SEAMU4230101

Operation & Maintenance Manual

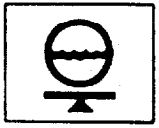
KOMATSU

WA380-1

WHEEL LOADER

SERIAL NUMBER
WA380-10001 and up

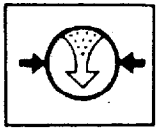
3. COOLANT LEVEL MONITOR



This monitor indicates a low radiator coolant level.

Check the coolant level when the monitor lamp flashes, stop engine and add water as required.

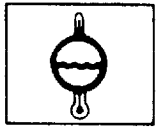
4. AIR PRESSURE MONITOR



This monitor indicates a drop in the air pressure in the air tank.

If the lamp flashes, increase the engine speed and wait until the lamp goes out.

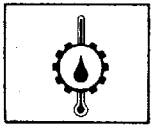
5. COOLANT TEMPERATURE MONITOR



This monitor indicates a rise in the cooling water temperature.

When the monitor lamp flashes, run the engine with no load at mi-drange speed until the green range of the engine water temperature gauge lights.

6. TORQUE CONVERTER OIL TEMPERATURE MONITOR



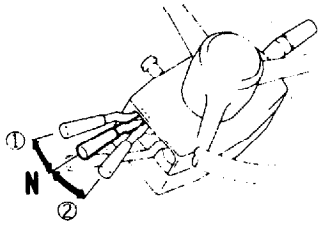
This monitor indicates a rise in the torque converter oil temperature.

When the monitor lamp flashes, stop the machine and run the engine with no load at midrange speed until the green range of the temperature gauge lights.

★ Park the machine on level ground and check the monitor lamps.
★ Confirm that these monitor lamps light for about 3 seconds after turning the starting switch to **ON**. If any monitor lamp does not light, ask your Komatsu distributor to inspect that monitor lamp.

LEVERS AND PEDALS

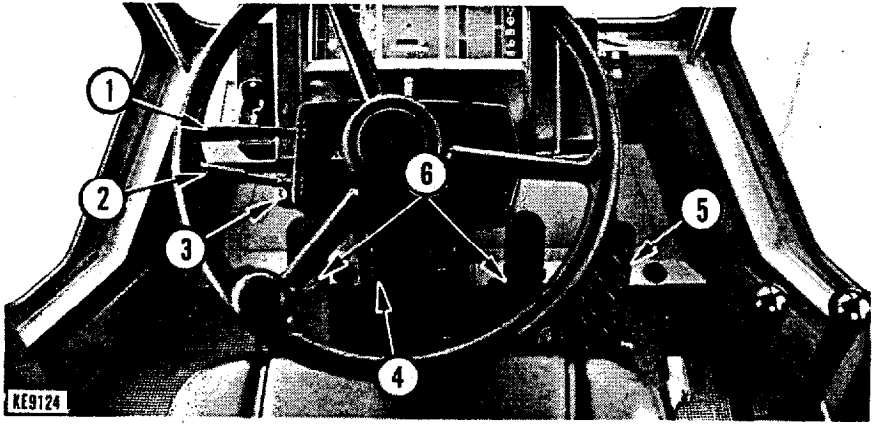
1. DIRECTIONAL LEVER



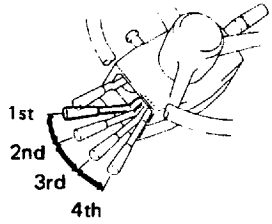
① Forward
② Reverse
Ⓝ Neutral

★ The engine cannot be started if the directional lever is not at N (neutral).

This lever is used to change the direction of travel of the machine.



2. SPEED CONTROL LEVER



This lever controls the travel speed of machine.

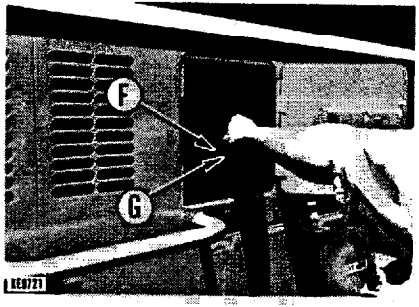
This machine has a 4-FORWARD, 4-REVERSE speed transmission. Place the speed control lever in a suitable position to obtain the desired speed range.

