DYNAPAC
Part of the Atlas Copco Group

Instruction manual

ICC102-1EN1.pdf
Operation & Maintenance

Vibratory roller
CC102

Engine
Deutz F2L 2011
Deutz D2011 L02I

Serial number
***60119200* -**

CC102 is primarily intended for repair work on asphalt, but can also be used for new surfacing on small streets, pavements and cycle paths.

Subject to changes
Printed in Sweden

Table of Contents

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.

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.

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.

CALIFORNIA

Proposition 65 Warning

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

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 manufactuer's engine manual.

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.

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.

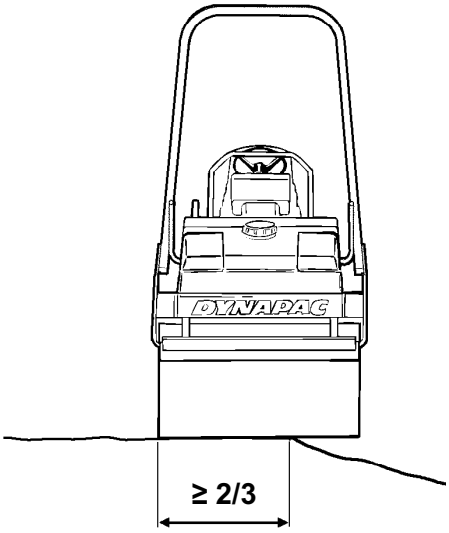


Fig. Position of drum when driving near an edge

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.

To exit the cab in an emergency, release the hammer on the rear right post and break the rear window.

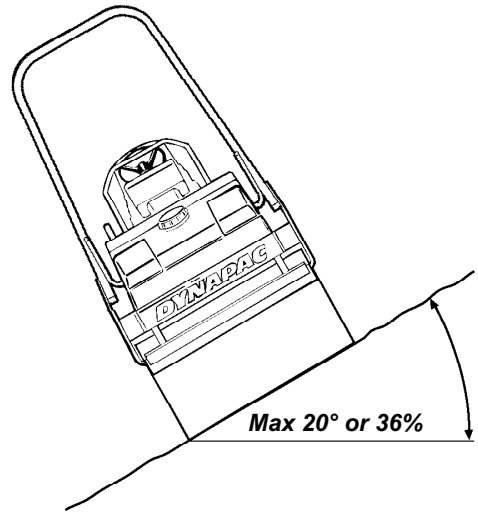


Fig. Operating on slopes

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

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

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).

The maximum temperature for biological hydraulic fluid is +35°C (95°F).

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

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

The diesel 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 similar.

Temperatures

The temperature limits apply to standard versions of rollers.

Rollers equipped with additional equipment, such as noise suppression, may need to be more carefully monitored in the higher temperature ranges.

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), ROPS approved cab

If the machine is fitted with a Roll Over Protective Structure (ROPS, or ROPS approved cab) never carry out any welding or drilling in the structure or cab.

Never attempt to repair a damaged ROPS structure or cab. These must be replaced with new ROPS structure or cabs.

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.

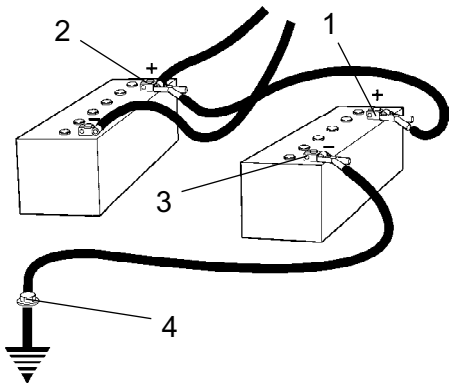


Fig. Jump starting

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 lifjting 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/s² as specified in Directive 2002/44/EC. (Limit is 1.15 m/s²)
Measured hand/arm vibrations also were below the action level of 2.5 m/s² specified in the same directive. (Limit is 5 m/s²)

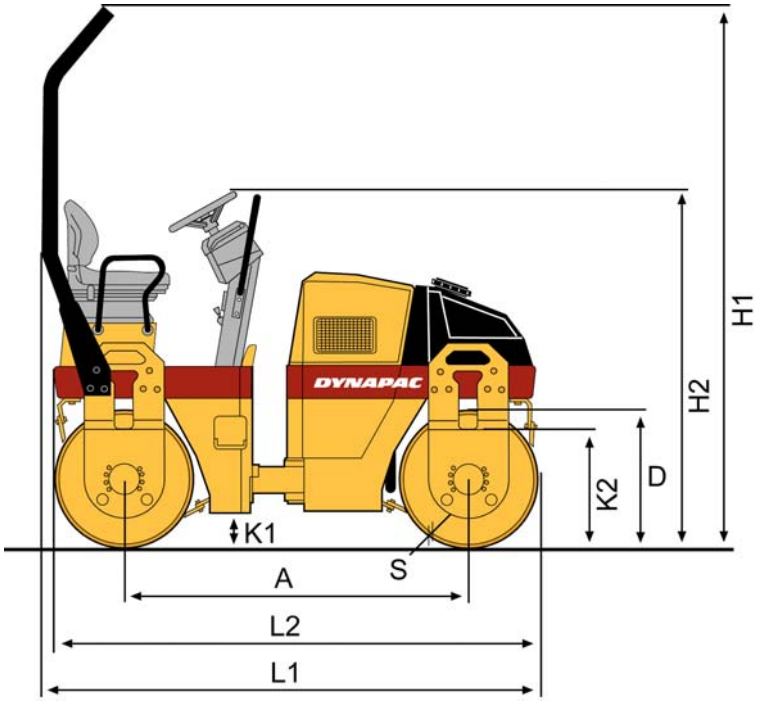
Noise level

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, with the vibration switched on, on soft polymer material and with the operator's seat in the transport position.

Guaranteed sound power level, L_{wA}	105	dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}	85	dB (A)

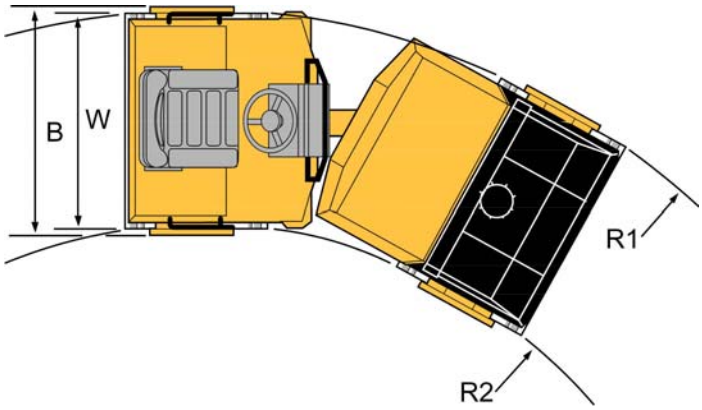
Technical specifications - Dimensions

Dimensions, side view



Dimensions	mm	in
A	1715	69
D	680	27
H1	2640	104
H2	1755	69
K1	175	7
K2	550	22
L1	2450	96
L2	2395	94
S	12	0.5

Dimensions, top view



Dimensions	mm	in
B	1180	46
R1	3730	146
R2	2660	105
W	1070	42

Technical specifications - Weights and volumes

Weights

Weight CECE, Standard equipped roller (kg), Deutz	2350 kg	5,181 lbs

Fluid volumes

Hydraulic tank	40 liters	42.2 qts
Fuel tank	50 liter	52.9 qts
Water tank	160 liters	169.1 qts
Diesel engine	6,5 liter	6.9 qts
Drum	4 liters	4.2 qts

Technical specifications - Working capacity

Compaction data

Static linear load	10,6	kg/cm	59.4	psi
Amplitude	0,5	mm	0,019	in
Vibration frequency	57	Hz	3,420	vpm
Centrifugal force	23	kN	5,175	lb

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

Propulsion

Speed range	0-8.6	km/h	0-5.3	mph
Climbing capacity (theoretical)	50	%		

Technical specifications - General

Engine

Manufacturer/Model	Deutz F2L 2011 / D2011 L02I	
Power (SAE J1995)	23 kW	29 hp
Engine speed	2800 rpm	

Electrical system

Battery	12V 74Ah
Alternator	12V 60A
Fuses	See the Electrical system section - fuses

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 which are to be torque tightened must be dry.

ROPS - bolts

Bolt dimensions :	M16 (PN 902889)
Strength class :	10.9
Tightening torque :	192 Nm, torque class 2 (Dacromet treated)

Hydraulic system

Opening pressure	**MPa**
Drive system	33,0
Supply system	2.0
Vibration system	20,0
Control systems	17,0
Brake release	1,4

Machine plate - Identification

Product identification number on the frame

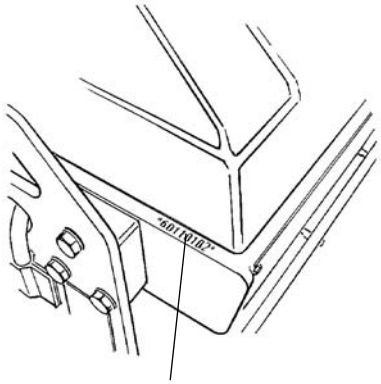


Fig. PIN Front frame
1. Serial number

The machine PIN (product identification number) (1) is punched on the right edge of the front frame.

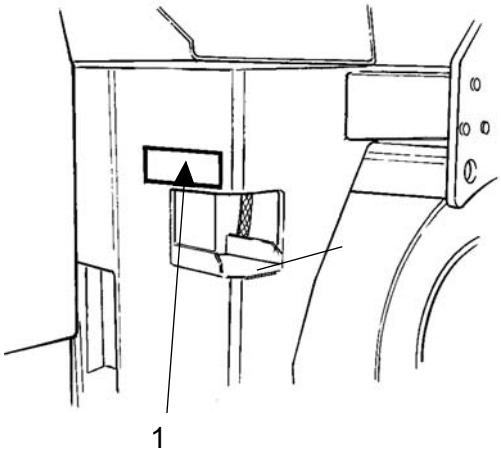
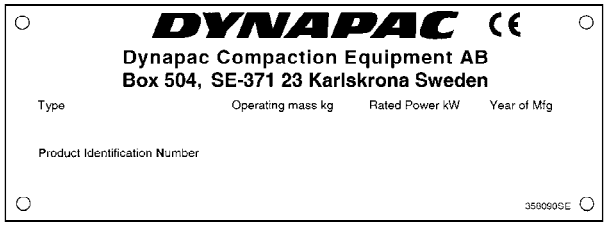


Fig. Operator platform
1. Machine plate

Machine plate

The machine type plate (1) is affixed on the left front edge of the operator's platform.

The plate specifies the manufacturer's name and address, the type of machine, the PIN number (serial number), service weight, engine power and year of manufacture. If the machine is delivered outside of the EU, the plate may not have a CE marking and the year of manufacture.



Please state the machine's PIN (serial number) when ordering parts.

