



PART NO. AAAO1204-6



# OPERATION & MAINTENANCE MANUAL

**SHOVEL LOADER**

Model ***110ZII***

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SERIAL NUMBERS  
110Z260160 and up.

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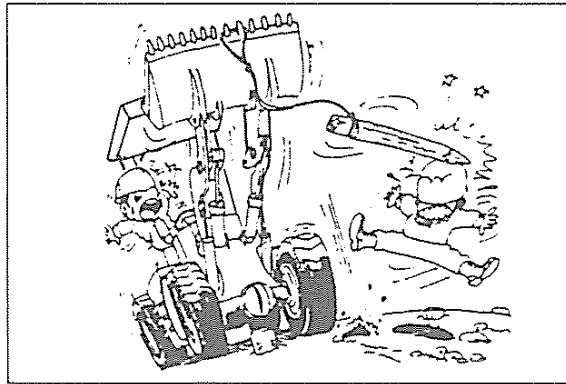


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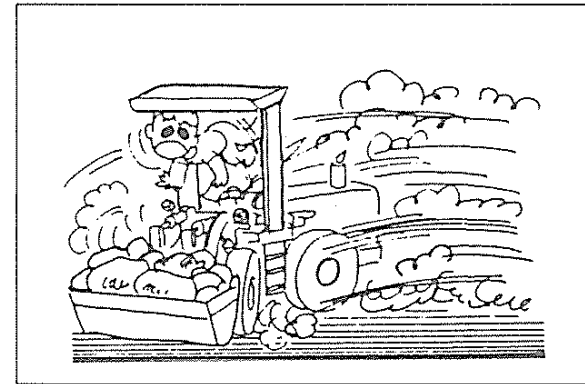
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**DURING OPERATION**

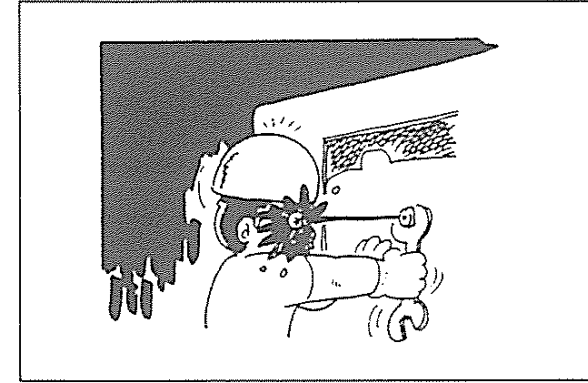
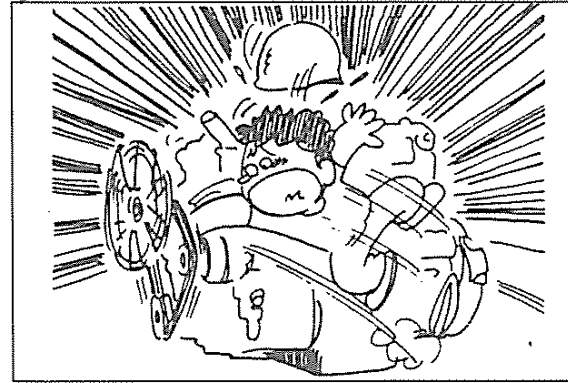
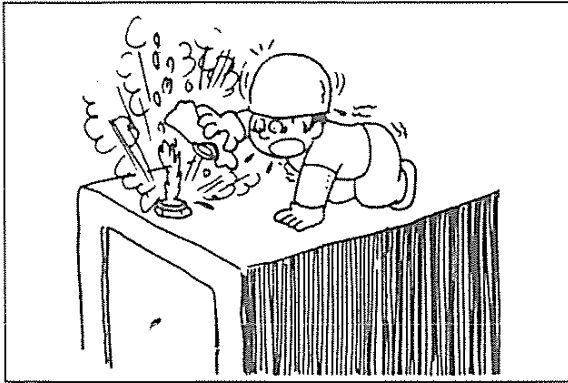
- Do not allow riders on the machine unless additional seat, seat belt and rollover protection are provided.
- Always sit in the operator's seat when operating the machine.
- Do not allow unauthorized persons into the work area.
- It is extremely dangerous to allow yourself to be distracted or to think of other things when operating a machine.



