

Instruction manual

ICC900G-1EN2.pdf
Operation and maintenance

Vibratory roller
CC900G

Engine
Honda GX620K1
Honda GX620U1

Serial number
***88240233*-**



Dynapac CC900G is a 1.3-ton class vibratory roller, with articulated steering and featuring drive and brakes on both drums. Vibration on the front drum.

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Introduction

Warning symbols



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



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.



Read the entire manual before starting the machine and before carrying out any maintenance.



Ensure good ventilation (extraction of air by fan) where the engine is run indoors.

General

This manual contains instructions for machine operation and maintenance.

The machine must be correctly maintained for maximal performance.

The machine should be kept clean so that any leakages, loose bolts and loose connections are discovered at as early a point in time as possible.

Inspect the machine every day, before starting. Inspect the entire machine so that any leakages or other faults are detected.

Check the ground under the machine. Leakages are more easily detected on the ground than on the machine itself.



THINK ENVIRONMENT ! Do not release oil, fuel and other environmentally hazardous substances into the environment. Always send used filters, drain oil and fuel remnants to environmentally correct disposal.

This manual contains instructions for periodic maintenance normally carried out by the operator.



Additional instructions for the engine can be found in the manufacturer's engine manual.

CALIFORNIA

Proposition 65 Warning

Gasolin engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Safety - General instructions

(Also read the safety manual)



1. The operator must be familiar with the contents of the OPERATION section before starting the roller.
2. Ensure that all instructions in the MAINTENANCE section are followed.
3. Only trained and/or experienced operators are to operate the roller. Passengers are not permitted on the roller. Remain seated at all times when operating the roller.
4. Never use the roller if it is in need of adjustment or repair.
5. Only mount and dismount the roller when it is stationary. Use the intended grips and rails. Always use the three-point grip (both feet and one hand, or one foot and both hands) when mounting or dismounting the machine. Never jump down from the machine.
6. The ROPS (Roll Over Protective Structure) should always be used when the machine is operated on unsafe ground.
7. Drive slowly in sharp bends.
8. Avoid driving across slopes. Drive straight up or straight down the slope.
9. When driving close to edges or holes, make sure that at least 2/3 of the drum width is on previously compacted materials.
10. Make sure that there are no obstacles in the direction of travel, on the ground, in front of or behind the roller, or overhead.
11. Drive particularly carefully on uneven ground.
12. Use the safety equipment provided. The seat belt must be worn on machines fitted with ROPS.
13. Keep the roller clean. Clean any dirt or grease that accumulates on the operator platform immediately. Keep all signs and decals clean and legible.
14. Safety measures before refueling:
 - Shut off the engine
 - Do not smoke
 - No naked flame in the vicinity of the machine
 - Ground the filling device nozzle to the tank to avoid sparks
15. Before repairs or service:
 - Chock the drums/wheels and under the strike-off blade.
 - Lock the articulation if necessary

16. **Hearing protection is recommended if the noise level exceeds 85 dB(A). The noise level can vary depending on the equipment on the machine and the surface the machine is being used on.**
17. **Do not make any changes or modifications to the roller that could affect safety. Changes are only to be made after written approval has been given by Dynapac.**
18. **Avoid using the roller before the hydraulic fluid has reached its normal working temperature. Braking distances can be longer than normal when the fluid is cold. Refer to the operating instruction in the STOP section.**
19. **For your own protection always wear:**
 - helmet
 - working boots with steel toecaps
 - ear protectors
 - reflecting clothing/high visibility jacket
 - working gloves

Safety - when operating

Driving near edges

When driving near an edge, minimum 2/3 of the drum width must be on solid ground.

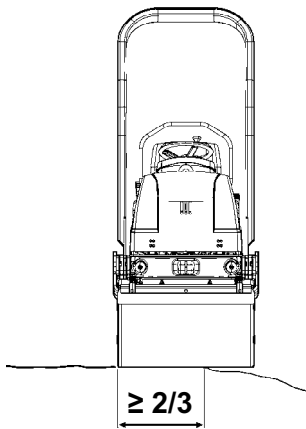


Fig. Position of drum when driving near an edge



Keep in mind that the machine's center of gravity moves outwards when steering. For example, the center of gravity moves to the right when you steer to the left.

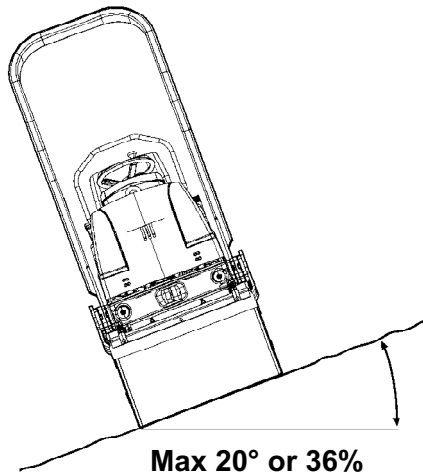


Fig. Operating on slopes

Slopes

This angle has been measured on a hard, flat surface with the machine stationary.

The steering angle was zero, the vibration was switched off and all tanks were full.

Always take into consideration that loose ground, steering the machine, vibration on, machine speed across the ground and raising the center of gravity can all cause the machine to topple at smaller slope angles than those specified here.



It is recommended that the ROPS (Roll Over Protective Structure) is always used when driving on slopes or unsafe ground.



Where possible, avoid driving across slopes. Drive instead straight up and down sloping ground.

Sitting position

Remain seated at all times when operating the roller.



Always use the seat belt where fitted. Where the seat belt is not used, there is a great risk that the operator will be thrown off and land under the machine if the machine topples over.

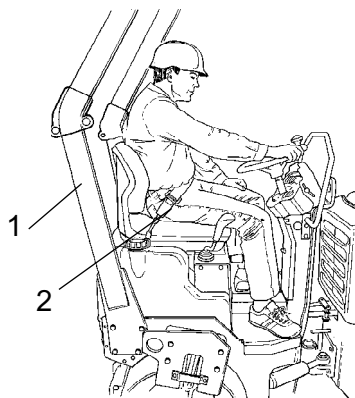


Figure. Seat position
1. ROPS
2. Seat belt

The seat belt is standard equipment on rollers fitted with Roll Over Protective Structure (ROPS) (1).



ROPS should always be in the raised position when machines with foldable ROPS are operated

Special instructions

Standard lubricants and other recommended oils and fluids

Before leaving the factory, the systems and components are filled with the oils and fluids specified in the lubricant specification. These are suitable for ambient temperatures in the range -15°C to +40°C (5°F - 104°F).

Higher ambient temperatures, above +40°C (104°F)

For operation of the machine at higher ambient temperatures, although maximum +50°C (122°F), the following recommendations apply:

The petrol engine can be run at this temperature using normal oil. However, the following fluids must be used for other components:

Hydraulic system - mineral oil Shell Tellus T100 or equivalent.

Temperatures

The temperature limits apply to standard versions of rollers.

High pressure cleaning

Do not spray water directly onto electrical components or the instrument panels.

Place a plastic bag over the fuel filler cap and secure with a rubber band. This is to avoid high pressure water entering the vent hole in the filler cap. This could cause malfunctions, such as the blocking of filters.



Never aim the water jet directly at the fuel tank cap. This is particularly important when using a high-pressure cleaner.

Fire fighting

If the machine catches fire, use an ABE-class powder fire extinguisher.

A BE-class carbon dioxide fire extinguisher can also be used.

Roll Over Protective Structure (ROPS)



Never carry out any welding or drilling operations of any kind on the Roll Over Protective Structure (ROPS).



Never attempt to repair a damaged ROPS structure. This must be replaced with new ROPS structure.

Battery handling



When removing batteries, always disconnect the negative cable first.



When fitting batteries, always connect the positive cable first.



Dispose of old batteries in an environmentally friendly way. Batteries contain toxic lead.



Do not use a quick-charger for charging the battery. This may shorten battery life.

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.

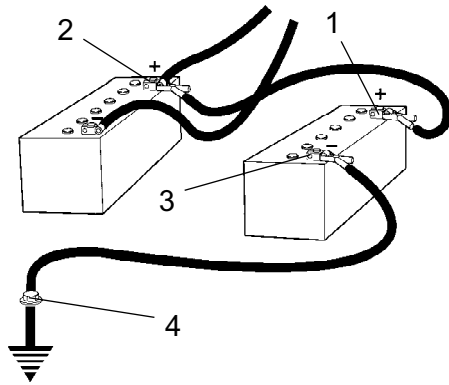


Fig. Jump starting

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.

**Technical specifications -
Noise/Vibrations/Electrical**

**Vibrations - Operator station
(ISO 2631)**

The vibration levels are measured in accordance with the operational cycle described in EU directive 2000/14/EC on machines equipped for the EU market, with vibration switched on, on soft polymer material and with the operator's seat in the transport position.

Measured whole-body vibrations are below the action value of 0.5 m/s ² as specified in Directive 2002/44/EC. (Limit is 1.15 m/s ²)

Measured hand/arm vibrations also were below the action level of 2.5 m/s ² specified in the same directive. (Limit is 5 m/s ²)

Noise level

The noise level is measured in accordance with the operational cycle described in EU directive 2000/14/EC on machines equipped for the EU market, on soft polymer material with vibration switched on and the operator's seat in the transport position.

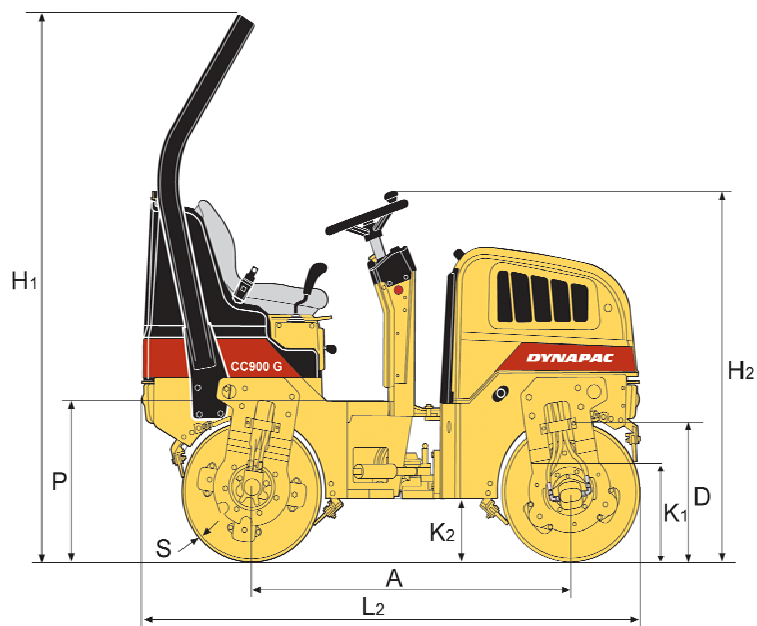
Guaranteed sound power level, L_{WA} 102 dB (A)

Sound pressure level at the operator's ear (platform), L_{pA} 84 dB (A)

During operation the above values may differ because of the actual operational conditions.