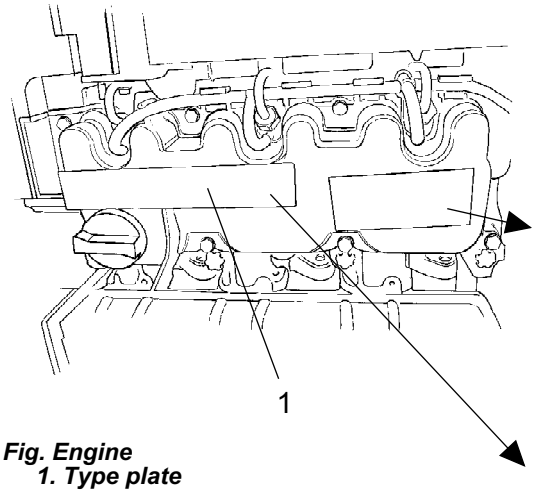


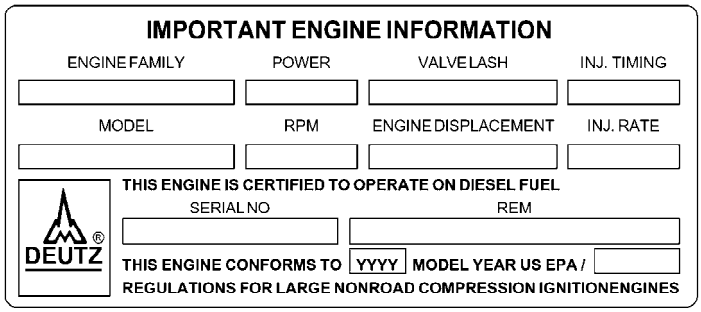
Fig. Engine
1. Type plate

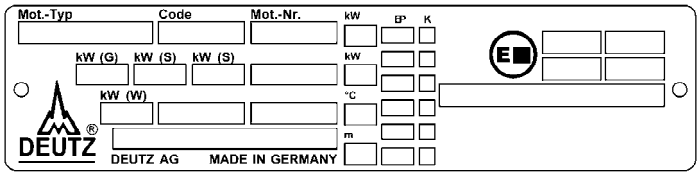
Engine plates

The engine's type plate (1) is located on top of the cylinder head cover.

The plate specifies the type of engine, its serial number and the engine specification.

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





Machine description- Decals

Location - decals

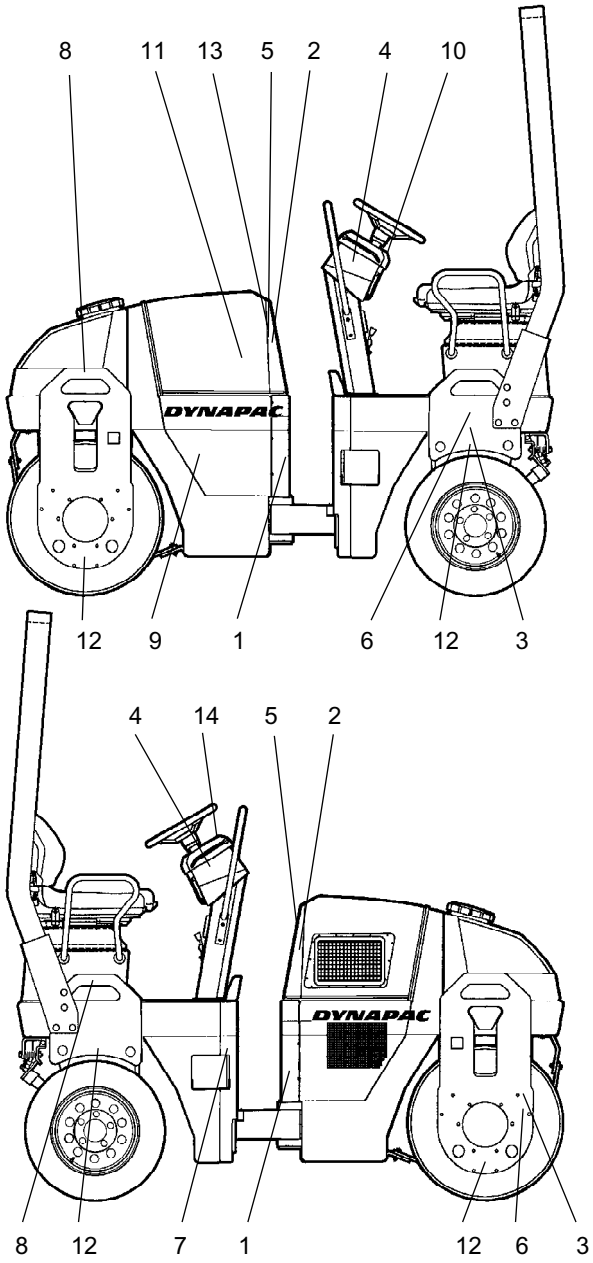


Fig. Location, decals and signs

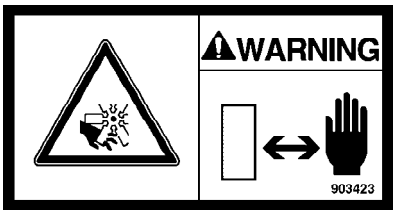
1. Warning, Crush zone
2. Warning, Rotating engine components
3. Warning, Locking
4. Warning, Instruction manual
5. Warning, Hot surfaces
6. Hoisting plate
7. Diesel fuel
8. Lifting point
9. Hydraulic fluid
10. Handbook compartment
11. Battery disconnector
12. Fixing point
13. Acoustic power level
14. Warning sign

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.

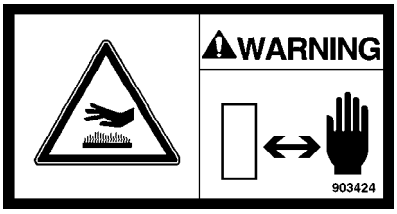
903422
Warning - Crush zone, articulation/drum.

Maintain a safe distance from the crush zone.
(Two crush zones on machines fitted with pivotal steering)



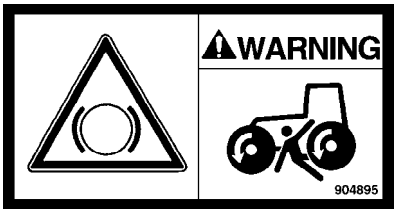
903423
Warning - Rotating engine components.

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



903424
Warning - Hot surfaces in the engine compartment.

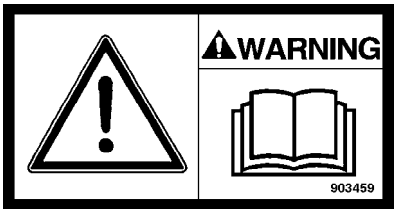
Keep your hands at a safe distance from the danger zone.



904895
Warning - Brake disengagement

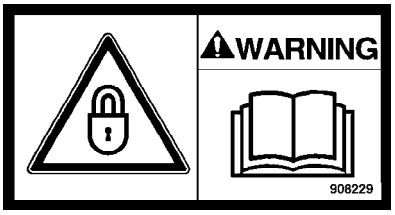
Study the towing chapter before disengaging the brakes.

Danger of being crushed.



903459
Warning - Instruction manual

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



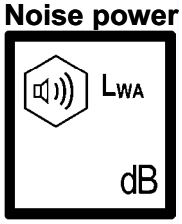
908229
Warning - Locking

The articulation must be locked when lifting.

Read the instruction manual.

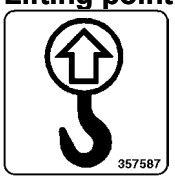
Info decals

Noise power level

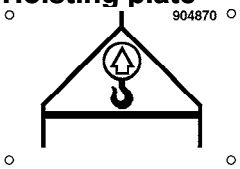


Diesel fuel

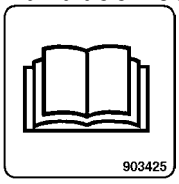
Lifting point



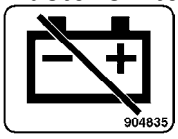
Hoisting plate



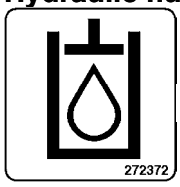
Handbook compartment



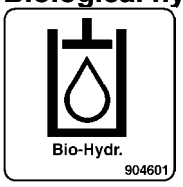
Master switch



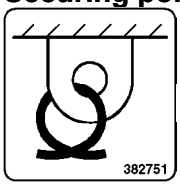
Hydraulic fluid



Biological hydraulic fluid



Securing point



Machine description - Instruments/Controls

Locations - Instruments and controls

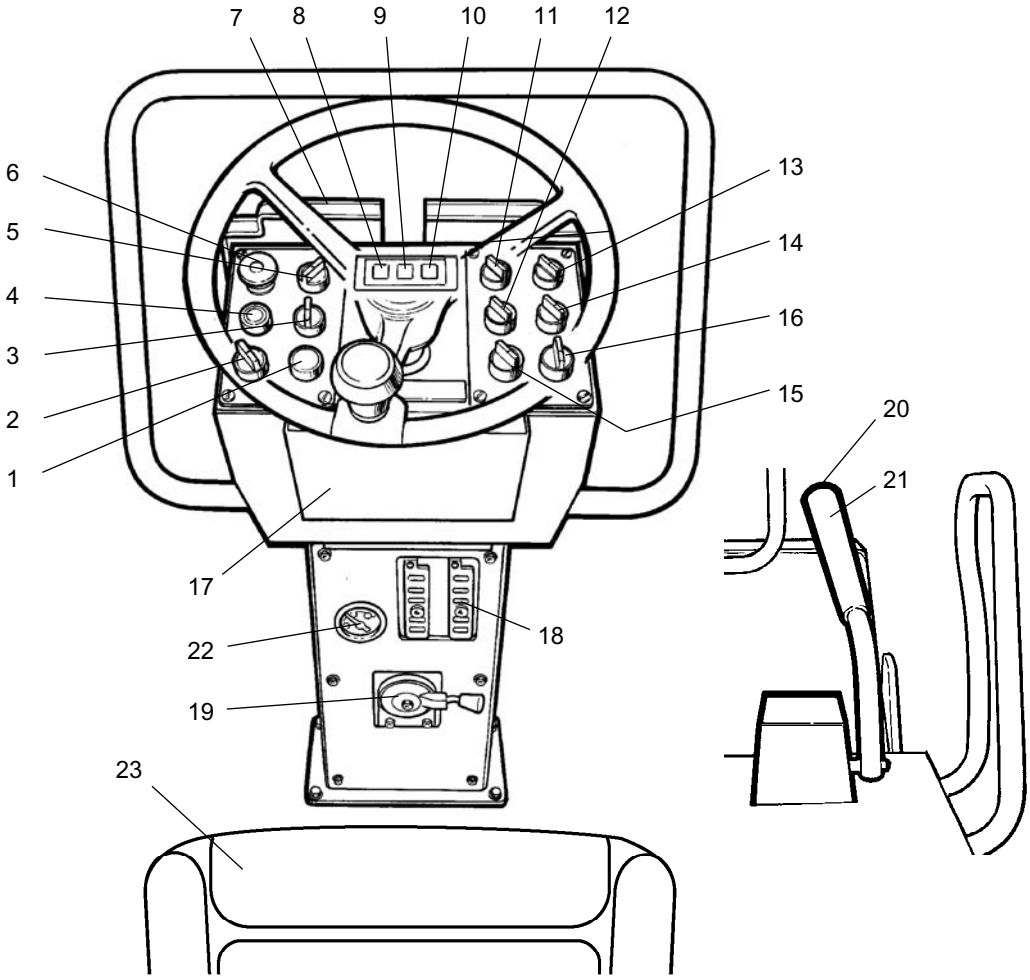
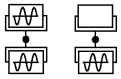