- Never attempt to put the machine to use other than specified.
- Do not use the bucket as a brake except in emergencies.



- Keep the machine under control—do not try to work it over its capacity.
- The machine should always be operated at a speed where it can be correctly controlled. Never do the following:
  - Speeding
  - Sudden starting, sudden braking, sudden turning
  - Snaking
  - Coasting

DURING INSPECTION & MAINTENANCE . . . 

- Always inspect the cooling system with the engine stopped and cool. Remove the radiator cap slowly to relieve pressure. Steam can cause personal injury.
- When opening inspection covers, stop the engine. If the hood or other covers are fitted with a lock, always apply the locks securely when opening or closing the hood or cover.
- Use caution when removing any drain plugs, grease fittings or pressure taps.
- Cooling system conditioner contains alkali, avoid contact with the skin and eyes.

- Do not attempt adjusting belt tension while the machine is moving or the engine is running.
- Do not attempt any repairs you do not understand.

- Always release the pressure in the circuit before checking or servicing the oil, water and air circuit.
- Hot hydraulic oil can cause personal injury. Remove the hydraulic tank fill cap slowly to relieve the tank pressure. Allow the oil to cool before draining the tank.
- Whenever draining a lubricant, extreme caution should be used; the lubricant may be hot and can cause personal injury.
- Collect drained oil and wipe up spills when draining oil.

■ HOW TO USE PEDALS AND LEVERS

1. TRANSMISSION SHIFT LEVER

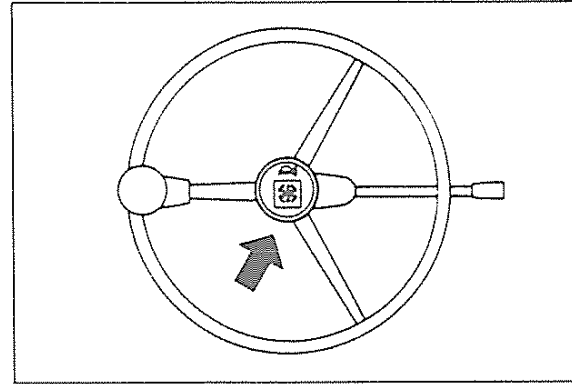


- This lever is for moving the machine forward or backward, and for changing speeds.
- Move the lever forward or backward to shift to forward or reverse.
- Column shift for 3 forward speeds and 3 reverse speeds; change gears by moving the shift lever to the desired position.
  - 1-st EXCAVATING, SCOOPING
  - 2-nd SCOOPING, LOADING
  - 3-rd: DRIVING .

**CAUTION**

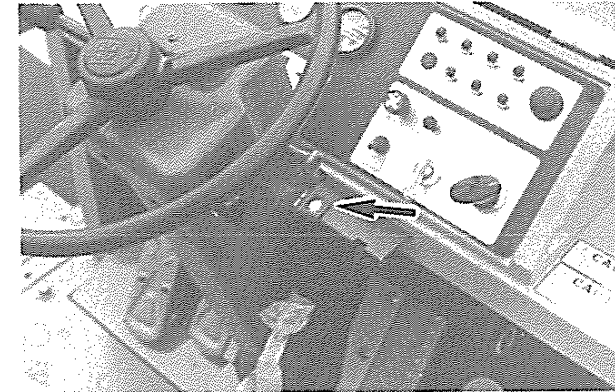
When starting the engine, be sure that the lever is in "NEUTRAL".

