (Revised Sept. 93) |
| 7—15, 7—16 | 7—15 (Revised Sept. 93), 7—16 (Revised Sept. 93) |
| 7—17, 7—18 | 7—17 (Revised Sept. 93), 7—18 (Revised Sept. 93) |
| 7—19, 7-20 | 7—19 (Revised Sept. 93), 7—20 (Revised Sept. 93) |


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750–010
Revision Number

29 November 1993
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 | ☐ |
| _____ | ☐ |

Revise your Service Manual with the enclosed pages as shown below.

**TAKE OUT**

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)
(Printed November 1993) 2 of 2 Pages


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MELROE COMPANY

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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)<br>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)<br>8—5 (Revised June 91), 8—6<br>8—7 thru 8—10 | 8—3 (Revised Jan. 94), 8—4 (Revised Jan. 94)<br>8—5 (Revised Jan. 94), 8—6 (Revised Jan. 94)<br>8—7 thru 8—10 (Revised Jan 94)<br>8—11 (Added Jan. 94), 8—12 (Added Jan. 94) |


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| 750—12 |
| --- |
| Revision Number |
| 1 February 1995 |
| Date |

# SERVICE MANUAL REVISION

| ROUTE TO ATTENTION | |
| --- | --- |
| PARTS MANAGER | ☐ |
| SERVICE MANAGER | ☑ |
| SALES MANAGER | ☐ |

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 753 & 753H

**Manual No.** 6720326 (8-90)

**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).**

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 MANUAL REVISION

| 750–13 |
| --- |
| Revision Number |
| 20 October 1995 |
| Date |

**AFFECTING:**

**Product** BOBCAT LOADER

**Model** 750 Series

**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 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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