Fig. Instruments and control panel

1. Horn
2. Ignition switch
3. Manual/Automatic sprinkler
4. Start button
5. Manual/Automatic vibration*
6. Reserve/parking brake
7. Instrument cover
8. Warning lamp, charging
9. Brake warning lamp
10. Warning lamp, oil pressure/engine temp.
11. Working lights*
12. Hazard beacon*
13. Driving lights*
14. Vibration, front/rear drum*
15. Hazard lights*
16. Direction indicator*
17. Safety and instruction books
18. Fuse boxes
19. Engine speed control
20. Vibration ON/OFF
21. Forward/reverse lever
22. Fuel gauge*
23. Seat switch

* = Optional

Function descriptions

No	Designation	Symbol	Function
1	Horn, switch		Press to sound the horn.
2	Main switch		The electric circuit is broken.
			All instruments and electric controls are supplied with power.
3	Sprinkler system		Regulates flow of water to drum. MAN position gives continuous watering. In position 0 the watering is turned off. AUT position gives automatic ON/OFF switching of the watering during forward and reverse operation.
4	Start switch		Press to connect starter.
5	Vibration switch (Optional)		Middle position = Vibration turned off. Left position = Vibration on both drums. Right position = Vibration on one drum.
6	Reserve brake/Parking brake		Press to activate the reserve brake. When the machine is stationary, the parking brake is activated. Both brakes are released when pulled out.
7	Instrument cover		Folds over the instrument plate to provide protection from the weather and sabotage.
8	Warning lamp, battery charging		If the lamp goes on while the engine is running, the alternator is not charging. Stop the engine and locate the fault.
9	Brake warning lamp		The lamp come on when the parking or emergency brake knob is depressed and the brakes are applied.
10	Warning lamp, oil pressure, or high oil temperature in engine.		The lamp comes on if the engine oil pressure is too low. Stop the engine immediately and locate the fault.
11	Working light when reversing, switch (Optional)		Turn to right to switch on the working lights.
12	Hazard beacon, switch		Turn to the right to switch on the hazard beacon.
13	Working light forward, switch (Optional)		Lights off.
			Parking lights on
			Front working lights on
14	Vibration, front/rear drum, switch (Optional)		
15	Hazard warning lights, switch		Turn the switch to the right to turn on the hazard warning lights.

No	Designation	Symbol	Function
16	Direction indicator, switch		Turn to the left to switch on the left direction indicators etc. The direction indicators are off in the middle position.
17	Handbook compartment		Pull up and fold open at the top to access the handbooks.
18	Fuse box (on front of steering column)		Contains fuses for electrical system. See under heading "Electrical system" for functional description of the different fuses.
19	Engins speed control, engine		In the right position, the engine idles. In the left position, the engine runs at maximum speed.
20	Vibration On/Off, switch		Push and release the switch to engage vibration, push once more to disengage vibration.
21	Forward/Reverse lever		The lever must be in neutral to start the diesel 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.
22	Warning lamp, low fuel level (Optional)		When the lamp comes on, there is only a small amount of fuel left. Refuel as soon as possible.

Machine description - Electrical system

Fuses

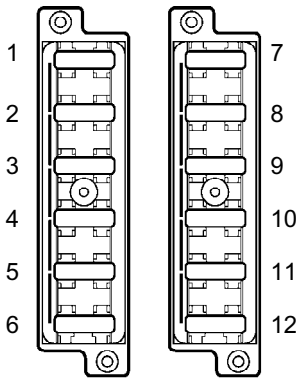


Fig. Fuse box, left and right side.

The figure shows the position of the fuses.

The table below gives fuse amperage and function. All fuses are flat pin fuses.

	Fuse box, left side (standard)			Fuse box, right side (Optional)	
1.	Brake valve, starter relay, hourmeter	10A	7.	Beam forward, position light L, rear light R	15A
2.	VBS relay	7.5A	8.	Beam at rear, position light L, rear light R, plate light	15A
3.	Water pump, neutral relay	10A	9.	Indicators right	5A
4.	Horn, fuel gauge	7.5A	10.	Indicators left	5A
5.	-	7.5A	11.	Hazard beacon	10A
6.	Reversing signal, flow divider	7.5A	12.	Indicator relay	10A

Operation - Starting

Before starting

Master switch - Switching on

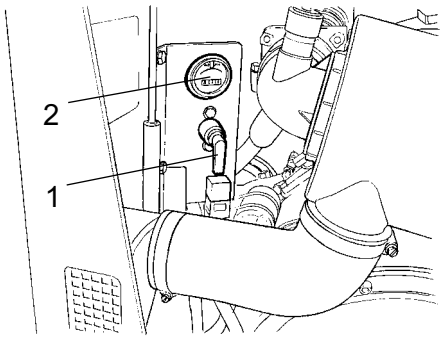


Fig. Engine compartment 1. Battery disconnector
2. Hourmeter

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

The battery disconector is located in the engine compartment. Turn the key (1) to the On position. The roller is now supplied with power.

Pos. (2) is the engine's hourmeter. The hours are counted while the engine is running.

The engine hood must be unlocked when operating, so that the battery can be quickly disconnected if necessary.

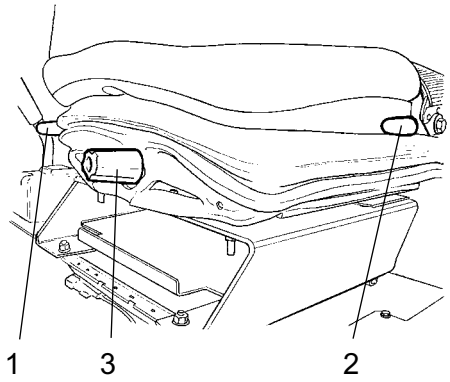


Fig. Driver seat
1. Handle - Length adjustment
2. Handle - Backrest angle
3. Handle - Weight adjustment

Driver seat - Adjustment

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 as follows.

- Length adjustment (1)
- Backrest adjustment (2)
- Weight adjustment (3)

Always check that the seat is in locked position before starting.

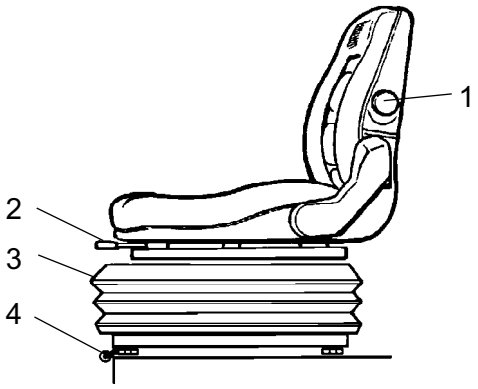


Fig. Comfort seat (Optional)
1. Backrest angle
2. Length adjustment
3. Weight adjustment
4. Sidways adjustment (Optional)

Comfort seat - Adjustment

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 as follows.

- Backrest adjustment (1)
- Length adjustment (2)
- Weight adjustment (3)
- Sideways adjustment (4)

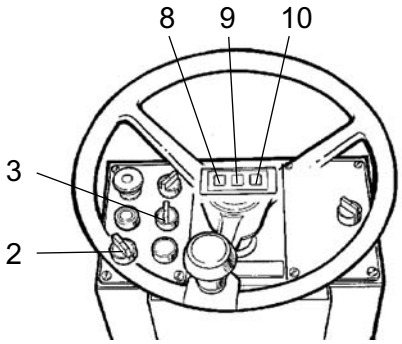


Fig. Instrument panel
2. Ignition switch
3. Sprinkler switch
8,9,10 Warning lamps

Instruments and lamps - Checking

Turn the ignition switch (2) to the right.

Check that the warning lamps 8,9,10 go on.

Turn the switch (3) for the sprinkler to operating position, and check that the system works.

Reserve/Parking brake - Check

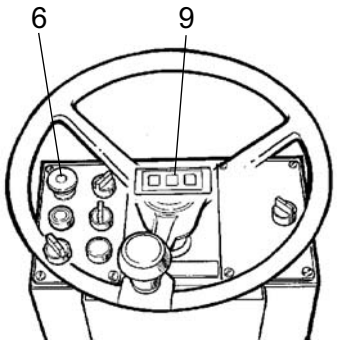


Fig. Instrument panel
6. Reserve/parking brake knob
9. Brake warning lamp

Make sure that the reserve/parking brake knob (6) is really in the depressed position. The roller can start to roll when the engine is started on sloping ground, if the parking brake is not applied.

Operator position

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

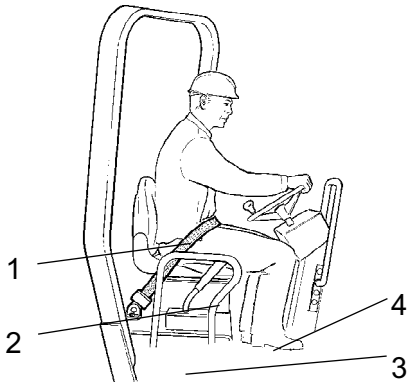


Fig. Driver seat
1. Seat belt
2. Safety rails
3. Rubber element
4. Anti-slip

Always replace the seat belt (1) if it shows signs of wear or has been subjected to excessive strain.

Check that the platform's rubber elements (3) are in good condition. If the elements are worn this will have a negative effect on comfort.

Ensure that the anti-slip (4) on the platform is in good condition. Replace where anti-slip friction is poor.

Starting

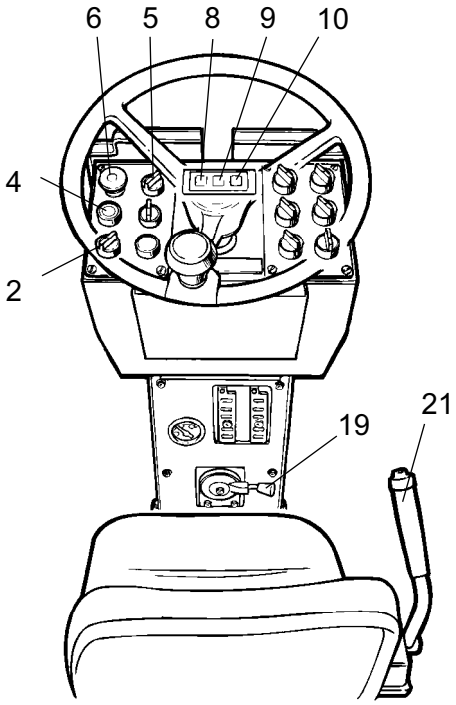


Fig. Instrument column
2. Ignition switch
4. Start switch
5. Vibration switch
6. Reserve/parking brake knob
8. Charging lamp
9. Brake warning lamp
10. Oil pressure/Engine temperature lamp
19. Engine speed control
21. Forward/Reverse lever

Starting the engine

Set the forward/reverse lever (21) in neutral. You cannot start the engine if the lever is in any other position.

On some models the F/R lever is placed on the side of the instrument panel, but the function is the same.

Set the vibration switch (5) for manual/automatic vibration to the 0 position.

Set speed control (19) to**at least** half throttle. (On some models the control is placed on the right side of the instrument panel).

Turn the ignition switch (2) to the right to position I. Press the start switch (4). Release the start switch as soon as the engine starts.

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

Let the engine idle for a few minutes to warm, longer if the ambient temperature is below +10°C (50°F).

While the engine is warming up, check that the warning lamps for oil pressure (10) and charging (8) have gone off. The warning lamp (9) for the reserve/parking brake should still be on.

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

When starting up and driving a cold machine, which implies cold hydraulic fluid, the braking distance will be longer than normal until the machine reaches working temperature.