2. HORN BUTTON



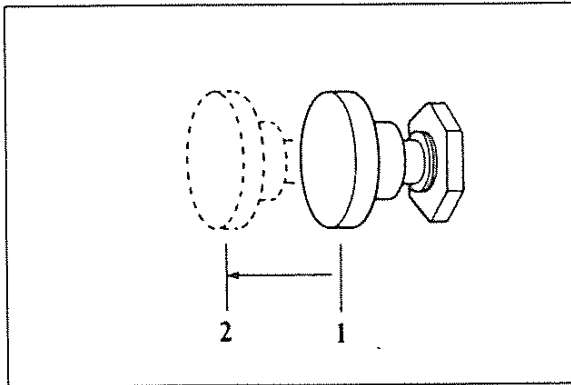
- The horn is sounded by pressing the button in the center of the steering wheel.

3. TURN SIGNAL AND LIGHTING LEVER



- Move the lever to reverse from the neutral position to light the winker lamps on at the right side.
- Move the lever to forward from the neutral position to light the winker lamps on at the left side.
- When the lighting switch is ON, keep the lever in the neutral position to light the head lamps low beam.
- When the lighting switch is ON, push down the lever to light the head lamps high beam.
- Even though the lighting switch is OFF, the head lamps light high beam by pulling up the lever. However, the head lamps light off, when the lever returns to the neutral position.

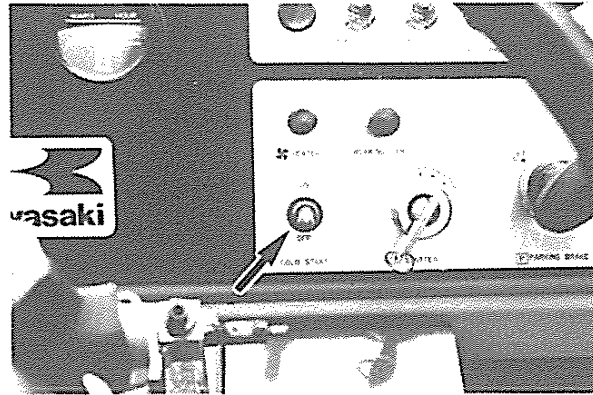
14. WORKING LIGHT SWITCH



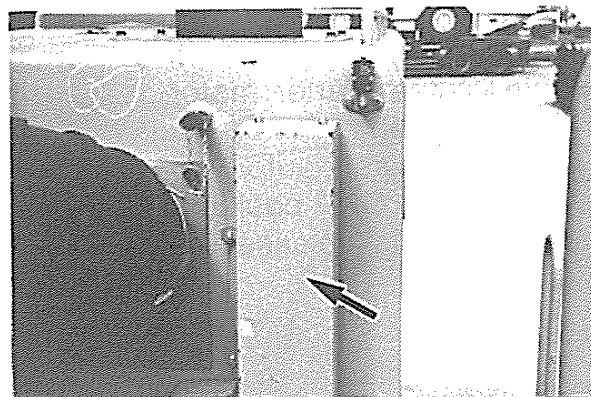
• Rear light turns on.

**!** When traveling on public roads, turn the working light switch OFF.

15. COLD STARTER SWITCH



• In cold weather, use this switch for easy starting.  
 • Press the cold starter switch "ON" position for 2 second. (Here the ether is filled into a metering valve and measured.)



**!** Avoid heat, electric sparks and flames near the ether cylinder.

**!** According to laws and ordinances, the ether cylinder should not be stored in a place where the surrounding temperature rise above +40°C (100°F).

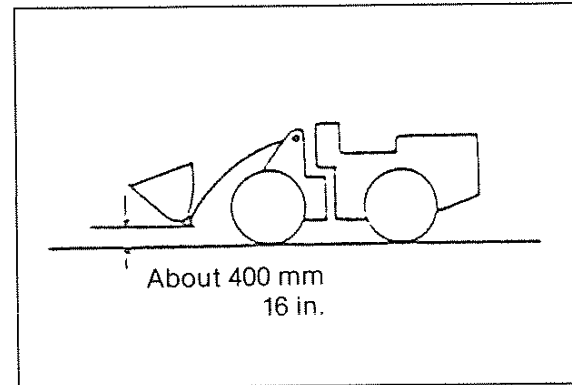
**!** Store ether out of children's reach.