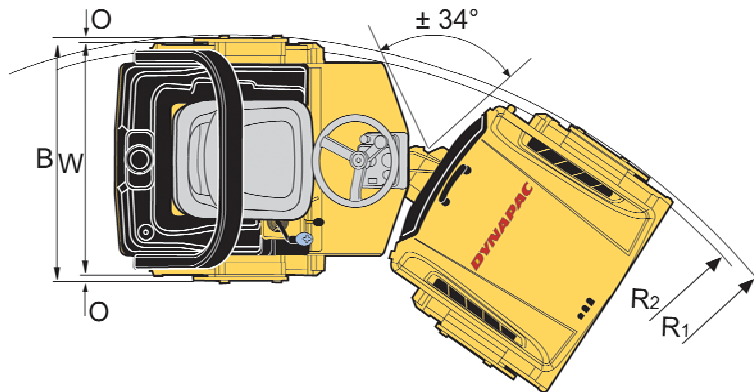
Technical specifications - Dimensions

Dimensions, side view



Dimensions	mm	in
A	1350	53,1
D	580	22,8
H1	2297	90,4
H2	1536	60,5
K1	455	17,9
K2	261	10,3
L2	2107	83,0
P	661	26,0
S	12	0,47

Dimensions, top view



Dimensions	mm	in
B	974	38,3
O	37	1,46
R1	2700	106,3
R2	2660	104,7
W	900	35,4

Technical specifications - Weights and volumes

Weights

Service weight with ROPS (EN500)	1335 kg	2943 lbs
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Fluid volumes

Drum	3,5 liters	3,7 qts
Ballast static drum *	65 liters	68,7 qts
Hydraulic reservoir	12 liters	3,2 gal
Fuel tank	23 liters	6,0 gal
Water tank	175 liters/tank	46,2 gal
Petrol engine	1,5 liters without filter replacement	1,6 qts
	1,8 liters with filter replacement	1,9 qts

* In climates where there is a risk of freezing, see Coolant under the section Lubricants and Symbols.

Technical specifications - Working capacity

Compaction data

Static linear load, front	6,6 kg/cm	37 pli
Static linear load, rear	8,2 kg/cm	45,9 pli
Amplitude	0,4 mm	0,016 in
Vibration frequency	70 Hz	4200 rpm
Centrifugal force	17 kN	3820 lb

Note: The frequency is measured at high revs. The amplitude is measured as the real value and not the nominal.

Propulsion

Speed range	0-8	kph	0-5	mph
Climbing capacity (theoretical)	35	%		

Technical specifications - General**Engine**

Manufacturer/Model	Honda GX620K1/GX620U1
Output at 3,000 rpm (SAE J1995)	13.4 kW / 18 Hp
Engine revs during operation	3000 rpm

Electrical system

Battery	12V 60Ah
Charging coil	12V 3A
Fuses	See the Electrical system section - fuses

Hydraulic system

Opening pressure	MPa	Psi
Drive system	27,0	3915
Supply system	2,0	290
Vibration system	22,0	3190
Control systems	7,0	1015
Brake disengagement	2,0	290

Tightening torque

Tightening torque in Nm for oiled, bright galvanized bolts tightened using a torque wrench.

STRENGTH CLASS

M - thread	8.8	10.9	12.9
M6	8,4	12	14,6
M8	21	28	34
M10	40	56	68
M12	70	98	117
M16	169	240	290
M20	330	470	560
M24	570	800	960
M30	1130	1580	1900
M36	1960	2800	-

ROPS - bolts

Bolt dimensions :	M12 (PN 508063)
Strength class :	8.8
Tightening torque :	70 Nm



ROPS-bolts which are to be torque tightened must be dry.

Machine plate - Identification

Machine plate

The machine plate (1) is attached to the front left side of the rear frame, beside the steering joint.

The plate specifies the manufacturers name and address, the type of machine, the PIN, Product Identification Number (serial number), operating weight, engine power and year of manufacture. CE markings and the year of manufacture may be omitted on machines supplied to markets outside the EU.

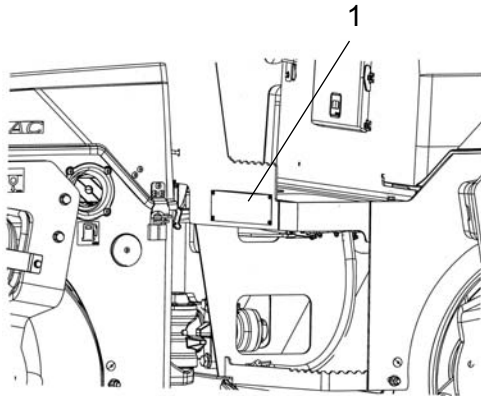


Fig. Operator's platform, left side
1. Machine plate



Please state the machine's PIN when ordering spares.

Product identification number on the frame

The machine PIN (Product Identification Number) (1) is punched on the right edge of the front frame.

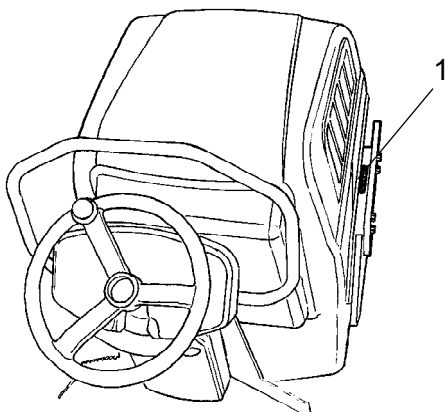


Fig. PIN Front frame

Engine plates

The engine serial number (1) is punched below the starter.

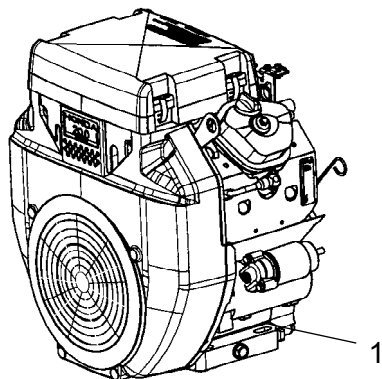


Figure. Engine
1. Serial number

Please specify the engine serial number when ordering spares. Refer also to the engine manual.

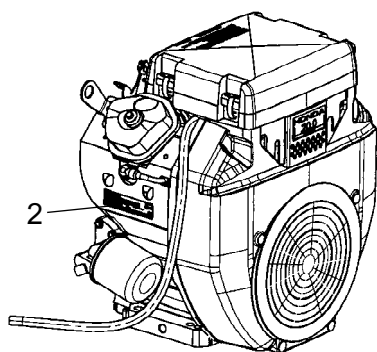
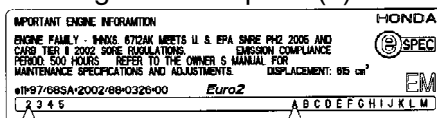


Fig. Engine
2. EPA plate (USA)

The engine's EPA plate (2) on GX620K1.



The engine's EPA plate (2) on GX620U1.



Machine description- Decals

Location - decals

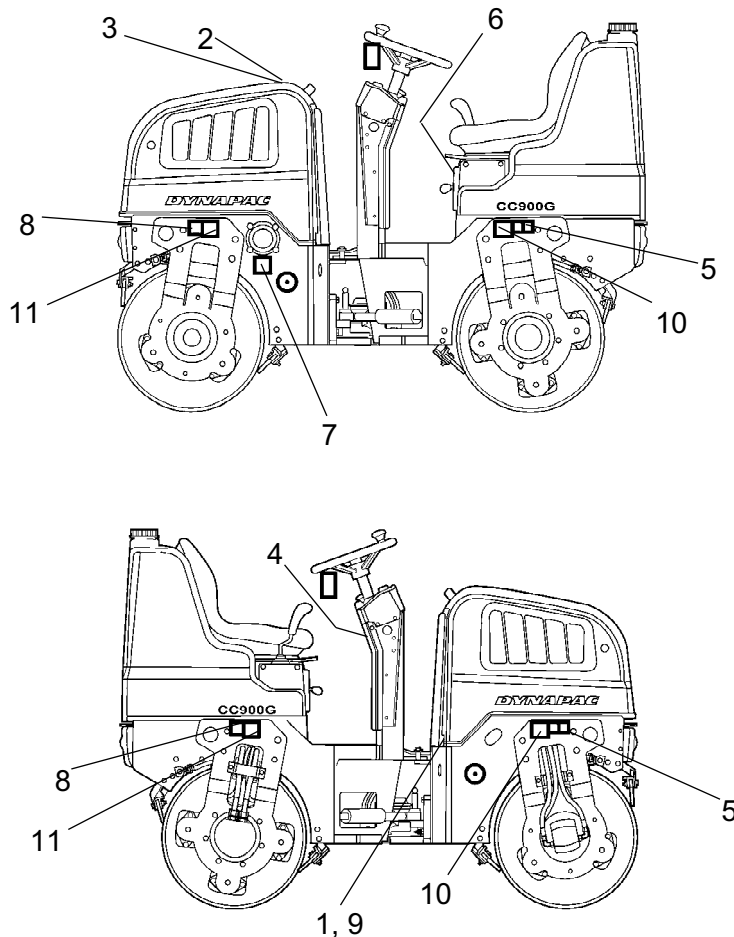


Fig. Location, decals and signs

1. Warning, Risk of being crushed	903422	8. Lifting point	357587
2. Warning, Rotating engine components	903423	9. Hydraulic fluid level	272373
3. Warning, Hot surfaces	903424	10. Hoisting plate	904870
4. Warning, Instruction manual	903459	11. Fixing point	382751
5. Warning, Locking	908229		
6. Handbook compartment	903425		
7. Petrol fuel	381371		

Safety decals

Always make sure that all safety decals are completely legible, and remove dirt or order new decals if they have become illegible. Use the part number specified on each decal.

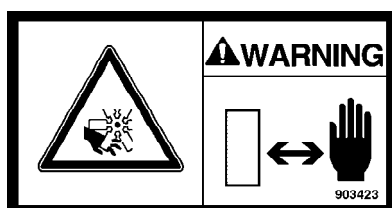


903422

Warning - Crush zone, articulation/drum.

Maintain a safe distance from the crush zone.

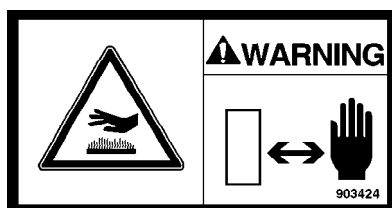
(Two crush zones on machines fitted with pivotal steering)



903423

Warning - Rotating engine components.

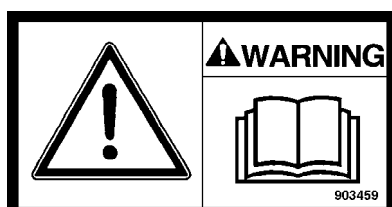
Keep your hands at a safe distance from the danger zone.



903424

Warning - Hot surfaces in the engine compartment.

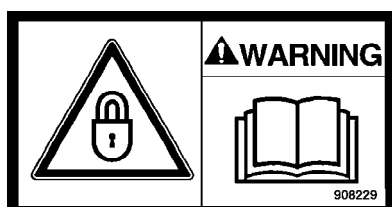
Keep your hands at a safe distance from the danger zone.



903459

Warning - Instruction manual

The operator must read the safety, operation and maintenance instructions before operating the machine.



908229

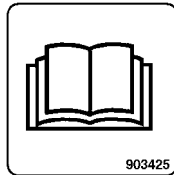
Warning - Locking

The articulation must be locked when lifting.