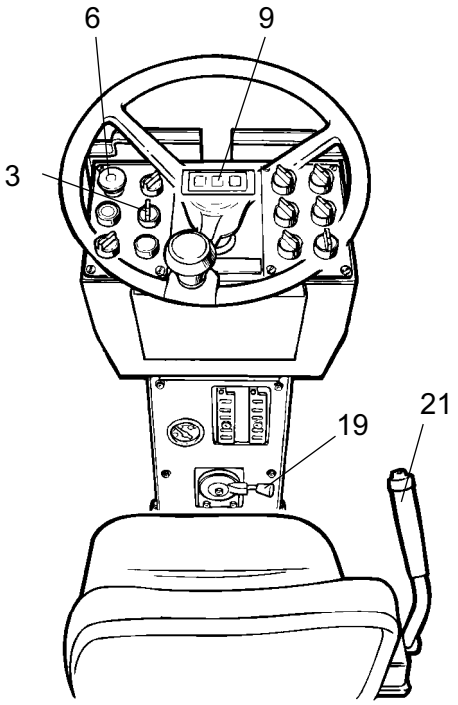


Fig. Instrument panel
3. Sprinkler switch
6. Reserve/parking brake knob
9. Brake warning lamp
19. Engine speed control
21.Forward/reverse lever

Operation - Driving

Operating the roller

The machine must in no circumstances be operated from the ground. The operator must be siting in the driver seat at all times when the machine is in operation.

Turn the engine speed control (19) and lock it in the working position.

Check that the steering is working properly 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 (3).

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

Pull up the reserve/parking brake knob (6) and check that the parking brake warning lamp is off. Be aware that the roller can start to roll if it is standing on a slope.

Carefully move the forward/reverse lever (21) forwards or backwards, depending on which direction of travel is required. The 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.

Check the reserve brake by pressing the reserve/parking brake knob (6) while the roller is moving forwards slowly.

Interlock (Optional)

The interlock (Optional) should be checked when the machine is on a level surface and the forward/reserve lever is in neutral.

Pull up the reserve/parking brake knob (6) and check that the parking brake warning lamp is off. The engine switches off after about 4 seconds if the operator rises from the seat. (This happens regardless of whether the forward/reverse lever is in the neutral or the drive position.)

The diesel engine is not affected if the driver rises from the seat when the parking brake is applied.

Operation - Vibration

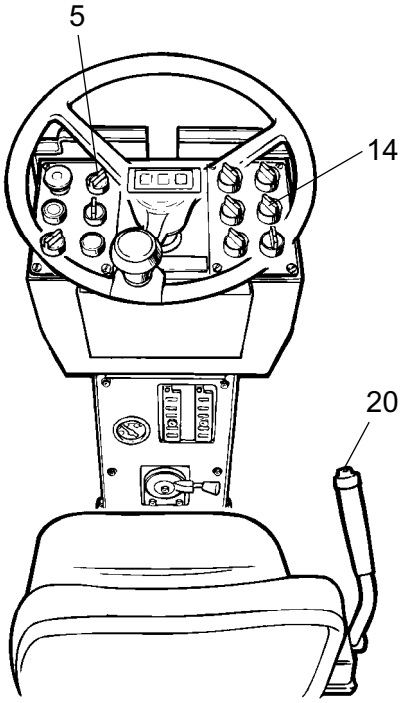


Fig. Instrument column
5. Vibration switch
14. Vibration front/rear drum (Optional)
20. Vibration On/Off

Manual/Automatic vibration

Select manual or automatic switching ON/OFF with the switch (5).

In manual mode, the operator must activate vibration via the switch (20) on the forward/reverse lever.

In the automatic position, vibration is activated when the preset speed is reached.

Even switching off is automatic when the lowest speed is reached.

Manual vibration - Switching on

Engage and disengage vibration using the switch (20) on the forward/reverse lever. Always switch off the vibration before the roller comes to a standstill.

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

Vibration on one drum (Optional)

The switch (14) is used to select vibration with the rear drum only, or with two drums.

When the vibration is on the operator must activate vibration via the switch (20) on the forward/reverse lever.

In the left position the vibration is activated on both drums.

In the right position the vibration is activted on the rear drum/front drum.

Operating - Stopping

Braking

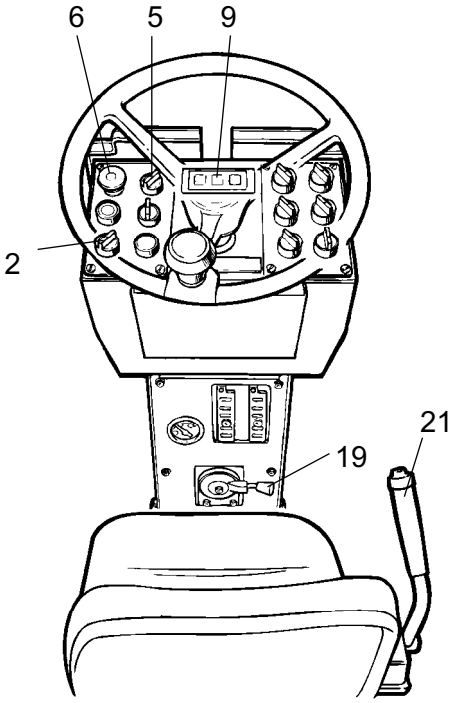


Fig. Control panel
2. Ignition switch
5. Vibration switch
6. Reserve/parking brake knob
9. Brake warning lamp
19. Engine speed control
21.Forward/reverse lever

Emergency brake

Braking is normally activated by using the forward/reverse lever. The hydrostatic transmission brakes the roller when the lever is moved to the neutral position.

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

To brake in an emergency, press the reserve/parking brake knob (6), hold the steering wheel firmly, and prepare for a sudden stop.

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

Normal braking

Switch off the vibration by pressing the button on the forward/reverse lever (21).

Set the forward/reverse lever (21) in the neutral position to stop the roller.

Always press the reserve/parking brake knob (6) even for short stops on sloping ground.

Turn the engine speed control (19) back to the idling position, and allow the engine to idle for a few minutes to cool down.

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.

Switching off

Push in the reserve/parking brake knob(6).

Check the instrument and warning lamps to see if there are any faults. Switch off the lighting and other electrical functions.

Turn the starter switch (2) to position 0. Lower the instrument cover and lock it.

Parking

Chocking the drums

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

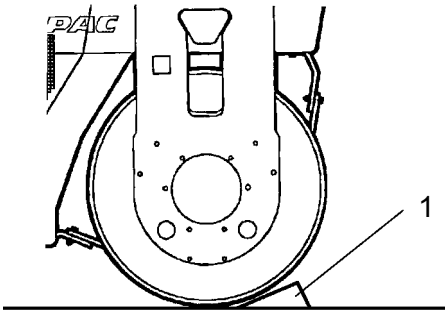


Fig. Drum part
1. Chocks

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.

Remember that there is a risk of freezing during the winter. Empty the water tank. Fill antifreeze in the engine's cooling system. See also maintenance instructions.

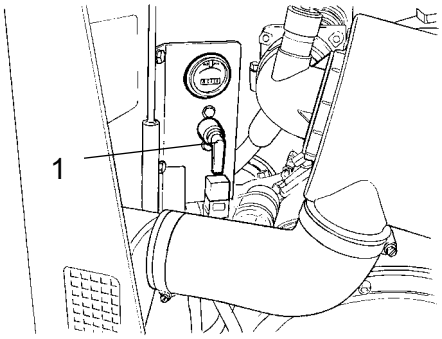


Fig. Battery compartment
1. Battery disconnector

Battery disconnector

Before leaving the roller at the end of the shift, switch off the battery disconnector (1) and remove the key.

This will prevent battery discharging and will also make it difficult for unauthorized persons to start and operate the machine. Lock also the engine cover.

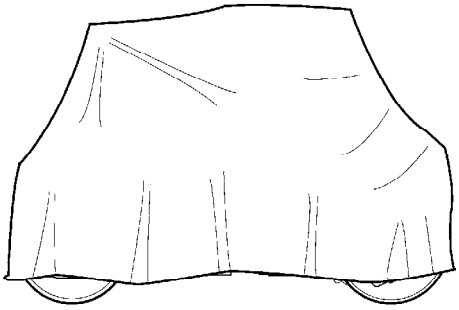


Fig. Roller weather protection

Long-term parking

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

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 the battery, check that the electrolyte level is correct (see under the heading 'Every 50 hours of operation') and trickle-charge the battery once a month.

Air cleaner, exhaust pipe

* Cover the air cleaner (see under the heading 'Every 50 hours of operation' or 'Every 1000 hours of operation') or its opening with plastic or tape. Also cover the exhaust pipe opening. This is to avoid moisture entering the engine.

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.’)

Water tank

Empty the water tank completely to avoid fouling.

Steering cylinder, hinges, etc.

Lubricate the steering joint bearings and both bearings on the steering cylinder with grease (see under the heading 'Every 50 hours of operation').

Grease the steering cylinder piston with conservation grease.

Grease the hinges on the doors to the engine compartment and the cab. 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

Lifting

Locking the articulation

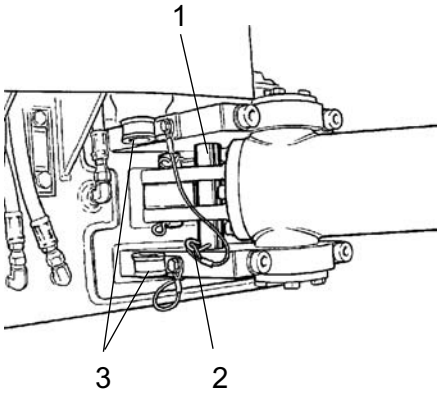


Fig. Left side of steering joint
1. Lock bar
2. Lock pin
3. Holder

Before lifting the roller the steering joint must be locked to prevent it turning.

Turn the steering wheel to the straight ahead position. Push in the emergency/parking brake knob.

Pull down the galvanized lock bar (1) from its holder (3), and insert it from underneath in the hole on the lower steering joint bracket. Press the bar through until the upper end can be seen in the hole on the upper bracket.

Secure the bar with the lock pin (2).

Lifting the roller

Weight: refer to the hoisting plate on the roller

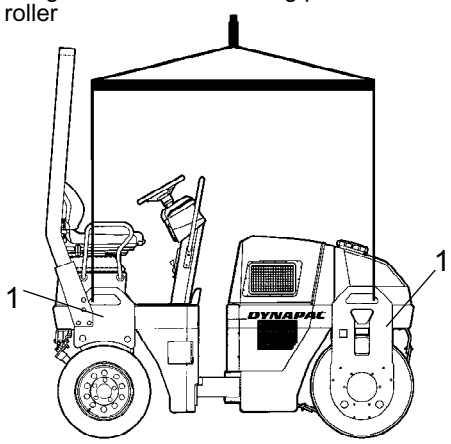


Fig. Lifting the roller
1. Lifting plate

The weight of the machine is shown on the lifting plate (1). See also Technical specifications.

Lifting equipment such as chains, steel wires, straps and lifting hooks must be dimensioned in accordance with the relevant safety regulations for the lifting equipment.

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

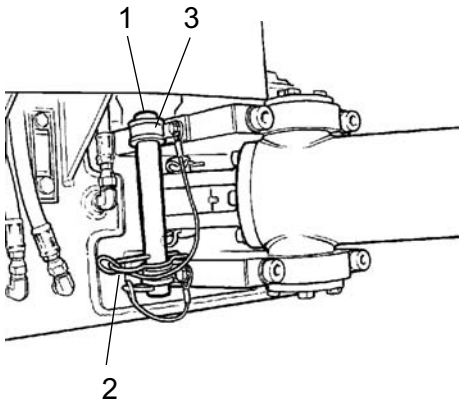


Fig. Left side of steering joint
1. Lock bar
2. Lock pin
3. Holder

Unlocking the articulation

Remember to refit the lock bar (1) in its holder after operation.