**!** When the winter season is over (outside temperature is above +5°C (40°F), remove the ether cylinder from the machine and store it safely according to the above instruction.

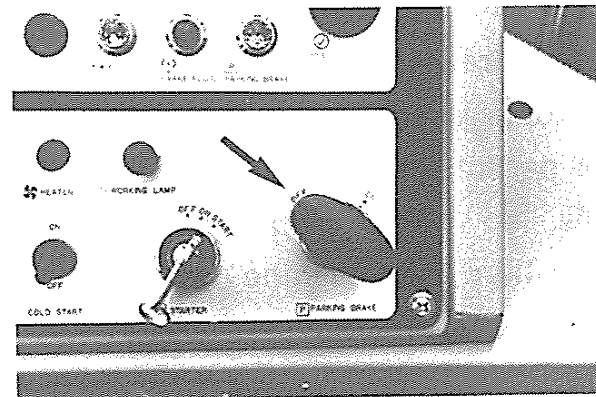
## MOVING THE MACHINE

**!** If the machine has to be started on a slope, depress the brake pedal. Then depress the accelerator pedal while releasing the brake pedal to start the machine off slowly.

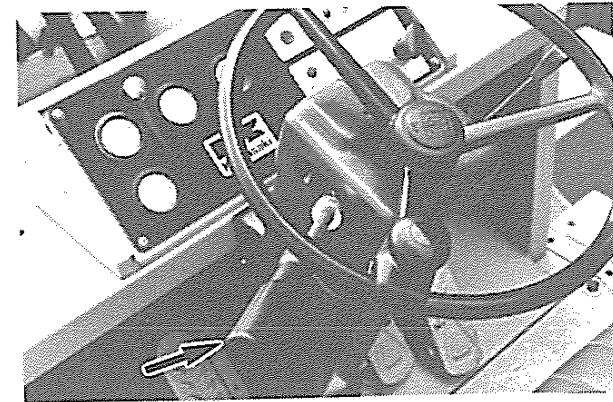
**!** Be sure the area is clear of personnel and obstructions.



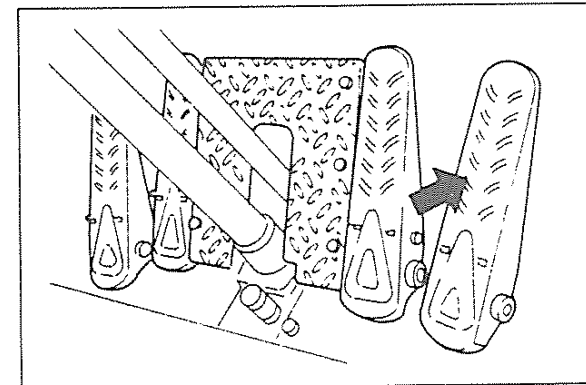
1. Raise the bucket to the carry position approximately 400 mm (16 inches) above the ground.



2. The parking brake switch is "OFF" position to release the parking brake.



3 Move the transmission shift lever to the desired travel direction and then shift to the desired speed.



4. Depress the accelerator pedal and drive the machine.

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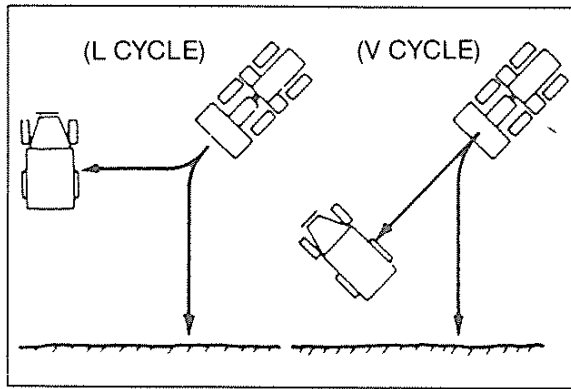
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## V OR L CYCLE OPERATION

