Instruction manual

Operating & Maintenance

4812158801_D.pdf

Vibratory roller
CC722/7200

Engine
Cummins QSB 6.7 C (IIIB/T4i)

Serial number
10000326xxA007761 -
10000361xxA014104 -

Translation of original instruction

Reservation for changes
Printed in Sweden

EN

Table of Contents

Introduction

The machine

Dynapac CC722/7200 is a self-propelled vibratory tandem roller in the 17 tonnes class with 2130 mm wide drums. It features power drive, brakes, vibration and water sprinkler on both drums.

CC722/7200 is the largest mass-produced vibratory tandem roller in the world.

Intended use

This machine generally achieves the required density after just a few runs, even when compacting thick layers of asphalt, roller-compacted concrete or thick asphalt mixtures.

The larger diameter of the drums also makes the machine suitable for work with softer mixtures, despite the service weight of 17 tons.

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

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

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

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

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

Replace immediately the instruction manuals if lost, damaged or unreadable.

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.

CE marking and Declaration of conformity

(Applies to machines marketed in EU/EEC)

This machine is CE marked. This shows that on delivery it complies with the basic health and safety directives applicable for the machine in accordance with machinery directive 2006/42/EC and that it also complies with other regulations and directives applicable for this machine.

A "Declaration of conformity" is supplied with this machine, which specifies the applicable regulations and directives with supplements, as well as the harmonized standards and other regulations that are applied and according to the regulations must be declared in writing.

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 footsteps, 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. **Never operate with roller outside the edge, if the substrate does not have full bearing strength or is close to a slope. Avoid operating close to edges and ditches and the like as well as on poor ground conditions that influence the bearing strength and capacity to support the roller.**

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/ROPS-cab.**

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:**
    - Stop the engine
    - Do not smoke.
    - No naked flames in the vicinity of the roller.
    - Earth the filling equipment nozzle to the tank opening to avoid sparks.

15. **Before repairs or service:**
    - Chock the drums/wheels.
    - Lock the articulation if necessary.
    - Placee blocks under overhanging equipment, such as strike-off blade and chip spreader.

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. See instructions 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

Prevent persons from entering or remaining in the danger area, i.e. a distance of at least 7 m (23 ft) in all directions from operating machines. The operator may allow a person to remain in the risk zone, however he/she must be attentive and operate the machine only when the person is fully visible or has given a clear indication of where he or she is.

Avoid driving across a slope. Drive straight up and down sloping ground.

Work driving

Avoid operating close to edges and ditches and the like as well as on poor ground conditions that influence the bearing strength and capacity to support the roller. Pay attention to potential obstacles above the machine, such as overhead cables and the branches of trees etc.

Pay particular attention to the stability of the substrate when compacting close to edges and holes. Do not compact with a large overlap from the previous track in order to maintain roller stability. Consider other compaction methods such as remote-control or a walk-behind roller close to steep slopes or where the bearing strength of the substrate is unknown.

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

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

Driving near edges

Never operate with roller outside the edge, if the substrate does not have full bearing strength or is close to a slope.

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.

Safety (Optional)

Air conditioning (Optional)

The system contains pressurized refrigerant. It is forbidden to release refrigerants into the atmosphere.

Work on the refrigerant circuit is only to be carried out by authorized companies.

The cooling system is pressurized. Incorrect handling can result in serious personal injury. Do not disconnect or undo the hose couplings.

The system must be refilled with an approved refrigerant by authorized personnel when necessary. Refer to the technical specifications.

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 - 105°F).

The maximum ambient 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 S2V100 or similar.

Other components that use transmission oil: Shell Spirax AX 85W/140 or equivalent.

Lower ambient temperature - Freeze risk

Make sure that the watering system is empty/drained of water (sprinkler, hoses, tank/s) or that anti-freeze has been added, to prevent the system freezing.

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, or into exhaust pipe. This is particularly important when using a high-pressure cleaner.

Fire fighting

If the machine catches fire, use an ABC-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.

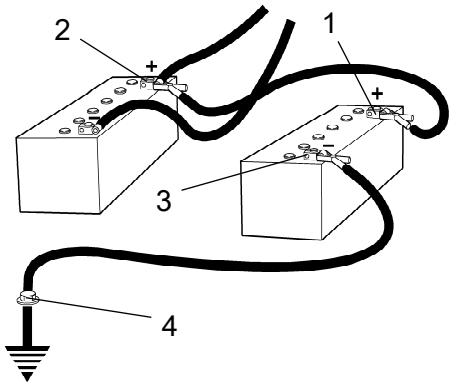


Fig. Jump starting

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 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

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

Guaranteed sound power level, L_{wA}	110 dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}	xx dB (A)
Sound pressure level at the driver's ear (cab), L_{pA}	88 ±3 dB (A)

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

Max 20° or 36%

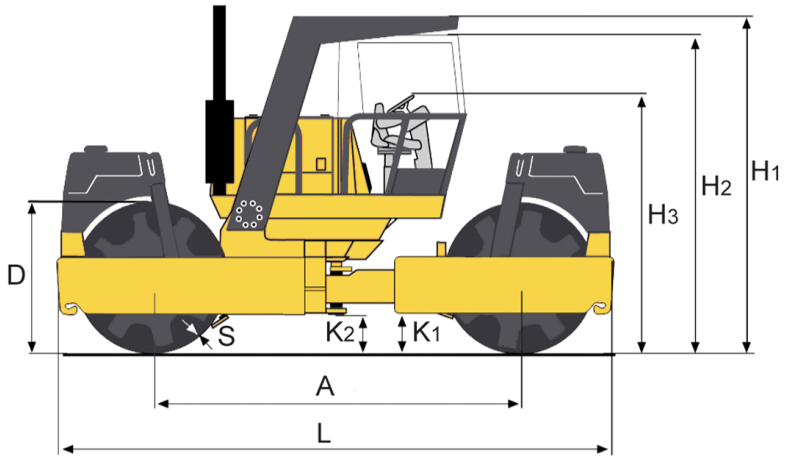
Slopes

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.

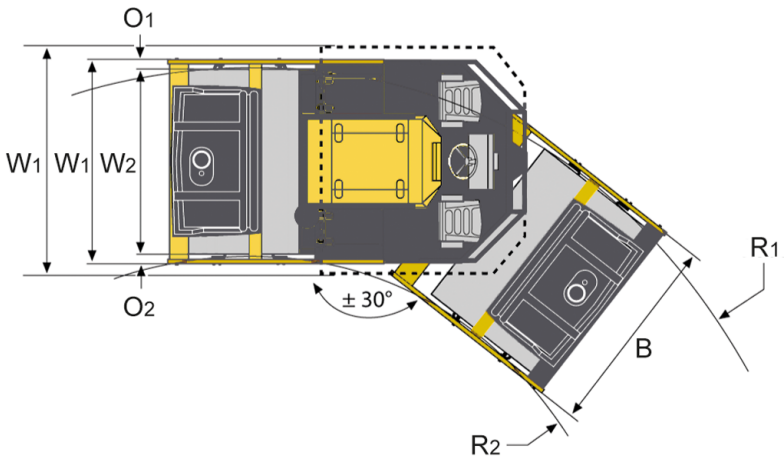
Always take into consideration that loose ground, steering the machine, vibration on, machine speed across the ground and raising the center of gravity can all cause the machine to topple at smaller slope angles than those specified here.

Dimensions, side view



	Dimensions	mm	in
A	Wheelbase	3754	148
D	Drum diameter	1527	60
H_1	Height, with ROPS	3430	135
H_2	Height, with cab	3250	128
H_3	Height, w/o ROPS/cab	2630	104
K_1		400	16
K_2		400	16
L	Length	5653	222,5
S	Thickness, drum amplitude, Nominal	23	0,9

Dimensions, top view



	Dimensions	mm	in
B	Width, front	2430	96
O_1	Overhang, left	112	4,5
O_2	Overhang, right	112	4,5
R_1	Turning radius, external	8080	318
R_2	Turning radius, inner	5950	234
W_1	Width Platform, rear	2354	93
W_1	Width Cab, rear	2428	96
W_2	Drum width	2130	84

Weights and volumes

Weights	kg	lbs
Service weight, incl. ROPS (EN500)	16 780	37,000
Service weight, incl cab and ROPS	17 180	37,900
Service weight, max.	17 985	39,700
Weight, drum module		
- front	8 245	18,200
- rear	8 530	18,800

Fluid volumes	liters	gallon (U.S.)
Fuel tank	335	88,5
Water tank		
- front	670	177
- rear	670	177

Working capacity

Compaction data

Static linear load, front /rear	38,7 / 40,0	kg/cm	217 / 224	pli
Amplitude, high /low	0,84 / 0,39	mm	0.033 / 0.015	in
Vibration frequency, high / low amplitude	42	Hz	2 520	vpm
Centrifugal force, high /low amplitude	186 / 87	kN		

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

Propulsion

Speed range	0-11	km/h	0-7	mph
Climbing capacity (theoretical)	30	%		

General

Engine

Manufacturer/Model	Cummins QSB 6.7 C	
Power (SAE J1995)	164 / 129 kW	223 / 175 hp
Engine speed	2000 rpm	

Electrical system

Battery	12V 170Ah
Alternator	12V 100A
Fuses	See the Electrical system section - fuses

Hydraulic system

Opening pressure	MPa
Drive system	35
Supply system	2,0
Vibration system	35
Control systems	14
Brake release	1,5

ROPS - bolts

Bolt dimensions :	M36 (PN 4700904813)
Strength class :	10.9
Tightening torque :	2170 Nm (Dacromet treated)

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

Tightening torque

Tightening torque in Nm for oiled or dry bolts tightened with a torque wrench.

Metric coarse screw thread, bright galvanized (fzb):

STRENGTH CLASS:

M - thread	8.8, Oiled	8.8, Dry	10.9, Oiled	10.9, Dry	12.9, Oiled	12.9, Dry
M6	8,4	9,4	12	13,4	14,6	16,3
M8	21	23	28	32	34	38
M10	40	45	56	62	68	76
M12	70	78	98	110	117	131
M14	110	123	156	174	187	208
M16	169	190	240	270	290	320
M20	330	370	470	520	560	620
M22	446	497	626	699	752	839
M24	570	640	800	900	960	1080
M30	1130	1260	1580	1770	1900	2100

Metric coarse thread, zinc-treated (Dacromet/GEOMET):

STRENGTH CLASS:

M - thread	10.9, Oiled	10.9, Dry	12.9, Oiled	12.9, Dry
M6	12,0	15,0	14,6	18,3
M8	28	36	34	43
M10	56	70	68	86
M12	98	124	117	147
M14	156	196	187	234
M16	240	304	290	360
M20	470	585	560	698
M22	626	786	752	944
M24	800	1010	960	1215
M30	1580	1990	1900	2360

Machine description

Identification

Product identification number on the frame

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

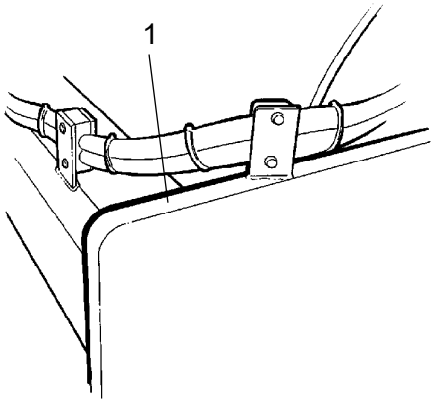


Fig. PIN Front frame
1. Serial number

100	00123	V	0	A	123456
A	B	C	F		

Explanation of 17PIN serial number

A= Manufacturer

B= Family/Model

C= Check letter

F= Serial number

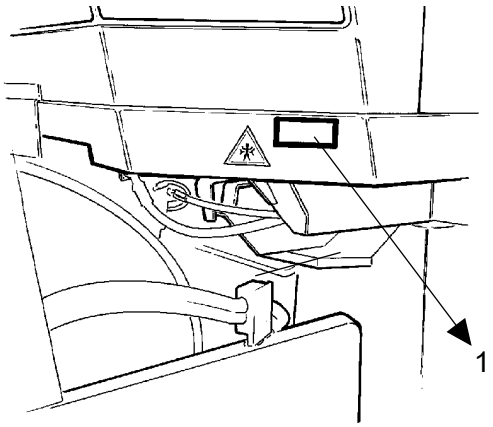


Fig. Operator platform
1. Machine plate

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 product identification number (serial number), service weight, engine power and year of manufacture. If the machine is delivered outside of the EU, the sign may lack CE marking and year of manufacture.

Dynapac Compaction Equipment AB
Box 504, SE-371 23 Karlskrona Sweden

Product Identification Number

Designation	Type	Rated Power	Max axle load front / rear
		kW	kg

Gross machinery mass	Operating mass	Max ballast	Year of Mfg
kg	kg	kg	

Made in Sweden
4811 0001 33

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

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.

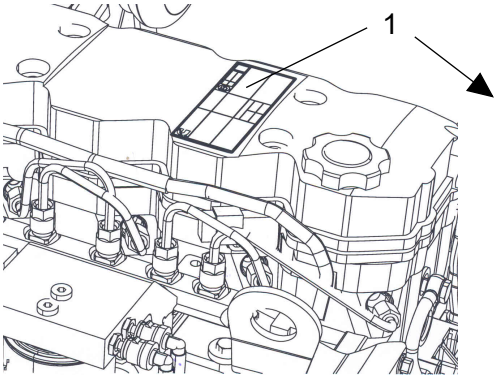


Fig. Engine
1. Type plate

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

CUMMINS INC. Made in Great Britain www.cummins.com	Engine No. XXXXXXXX Family 5CEXL0409AAB Date of MFG DD-MM-YY	E11
Ad. HP/kW 190/142•2200 rpm e11•97/68HA•2004/26•0368•00 Valve lash cold 0.254 Int 0.508 Exh Ref. No. PROTON590916D	Model 6BTAAE CPL 8610 FR 91598 C.D.I./L 409/6.7 Catalyst No. N/A	IMPORTANT ENGINE INFORMATION This engine conforms to 2005 US. EPA and California regulations heavy duty non-road compression ignition diesel cycle engines as applicable.
Fuel Rate at adv. HP 104 mm3/st Timing - TDC Electronic Firing order 1-5-3-6-2-4 Idle speed 850 rpm ECS	EPA FEL CARB 4.0 NOx+ NMHC / NOx+ NMHC 0.2 PM / PM	WARNING: Injury May Result And Warranty is Voided If Fuel Rate RPM or Altitudes Exceed Published Maximum Values For This Model and Application. This engine is certified to operate on diesel fuel. 4935899

On certain machines there may be an engine plate along with the machine plate, if the original plate on the engine is covered with extra equipment/accessories.

