

Product: Bobcat 741,742,743,743DS Skid Steer Loader Service Repair Workshop Manual

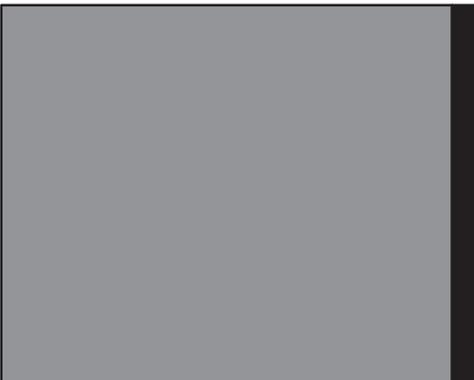
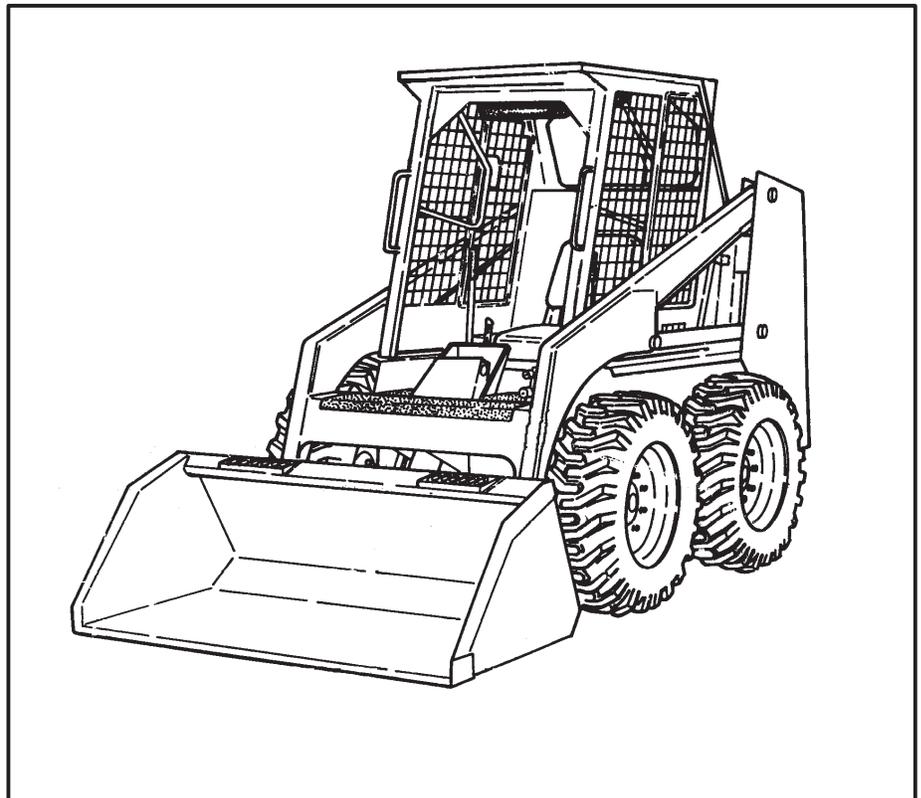
Full Download: <https://www.aresairmanual.com/downloads/bobcat-741742743743d>

[s-skid-steer-loader-service-repair-workshop-manual/](https://www.aresairmanual.com/downloads/bobcat-741742743743d-s-skid-steer-loader-service-repair-workshop-manual/)



# Service Manual

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



Sample of manual. Download All 452 pages at

<https://www.aresairmanual.com/downloads/bobcat-741742743743d-s-skid-steer-loader-service-repair-workshop-manual/>

**MELROE  
INGERSOLL-RAND**



Product: Bobcat 741,742,743,743DS Skid Steer Loader Service Repair Workshop Manual

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# MAINTENANCE SAFETY



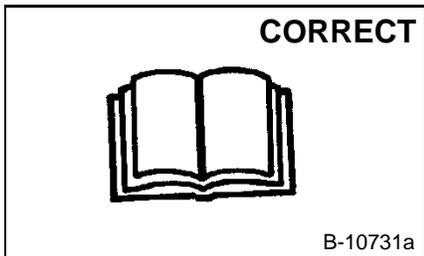
## WARNING

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

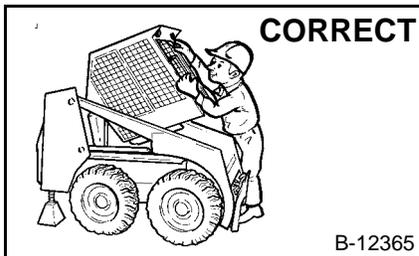
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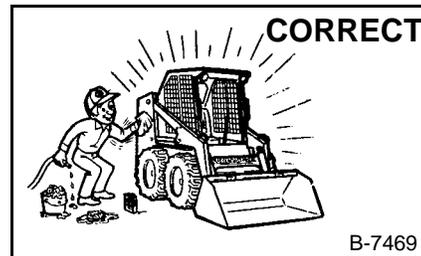
**Safety Alert Symbol:** This symbol with a warning statement, means: "Warning, be alert! Your safety is involved!" Carefully read the message that follows.



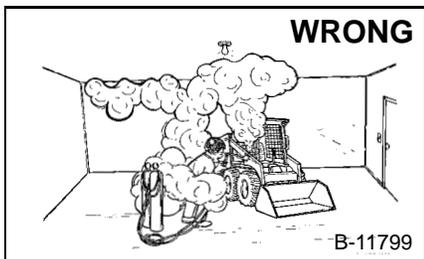
Never service the Bobcat Skid-Steer Loader without instructions.



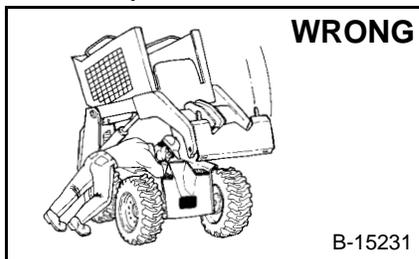
Use the correct procedure to lift or lower operator cab.



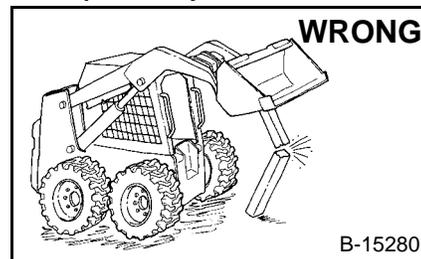
Cleaning and maintenance are required daily.



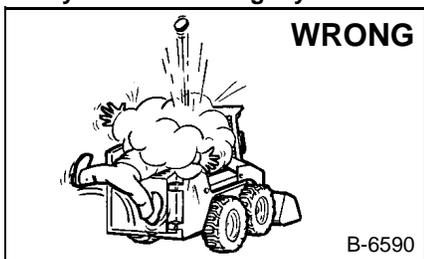
- Have good ventilation when welding or grinding painted parts.
- Wear dust mask when grinding painted parts. Toxic dust and gas can be produced.
- Avoid exhaust fume leaks which can kill without warning. Exhaust system must be tightly sealed.



