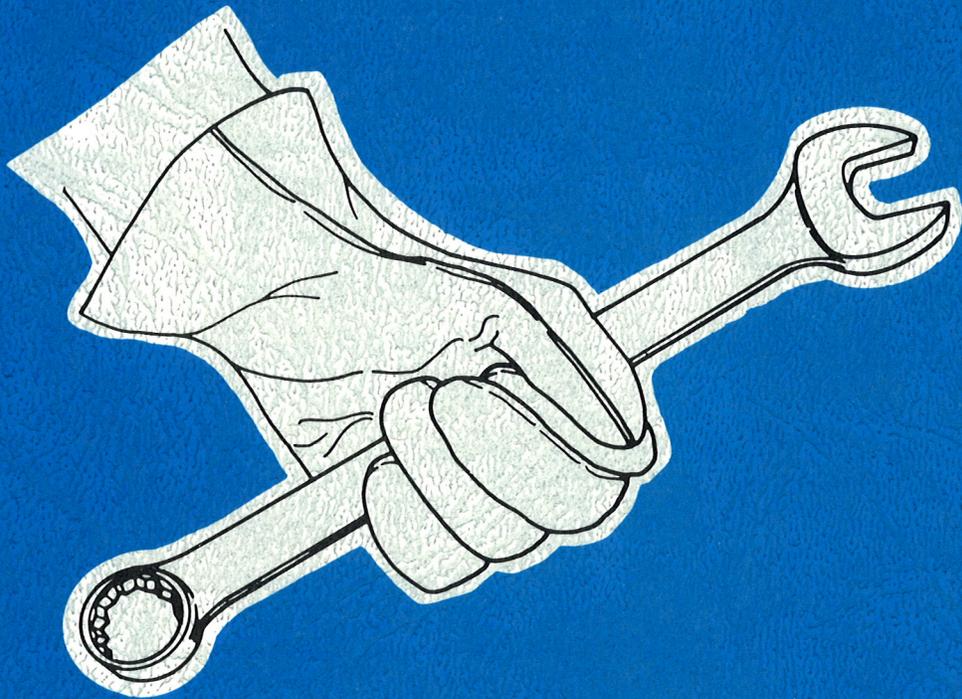


Product: Bobcat 2000 RTF Service Repair Workshop Manual
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**2000
RTF**

SERVICE MANUAL



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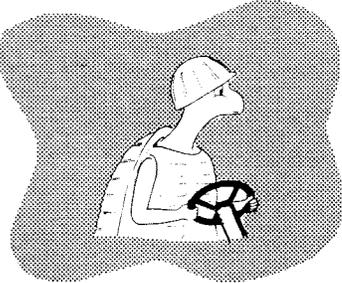


WARNING

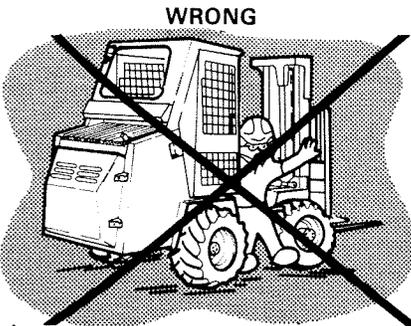
Never operate or service 2000 Rough Terrain Forklift (RTF) without instructions. See Operator's or Service Manual.



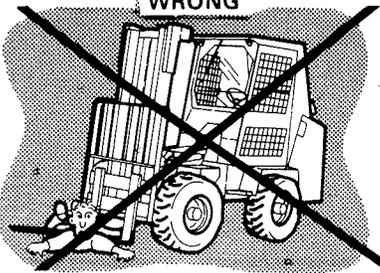
⚠ Always fasten your seat belt.



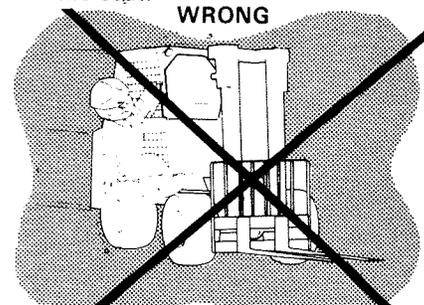
⚠ When learning to operate, be careful. Go slow.



⚠ Always use the steering frame lock before working on the Forklift.



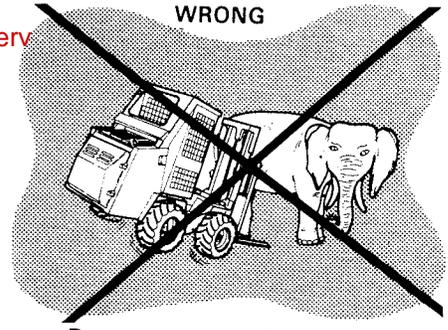
⚠ Always lower the vertical mast and shut-off engine before leaving the seat.



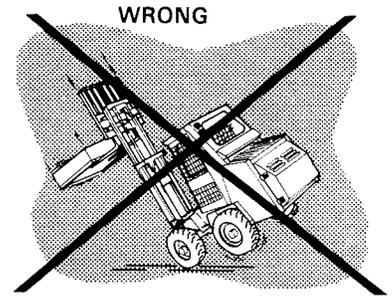
⚠ Never allow riders. ⚠ Always use a chain hoist to support the vertical mast when it must be in raised position for servicing.

- ⚠ Always fasten the seat belt.
- ⚠ Do not use steering wheel or control levers for grab handles.
- ⚠ Keep load low when traveling, turning or changing speed.
- ⚠ Load, unload or turn on flat, level ground only.
- ⚠ Never exceed rated operating capacity.
- ⚠ Do not get off the RTF when forks or attachment is up.
- ⚠ Stop engine and lock brake before removing seat belt and getting off the RTF.
- ⚠ Use the steering frame lock before working on the loader.
- ⚠ Stop and cool engine before adding fuel. **NO SMOKING.**
- ⚠ Do not service RTF without using a lift arm stop when lift arms are raised.
- ⚠ Keep rear door closed except for service.
- ⚠ Stop, cool, and clean engine of flammable material.
- ⚠ Keep body, loose objects, and clothing away from electrical contacts, moving parts, hot parts, and exhaust.
- ⚠ When connecting extra battery for "jump" start always make the last connection (negative cable) to the engine never at the battery. When removing the "jump" start cables, always remove the negative (-) cable from the engine first.
- ⚠ Leaking fluids under pressure can enter skin, cause serious injury and require immediate medical attention.
- ⚠ Lead acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames, and lighted tobacco away from the battery.
- ⚠ Battery acid causes severe burns. If acid contacts eyes, skin or clothing flush well with water. For contact with eyes get immediate medical attention. Wear safety goggles.
- ⚠ Do not modify equipment or add attachments not approved by manufacturer.
- ⚠ **WARNING:** Failure to obey warnings may cause injury or death.

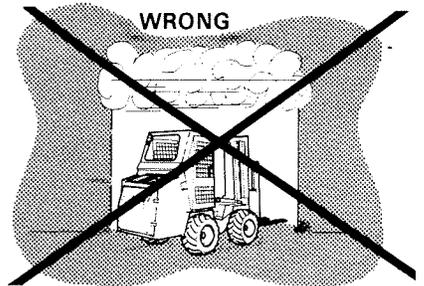
⚠ Safety Alert Symbol



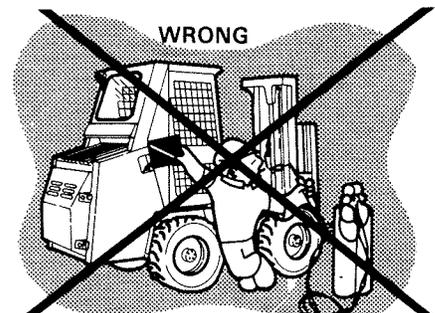
⚠ Do not exceed rated load capacity.



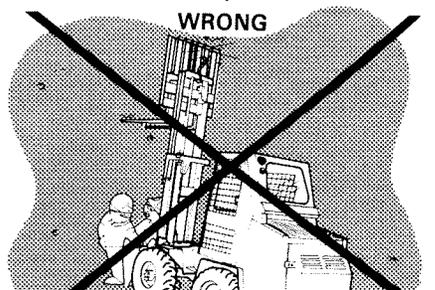
⚠ Always carry the load low. Always carry a load tilted back and against the backrest.



⚠ Do not use Forklift in atmosphere with explosive dust or gases.



⚠ Do not fill the fuel tank with the engine running, while smoking or when near an open flame.



⚠ Always use a chain hoist to support the vertical mast when it must be in raised position for servicing.

SAFETY INSTRUCTIONS

SAFETY IS YOUR RESPONSIBILITY

The Rough Terrain Forklift is a highly maneuverable and compact machine. In operation, it is rugged and useful under a wide variety of conditions. This presents an operator with hazards which are common for off-highway, rough-terrain applications but are not unique for use of the Bobcat Forklifts.

The machine has an internal combustion engine with resultant heat and exhaust. All exhaust gases can kill so the machine must be used with adequate ventilation. The machine must not be used in space with explosive dusts or gases or so that the engine exhaust contacts flammable material. The machine has a spark arrestor muffler which is required for operation in certain areas.

For machine applications, the dealer recommends the capabilities and restrictions of the machine and attachments for each application use. The dealer demonstrates the safe operation of the machine according to the manufacturer's instructional materials which are also available to all operators. The dealer can also identify unsafe modifications or use of unapproved attachments. The attachments and buckets are designed for rated capacity and secure fastening to the machine. For each model machine, the user must check with the dealer or manufacturer's literature to identify each bucket or attachment for safe loads of materials of specified densities.

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

1. The Delivery Report is used to check whether complete instructions have been given to the new owner.
2. The Operator's Manual delivered with every machine gives operating information as well as routine maintenance and service.
3. Every machine has signs (decals) which instruct on the safe care and operation of the machine. The complete signs and their location are shown in the Operator's Manual. All signs are available from the dealer.
4. The Bobcat Forklift has a plastic Operator Handbook fastened by cable to the operator cab. It has brief operations always available to the operator. The handbook is available from the dealer in an English edition or a combination English, French, German, Spanish edition.
5. The Service Manual and Parts Book are optional manuals from the dealer for use by mechanics to do shop-type service and repair work.

The dealer and owner/operator review the recommended uses of the machine and attachments at the time of delivery of the machine. If change of the use of the machine occurs in the future, the owner/operator must remember to ask the dealer for recommendations on the new use of the machine.

READ THIS MANUAL BEFORE YOU SERVICE THE BOBCAT ROUGH TERRAIN FORKLIFT (RTF)



This Service Manual was written to give the service personnel instructions on the safe service of the Bobcat Forklift. READ AND UNDERSTAND THIS SERVICE MANUAL BEFORE YOU SERVICE YOUR BOBCAT.



SAFE OPERATION NEEDS A QUALIFIED OPERATOR

A QUALIFIED OPERATOR* MUST DO THE FOLLOWING:

A. UNDERSTAND THE WRITTEN INSTRUCTIONS, RULES AND REGULATIONS

1. The written instructions from the Clark Equipment Co., include the delivery report, loader operator's handbook and manual, attachment manual and machine signs (decals).
2. Check the rules and regulations at your location. The rules may include an employer's work safety requirements. Regulations may identify a hazard such as a utility supply line.

B. HAVE TRAINING WITH ACTUAL OPERATION

1. Operator training must consist of a demonstration and verbal instruction. This training is given by the Bobcat dealer before the loader is delivered.
2. The new operator should start in an area without bystanders and use all the controls until he can control the loader at full use under the conditions for his work area.

C. KNOW THE WORK CONDITIONS

1. For each material to be handled, the operator must know how to avoid exceeding the rated operating capacity of the loader. For example in handling certain loose materials with a given bucket, he must know whether he can safely take a full or part of a bucket load.
2. The operator must know any prohibited uses or work areas for the loader. For example, he needs to know about excessive slopes.

*For an operator to be qualified, he must not use drugs or alcoholic drinks which change his alertness or coordination while working. An operator who is taking prescription drugs must get medical advice on whether or not he can safely operate a machine.

FOREWORD

This manual gives instruction for correct servicing and adjustment of the Bobcat Forklift, and overhaul instructions of the drive system, machine hydraulic/hydrostatic system and general main frame parts.

Make reference to the Operator's Manual for operations instructions (Starting Procedure, Daily Checks, Vertical Mast Operations, etc.).

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

1. Check hydraulic fluid level, engine oil level and fuel supply.
2. Inspect for any sign of fuel, oil or hydraulic fluid leaks.
3. Lubricate the machine.
4. Check battery condition and cables.
5. Inspect air cleaner system for damage or leaks. Check element and make replacement, as needed.
6. Check electrical charging system.
7. Check the warning lights.
8. Check tires for wear and pressure.
9. Check the attachment for condition. Inspect the vertical mast for damage or wear.
10. Inspect safety items for condition (Operator Enclosure, Seat Belt, Safety Treads, Lights, Horn, Safety Signs [Decals], Brake, etc.).
11. Make an inspection for loose or broken parts or connections.
12. Operate the Bobcat Forklift, checking all functions.

Check the above items, if any are in need of repair tell the Owner/Operator.