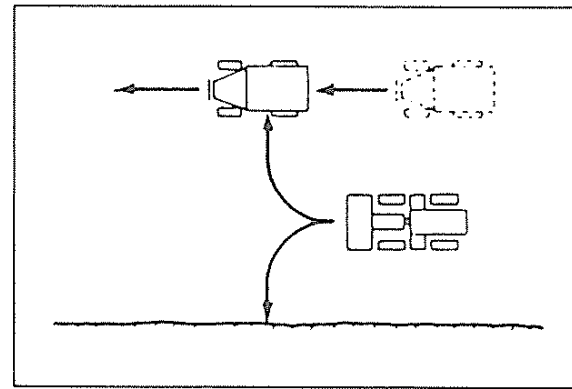


- Park the truck 60° or 90° to the work direction of the vehicle. After scooping, change the direction of the vehicle to load the truck.
- As the turning radius is small, efficiency is increased.

**!** Provided a flat road free of rocks and hollows. When the boom is raised with the bucket loaded, do not make quick turns or quick braking because it is very dangerous.

**!** Do not load the bucket by thrusting into a pile of soil or gravel at high speed because it is dangerous.

## T CYCLE OPERATION



- Park the truck parallel to the work material. After scooping, change the direction of the vehicle 180° and load the truck.
- This operation is effective for sites where trucks continuously come and go.

**!** Lower the bucket to bring down the center of gravity when carrying material.

## INSPECTION AND MAINTENANCE

### PERIODIC INSPECTION AND MAINTENANCE

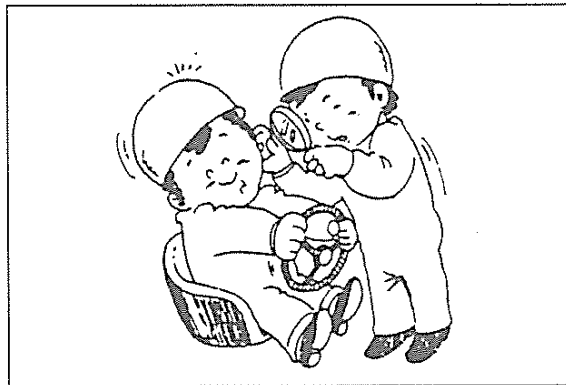
The implementation of periodic inspection and maintenance leads to increased productivity and reduced maintenance costs.

The time given in this manual indicates HOUR METER (SERVICE METER).

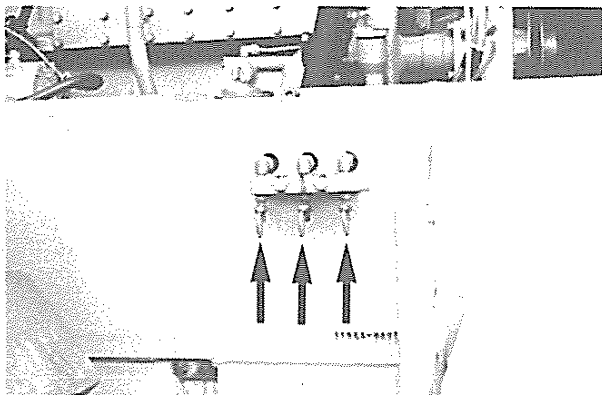
Unfavorable working environments and conditions may require earlier inspection and maintenance.