Decals

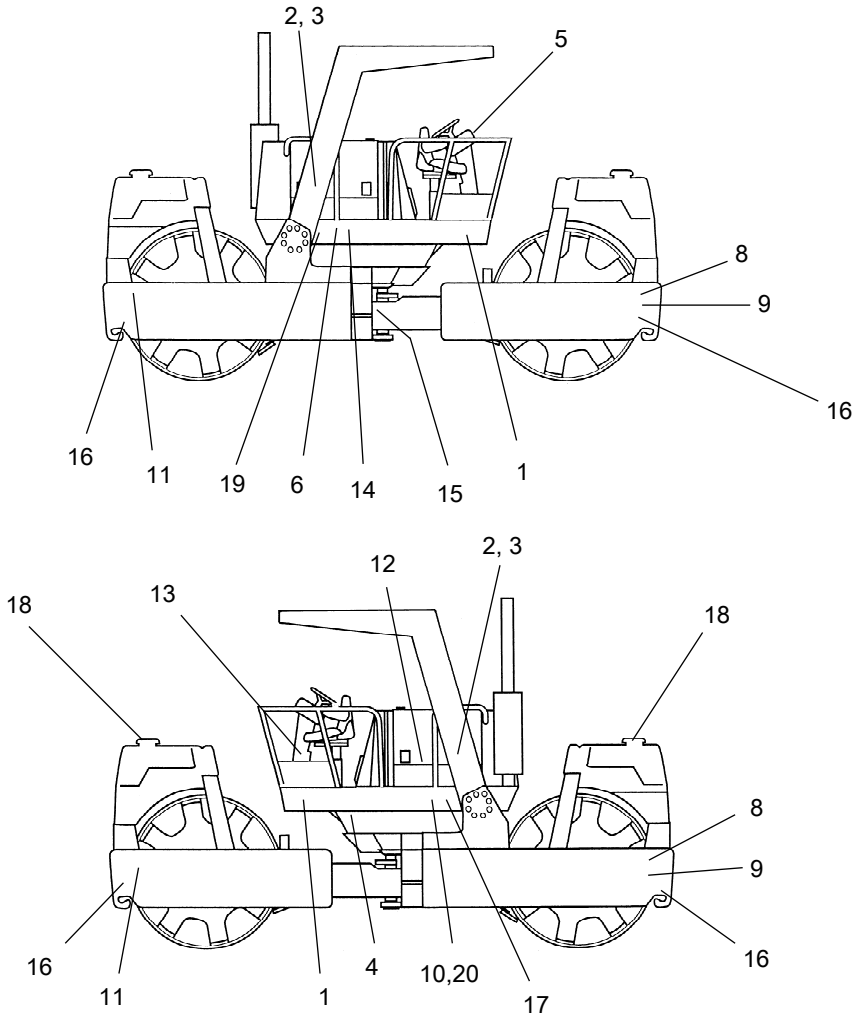
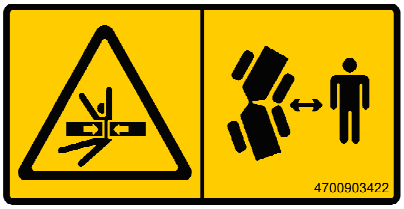


Fig. Location, decals and signs

1. Warning, Crush zone	4700903422	12. Noise power level	4700791280
2. Warning, Rotating engine components	4700903423	13. Handbook compartment	4700903425
3. Warning, Hot surfaces	4700903424	14. Warning, Instruction manual	4700903459
4. Master switch	4700904835	15. Warning, Brake release	4700904895
5. Warning, Parking brake	47386084xx	16. Fixing point	4700382751
6. Hydraulic fluid	4700272372	17. Battery voltage, 12V	4700791491
8. Hoisting plate	4700904870	18. Water	4700991657
9. Warning, Locking	4700908229	19. Hydraulic fluid level	4700272373
10. Diesel fuel	4811000345	20. Fuel with a low sulphur content	4811000344
11. Lifting point	4700588176		

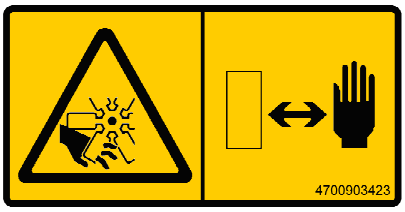
Safety decals

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.



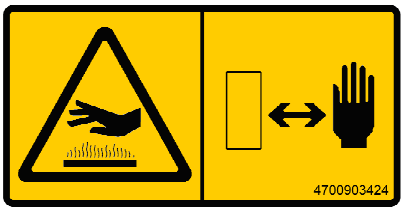
4700903422
Warning - Crush zone, articulation/drum.

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



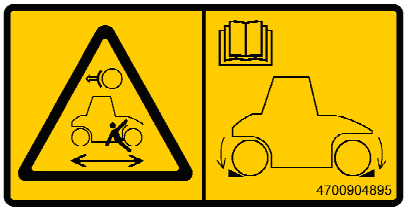
4700903423
Warning - Rotating engine components.

Keep your hands at a safe distance.



4700903424
Warning - Hot surfaces in the engine compartment.

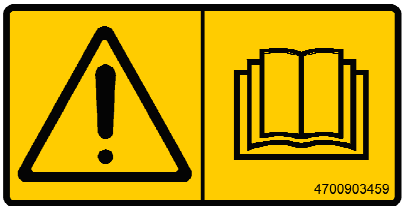
Keep your hands at a safe distance.



4700904895
Warning - Brake disengagement

Study the towing chapter before disengaging the brakes.

Danger of being crushed.



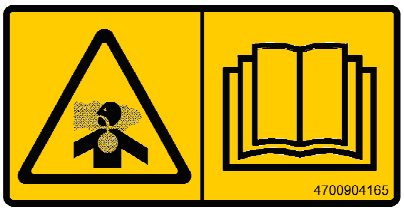
4700903459
Warning - Instruction manual

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

4700908229
Warning - Risk of crushing

The articulation must be locked when lifting.

Read the instruction manual.

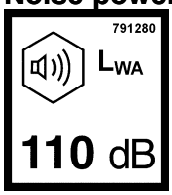


4700904165
Warning - Toxic gas (option, ACC)

Read the instruction manual.

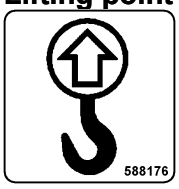
Info decals

Noise power level



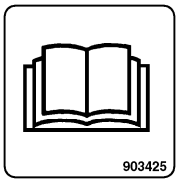
Diesel fuel

Lifting point

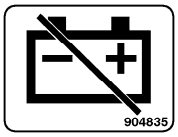


Hoisting plate

Handbook compartment

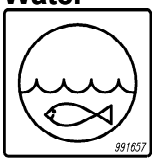


Master switch

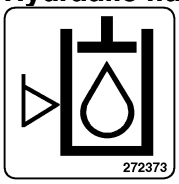


Battery voltage

Water



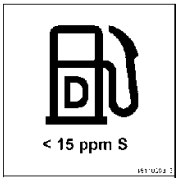
Hydraulic fluid level



Hydraulic fluid

Fixing point

Fuel with a low sulphur content



Instruments/Controls

Locations - Instruments and controls

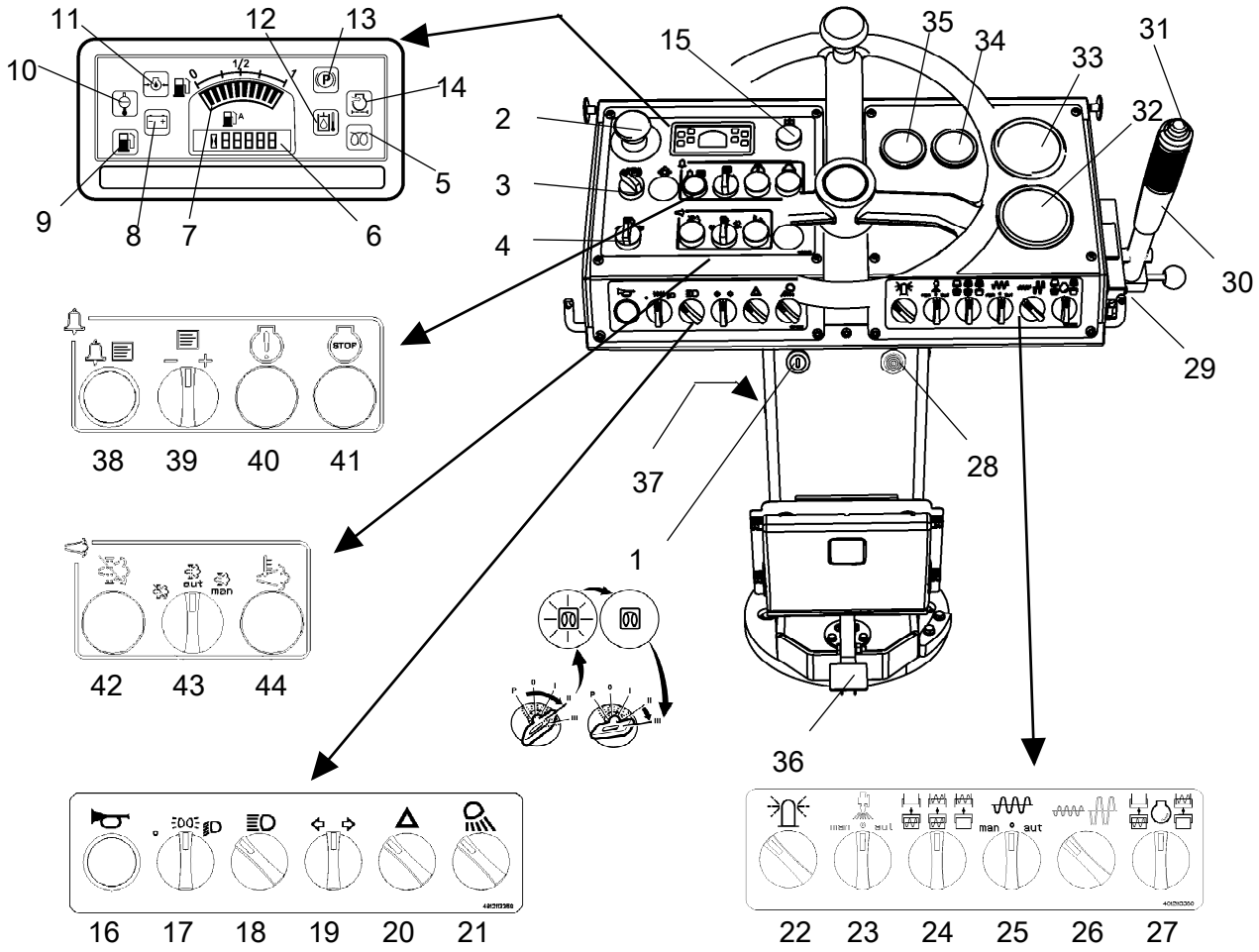


Fig. Instruments and control panel

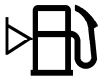
1	Ignition lock	24	Vibration, front/rear drum
2	Emergency stop	25	Vibration switch, Man/Off/Auto
3	Parking brake	26	Amplitude selector
4	Speed switch	27	Speed/Frequency meter switch
5	Electric heater, Diesel engine	28	Beeper
6	Hourmeter	29	Speed limiter
7	Fuel level indicator	30	Forward/reverse lever
8	Warning lamp, charge	31	Vibration
9	Warning lamp, fuel level	32	Speed/Frequency meter
10	Warning lamp, engine temperature	33	Speedometer
11	Warning lamp, engine oil pressure	34	Temperature gauge - Hydraulic fluid
12	Warning lamp, hydraulic fluid temperature	35	Temperature gauge - Engine
13	Warning lamp, brakes	36	Lock pedal

14		Warning lamp, Air filter	37	Fuse boxes
15		Warning lamp, Hydraulic fluid filter	38	Engine diagnostics
16		Horn	39	Browse through engine error codes
17		Driving lights	40	Fault indicating lamp (Yellow), less serious fault
18		Full/Dipped beam	41	Fault indicating lamp (Red), serious fault
19		Direction indicator	42	> Information lamp, Delayed regeneration
20		Hazard indicators	43	> Regeneration switch with built-in lamp
21		Working lights backwards	44	> Warning lamp, High exhaust temperature
22	*	Rotating beacon		
23		Sprinkler switch, Man/Off/Auto		

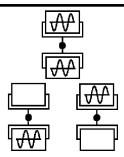
* = Option

> = DPF filter, emissions system

Function descriptions

No	Designation	Symbol	Function
1	Ignition lock		Position P-0: Shut off position, key can be removed.
			Position I-II: All instruments and electric controls are supplied with power. Glowing occurs, the starter can be activated when the lamp for glowing on the indicator panel goes out.
			Position III: Starter motor activation.
2	Emergency stop		When pressed, the emergency stop is activated. The brakes are applied and the engine stops. Brace yourself for a sudden stop. **NOTE:** When starting the machine, the emergency stop must be inactive.
3	Parking brake		In the right position, the parking brake is activated. **NOTE:** When starting the machine, the parking brake must be activated.
4	Speed switch, diesel engine		Left position produces idling speed Middle position produces loading/unloading speed Right position produces working/transport speed **NOTE:** When starting the machine, the speed switch must be in the left position.
5	Indicator lamp, electric heater diesel engine (Yellow)		Illuminates when the electric heater is active. The heater is normally activated when ignition is on. When the lamp turms off is the engine ready for start. For optimized engine emission is the heater activated when necessary even after the diesel engine has started. When this happens, normally the system voltage drops to a level where the charge lamp (8) lights up.
6	Hourmeter		Displays the diesel engine's operating time in hours.
7	Fuel gauge		Shows level in the fuel tank.

