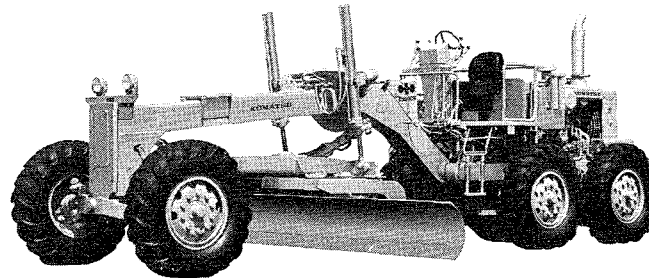


SEAM23AB01

Operation & Maintenance Manual

KOMATSU

GD500R-2 MOTOR GRADER



SERIAL NUMBERS

GD500R-2-11002 and up

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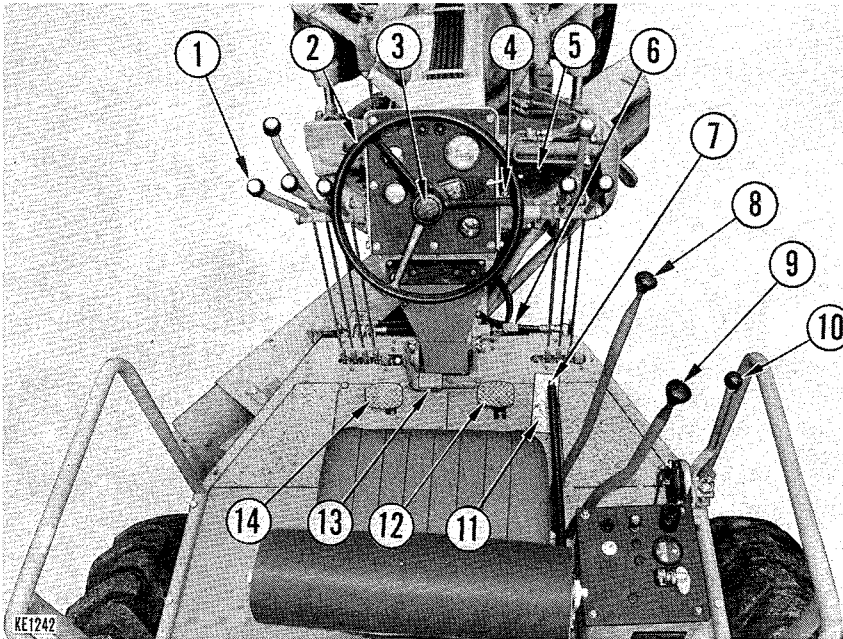
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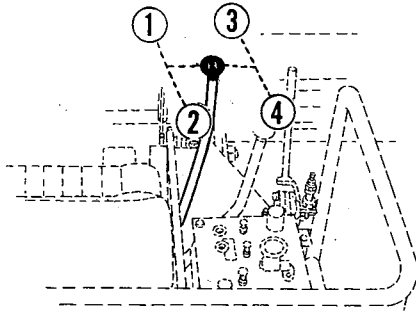
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OPERATOR'S COMPARTMENT



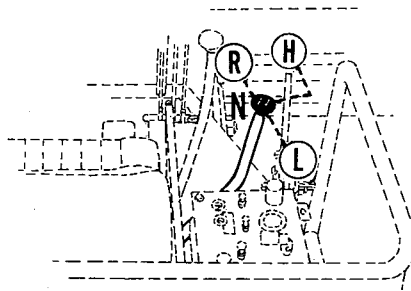
1. Work equipment control lever
2. Steering wheel
3. Horn button
4. Safety lock (for work equipment control lever)
5. Turn signal dimmer switch (OP)
6. Steering post tilt lever
7. Parking brake lever
8. Gear shift lever
9. Forward-reverse lever
10. Fuel control lever
11. Accelerator pedal
12. Brake pedal
13. Bank cut control lock pin removing pedal
14. Clutch pedal

GEAR SHIFT LEVER



This gear shift lever is operated in conjunction with the forward-reverse lever, and can control the speed in 8 stages for forward and 4 stages for reverse.