Read the instruction manual.

Info decals

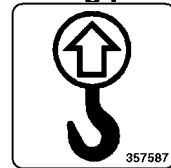
Handbook compartment



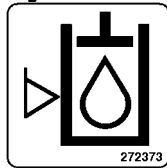
Petrol



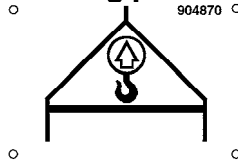
Lifting point



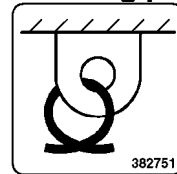
Hydraulic oil level



Hoisting plate



Securing point



Machine description - Instruments/Controls

Locations - Instruments and controls

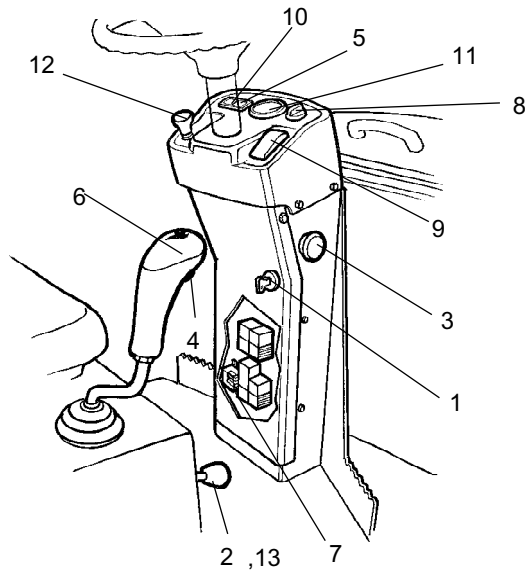


Fig. Instruments and control panel

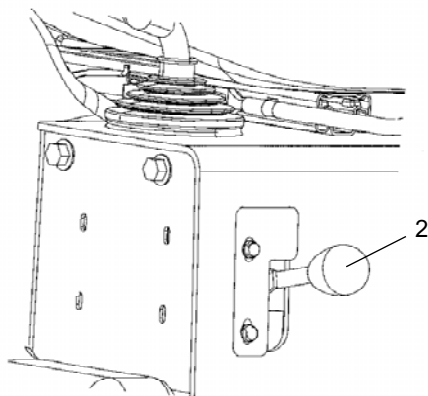


Figure. Speed control, previous design
2. Speed control with plastic knob

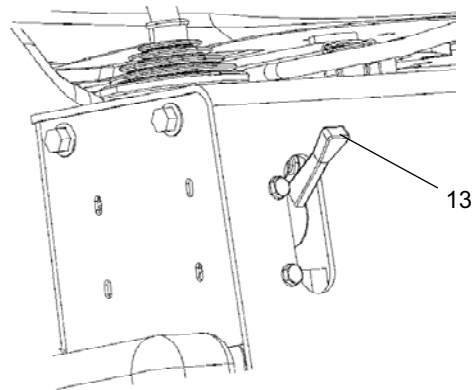






Figure. Speed control, improved design
13. Speed control

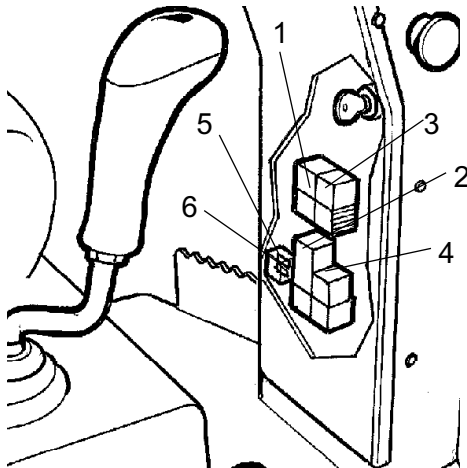
Function description

No	Designation	Symbol	Function
1.	Starter switch		The electric circuit is broken. All instruments and electrical controls are supplied with power Starter motor activation.
2.	Control, engine speed, previous design with plastic knob		Pull the lever up to obtain working speed. Move the lever down to obtain idling speed.
3.	Reserve/parking brake		When pressed, the reserve/parking brake is activated. The parking brake is activated if pressed when the machine is stationary. The brakes are released when pulled out.
4.	Vibration On/Off. Switch		When the switch for vibrations in the forward/reverse lever is pressed and released, the vibrations are engaged. Press the switch again to disengage the vibrations.
5.	Hydraulic fluid, temperature		The control lamp comes on up when the temperature exceeds 90 degrees and the vibrations are switched off. (Accessories)
6.	Forward/Reverse lever		The lever must be in neutral to start the petrol engine. The engine cannot be started if the forward/reverse lever is in any other position. The forward/reverse lever controls both the roller's driving direction and speed. When the lever is moved forward, the roller moves forward etc. The roller's speed is proportional to the distance the lever is from the neutral position. The further the lever is from the neutral position, the higher the speed.
7.	Fuse box (on control column)		Contains fuses for the electrical system. See under the heading 'Electrical system' for a description of fuse functions.
8.	Sprinkler, control		Turn the knob clockwise to switch on the water flow to the drum.
9.	Horn, switch		Press to sound the horn.
10.	Warning lamp, parking brake		The light comes on when the reserve/parking brake is activated.
11.	Hourmeter		Shows the number of hours the engine has run.
12.	Choke		Used in the pulled out position if necessary when the engine is started.
13.	Control, engine speed, improved design		Pull the lever up to obtain idling speed. Move the lever down to obtain working speed.

Machine description - Electrical system

Relays and fuses on the machine

The figure shows the positions of the various fuses and relays. The table below gives their amperage and function. All fuses are flat pin fuses.



Relays

1.	K1	Starting	12V 30A
2.	K2	Start, vibration, brake	12V 15A
3.	K22	Cooling fan, hydraulic system (Option)	12V 30A
4.	K20	Drive restriction relay	12V 10A

Fuses

5.	7.5A	Start/stop valve Fuel pump Restriction relay VBS relay Vibration
6.	15A	Horn Backup alarm Fan (Option)

Fig. Control column

Operation

Before starting

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).

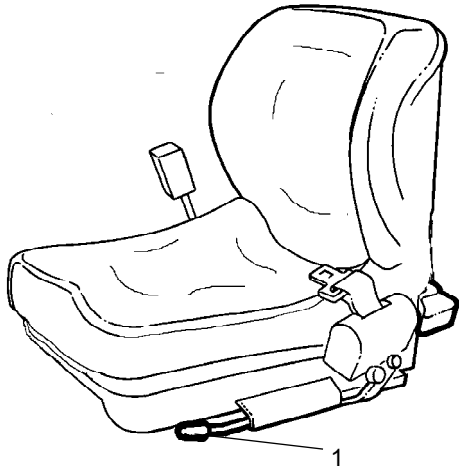


Fig. Operator's seat
1. Length adjustment

Sprinkler - Check



Make sure that the reserve/parking brake knob is actually pressed in.

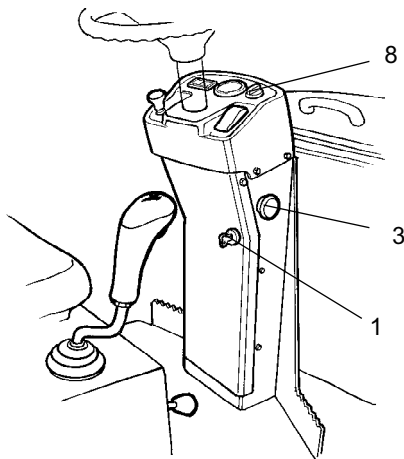


Figure. Instrument panel
1. Ignition key
3. Reserve/parking brake
8. Switch, sprinkler

Set the knob (8) for the sprinkler in the open position and check that the drums are watered.

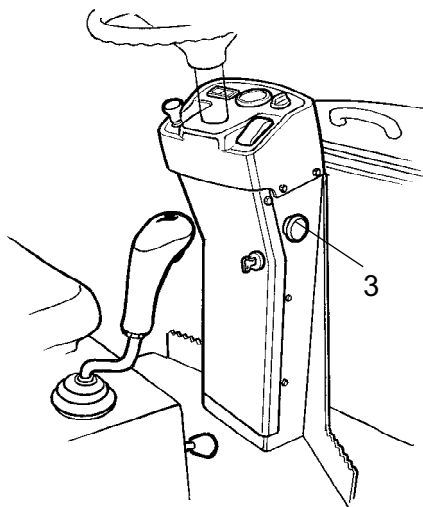


Figure. Control panel
3. Reserve/parking brake

Reserve/parking brake



Never leave the machine without first pressing in the reserve/parking brake knob.

The machine starts with the reserve/parking brake knob pressed in.

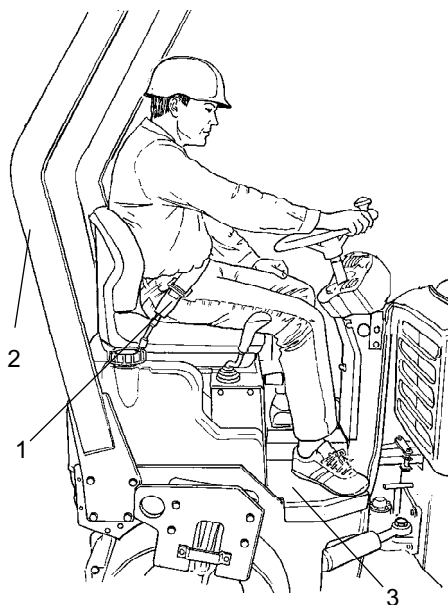


Fig. Operator's station
1. Seat belt
2. ROPS (Option)
3. Anti-slip

Operator position



Replace the seat belt (1) if it shows signs of wear or has been subjected to high levels of force.



Never use the forward/reverse levers as a handle when mounting or disembarking from the roller.



Ensure that the anti-slip (3) on the platform is in good condition. Replace where anti-slip friction is poor.

If a ROPS (Roll Over Protective Structure) (2) is fitted to the roller, always wear the seat belt (1) provided and wear a protective helmet.

Starting

Starting the engine

Make sure that the reserve/parking brake knob (3) is pressed in.

Sit down in the operator's seat and set the forward/reverse lever (6) in neutral. You cannot start the petrol engine with the lever in any other position.

Set the RPM control (2) to idle.

For cold start: Pull out the choke (12) and turn the ignition key to position II. Check that the warning lamps on the control panel are working. Turn the ignition key (1) to the right. As soon as the engine has started, release the ignition key.



Do not run the starter motor for too long. If the engine does not start immediately, wait a minute or so before trying again.

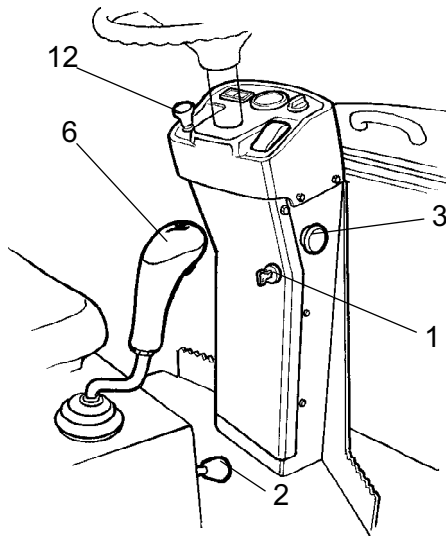


Figure. Control panel

- 1. Starter switch
- 2. Speed control
- 3. Reserve/parking brake
- 6. Forward/Reverse lever
- 12. Choke

Warm up the engine at idling speed for a few minutes, although longer if ambient temperature is below +10 C (50 F)

When the engine is warm, check that the reserve/parking brake warning lamp (10) is still lit.