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HYDROSTATIC SYSTEM	3
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MAIN FRAME	5
ELECTRICAL SYSTEM	6
ENGINE SERVICE	7
TECHNICAL DATA	8
ALPHABETICAL INDEX	9

**PREVENTIVE
MAINTENANCE**

**HYDRAULIC
SYSTEM**

**HYDROSTATIC
SYSTEM**

**DRIVE
SYSTEM**

**MAIN
FRAME**

**ELECTRICAL
SYSTEM**

**ENGINE
SERVICE**

**TECHNICAL
DATA**

**ALPHABETICAL
INDEX**



PREVENTIVE MAINTENANCE

PREVENTIVE
MAINTENANCE

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WARNING

Instructions are necessary before doing service on forklift. See warnings and instructions both at beginning and throughout this manual. After doing service or making repair or adjustment, always check function of machine.

Safety glasses or goggles are always needed for eye protection from electric arcs from shorts or welding, battery acid, compressed springs, fluids under pressure, and flying debris or loose material when engines are on or tools are used. Failure to obey warnings can cause injury or death.



1 PREVENTIVE MAINTENANCE

1-1 FRAME LOCK

Before any service or repair work is done on the Bobcat Forklift, always install the steering frame lock (Fig. 1-1).

! WARNING

DO NOT let anyone in or near the pivot area without the steering frame lock installed (Fig. 1-2).

1-2 LIFTING AND BLOCKING THE BOBCAT FORKLIFT

! WARNING

Lift Bobcat and put blocks under the frame so that there is no danger of the machine falling and causing personal injury.

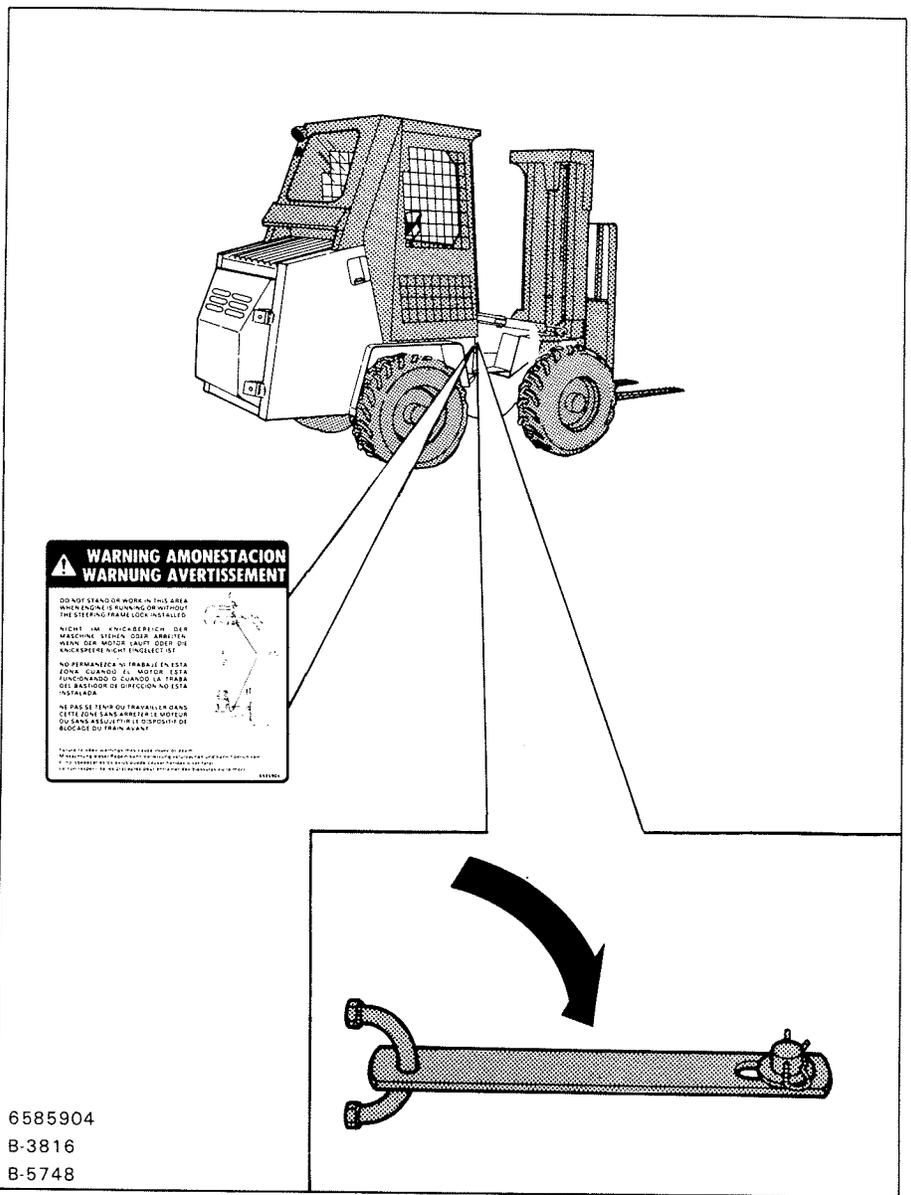


Fig. 1-1 Installing Steering Frame Lock

Before doing maintenance on the Bobcat Forklift, you must lift it up and block it as follows:

- (1) Lower the vertical mast. Stop the engine and install the framelock.
- (2) Put a floor jack under the rear of the machine.
- (3) After the rear of the Bobcat Forklift is lifted, put a jackstand under each rear corner. Make sure the machine is level.
- (4) Put the floor jack under the center of the front axle.
- (5) After the front of the machine is lifted, place jackstands under each side of the front axle. Make sure the machine is level.

! WARNING

Do not stand on the front wheels. The front wheels will turn freely when the machine is lifted.

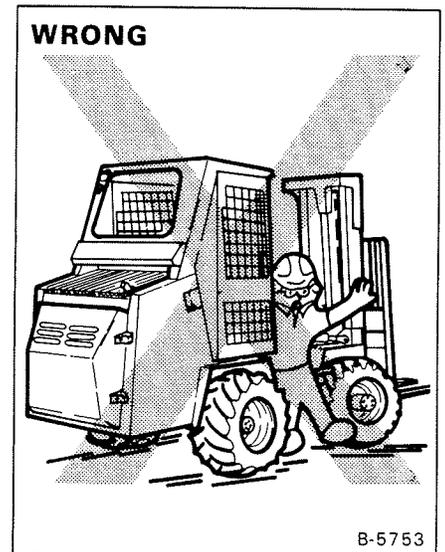


Fig. 1-2 Pivot Area Warning

1-3 SERIAL NUMBER LOCATIONS

It is important to make correct reference to the Serial Number of the Bobcat Forklift, the vertical mast and/or engine when making repairs or ordering parts. It is possible that the present machines do not use all of the same parts as earlier machines or it is possible that different procedures are used for service or repair.

Always have these numbers available when ordering parts or working on the Bobcat Forklift.

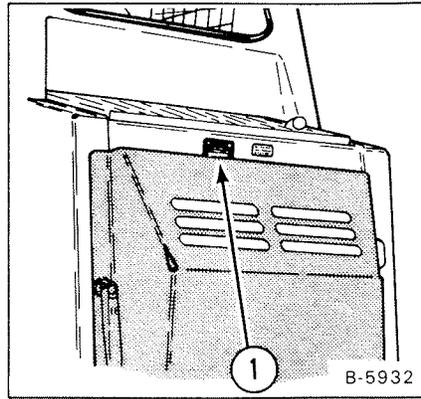


Fig. 1-3 Forklift Serial Number

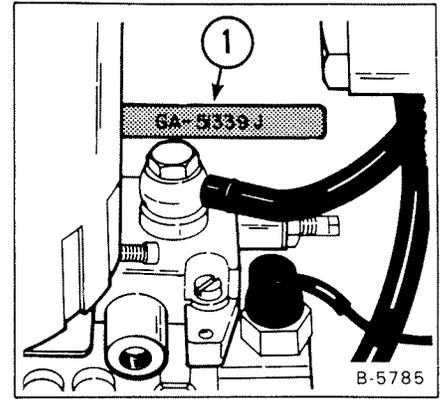
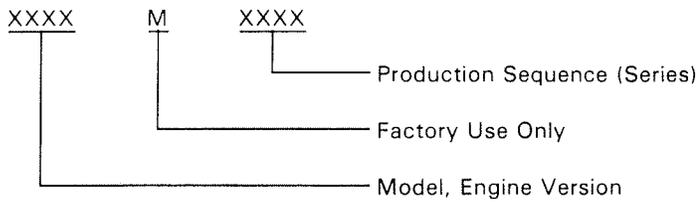


Fig. 1-4 Engine Serial Number

1-3.1 Machine Serial Number

The Bobcat Forklift serial number is located at the rear of the machine over the rear door (Fig. 1-3, Item 1).

Explanation of the Serial Number:



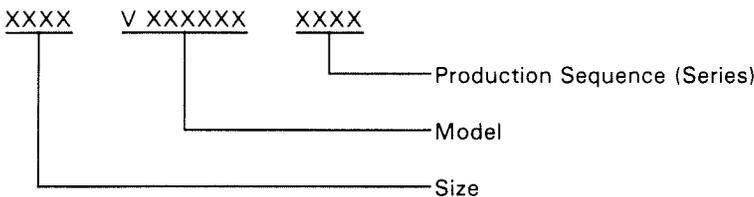
1-3.2 Engine Serial Number

The engine serial number is on the right side of the engine, above the injection pump (on the cylinder block) (Fig. 1-4, Item 1).

1-3.3 Vertical Mast Serial Number

The vertical mast model/serial number is located on the right side of the outside rail (Fig. 1-5).

Explanation of the Model/Serial Number:



1-3.4 Axle Serial Numbers

All axles have identification numbers and letters on them. The front axle serial number is located on the left hand tube near the cover, 45° up from the bottom center of the tube. The rear axle serial number is located on the right hand tube near the cover, 45° up from the bottom center of the tube.

1-4 DELIVERY REPORT (Fig. 1-6)

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

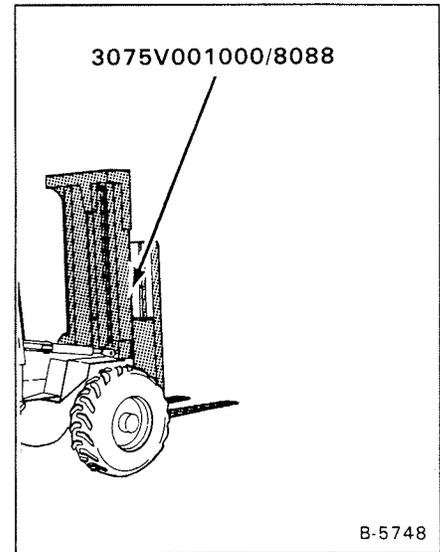


Fig. 1-5 Vertical Mast Model/Serial Number

CLARK DELIVERY REPORT		bobcat	
Model No.:	Serial No.:	Year:	Make:
Capacity:	Weight:	Bucket Size:	Bucket Type:
Color:	Options:	Dealer Name:	Dealer Address:
<p>WARNING</p> <p>Always use proper tie-down technique. Do not use a single tie-down to secure a load. Always use at least two tie-downs to secure a load. Always use proper tie-down technique. Do not use a single tie-down to secure a load. Always use proper tie-down technique. Do not use a single tie-down to secure a load.</p>		<p>1. Demonstrate how to start, stop, turn and park the loader. Show driver how to lift, carry and dump the bucket in use (other attachments).</p> <p>2. Explain use of operator (see Assembly and Filling Check Protective Structure (OPS) Manual, or remove operator (AO).</p> <p>3. Explain use of the rear window opening of the mast (see Mast) as an emergency exit (DO NOT modify the opening or install structure which blocks this exit).</p> <p>4. Explain proper operating capacity for safety and stability of the loader.</p> <p>5. Explain how to use the loader in conjunction with telescopic booms or booms with hydraulic lift arms.</p> <p>6. Advise Operator of all available attachments and accessories such as Lift Arm, Load, Charge, Pallet, Lift, Working, Alarm, Lights and others.</p> <p>7. Explain Warranty Policy and instructions to Owner/Operator. Copy of Operator's Manual and Warranty Booklet enclosed in delivery pack.</p>	
<p>1. Explain operator (see Operator's Manual, Safety, Manual and Warranty Booklet) when used by Operator.</p> <p>2. Advise owner of the date of the safety for operator training by providing demonstration, publications and copies of all requirements and recommended loader usage.</p> <p>3. Explain application and restrictions to use and attachments for all usage as defined by Operator's Manual.</p> <p>4. Review machine Safety Sign Operator's Manual and Safety Manual instructions.</p> <p>5. Explain correct Operator randoms attached with same Owner.</p> <p>6. Show how to enter and exit loader safely with same Owner.</p> <p>7. Demonstrate use of seat belt and seat belt if not provided for the model.</p>		<p>8. Demonstrate how to start, stop, turn and park the loader. Show driver how to lift, carry and dump the bucket in use (other attachments).</p> <p>9. Explain use of operator (see Assembly and Filling Check Protective Structure (OPS) Manual, or remove operator (AO).</p> <p>10. Explain use of the rear window opening of the mast (see Mast) as an emergency exit (DO NOT modify the opening or install structure which blocks this exit).</p> <p>11. Explain proper operating capacity for safety and stability of the loader.</p> <p>12. Explain how to use the loader in conjunction with telescopic booms or booms with hydraulic lift arms.</p> <p>13. Explain recommended loading and unloading procedure.</p> <p>14. Review machine Safety Sign Operator's Manual and Safety Manual instructions.</p> <p>15. Advise Operator of all available attachments and accessories such as Lift Arm, Load, Charge, Pallet, Lift, Working, Alarm, Lights and others.</p> <p>16. Explain Warranty Policy and instructions to Owner/Operator. Copy of Operator's Manual and Warranty Booklet enclosed in delivery pack.</p>	
<p>Have I thoroughly explained the operation and maintenance of this machine? I also acknowledge the warranty conditions and limitations as outlined in the operator's manual.</p> <p>Owner/Operator Signature: _____ Date: _____</p> <p>Dealer Representative Signature: _____ Date: _____</p> <p>Print Name of Dealer Representative: _____</p> <p>Print Name of Owner/Operator: _____</p> <p>Print Name of Dealer: _____</p>			

Fig. 1-6 Delivery Report

1 – 5 SERVICE SCHEDULE

You must do maintenance work at regular intervals. Failure to do so will result in damage to the Forklift or the engine. The service schedule is a guide for correct maintenance of the Bobcat Forklift. Follow this service schedule as explained below unless it is to increase the frequency of intervals when the Bobcat Forklift is used in very hot, cold, dusty or corrosive conditions.