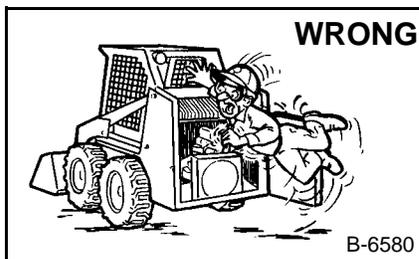
Disconnecting or loosening any hydraulic tubeline, hose, fitting, component or a part failure can cause lift arms to drop. Do not go under lift arms when raised unless supported by an approved lift arm support device. Replace it if damaged.



- 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.



- 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.



- Keep body, jewelry and clothing away from moving parts, electrical contact, 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.



- 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.



**Bobcat®**

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**CALIFORNIA  
PROPOSITION 65 WARNING**  
Diesel engine exhaust and some of its  
constituents are known to the State of California  
to cause cancer, birth defects and other  
reproductive harm.

**PREVENTIVE  
MAINTENANCE**

**HYDRAULIC  
SYSTEM**

**HYDROSTATIC  
SYSTEM**

**DRIVE  
SYSTEM**

**MAIN  
FRAME**

**ELECTRICAL  
SYSTEM**

**ENGINE  
SERVICE**

**SPECIFICATIONS**

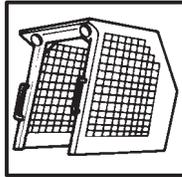


# FOREWORD

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:

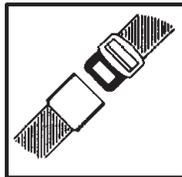
1. Check that the ROPS/FOPS (Including sidescreens) is in good condition and is not modified.



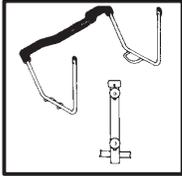
2. Check that ROPS mounting hardware is tightened and is Melroe approved.



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



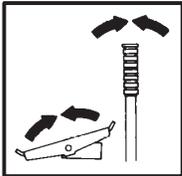
4. The seat bar and pedal interlocks must be correctly adjusted, clean and lubricated.



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.



8. The parking brake must function correctly.



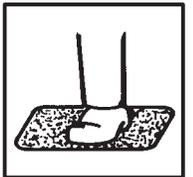
9. Enclosure door latches must open and close freely.



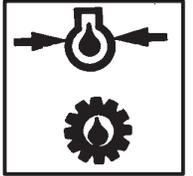
10. Bob-Tach wedges and linkages must function correctly and be in good condition.



11. Safety treads must in good condition.



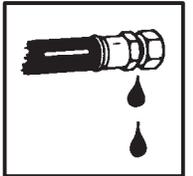
12. Check for correct function of indicator lamps (Optional on some models).



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



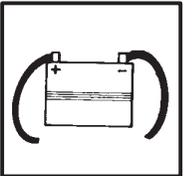
14. Inspect for fuel, oil or hydraulic fluid leaks.



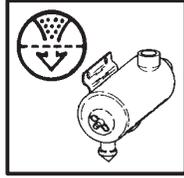
15. Lubricate the loader.



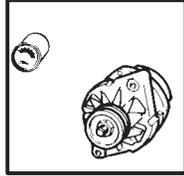
16. Check the condition of the battery and cables.



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



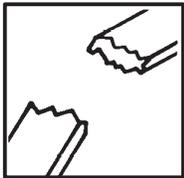
18. Check the electrical charging system.



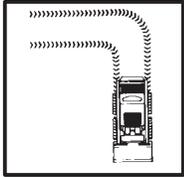
19. Check tires for wear and pressure.



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.



23. Check for correct function of the Bobcat Interlock Control System (BICS™) before the machine is returned to the customer.



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



## SAFETY INSTRUCTIONS

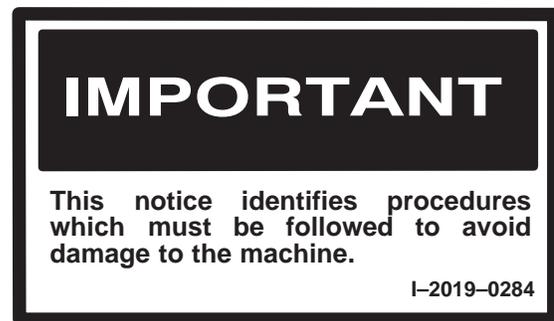
# **WARNING**

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 and maintenance of the loader and attachments:

- The Delivery Report is used to assure that complete instructions have been given to the new owner and that the machine is in safe operating condition.
- The Operation & Maintenance Manual delivered with the 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. Replacement Operation & Maintenance Manuals can be ordered from your Bobcat loader dealer.
- The loader has machine signs (decals) which instruct on the safe operation and care. The signs and their locations are shown in the Operation & Maintenance Manual. Replacement signs are available from your Bobcat loader dealer.
- The loader has a plastic Operator's Handbook fastened to the operator cab. Its brief instructions are convenient to the operator. The handbook is available from your dealer in English edition or French, German, Italian, Dutch & Spanish editions.
- The EMI Safety Manual (available in Spanish) delivered with the loader gives general safety information.
- The Service Manual and Parts Manual are available from your dealer for use by mechanics to do shop-type service and repair work.
- The Skid-Steer Loader Operator Training Course is available through your local dealer. This course is intended to provide rules and practices for correct operation of the Bobcat loader. The course is available in English and Spanish versions.
- The Bobcat Skid-Steer Loader Safety Video is available from your Bobcat Dealer.



**Safety Alert Symbol:** This Safety Symbol is used for important safety messages. When you see this symbol follow the safety message to avoid personal injury or death.

## SAFETY INSTRUCTIONS (Cont'd)

- Wear tight fitting clothing. Always wear safety glasses when maintaining or servicing loader. Safety glasses, hearing protection or loader special applications kit are required for some work. See your dealer for Melroe Safety equipment.
- Know where fire extinguisher and first aid kit are located and how to use them.
- Do not use the Bobcat loader where exhaust, arcs, sparks or hot components can contact flammable material, explosive dust or gases.
- The engine compartment and engine cooling system must be inspected every day and cleaned if necessary to prevent fire hazard and overheating.
- Check all electrical wiring and connections for damage. Keep the battery terminals clean and tight. Repair or replace any damaged part.
- 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.
- Follow any environmental safety regulations when disposing of used fluids such as engine oil, grease or anti-freeze.
- Do not use ether or starting fluids on this engine. It has a glow plug. These starting aids can cause explosion and injure you or bystanders.
- Always clean the loader and disconnect the battery 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 grinding or welding painted parts. Wear dust mask when grinding painted parts. Toxic dust or gas can be produced.
- Stop the engine and let it cool before adding fuel. No smoking!
- Use the procedure in the Operation & Maintenance or Service Manuals for connecting the battery.

A fire extinguisher is available from your local dealer. The fire extinguisher can be installed in the location shown [A].



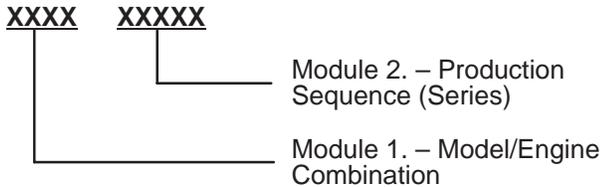
## SERIAL NUMBER LOCATIONS

Always use the serial number of the loader when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation.