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.

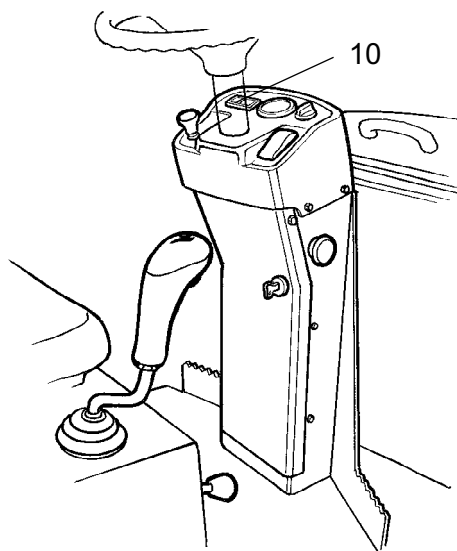


Fig. Instrument panel

- 10. Warning lamp Reserve/parking brake



Ensure that there is good ventilation (air extraction) if the engine is run indoors. Risk of carbon monoxide poisoning.

Operation - Driving

Operating the roller



Under no circumstances is the machine to be operated from the ground. The operator must be seated inside the machine during all operation.

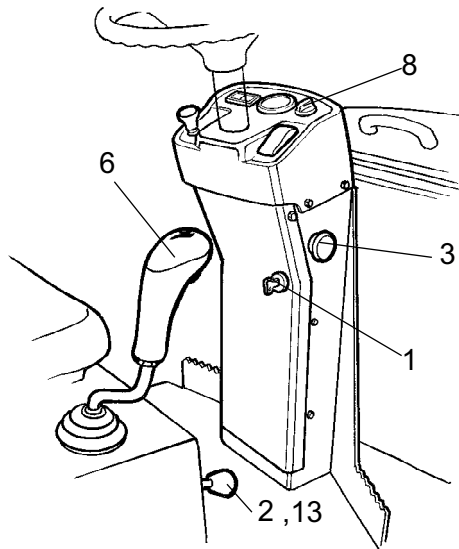


Figure. Instrument panel

- 1. Starter switch
- 2. Speed control
- 3. Reserve/parking brake
- 6. Forward/Reverse lever
- 8. Sprinkler knob
- 13. Speed control

Previous design with plastic knob: Pull the speed control (2) up and lock it in the working position.

Improved design: Move the speed control (13) down and lock it in its working position.

Pull out the reserve/parking brake knob (3). Be prepared that the roller can move.

Check that the steering is working correctly by turning the steering wheel once to the right and once to the left while the roller is stationary.

When compacting asphalt, remember to turn on the sprinkler system (8).



Make sure that the area in front of and behind the roller is clear.

Carefully move the forward/reverse lever (6) forwards or backwards, depending on which direction of travel is required.

Speed increases as the lever is moved away from the neutral position.



The speed should always be controlled using the forward/reverse lever and never by changing the engine speed.



Test the function of the reserve brake by pressing the reserve/parking brake knob (3) while the roller is moving slowly forwards and backwards.

Check when operating that the warning lamps do not come on.

A hydraulic fluid cooler is recommended for warm ambient temperatures and long operating periods

Operation - Vibration

Manual vibration - Switching on



Vibration should not be active 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.

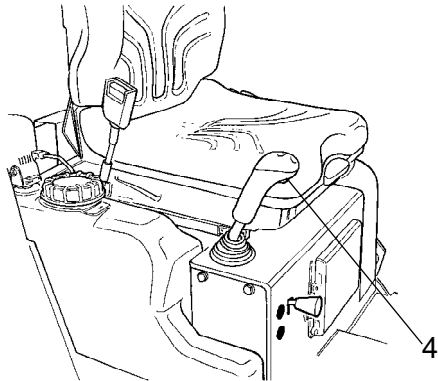


Fig. Forward/Reverse lever
4. Switch, vibration On/Off

Operating - Stopping

Braking

Normal braking



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.

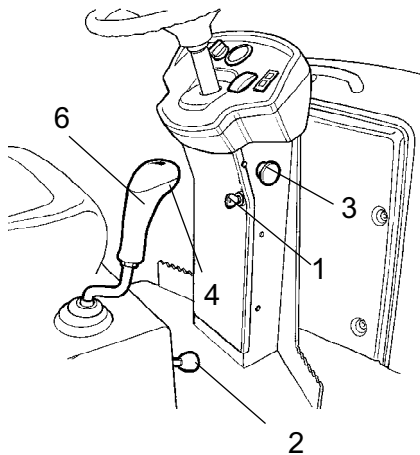


Fig. Control panel

- 1. Key**
- 2. Engine speed control**
- 3. Reserve/parking brake**
- 4. Vibration On/Off**
- 6. Forward/reverse lever**

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

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

For shorter stopping periods, in which the operator needs to stand up with the engine running, it is important to check that the brake light is lit, including when stopping briefly on sloping ground.

Turn the engine speed control (2) back to idling and stop the engine. Switch off the machine using the key (1). Press in the reserve/parking brake knob (3).

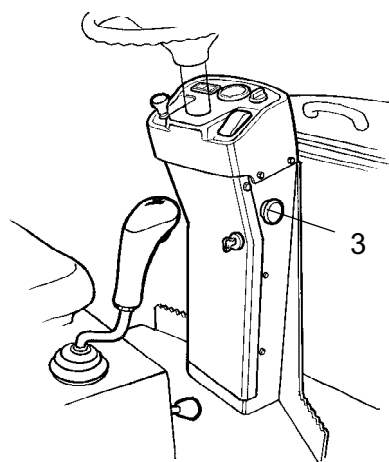


Fig. Controls
3. Reserve/parking brake

Reserve brake

Braking is normally activated using the forward/reverse lever. The hydrostatic transmission retards and slows the roller when the lever is moved towards the neutral position.

A disc brake in each drum motor acts as reserve brake when in motion and as a parking brake when stationary.



To brake in an emergency situation, press in the reserve/parking brake knob (3), hold the steering wheel firmly and be prepared for a sudden stop.

After braking, return the forward/reverse lever to the neutral position and pull out the reserve/parking brake knob.



Never leave the machine without first pressing in the reserve/parking brake knob.

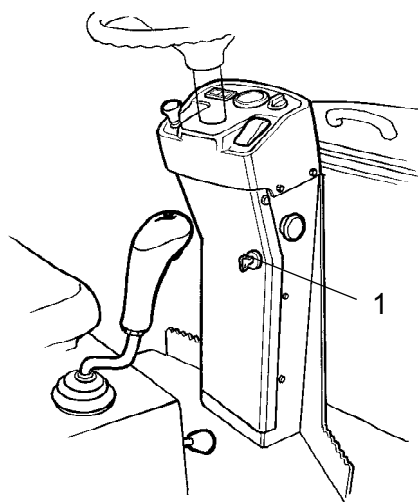


Fig. Instrument panel
1. Starter switch

Switching off

Turn the starter switch (1) to the left to shut off position.

Parking

Chocking the drums



Never disembark from the machine when the engine is running, unless the reserve/parking brake knob is depressed.



Make sure that the roller is parked in a safe place with respect to other road users. Chock the drums if the roller is parked on sloping ground.

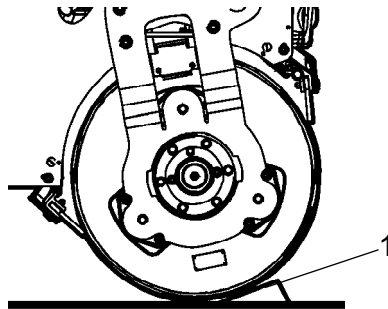


Fig. Set-up
1. Chocks



Keep in mind that there is a risk of freezing during the winter. Drain the water tanks and water lines.

Long-term parking



The following instructions should be followed when long term parking (more than one month).

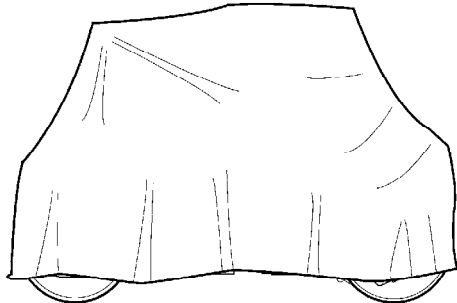


Fig. Roller weather protection

These measures apply when parking for a period of up to 6 months.

Before re-commissioning the roller, the points marked with an asterisk * must be returned to the pre-storage state.

Wash the machine and touch up the paint finish to avoid rusting.

Treat exposed parts with anti-rust agent, lubricate the machine thoroughly and apply grease to unpainted surfaces.

Engine

* Refer to the manufacturer's instructions in the engine manual that is supplied with the roller.

Battery

* Remove the battery from the machine, clean, grease the cable connectors (terminals) and trickle charge the battery once a month. The battery is otherwise maintenance free.

Air cleaner, exhaust pipe

* Cover the air cleaner (see under the heading 'Every 50 hours of operation' or 'Every 300 hours of operation') or its opening with plastic or tape. Also cover the exhaust pipe opening. This is to avoid moisture entering the engine.

Sprinkler system

* Empty the water tank and all hoses of all water (see under the heading "Every 2000 hours of operation").

Fuel tank

Fill the fuel tank completely full to prevent condensation.

Hydraulic reservoir

Fill the hydraulic reservoir to the uppermost level mark (see under the heading 'Every 10 hours of operation.')

Steering cylinder, hinges, etc.

Grease the steering cylinder piston with conservation grease.

Grease the hinges on the doors to the engine compartment. Grease both ends of the forward/reverse control (bright parts) (see under the heading 'Every 500 hours of operation').

Hoods, tarpaulin

- * Lower the instrument cover over the instrument panel.

- * Cover the entire roller with a tarpaulin. A gap must be left between the tarpaulin and the ground.

- * If possible, store the roller indoors and ideally in a building where the temperature is constant.

Miscellaneous

Locking the articulation

Turn the steering wheel to the straight ahead position.

Raise the locking arm (1) and turn 180 degrees downward. Ensure that the cotter pin (2) is guided into its lower position correctly for locking the articulation.

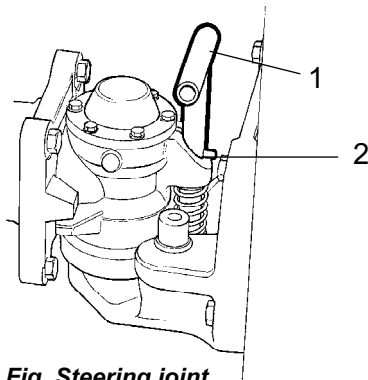


Fig. Steering joint
1. Locking arm
2. Cotter pin in locked position

Lifting the roller



The machine's gross weight is specified on the hoisting plate (1). Refer also to the Technical specifications.