No	Designation	Symbol	Function
8	Warning lamp, charge (Red)		Illuminates at reduced system voltage. Reduced system voltage can depend on that the alternator is not charging or on large power output. The lamp lights up normally while the electrical heater (5) is activated. If the lamp comes on without active electric heater at the same time, stop the diesel engine and locate the fault.
9	Warning lamp, low fuel level (Yellow)		If the lamp comes on, there is only a small amount of fuel left. Refuel as soon as possible.
10	Warning lamp, engine oil temperature (Red)		If the lamp comes on, the engine is too hot. Stop the diesel engine immediately and locate the fault. Refer also to the engine manual.
11	Warning lamp, oil pressure (Red)		If the lamp comes on, the engine oil pressure is too low. Stop the diesel engine immediately and locate the fault.
12	Warning lamp, hydraulic fluid temperature (Red)		If the lamp comes on, the hydraulic fluid is too hot. Do not drive the roller. Cool the fluid by allowing the engine to idle and locate the fault.
13	Warning lamp, brakes (Red)		If the lamp comes on, the brake oil pressure is low or the parking brake knob is activated and the brakes are applied.
14	Warning lamp, air filter (Yellow)		If the lamp comes on while the engine is running at full speed, the air filter must be cleaned or replaced.
15	Warning lamp, hydraulic fluid filter (Red)		If the lamp comes on while the engine is running at full speed, the hydraulic filter must be changed.
16	Horn		Press to sound the horn.
17	Driving lights		Lights off.
			Parking lights on
			Driving lighting on
18	Full/Dipped beam		In the right position, the switch lights up and the main beam is on. In the left position, the dipped beam is on.
19	Direction indicator		In the left position, the left direction indicator flashes etc. The flashing function is switched off in the middle position
20	Hazard indicators		In the right position, the hazard indicators come on and the switch lights up.
21	Working lights backwards		In the right position, the rear working lights come on and the switch lights up.
22	Rotating beacon		In the right position, the rotating beacon comes on and the switch lights up.
23	Sprinkler switch, Man/Off/Auto		In the left position, the drums are continually watered. In the middle position, watering is off.

No	Designation	Symbol	Function
		MAN O AUTO	In the right position, watering is automatically switched on/off when the direction of travel is changed.
24	Vibration, front/rear drum		In the left position, vibration is activated for the rear drum. In the middle position, vibration is activated for both drums. In the right position, vibration is activated for the front drum.
25	Vibration switch, Man/Off/Auto		In the left position, the vibration is switched on or off by the switch (31) on the forwards/reverse lever. In the middle position, the vibration system is off.
		MAN O AUTO	In the right position, the vibration is switched on or off when the direction of travel is changed.
26	Amplitude selector		The left position gives low amplitude.
			The right position gives high amplitude.
27	Speed/Frequency meter switch		In the left position, the rear drum's vibration frequency is displayed. In the middle position, the diesel engine speed is displayed. In the right position, the front drum's vibration frequency is displayed.
28	Beeper		
29	Speed limiter		Limits the movement of the Forward/Reverse lever, and hence the driving speed. The limiter can be bypassed.
30	Forward/Reverse lever		**NOTE:** When starting the machine, the lever must be in neutral. 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.
31	Vibration ON/OFF		Press once and release to switch the vibration on, press again to switch the vibration off. The above only applies when switch 25 is in the left position (position for manual vibration activation).
32	Speed/Frequency meter		Shows the diesel engine's speed or the current vibration frequency, depending on how switch 27 is set.
33	Speedometer		Shows the speed in km/h on the outer scale and the speed in mph on the inner scale.
34	Temperature gauge, hydraulic fluid		Shows hydraulic fluid temperature. Normal temperature range is 65°-80°C (149°-176°F). Stop the engine if the gauge shows a temperature of more than 85°C (185°F). Locate the fault.
35	Temperature gauge, the diesel engine's coolant temperature		Shows the diesel engine's coolant temperature. Normal temperature range is 85°-95°C (185°-203°F). Stop the engine if the gauge shows a temperature of more than 107°C (225°F). Locate the fault.

No	Designation	Symbol	Function
36	Locking pedal		Disengages the control table to turn to the left or right operator's position.
37	Fuse boxes (on the left side of the steering column)		Contains fuses for the electrical system.
38	Diagnostics, diesel engine		When pressed, the error code is displayed with the fault indicating lamps 40 and 41.
39	Browse through engine error codes		When turned to the right, browse forwards in the error code list.
			When turned to the left, browse backwards in the error code list.
40	Fault indicating lamp (Yellow), less serious fault		Indicates a fault and shows the error code along with lamp 41.
41	Fault indicating lamp (Red), serious fault		Shows the error code along with lamp 40. If the lamp lights continuously, stop the diesel engine immediately.
42	Information lamp, Delayed regeneration		The lamp comes on in the event of prevented (delayed) regeneration.
43	Regeneration switch with built-in lamp		In the left position, burnout is prevented and the lamp for delayed regeneration (42) shines continuously.
	(the built-in lamp lights or flashes when the system calls for regeneration, depending on the amount of soot)		In the middle position, automatic regeneration of the DPF filter (Auto mode) is performed
			Turning to the right starts manual regeneration of the DPF filter.
44	Warning lamp, High exhaust temperature		The lamp lights in the event of high exhaust fume temperature.

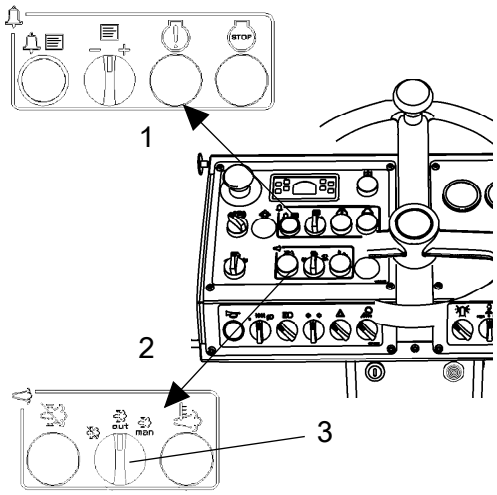


Fig. Instrument panel
1. Engine diagnostics
2. Regeneration
3. Regeneration selector (DPF selector)

Display/Regeneration of Diesel Particle Filter (DPF filter)

The lamp (DPF lamp) in the regeneration switch (3) comes on to indicate that the filter has reached a level such that regeneration of the filter will soon be required.

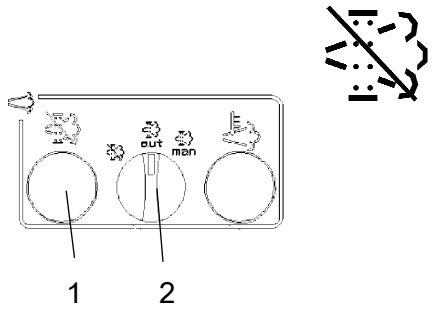
The lamp in the switch (3) starts to flash when the filter starts to become full.

Regeneration of the filter should then take place as soon as possible, as some reduction in engine power can be noted. If the switch (3) is in auto mode, regeneration starts automatically when required by the system.

The regeneration of the DPF filter lasts for approx. 30 minutes, and the machine can be operated as normal during this time.

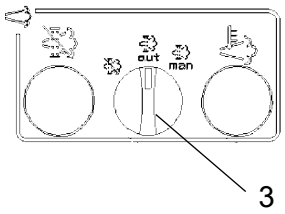
The auto mode is the normal mode. The delayed mode should only be used if you are in an unsuitable location, e.g. in a tunnel, under a roof, etc.

The free space above the roller must not be less than the height of the cab. Temperatures in the region of 350°C (662°F) can be generated at the exhaust pipe when performing regeneration of the DPF filter.



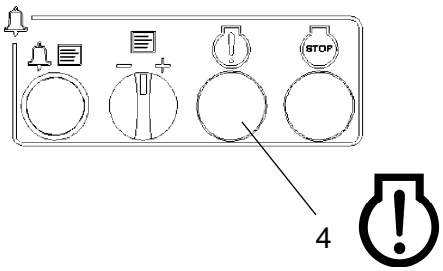
If it is not appropriate to allow the machine to perform automatic regeneration, perhaps because the machine is in an unsuitable location or the prevailing working conditions do not permit this, it is possible to delay regeneration by activating delayed regeneration.

The regeneration switch (2) is then turned to the left, to the position for delayed filter regeneration, and the delayed regeneration lamp (1) comes on.

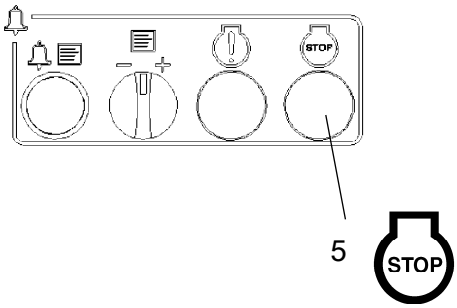


If delayed regeneration has been ongoing for so long that the DPF lamp (3) flashes and the engine control lamp (4) has come on, the filter must be regenerated manually before the filter becomes full.

Reduced motor power occurs automatically.

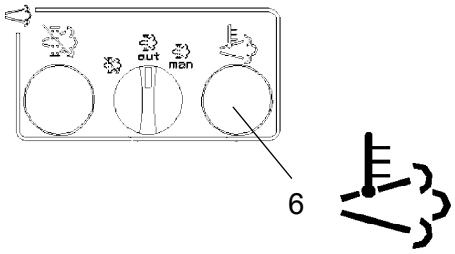


Manual regeneration is started by turning the DPF knob to the right; the knob springs back immediately to the automatic (middle) position.



If manual regeneration is not performed after a warning to do so, the engine heating lamp (5) comes on at the same time as DPF lamp continues to flash.

Continuing to work with the machine without activating regeneration will result in the need to service or replace the DPF filter, and the engine may also be damaged.



The lamp for high exhaust temperature (the HEST lamp) (6) comes on when the temperature of the exhaust fumes is high in conjunction with filter regeneration.

The lamp can also come on during normal engine use or during manual regeneration.

Locations - Instruments and controls, cab

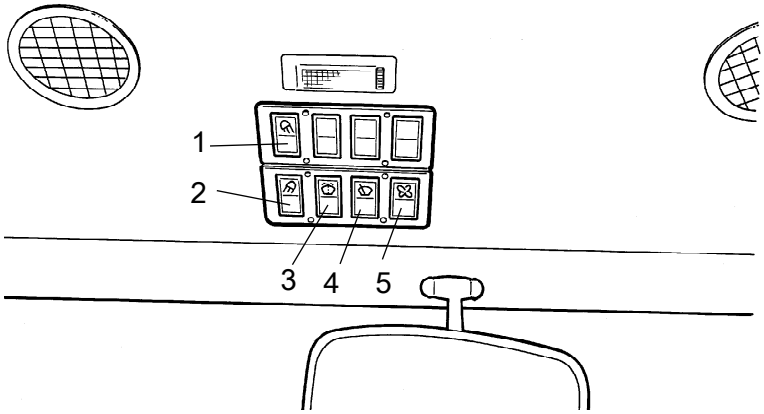


Fig. Cab roof
1. Working lights, rear
2.Working lights, front
3. Windshield washer
4. Windshield wiper
5. Blower fan

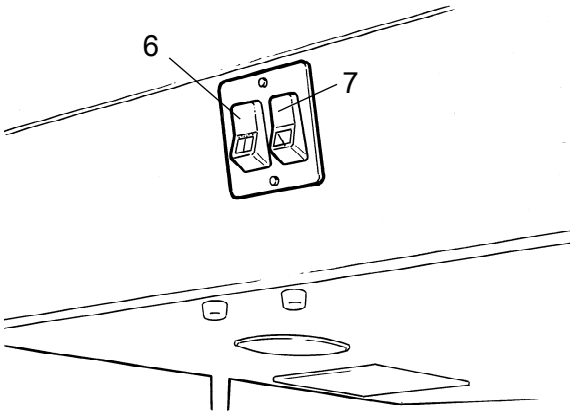


Fig. cab roof, left side
6. Left side window washer
7. Left side window wiper

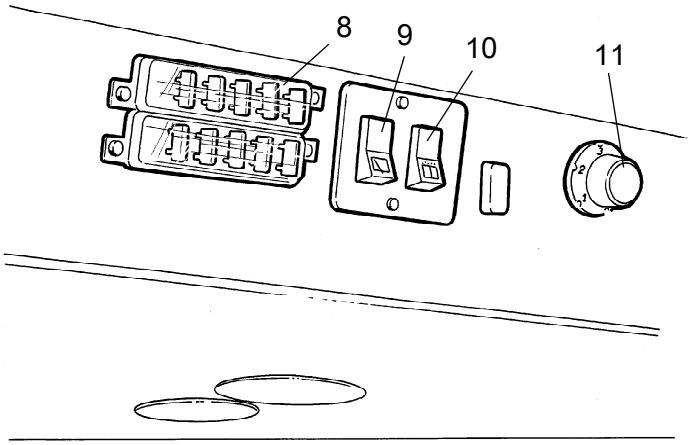


Fig. Cab roof, right side
8. Fuse boxes
9. Right side window wiper
10. Right side window washer
11. Heater control

Function description of instruments and controls in the cab

No	Designation	Symbol	Function
1	Front working lights, switch		Press to switch on the front working lights.
2	Rear working lights, switch		Press to switch on the rear working lights.
3	Windshield washer, switch		Press to wash the windshield.
4	Front wiper, switch		Press to operate the front screen wiper.
5	Blower fan, switch		Press to operate the blower fan.
6	Left side window washer, switch		Press to wash the left side window.
7	Left side window wiper, switch		Press to operate the left side window wiper.
8	Fuseboxes		Contain fuses for the electrical system in the cab.
9	Right side window wiper, switch		Press to operate the right side window wiper.
10	Right side window washer, switch		Press to wash the right side window.
11	Heater control		Turn to the right to increase heating. Turn to the left to reduce heating.

