Instruction manual

Operating & Maintenance
4812159301_D.pdf

Vibratory roller
CA1300 D/PD

Engine
Kubota V3307-CR-TE4B (IIIB/T4i)
Kubota V3307-CR-TE5B (T5)

Serial number
10000159xxA012196 -
10000185xxA024300 -

Translation of original instruction

Reservation for changes
Printed in Sweden

EN

Introduction

Warning symbols

The machine

CA1300 is a 5 ton vibratory roller intended for compaction work in trenches, on roads and in confined areas in conjunction with refilling work.

Intended use

CA1300 is available in a D (smooth drum) and PD (padfot) version. The smooth drum version with drum drive (D) ensures good accessibility even on very steep slopes. The PD version, with pads and drum drive, is specially intended for the compaction of silt and loamy soils. The roller can also be used for repair work on dams, power stations, car parks and airfields.

WARNING ! Marks a danger or a hazardous procedure that can result in life threatening or serious injury if the warning is ignored.

CAUTION ! Marks a danger or hazardous procedure that can result in damage to the machine or property if the warning is ignored.

Safety information

It is recommended to at least train operators in handling and daily maintenance of the machine in accordance with the instruction manual. Passengers are not allowed on the machine, and you must sit in the seat when operating the machine.

The safety manual supplied with the machine must be read by all roller operators. Always follow the safety instructions. Do not remove the manual from the machine.

We recommend that the operator reads the safety instructions in this manual carefully. Always follow the safety instructions. Ensure that this manual is always easily accessible.

Jump starting

Do not connect the negative cable to the negative terminal on the dead battery. A spark can ignite the oxy-hydrogen gas formed around the battery.

Check that the battery used for jump starting has the same voltage as the dead battery.

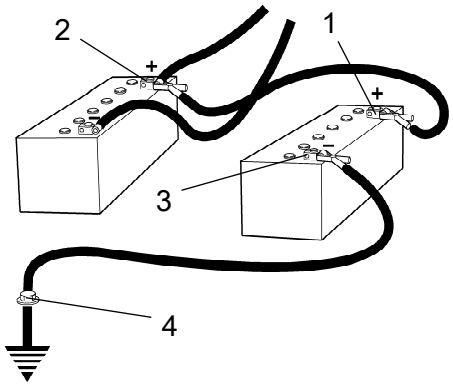


Fig. Jump starting

Turn the ignition and all power consuming equipment off. Switch off the engine on the machine which is providing jump start power.

First connect the jump start battery's positive terminal (1) to the flat battery's positive terminal (2).Then connect the jump start battery's negative terminal (3) to, for example, a bolt (4) or the lifting eye on the machine with the flat battery.

Start the engine on the power providing machine. Let it run for a while. Now try to start the other machine. Disconnect the cables in the reverse order.

Machine description

Diesel engine

The machine is equipped with a four-cylinder, water-cooled diesel engine with direct injection.

The engine has an overlying camshaft and the cylinder head is shared by all the cylinders.

The engine is also equipped with a system for after-treatment of exhaust fumes (DPF Diesel Particle Filter).

Exhaust after-treatment system

To minimize particles and hydrocarbons, the engine is fitted with a diesel particle filter, as well as a control unit for after-treatment of exhaust fumes. The diesel particle filter incorporates active burnout.

When the engine is running, particles are collected in the DPF, and the particles have be burned away in order to clean the filter.

During the burnout/regeneration process, the exhaust gas temperature increases significantly above the normal temperature in the exhaust pipe.

Electrical system

The machine has the following control units (ECU, Electronic Control Unit) and electronic units.

- Main ECU (for the machine)
- Diesel engine control unit (ECM)

Propulsion system/Transmission

The propulsion system is a hydrostatic system with a hydraulic pump supplying two motors connected in parallel, one for the rear axle and one for the drum.

The speed of the machine is proportional to the angle of the control lever (the deflection of the forward/reverse lever regulates the speed). A flow divider is available as an option.

Brake system

The brake system comprises a service brake, secondary brake and parking brake. The service brake system produces retardation of the propulsion system, i.e. hydrostatic braking.