★ 1st and 2nd speeds are used for working.
3rd and 4th speeds are used for traveling.

★ If the volume of coolant added is more than usual, check for possible water leakage.
★ Confirm that any oil is not in coolant.

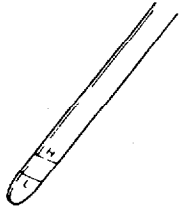
⚠ **Do not remove the cap while cooling water is hot. Hot water may spout out.**
When removing radiator cap, lift the lever to relieve inner pressure.

d. CHECK OIL LEVEL AND REFILL IN ENGINE OIL PAN



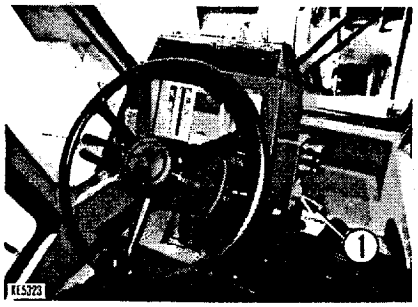
1. Open the inspection window at the rear right side of the machine.
2. Use dipstick (G) to check the oil level.
3. The oil level should be between mark L and H, if necessary, add oil at oil filler (F).

★ The type of lubricant used depends on the ambient temperature. Select according to the table "FUEL, COOLANT AND LUBRICANTS".
★ Stop the engine when checking the oil level.



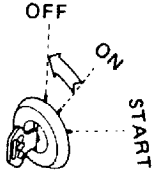
★ Do not fill avove the H mark.
★ When adding oil, pull the dipstick out from the guide to bleed the air from inside the case.
★ Make an oil level check before starting engine or 15 minutes or more after the engine is stopped. If oil remains at various portions of the engine, the correct oil level cannot be measured.

TO STOP THE ENGINE



⚠ **Stop the machine in a safe place on firm level ground. If the machine has to be stopped on a slope, put blocks under the wheels. In addition, dig the bucket into the ground to increase safety.**

1. Run the engine at low idling speed for about 5 minutes to allow it to gradually cool down.
2. Return starting switch (1) to the OFF position and remove the key.



★ If the engine is abruptly stopped before it has cooled down, engine life may be greatly shortened. Consequently, do not abruptly stop the engine apart from an emergency.

★ In particular, if the engine has overheated, do not abruptly stop it but run it at medium speed to allow it to cool gradually, then stop it.

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. atmospheric temperature (°C)	−5	−10	−15	−20	−25	−30
Amount of antifreeze (ℓ)	13	16	19	21	24	26
Amount of water (ℓ)	39	36	33	31	28	26

Coolant capacity: 52 ℓ

★ **Cautions for using antifreeze**

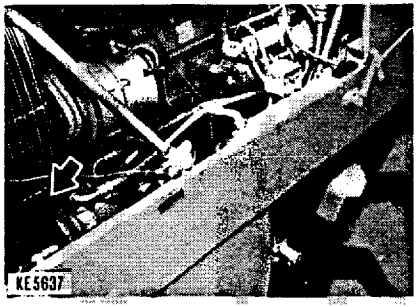
1) Permanent type antifreeze shall be used.
2) Soft water (ex: city water) shall be used as mixing water.
3) Liquid made of water and antifreeze shall be poured after perfectly extracting the cooling water and cleaning the slime.
4) When the climate becomes warmer so that antifreeze (except permanent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

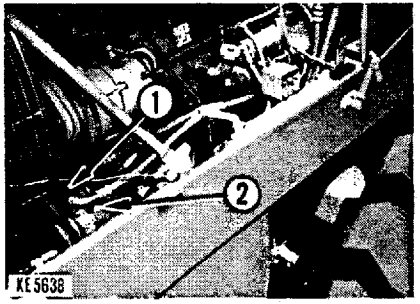
⚠ **Take care for fire as antifreeze is inflammable.**