Control panel, air conditioning (optional)

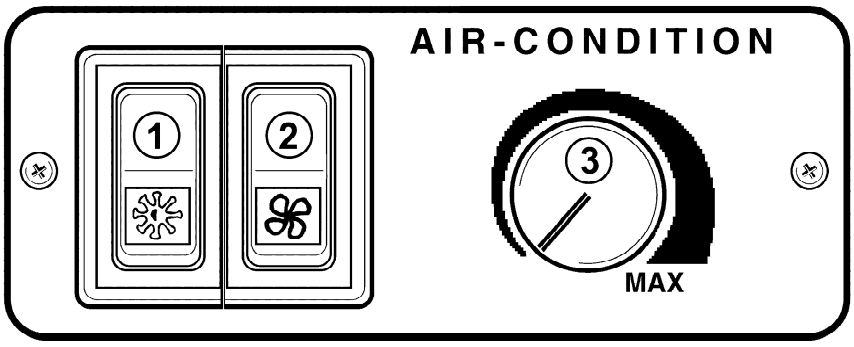


Fig. Control panel for AC, cab roof right side

1	Fan and AC switch 0 - 1 - AC	2	Fan switch 0 - 2 - 3
	Unit OFF		OFF
	Fan speed: low		Fan speed: medium
	Fan speed: low, AC ON		Fan speed: high

The fan and AC switch (1) must be in the AC ON position to enable the fan switch (2) to work.

Ventilation: Set the switch (1) in the middle position to run the fan at low speed without AC.
Cooling: Set the switch (1) in the low position, AC ON, to run the fan at low speed with AC.
The fan speed can be increased in two steps with the changeover switch (2).
Adjust the temperature with the thermostat control (3).

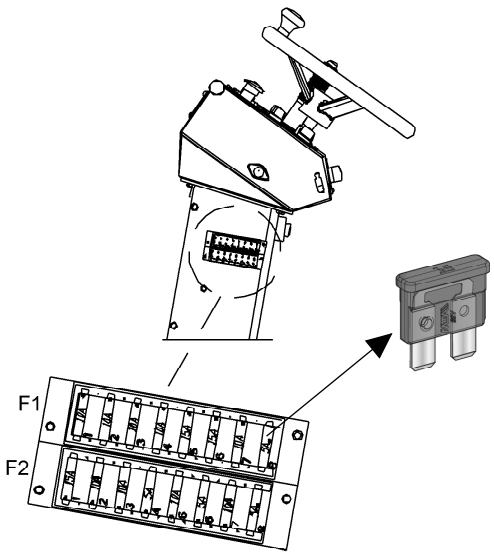


Fig. Fuse boxes on the side of the panel.

Fuses

The figure shows the position of the fuses.

There are two fuse boxes on the left side of the panel (F1 & F2), as well as one fuse box by the battery disconnector switch under the platform (F4).

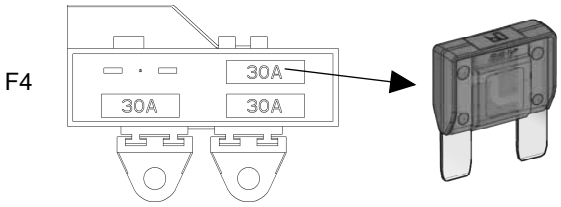
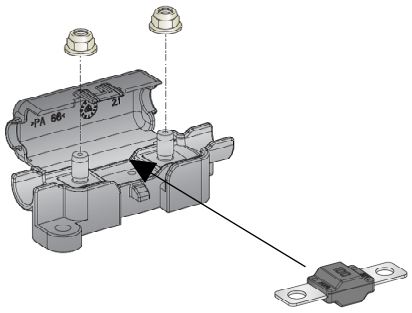


Fig. Fuse box by the battery disconnector switch

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

	Fuse box, upper (F1)				
1	12V outlet	10A	5	Working lights	15A
2	Direction indicator	10A	6	Driving lights	15A
3	Cab heater	10A	7	Horn	10A
4	Rotating beacon	10A	8	Starting	5A
	Fuse box, lower (F2)				
1	Sprinkler, main circuit	15A	5	Indicator panel, Beeper, LEDs	10A
2	Sprinkler control, Brake light, Reversing alarm	10A	6	Measuring instrument	5A
3	Vibration, Brake, Start (VBS)	10A	7	Speed sensor, Tachograph	10A
4	Diesel engine	5A	8	Reserve	
	Fuse box (F4)				
1	Main fuse, machine	30A	3	Main fuse, diesel engine	30A
2	Main fuse, machine	30A	4	Reserve	



Under the platform, close the battery disconnector switch, there are also two fuse holders for the diesel engine's preheating (F20, F21).

These are "screw connection" fuses, and both are 80A fuses.

Fig. Fuses for the diesel engine's preheating.

Fuses in cab

The electrical system in the cab has a separate fuse box located on the front right side of the cab roof.

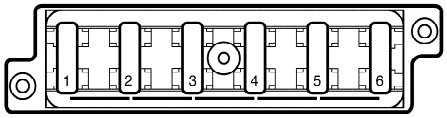


Fig. Fuse box in cab (optional)

The figure shows fuse amperage and function.

All fuses are flat pin fuses.

1. Cab lighting/washers
2. Ventilation fan
3. Lights, rear
4. Lights, front
5. Wipers, front and sides
6. Cab heater

Relays in engine compartment

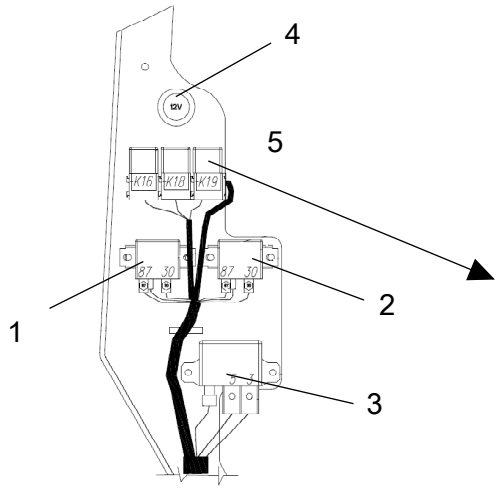


Fig. Engine compartment
1. Relay, preheating diesel engine (100A)
2. Relay, preheating diesel engine (100A)
3. Starter relay (120A)
4. Power socket 12V (Fuse 10A)
5. Relays (K16, K18, K19)

Connect the correct polarities (ground) to the battery. The cable between the battery and the alternator must not be disconnected when the engine is running.

K16	*Overspeed relay, diesel engine*	*30A*
K18	*Shut-off relay, burnout*	*30A*
K19	*Shut-off relay, starter motor*	*30A*

Relays in control column

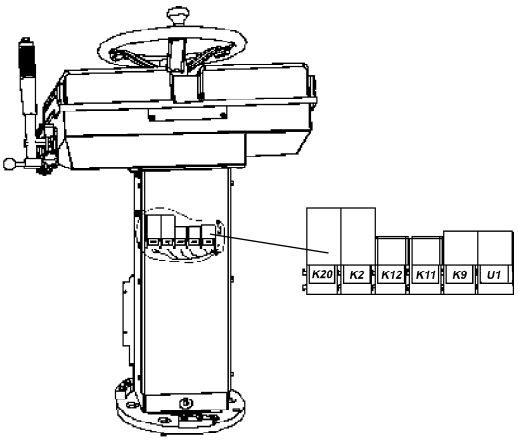


Fig. Control column

K20	*Interlock relay*	*4 sec.*
K2	*VBS relay*	
K12	*Sprinkler relay*	*30A*
K11	*Neutral start*	*30A*
K9	*Indicator relay*	
U1	*Tachograph (accessory)*	

Operation

Before starting

Master switch - Switching on

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

The battery master switch is located on the left side of the machine. Turn the key knob (1) to the on position. The entire roller is now supplied with power.

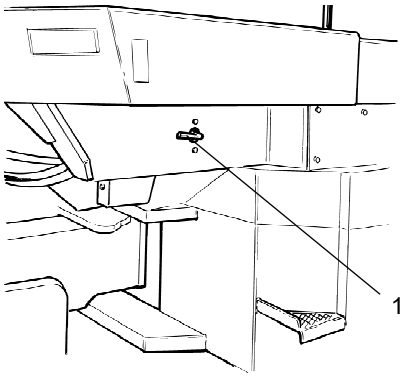


Fig. Battery master switch
1. Key knob

Water tanks - Level

When driving on asphalt, check that the water tanks are filled. See the relevant level gauges (1).

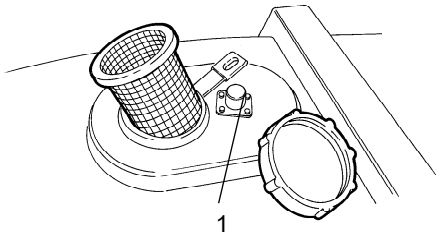


Fig. Water tank
1. Level gauge

Control table - Setting

Depress the control table's locking pedal (1) and set it to the desired position. Release the pedal and check that the control table is locked in position before driving.

The mchine can only be controlled from the seat that the control table is turned to, otherwise the Interlock function is activated when the parking brake is released.

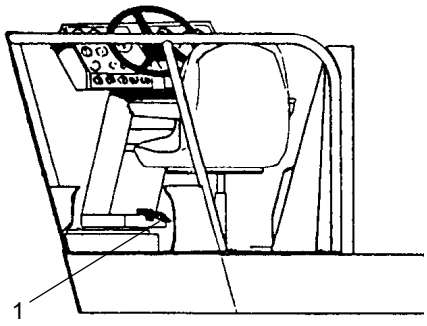


Fig. Control table
1. Locking pedal

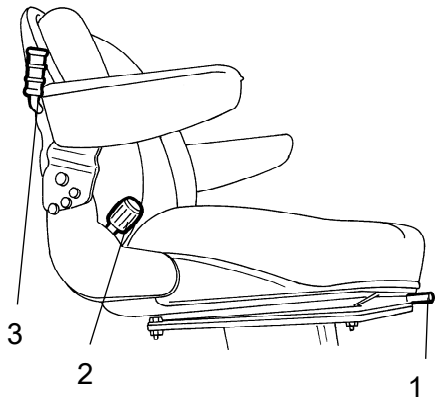


Fig. Operator's seat
1. Locking lever - length adjustment
2. Backrest incline
3. Weight adjustment

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 as illustrated.

Always make sure that the seat is secure before beginning operation.

Interlock

The roller is equipped with Interlock.

The engine switches off 4 seconds after the operator rises from the seat.

The engine stops whether the forward/reverse lever is in the neutral or the drive position.

The engine does not stop if the parking brake is activated.

Sit down for all operations!

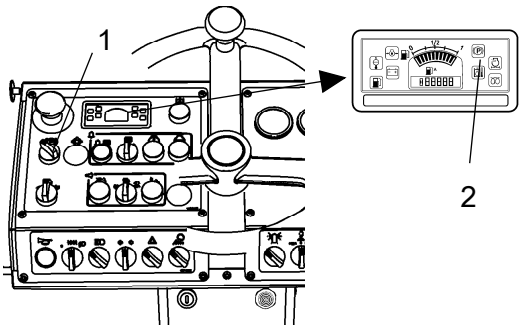


Fig. Instrument panel
1. Parking brake knob
2. Warning lamp, brake

Parking brake

Make sure that the parking brake knob (1) is definitely activated (in the right-hand position).

The parking brake must be activated to start the diesel engine.

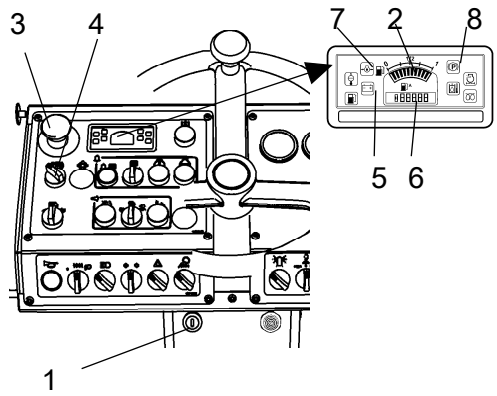


Fig. Instrument panel
1. Starter switch
2. Fuel gauge
3. Emergency stop
4. Parking brake knob
5. Warning lamp, charging
6. Hourmeter
7. Warning lamp, engine oil pressure
8. Warning lamp, brakes

Instruments and lamps - Checking

Turn the starter switch (1) to position I. All warning lamps should light for about 5 seconds. During this time, make sure that the warning lamps light so that none of them is broken.

Check that the warning lamps for charging (5), oil pressure (7) and parking brake (8) light.

The hourmeter (6) records the number of hours as long as the engine is running.

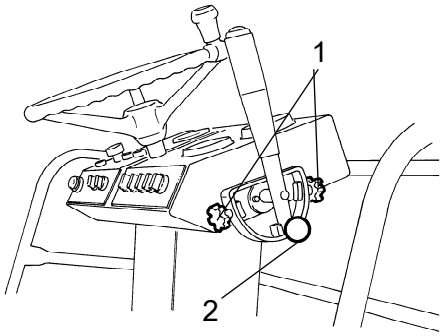


Fig. Speed limiter
1. Locking knob
2. Speed limiter knob

Speed limiter

The machine is equipped with an adjustable speed limiter that can be disengaged during transport driving.

Undo the locking knob (1) on the limiter. Adjust the forward/reverse lever to the desired speed and lock the knob in this position.

If the speed limiter knob (2) is pulled out, the forward/reverse lever can be moved past the limits.

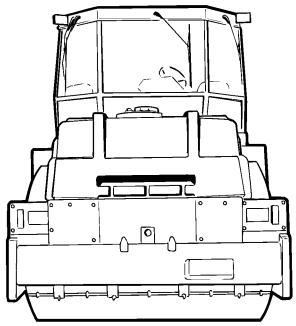


Fig. View

View

Before starting, make sure that the view forwards and backwards is unobstructed.

All cab windows should be clean and the rear view mirrors should be correctly adjusted.