Towing

The roller can be moved up to 300 meters (1,000 ft) using the instructions below.

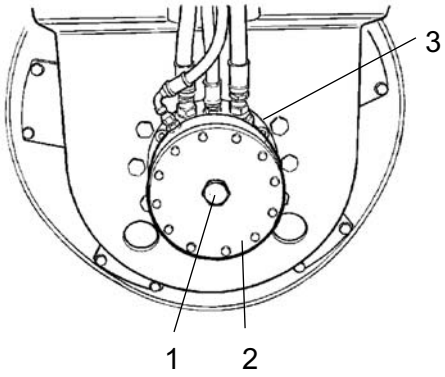


Fig. Left drum side
1. Release screw
2. Brake housing
3. Drive motor

Releasing the brake (Optional)

The following instruction refers to CC102/102C/CC122/122C, and CC142C rear wheel motors.

Press in the reserve/parking brake knob, and stop the engine.
Block the drum with a chock to prevent movement.
The roller can start rolling when the brakes are disengaged.

The disc brakes in each drive motor must be released mechanically as shown below before the towing the roller.

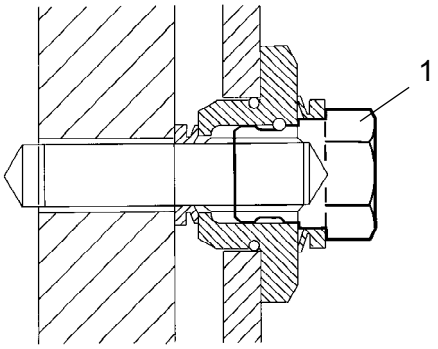


Fig. Brake housing
1. Release screw

Use a key with an 18 mm socket.

Turn the release screw (1) a 1 1/2 turn clockwise to release the brake.

Release the brakes on both drums.

Turn the same screws a 1 1/2 turn anticlockwise to activate the brakes again after towing.

Towing the roller

The roller must be counter-braked during towing/recovery. Always use a towbar. There is no braking capacity on the roller now.

The roller must be towed slowly, max. 3 kph (2 mph) and only towed short distances, max. 300 m (1000 ft).

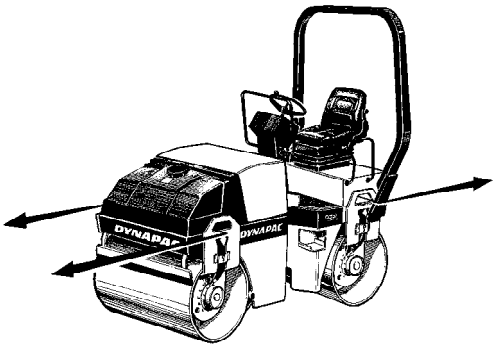


Fig. Towing

When towing/retrieving a machine, the towing device must be connected to both lifting holes. The pulling force shall act longitudinally on the machine as shown in the figure. Maximum total pulling force 130 kN (29225 lbf).

Reverse the towing preparations.

Roller prepared for transport

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

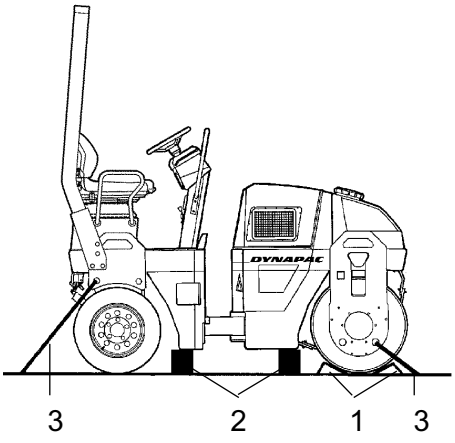


Fig. Arrangement
1. Chocks
2. Wooden blocks
3. Lashing straps

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

Block up under the drum frame (2), to avoid overloading the rubber suspension when lashing.

Secure down the roller with lashing straps (3) at all four corners. The attachment points are shown on the decals.

Remember to reset the steering joint lock to its open position before starting the roller again.

Retractable ROPS (Optional)

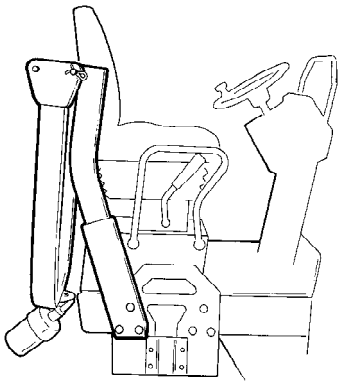


Fig. Retractable ROPS

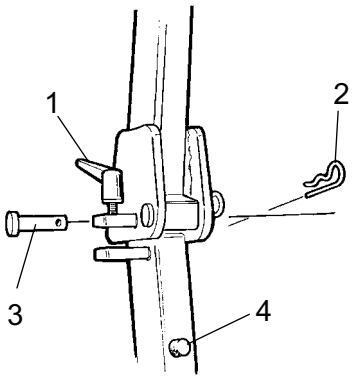


Fig. ROPS locking device
1. Tensioning screw
2. Pin
3. Stud
4. Rubber buffer

The machine can be equipped with retractable ROPS.

Risk of crush injury when raising and lowering ROPS.

If the roller is equipped with a retractable ROPS, the machine must only be operated when it is lifted up and locked.

To retract the ROPS, release the tensioning screw (1), and pull out the pin (2) and stud (3). Do the same on both sides. Lower the ROPS backwards if there is space.

After lowering the ROPS, replace the pin and stud.

To lift the RPOS proceed in the reserve order.

Always make sure the ROPS is locked in raised position before operation.

Grease the tensioning screw (1) and stud (3) periodically.

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. Turn the master switch to the ON position.

4. Move the forward/reverse lever to the NEUTRAL position.

5. Set the vibration switch for Manual/Automatic in position 0.

6. Set the engine speed control to idle.

7. Start the engine and allow it to warm up.

8. Set the engine speed control to the operating position.

9. Set the reserve/parking brake knob in the pulled-out position.

10. **Operate the roller. Handle the forward/reverse lever with care.**

11. **Check the brakes. Remember that the braking distance will be longer if the roller is cold.**

12. Use vibration only when the roller is in motion.

13. Check that the drums are thoroughly watered when watering is required.

14. **IN AN EMERGENCY:**
    - Push in the EMERGENCY/PARKING BRAKE KNOB
    - Hold the steering wheel firmly.
    - Brace yourself for a sudden stop.

15. When parking:
    - Push in the emergency/parking brake knob.
    - Stop the engine and chock the drums.

16. When lifting: - Refer to the relevant section in the Instruction Manual.

17. When towing: - Refer to the relevant section in the Instruction Manual.

18. When transporting: - Refer to the relevant section in the Instruction Manual.

19. When recovering - Refer to the relevant section in the Instruction Manual.

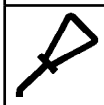
Maintenance - Lubricants and symbols

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 Rimula Super 15W/40, API CH-4 or equivalent.
	**HYDRAULIC FLUID**	Air temperature -15°C - +40°C (5°F-104°F) Shell Tellus T68 or equivalent. Air temperature over +40°C (104°F) Shell Tellus T100 or equivalent.
	**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 80W/90, API GL-5 or equivalent. Air temperature 0°C (32°F) - over +40°C (104°F) Shell Spirax AX 85W/140, API GL-5 or equivalent.
	**GREASE**	Shell Retinax LX2, 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

Maintenance - Maintenance schedule

Service and maintenance points

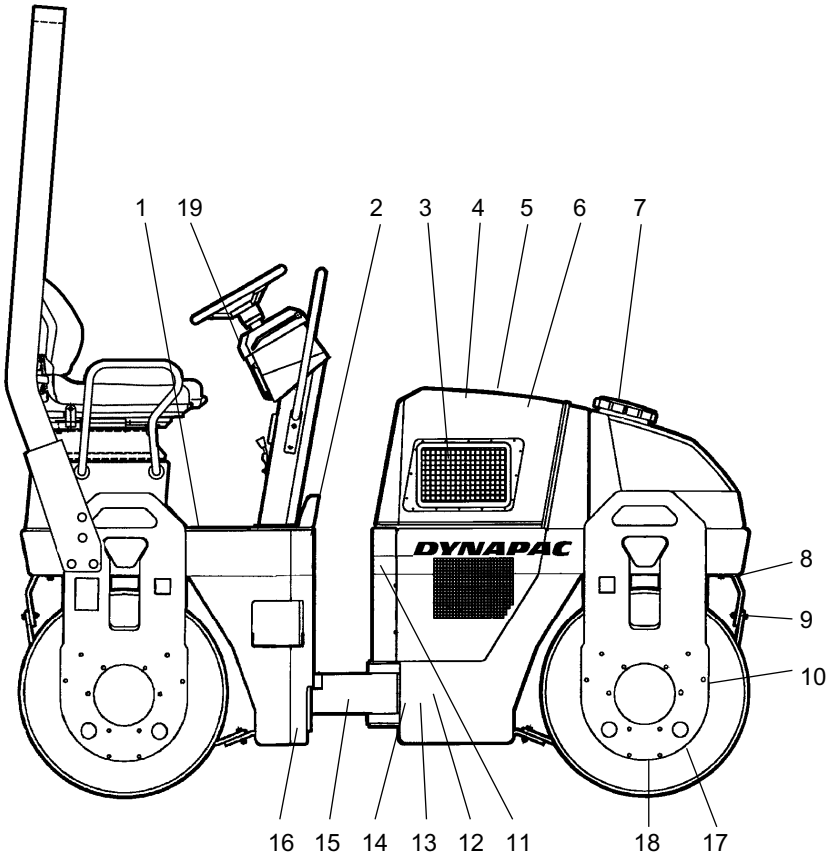


Fig. Service and maintenance points

1. Fuel tank
2. Refueling
3. Cooler
4. Air cleaner
5. Battery
6. Diesel engine
7. Water tank
8. Sprinkler system
9. Scrapers
10. Shock absorbers and attachment screws
11. Hydraulic fluid refilling
12. Hydraulic fluid tank
13. Hydraulic fluid filter
14. Hydraulic fluid level glass
15. Steering joint
16. Steering cylinder bracket
17. Filler plugs/Drum
18. Oil level in drum
19. Reserve/parking brake knob

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.

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.

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 engine oil level	Refer to the engine manual
14	Check the hydraulic reservoir level	
3	Check for free circulation of cooling air	
1	Fill the fuel tank	
7	Fill the water tank	
8	Check the sprinkler system	
9	Check the scraper setting	
19	Test the brakes	

After the FIRST 50 hours of operation

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
6	Change the engine oil and oil filter	Refer to the engine manual
6	Change the fuel filter	Refer to the engine manual
13	Change the hydraulic fluid filter	
10	Check bolted joints	

Every 50 hours of operation (Weekly)

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
4	Check indicator for air cleaner Check that the air hoses are in good condition and that the connections are tight	
15	Grease the steering joint	
16	Grease the steering cylinder brackets	

Every 250 hours of operation (Monthly)

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
3	Clean the hydraulic fluid cooler	
5	Check the electrolyte level in the battery	
6	Clean the engine cooling flanges	Refer to the engine manual

Every 500 hours of operation (Every three months)

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
18	Check the oil level in the drums	
10	Check rubber elements and bolted joints	
11	Check the hydraulic reservoir cover/breather	
6	Lubricate hinges and controls	
6	Change the engine oil and oil filter	Refer to the engine manual
6	Check engine's V-belt	Refer to the engine manual

Every 1000 hours of operation (Every six months)

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
13	Change the hydraulic fluid filter	
12	Drain condensate from hydraulic tank	
6	Change the engine's fuel filter	
6	Change the engine's pre-filter	
6	Check the engine's toothed belt	Refer to the engine manual
6	Check engine's valve clearances	Refer to the engine manual

Every 2000 hours of operation (Yearly)

See Contents to find the page number of the sections referred to!