SERVICE SCHEDULE		HOURS					
ITEM	SERVICE REQUIRED	8-10	50	100	200	500	1000
Engine Oil	Check the oil and add as needed.	■					
Engine Air Cleaner	Check the condition indicator. Inspect the air cleaner system. Replace the outer element when the red ring shows in the indicator window.	■					
Tires	Check tires for damage and correct air pressure.	■					
Seat Belt	Check function and condition of the seat belt. Replace if necessary.	■					
Safety Signs (Decals)	Check for damaged decals. Replace any decals that are not in the correct location.	■					
All Pivot Points	Add lubricant to all fittings (See Page 1 – 19).	■					
Hydraulic Fluid	Check the fluid level and add the recommended fluid as needed.	■					
Engine Coolant System	Check coolant level and add as needed. Remove any debris from the grill area.	■					
Wheel Nuts	▲Tighten wheel nuts to 115 ft.-lbs. (155 Nm) torque.	■					
Fuel Filter Water Trap	Remove any trapped water from the filter.	■					
Batteries	Check the battery cables and the water level of the batteries.		■				
*Cylinder Heads	Tighten cylinder head bolts to the correct torque.		■				
Hydraulic Control Lever	Check for correct operation. Make repairs and adjustments as needed.		■				
Pallet Fork Lock Levers	Check the locking levers for condition and correct operation.		■				
Brakes	Check the brake for correct operation. Make adjustment as necessary.		■				
Alternator Drive Belt	Check condition and tension of the belt.		■				
Engine Oil & Filter	Replace oil and filter.		■				
Carriage Chains	Check for wear and correct tension. Put oil on chains.			■			
Spark Arrestor Muffler	Empty spark chamber.			■			
Hydraulic Filter	Replace the right hand filter.			■			
U-Joints (Drive Shaft)	Lubricate with a good quality grease.			■			
Final Fuel Filter	Replace the filter element.				■		
Front & Rear Axle	Check oil level and add oil as needed.				■		
U-Joint (Engine to Hydrostatic Pump)	Add grease to fittings (3).				■		
Bronze Filter (40 Micron)	Change the 40 micron filter in the hydrostatic port block.					■	
Hydraulic/Hydrostatic System	Replace the fluid and filters. Clean the cap and vent.						■

* Dealer Service Only (This procedure is required only once, after the first 50 hours of operation).

▲ Check the wheel nut torque every 8 hours for the first 24 hours of operation.

1-6 ENGINE SERVICE

⚠ WARNING

Stop, cool and clean the engine of flammable material. Never service or adjust machine with engine running unless instructed to do so.

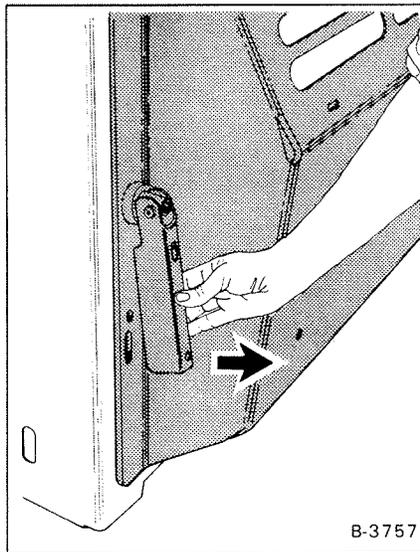


Fig. 1-7 Releasing Rear Door

Open the rear door to service the engine. Pull the door latch up and to the left to release the door latch (Fig. 1-7). The door can then be fully opened to get to the engine.

1-7 ADJUSTING THE DOOR LATCH

Loosen the set screw (Fig. 1-8, Inset). Turn the nut on the end of the latch pin (Fig. 1-8). The door must contact the machine at the bottom (Fig. 1-9, Item 1) and the top with the lever in the position shown in figure 1-9. It will take approximately 50 lbs. of force to push the latch down. When the latch is adjusted correctly, tighten the set screw. The set screw must be aligned with the flat surface of the bolt.

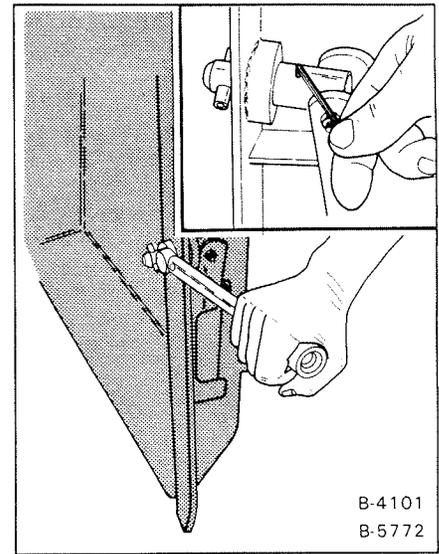


Fig. 1-8 Adjusting the Latch

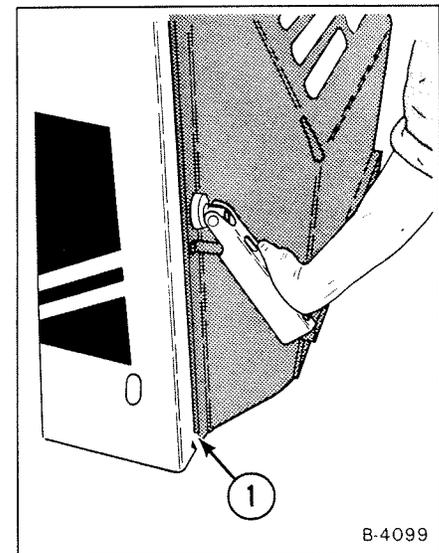


Fig. 1-9 Closing the Door

⚠ WARNING

Keep the rear door closed except for service. Make sure you close the door and fasten the latch tightly before operating the Bobcat Forklift.

1-8 AIR CLEANER SERVICE

It is important to check the air cleaner condition indicator at regular intervals for good engine performance and long service life. Do not service the air cleaner until the red condition indicator ring shows.

NOTE: Before changing the air cleaner, push the button on the condition indicator (Fig. 1-10, Item 1), start the engine and if the red ring still shows, do the following service procedure.

The large air cleaner element (outer) must be replaced when the red ring shows in the window of the condition indicator (Fig. 1-10, Item 1). DO NOT remove the inner filter. Service the air cleaner as follows:

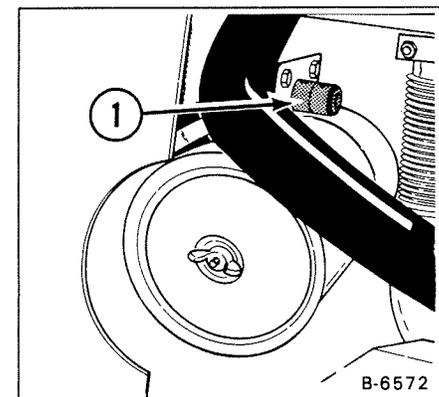


Fig. 1-10 Condition Indicator

(1) Remove the wing nut (Fig. 1-10, Item 2) and remove the air cleaner cover. Remove the filter element (Fig. 1-11, Item 1).

(2) Clean the inside of the filter housing (Fig. 1-11, Item 2) so that the element has a smooth surface to contact at the seal. Make sure the air cleaner housing is free of corrosion, especially if the Bobcat Forklift is used under corrosive conditions.

(3) Install the outer filter element. DO NOT replace the inner filter element (Fig. 1-12, Item 3) unless the red ring still shows (after the engine is running) in the condition indicator window after replacing the outer element.

(4) Install the air cleaner cover (Fig. 1-11, Item 4).

(5) Push the button at the condition indicator, to remove the red ring in the window.

(6) Check that the hoses and the clamps are tight.

1-9 FUEL SYSTEM

Use number 2 diesel fuel in the engine. During very cold temperature conditions, use number 1 fuel.

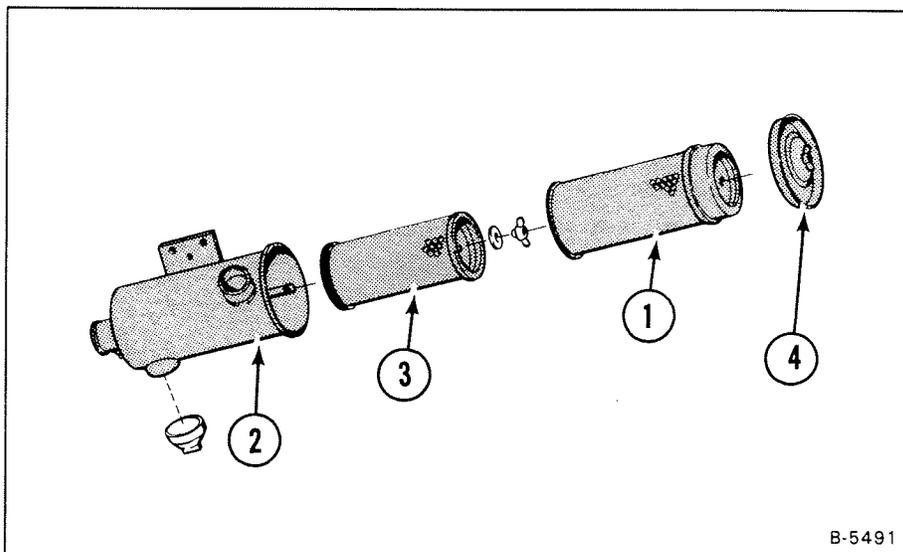
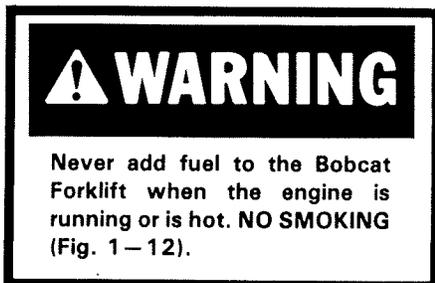


Fig. 1-11 Air Cleaner Assembly



1-9.1 Fuel System Service

Remove the filler cap to service the fuel tank as follows (Fig. 1-13, Item 1):

(1) Use a clean, approved safety container to add fuel.

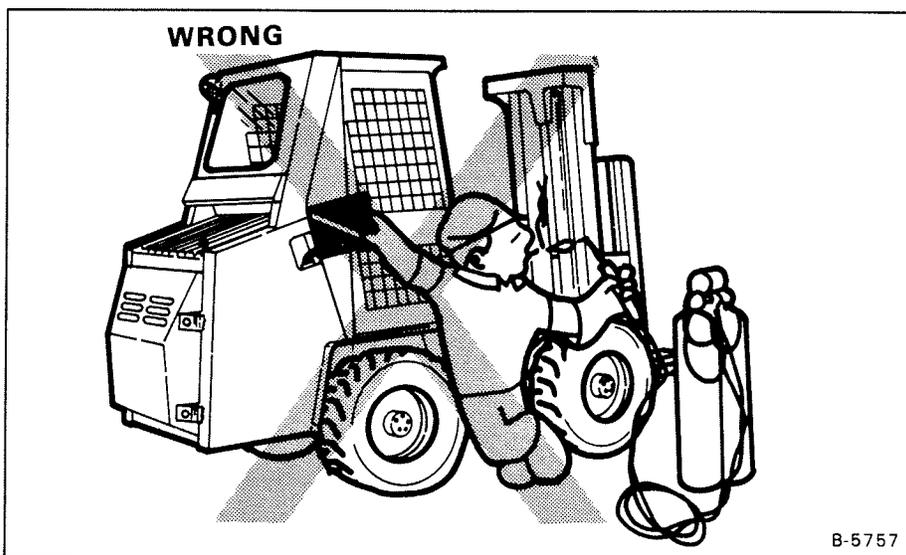


Fig. 1-12 Fuel Fill Warning

- (2) The key switch must be in the "OFF" position and the engine cool.
- (3) Add fuel only in an area that has a free movement of air or no open flames or sparks. NO SMOKING (Fig. 1-12).
- (4) Use only clean fuel of the correct specifications (See Section 8 for specifications).
- (5) Tighten the cap on the fuel tank on the right side of the machine (Fig. 1-13, Item 1).