### LOADER SERIAL NUMBER

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

Explanation of loader Serial Number:



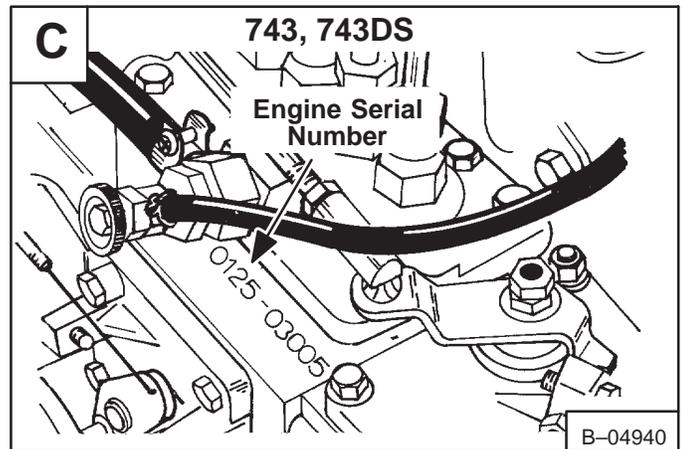
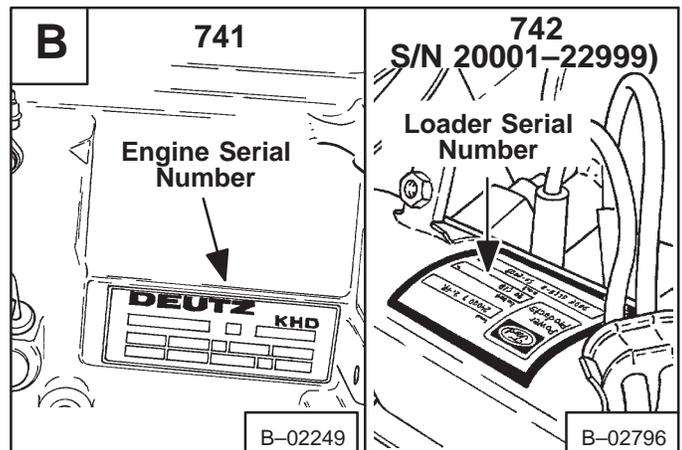
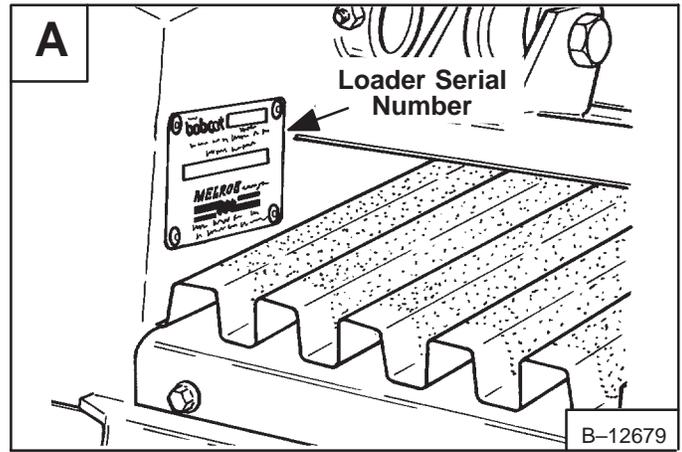
1. The four digit Model/Engine Combination Module number identifies the model number and engine combination.
2. The five digit Production Sequence Number identifies the order which the loader is produced.

### ENGINE SERIAL NUMBER

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

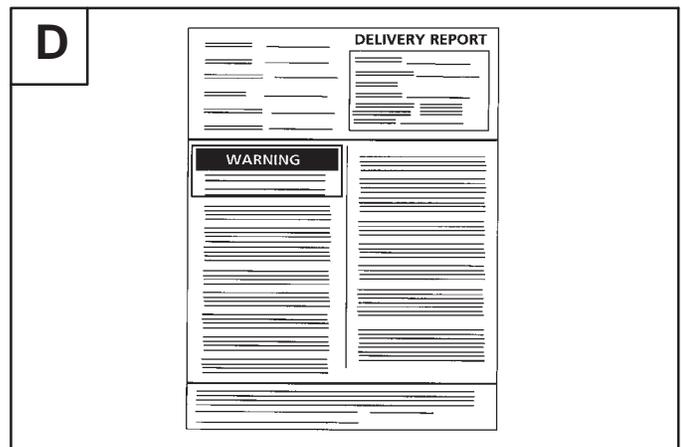
**742** – The engine serial number is on top of the valve cover of the engine [B].