Pos. in fig	Action	Comment
12	Change the hydraulic fluid	
18	Change the oil in the drums	
7	Drain and clean the water tank	
1	Drain and clean the fuel tank	
10	Check the condition of the articulation	

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.

Hydraulic reservoir, Level check - Filling

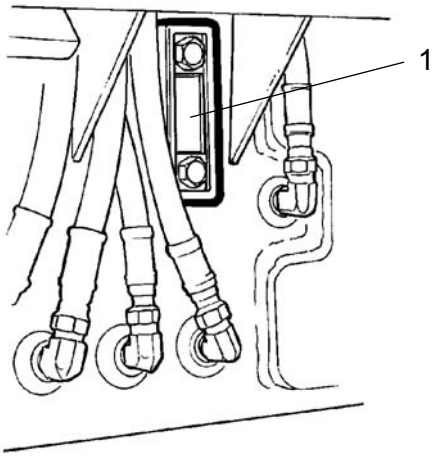


Fig. Hydraulic fluid tank
1. Sight glass

Check that the level is between the min and max markings. Top up with hydraulic fluid as per lubricant specifications if level is too low.

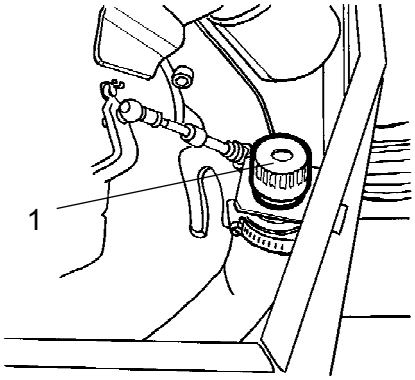


Fig. Engine compartment
1. Hydraulic fluid refilling

Open the hood and unscrew the filler cap (1), top up with hydraulic fluid if the level is too low.

Air circulation - Check

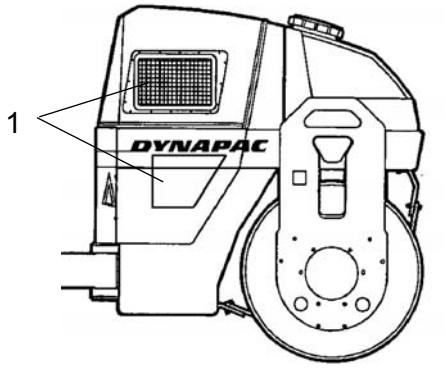


Fig. Right drum side
1. Cooling air grille

Check that the engine has free circulation of cooling air through the grille (1) in the engine compartment.

Fuel tank - Filling

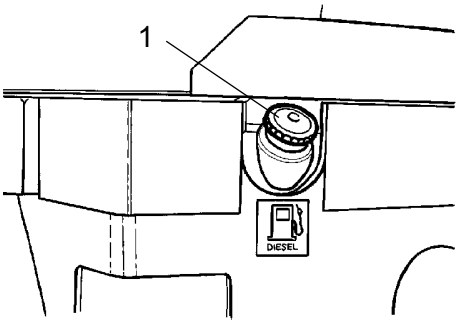


Fig. Fuel tank
1. Filler cap

Refuel every day before starting to work. Screw off the lockable tank cap (1) and fill diesel fuel to the lower edge of the filler pipe.

Stop the diesel engine. Short-circuit (press) the filler gun against a non-insulated part of the roller before refuelling, and against the filler pipe while refuelling.

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

The fuel tank holds 50 liters.

Water tank - Filling

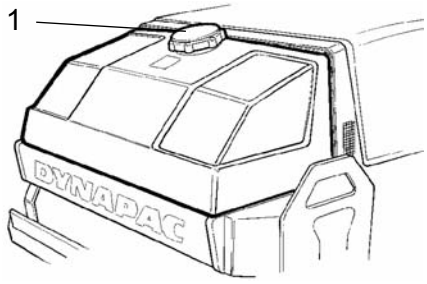


Fig. Water tank
1. Tank cap

Unscrew the tank cap (1) and fill with clean water. Do not remove the strainer. See technical specifications for the tank volume.

Only additive: A small amount of environment-friendly antifreeze.

Sprinkler system/Drum Checking - Cleaning

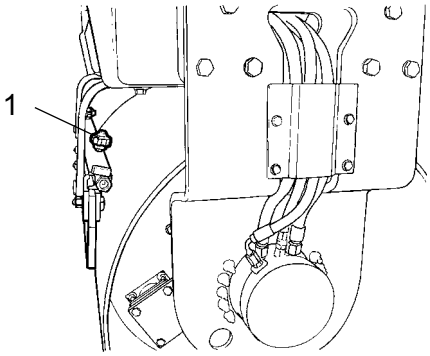


Fig. Drum
1. Nozzle

Start the sprinkler system and make sure that no nozzles (1) are clogged. If necessary, clean clogged nozzles and the coarse filter located by the water pump; see figures below.

The sprinkler system should be drained if there is a risk of freezing.

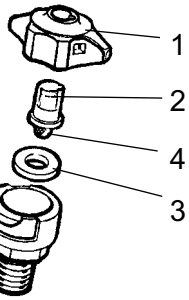


Fig. Nozzle
1. Sleeve
2. Nozzle
3. Gasket
4. Strainer

Dismantle the blocked nozzle by hand. Blow the nozzle (2) and fine filter (4) clean with compressed air, or install replacement parts and clean the clogged parts later.

Wear protective goggles when working with compressed air.

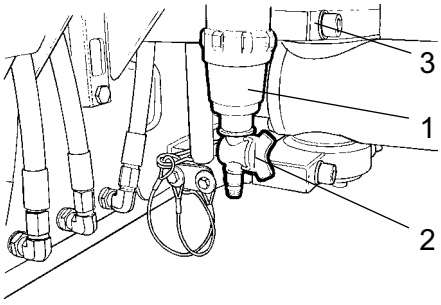


Fig. Pump system
1. Water filter
2. Stop cock
3. Water pump

When cleaning the coarse filter (1), open the cock (2) and loosen the filter housing.

Clean the filter and filter housing. Check that the rubber gasket in the filter housing is intact.

After inspecting and carrying out any necessary cleaning, start the system and check that it works.

A drain cock is placed on the left side of the pump system area. This can be used to drain the tank and the pump system.

Scrapers, fixed
Checking - Setting

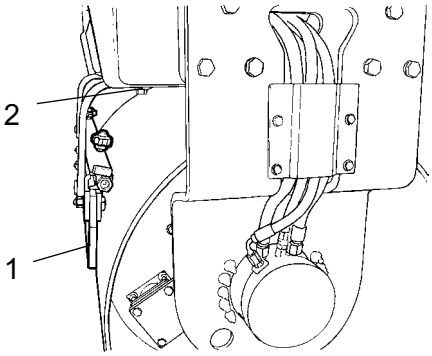


Fig. Drum
1. Scraper blade
2. Adjusting screws

Make sure that the scrapers are undamaged. Adjust the scrapers so that they are 1-2 mm from the drum. For special asphalt compounds, it may be better if the scraper blades (1) lie lightly against the drums.

Asphalt remnants can accumulate on the scraper and affect the contact force. Clean as required.

Loosen the screws (2) to adjust the contact pressure of the scraper blade against the drum.

Remember to tighten all the screws after any adjustment.

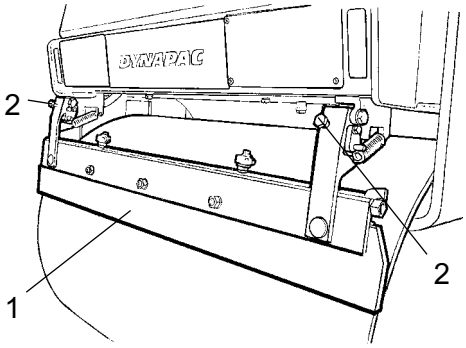


Fig. Spring-action scrapers
1. Scraper blade
2. Adjusting screws

Scrapers, spring-action (Optional) Checking - Adjustment

The scrapers must be lifted from the drum during transport.

Brakes - Check

Check the operation of the brakes as follows:

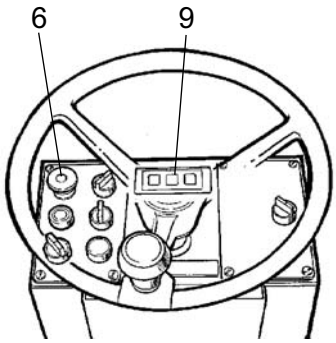


Fig. Instrument panel
6. Reserve/parking brake knob
9. Brake warning lamp

Drive the roller slowly forward.

Push in the reserve/parking brake knob (6). The brake warning lamp (9) on the instrument panel should no go on and the roller should stop.

After testing the brakes, set the forward/reverse lever (2) in neutral.

Pull up the reserve/parking brake knob.

The roller is now ready for operation.

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.

Air cleaner
Check - Replacement of main filter

Replace the air cleaner's main filter when the indicator shows red. The indicator is mounted on the air cleaner's connecting pipe.

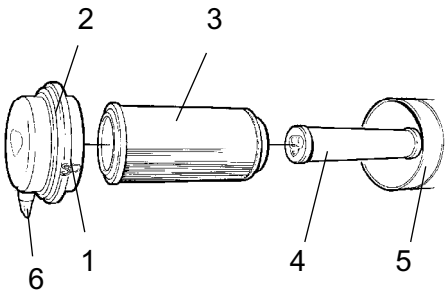


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

Release the clips (1), pull off the cover (2), and pull out the main filter (3).

Do not remove the backup filter (4).

Clean the air cleaner if necessary, see section Air cleaner - Cleaning.

When replacing the main filter (3), insert a new filter and refit the air cleaner in the reverse order.

Check the condition of the dust valve (6); replace if necessary.

When refitting the cover, make sure that the dust valve is positioned downwards.

Air filter indicator - Resetting

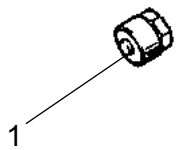


Fig. Indicator
1. Button

The air filter indicator is located on the filter, or in its immediate vicinity.

The air filter indicator must be reset after replacing the air filter.

Press the "button" (1) on the top of the indicator to reset.

Backup filter - Change

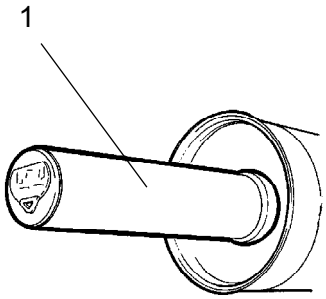


Fig. Air filter
1. Backup filter

Change the backup filter with a new filter after every third replacement of the main filter.

The safety filter must not be cleaned.

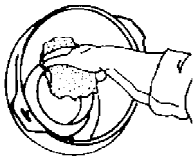
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

Clean the air cleaner if necessary, see section Air cleaner - Cleaning.

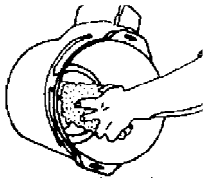
Air cleaner - Cleaning

Wipe clean the inside of the cover (2) and the filter housing (5). See the previous illustration.