Lifting gear such as chains, steel wires, straps, and lifting hooks must be dimensioned and used in accordance with the applicable safety regulations for lifting devices.



Stand well clear of the hoisted machine! Make sure that the lifting hooks are properly secured.

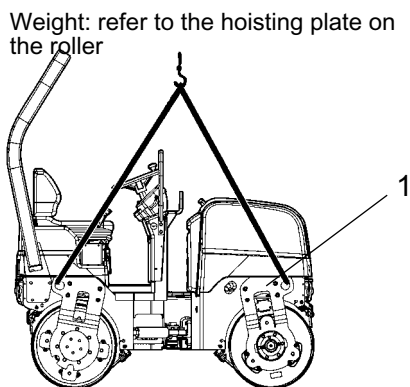


Fig. Roller prepared for lifting
1. Hoisting plate

Unlocking the articulation



Remember to unlock the articulation before operating.

Raise the locking arm (1) and turn it 180 degrees upward. Check that the cotter pin (2) is guided correctly into position for unlocking the articulation.

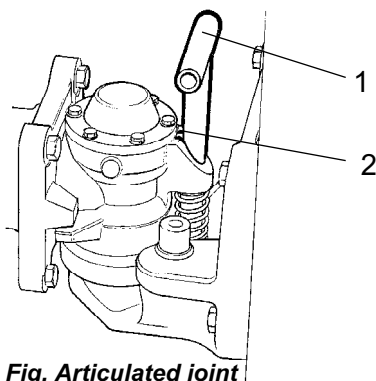


Fig. Articulated joint
1. Locking arm
2. Cotter pin in open position

Transport

Transport

Roller prepared for transport



Lock the articulation before lifting and transporting. Follow the instructions under the relevant heading.

Chock the drums (1) and secure the chocks to the transport vehicle.

Place the wooden wedges (2) between drum and frame to avoid overloading of the roller's rubber elements when lashing.

Secure the roller with straps (3) at all four corners as shown below to comply with the applicable load safety requirements. The attachment points are shown on the decals.

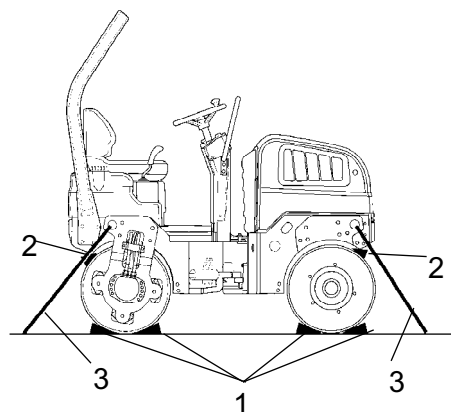


Figure. Arrangement
1. Chocks
2. Wooden wedges
3. Straps



Remember to return the articulation to its unlocked position before starting the roller.

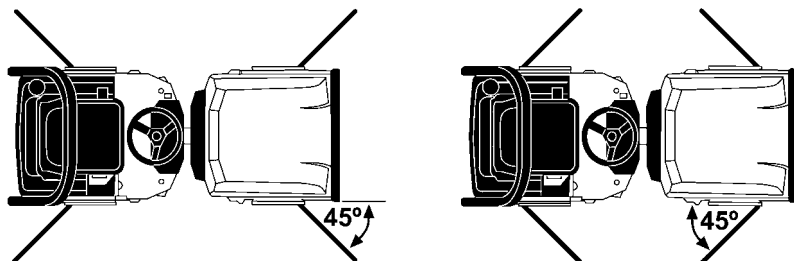


Figure. Securing the machine for loading

Towing/Recovering

Towing the roller



Push in the reserve/parking brake knob and switch off the engine. Chock the drum to prevent the roller from moving when the brakes are disengaged.



The brakes in each propulsion motor must be mechanically disengaged, as described below, before the roller is towed.

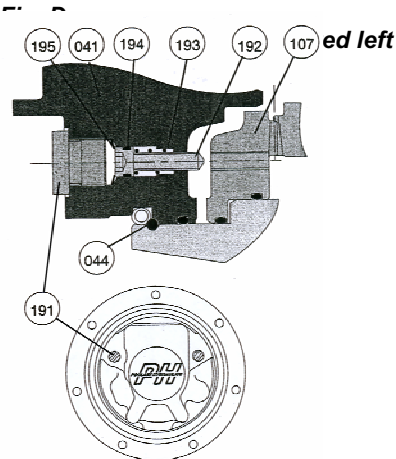
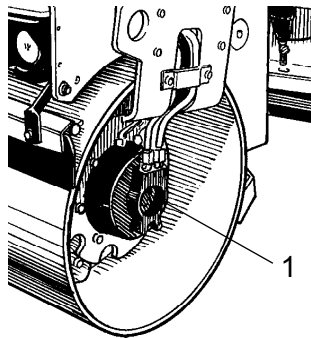


Figure. Release the reserve/parking brake mechanically

Release the reserve/parking brake mechanically

1. Remove the 2 plugs (191).
2. Press the screws (192) by pressing together the springs (193) so that they are forced into the brake piston (107) inner thread until the screw head (192) comes into contact with the valve block (041).
3. Continue tightening the two screws (192) alternately a little at a time so that the brake piston (107) releases (screw around 2 turns).



Tightening the screws (192) too hard can damage the inner mechanism



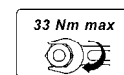
The machine should be started with the reactivated brake.

Reactivate the reserve/parking brake

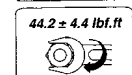
Loosen the two screws (192) fully, and then fit the plugs (191).

Tightening torque

Screws (192)



Plugs (191)



Towing/recovering



A towing bar must be used when towing, as the roller has no brakes and can only be slowed and stopped by the vehicle towing the roller.

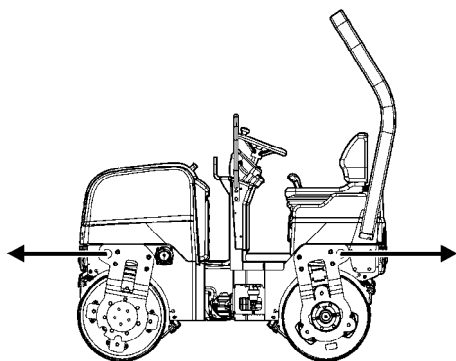


Fig. Towing the roller



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

When towing/recovering a machine, the towing device must be connected to both lifting holes. Pulling forces shall act longitudinally on the machine as illustrated. Max total towing force 50.8 kN, 25.4 kN per fork.



Reset the steps taken for towing as described in the towing instructions on the previous page.

Operating instructions - Summary



1. **Follow the SAFETY INSTRUCTIONS specified in the Safety Manual.**
2. Make sure that all instructions in the MAINTENANCE section are followed.
3. Set the reserve/parking brake to its pulled-out position.
4. Move the forward/reverse lever to the NEUTRAL position.
5. Set the engine speed control to idle.
6. Start the engine and allow it to warm up.
7. Set the engine speed control to the operating position.



8. **Drive the roller. Operate the forward/reverse lever with care.**



9. **Test the brakes. Remember that the braking distance will be longer if the roller is cold.**

10. Use vibration only when the roller is in motion.
11. Check that the drums are thoroughly watered when watering is required.








12. **IN AN EMERGENCY:**
 - **Press the RESERVE/PARKING BRAKE BUTTON**
 - **Hold the steering wheel firmly.**
 - **Brace yourself for a sudden stop.**
13. Parking: - Switch off the machine and chock the drums.
14. When lifting: - Refer to the relevant section in the Instruction Manual.
15. When towing: - Refer to the relevant section in the Instruction Manual.
16. When transporting: - Refer to the relevant section in the Instruction Manual.
17. When recovering - Refer to the relevant section in the Instruction Manual.

Maintenance - Lubricants and symbols















Always use high-quality lubricants and the amounts recommended. Too much grease or oil can cause overheating, resulting in rapid wear.

	ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F) Shell Universal Engine Oil SAE 15W/40, API SJ or equivalent.
	HYDRAULIC FLUID	Air temperature -15°C - +40°C (5°F-104°F) Shell Tellus TX68 or equivalent. Air temperature above +40°C (104°F) Shell Tellus T100 or equivalent.
 Bio-Hydr.	BIOLOGICAL HYDRAULIC FLUID	BP BIOHYD SE-S 46 When it leaves the factory, the machine may be filled with biologically degradable fluid. The same type of fluid must be used when changing or topping up.
	DRUM OIL	Air temperature -15°C - +40°C (5°F-104°F) Shell Spirax AX SAE 80W/90, API GL-5 or equivalent. Air temperature 0°C (32°F) - above +40°C (104°F) Shell Spirax AX SAE 85W/140, API GL-5 or equivalent.
	FUEL	See engine manual.



Other fuel and lubricants are required when operating in areas with extremely high or extremely low ambient temperatures. See the 'Special instructions' chapter, or consult Dynapac.

Maintenance symbols

	Engine, oil level		Air filter
	Engine, oil filter		Battery
	Hydraulic reservoir, level		Sprinkler
	Hydraulic fluid, filter		Sprinkler water
	Drum, oil level		Recycling
	Lubricating oil		Fuel filter



Other fuel and lubricants are required when operating in areas with extremely high or extremely low ambient temperature. See the 'Special instructions' chapter, or consult Dynapac.