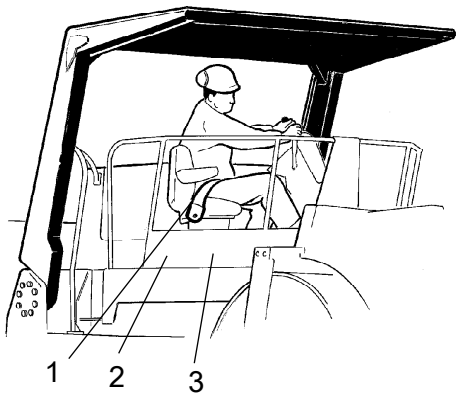


Fig. Operator's station
1. Seat belt
2. Rubber ement
3. Anti-slip

Operator's station

Always fasten the seat belt (1) that is provided if a ROPS (Roll Over Protective Structure) is fitted on the roller, and wear a protective helmet.

Always replace the seat belt (1) with a new one if it is worn or has been subjected to a heavy load.

Check that rubber elements (2) on the platform are intact. Worn elements will impair comfort.

If the machine is fitted with a cab, make sure that the doors are closed when in motion.

Make sure that anti-slip (3) on the platform is in good condition. Replace with new anti-slip if friction is poor.

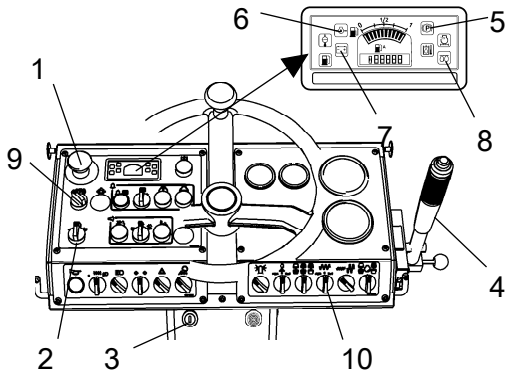


Fig. Instrument panel
1. Emergency stop
2. Speed switch
3. Ignition lock
4. Forward/reverse lever
5. Warning lamp, brakes
6. Warning lamp, engine oil pressure
7. Warning lamp, charging
8. Preheating lamp
9. Parking brake knob
10. Vibration switch

Starting

Starting the engine

The steering column must be in the locked position in relation to the driver's seat from which you are intending to operate the machine, and the driver must be sitting on this driver's seat in order to start and operate the machine.

Make sure that the emergency stop button (1) is pulled out and the parking brake (9) is activated.

Set the forward/reverse lever (4) in neutral. The engine can only be started when the lever is in neutral.

Set the engine speed control (2) to idling.

Set the vibration switch (10) for manual/automatic vibration in the mid position (position 0).

Turn the ignition key (3) to the right to the first position. The preheating lamp (8) lights on the indicator panel. When the lamp goes out, turn the knob to the start position and release immediately the engine starts. This particularly important when starting the machine from cold.

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

Starting gas is not to be used.

If the starter motor is activated for 30 seconds or more without the engine starting, the starter motor will be locked, preventing activation during a cooling process.

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

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

While the engine is warming up, check that the warning lamps for oil pressure (6) and charging (7) are turned off.

The warning lamp for the parking brake (5) should remain on.

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.

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.

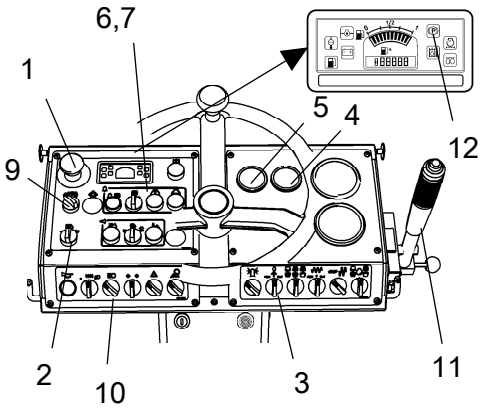


Fig. Instrument panel
1. Emergency stop
2. Speed switch
3. Sprinkler switch
4. Temperature gauge, hydraulic fluid
5. Temperature gauge, engine
6,7, Diagnostics lamps
9. Parking brake knob
10. Full/dipped beam switch
11. Forward/reverse lever
12. Warning lamp, brakes

Set the speed control (2) in the desired working position, right position during transport/asphalt compaction and central position for loading/unloading.

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 (3). Use AUT to save water.

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

Inactivate the parking brake switch (9) and check that the parking brake warning lamp is off. Be prepared that the roller may begin to roll, if it is on a slope.

Carefully move the forward/reverse lever (11) 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 reserve brake function by activating the parking brake switch (9) while the roller is moving forwards slowly.

The forward/reverse lever must then be returned to neutral before continuing driving.

While driving, check that the gauges display normal values and that the warning lamps are not lit. In the event of abnormal values or if the buzzer sounds, immediately stop the roller and the diesel engine. Check and remedy any fault; see also the chapter on maintenance and the engine manual.

Interlock/Emergency stop/Parking brake - Check

The interlock, emergency stop and parking brake must be checked daily before operating. A function check of the interlock and emergency stop requires a restart.

The interlock function is checked by the operator standing up from the seat when the roller is moving very slowly forwards/backwards. (Check in both directions). Hold the steering wheel firmly and brace yourself for a sudden stop. A buzzer goes on and after 4 seconds the engine switches off and the brakes are activated.

Check the function of the emergency stop by pressing the emergency stop when the roller is moving slowly forwards/backwards. (Check in both directions). Hold the steering wheel firmly and brace yourself for a sudden stop. The engine switches off and the brakes are activated.

Check the function of the parking brake by activating the parking brake when the roller is moving very slowly forwards/backwards. (Check in both directions). Hold the steering wheel and brace yourself for a sudden stop when the brakes are activated. The engine does not switch off.

Vibration

Manual/Automatic vibration

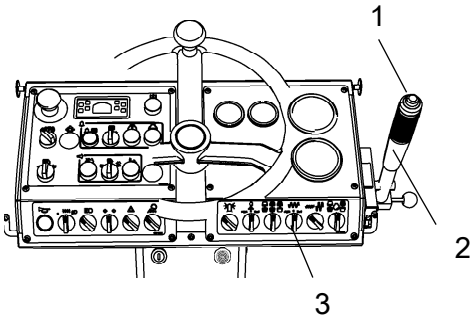


Fig. Instrument panel
1. Vibration On/Off
2. Forward/reverse lever
3. Switch Man/Aut.

Manual or automatic vibration activation/deactivation is selected using switch (3).

In manual mode, the operator must activate vibration via the switch (1) on the forward/reverse lever (2).

In the automatic position, vibration is activated when the pre-set speed is reached. Vibration is automatically deactivated when the lowest pre-set speed is reached.

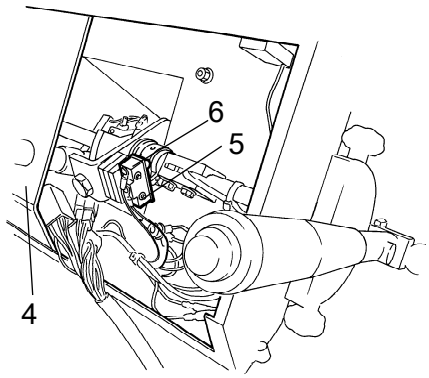


Fig. Switching on vibration
4. Instrument panel
5. Adjustment
6. Microswitch

Turning on vibration is controlled with a micro-switch (6), which is influenced by two chambers on the shaft for the forward/reverse lever. The position for switching on and hence the speed can be adjusted:

Cams close to each other: Vibration engaged at low speed.

Cams apart Vibration engaged at higher speed. Ensure that vibration is engaged at the same speed in forward and reverse.

Manual vibration - Switching on

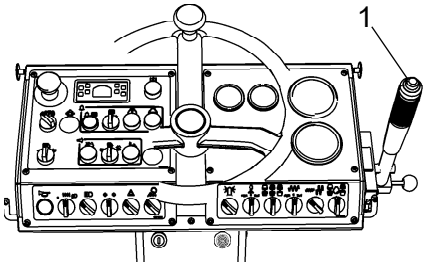


Fig. Instrument panel
1. Vibration On/Off

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

Switch vibration on and off using the switch (1) on the forward/reverse lever.

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

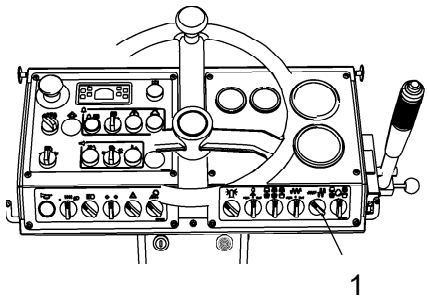


Fig. Instrument panel
1. Amplitude switch Low/High

Amplitude - Changeover

There are two settings for the drum vibration; use the switch (1) to select.

Turn the knob to the left for low amplitude and to the right for high amplitude.

Setting the amplitude may not be performed when vibration is in operation.
Switch the vibration off first and wait until vibration stops before setting amplitude.

Braking

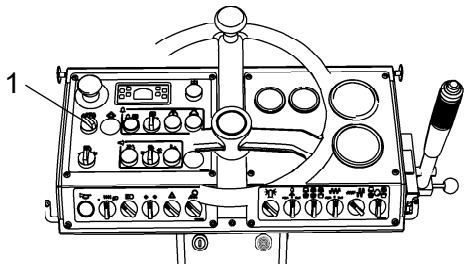


Fig. Instrument panel
1. Parking brake switch

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.

In addition, a disc brake in each drum motor acts as reserve brake when driving, and as a parking brake when stationary.

To brake, activate the parking brake (1), hold the steering wheel firmly and be prepared for a sudden stop.

After braking, return the forward/reverse lever to the neutral position and release the parking brake.

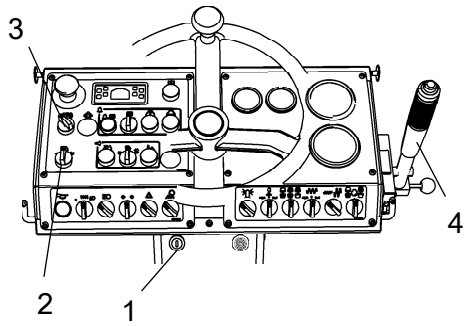


Fig. Instrument panel
1. Ignition lock
2. Speed switch
3. Parking brake knob
4. Forward/reverse lever

Switching off

Turn the speed switch back to idling (left position), allow the engine to idle a few minutes to cool down.

Check instruments and warning lamps to see if any faults are indicated. Switch off all lights and other electrical functions.

Activate the parking brake with the parking brake switch in right position (3).

Turn the ignition lock (1) to the left position and remove the ignition key. Lower and lock the instrument cover.

Parking

Chocking the drums

Never disembark from the machine when the is engine running, unless the parking brake is activated.

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.

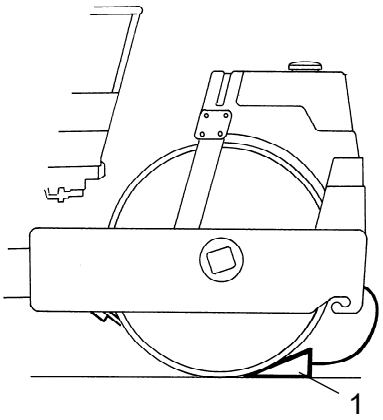


Fig. Positioning
1. Chocks

Keep in mind that there is a risk of freezing during the winter. Check the anti-freeze in the diesel engine and the screenwash bottle in the cab. Drain the water tanks, sprinkler pumps and water lines.

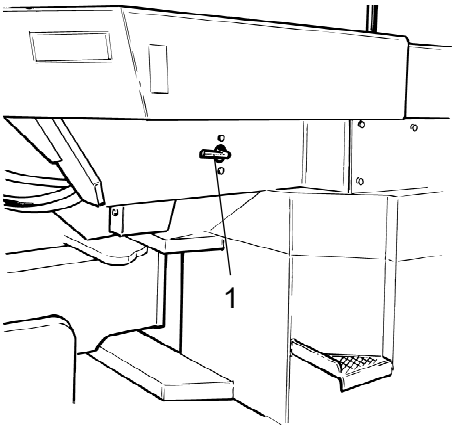


Fig. Battery master switch
1. Key knob

Master switch

Before leaving the roller for the day, switch the battery master switch (1) to the disconnected position and remove the key knob.

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

Long-term parking

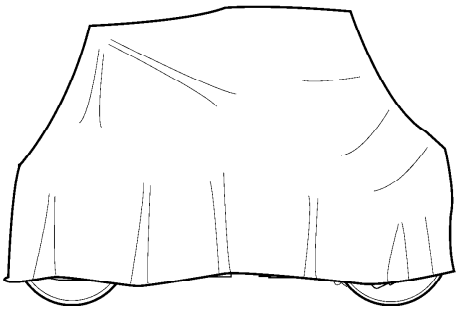


Fig. Roller weather protection

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.

Sprinkler system

* Drain the water tank completely (see under the heading ‘Every 2000 hours of operation’). Drain all hoses, filter housings and the water pump. Remove all sprinkler nozzles (see under the heading ‘Every 10 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.

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

Articulation must be locked to prevent inadvertent turning before lifting the roller.

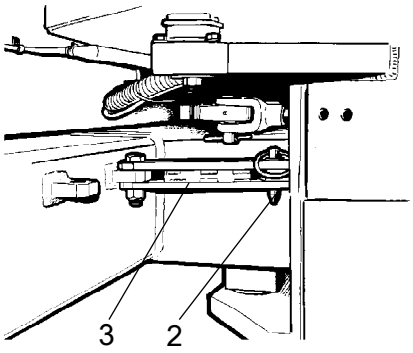


Fig. Articulation lock in the locked position
2. Locking dowel
3. Locking arm

Turn the steering wheel to the straight ahead position. Activate the parking brake.

Pull out the lowermost locking pin, which has a a wire attached. Pull up the locking dowel (2), which also has a wire attached.

Fold out the locking arm (3) and position it over the locking lug on the rear machine frame.

Fit the locking dowel in the holes through the locking arm and locking lug and secure the dowel in position with the locking pin.