Wipe clean on both sides of the outlet pipe.



Inner edge of outlet pipe.



Outer edge of outlet pipe.

Wipe also both surfaces for the outlet pipe; see adjacent figure.

Check that the hose clamps between the filter housing and the suction hose are tight and that the hoses are intact. Inspect the entire hose system, all the way to the engine.

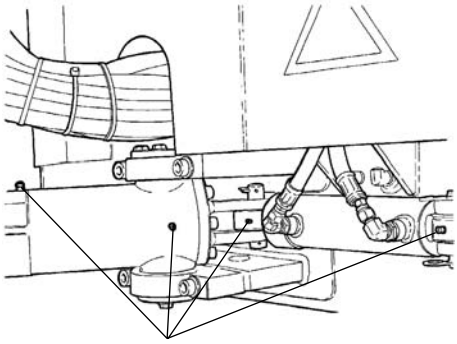


Fig. Main filter
1. Grease nipples

Steering cylinder and steering joint - Lubrication

Do not allow anyone to remain in the vicinity of the steering joint when the engine is running. Risk of being crushed when the steering is operated. Push in the reserve/parking brake knob before greasing.

Turn the steering wheel fully to the left. All four grease nipples (1) can now be accessed from the right side of the machine.

Wipe the grease nipples (1). Grease each nipple with five strokes of the hand-operated grease gun. Make sure that grease penetrates into the bearing. If grease does not penetrate the bearings, it may be necessary to relieve the articulation joint with a jack while repeating the greasing process.

Maintenance - 250h

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.

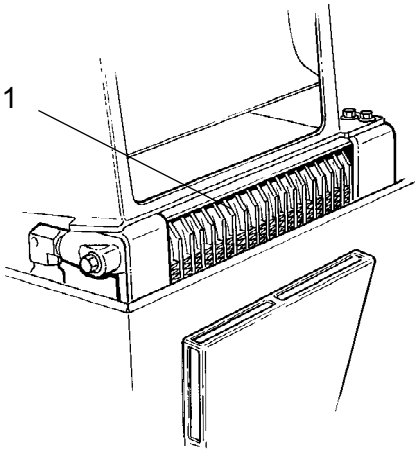


Fig. Engine compartment
1. Hydraulic fluid cooler

Hydraulic fluid cooler
Checking - Cleaning

Make sure that the air flow through the cooler is unobstructed. Dirty coolers are blown clean with compressed air or washed clean using a high-pressure water cleaner.

Blow air or direct water through the cooler in the opposite direction to that of the cooling air.

Take care when using a high-pressure water jet. Do not hold the nozzle too near the cooler.

Wear protective goggles when working with compressed air or high-pressure water jets.

Battery - Checking electrolyte level

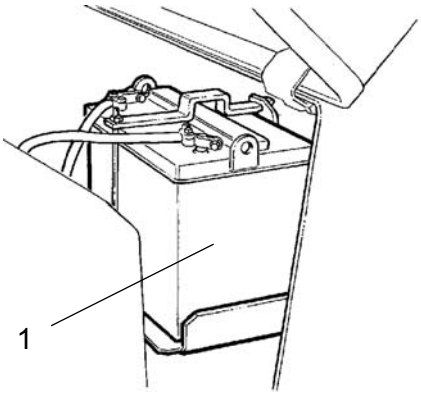


Fig Battery compartment
1. Battery

Open the hood.

Wipe the top of the battery.

Wear safety goggles. The battery contains corrosive acid. In the event of contact with the acid, rinse with water.

Make sure there are no naked flames in the vicinity when checking the electrolyte level. Explosive gas is formed when the alternator is charged.

When disconnecting the battery, always disconnect the negative cable first. When connecting the battery, always connect the positive cable first.

The cable shoes should be clean and well-tightened. Corroded cable shoes should be cleaned and greased with acid-free Vaseline.

Battery cell
Electrolyte level

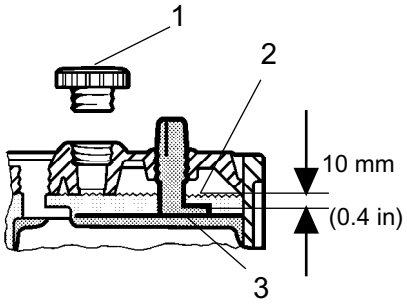


Fig. Electrolyte level in battery
1. Cell cap
2. Electrolyte level
3. Plate

Remove the cell caps and check that the electrolyte is about 10 mm (0.4 in) above the plates. Check the level of all cells. If the level is below this, top off to the correct level with distilled water.

If the ambient temperature is below freezing, the engine should be run for a while before topping the battery off with distilled water . The electrolyte can otherwise freeze.

Check that the ventilation holes in the cell covers are not blocked and refit the covers.

Discard used batteries properly. Batteries contain lead, which is harmful to the environment.

Before carrying out any electric welding on the machine, disconnect the battery ground cable and then all electrical connections to the alternator.

Battery (maintenance-free)

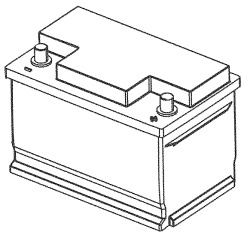


Fig. Battery

The battery is sealed and maintenance-free.

Make sure there is no open flame in the vicinity when checking the electrolyte level. Explosive gas is formed when the alternator charges the battery.

When disconnecting the battery, always disconnect the negative cable first. When connecting the battery, always connect the positive cable first.

The cable shoes should be clean and well-tightened. Corroded cable shoes should be cleaned and greased with acid-free Vaseline.

Wipe the top of the battery.

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.

Drum - oil level
Inspection - filling

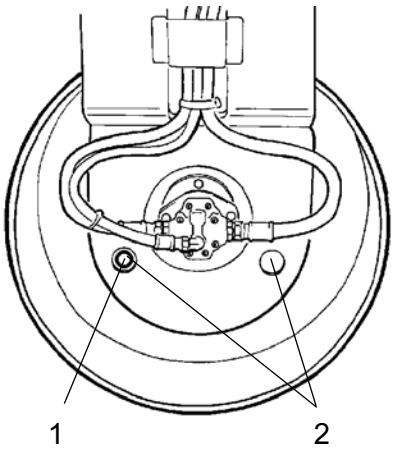


Fig. Drum, vibration side
1. Oil plug
2. Inspection hole

Run the roller slowly until the oil plug (1) is opposite one of the inspection holes (2).

Unscrew the plug and check that the oil level reaches up to the bottom of the hole. Top up with new oil if necessary. Use oil as per the lubricant specification.

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

Rubber elements and attachment screws
Check

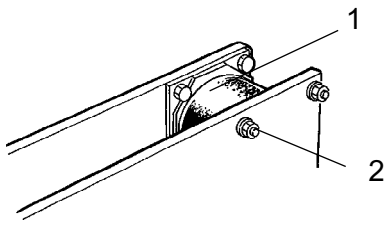


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

Check all rubber elements (1). Replace all elements where more than 25% of the elements on one side of the drum have cracks deeper than 10-15 mm (0.4-0.6 in).

Check using a knife blade or pointed object.

Check also that the attachment screws (2) are tightened.

Hydraulic reservoir cap - Check

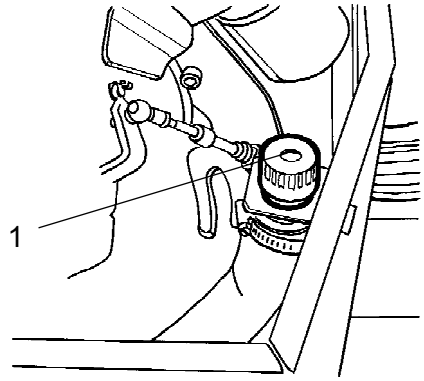


Fig. Engine compartment
1. Filler cap

Screw off the tank cap and check that it is not clogged. Air must have unobstructed passage through the cap in both directions.

If clogged in either direction, clean with a little diesel oil and blow with compressed air until free passage is assured or replace the cap with a new one.

Wear protective goggles when working with compressed air.

Controls - Lubrication

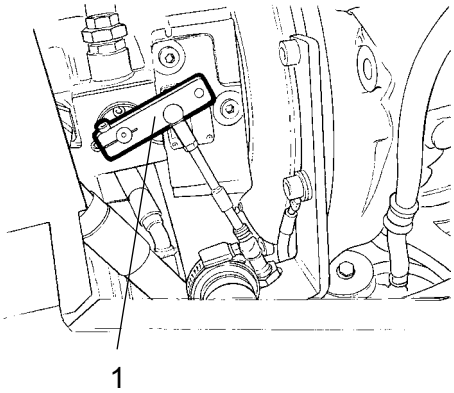


Fig. Engine compartment
1 Forward/Reverse lever

Lubricate the forward/reverse lever in the engine compartment with a few drops of oil.

If the lever gets stiff after a prolonged period of use, remove the cover and lever and lubricate.

Controls - Lubrication

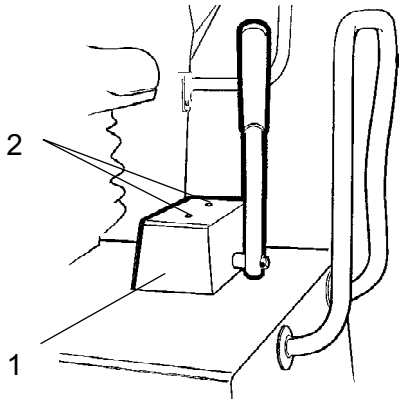


Fig. Driver seat
1. Forward/Reverse lever
2. Attachment screws

Lubricate the forward/reverse lever mechanism.

Remove the cover (1) by loosening the screws (2) on the top, and lubricate the mechanism under the cover with oil.

Diesel engine - Oil change

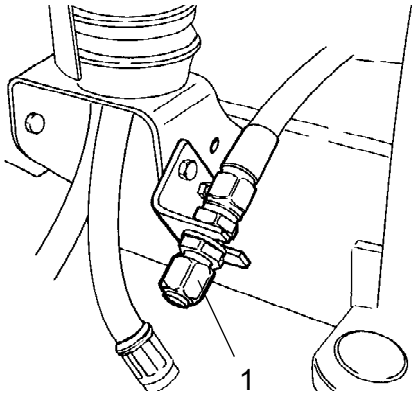


Fig. Engine compartment, right side
1. Draining the oil

Run the engine warm before draining the oil.

Place a receptacle that holds at least 8 liters (2 gal) under the drain plug.

Take great care when draining engine oil. Wear protective gloves and goggles.

Unscrew the drain plug (1). Allow all the oil to drain out and refit the plug.

Fill with new engine oil; see Lubricant specification or the engine manual for the correct grade of oil.

Check the dipstick to make sure that the oil level in the engine is correct. For further details, refer to the engine manual.

Oil filter - Replacement

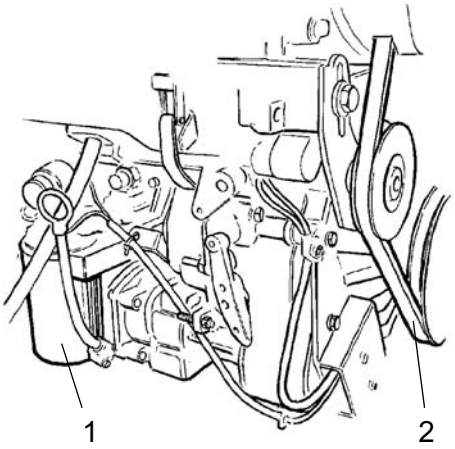


Fig. Diesel engine
1. Oil filter
2. V-belt

Remove the oil filter (1). Scrap this, and fit a new one.