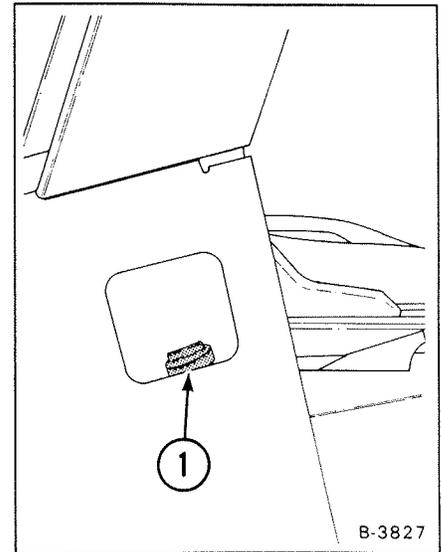


Fig. 1-13 Fuel Fill Location

1-9.2 Fuel Filter

The fuel filter is installed at the front left of the engine. Replace the filter element (Fig. 1-14) every 200 hours of machine operation.

Check the water trap every 50 hours of machine operation. If there is water in the water trap at the bottom of the filter, loosen the thumb screw (Fig. 1-14, Item 1). When fuel flows from the drain with no water, tighten the thumb screw.

To replace the fuel filter element:

- (1) Clean the area around the fuel filter. Put a clamp on the fuel supply hose from the fuel tank.
- (2) Remove the thumb screw at the bottom of the filter, drain the fuel from the filter.
- (3) Remove the filter by removing the small bolt at the top of the filter head (Fig. 14, Item 2) while holding the nut below the filter bowl. Remove the filter bowl.
- (4) Check the condition of the seals. Replace as needed.
- (5) Install the filter, bowl, nut and thumb screw. Tighten the thumb screw finger tight only. Remove the clamp from the fuel line.
- (6) Remove the air from the fuel system.
- (7) After the engine is running, check for leaks.

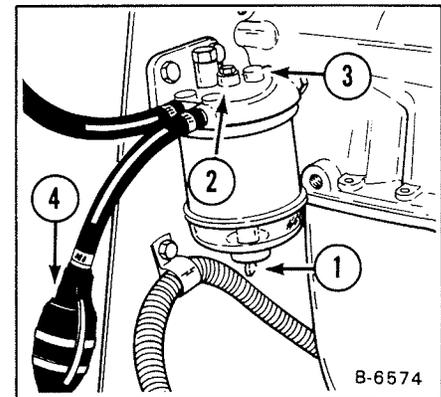


Fig. 1-14 Fuel Filter

1-9.3 Removing Air From The Fuel System

After replacement of the fuel filter element or when the fuel tank has run out of fuel, the air must be removed from the fuel system before starting the engine. To remove the air from the fuel system:

- (1) Open the rear door of the machine.
- (2) Open the vent plug on the top of the fuel filter (Fig. 1-14, Item 3).
- (3) Operate the hand pump (Fig. 14, Item 4) until the fuel flows from the vent plug on the top of the fuel filter (Fig. 1-14, Item 3).

- (4) Close the vent plug on the top of the fuel filter.
- (5) Again operate the hand pump until the hand pump feels solid.
- (6) Loosen the vent pump on the fuel injection pump (Fig. 1 – 15, Item 1).
- (7) Operate the hand pump (Fig. 1 – 14, Item 3) until fuel flows from the vent plug with no air bubbles.
- (8) Close the vent plug on the injection pump before releasing the hand pump.
- (9) Loosen the high pressure tubelines at the fuel injectors (Fig. 1 – 16).
- (10) Move the throttle to the half open position. Turn the engine with the starter until clear fuel shows at the fittings of the injectors.

NOTE: Turn the engine for 30 seconds only with 60 seconds between starts.

- (11) Tighten the fittings of the high pressure tubelines to 15 ft.-lbs. (20 Nm) torque.

IMPORTANT	When removing the high pressure tubelines from the injectors. DO NOT bend them.
------------------	--

- (12) Close the rear door.

1 – 10 ENGINE LUBRICATION SYSTEM

Check the oil level each day.

To check the oil level, stop the engine, open the rear door and remove the dipstick (Fig. 1 – 17).

Keep the oil level between the marks on the dipstick (Fig. 1 – 18). Do not fill above the top mark. Use a good quality motor oil that meets API Service Classification of CC or CD (See the Chart).

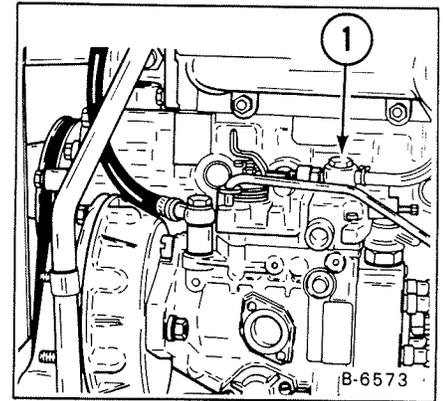


Fig. 1 – 15 Fuel Injection Pump

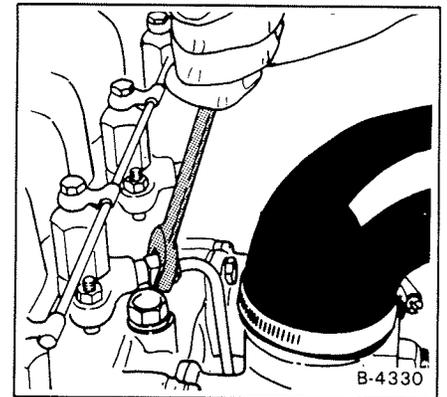


Fig. 1 – 16 Fuel Injectors

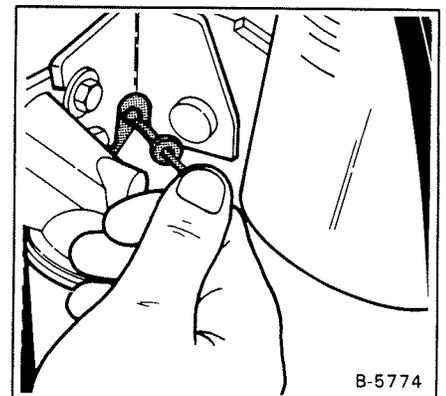


Fig. 1 – 17 Oil Dipstick

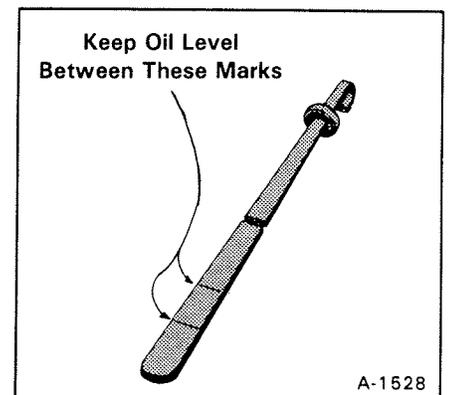


Fig. 1 – 18 Engine Dipstick

1 – 10.1 Replacement Of Engine Oil And Filter

The original oil fill at the factory is 5W-30 engine oil. Replace the engine oil and filter every 50 hours of machine operation.

RECOMMENDED SAE VISCOSITY NUMBER (LUBRICATION OILS FOR ENGINE CRANKCASE)

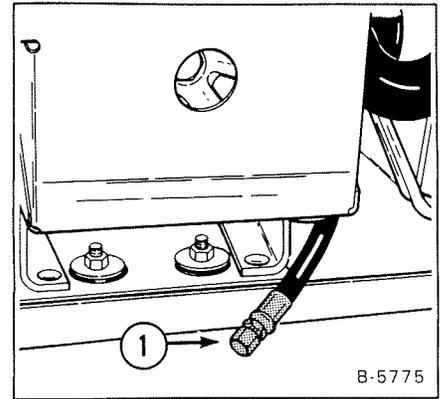
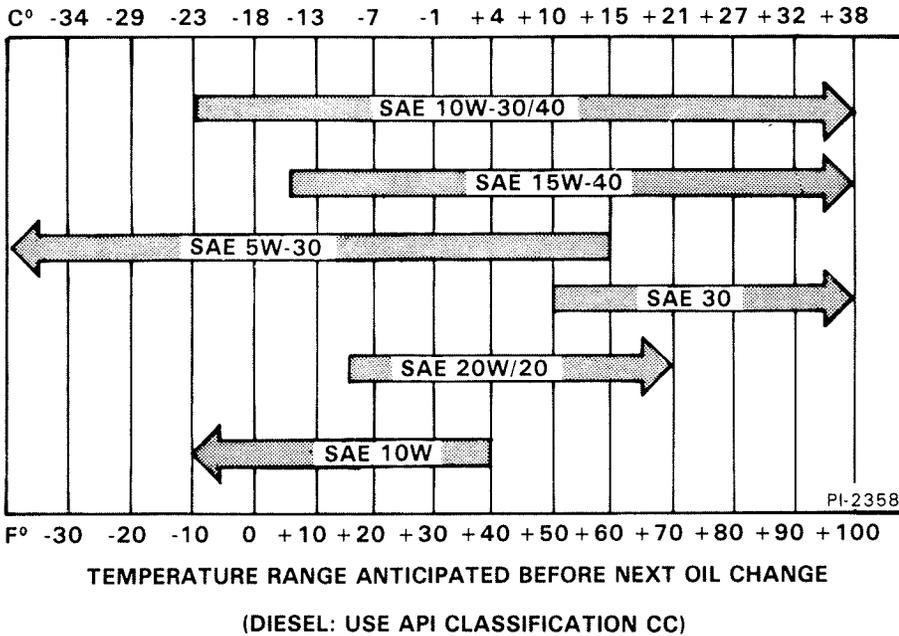


Fig. 1 – 19 Engine Oil Drain

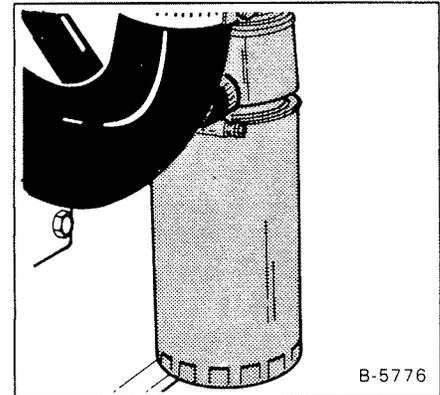


Fig. 1 – 20 Engine Oil Filter

To replace the engine oil and filter, use the following procedure:

- (1) Run the engine until it is at operating temperature. Stop the engine and open the rear door.
- (2) Remove the drain plug at the end of the hose (Fig. 1 – 19, Item 1).
- (3) Remove the oil filter (Fig. 1 – 20).
- (4) Clean the filter housing surface. Put grease on the gasket of the new filter element. Install the filter element and hand tighten only.
- (5) Install the drain plug (Fig. 1 – 19).
- (6) Remove the oil fill cap and put in 7.5 qts. (7 L) of oil (Fig. 1 – 21) (See the Oil Chart).
- (7) Start the engine let it run for several minutes. Stop the engine and check the oil level (Fig. 1 – 18). Add oil if the level is not at the top mark on the dipstick.

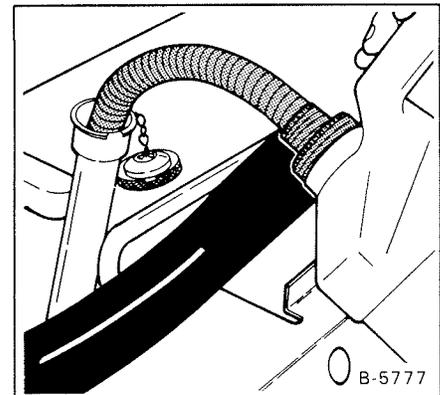


Fig. 1 – 21 Engine Oil Fill

1-11 ENGINE COOLING SYSTEM

Coolant Level

The cooling system has a coolant recovery tank. The location of the tank is behind the rear door and in the left upright (Fig. 1-22). Remove the cap from the tank to check the coolant level. When the engine is cool, the coolant recovery tank must be 1/3 full. Add coolant to the tank when the coolant level is low.

1-11.1 Removing Coolant From The Cooling System

Clean the cooling system once a year. The complete cooling system must be drained, flushed and refilled with clean coolant.

Remove the rear grill from the machine. Remove the radiator cap from the radiator. Install a hose on the engine block drain (Fig. 1-23, Item 1) and open the drain to remove the coolant from the system.

After the coolant is removed, remove the hose and close the engine block drain. Fill the radiator to the top of the fill pipe with premixed coolant and install the radiator cap. Install the rear grill.

NOTE: Protect the cooling system from freezing temperatures by adding premixed 50/50 ethylene glycol (anti-freeze) and water to the system.

Remove the cap from the coolant recovery tank (Fig. 1-22) and fill the tank 1/3 full of premixed coolant.