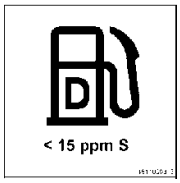
Secondary/Parking brake

The secondary and parking brake system consists of sprung multiple disc brakes in the rear axle and the drum drive, which are released by hydraulic pressure.

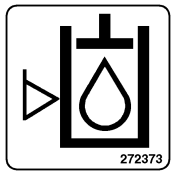
Info decals

Fuel with a low sulphur content

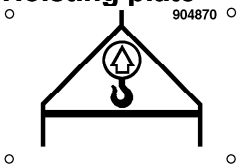
Diesel fuel



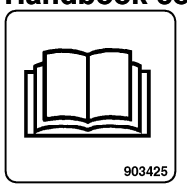
Hydraulic fluid level



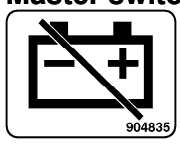
Hoisting plate



Handbook compartment

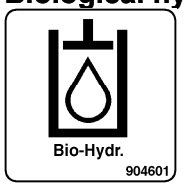


Master switch

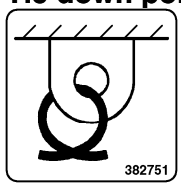


Hydraulic fluid

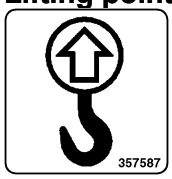
Biological hydraulic fluid



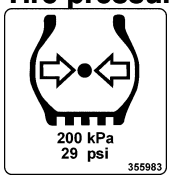
Tie down point



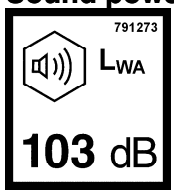
Lifting point



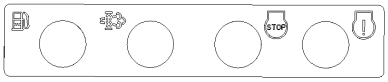
Tire pressure



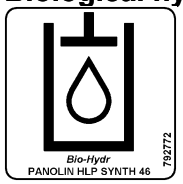
Sound power level



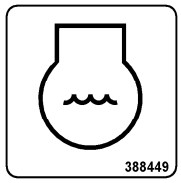
Warning lamps



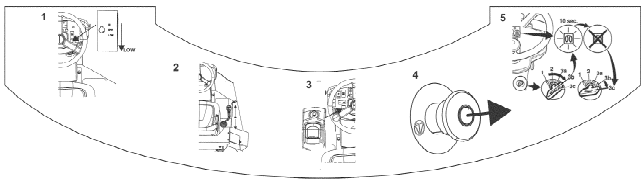
Biological hydraulic fluid



Coolant



Starting instructions



Operation

Before starting

Master switch - Switching on

Remember to carry out daily maintenance. Refer to the maintenance instructions.

The master switch is located on the right side of the operator platform. Turn the key (1) to the On position. The roller is now supplied with power.

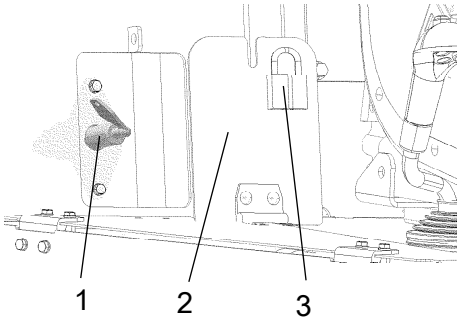


Fig. Master switch
1. Key
2. Cover
3. Padlock

Operator’s seat - Adjusting

Adjust the operator’s seat so that the position is comfortable and so that the controls are within easy reach.

The seat can be adjusted lengthways (1).