Maintenance - Maintenance schedule

Service and maintenance points

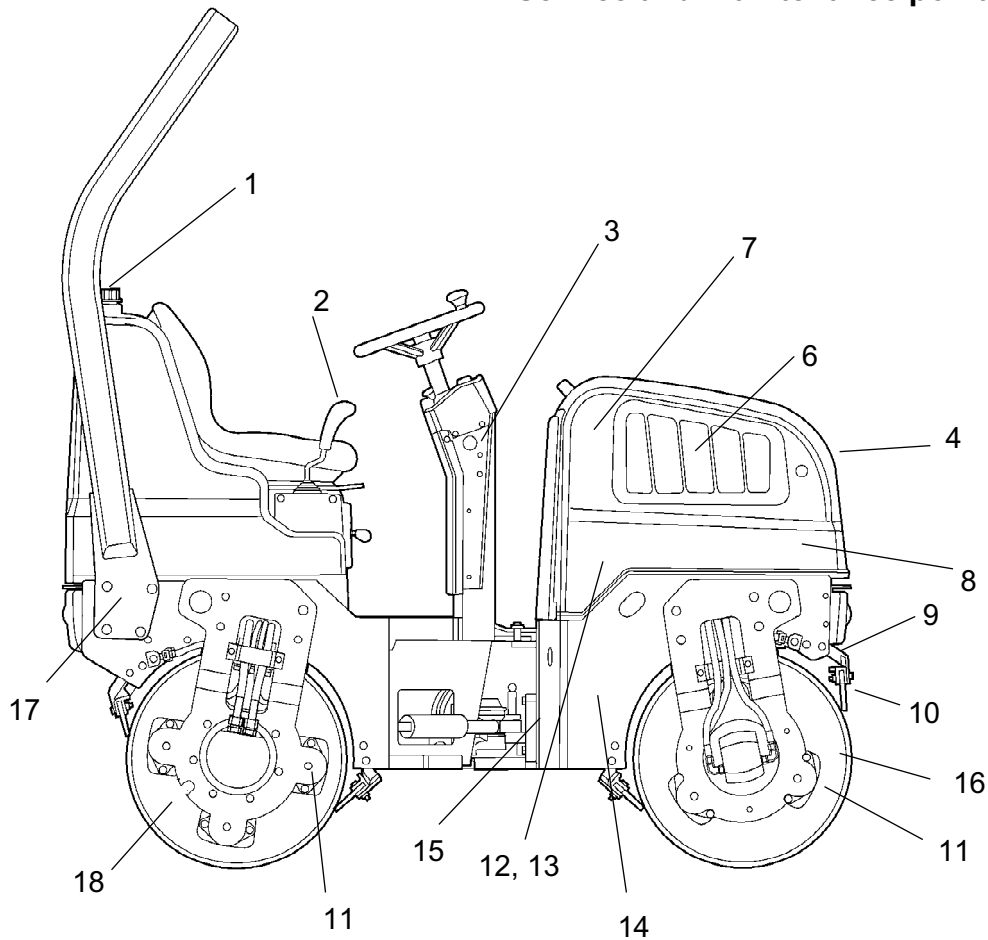


Fig. Service and maintenance points

- | | | |
|-------------------------------------|-------------------------------|--------------------------------------|
| 1. Water tank, filling | 7. Air cleaner | 13. Hydraulic fluid, filling |
| 2. Forward/Reverse lever | 8. Battery (maintenance free) | 14. Fuel tank, filling |
| 3. Reserve/parking brake | 9. Sprinkler | 15. Steering joint |
| 4. Hydraulic fluid cooler, (option) | 10. Scrapers | 16. Front drum, filling with oil |
| 6. Engine | 11. Rubber element | 17. ROPS, (option) |
| | 12. Hydraulic fluid filter | 18. Static drum, filling with water. |

General

Periodic maintenance should be carried out after the number of hours specified. Use the daily, weekly etc. periods where number of hours cannot be used.

Maintenance - Maintenance schedule



Remove all dirt before filling, when checking oils and fuel and when lubricating using oil or grease.



The manufacturer's instructions found in the engine manual also apply.



Where both operational hours and time intervals are specified, maintenance should be carried out at the point in time that occurs first.

Every 10 hours of operation (Daily)

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
	Before starting up for the first time on that day	
6	Check the oil level in the engine	Refer to the engine manual
13	Check the hydraulic reservoir level	
14	Refuel	
1	Fill the water tank	
9	Check the sprinkler system	
4	Check for free circulation of cooling air	
10	Check the scraper setting	
	Check the warning lamps	
7	Check the engine's air cleaner	Refer to the engine manual

After the first 20 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
6	Change the engine oil	Refer to the engine manual
6	Change the engine's oil filter	Refer to the engine manual

After the FIRST 50 hours of operation

Refer to the contents to find the page number of the sections referred to !

	Action	Comment
12	Change the hydraulic fluid filter	

Every 50 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
3	Test the brakes	
7	Clean the air cleaner	Refer to the engine manual
11	Check the rubber elements and bolted joints	

Every 100 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
6	Change the engine oil	Refer to the engine manual
6	Change the oil filter	Refer to the engine manual
6	Check and adjust the spark plug	Refer to the engine manual
6	Check the fuel filter	Refer to the engine manual

Every 200 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
	Check lubrication of controls and pivots	Lubricate as necessary

Maintenance - Maintenance schedule

Every 300 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
7	Replace the air cleaner insert	Refer to the engine manual.
6	Replace the spark plugs	Refer to the engine manual.
6	Check idling revs	Refer to the engine manual.
6	Check valve play	Refer to the engine manual.
6	Replace the fuel filter	Refer to the engine manual.
4	Clean the hydraulic fluid cooler (Accessory)	

Every 500 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
6	Clean the combustion chamber	Refer to the engine manual
16	Check the oil level in the front drum	
13	Check the hydraulic reservoir cover/breather	
15	Check the condition of the articulation	

Every 900 hours of operation

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
12	Change the hydraulic fluid filter	

**Every 2000 hours of operation / Every year
(whichever comes first)**

Refer to the contents to find the page number of the sections referred to !

Pos. in fig	Action	Comment
13	Change the hydraulic fluid	
16	Change the oil in the front drum	
18	Change the water in the rear drum	
1	Drain and clean the water tank	
6	Drain and clean the fuel tank	Refer to the engine manual
6	Check the fuel line	Refer to the engine manual

Maintenance - Maintenance measures, before use



Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

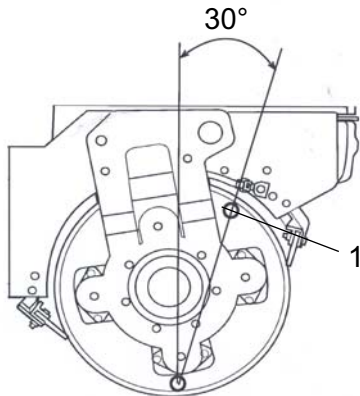


Fig. static drum
1. Water plug in position for filling.

Static drum - Filling with water



Unscrew the filler plug (1) and fill with pure water. The recommended volume of water in the drum is 65 liters. Where there is a risk of freezing, remember to add antifreeze.



Only additive: Environmentally-friendly antifreeze. Dosage according to the recommendations from the antifreeze supplier.

Maintenance - 10h



Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

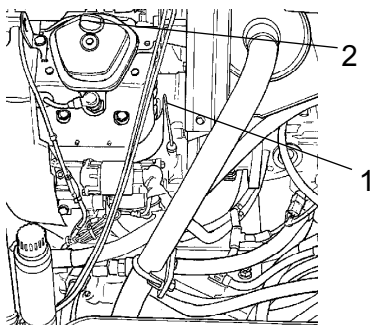


Fig. Engine
1. Dipstick
2. Filler plug

Engine - Checking the oil level



Ensure that the engine cover is fully open when work is carried out under the cover.

Open the engine cover lock and lower the engine cover forwards.

Check the oil level using the dipstick (1). The level should be between the marks. If the level is near the lower mark, top off with fresh engine oil via the filler cap (2). See under the heading lubricants for the correct oil grade.



Never overfill with oil, as this can damage the engine.

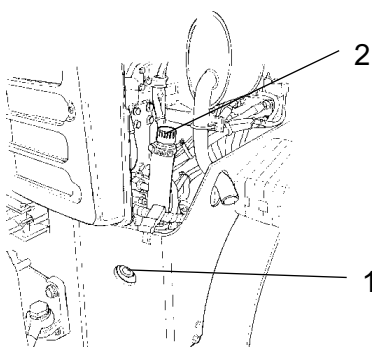


Fig. Hydraulic reservoir
1. Sight glass
2. Filler hose

Hydraulic reservoir, Level check - Filling

Wipe the sight glass (1) clean. Make sure that the oil level is in the middle of the sight glass. If necessary, top up with fresh hydraulic fluid through the filler hose (2).

See under the heading 'Lubricants' for the correct fluid grade.



Refueling

Refuel the tank every day before starting work. Open the tank cap and fill through the filler pipe (1).



Never refuel while the engine is running. Do not smoke and avoid spilling fuel.



Stop the engine. Short-circuit (press) the filler gun against the filler pipe (1) while refuelling.

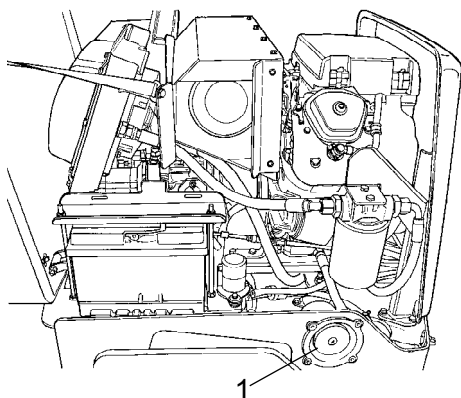


Fig. Left side
1. Filler pipe/cap

The tank holds 23 liters (31.7 gal) of fuel.



Water tank - Filling



Unscrew the tank cap (1), and fill with clean water.

Fill the water tank; it holds 175 liters.



Only additive: A small amount of environmentally friendly antifreeze.

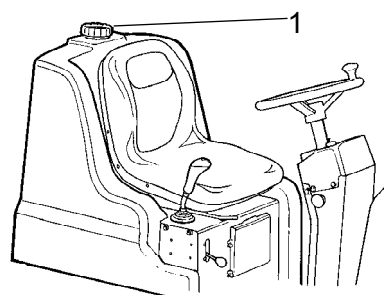


Fig. Water tank
1. Tank cap



Sprinkler system - Check, cleaning

Check that the holes in the sprinkler pipe (1) are not clogged, clean if necessary.

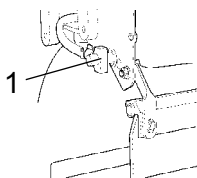


Fig. Sprinkler system
1. Sprinkler pipes with holes for water.

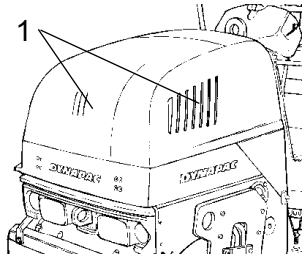


Fig. Engine cover
1. Cooling air grille/engine

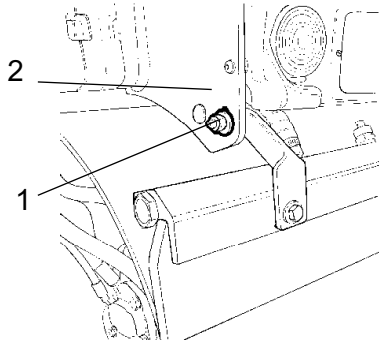


Fig. Front scrapers in transport position
1. Locking nut
2. Frame side

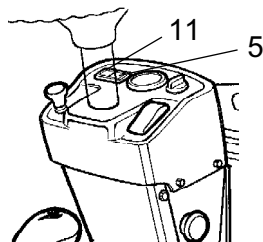


Figure. Control panel.
5. Hydraulic fluid, temperature
(Option, previous version only)
11. Reserve/parking brake

Air circulation - Check

Ensure that the petrol engine has free circulation of cooling air through the vents in the hood.

Scrapers - Check, adjustment

Make sure that the scrapers are undamaged. Adjust the scrapers if necessary in the following way:

For firmer application of the scraper, undo the locking nut (2) and turn it to the right until the desired application is achieved.

Lock this setting by tightening the locking nut against the frame side (2).

Adjust the pressure on both scraper brackets.

To set a lower scraper pressure, adjust in the reverse order to the above.

Warning lamps - Check

Check that the warning lamps on the control panel function.

Air cleaner - check

Check that hoses and couplings are not leaking and that the air cleaner cover is on properly.

Clean the air cleaner when operated in extremely dusty environments.

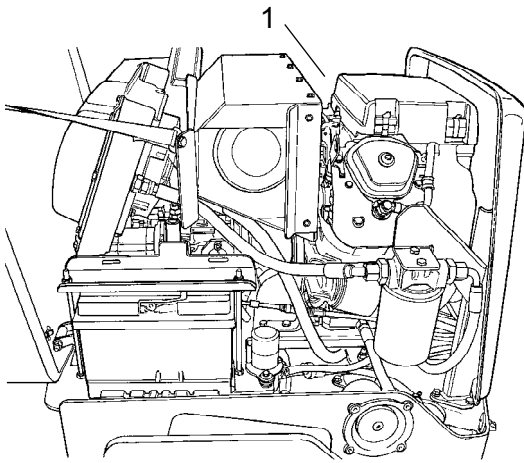


Fig. Engine
1. Air filter

Maintenance - 20h



Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.