1-12 ALTERNATOR BELT

To adjust the belt tension, use the following procedure:

- (1) Remove the belt shield (Fig. 1-24).
- (2) Loosen the adjustment bolt (Fig. 1-25, Item 1) and move the alternator to set the belt tension at .28-.35" (7-9 mm) at 13 to 15 pounds of force.
- (3) Tighten the adjusting bolt at the alternator.
- (4) Install the belt shield.

1-13 ELECTRICAL SYSTEM

The Bobcat Forklift has a 12 volt, negative ground alternator charge system (Fig. 1-26 & 1-27).

The electrical system is protected by two (2) fuses. The fuses are located on the dash panel (Fig. 1-26). The fuses will protect the electrical system when there is an electrical overload. The reason for the overload must be found before starting the engine again. Look for an open wire or a short in the electrical system.

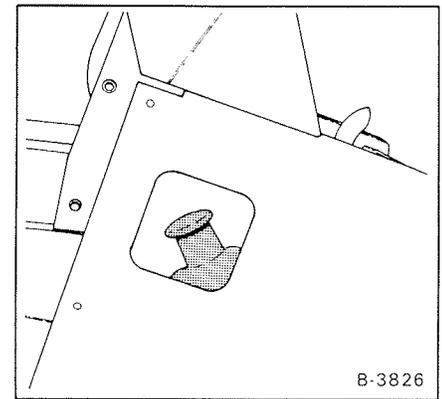


Fig. 1-22 Coolant Recovery Tank

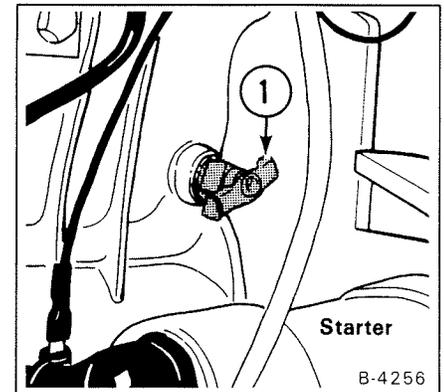


Fig. 1-23 Engine Coolant Drain

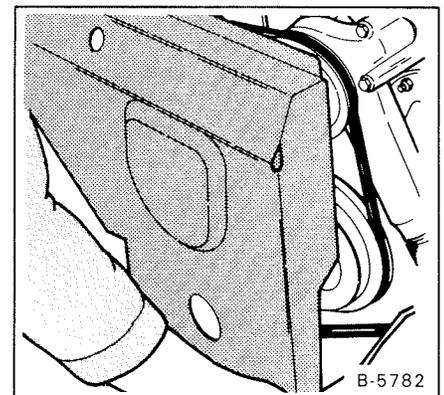


Fig. 1-24 Removing Engine Shield

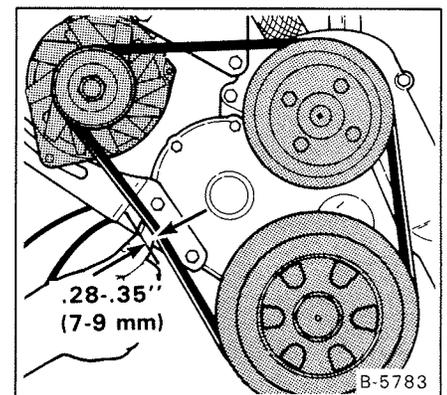
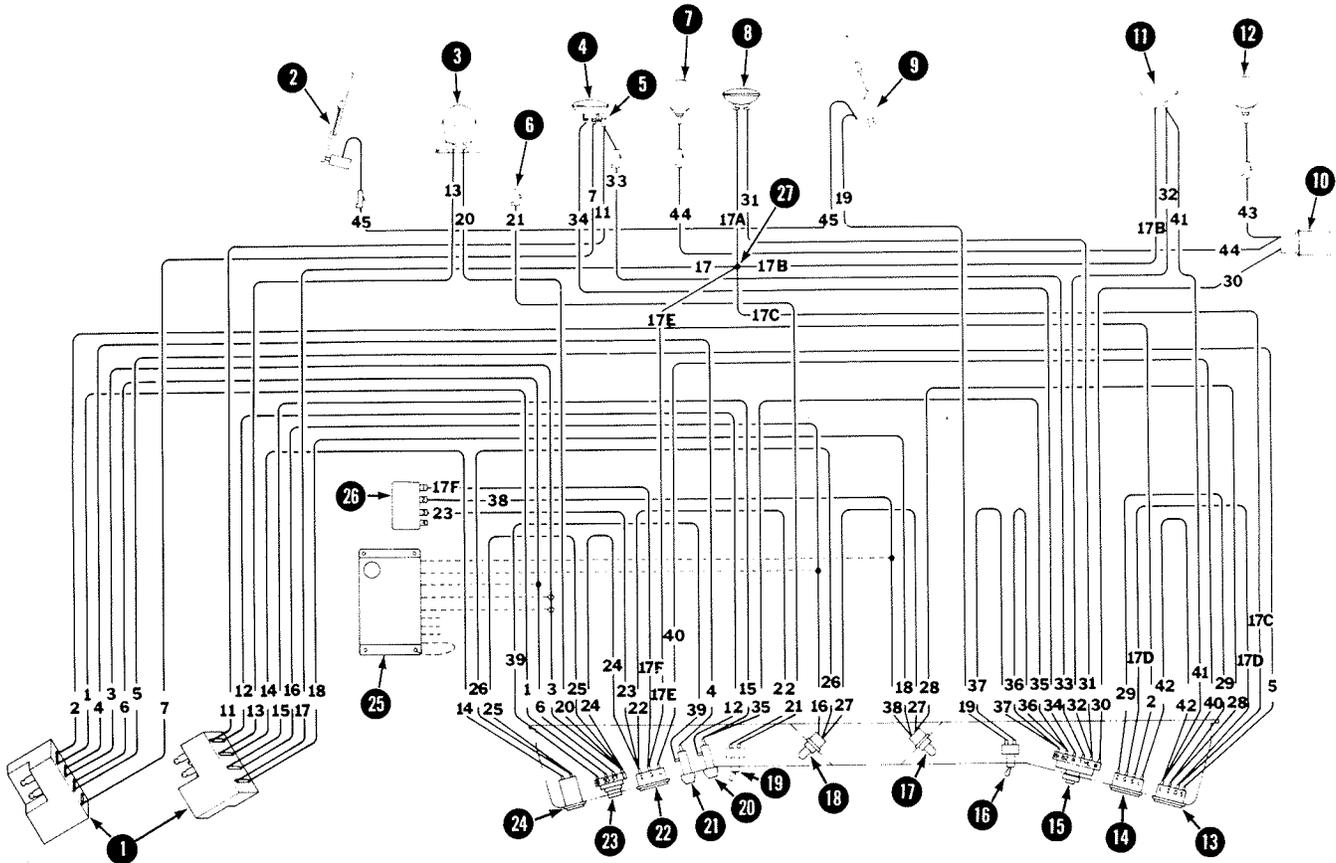


Fig. 1-25 Checking Belt Tension

OPERATOR GUARD WIRING DIAGRAM 2000 RTF



WIRE LEGEND

#'s	COLOR	GAUGE	#'s	COLOR	GAUGE
1	Purple	16	35	Red/White	16
2	Lt. Blue/Black	16	36	Red/White	18
3	White/Orange	16	37	Red/White	18
4	Lt. Green/White	12	38	Yellow/Black	18
5	White/Orange	16	39	Red/White	16
6	Purple/White	16	40	Grey	18
7	Black	16	41	Grey	18
8	Not Used		42	Grey	18
9	Not Used		43	Brown	16
10	Not Used		44	Brown	16
11	Pink	16	45	Orange/Black	16
12	Red/Black	12			
13	Orange/Green	16			
14	Yellow/Brown	16			
15	Orange/Dk. Blue	16			
16	Yellow/Green	16			
17	Black	12			
17A	Black	16			
17B	Black	16			
17C	Black	18			
17D	Black	18			
17E	Black	18			
17F	Black	18			
18	Yellow/Black	16			
19	Orange/Black	16			
20	Orange	16			
21	Orange	16			
22	Orange	16			
23	Orange	16			
24	Orange	16			
25	Orange	16			
26	Orange	18			
27	Orange	18			
28	Orange	18			
29	Orange	18			
30	Brown	16			
31	Dk. Blue	16			
32	Dk. Blue	16			
33	Pink	16			
34	Dk. Blue/White	16			

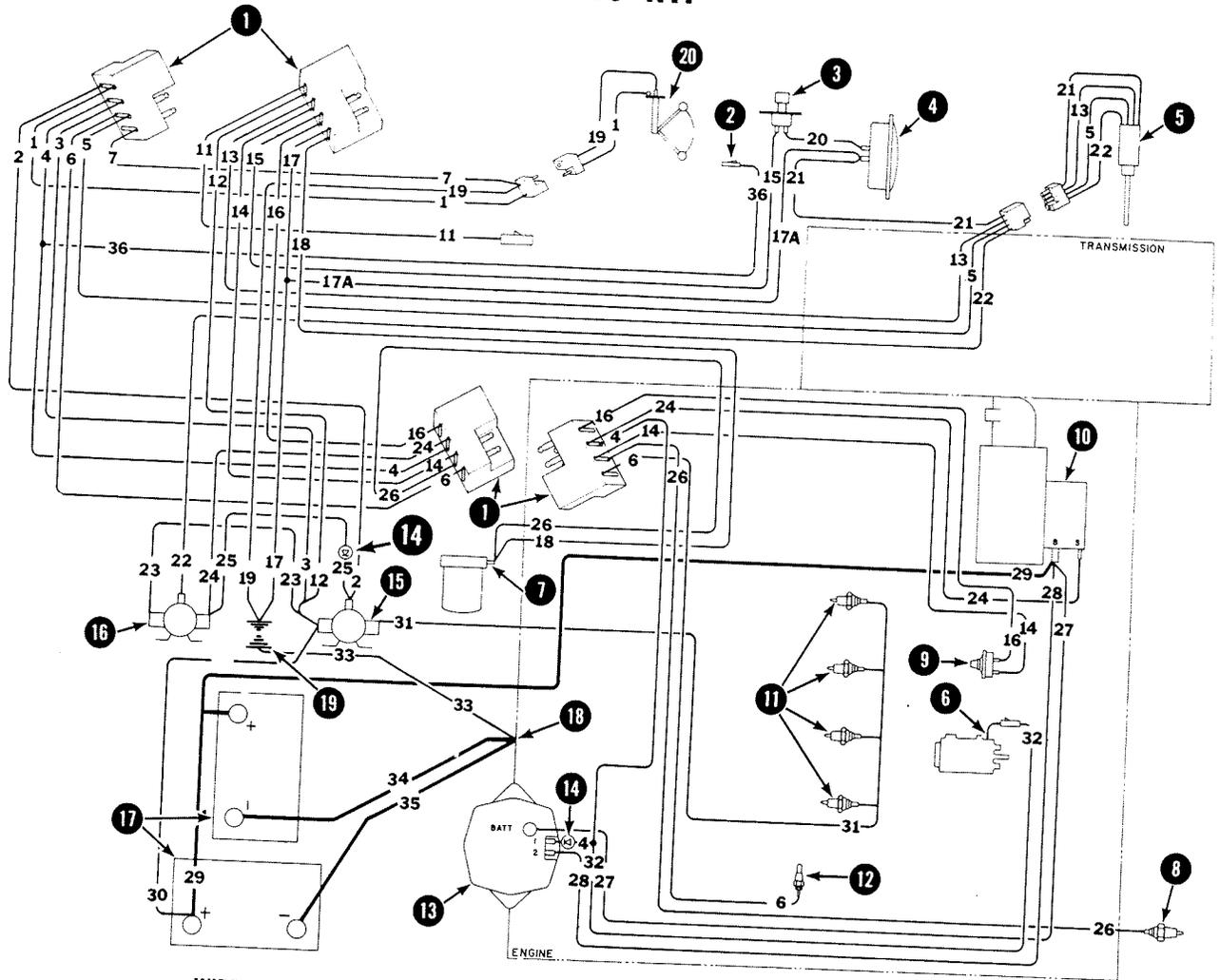
PARTS LEGEND

- ① Harness Connector
- ② Rear Wiper (Opt.)
- ③ Back-Up Alarm
- ④ Rear Lamp
- ⑤ Tail Lamp
- ⑥ Accessories (Fused & Switched)
- ⑦ Left Flasher Lamp (Opt.)
- ⑧ Left Front Lamp
- ⑨ Front Wiper
- ⑩ Flasher (Opt.)
- ⑪ Right Front Lamp
- ⑫ Right Flasher Lamp (Opt.)
- ⑬ Engine Temperature Gauge
- ⑭ Fuel Gauge
- ⑮ Light Switch
- ⑯ Wiper Switch
- ⑰ "Trans" Warning Lamp
- ⑱ "Eng" Warning Lamp
- ⑲ Accessory Switch (Opt.)
- ⑳ Fuse (Accessory)
- ㉑ Fuse (Ignition)
- ㉒ Voltmeter
- ㉓ Ignition Switch
- ㉔ Hourmeter
- ㉕ Shut-Down Module (Opt.)
- ㉖ Time Delay Switch
- ㉗ Operator Guard Ground
- Tee Splice
- Butt Splice