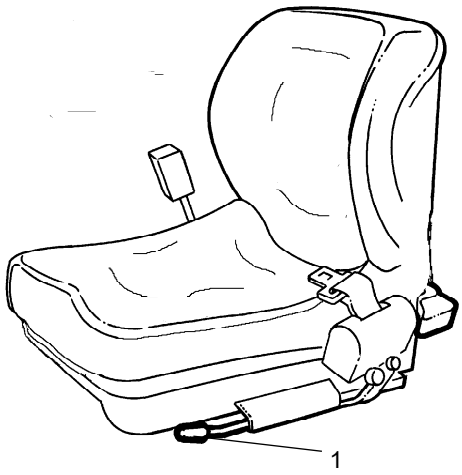


Fig. Operator's seat
1. Length adjustment

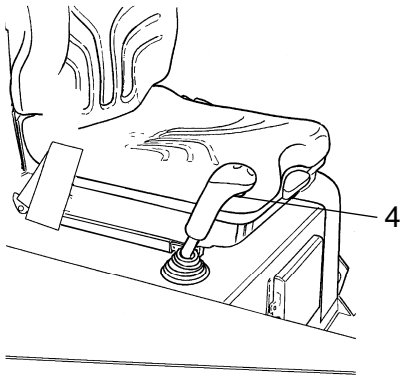


Fig. Forward/Reverse lever
4. Switch, vibration On/Off

Vibration - Activation

Never activate vibration when the roller is stationary. This can damage both the surface and the machine.

Engage and disengage vibration using the switch (4) on the underside of the forward/reverse lever.

Always switch off vibration before the roller comes to a standstill.

Braking

Normal braking

Press the switch (4) to switch off the vibration.

Move the forward/reverse lever (6) to the neutral position to stop the roller.

Set the speed control (2) to idling position: Low.

Set the parkering brake switch (31) in the On position.

Always use the parking brake (31) when the machine is stationary on a sloping surface.

When starting and driving a machine that is cold, remember that the hydraulic fluid is also cold and that braking distances can be longer than normal until the machine reaches the working temperature.

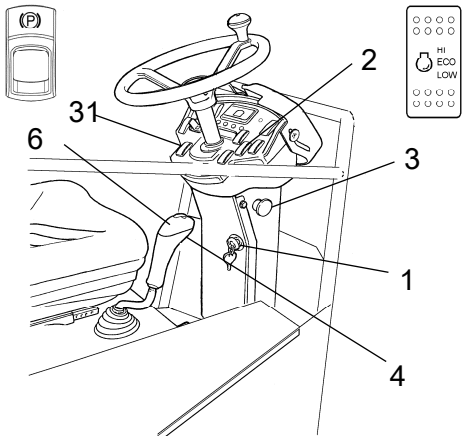


Fig. Instrument panel
1. Key
2. Engine speed control
3. Emergency stop
4. Vibration On/Off
6. Forward/reverse lever
31. Parking brake

Towing the roller

When towing/recovering, the roller must be braked by the towing vehicle. A towing bar must be used as the roller has no brakes.

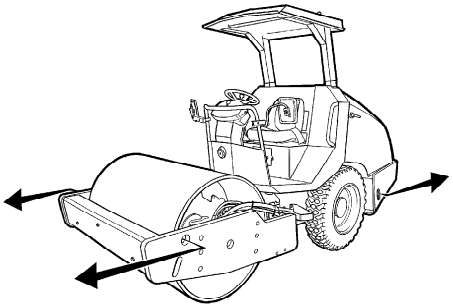


Fig. Towing

The roller must be towed slowly, max. 3 kp/h (2 mph) and only towed short distances, max. 300 m (330 yards).

When towing/retrieving a machine, the towing device must be connected to both lifting holes. The pulling force must act longitudinally on the machine as illustrated. Maximum gross pulling force 70 kN (15740 lbf).

Reset the towing procedures described on the previous pages.

Transport

Tie-down and secure the machine according to the Cargo Securing Certificate for the specific machine if this is avaliable and applicable.

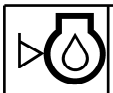
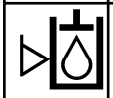
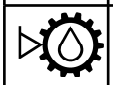
If not, tie down and secure the machine according to the cargo securing rules that are valid for the country where the transport takes place.

Never lash over the machine's articulated joint, nor over the machine's operator platform.

Before securing the machine ensure that :

- the parking brake is applied and in good working condition
- the articulated joint is in closed position
- the machine is centered laterally on the platform
- the lashings are in good condition and fulfills the corresponding rules for transport securing.