#### INSPECTION

- For replacement parts, use KAWASAKI's genuine parts.
  - For oil and grease on each part, use the recommended lubricants (page 124).
  - When checking or replacing the oil or element, work in a clean area.
  - When replacing the oil or element, inspect the drained oil or old element and check that there is no metallic powder or foreign matter.
  - When checking other sections particularly those not specified, keep the engine stopped.
- When checking with the engine started, two men are required; one man takes the driver's seat and another man conducts inspection and maintenance.
  - To drain oil, beforehand raise the oil temperature to a proper degree. [Abt. 30 ~ 40°C (86 ~ 104°F)]
  - When working with the boom raised, be sure to use SAFETY BLOCKS.



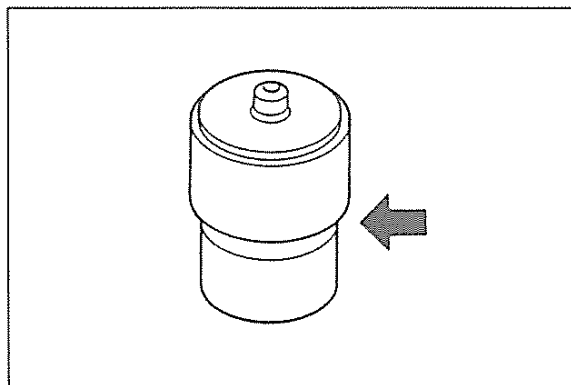
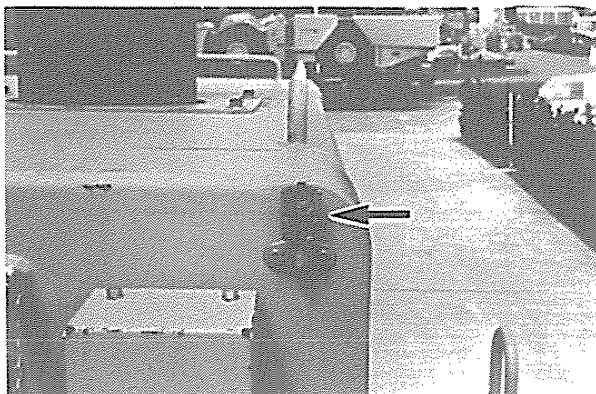
**G. DRAIN WATER OF AIR TANK**



- After the operation is over, drain any water from the air tank.
- Open three drain cocks.

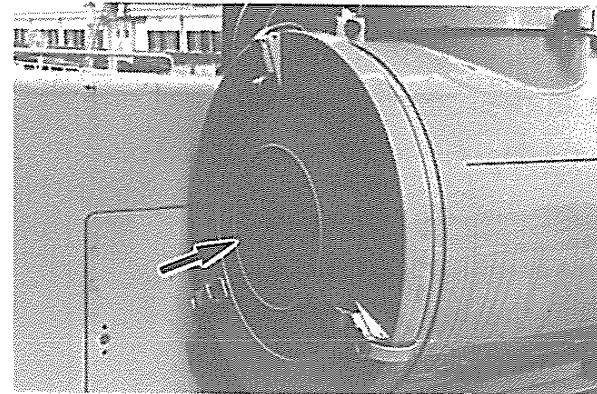
**!** Never stand directly in front of air drain cock when draining the air tank.

**H. CHECK THE DUST INDICATOR OF AIR CLEANER**



- Check the dust indicator and confirm that the red piston has not reached the servicing level.
- When the red piston has exceeded the service level, either clean or replace the element.

**I. CLEAN AND REPLACE AIR CLEANER ELEMENT**

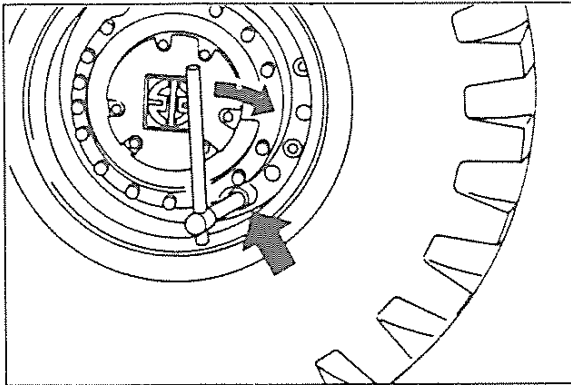


- Clean the element when the indicator signal red only. (Reset the indicator by pressing the push button.)
- Remove dust cup by loosening hinge of the air cleaner cover; (dust cup) loosen butterfly nut and remove outer element; clean the element, the inside of the air cleaner main body; and dust cup then reset them all.