E-1427

Fig. 1-26 Operator's Guard Electrical Circuitry

ENGINE WIRING DIAGRAM 2000 RTF



WIRE LEGEND

#'s	COLOR	GAUGE	#'s	COLOR	GAUGE
1	Purple	16	30	Cable	8
2	Lt. Blue/Black	16	31	Lt. Blue/Orange	16
3	Red	12	32	White/Black	12
4	Lt. Green/White	16	33	Cable	16
5	White/Orange	16	34	Cable	16
6	Purple/White	16	35	Cable	16
7	Black	16	36	Orange	12
8	Not Used				
9	Not Used				
10	Not Used				
11	Pink	16			
12	Red/Black	12			
13	Orange/Green	16			
14	Yellow/Brown	16			
15	Orange/Dk. Blue	16			
16	Yellow/Green	16			
17	Black	12			
17A	Black	16			
18	Yellow/Black	16			
19	Black	16			
20	Orange/Dk. Blue	16			
21	Black	16			
22	White	16			
23	Red	12			
24	White/Lt. Green	12			
25	Lt. Blue/Yellow	16			
26	Yellow/Black	16			
27	Red	12			
28	Lt. Green	16			
29	Cable				

PARTS LEGEND

- | | | | |
|----|------------------------------------|----|---------------|
| 1 | Harness Connector | 16 | Start Relay |
| 2 | Chassis Power (Fused & Switched) | 17 | Battery |
| 3 | Horn Switch | 18 | Engine Ground |
| 4 | Horn | 19 | Frame Ground |
| 5 | Neutral Start/Back-Up Alarm Switch | 20 | Fuel Sender |
| 6 | Fuel Shut-off | | ● Tee Splice |
| 7 | Hydraulic Filter Pressure | | ○ Butt Splice |
| 8 | Hydraulic Oil Temperature | | |
| 9 | Engine Oil Pressure | | |
| 10 | Starter | | |
| 11 | Glow Plugs | | |
| 12 | Engine Coolant Temperature | | |
| 13 | Alternator | | |
| 14 | Diode (2) | | |
| 15 | Glow Plug Relay | | |

Fig. 1-27 Engine Electrical Circuitry

E-1426

To service the electrical system:

- (1) Check that the battery cables are clean and tight and check the water level of the batteries. Remove any acid or corrosion from the battery and cables with a sodium bicarbonate (baking soda) and water solution (Fig. 1-28). Cover the terminals with Clark Battery Saver to prevent corrosion.
- (2) Check the tension of the alternator belt (See figure 1-25 for the correct belt adjustment).
- (3) Make sure that all wire connectors are tight.
- (4) Check for broken or open wires.
- (5) Two (2) 25 ampere fuses are installed in the dash panel. If the fuses become damaged, replace them with the same type and size fuses.

NOTE: The "ENG" warning light and the transmission light will come "ON" when the key switch is turned "ON". When the engine is started the engine light must go "OFF". If it does not go off, stop the engine and find the problem. The transmission light will go off after a time of 4 to 8 seconds.

1-13.1 Using An Extra Battery (Booster Starting)

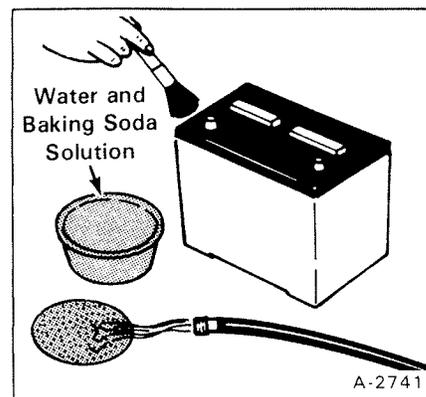


Fig. 1-28 Cleaning the Battery

! WARNING

Lead-acid batteries produce flammable and explosive gases. Keep arcs, sparks, flames and lighted tobacco away from battery. When using an extra battery to "jump" start an engine, make connections as recommended in manual. When connecting extra battery for "jump" start always make last connection (negative cable) to engine (never at battery). When removing "jump" start cables, always remove negative cable from engine first. Never charge frozen battery.

If it is necessary to use an extra battery to start the engine, BE CAREFUL! This is a two (2) person operation. There must be one person in the operator's seat and one person to connect and disconnect the battery cables.

! WARNING

Lead-acid batteries contain sulfuric acid which will damage the eyes or skin on contact. Always wear goggles to avoid acid in the eyes. If acid contacts eyes, wash immediately with much clean water and get medical attention. Wear rubber gloves and protective clothing to keep acid off the skin. If acid contacts the skin, wash off immediately with clean water.

- (1) The ignition must be in the off position.
- (2) The battery to be used must be of the same voltage.
- (3) Battery terminals have identification marks. The positive terminal is marked (+) and the negative terminal is marked (-).
- (4) The negative terminal (-) of the battery must be connected to the engine.

WARNING

DO NOT charge a frozen battery because it can explode and cause personal injury. Let the battery warm to 60°F (15.5°C) before connecting to a battery charger.

(5) 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 positive terminal (+) of the machine battery (Fig. 1-29).

NOTE: Figure 1-29 does not show the batteries as they are located in the machine.

(6) 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. DO NOT connect the cable directly to the negative terminal (-) of the machine battery. Connecting the cable directly to the negative terminal (-) of the machine battery can cause a spark and destroy the battery and cause personal injury.

(7) Keep the cables away from the fans and belts.

NOTE: The operator must be in the operator's seat and have the seat belt fastened.

(8) Start the engine.

(9) After the engine has started, remove the cable connected to the engine.

(10) Then remove the cable from the machine battery post positive terminal (+).

(11) Install the rubber covers over the battery terminals.

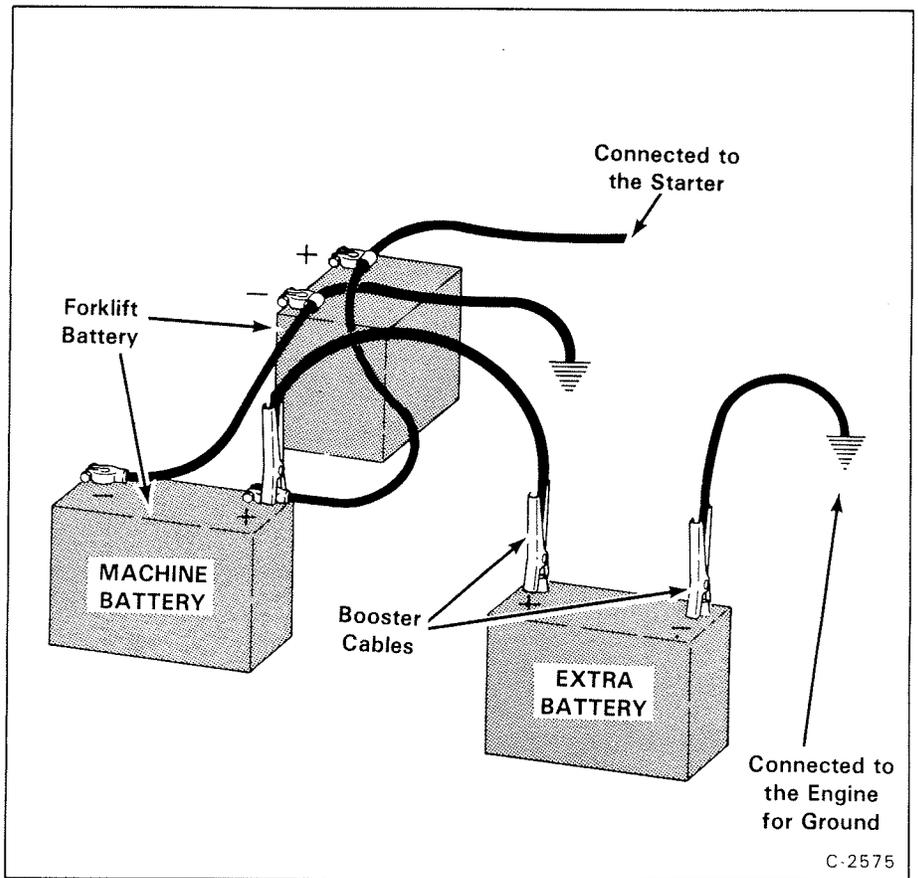


Fig. 1-29 Connecting the Extra Battery

C-2575

IMPORTANT

Damage to the alternator will occur if:

1. The engine is operated with battery cables disconnected.
2. The cables are connected when using a fast charger or when welding on the Bobcat Forklift (Remove both cables from the battery).
3. The extra battery cables are connected wrong.

1-13.2 New Battery Installation

(1) Remove the battery cables (negative cable first) (Fig. 1-30). Remember the position of the positive terminal and the negative terminal so you can connect the cables correctly after the new battery is installed.

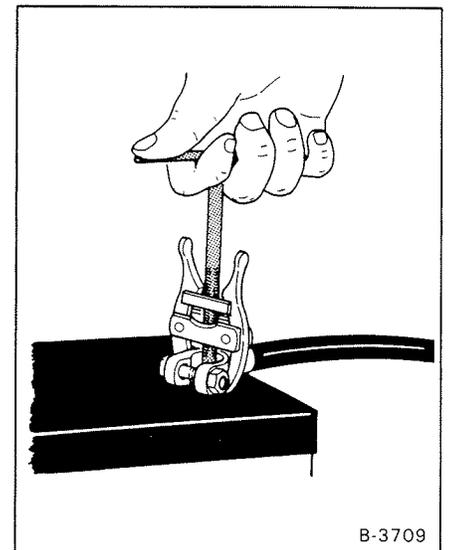


Fig. 1-30 Removing the Cable

B-3709

(2) Remove the batteries' hold down clamps (Fig. 1-31). Remove the batteries from the engine compartment.

(3) Clean the terminal posts (Fig. 1-32) of the new batteries. Install the batteries in the engine compartment. Install the hold down clamps.

NOTE: DO NOT touch the battery terminals with any metal.

(4) Install and tighten the battery cables. Connect the ground (negative) cable last to prevent sparks.

NOTE: If one battery needs replacement, you must replace both batteries.

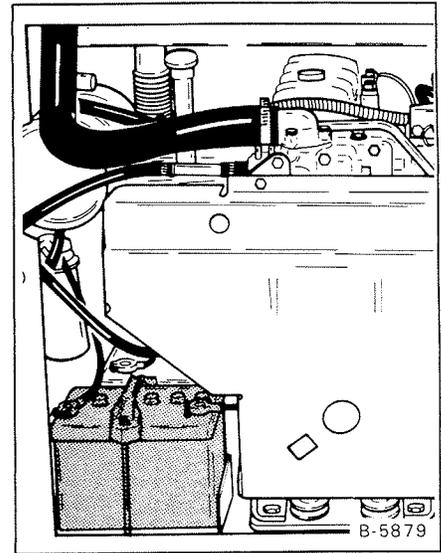


Fig. 1-31 Location of Batteries

1-14 HYDRAULIC/HYDROSTATIC SYSTEM (Fig. 1-33)

The hydraulic and hydrostatic systems use the same hydraulic fluid reservoir..

The system has a vane pump that supplies hydraulic fluid to the control valve and the lift and tilt cylinders.

Fluid also goes from the control valve to the oil cooler.

There are two (2) filters (one #10 micron and one #3 element) installed in the system. They are in the engine compartment. One is located on the fluid reservoir tank (Fig. 1-34, Item 1) and the other is under the air cleaner (Fig. 1-35, Item 1).

The location of the oil cooler is above the engine. The oil cooler is used for cooling the hydraulic/hydrostatic fluid.

1-14.1 Hydraulic/Hydrostatic Fluid Reservoir

Use only recommended fluid in the hydraulic/hydrostatic system (See Section 8 for the correct fluid to use).