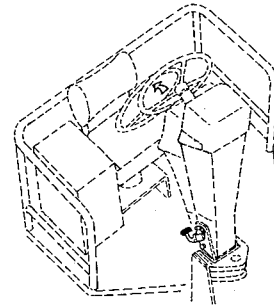
FORWARD-REVERSE LEVER



Four lever positions shown above are H (high), N (neutral), L (low) and R (reverse). In combination with the gear shift lever, this lever provided various travelling speeds of the machine.

As a rule, use "H" position when the machine is only travelling and "L" position when the machine is brought in work.

ADJUSTING STEERING WHEEL AND WORK CONTROL LEVERS FORWARD-BACKWARD



Step pedal and pull wheel forward you. When instrument box hits stopper, release your foot from pedal, insert pen to fix steering wheel.

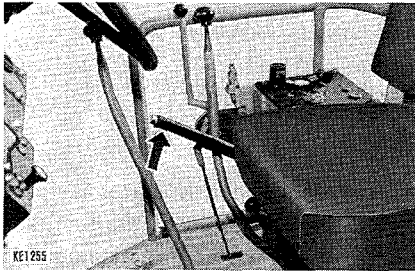
OPERATING YOUR MACHINE

HANDLING THE ENGINE

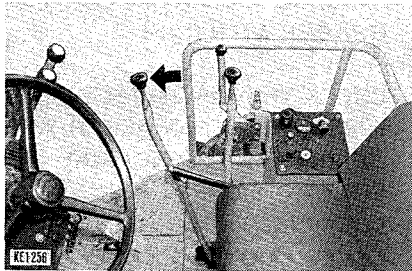
Before Starting

Perform CHECK BEFORE STARTING.

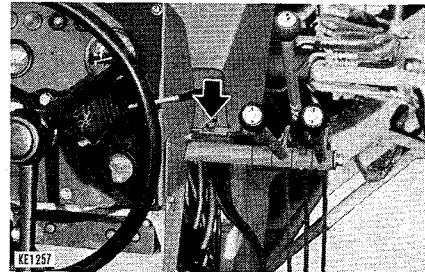
- Is the parking brake pulled back?



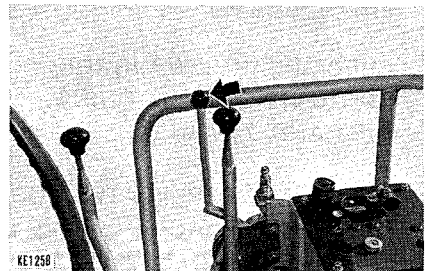
- Is gear shift lever at the neutral position?



- Is work equipment control lever at the neutral position and locked?



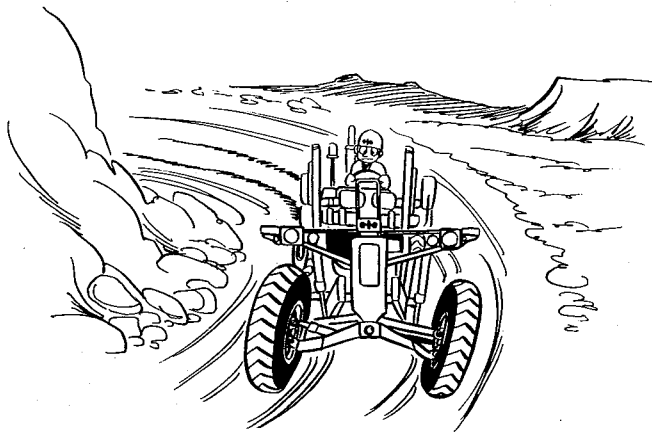
- Is the fuel control lever in the low idling position?



CAUTIONS FOR OPERATING

General

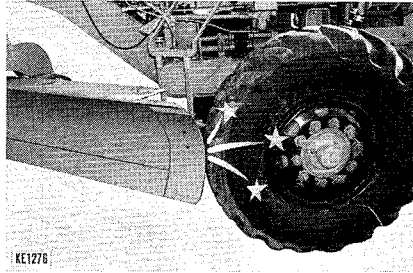
- Blow the horn before starting the engine or starting the machine as a warning to persons in the immediate areas.
- Keep persons far away from the area in which the machine is operating.
- Keep sufficient clearance from the road shoulder and obstructions during travelling.
- Always face the direction in which the machine is travelling.
- Be sure to check behind you before starting to back the machine.
- Pay special care not to run over the road shoulder or cause land-slips.