No.	ITEM	SERVICE	PAGE
	(EVERY 1000 HOURS SERVICE)		
f	Air dryer	Check	78
g	Corrosion resistor	Replace cartridge	79
	EVERY 2000 HOURS SERVICE		
a	Hydraulic tank and filter	Replace element	80
b	Air conditioner filter	Replace element	81
c	Hydraulic tank breather	Replace element	81
d	Axle (Front and rear)	Change oil	82
e	Engine breather	Clean element	83
f	Air dryer	Check and clean	84
g	Turbocharger	Check and clean	87
h	Alternator and starting motor	Check	88
i	Engine valve clearance	Check and adjust	88
j	Brake disc	Check and repair	88
	EVERY 4000 HOURS SERVICE		
a	Water pump	Check	89
b	Vibration damper	Check	89

No.	ITEM	SERVICE	PAGE
	WHEN REQUIRED		
a	Cooling system	Clean	90
b	Air cleaner element	Check, clean or replace when required	93
c	Transmission	Check and supply	95
d	Radiator fins	Clean	96
e	Axle oil	Check and supply	96
f	Axle case breather	Clean	97
g	Electrical intake air heater	Check once a year	98
h	Condenser of air conditioner	Check and clean	98
i	Air conditioner	Check	99
j	Lubricating		100
-1	Work equipment control valve linkage	Lubricate 2 points	100
-2	Accelerator pedal linkage	Lubricate 2 points	101
-3	Steering column	Lubricate 1 point	101
k	Water separator	Drain water	101
l	Bucket teeth	Replace	102

d. AIR CONDITIONER COMPRESSOR BELT





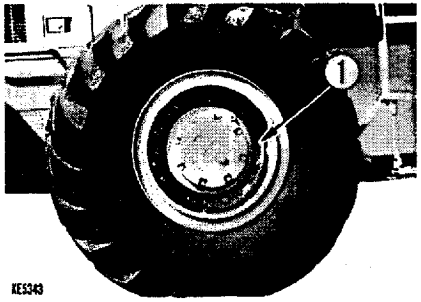
1. The belt tension should normally deflect by about 10 mm when pressed with the finger at a point midway between the air conditioner compressor pulley and the fan pulley (approx. 6 kg).
2. To adjust the belt tension, loosen bolt (1) and shift compressor (2) slightly.
3. After adjustment, tighten bolt (1) securely.

★ When adjusting the V-belt, do not attempt to push compressor (2) directly with a bar or the like, but use a wood pad to prevent damage to the core.

★ Check each pulley for damage, and V-grooves and V-belt for wear. Particularly, check whether V-belt is in contact with bottom of V-groove through wear.

★ Replace belt if it has stretched, leaving no allowance for adjustment, or if there is a cut or crack on belt.

e. WHEEL HUB NUTS



If wheel hub nuts (1) are loose, tire wear will be increased ands accidents may be caused. If any hub nuts are loose, tighten them to the specified tightening torque.

★ Tightening torque: 48 ± 5 kgm

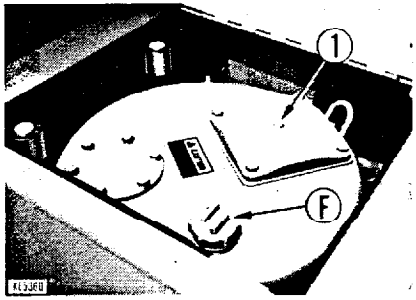
★ If any wheel bolt is broken, replace all bolts for that wheel.

★ Always rotate in the direction of tightening when checking for loose nuts.

EVERY 2000 HOURS SERVICE

★ **Maintenance for every 50, 100, 250, 500 and 1000 hours should be carried out at the same time.**

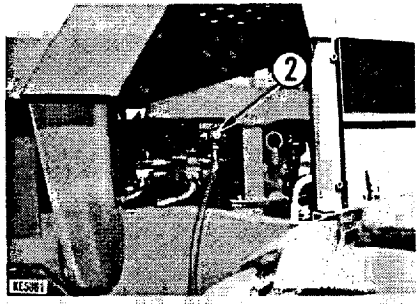
a. HYDRAULIC TANK AND FILTER



1. Lower the bucket horizontally to the ground and apply the parking brake, then stop the engine.
2. Remove the cap of oil filler (F) and air vent plug (1) on filter case.

⚠ **When removing the cap, turn it slowly to relieve inner pressure.**

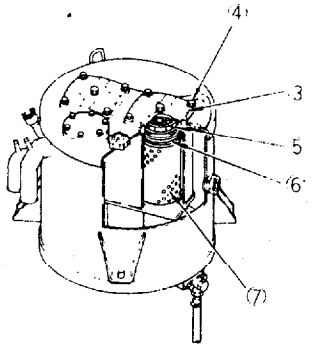
3. Open drain valve (2) to drain oil. After draining, tighten the drain valve.