Maintenance symbols

	Engine, oil level		Tyre pressure
	Engine, oil filter		Air filter
	Hydraulic reservoir, level		Battery
	Hydraulic fluid, filter		Recycling
	Transmission, oil level		Fuel filter
	Drum, oil level		Coolant, level
	Oil for lubrication		

Maintenance, 10h

Every 10 hours of operation (Daily)

Park the roller on a level surface.
The engine must be switched off and the parking brake activated when checking or adjusting the roller, unless otherwise specified.

Air circulation - Check

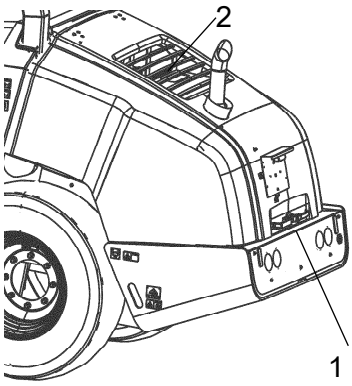


Fig. Engine hood
1. Hood lock
2. Protective grille

Ensure that the engine has free circulation of cooling air through the protective grille (2) in the hood.

To open the engine hood, turn the locking arm (1) upward. Raise the hood to its fully open position, checking that the red safety catch on the right gas spring is latched.

If the gas-spring for the hood is disengaged and the hood is raised to its upper position - block the hood so that it cannot fall.

Coolant level - Check

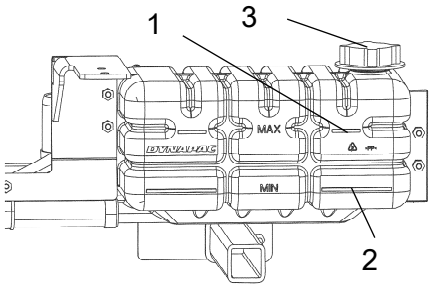


Fig. Water tank
1. Max. level
2. Min. level
3. Filler cap

Check that level of the coolant is between the max. and min. marks.

Take great caution if the radiator cap must be opened while the engine is hot. Wear protective gloves and goggles.

Fill with a mixture of 50% water and 50% anti freeze. See the lubrication specification in these instructions and in the engine manual.

Flush the system every other year and change the coolant. Make sure also that the air flow through the cooler is unobstructed.

Maintenance measures - 250 h

Every 250/750/1250/1750..... hours of operation (every 3 months)

Park the roller on a level surface. The engine must be switched off and the parking brake activated when checking or adjusting the roller, unless otherwise specified.

Rear axle differential - Check oil level

Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

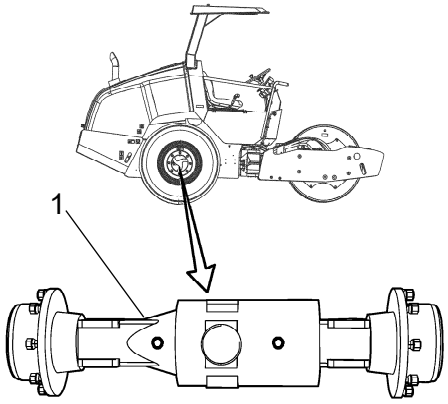


Fig. Level check - differential housing
1. Level/Filler plug

Wipe clean and remove the level plug (1) and check that the oil level reaches the lower edge of the plug hole. Top off with oil to the right level if the level is low. Use transmission oil according to the lubricant specification.

Clean and refit the plug.

Rear axle pinion housing - Checking the oil level

Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

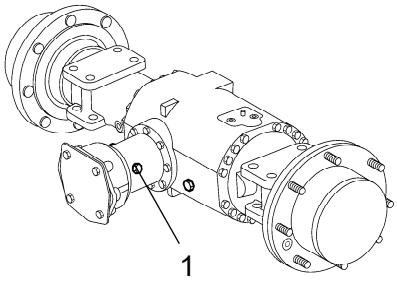


Fig. Level check - Pinion housing
1. Level/Filler plug

Wipe clean and remove the level plug (1) and check that the oil level reaches the lower edge of the plug hole. Top off with oil to the right level if the level is low. Use transmission oil according to the lubricant specification.

Clean and refit the plug.