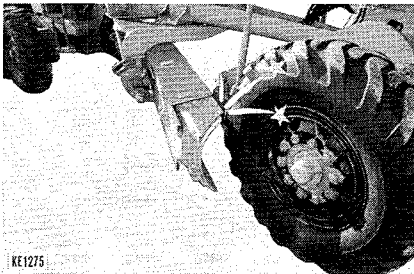
! CAUTIONS IN OPERATION
OF WORK EQUIPMENT

- When the work equipment is operated, special attention should be given to contacts at the following parts.

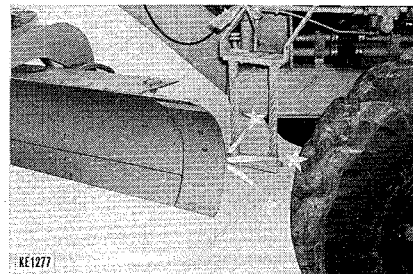
Rear wheel and blade



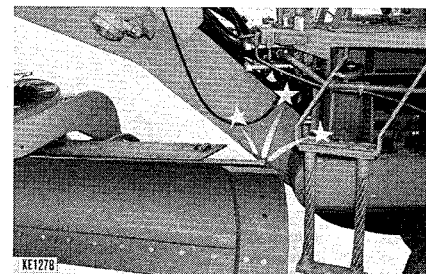
Front wheel and blade



Blade and step



Blade and frame




REPLACEMENT OF CUTTING EDGE AND END BIT

Replace cutting edges and end bits before their blades' end faces wear out.

When wear is extended to the mounting faces, their repair must be done prior to replacing.

TURNING AND REPLACING

1. Lift the blade to a suitable height and put a block underneath the blade rail to prevent its falling.

 **Do not raise the blade unnecessarily high.**

Be sure not to put your body underneath the blade when blocking it.

2. Clean the mounting face after detaching the cutting edge and the end bits.

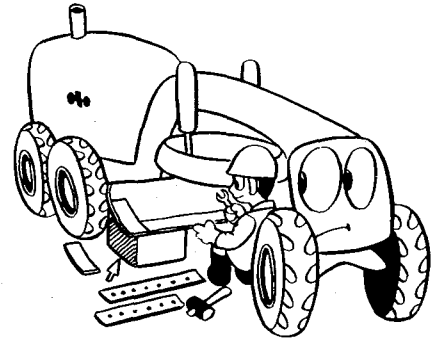
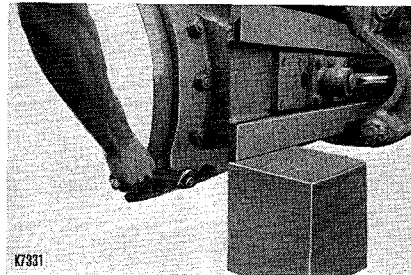
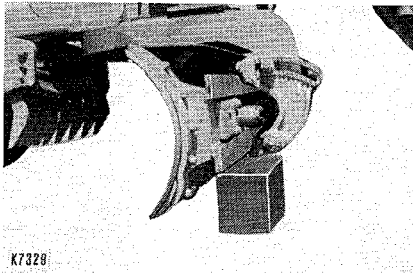
3. Mount the cutting edges after inverting it, or replacing it with a new one.

4. Mount the end bits after inverting and switching right for left, or replacing with new ones.

★ The tightening torque for the mounting nuts is 23 to 30kg.m.

★ Tighten the nuts again after several hours' operation.

★ If both ends of the cutting edge and side edges are worn out, replace them with new ones.



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GENERAL PRECAUTIONS FOR MAINTENANCE

General

- Wear a safety helmet, safety shoes and gloves. Wear goggles if the nature of the inspection work so requires.
- When working in a team of more than two persons, arrange a set of signals beforehand and coordinate joint work for safety.
- Keep unauthorized persons away during inspection or maintenance service.
- Use genuine Komatsu parts for replacement parts.
- Use genuine Komatsu grease and oil or products recommended by Komatsu. Depending on temperature, use grease and oil of recommended viscosity.
- Use only clean grease and oil. Also use clean containers for lubricants to prevent foreign matter from entering oil.
- Inspect or change oil in a place where it is not dusty so that dust will not enter oil.

Before Starting Maintenance Work

- Park machine on firm, level ground and lock it with parking brake lever.
- When working indoors, pay extra care to ventilation.
- Wash machine and particularly clean greasing and oiling holes to prevent dirt and dust from mixing with lubricants.