**CAUTION**

- 1) Do not try to clean or replace the air cleaner while the engine is running.
- 2) Clean only the outer element; do not remove the inner element.

**B. CHECK TIGHTNESS OF WHEEL NUTS**

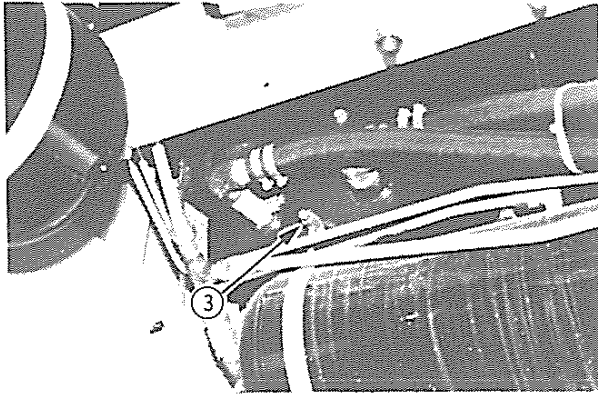


- Check the wheel nuts by turning them in the tightening direction with the spanner provided.
- Retighten with the spanner if necessary.

Tightening torque:

100 ~ 120 kg·m (723 ~ 868 ft. lb)

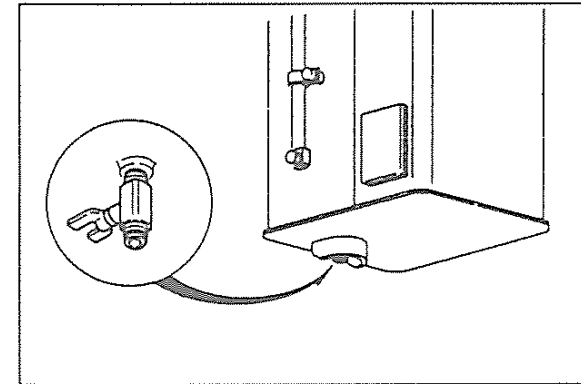
**!** Loose wheel nuts may accelerate tire wear or cause an accident.



- After draining water, clean the radiator with a commercial cleansing agent.
- After cleaning, thoroughly drain water again; close valve (3) and add tap water.
- When the water level reaches the radiator cap, start the engine, open drain valve with the engine at low idle and continue adding water until clean water starts coming out of the drain valve.
- Stop the engine and close drain valve, then tap up the water.
- Idle the engine five minutes to purge air mixed into the cooling water. (Leave the radiator cap off.)
- For in cold weather see seasonal servicing. (page 64).

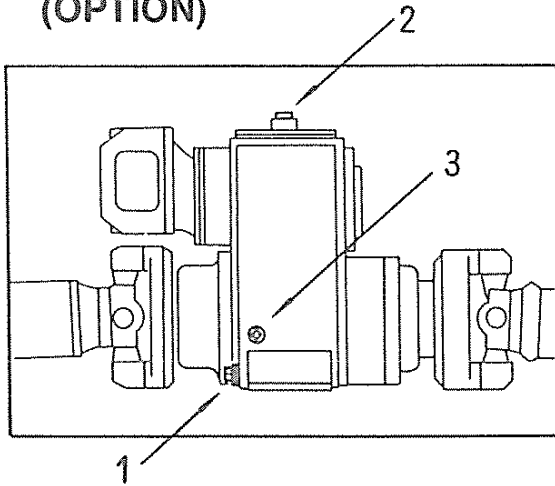
## B. CLEAN FUEL TANK

**⚠ Escaping fuel is flammable. Do not smoke while draining moisture and sediment from the fuel tank.**



- Open the drain cock located bottom side of the fuel tank to discharge the fuel.