Forward/Reverse controls and joints - Check and lubrication

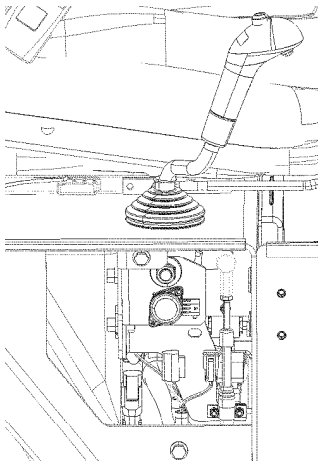


Fig. Forward/reverse lever

The forward/reverse lever joints are best accessed via the compartment for the manual on the right side of the operator station. Check the friction on the forward/reverse lever. The friction screws should be applied sufficiently hard that the forward/reverse lever remains in the set position during operation. The lever's 0-position is determined by the screw that grips in the groove on the axle between the lever.

If the lever begins to become stiff after prolonged used, lubricate the lever at the control cable with a few drops of oil at each point.

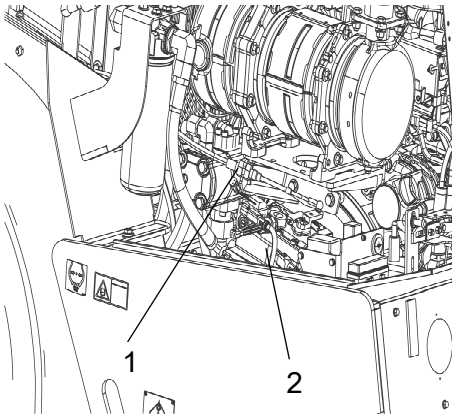


Fig. Engine compartment
1. Forward/Reverse-control cable
2. Propulsion pump

If the forward/reverse lever still is stiff after the above adjustments, lubricate the other end of the control cable with a few drops of oil. The cable is located on the top of the propulsion pump.

Fuel tank - Cleaning

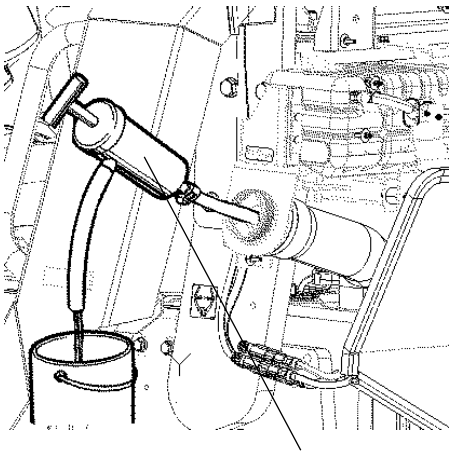


Fig. Fuel tank
1. Oil drain pump

It is easiest to clean the tank when it is almost empty.

Pump out any bottom sediment using a suitable pump, such as an oil drain pump.

Collect the fuel and sediment in a container and deliver to environmentally correct handling.

Keep in mind fire risk when handling fuel.

The fuel tank is made of plastic (polyethylene) and is recyclable.

Fuel tank - Draining (Equipment status)

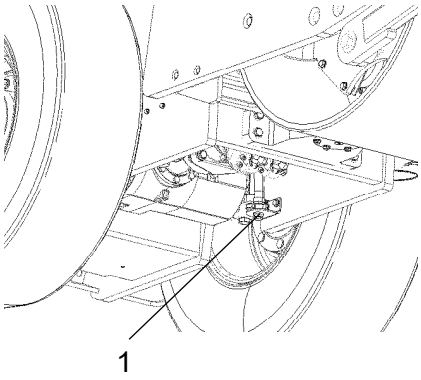


Fig. Left underside of the machine
1. Drain plug

Water and sediment in the fuel tank are drained out via the drain plug (1) in the bottom of the fuel tank.

Be very careful during draining. Do not drop the plug or else all the fuel will flow out.

Drain the roller after it has been stationary for a long time, e.g. after standing overnight. The fuel level should be as low as possible.

The roller should preferably have been standing with the drain plug somewhat lower, so that water and sediment collect at the drain plug (1). Drain as follows:

Place a container under the plug (1).

Undo the drain plug (1) and drain out water and sediment until only pure diesel fuel comes out at the plug. Screw in the plug again.