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

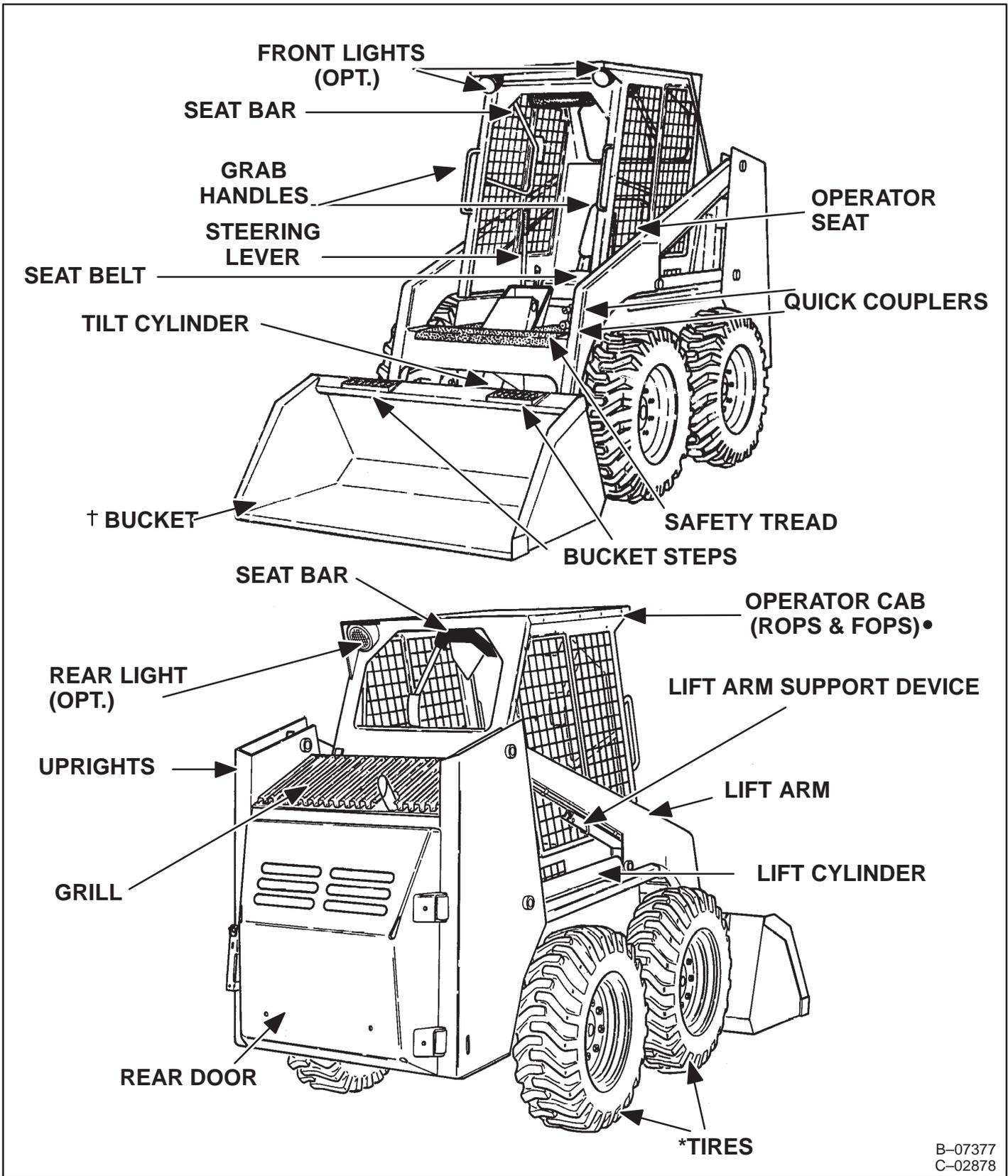


### DELIVERY REPORT

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



**BOBCAT SKID STEER LOADER IDENTIFICATION**



B-07377  
C-02878

\* 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 SE J1040 and SAE J1043. The Bobcat loader is base-equipped with a standard operator cab as shown.

# PREVENTIVE MAINTENANCE

## PREVENTIVE MAINTENANCE

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Procedure .....	1-8



## 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 manual 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	500	1000
Engine Oil	Check the oil level & add oil as needed.						
Engine Air Cleaner	Empty dust cup. Replace the outer filter element only when the red ring shows in the indicator window. Check for leaks & damage.						
Engine Cooling System (742, 743)	Check coolant level. Add coolant as needed. Clean the radiator grill area.						
Engine Cooling Inlet	Check rear door grill & blower inlet for restriction of air. Clean cooling fins & blower as needed.						
Tires	Check for damaged tires & correct air pressure.						
Seat Belt, Seat Bar	Check the condition of seat belt. Check the seat bar for correct operation.						
Safety Signs (Decals) & Safety Tread	Check for damaged signs (decals) & safety treads. Replace any signs or safety treads that are damaged or worn.						
All Pivot Points	Add grease to the fittings until extra grease shows.						
Fuel Filter	Remove water from filter.						
Operator Cab	Check the fastening bolts, washers and nuts.						
Wheel Nuts	<input type="checkbox"/> Check for loose wheel nuts. Tighten to correct torque.						
Engine Oil & Filter	Replace the oil and filter.						
Battery	Check the water level. Check cable ends for corrosion & being tight.						
Parking Brake	Check operation adjust as needed.						
Hydraulic Fluid, Tubelines & Hoses	Check fluid level & add as needed. Check for damage & replace as needed.						
Alternator Drive Belt	Check the tension & adjust as needed.						
Crankcase Breather	Clean breather cap.						
Bob-Tach	Check levers & wedges for correct operation & condition.						
Controls & Brake	Check for correct operation & Adjust as needed.						
Chaincase	Check for oil level & add as needed.						
Hydraulic Filter	Replace filter element (S/N 14999 & Below).						
Crankcase Breather (741)	Clean breather cap.						
Spark Arrestor Muffler	Remove the plug & clean the spark chamber.						
Ignition System	Check spark plugs, points & timing. Repair as needed.						
Governor (742)	Check oil level & add as needed.						
Seat Bar	Grease pivot as needed.						
Steering Shaft Pivots	Add grease to two fittings. Add oil to steering shaft.						
U-Joint	Grease three fittings with the correct grease.						
Engine Fuel Filter	Replace filter element & inline filter element.						
Hydraulic Filter	• Replace the filter element.						
40 Micron Filter	Replace the filter in port block (S/N 14999 & Below).						
Hyd./Hydro. Breather Cap	Replace the breather cap.						
Chaincase	Replace the oil.						
•Hydraulic Fluid Reservoir	Replace the hydraulic fluid & filter element.						
Starting Motor	Remove, clean & service as needed.						
Engine Compression (743)	Check compression & repair engine as needed.						

- Check wheel nut torque every 8 hours for the first 24 hours.
- Also replace hydrostatic filter element when the transmission warning light stays on for five minutes after the hydrostatic fluid is at operating temperature.
- Or every 12 months.

# ⚠ WARNING

Instructions are necessary before operating or servicing machine. Read Operation & Maintenance Manuals, 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

# ⚠ 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

## 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

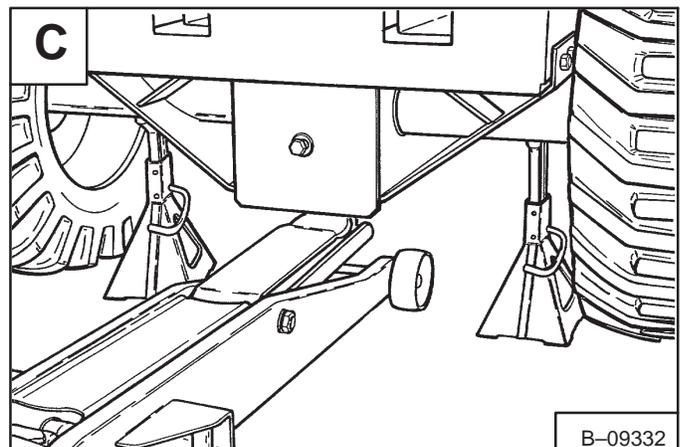
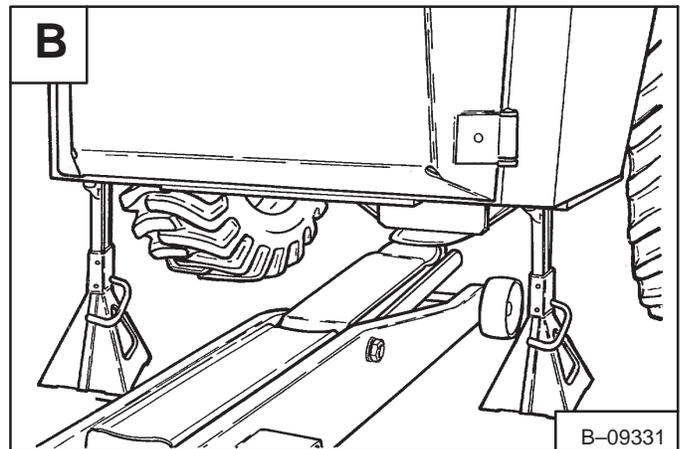
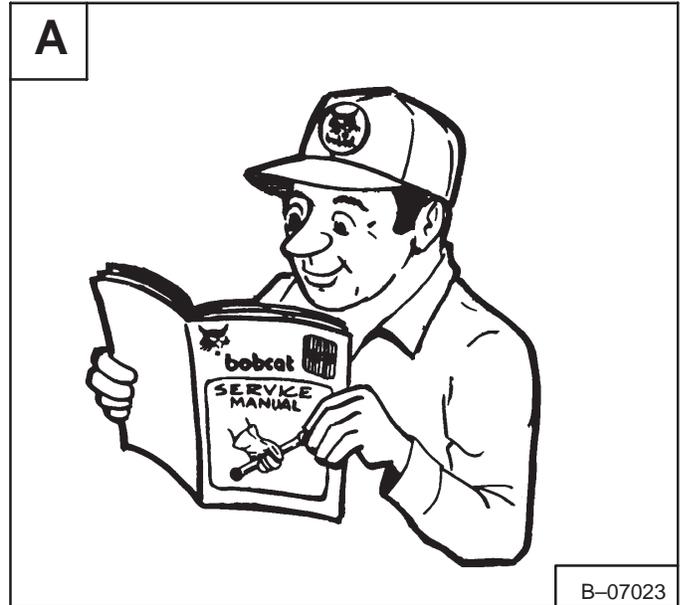
Put floor jack under the rear of the loader [B].