Check that the engine cover is fully open before carrying out work underneath it.



Engine oil and oil filter - Change

Run the engine until it is warm before draining the oil.



Switch off the engine and push in the reserve/parking brake knob.



Take great care when draining fluids and oils.
Wear protective gloves and goggles.

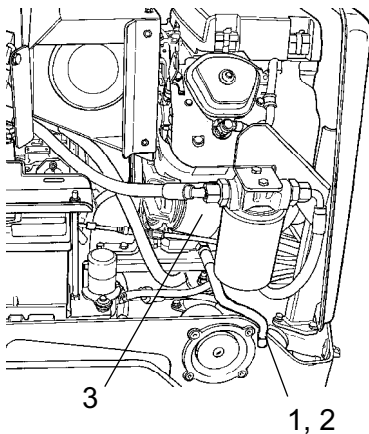


Fig. Engine compartment, left side

- 1. Drain hose**
- 2. Plug**
- 3. Oil filter**

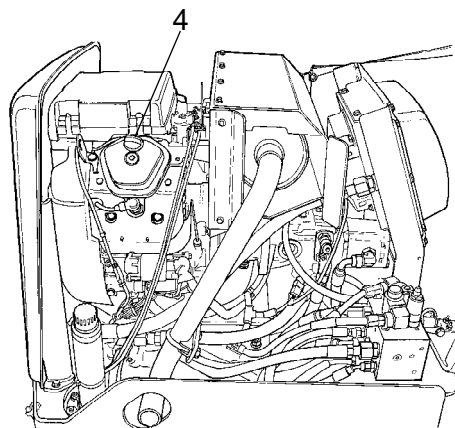


Fig. Engine compartment, right side
4. Filler cap

Place a receptacle that holds at least 4 liters (1 gal.) under the drain plug (2).

Undo the oil filler cap (4) and remove the plug (2) from the end of the drain hose (1); allow all the engine oil to run out.



Deliver the drained oil to special waste handling.



Refer to the engine manual for detailed instructions when changing oil and filters.

Remove the oil filter (3) and insert a new one.

Collect any spillage.

Fit the drain plug (2) to the end of the hose.

Fill with fresh engine oil (see under Lubricants heading for the correct oil grade), refit the filler cap (4) and check the level on the dipstick.

Start the engine and check the tightness around the oil filter.

Maintenance - 50h



***Park the roller on a level surface.
When checking and making adjustments, the
engine should be switched off and the
emergency/parking brake should be applied, if
not otherwise specified.***



***Check that the engine cover is fully open before
carrying out work underneath it.***



Brakes - Check



Check the brakes by carrying out the following:

Drive the roller slowly forwards.

Push in the reserve/parking brake knob (1). The brake warning lamp (2) should light and the roller should stop.

After testing the brakes, set the forward/reverse lever in neutral.

Pull out the reserve/parking brake knob (1).

The roller can now be started.

Refer also to the section in the manual on operation.

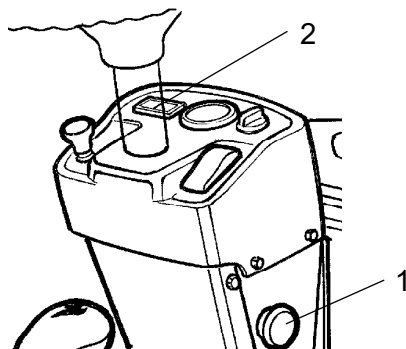


Figure. Instrument panel
1. Reserve/parking brake
2. Brake warning lamp

Air cleaner - cleaning

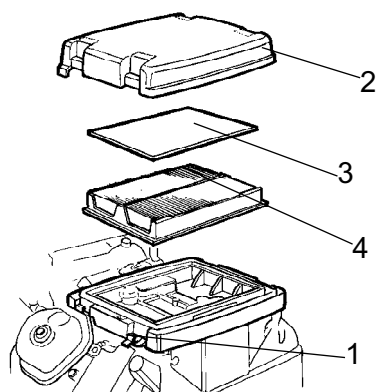


Fig. Air cleaner
1. Lock catch
2. Cover
3. Plastic foam
4. Filter element

Unclip the four lock catches (1) and lift the air cleaner's cover (2). Lift out the plastic foam and clean it in warm soapy water, rinse and dry.

Clean the air filter by tapping it with the palm of the hand. Brushing the filter may cause dust to penetrate the fibres. Replace the filter if it is very dirty.

Dry the inside of the filter container and its cover with a damp rag. Make sure that dirt does not enter the suction pipe.

Clean the air cleaner when operated in extremely dusty environments.

Refit the filter element and the cover and clip the catches.

Rubber elements and fastening screws - Check

Check all the rubber elements (1), and replace all the elements if more than 20% of them on one side of the drum are cracked deeper than 10-15 mm.

Use a the blade of a knife or pointed object to check.

Check also that the screw fasteners (2) are tightened.



The screws on the rubber elements are sealed with Loctite. Check the rubber elements on both sides of the roller.

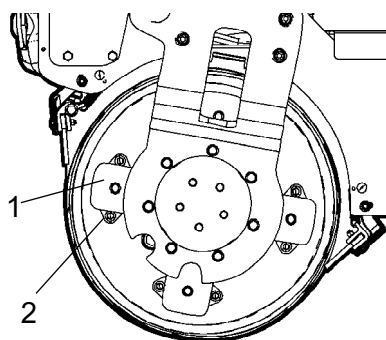


Figure. Drum suspension
1. Rubber element
2. Fastening screws

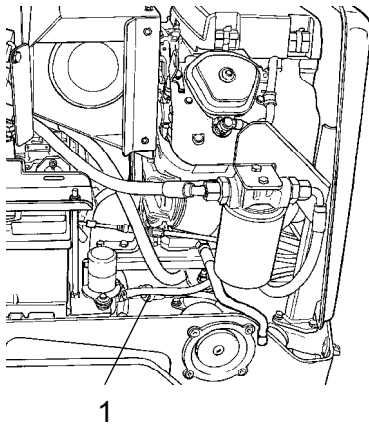
Maintenance - 100h



***Park the roller on a level surface.
When checking and making adjustments, the
engine should be switched off and the
emergency/parking brake should be applied, if
not otherwise specified.***



***Check that the engine cover is fully open before
carrying out work underneath it.***



**Fig. Engine compartment left side
1. Fuel filter**

Engine's fuel filter - Check



***Switch off the engine and push in the
reserve/parking brake knob.***



Use caution. Wear gloves.

If the fuel filter is full of water or deposits, replace the filter with a new one.



**Refer to the engine manual for detailed
instructions.**



Dispose of the old filter carefully.



Engine oil and oil filter - Change

Run the engine until it is warm before draining the oil.



Switch off the engine and push in the reserve/parking brake knob.



Take great care when draining fluids and oils. Wear protective gloves and goggles.

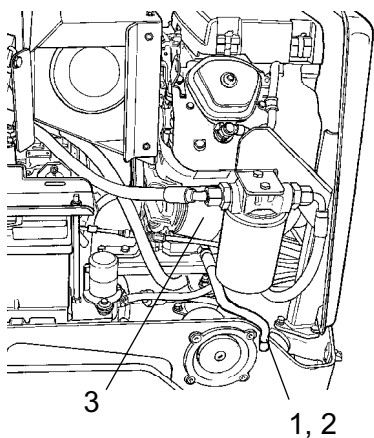


Fig. Engine compartment, left side

- 1. Drain hose
- 2. Plug
- 3. Oil filter

Place a receptacle that holds at least 4 liters (1 gal.) under the drain plug (2).

Undo the oil filler cap (4) and remove the plug (2) from the end of the drain hose (1); allow all the engine oil to run out.



Deliver the drained oil to special waste handling.



Refer to the engine manual for detailed instructions when changing oil and filters.

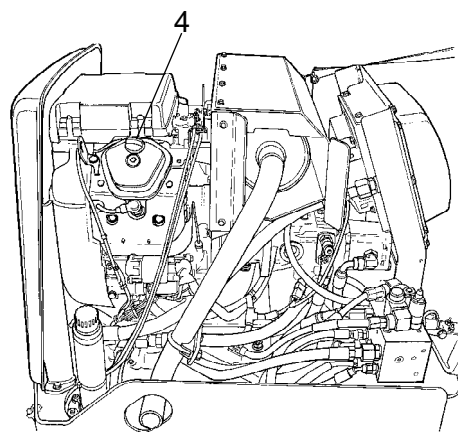


Fig. Engine compartment, right side
4. Filler cap

Remove the oil filter (3) and insert a new one.

Collect any spillage.

Fit the drain plug (2) to the end of the hose.

Fill with fresh engine oil (see under Lubricants heading for the correct oil grade), refit the filler cap (4) and check the level on the dipstick.

Start the engine and check the tightness around the oil filter.

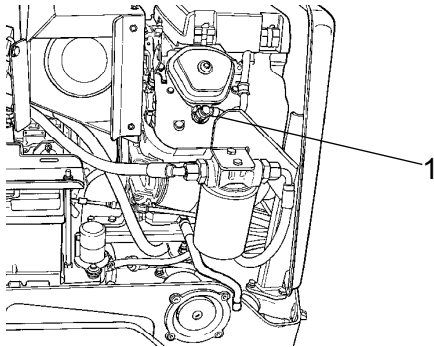


Fig. Engine compartment left side
1. Spark plug

Spark plug - Check and adjustment



Switch off the engine and push in the reserve/parking brake knob.



Observe care with hot surfaces. Wear gloves.



Refer to the engine manual for detailed instructions.



Dispose of used spark plugs properly.

Maintenance - 200h



Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.



Check that the engine cover is fully open before carrying out work underneath it.



Forward/Reverse controls and joints - Check and lubrication

Unscrew the protective plate. Check the friction on the forward/reverse lever. The friction nut (1) should be applied with sufficient pressure to keep the forward/reverse lever in the set position during operation.

If the lever gets stiff after prolonged use, lubricate the lever at the bearing bushings and at the cable with a few drops of oil at each place.

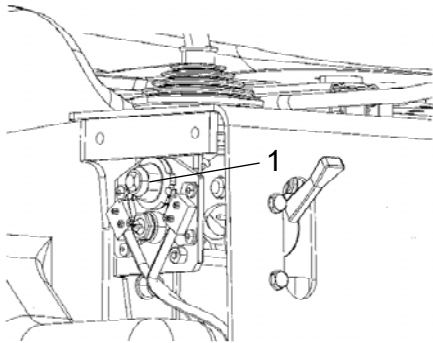


Figure. Forward/reverse lever
1. Friction nut

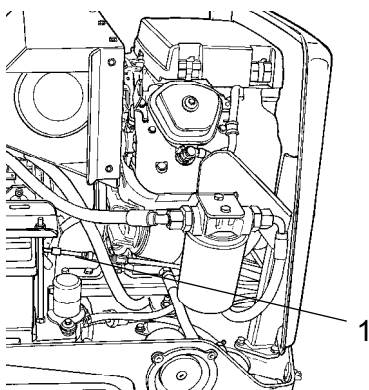


Fig. Engine compartment
1. F/R lever cable

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.