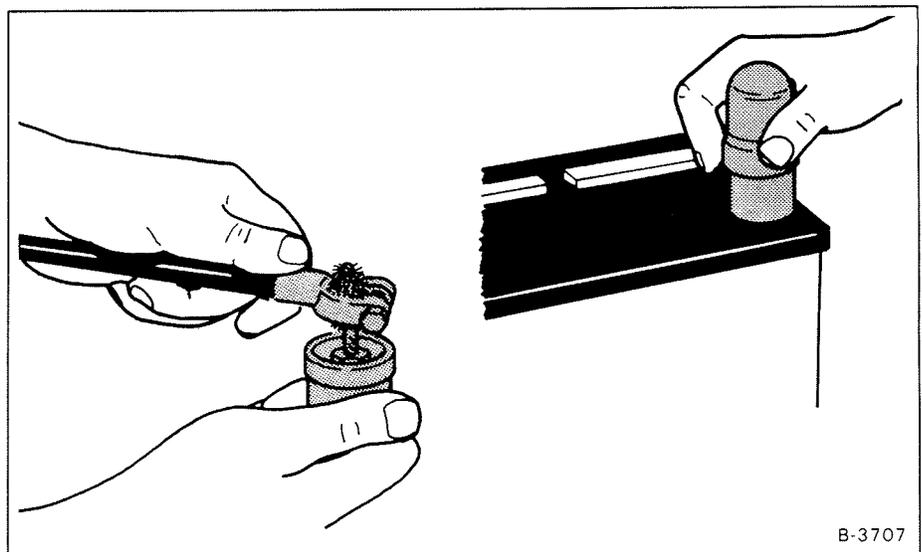
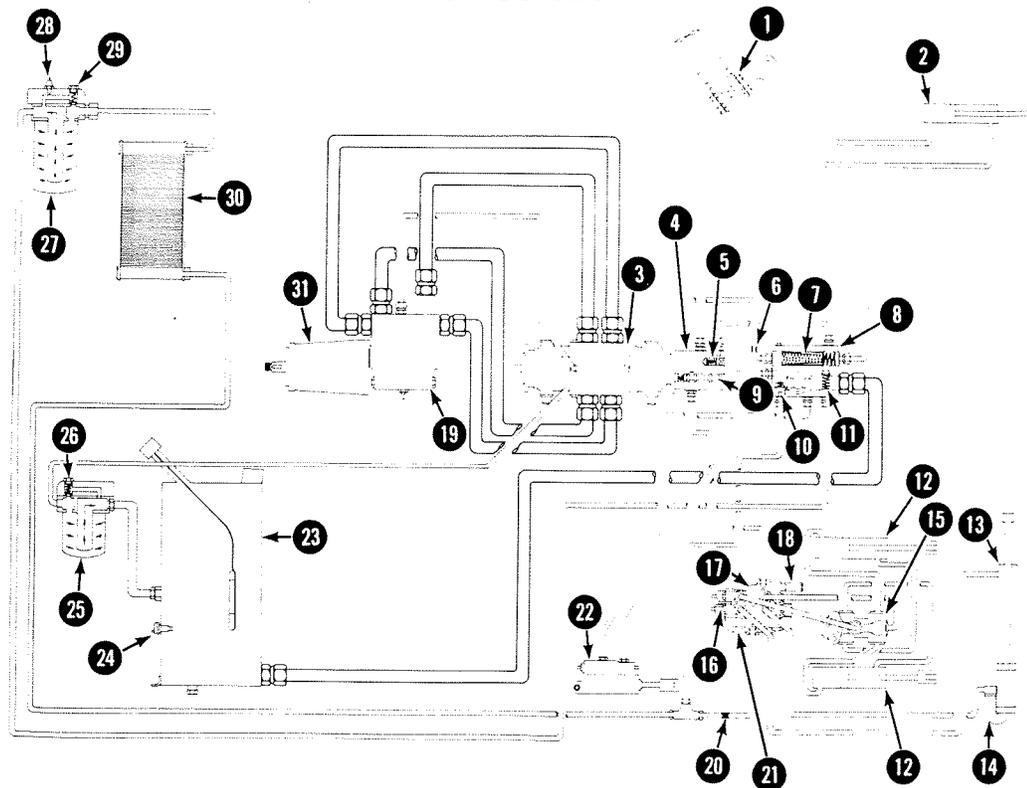


Fig. 1-32 Cleaning the Battery Terminals

2000 ROUGH TERRAIN FORKLIFT HYDRAULIC & HYDROSTATIC CIRCUITRY



- | | |
|---|--|
| 1 STEERING CONTROL VALVE | 18 MAIN RELIEF VALVE, 2450 PSI (16893 kPa) |
| 2 STEERING CONTROL CYLINDER | 19 MANIFOLD BLOCK |
| 3 HYDROSTATIC PUMPS | 20 ORIFICE |
| 4 HYDRAULIC PUMP (Vane), 21.5 GPM (81 L/m)
@2600 RPM (Governor RPM) | 21 HYDRAULIC CONTROL VALVE |
| 5 STEERING RELIEF VALVE, 2000 PSI (13790
kPa) | 22 SERVO-CONTROL VALVE |
| 6 ORIFICE | 23 FLUID RESERVOIR, 11 gals. (45 L) Capacity;
7 gals. (26 L) Working Capacity |
| 7 FILTER, 40 micron | 24 TEMPERATURE SWITCH, 220-232°F
(104-111°C) |
| 8 PORT BLOCK | 25 FILTER, 10 micron |
| 9 FLOW DIVIDER VALVE, 7.3 GPM (27,6 L/m) to
Steering 14.2 GPM (53,7 L/m) to Hydraulics | 26 FILTER BY-PASS, 30 PSI (207 kPa) |
| 10 BY-PASS VALVE, 120 PSI (827 kPa) | 27 FILTER, #3 element |
| 11 COLD WEATHER BY-PASS VALVE, 300 PSI
(2069 kPa) | 28 PRESSURE SWITCH (Differential), 19 PSI
(131 kPa) |
| 12 TILT CYLINDERS | 29 FILTER BY-PASS, 25 PSI (172 kPa) |
| 13 LIFT CYLINDER | 30 OIL COOLER |
| 14 FLOW RESTRICTOR | 31 HYDROSTATIC MOTOR |
| 15 COUNTERBALANCE VALVE | |
| 16 PORT RELIEF, Lift Cylinder 500 PSI (3448 kPa) | |
| 17 LOAD CHECK | |
-
- | | |
|------------|------------------------|
| RED----- | High Pressure |
| BLUE----- | Low Pressure |
| GREEN----- | Case Drain & Reservoir |
| ORANGE---- | Charge Pressure |

E-1425

Fig. 1 — 33 Hydraulic/Hydrostatic System

1-14.2 Checking and Adding Hydraulic/Hydrostatic Fluid

To check and/or add fluid, use the following procedure:

- (1) Put the Bobcat Forklift on a level surface.
- (2) Put the vertical mast fully down.
- (3) Remove the dipstick and check the level of the fluid (Fig. 1-34, Item 1).
- (4) If the level is below the bottom mark (Fig. 1-36), add the correct fluid (See Section 8 for the correct fluid), until the level of the fluid is at the top mark (Fig. 1-36).

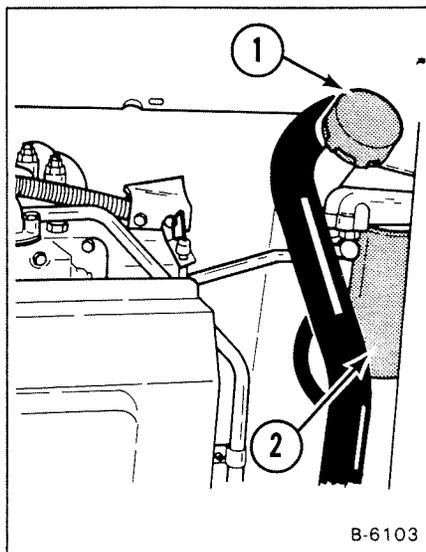


Fig. 1-34 Filter Location

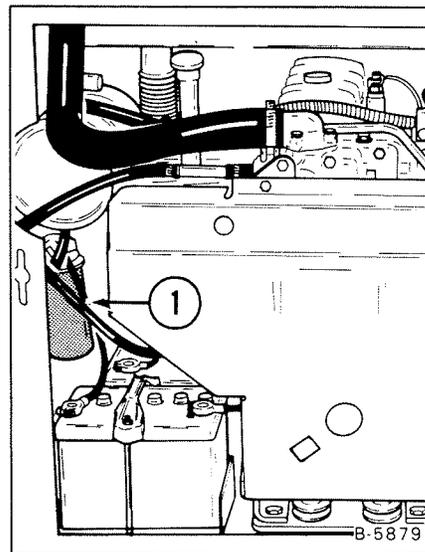


Fig. 1-35 Filter Location

1-14.3 Removing the Hydraulic/Hydrostatic Fluid

- (1) Remove the drain plug (Fig. 1-37).
- (2) Put a container under the reservoir (Fig. 1-38) and remove the fluid.
- (3) When all the fluid is out, install the plug and tighten.
- (4) Remove the oil fill cap/dipstick from the reservoir (Fig. 1-34, Item 1).
- (5) Fill the reservoir to the top mark (Fig. 1-36) on the dipstick with the correct fluid (See Section 8 for the correct fluid).

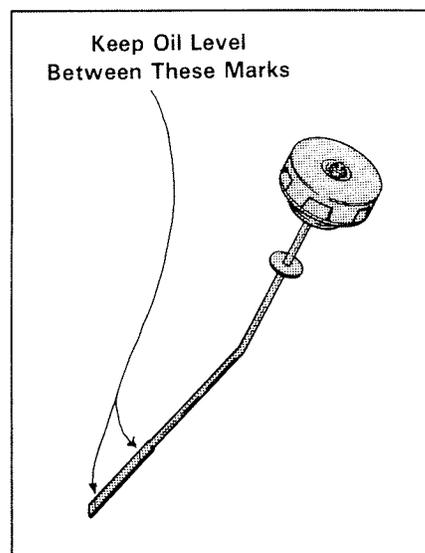


Fig. 1-36 Fluid Dipstick

1-14.4 Replacement of the Hydraulic/Hydrostatic Filter

Replace the right hydraulic filter (10 Micron) every 100 hours of machine operation or more often if necessary. Replace the left hand filter (#3 Element) when the transmission light stays on for more than 5 minutes after cold start up.

To replace the hydraulic filters, use the following procedure:

- (1) Clean the area around the filter housings.
- (2) Remove the filter elements (Fig. 1-34, Item 2 & Fig. 1-35, Item 1) with a filter wrench.

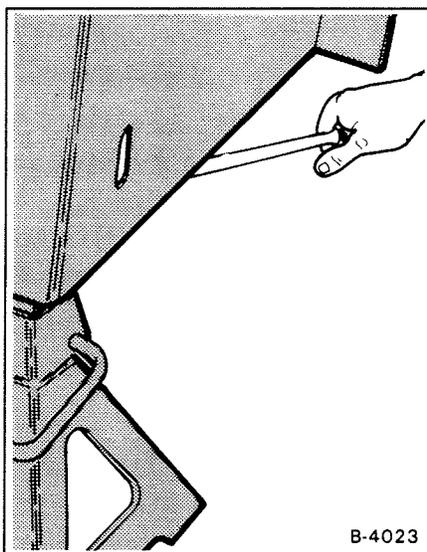


Fig. 1-37 Removing Drain Plug

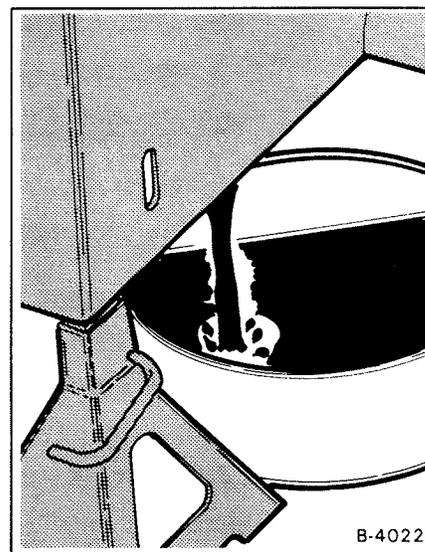


Fig. 1-48 Removing the Fluid

(3) Clean the surface of the filter housing head where the filter element makes contact with the filter housing.

(4) Lubricate the rubber gasket on the filter element with grease.

(5) Install the filter element. Tighten the filter elements by hand only.

(6) Check for leaks after you operate the machine.

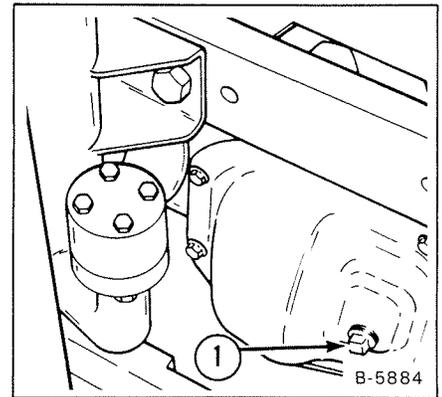


Fig. 1-39 Front Axle Check Plug

1-15 FRONT AND REAR AXLE

The final drive of the Bobcat Forklift is the front and rear axles.

The rear axle has a limited slip differential and the front axle has a standard differential.

NOTE: The rear axle must have limited slip additive (GM Part No. 1052358) added to the new oil when the oil is drained and replaced.

Check the oil level in the front and rear axle every 200 hours. When the level is low, put in SAE 90 weight oil.

To check the front and rear differential oil level, use the following procedure:

(1) Put the Bobcat Forklift on a level surface, lower the vertical mast and stop the engine.

(2) Remove the check plug on the covers of the axles (Fig. 1-39, Item 1 and Fig. 1-40, Item 1).

(3) The oil must be at the check plug hole. If it is not, add the correct oil through the check plug hole until it flows from the check plug hole. Add limited slip additive (GM P/N 1052358) to the rear axle.

(4) Install the plug and tighten.