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

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

Lift the front of the loader and put jackstands [C].

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



## TRANSPORTING THE BOBCAT 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

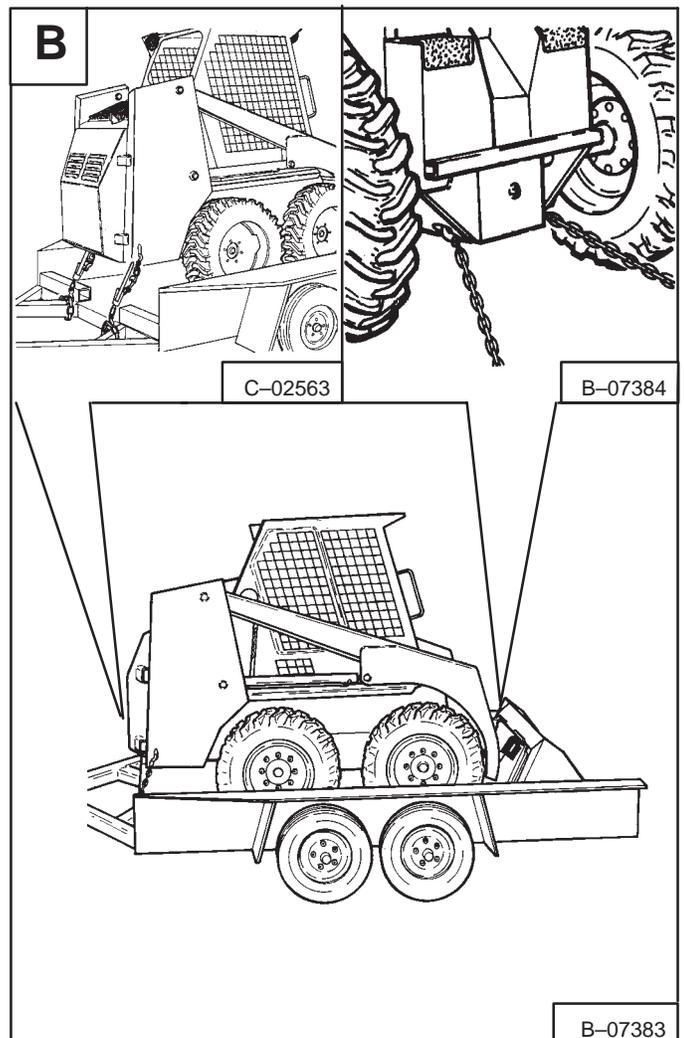
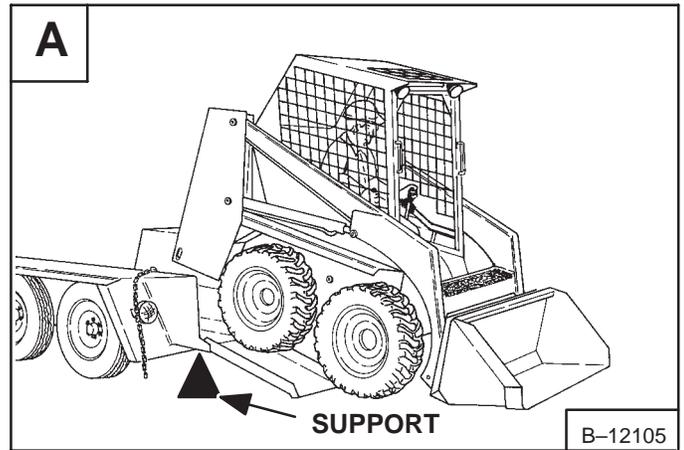
A loader with an empty bucket or no attachment must be loaded backward onto the transport vehicle [A].

The rear of the trailer must be blocked or supported [A] when loading or unloading the loader to prevent the front end of the trailer from raising up.

Lower the lift arms and bucket to the transport vehicle.

Stop the engine. Engage the parking brake.

Install chains as shown [B] to prevent the loader from moving during sudden stops or when going up or down slopes.



## LIFT ARM SUPPORT DEVICE

### Installation

**NOTE:** Maintenance or service work can be done with the lift arms lowered. Put jackstands under the rear corners of the loader before raising the operator cab or lift arms.

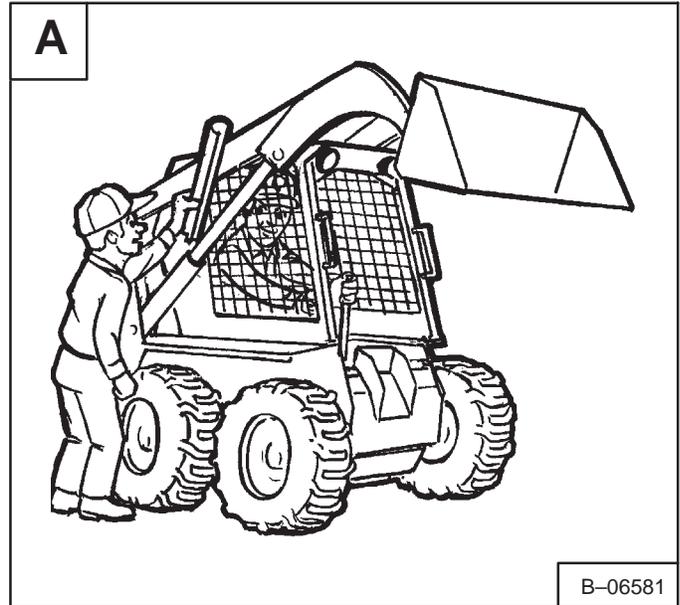
One person must stay in the operator cab with the seat belt fastened and the seat bar lowered, while the second person installs the stop over the rod of the one lift cylinder [A].

Start the engine and raise the lift arms.

Have a second person install the lift arm support device over the rod of the one lift cylinder [A].

the lift arm support device must be tight against the cylinder rod.

Lower the lift arms slowly until the support device is held between the lift arms and the lift cylinder.