★ After loosing drain valve (2), pull it out slowly to drain oil.

4. Remove mounting bolt (4) of the filter cover, then remove cover (3).

⚠ **The cover is pushed by a spring, so hold the cover when removing the bolts.**



5. Remove spring (5) and bypass valve (6), then remove element (7).

★ Check that there is no foreign matter inside the tank before cleaning it.

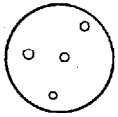
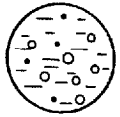
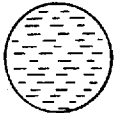
6. Install a new element, then install bypass valve (6), spring (5), and cover (3).

WHEN REQUIRED

a. CLEANING INSIDE OF COOLING SYSTEM

- Clean the inside of the cooling system, replace the antifreeze, and replace the corrosion resistor, according to the table.
- Change water after first parking the machine on a level surface.

Type of antifreeze solution	Cleaning inside of cooling system and replacing antifreeze	Replacing corrosion resistor
When REPLACEMENT AT EVERY 1000 HOURS is printed on the corrosion resistor		
Permanent type antifreeze	Every year (autumn) or every 2000 hours whichever comes first	Every 1000 hours and when cleaning the inside of the cooling system and when replacing antifreeze
Other permanent type antifreeze of ethylene glycol base	Every 6 months (spring, autumn) Change antifreeze only in autumn	Every 1000 hours and when cleaning the inside of the cooling system and when replacing antifreeze
When not using antifreeze	Every year (autumn) or every 2000 hours whichever comes first	Every 1000 hours and when cleaning the inside of the cooling system
When REPLACEMENT AT EVERY 500 HOURS is printed on the corrosion resistor		
Permanent type antifreeze	Every year (autumn) or every 1000 hours whichever comes first	Every 500 hours and when cleaning the inside of the cooling system and when replacing antifreeze
Other permanent type antifreeze of ethylene glycol base	Every 6 months (spring, autumn) Change antifreeze only in autumn	Every 500 hours and when cleaning the inside of the cooling system and when replacing antifreeze
When not using antifreeze	Every 6 months or every 1000 hours whichever comes first	Every 500 hours and when cleaning the inside of the cooling system

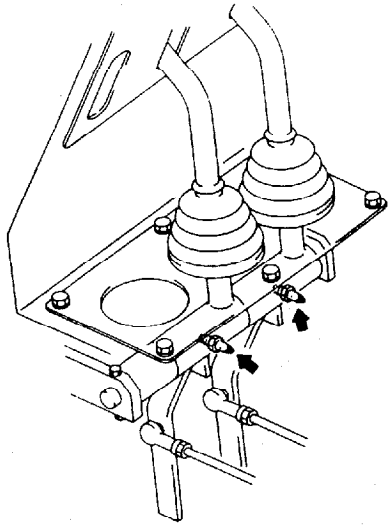
Cooler condition	Normal	Abnormal	
Temp. of high, and low pressure pipes	High pressure pipe is hot. Low pressure pipe is cold. Clear difference in temperature	High pressure pipe is warm. Low pressure pipe is cold. Little dirrerence in temperature	Almost no difference in temperature between high and low pressure pipes.
Sight glass	Almost transparent. Any bubbles disappear if the engine speed is reaised or lowered. 	Bubbles are always flowing. Sometimes becomes transparent, or shite bubbles appear. 	Misty substance is flowing. 
Connections of pipes	Properly connected	Some parts dirty with oil	Some parts very dirty with oil
General condition of cooler	Coolant level correct, no abnormalities. Ready for use	May be a leak somewhere. Call service repair shop for inspection.	Almost all coolant has leaked out. Contact service repair shop immediately.

j. LUBRICATING

Apply grease to the grease fittings shown by arrows.