Lifting the roller

Weight: refer to the hoisting plate on the roller

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

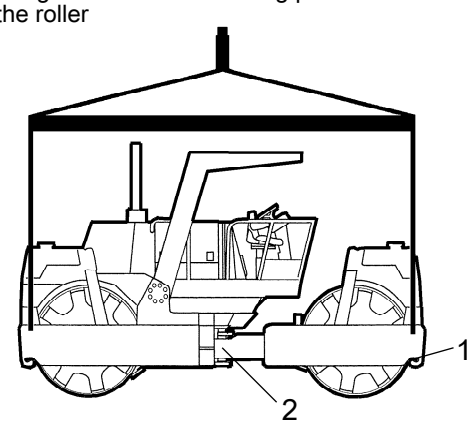


Fig. Roller prepared for lifting
1. Hoisting plate
2. Articulation lock

Lifting gear such as chains, steel wires, straps, and lifting hooks must conform with current regulations.

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

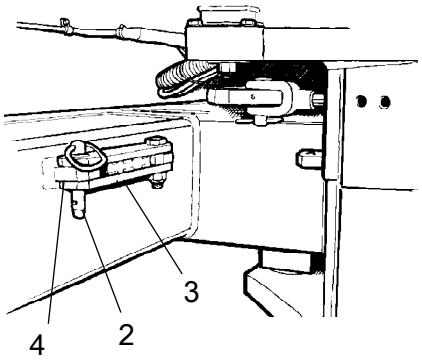


Fig. Articulation lock in the open position
2. Locking dowel
3. Locking arm
4. Locking lug

Unlocking the articulation

Remember to unlock the articulation before operating.

Fold the locking arm (3) back and secure it in the locking lug (4) with the locking dowel (2). The locking lug (4) is located on the tractor frame.

Towing/Recovering

The roller can be moved up to 300 meters (330 yards) using the instructions below.

Short distance towing with the engine running

Activate the parking brake and temporarily shut off the engine. Chock the drums to prevent the machine from rolling.

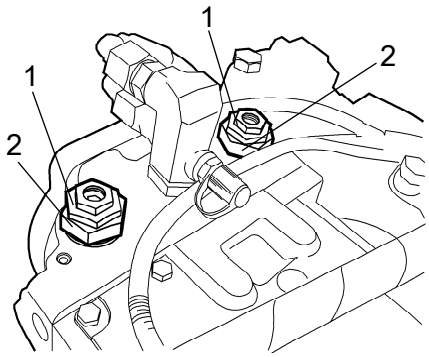


Fig. Propulsion pump
1. Towing valve
2. Multifunction valve

Open the right door to the engine compartment to access the propulsion pump.

Turn both towing valves (1) (middle hexagonal nuts) three turns counter clockwise, while holding the multifunction valve (2) (lowermost hexagonal nuts) in place. The valves are located on the upper side of the propulsion pump.

Start the engine and allow it to idle.

The roller can now be towed and can also be steered if the steering system is otherwise functioning.

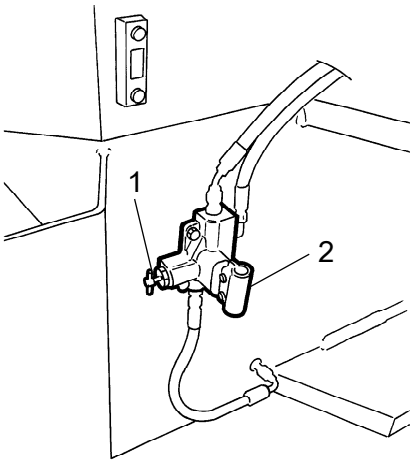


Fig. Pump for releasing the brake
1. Handle for activating the brake
2. Pump lever

Towing short distances when the engine is inoperative

Chock the drums to prevent the roller moving when the brakes are mechanically disengaged.

Set a steel bar in the pump lever (2) and pump by moving the bar up and down until the brakes release or until a certain amount of hydraulic resistance can be felt.

The brakes are now disengaged and the roller can be towed at LOW speed.

After towing. Pull the lever (1) to activate the brake.

Always lock the pump with a padlock when it is not in use.

Towing the roller

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

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

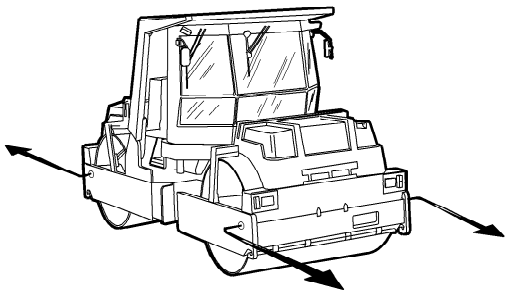


Fig. Towing

When towing/retrieving a machine, the towing device must be connected to both lifting holes. The pulling force must act longitudinally on the machine as shown in the figure. Maximum gross pulling force 265 kN (59575 lbf).

Reverse the towing preparations.

Roller prepared for transport

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

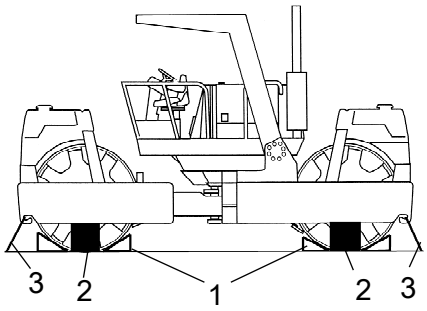


Fig. Positioning
1. Chocks
2. Blocks
3. Straps

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

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

Clamp down the roller with lashing strap (3) at all four corners; decals indicate the fixing points.

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

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. Set the parking brake switch in the activated position and make sure that the emergency stop is disengaged.

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

9. Set the engine speed control to the operating position and inactivate the parking brake switch.

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 STOP
    - Hold the steering wheel firmly.
    - Brace yourself for a sudden stop.

15. When parking:
    - Activate the parking brake switch.
    - 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.

Preventive maintenance

Complete maintenance is necessary for the machine to function satisfactorily and at the lowest possible cost.

The Maintenance section includes the periodic maintenance that must be carried out on the machine.

The recommended maintenance intervals assume that the machine is used in a normal environment and working conditions.

Acceptance and delivery inspection

The machine is tested and adjusted before it leaves the factory.

On arrival, before delivery to the customer, delivery inspection must be conducted as per the check list in the warranty document.

Any transport damage must be immediately reported to the transport company.

Warranty

The warranty is only valid if the stiplulated delivery inspection and the separate service inspection have been completed as per the warranty document, and when the machine has been registered for starting under the warranty.

The warranty is not valid if damage has been caused by inadequate service, incorrect use of the machine, the use of lubricants and hydraulic fluids other than those specified in the manual, or if any other adjustments have been made without the requisite authorisation.

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.

Fluid volumes	liters	gallon (U.S.)
Hydraulic reservoir	120	31,7
Hydraulic system	25	6,6
Pump gear	3,1	0,82
Drum		
- Drum	53	14
- Gear box	3	0,79
Diesel engine		
- Oil	15,7	4,1
- Coolant	28	7,4

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.

ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F)	**AtlasCopco Engine 100**	P/N 5580020624 (5 liters), P/N 5501522700 (20 liters)
HYDRAULIC FLUID	Air temperature -15°C - +50°C (5°F-122°F)	**AtlasCopco Hydraulic 300**	P/N 9106230330 (20 liters), P/N 9106230331 (209 liters)
	Air temperature over +40°C (104°F)	Shell Tellus S2 V100	
Bio-Hydr. BIOLOGICAL HYDRAULIC FLUID, PANOLIN	Air temperature -10°C - +35°C (14°F-95°F) 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.	PANOLIN HLP Synth 46 (www.panolin.com)	
DRUM OIL	Air temperature -15°C - +40°C (5°F-104°F)		**Dynapac Gear oil 300**, P/N 4812030756 (5 liters), P/N 4812030117 (20 liters), P/N 4812031574 (209 liters)
GREASE	Lubrication points in addition to articulated joint		**Dynapac Roller Grease** P/N 4812030096 (0.4kg)

	Articulated joint	SKF LGHB2 (NLGI Class 2)	
FUEL	See engine manual.	-	-
TRANSMISSION OIL	Air temperature -15°C - +40°C (5°F-104°F)		**Dynapac Gear oil 300**, P/N 4812030756 (5 litres), P/N 4812030117 (20 litres), P/N 4812031574 (209 litres)
	Air temperature 0°C (32°F) - above +40°C (104°F)	Shell Spirax S3 AX 85W/140, API GL-5	
COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	GlycoShell/Carcoolant 774C (mixed 50/50 with water)	

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
	Coolant level		Pump gear, oil level

Maintenance - Maintenance schedule

Service and maintenance points

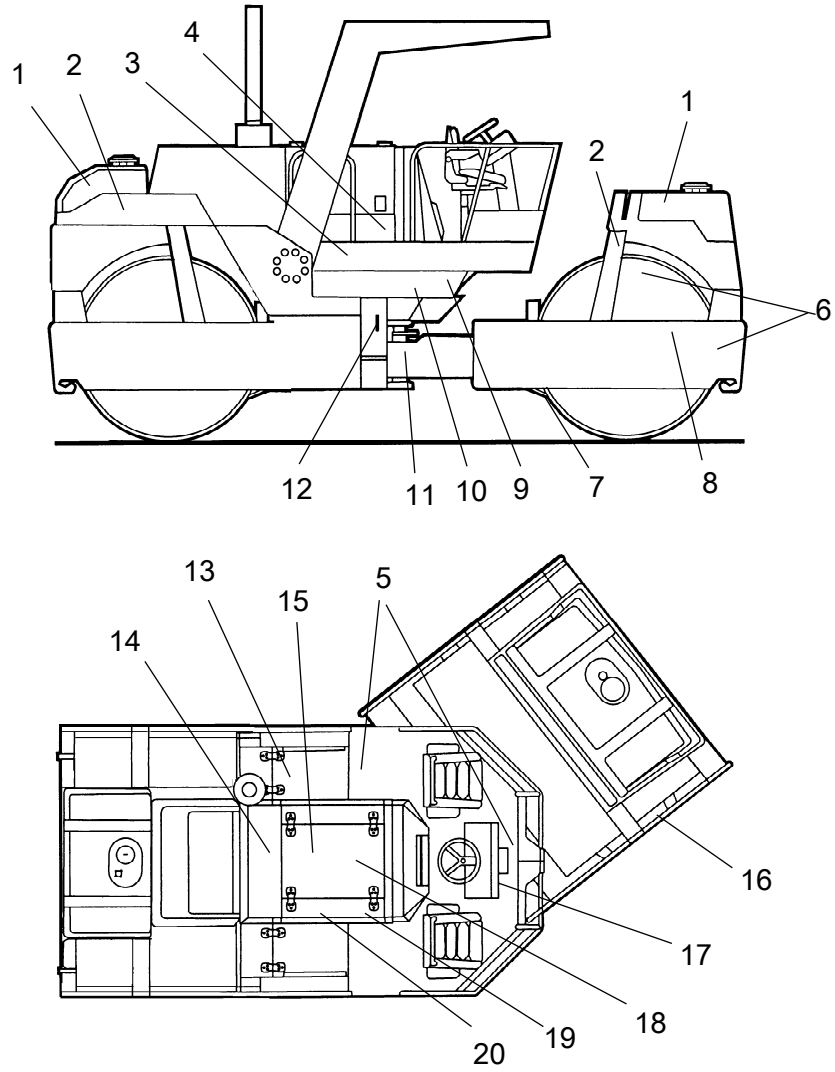


Fig. Service and maintenance points

1.	Water tanks	8.	Rubber elements	15.	Driving belts
2.	Sprinkler system	9.	Hydraulic pump operation	16.	Drum drive
3.	Fuel tank	10.	Hydraulic fluid filter	17.	Control table
4.	Engine mounting	11.	Articulation/steering cylinder	18.	Air filter
5.	Fuses	12.	Hydraulic fluid reservoir	19.	Engine oil level
6.	Drum oil filling/level	13.	Battery	20.	Fuel filter
7.	Scrapers	14.	Radiator		

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	
19	Check the engine oil level	Refer to the engine manual
14	Check the engine coolant level	Refer to the engine manual
14	Check for free circulation of cooling air	
20	Drain the fuel filter's water separator	Refer to the engine manual
	Test the brakes	
2	Check the sprinkler system	
7	Check the scraper setting	
12	Check the hydraulic reservoir level	
3	Refuel	
1	Fill the water tanks	

After the FIRST 50 hours of operation

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

Pos. in fig	Action	Comment
19	Change the engine oil and oil filter	Refer to the engine manual
20	Change the fuel filter	Refer to the engine manual
10	Change the hydraulic fluid filter	
9	Change the oil in the pump gear	
16	Change the oil in the drum gearbox	
6	Change the oil in the drums	

Every 50 hours of operation (Weekly)

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

Pos. in fig	Action	Comment
18	Inspect/clean the filter element in the air cleaner	Replace as required
	Check that hoses and couplings are not leaking	
8	Check rubber elements and bolted joints	
11	Lubricate the articulation and the steering cylinders' mountings.	
12	Check the hydraulic reservoir cover/breather	
13	Check the electrolyte level in the battery	
	Inspect the air conditioning	Optional

Every 250 / 750 / 1250 / 1750 hours of operation

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

Pos. in fig	Action	Comment
14	Clean the outside of the hydraulic fluid cooler/water cooler	If necessary
15	Check belt tension for cooling fan and alternator	Refer to the engine manual
	Check the oil level in the pump drive	
16	Check the oil level in the drum drive	

Every 500 / 1500 hours of operation

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

Pos. in fig	Action	Comment
14	Clean the outside of the hydraulic fluid cooler/water cooler	If necessary
15	Check belt tension for cooling fan and alternator	Refer to the engine manual
	Check the oil level in the pump drive	
16	Check the oil level in the drum drive	
6	Check the oil level in the drums	
17	Lubricate controls and joints	
20	Replace the engine fuel filter	Refer to the engine manual
19	Change the engine oil and oil filter	Refer to the engine manual

Every 1000 hours of operation

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

Pos. in fig	Action	Comment
14	Clean the outside of the hydraulic fluid cooler/water cooler	If necessary
15	Check belt tension for cooling fan and alternator	Refer to the engine manual
	Check the oil level in the pump drive	
16	Check the oil level in the drum drive	
6	Check the oil level in the drums	
17	Lubricate controls and joints	
20	Replace the engine fuel filter	Refer to the engine manual
19	Change the engine oil and oil filter	Refer to the engine manual
	Check engine valve clearances	Refer to the engine manual
15	Check the engine belt drive system	Refer to the engine manual
10	Change the hydraulic fluid filter	
18	Replace the main filter in the air cleaner	
3	Drain condensate from fuel tank	
12	Drain condensate from hydraulic reservoir	

Every 2000 hours of operation

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

Pos. in fig	Action	Comment
14	Clean the outside of the hydraulic fluid cooler/water cooler	If necessary
15	Check belt tension for cooling fan and alternator	Refer to the engine manual
	Check the oil level in the pump drive	
16	Check the oil level in the drum drive	
6	Check the oil level in the drums	
17	Lubricate controls and joints	
20	Replace the engine fuel filter	Refer to the engine manual
19	Change the engine oil and oil filter	Refer to the engine manual
	Check engine valve clearances	Refer to the engine manual
15	Check the engine belt drive system	Refer to the engine manual
10	Change the hydraulic fluid filter	
18	Replace the main filter in the air cleaner	
3	Drain condensate from fuel tank	
12	Drain condensate from hydraulic reservoir	
12	Change the hydraulic fluid	
10	Replace the hydraulic fluid filters	
6	Change the oil in the drums	
16	Change the oil in the drum drive	
9	Change the oil in the pump drive	
1	Drain and clean the water tanks	
11	Check the condition of the articulation	
18	Replace the air cleaner's backup filter and main filter	

Maintenance, 10h

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

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

Diesel engine Check oil level

Take care not to touch any hot parts of the engine or the radiator when removing the dipstick. Risk for burns.