## WARNING

Never work on a machine with the lift arms up unless the lift arms are secured by a 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-2059-0991

## OPERATOR CAB

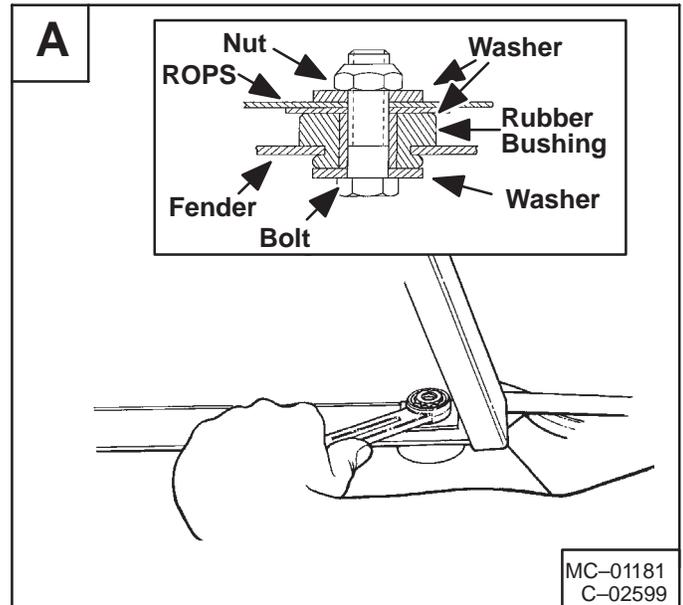
The Bobcat loader has an operator cab (ROPS and FOPS) as standard equipment to protect the operator from rollover and falling objects.



Check with your dealer if the operator cab has been damaged.

The operator cab fastening bolts and nuts must be tight **[A]**.

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



## OPERATOR CAB (Cont'd)

### Raising The Operator Cab

The cab can be raised or lowered with the lift arms up or down.

If the lift arms are up, a lift arm support device must be installed. (See 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

## WARNING

### AVOID INJURY

Cylinders for raising and lowering operator cab have gas under pressure. Do not open cylinder. Only qualified service personnel can remove the cylinder.

W-2112-0987

Stop the loader on a level surface. Stop the engine and engage the brake. Put jackstands under the rear of the loader.

Disconnect the two front fasteners.

If the lift arms are down, stand on the safety tread **[A]**.

If the lift arms are up, stand beside the loader **[B]**.

Slowly raise the cab until it is all the way up **[A]** or **[B]**.

### Lowering The Operator Cab

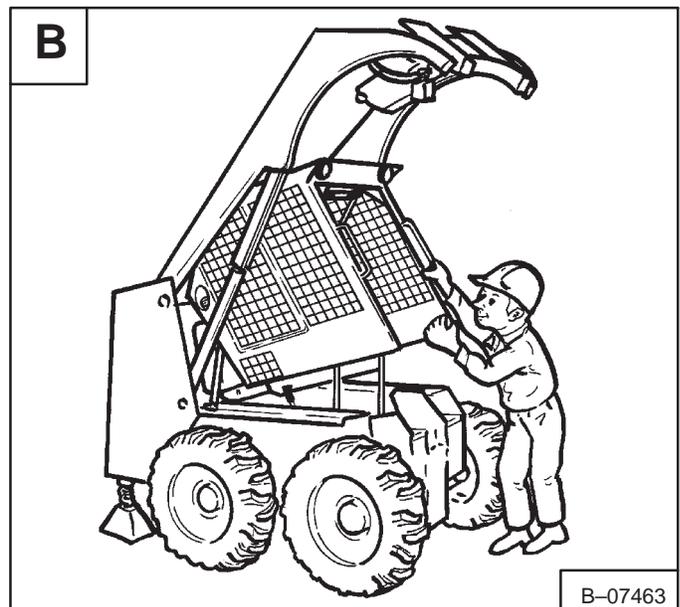
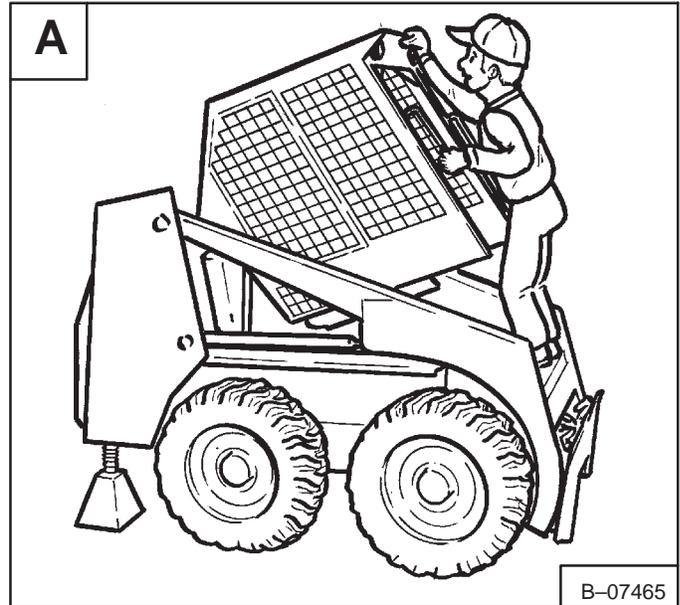
Stand on the safety tread **[A]** or beside the loader **[B]** and slowly lower the operator cab.

## WARNING

Both sets of fasteners at the front of the operator cab (ROPS) must be assembled as shown in this manual. Failure to secure ROPS correctly can cause injury or death.

W-2005-1189

Install the fasteners before operating the loader.



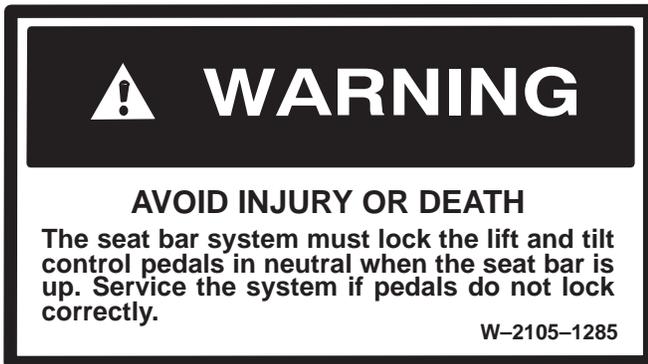
## OPERATOR CAB (Cont'd)

### Seat Bar Description

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

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

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



### Seat Bar Inspection

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

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

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

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

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

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

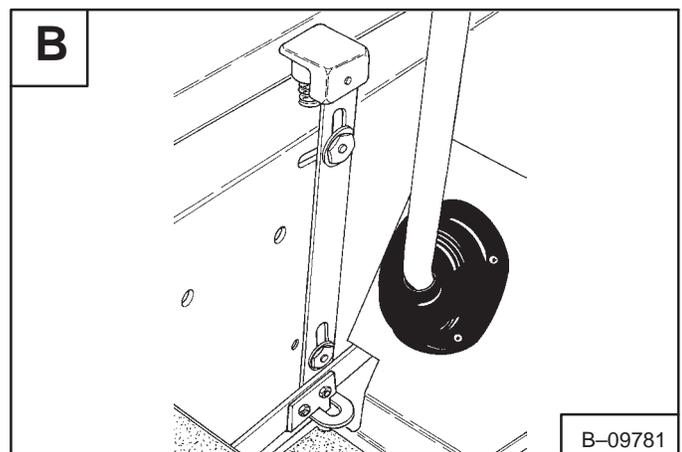
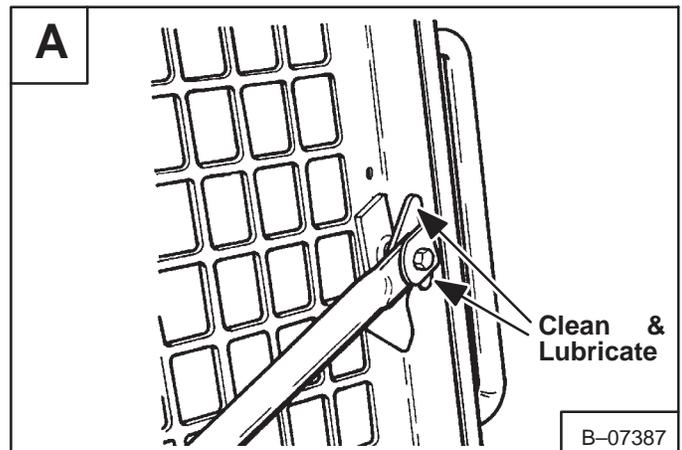
### Seat Bar Maintenance