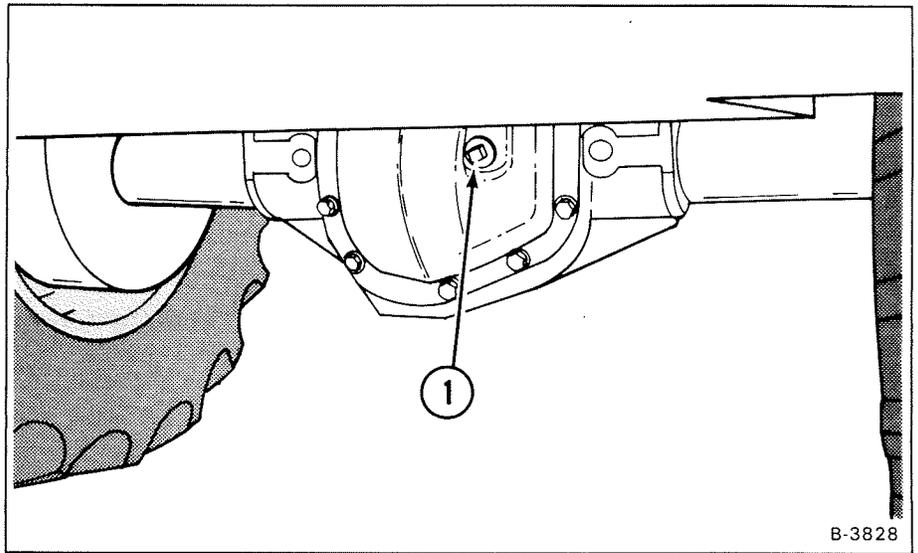


Fig. 1-40 Rear Axle Check Plug

1-16 U-JOINTS

The drive shaft connects the two axles together. There is a U-joint at each end of the drive shaft (Fig. 1-41).

Lubricate the U-joints with high impact grease (Clark Part Number 6599719 or equivalent grease) every 100 hours (See the Parts Manual for the correct grease).

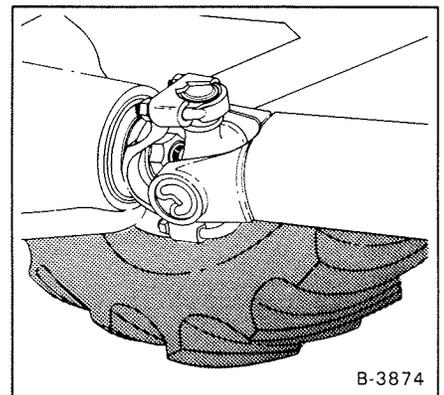


Fig. 1-41 U-Joint

1-17 TIRE MAINTENANCE

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

1-17.1 Tire Rotation

When two tires become worn more than the other two tires, put the two worn tires on the front or rear of the machine. The front tires must be moved to the rear and the rear tires to the front to keep the tire wear even.

WARNING

Always keep the same size tires on the same axle. If different sizes are used on the same axle, each tire will be turning at a different speed. This will cause excessive wear on the limited slip differential, the pinion and the spider gears in the axles. When a tire wears, always install two (2) new tires on the same axle. The tread bars of all the tires must move in the same direction.

Recommended tire pressure must be maintained to avoid excessive tire wear and loss of stability and handling capability. Tire pressure must be checked regularly. The operating pressures are listed under machine specifications for the recommended tire sizes. Tires are sometimes inflated above or below operating pressure for shipping. Check for the correct pressure before operating the machine.

If the tires are changed on the rims, it is important during mounting to avoid excess pressure which can cause rupture of the tire with serious personal injury. During inflation of the tire, check the tire pressure frequently with a tire pressure gauge to avoid over inflation.

WARNING

Tires must not be inflated above recommended pressure to avoid explosion of the tire which can cause serious injury.

Before the tire is mounted, the rim must be cleaned and free of rust. The tire bead and rim flange must also be lubricated with a rubber lubricant before mounting the tire on the rim to avoid damage to the tire and rim.

1-17.2 Wheel Nuts

Check the wheel nuts for correct tightness every 8 hours during the first 24 hours of machine operation and then every 50 hours after that.

Correct torque is 115 ft.-lbs. (155 Nm) torque.

IMPORTANT

DO NOT put fluid in the tires on this Bobcat Forklift.

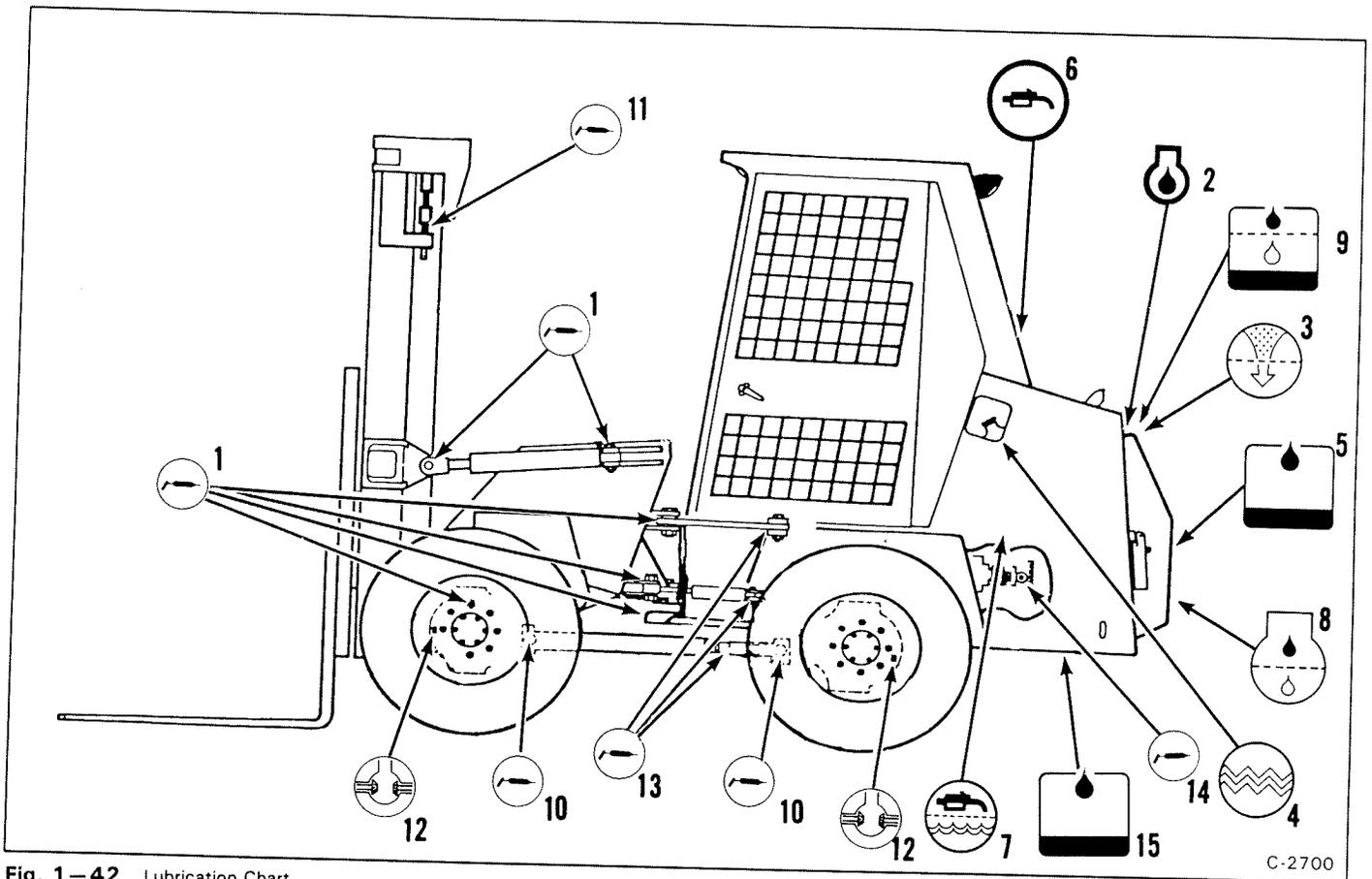


Fig. 1-42 Lubrication Chart

C-2700

1-18 LUBRICATION OF THE BOBCAT ROUGH TERRAIN FORKLIFT

⚠ WARNING

Never lubricate, add oil or do any maintenance work with the engine running. If the attachment must be raised in order to do maintenance work, support the lift carriage with chains or other supports.

Ref. No.	Service Points	Service Required	Hours
1.	Grease Fittings	Lubricate with a good quality grease.	8 - 10
2.	Engine Oil Dipstick	Check the oil and add as needed.	8 - 10
3.	Engine Air Cleaner	Replace the element when the red ring shows in the Condition Indicator window.	8 - 10
4.	Engine Coolant	Check coolant and add as needed.	8 - 10
5.	Hydraulic Reservoir	Check fluid and add as needed.	8 - 10
6.	Fuel Tank	Add Fuel.	Daily
7.	Fuel Filter	Remove trapped water.	50
8.	Engine Oil Filter	Change oil and change filter.	50
9.	Hydraulic Filters	Install new right filter (10 Micron) elements. (Replace left filter #3 element when light comes "ON").	100
10.	U-joints	Lubricate with high impact grease.	100
11.	Carriage Chains	Lubricate with oil.	100
12.	Front & Rear Axle	Check oil and add as needed.	200
13.	Strg. Cyl. & Rear OSC Joint	Lubricate with high impact grease.	200
14.	U-joints (Engine & Hydrostatic)	Lubricate with high impact grease.	200
15.	Hydraulic Reservoir	Drain and put in new fluid.	1000

Lubricate the Bobcat Forklift as specified in the Service Schedule on page 7 for the best performance of the machine.

See figure 1-42 for the location of the grease fittings.

Always use a good quality high impact grease (Clark Part Number 6599719 or equivalent) when you lubricate the Bobcat Forklift. Apply the lubricant until the extra grease shows. Lubricate the seat rails for easy movement when you adjust the seat (See Parts Manual for correct grease).

1-19 SPARK ARRESTOR MUFFLER

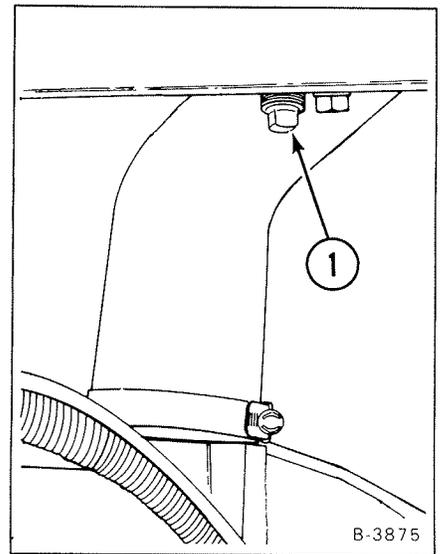


Fig. 1-43 Spark Arrestor Muffler Plug Location

IMPORTANT

This machine is factory equipped with a U.S.D.A. Forestry Service approved spark arrestor muffler.

Maintenance on this spark arrestor muffler is necessary to keep it in working condition. Spark arrestor muffler must be serviced by dumping the spark chamber every 100 hours of operation.

If this machine is operated in California 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.

The spark arrestor muffler must be cleaned every 100 hours of machine operation.

To clean the spark arrestor muffler, use the following procedure:

⚠ WARNING

Engine must be cool before cleaning spark arrestor muffler. Wear safety goggles.

- (1) Open the rear door.
- (2) Remove the plug at the bottom of the muffler (Fig. 1-43, Item 1).

⚠ WARNING

DO NOT run engine in a space with explosive dusts, gases or flammable material near exhaust.

- (3) Start the engine and run it about 10 seconds. Hold a piece of wood over the exhaust outlet to force exhaust gases through the muffler plug.
- (4) Stop the engine and install the plug and tighten it.
- (5) Close the rear door.

1 – 20 BACK-UP ALARM

The Bobcat Forklift is equipped with a back-up alarm.

Check for correct operation of the back-up alarm. Start the engine and move the machine backwards. The back-up alarm must come on.

1 – 21 VERTICAL MAST

The Bobcat Forklift has a single-stage vertical mast (upright). The lift cylinder for the vertical mast is offset to the right of the upright. Two (2) tilt cylinders are connected between the vertical mast and the front main frame of the machine. Two (2) carriage chains and a roller system control raising and lowering the vertical mast.

Lubricate the carriage chains and rollers with oil every 100 hours.

After the first 25 hours of machine operation, tighten the eight (8) mounting frame bolts (Fig. 1 – 44, Item 1) again to 300 to 330 ft.-lbs. (407 to 447 Nm) torque.

1 – 22 OPERATOR CAB

The Bobcat Forklift has a roll over protective structure (ROPS) as standard equipment and it also protects the operator from falling objects (FOPS).

Never change the operator cab by welding, grinding, drilling holes or adding attachments that are not approved. This can weaken the operator cab and cause personal injury or death. DO NOT make installations on the operator cab that have not been approved by the Engineering Department, Clark Equipment Co., Melroe Division, Bismarck, ND 58501.

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

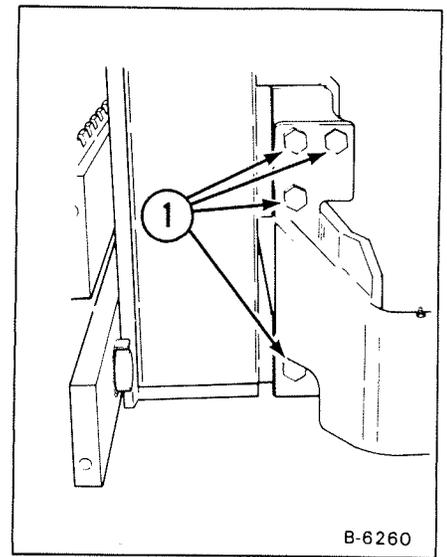


Fig. 1 – 44 Mounting Bolts

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