The dipstick is located on the engine's right side.

Pull up the dipstick (1) and check that the oil level is between the upper and lower marks. For further details, refer to the engine's instruction manual.

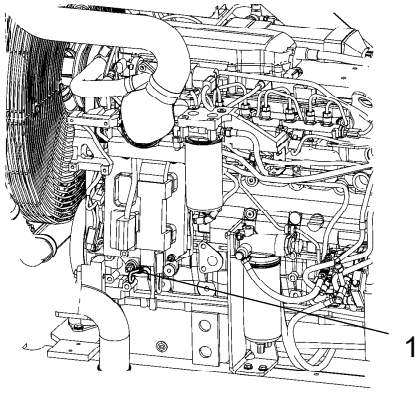


Fig. Engine compartment
1. Dipstick

Coolant level - Check

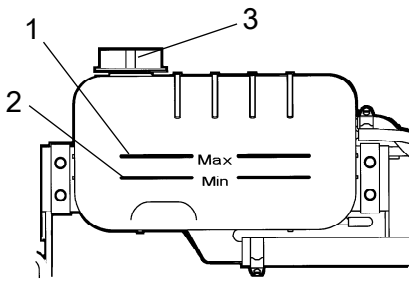


Fig. Water tank
1. Max. level
2. Min. level
3. Filler cap

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

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

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

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

Water separator - Drainage

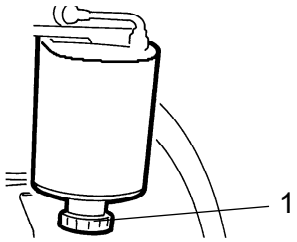


Fig. The fuel filter's water separator
1. Drainage tap

Place a receptacle below the drainage tap located at the bottom of the fuel filter. Open the tap and collect the water and contaminants in the receptacle. Allow it to run until pure fuel comes out. Close the drainage tap.

Deliver the collected fluid to environmentally correct handling.

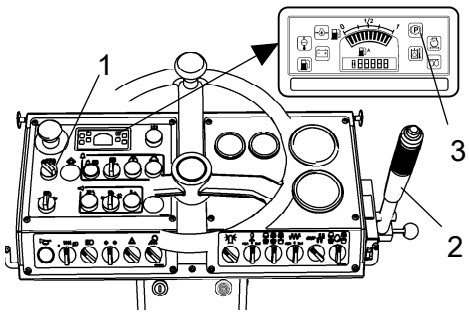


Fig. Instrument panel
1. Parking brake switch
2. Forward/reverse lever
3. Brake warning lamp

Brakes - Check

Check the brakes by carrying out the following :

Drive the roller **slowly** forwards.

Activate the parking brake switch (1), the brake warning lamp (3) on the instrument panel should come on and the roller should stop.

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

Inactivate the parking brake switch.

The roller is now ready for operation.

Sprinkler system - Check, cleaning

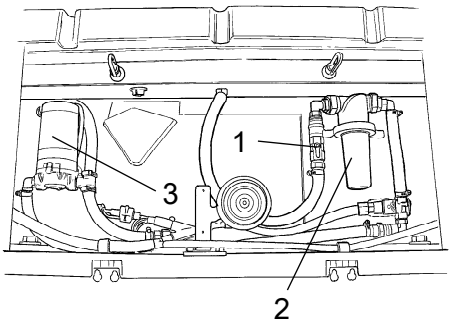


Fig. Sprinkler system
1. Stop cock
2. Filter housing
3. Water pump

Close the stop cock (1) and remove the housing from water filter (2) in order to clean the strainer and housing.

Nozzle - Dismantling/Cleaning

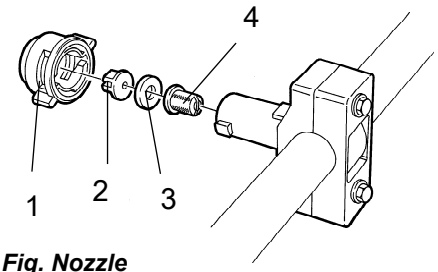


Fig. Nozzle
1. Sleeve
2. Nozzle
3. Seal
4. Fine filter

Dismantle the blocked nozzle by hand.

Blow the nozzle (2) and fine filter (4) clean using compressed air. Alternatively, fit replacement parts and clean the blocked parts at a later point in time.

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

Wear protective goggles when working with compressed air.

Scrapers - Check, adjustment

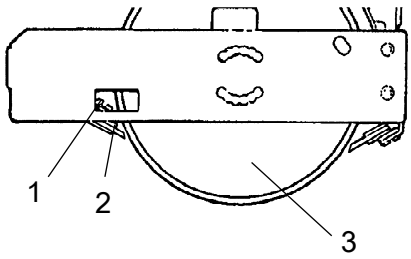


Fig. Scraper adjustment
1. Screw
2. Scraper
3. Drum

Adjust the scrapers so that a gap of 1-2 mm is obtained across the entire drum width.

Loosen the screws (1).

Move the scraper (2) to the correct position, 1-2 mm from the drum (3).

Replace the scraper with a new one if it is so worn that the required gap cannot be achieved.

Tighten the screws and the nuts.

Hydraulic reservoir, Level check - Filling

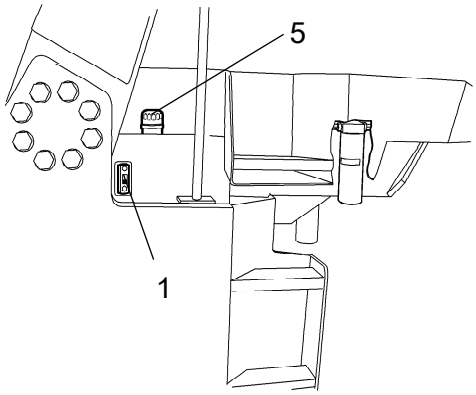


Fig. Hydraulic reservoir
1. Sight glass
5. Filler cap

Place the roller on a level surface and check the fluid level in the sight glass (1).

Top up with new hydraulic fluid if the level is more than 19 mm from the upper edge of the sight glass.

Clean around the filler cap (5) before the cap is removed. Check that the strainer in the filler pipe is intact.

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

Water tanks - Filling

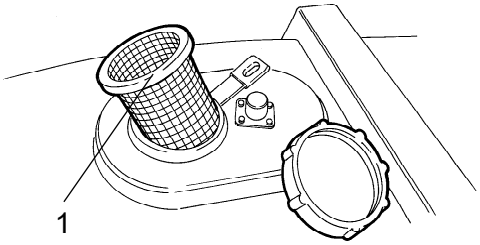


Fig. Water tank
1. Strainer

Unscrew the tank cap, check that the strainer (1) is intact. If necessary life out the strainer for cleaning. Use clean water when filling.

Only additive: A small amount of environmentally friendly antifreeze.

Fuel tank - Filling

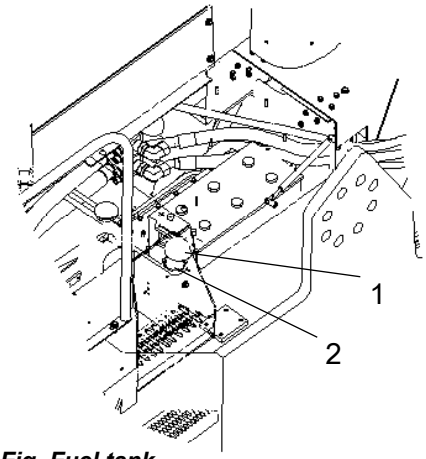


Fig. Fuel tank
1. Tank cap
2. Filler pipe

Refuel daily with diesel fuel up to the lower edge of the filler pipe (1). Follow the engine manufacturer's specification with regard to the quality of diesel fuel.

Stop the diesel engine. Short-circuit (press) the filler gun against a non-insulated part of the roller before refueling, and against the filler pipe (2) while refueling.

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

Maintenance - 50h

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

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

Air cleaner

Checking - Change the main air filter

Change the air cleaner main filter when the warning lamp on the control panel comes on when the engine is running at maximum speed.

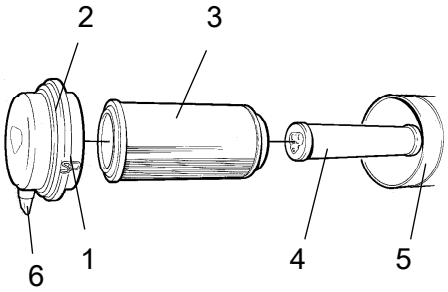


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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.

Backup filter - Change

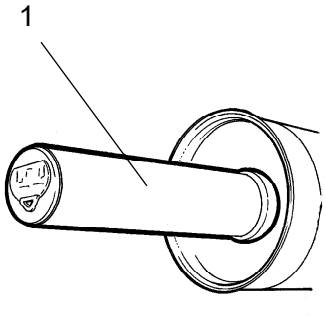


Fig. Air filter
1. Backup filter

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

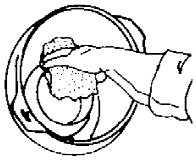
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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

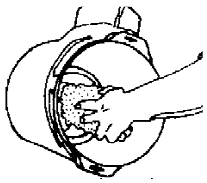
Air cleaner - Cleaning

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.

Rubber elements and fastening screws - Check

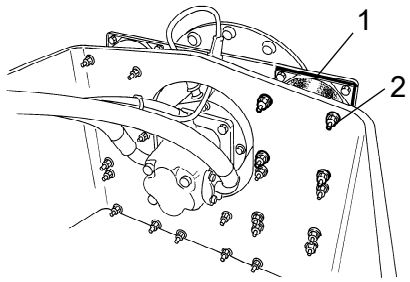


Fig. Drum mounting
1. Rubber elements
2. Screws/nuts

Check all rubber elements (1), replace all of the elements if more than 20% of them on one side of the drum are cracked deeper than 10-15 mm (0.4-0.6 in).

Check using a knife blade or pointed object.

Check also that the screws/nuts (2) are tightened.

The rubber elements' screws in the drum are locked with Loctite. Check the rubber elements on both sides of the drum.

Articulation and steering cylinder - Lubrication

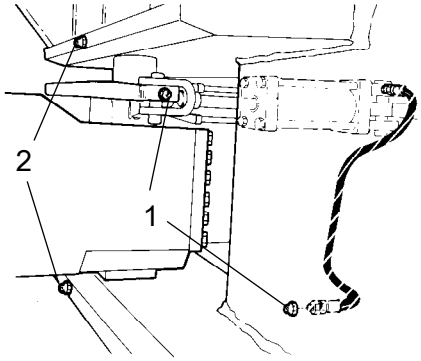


Fig. Grease nipples
1. Bearing, articulation
2. Bearing, steering cylinder

Nobody must be allowed near the steering joint when the engine is running. Risk of being crushed when the steering is operated. Switch off the engine and activate the parking brake before lubricating.

Wipe the grease nipples clean. Lubricate the articulation nipples (1) with five strokes of the hand grease gun, and the steering cylinder bearings (2) with two strokes in each bearing. Make sure that grease penetrates into the bearings. If grease does not penetrate, it may be necessary to relieve the pressure on the articulation joint with a jack and then repeat the greasing process.

Hydraulic reservoir - Check/venting

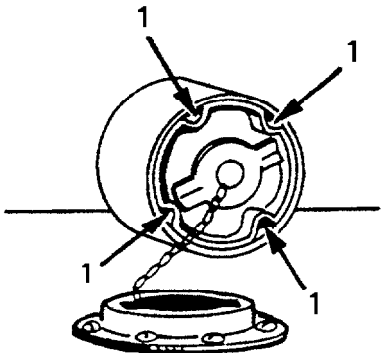


Fig. Reservoir cap
1. Ventilation hole

Unscrew and make sure that the reservoir cap's ventilation hole (1) is not clogged, 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 protective goggles when working with compressed air.

Battery
Checking the electrolyte level

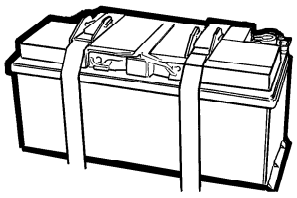


Fig. Battery

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.

Open the left door of the engine compartment. Turn both quick-fit screws on the plate over the battery 1/4 turn counter-clockwise and fold out the plate.

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

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 tightened. Corroded cable shoes should be cleaned and greased with acid-proof Vaseline.

Wipe the top of the battery.