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

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

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

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



## USING AN EXTRA BATTERY (JUMP STARTING)

### Procedure

If it is necessary to use an extra 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 extra battery must be the same voltage as the loader battery.

Use the following procedure [A]:

The ignition must be in the OFF position.

**NOTE: Never connect the negative (-) cable to the negative (-) terminal of the loader battery.**

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

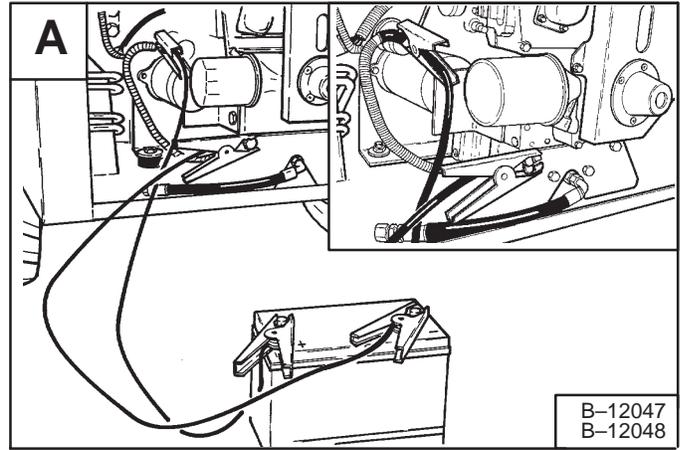
Connect the end of the second cable to the negative terminal (-) of the booster battery. Connect the other end of the second cable to the engine [A].

Keep the cables away from moving parts.

Start the engine.

After the engine has started, remove the ground cable connected to the engine first.

Remove the cable connected to the starter.



## ! 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

## 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

## ! 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

## REMOTE START SWITCH

### Procedure

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

MEL1138A – Remote Start Switch

The remote start switch is required when the operator cab is in the raised position for service and the service technician needs to start the engine. The wire harness must be separated at the operator cab and engine wiring harness connectors [A].

Place the loader on jackstands before centering the steering linkage, checking the main relief valve, or check pump flow.

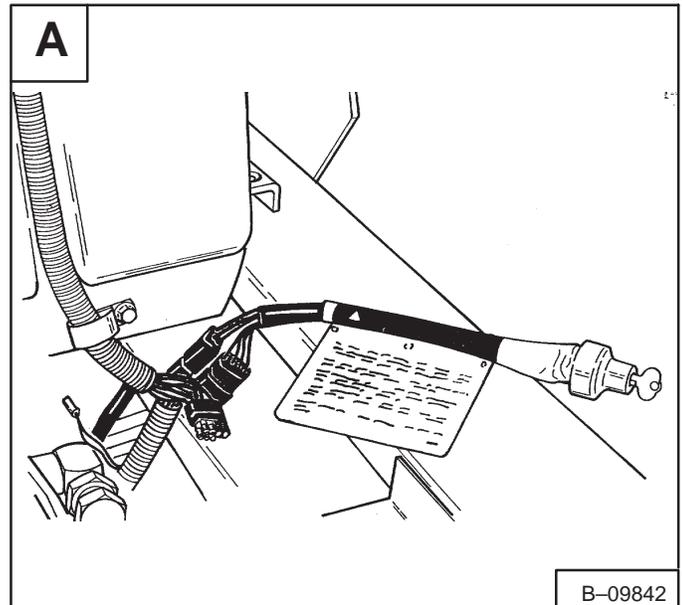
**⚠ WARNING**

**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

The remote start switch is connected to the engine harness connector.

This remote start switch is required when the service technician is adjusting the steering linkage or checking the hydraulic or hydrostatic system





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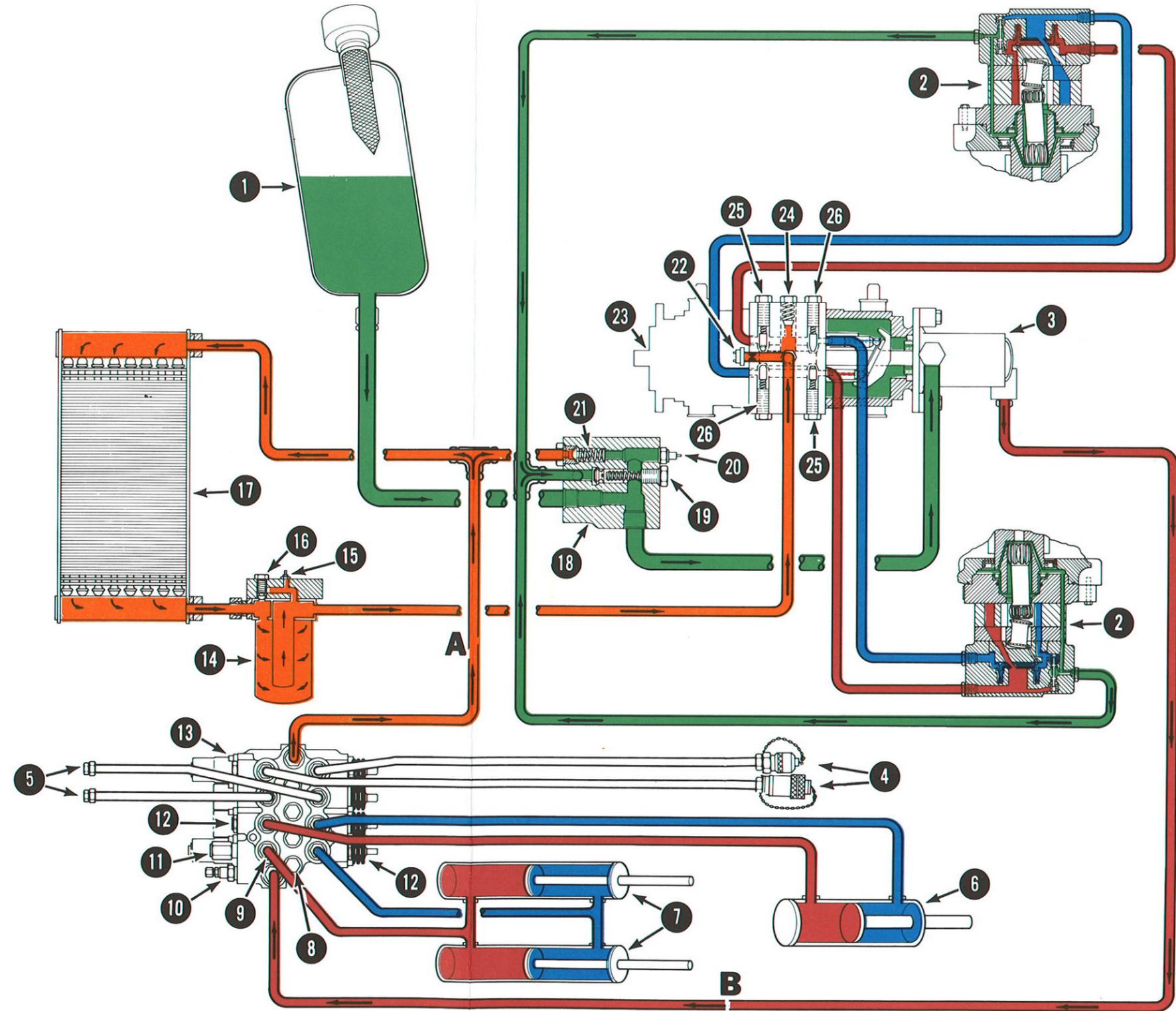
# HYDRAULIC / HYDROSTATIC FLOW CHART