MAINTENANCE TABLE

No.	ITEM	SERVICE	PAGE
WHEN REQUIRED			
a	Air cleaner element	Check, clean or replace when required	116
b	Cooling water	Change water and clean twice a year	119
c	Ribbon heater and coil heater	Check	121
d	Engine breather hose	Clean	121
e	Drain pipe and hose	Clean	121
f	Water separator (Option)	Drain water and sediment when required	121

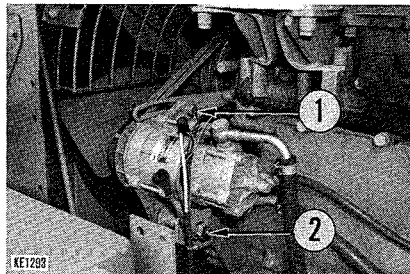
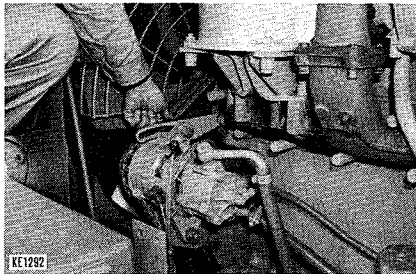
EVERY 250 HOURS SERVICE

d. FAN BELT TENSION

Push the belt at the middle between the fan pulley and the alternator (approximately 6 kg). If the belt slack is about 10 mm, the belt is considered to have the correct tension.

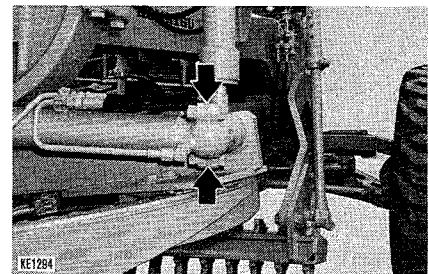
To adjust, loosen the bolt (1) and nut (2) to shift the alternator.

★ Check for the damage to each pulley, wear of the V Groove, and wear of V belt. In particular, check if the V belt contact with the bottom of the V groove.



e. BALL JOINT CLEARANCE

Remove all shims. Tighten the cap in such a manner that the clearances (shown in the picture) on both sides are the same. Measure the clearance with a thickness gauge, and place the shims which are thicker than the measured clearance by one shim. Then, retighten the cap. One shim is equal to 0.2 mm thickness.



EVERY 500 HOURS SERVICE

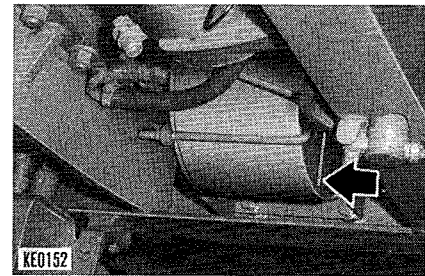
Then, loosen the bolt (5). Loosen locknut (7) fastening the bolt (8) and turn in the bolt to push the circle guide (6) until the clearance (Q)_R becomes zero. Be sure to equally tighten the right and left bolts (8). With the clearance (Q)_R kept in zero, back the bolt (8) half rotation, and tighten the locknut (7). Back the circle guide (6) until it comes into contact with the bolt (8) and tighten the bolt (5).

When either of the following conditions arises, replace the circle guide:

1. Clearance at portion (R) has decreased to zero.
2. Clearance between the circle tooth top and circle reverse pin gear tooth bottom land has decreased to zero or clearance between the circle tooth bottom land and the circle reverse pin gear tooth top has decreased to zero.

c. HYDROMASTER

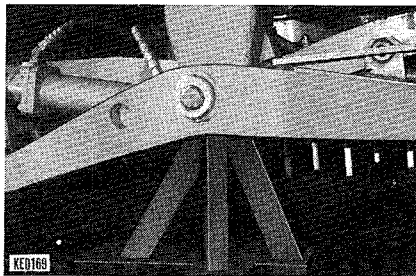
Remove the rubber cap from the Hydromaster and refill with 60 cc of vacuum cylinder oil. Apply the oil every 500 hours of operation or every 6 months.