**E. REPLACE GEAR BOX OIL  
FOR EMERGENCY STEERING  
(OPTION)**



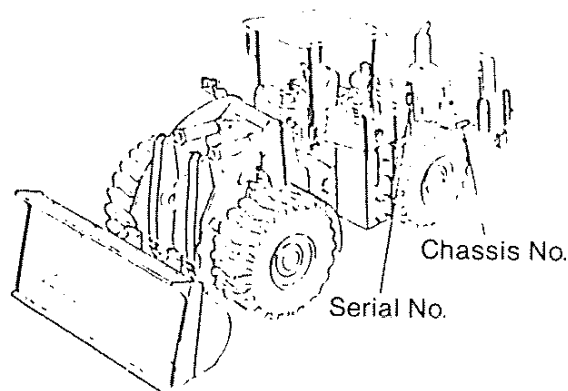
- Remove drain plug (1) of the gear box, drain out the oil, then put the plug back in.
- Remove the plug (2) on the top, and the level plug (3) at the side.
- Add clean oil at the top port (2) until it reaches the level plug.
- Tighten the top plug (2) and the level plug (3).
- Use SEA #90 or equivalent gear oil.

## TROUBLE CONTACT

The signs of malfunctions sometimes appear gradually, be sure to understand these signs and make thorough repairs to prevent accidents or further damage.

When the vehicle has a malfunction or when placing order for parts, please inform the SERIAL NO. or ENGINE NO. of the vehicle in addition to the total working hours on the service meter.

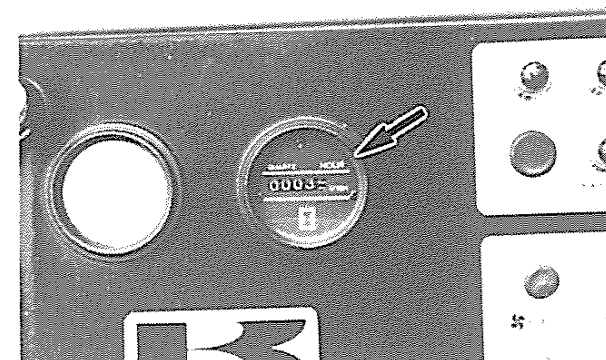
### LOCATION OF VEHICLE'S SERIAL NO. AND CHASSIS NO.



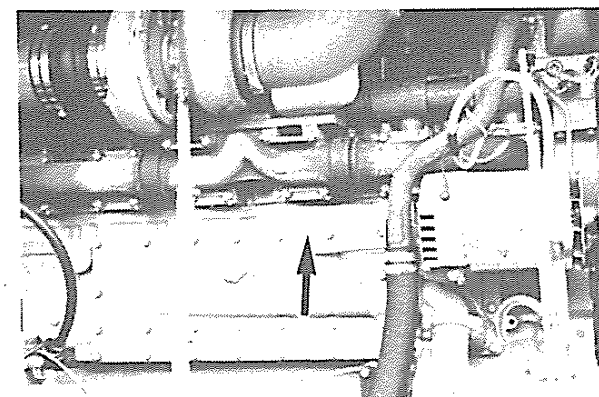
Vehicle's Serial No. has been inscribed on the name plate mounted on the screen board behind the driver's seat.

Vehicle's chassis No. has been stamped on rear chassis frame left side near engine compartment.

### LOCATION OF SERVICE METER



### LOCATION OF ENGINE NO.



Engine No. has been given at both the upper parts of the engine cylinder block.

- Contact your local Kawasaki Dealer or engine dealer when service to the machine is necessary.

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