Check that the belt (2) is not cracked or otherwise damaged. Replace if necesssary.

Check the belt tension. Tension the belt if it can be pressed in with the thumb more than 10 mm midway between the pulleys.

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

Start the engine and check that the filter and drain plug are well sealed.

Maintenance - 1000h

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.

Replacing the hydraulic oil filter

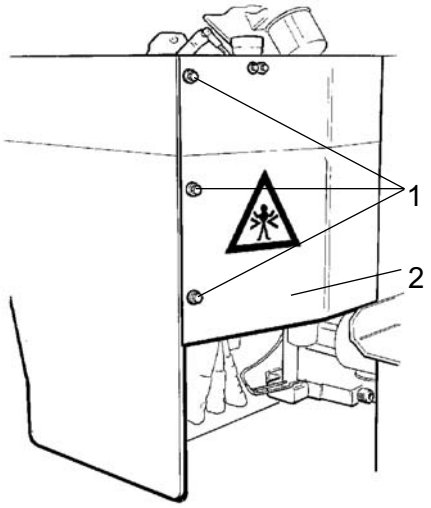


Fig. Engine compartment
1. Attachment screws 2. Protective plate

Loosen the six screws (1).

Remove the protective plate (2).

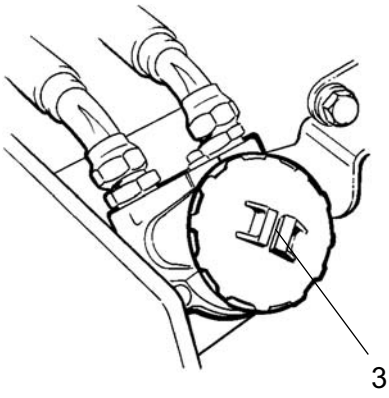


Fig. Hydraulic oil filter
3. Cap

Loosen the red cap (3) and pull up the filter insert (4).

Refit the red cap temporarily to prevent dust and dirt getting into the tank.

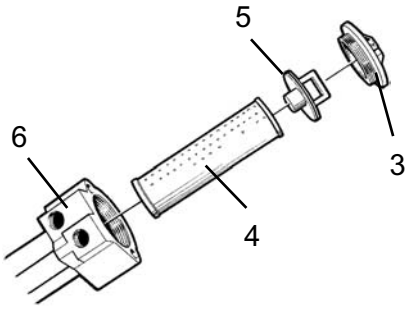


Fig. Hydraulic oil filter 3. Cap 4. Filter insert 5. Handle 6. Filter holder

Release the filter insert (4) from the handle (5).

Remove the filter (4) and hand in to an environment-friendly waste disposal station. This is a disposable filter and cannot be cleaned.

Start the engine and allow it to run at full revs for 30 seconds. Check that the filter cap (3) is tight.

Hydraulic fluid reservoir - Draining

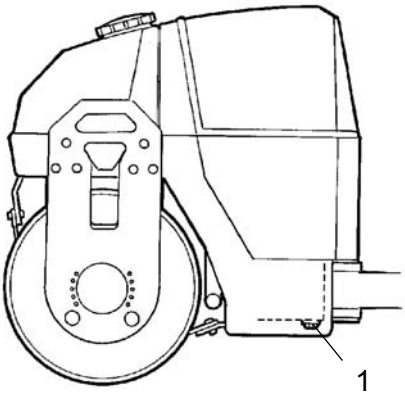


Fig. Left frame side 1. Drain plug

Condensate in the hydraulic tank is drained via the plug (1). This should be done when the roller has stood still for some time, e.g. during the night.

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

Drain as follows:

Place a container under the plug (1). Loosen and allow any condensate to run out. Tighten the plug.

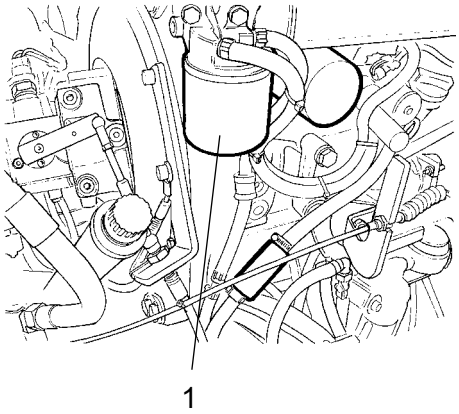


Fig. Engine compartment
1. Fuel filter

Replacing the fuel filter

Place a container underneath to collect fuel that runs out when the filter is released.

Screw off the fuel filter (1). The filter is of the disposable type and cannot be cleaned. Hand in to environment-friendly station.

Refer to the engine manual for detailed instructions when replacing the fuel filter.

Start the engine and check that the fuel filter is tight.

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

Replacing the pre-filter

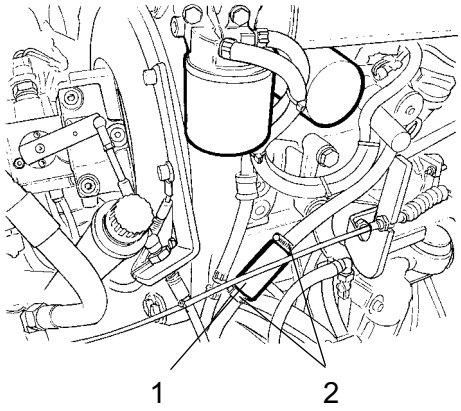


Fig. Engine compartment
1. Pre-filter
2. Hose clamps

Push in the parking brake knob. Switch off the engine and open the left door of the engine compartment. Loosen the hose clamps (2) using a screwdriver.

Place a container underneath to collect fuel that runs out when the filter is released.

Remove the pre-ilter (1) and hand in to environment-friendly station. This is a disposable filter and cannot be cleaned.

Fit a new pre-filter and tighten the hose clamps.

Start the engine and check that the pre-filter is tight.

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

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.

Hydraulic tank - Changing the fluid

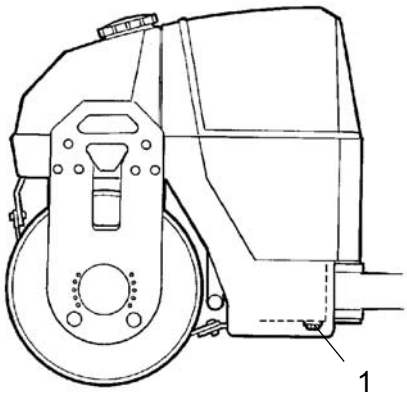


Fig. Left frame side
1. Drain plug

Risk of burn injuries when draining hot oil. Protect your hands.

Place a container under the plug. It should hold at least 40 liters. Save the oil and dispose of it in an approved manner.

Unscrew the drain plug (1) and allow all the oil to run out. Wipe and replace the drain plug.

Fill with fresh hydraulic fluid of the grade indicated in the Lubricant specification.

Replace the hydraulic fluid filter. See under the heading 'Every 1000 hours of operation'.

Start the diesel engine and run the various hydraulic functions. Check the fluid level in the tank, and top up if necessary.

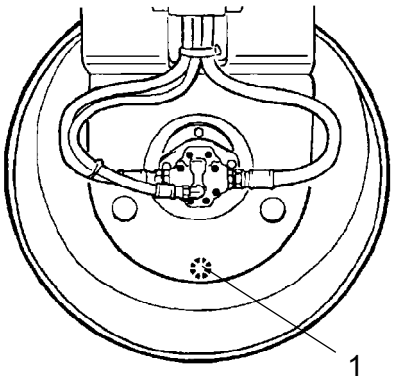


Fig. Drum, vibration side
1. Oil plug

Drum - Oil change

Take great care when draining the fluid. Wear protective gloves and goggles.

Place the roller on a level surface and run it until the oil plug (1) points straight down.

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

Place a container under the plug. It should hold at least 6 liters. Save the oil and dispose of it in an approved manner.

Remove the plug and allow all the oil to run out. See under the heading "Every 500 hours of operation" for filling oil.

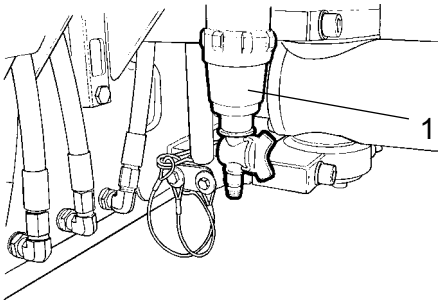


Fig. Pump system
1. Water filter

Water tank - Draining

Remember that there is a risk of freezing during the winter. Empty the tank, pump and lines.

The easiest way to empty the water tank is to open the drain cock on the water filter (1). (There is also a drain plug under the water tank).

Water pump - Draining

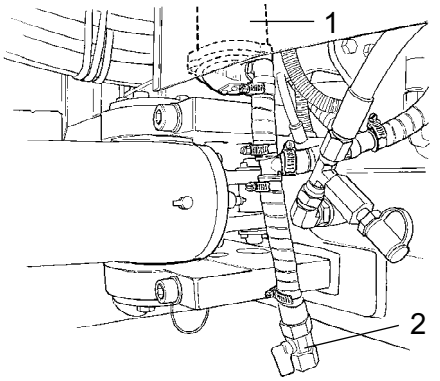


Fig. Pump system
1. Water pump
2. Drain cock

The water pump (1) is emptied by opening the drain cock (2).

Water tank - Cleaning

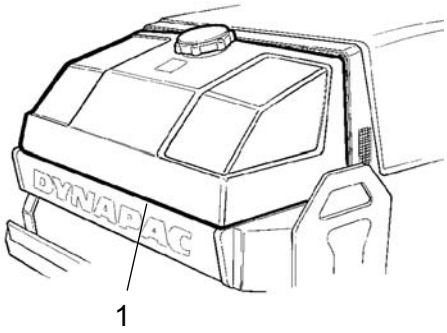


Fig. Water tank
1. Drain plug

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

Refit the filter housing or the drain plug (1). Fill with water and check for leaks.

The water tanks are made of plastic (polyethylene) and are recyclable.

Fuel tank - Cleaning

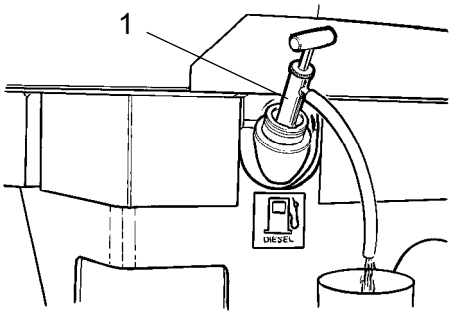


Fig. Fuel tank
1. Fuel tank

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. Save the oil in a container and dispose of it in an approved manner.

Keep in mind fire risk when handling fuel.

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

Steering joint - Check

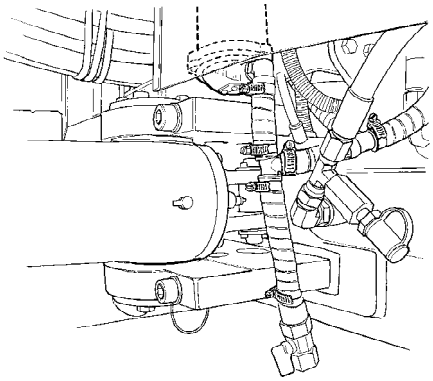


Fig. Steering joint

Check the steering joint for any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness and play.

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