For Models  
**741, 742, 743, 743 DS (Starting With S/N 15001)**  
With Charge Line Filter and Melroe Valve  
Chart # 6570293 (Printed July 1986)

- RED - - - - - High Pressure
- BLUE - - - - - Low Pressure
- GREEN - - - - - Case Drain & Reservoir
- ORANGE - - - - - Charge Pressure

**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**  
Refer to Chart # 6570281 for machines equipped with optional Bucket Positioning Valve. Reference "A" and "B" indicate location of hydraulic circuitry connection.







# HYDRAULIC / HYDROSTATIC SYSTEM OPERATION

To Be Used With

## HYDRAULIC / HYDROSTATIC FLOW CHART

For Models

**741, 742, 743, 743 DS (Starting With S/N 15001)**

Chart # 6570293 (Printed July 86)

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### CHART LEGEND

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- |   |  |
|---|--|
| ① FLUID RESERVOIR,<br>Capacity . . . . . 3.5 Gals. (13,2 L)                                     | ②② CHARGE PRESSURE SWITCH,<br>17-23 PSI (117-159 kPa)                          |
| ② HYDROSTATIC MOTOR   | ②③ HYDROSTATIC PUMPS   |
| ③ HYDRAULIC PUMP, Vane Type<br>12.1 GPM (45,8 Lmin.) @ 2500 RPM                                 | ②④ CHARGE RELIEF VALVE, 85 PSI (586 kPa)                                       |
| ④ AUXILIARY HYDRAULIC QUICK<br>COUPLERS (Front)   | ②⑤ HIGH PRESSURE RELIEF/<br>REPLENISHING VALVES (2), 3500 PSI<br>(24132.5 kPa) |
| ⑤ AUXILIARY HYDRAULICS (Rear)   | ②⑥ REPLENISHING VALVES (2)   |
| ⑥ TILT CYLINDER   |  |
| ⑦ LIFT CYLINDERS  |  |
| ⑧ LOAD CHECK VALVES (4)   |  |
| ⑨ ONE WAY RESTRICTOR, 0.125" Orifice  |  |
| ⑩ MAIN RELIEF VALVE . 2250-2400 PSI<br>(15513-16548 kPa)  |  |
| ⑪ PORT RELIEF VALVE . . . . . 3500 PSI<br>(24132 kPa)   |  |
| ⑫ ANTI-CAVITATION VALVE   |  |
| ⑬ HYDRAULIC CONTROL VALVE   |  |
| ⑭ HYDRAULIC/HYDROSTATIC FILTER,<br>#3 Element   |  |
| ⑮ DIFFERENTIAL PRESSURE SWITCH<br>19 PSI (131 kPa)<br>40 PSI (276 kPa) (See Microfiche for S/N) |  |
| ⑯ FILTER BY-PASS VALVE,<br>25 PSI (172 kPa)<br>50 PSI (345 kPa) (See Microfiche for S/N)        |  |
| ⑰ OIL COOLER  |  |
| ⑱ PORT BLOCK  |  |
| ⑲ CASE DRAIN RELIEF VALVE, 45-55 PSI<br>(310-379 kPa)   |  |
| ⑳ TEMPERATURE SWITCH . 225-232°F<br>(106-112°C)   |  |
| ㉑ COOLER BY-PASS VALVE,<br>177-227 PSI (1220-1565 kPa)  |  |

NOTE: "A" and "B" - Bucket Positioning Hydraulic Circuitry Connection.

## OIL FLOW EXPLANATION

The fluid flows by gravity from the reservoir ① to the port block ⑱ which is on the inside of the right fender. Return fluid from the cooler by-pass valve ⑳ and the oil cooler ⑰ joins with the fluid from the hydrostatic pump ㉓ through the bearing of the pump ㉓ and also supplies fluid to the hydraulic pump ③ .

The hydraulic pump ③ is a "vane type" pump and is driven by a shaft through the hydrostatic pumps ㉓ . The fluid goes from the hydraulic pump ③ to the hydraulic control valve ⑬ .

The hydraulic control valve ⑬ has an adjustable relief valve ⑩ . When all the spools of the control valve are in the neutral position, the fluid goes through the control valve ⑬ and to the oil cooler ⑰ . If one of the spools is activated, the fluid goes out the respective port and to either the base end, or the rod end of the cylinder(s) ⑥ ⑦ . As the fluid goes into one end of the cylinder(s) the fluid from the other side of the cylinder flows back into the control valve ⑬ . When the cylinder(s) reaches the end of the stroke, the fluid reaches the setting of the relief valve ⑩ , it will open and let the fluid by-pass the hydraulic circuit (internally) and go back to the oil cooler ⑰ .

If you let the spool go back to the neutral position, then there is fluid available for the other sections of the control valve ⑬ . Two sections of the control valve ⑬ can be used at the same time if the main relief valve ⑩ is not open.

The fluid flows from the oil cooler ⑰ through the #3 element filter ⑭ to the center section of the hydrostatic pumps ㉓ . This fluid is called "charge supply fluid". In the center section of the hydrostatic pumps ㉓ the fluid is against two high pressure relief/replenishing valves ㉕ , two replenishing valves ㉖ and the charge relief valve ㉔ . When the fluid gets to the hydrostatic pumps ㉓ it activates the high pressure relief/replenishing valves ㉕ . The replenishing valves open and let fluid into the hydrostatic pumps ㉓ for replenishing, lubrication and cooling.

The hydrostatic pumps ㉓ do not need the full volume of fluid flow so there is extra fluid. This extra fluid goes to the charge relief valve ㉔ .

There are two hydrostatic pumps ㉓ and two hydrostatic motors ② . 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.

When the replenishing valves ㉖ open and fluid goes into the hydrostatic pumps ㉓ , the flow of fluid becomes the "drive loop fluid". When the steering levers are in neutral, the hydrostatic pumps ㉓ and the hydrostatic motors ② are not working, but do have charge pressure. When the steering levers are moved, the swash plates in the pumps ㉓ are angled