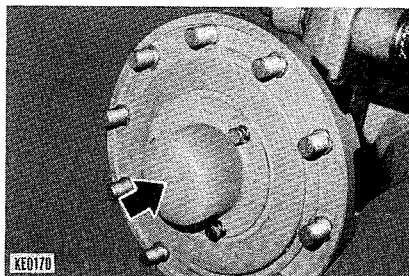
EVERY 2000 HOURS SERVICE

a. FRONT WHEEL BEARING GREASE (ON BOTH RIGHT AND LEFT SIDES)

1. Support the front axle on a block to raise the front wheel off the ground. Remove the wheels.
- ★ When raising the front wheels, securely apply the parking brake and rest the blade and scarifier on the ground.

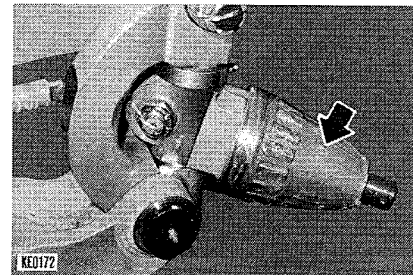
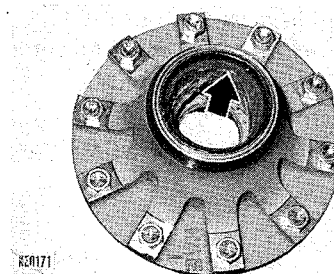


2. Remove the cap. Pry the cotter pins, loosen the nuts, and remove the hub.
3. Clean the axle and bearing. Thoroughly wash out waste grease from the hub interior. Fill the half space of the cavity with fresh grease.




- ★ Maintenance for every 50, 250, 500 and 1000 hours should be carried out at the same time.

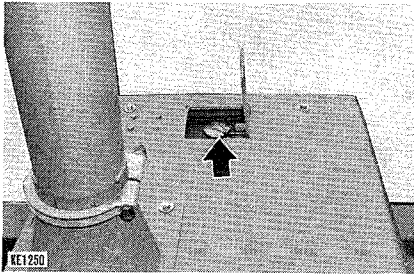
4. Replace the hub seal.



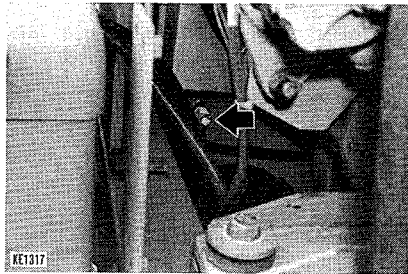
WHEN REQUIRED

 When water is still hot, do not remove the cap. Hot water spouts out. And when removing the cap, loosen the cap gradually and raise the lever to relieve inner pressure.

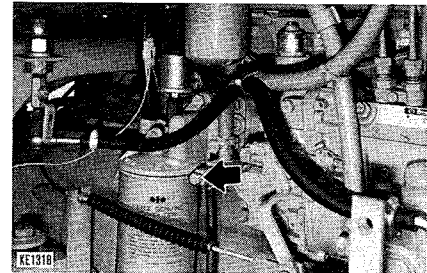
Water filler



Drain cock (bottom of radiator)



Drain cock (cylinder block)



COLD WEATHER OPERATION

PREPARATION FOR LOW TEMPERATURE

- Change lubrication oil by that with prescribed viscosity.
- Fuel of low pour point shall be used. ASTM D975 No. 1 diesel fuel should be used at atmospheric temperature lower than -10°C .
- Add antifreeze in the cooling water
When the atmospheric temperature drops lower than 0°C while the machine is stopped, prevent freezing by adding antifreeze to the cooling water. The mixing rate of antifreeze is determined according to the expected minimum temperature. The following table shall be used.



Mixing rate of water and antifreeze

Min.atmos- pheric tem- perature ($^{\circ}\text{C}$)	-5	-10	-15	-20
Amount of antifreeze (ℓ)	8	10	12.5	14
Amount of water (ℓ)	27	25	22.5	21

★ Cautions for using antifreeze

- 1) Permanent type antifreeze shall be used.
- 2) Soft water (ex: city water) shall be used as mixing water.
- 3) Liquid made of water and anti-freeze shall be poured after perfectly extracting the cooling water and cleaning the slime.
- 4) When the climate becomes warmer so that antifreeze is not needed, replace by clean water (ex. city water) after perfectly cleaning the cooling system.



Take care for fire as antifreeze is inflammable.

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