Maintenance - 300h



***Park the roller on a level surface.
When checking and making adjustments, the
engine should be switched off and the
emergency/parking brake should be applied, if
not otherwise specified.***



***Check that the engine cover is fully open before
carrying out work underneath it.***

Air cleaner - replace insert

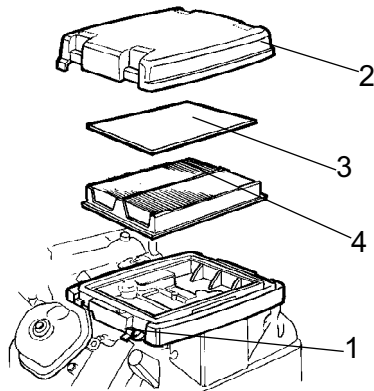


Fig. Air cleaner
1. Lock catch
2. Cover
3. Plastic foam
4. Filter element

Unclip the four lock catches (1) and lift the air cleaner's cover (2).

Lift out the plastic foam (3) and the filter element (4).

Dry the inside of the filter container and its cover with a damp rag. Make sure that dirt does not enter the suction pipe.

Reinstall with new filter element and secure the cover with the lock catches.



Spark plug - Replace

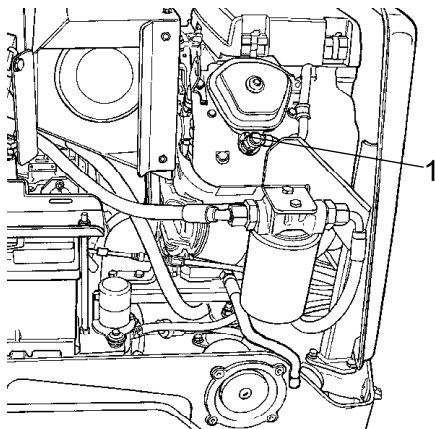


Fig. Engine compartment left side
1. Location of the spark plug on the left and right sides of the engine.



Switch off the engine and push in the reserve/parking brake knob.



Observe care with hot surfaces. Wear gloves.



Refer to the engine manual for detailed instructions.



Dispose of used spark plugs properly.



Engine's fuel filter - Check

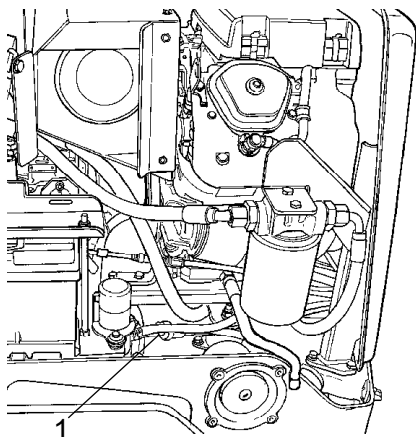


Fig. Engine compartment left side
1. Fuel filter



Switch off the engine and push in the reserve/parking brake knob.



Use caution. Wear gloves.

Replace the fuel filter (1).



Refer to the engine manual for detailed instructions.



Dispose of the old filter carefully.

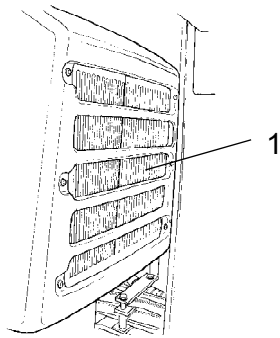


Fig. Engine compartment
1. Hydraulic fluid cooler

Hydraulic fluid cooler - Cleaning (Option)

Clean the hydraulic fluid cooler's cooling flanges, ideally with compressed air. Blow the cooler clean by blowing air from the inside outwards.



Wear gloves and eye protectors when working with compressed air.

Maintenance - 500h



***Park the roller on a level surface.
When checking and making adjustments, the
engine should be switched off and the
emergency/parking brake should be applied, if
not otherwise specified.***



***Check that the engine cover is fully open before
carrying out work underneath it.***



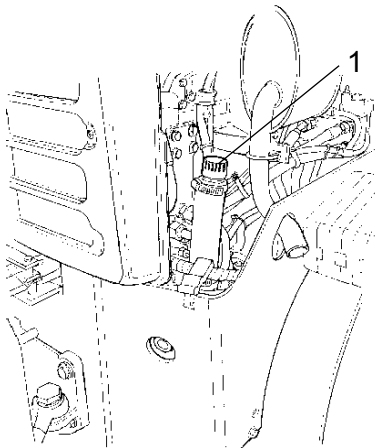
Hydraulic reservoir - Check/venting

Unscrew and make sure that the reservoir cap is not blocked. Air must have unobstructed passage through the cap in both directions.

If blocked in either direction, clean with a little diesel oil and blow with compressed air until unblocked or replace the cap with a new one.



***Wear eye protectors and gloves when working
with compressed air.***



**Figure. Engine compartment, right side
1. Hydraulic fluid tank cap**

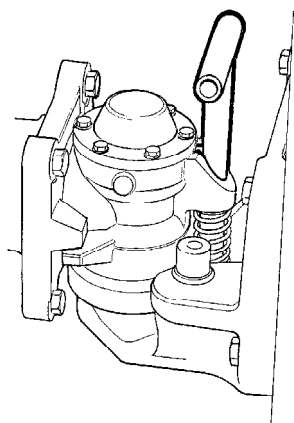


Fig. Steering joint

Steering joint - Check

Inspect the steering joint to detect any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness and play in the steering joint. Rectify if necessary.



Front drum - Checking the oil level

Park the roller on a level surface, and drive the roller slowly until the oil plug (1) is in the middle of the semicircle shaped notch in the drum suspension.



Switch off the engine, disconnect the power and push in the reserve/parking brake knob.

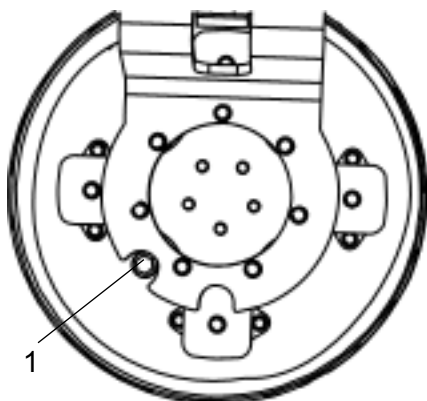


Figure. Front drum, drive side
1. Oil plug

Unscrew the plug and check that the oil level reaches the hole's lower edge. If necessary, top off with fresh transmission fluid. See under the heading lubricants for correct fluid grade.

Clean the magnetic oil plug (1) from any metallic residue, and refit the plug.

Maintenance - 900h



***Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.***



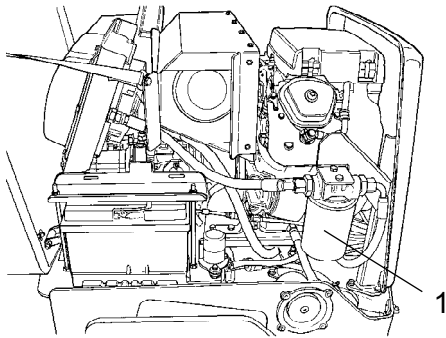
Check that the engine cover is fully open before carrying out work underneath it.



Hydraulic fluid filter - Change



Remove the filter (1) and deliver to special waste handling. This is a single-use filter and cannot be cleaned.



**Fig. Engine compartment, left side
1. Hydraulic fluid filter**

Thoroughly clean the filter holder sealing surface.

Apply a thin coat of fresh hydraulic fluid to the rubber gasket on the new filter.

Screw the filter on by hand, firstly until the filter gasket makes contact with the filter base. Then rotate a further $\frac{1}{2}$ turn.



Do not over-tighten. The seal can be damaged.

Start the engine and check that the filter does not leak.

Maintenance - 2000h



Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.



Check that the engine cover is fully open before carrying out work underneath it.



Hydraulic reservoir - fluid change

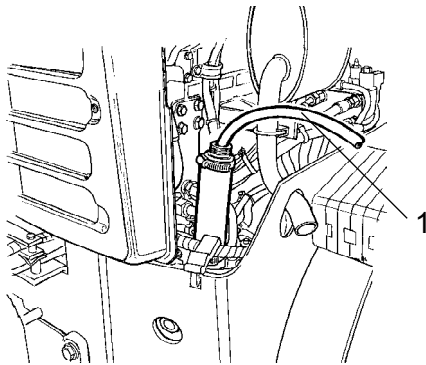


Fig. Hydraulic reservoir
1. Draining

Use an external drainage pump when draining/emptying the hydraulic reservoir.



Danger of being burned when draining hot oil.
Wear gloves and eye protectors.

Unscrew the reservoir cap. Use an external pump and check that the pump's hose reaches the bottom of the hydraulic reservoir in order to remove as much of the oil as possible. Drain the hydraulic oil into a drainage container.



Use a receptacle that holds at least 15 liters (4 gal).



Collect the oil and deliver to special waste handling.

Change the hydraulic fluid filter, see under heading 'Every 900 hours of operation'.

Fill with fresh hydraulic fluid (see under Lubricants heading for the correct grade), refit the filler cap, and check the level in the tank.

Wipe up any spillage.

Start the engine and operate the various hydraulic functions. Check the level in the reservoir and top off as required.



Water tank - Cleaning



Keep in mind that there is a risk of freezing in winter. Drain the tank, pump and lines.

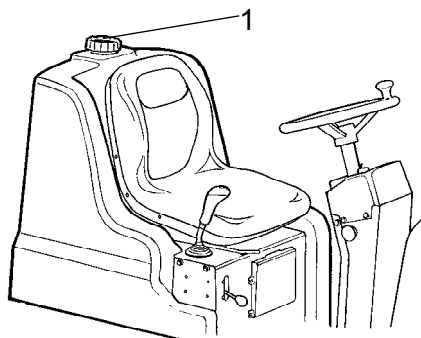


Fig. Water tank
1. Cap

Empty the tank.

Clean the tank with water and a suitable detergent for plastic surfaces.

Fill the tank with water and check that the sprinkler works.



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



Front drum - Changing the oil

Loosen the oil plug (1) slightly, when it is in position for level check (2), so that it can subsequently be unscrewed by hand.

Park the roller on a level surface, and drive the roller slowly until the plug (1) is in the bottom position.



Switch off the engine, disconnect the power and push in the reserve/parking brake knob.

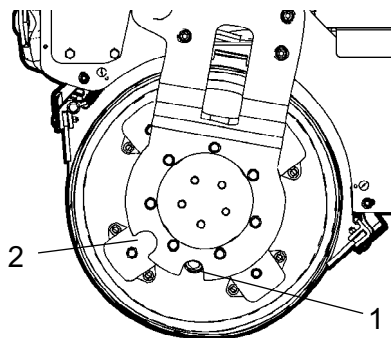


Fig. Drum, Drive side
1. Oil plug
2. Position for level check

Place a receptacle that will hold at least 4 liters (1 gal) under the plug.

Remove the plug (1) and let the oil run out.



Deliver the drained oil to special waste handling.

See under the section 'Every 500 hours of operation' for filling oil.

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