1. Work equipment control valve linkage (2 points)

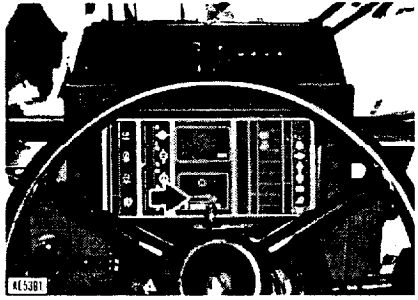
If the work equipment control lever is heavy or does not move smoothly, apply grease.



W-03329

SERVICE METER

This meter indicates the integrated work hours. So, use it according to the following instructions.



- Record the readings at the start and the end of work, this is the work record of the machine.
- This record will indicate, when periodical maintenance is due.
- It also indicates the integrated working hours when machine problems are encountered.

★ **How the meter progresses**

The service meter progresses by 1 when the engine is operated for one hour, regardless of the engine speed.

Consequently, if the engine is running, the service meter will advance even if the machine does not move.

- While engine is running, green pilot lamp on the service meter flashes to show the service meter advances.

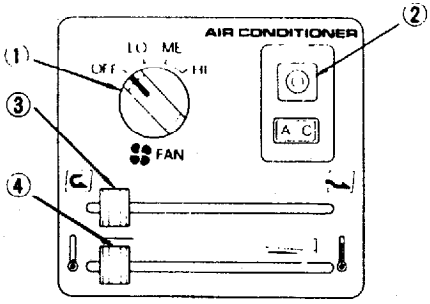
- In dangerous places or in places where the visibility is poor, get down from the machine and check that it is safe before continuing the operation.
- Always operate slowly in crowded places. On haul roads or in narrow places, give way to loaded machines.
- When traveling, keep the work equipment close to the ground to maintain the stability of the machine. Pay particularly careful attention to the stability of the machine when traveling with a load.
- If the machine has to travel on rough ground, be careful to avoid obstacles as far as possible.
- Always travel at a slow speed, and do not suddenly change direction.
- Do not use the bucket as a brake except in emergencies.
- If the engine stops when the machine is traveling, it is impossible to use the steering. This is dangerous, so apply the brake immediately to stop the machine.
- When traveling on hills with a loaded bucket, travel forward up the hill and in reverse down the hill.
- 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

RESTRICTIONS CREATED BY JOBSITE

- Do not approach the edge of the cliff or road shoulder.
- In dangerous places, always work in teams of two; one man to operate the machine, and the other to give instructions.
- On windy days, always load downwind.
- When continuing operations after rain, remember that conditions will have changed from those before the rain started, so proceed with caution.
  Be careful when working on the place made of piled soil, after earthquakes or after blasting.
- Always travel directly up or down slopes. When traveling down a slope, use the same gear speed as when going up the slope. When traveling down a slope, never put the transmission in neutral.

OPERATING THE AIR CONDITIONER

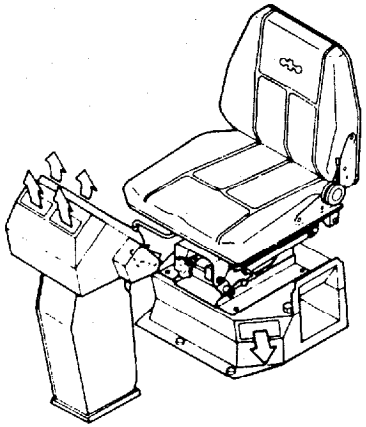
It is possible to use the air conditioner to good effect in dusty jobsites. The outside air is passed through the filter and is sent to the operator's cab to increase the pressure inside the cab. In this way, dust is prevented from entering, so comfortable operating conditions are always maintained for the operator.



EQUIPMENT ON CONTROL PANEL

① Fan switch

- This is used for controlling the air flow when cooling or heating, and also acts as the main switch.
  - o It can control the air flow to three levels:
    Low → Medium → High
  - ★ If the knob is turned to the OFF position, the air conditioner will stop.



② Air conditioner switch

- Switching when cooling (power for compressor)
  - o When the button is pressed, the switch is turned ON and the pilot lamp lights up.
  - o When the button is pressed again, the switch is turned OFF and the pilot lamp goes out.
  - ★ If the air conditioner switch is turned on but the fan switch is still off, the air conditioner will not work (the pilot lamp does not come on).
  - ★ Turn the air conditioner switch on after turning the fan switch on.