Battery cell

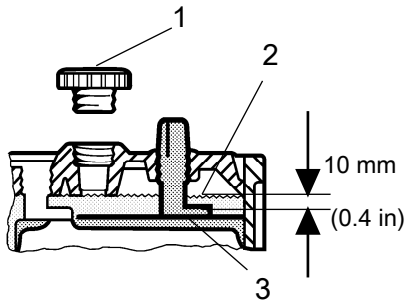


Fig. Electrolyte level in battery
1. Cell cap
2. Electrolyte level
3. Plate

Take off the cell caps (1) and make sure that electrolyte (2) is about 10 mm (0.4 in) above the plates (3). Check the level of all cells. Top off with distilled water to the right level if the level is low.

If the ambient temperature is below freezing, run the engine for a while before topping off with distilled water. Otherwise the electrolyte might freeze.

Make sure that ventilation holes in the cell cover are not clogged, then put the cover back on.

The cable shoes should be clean and well tightened. Clean corroded cable shoes and grease them with acid-free Vaseline.

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

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

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

Maintenance - 250 / 750 / 1250 / 1750h

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

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

Pump drive - Oil level, Check - Filling

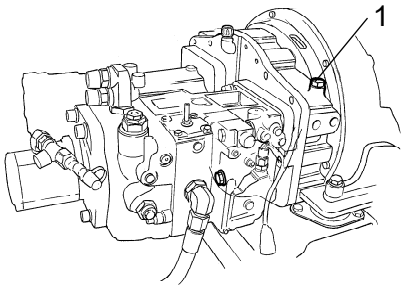


Fig. Pump gear
1. Dipstick

Position the roller on a level surface.

When checking the oil level, switch the engine off and ensure that the parking brake is applied.

Open the right door of the engine compartment and unscrew the dipstick (1).

The oil level should be between the two marks on the lower edge of the dipstick.

Fill with transmission oil if required, see Lubricant Specification.

Ensure that the rubber gasket between the dipstick and the gear housing is in place, and screw in the dipstick.

Drum drive - Checking the oil level

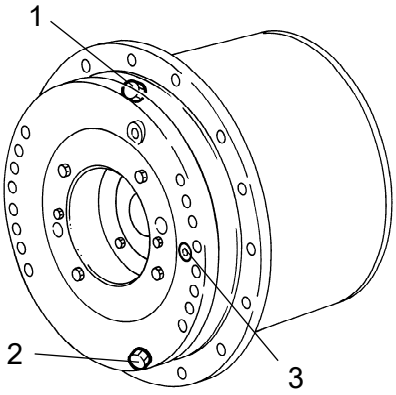


Fig. Drum drive
1. Filler plug
2. Drain plug
3. Level plug

Place the roller on a level surface so that filler plug (1) is at the top. Wipe around the plugs.

The oil level must reach the level plug (3).

If necessary, remove the filler plug and fill with oil in accordance with the lubricant specification, although not more than up to the level plug.

Maintenance - 500 / 1500h

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

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

Drum - Checking the oil level

Switch off the engine, activate the parking brake and disconnect the power.

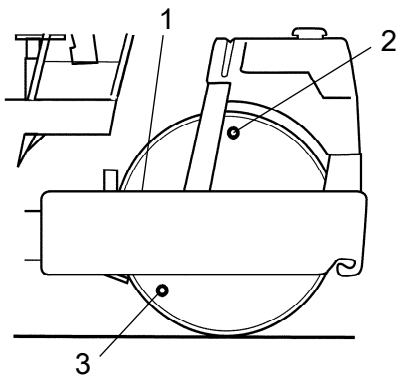


Fig. Drum
1. Level pin
2. Filler plug, M30
3. Level plug, M12

Place the roller on a level surface so that level pin (1) is level with the top of the front frame member. Wipe around the plugs.

The oil level must reach the level plug (3).

If necessary, remove the filler plug (2) and fill with oil in accordance with the oil specification, although not more than up to the level plug.

Controls and moving joints - Lubrication

Lubricate the hinges for the hood, side windows and any cab doors with grease. Also lubricate the slide rails for the operator's seat and the control table's bearing with grease; lubricate other joints and controls with oil. See the lubricant specification..

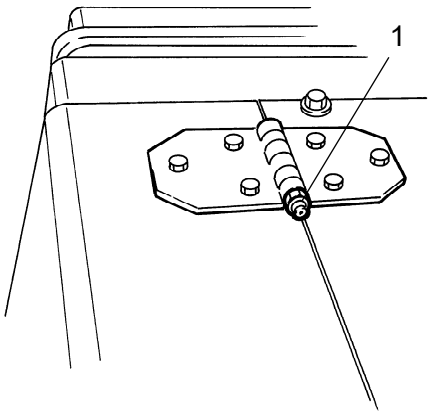


Fig. Hinge on hood
1. Grease nipple

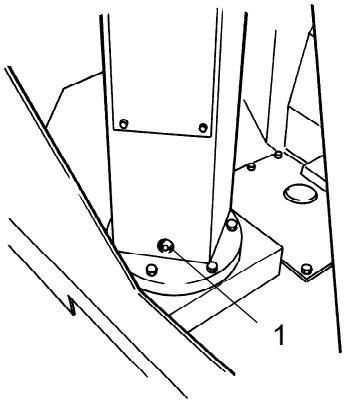


Fig. Control column
1. Grease nipple

Maintenance - 1000h

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

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

Hydraulic fluid filter - Replacement

Clean thoroughly around the fluid filter.

Remove the fluid filters (1) and and deliver to environmentally correct handling. They are single-use filters and cannot be cleaned.

Make sure that the old sealing rings are not left on the filter holders, as this could cause leakage between the new and old gaskets.

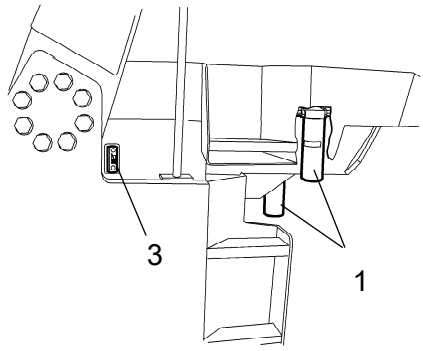


Fig. Hydraulic system
1. Hydraulic fluid filter
3. Sight glass

Thoroughly clean the sealing surfaces of the filter holders.

Apply a thin coat of fresh hydraulic fluid to the rubber seals on the new filters. Screw the filters tight by hand.

First tighten the filter until its seal is in contact with the filter attachment. Then turn an additional half revolution. Do not tighten the filter too hard as this could damage the gasket.

Start the engine and check that there is no leakage of hydraulic fluid from the filters. Check level of fluid in the sight glass (3) and top up as required.

Air filter - Change

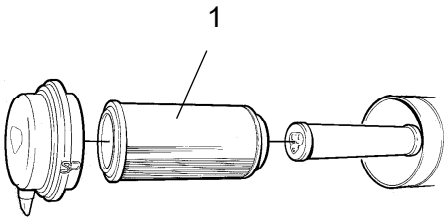


Fig. Air cleaner
1. Main filter

Replace the main filter in the air cleaner (1). See under the heading 'Every 50 hours of operation' for information on changing the filter.

If a blocked filter is not replaced, the exhaust fumes will be black and the engine will loose power. There is also a risk of severe damage to the engine.

Backup filter - Change

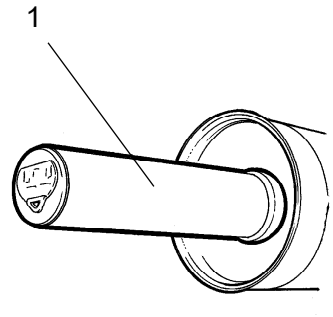


Fig. Air filter
1. Backup filter

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

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.

Fuel tank - Drainage

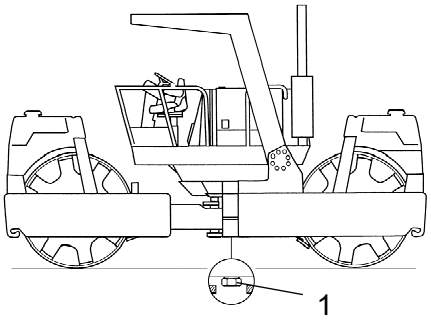


Fig. Fuel tank
1. Drain plug

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

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

Drainage must be performed when the roller has been stationary for an extended period, e.g. after being stationary overnight. The fuel level should be as low as possible.

The roller should preferably have been standing with this side slightly lower, so that water and sediment have gathered near the drain plug (1).

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

Drain as follows:

- Place a container under the plug (1).

- Remove the plug (1).

- Drain out the condensate and sediment until only pure fuel emerges at the plug.

- Refit the plug again.

Hydraulic fluid reservoir - Draining

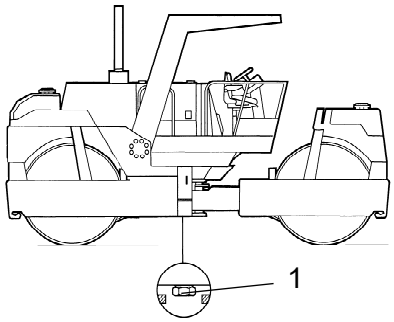


Fig. Hydraulic reservoir
1. Drain plug

Condensate in the hydraulic reservoir is drained via the plug (1).

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

Drainage must be performed when the roller has been stationary for an extended period, e.g. after being stationary overnight.

Drain as follows:

- Place a container under the plug (1).
- Remove the plug.
- Drain the condensate until pure hydraulic fluid runs out.
- Refit the plug again.

Collect the condensate and accompanying hydraulic fluid and deliver to environmentally correct handling.

Maintenance - 2000h

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

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

Hydraulic reservoir - Replacing the fluid/filters

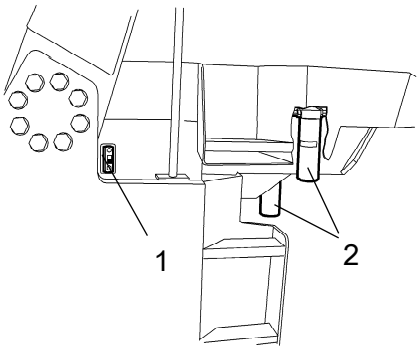


Fig. Hydraulic system
1. Hydraulic fluid filter
2. Sight glass

Before replacing the fluid, it is important that the roller has been warmed up for a sufficient length of time in order for the fluid to have warmed up and thinned prior to draining. This makes it easier for any contaminants to leave the reservoir with the fluid. Bear cleanliness in mind when working with hydraulic components.

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

Position the roller on a level surface.

Replace the hydraulic fluid filters and check the tank cap's ventilation, see section in 50h.

Position a collection receptacle for the required amount and drain off the hydraulic fluid.

Fill with hydraulic fluid in accordance with the lubricant specification, until the correct level is achieved in the sight glass.

Start the engine, drive and vibrate with the roller. Stop the engine, check the fluid level and check for leaks. Top up if necessary.

Dispose of the drained fluid for environmentally correct handling.

Drum - Changing the oil

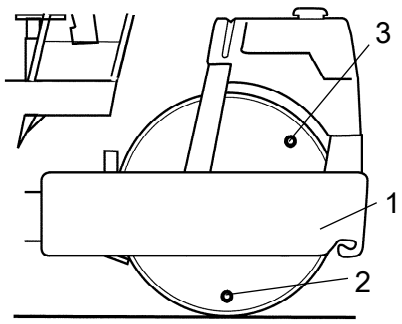


Fig. Drum
1. Level pin
2. Drain/filler plug, M30
3. Level plug, M12

Switch off the engine, activate the parking brake and disconnect the power.

Collect and dispose of the drained oil for environmentally correct handling.

Applies to both sides of the drum:

After warming up, place the roller on a flat surface so that the plugs (2) are at the bottom. Wipe around the plugs.

Remove the plug (2) on one side and drain the oil, approximately 27 liters, into a suitable receptacle.

Drain the oil in the same way on the other side. Clean the plugs and wait until all the oil has run out. Wipe up any spilled oil.

Drive the roller until the plugs (2) are at the top and the level pin is level with the top of the front frame member.

Fill with oil in accordance with the Lubricant specification until the level reaches the plug (3). Refit the plugs and wipe up any spilled oil.

Drum drive - Changing the oil

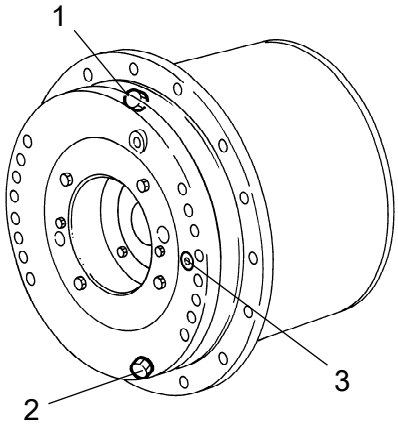


Fig. Drum drive
1. Filler plug
2. Drain plug
3. Level plug

Applies to both drums:

Before replacing the oil, it is important that the roller has been warmed up for a sufficient length of time in order for the oil to have warmed up and thinned prior to draining. This makes it easier for any contaminants to leave the reservoir with the fluid. Bear cleanliness in mind when working with hydraulic components.

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

Place the roller on a level surface so that drain plug (2) is at the bottom. Wipe around the plugs.

Place a receptacle under the drain plug and drain the oil. The receptacle must hold at least 4 liters.

Remove the filler plug (1) and the level plug (3). Wait until all the oil has run out. Clean any metal residue from the plugs. Refit the drain plug and fill with oil in accordance with the lubricant specification, although not more than up to the level plug. Refit the plugs. Wipe up any spilled oil.

Pump drive - Changing the oil

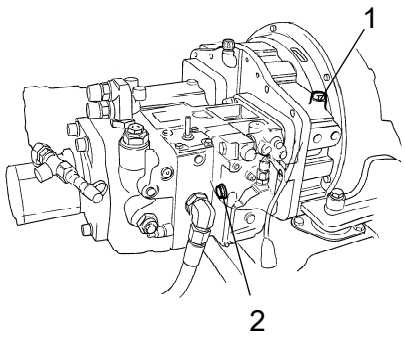


Fig. Pump gear
1. Filler plug/dipstick
2. Drain plug

When the pump drive has reached working temperature: Position the roller on a level surface.

Switch off the engine, activate the parking brake and disconnect the power.

Collect the oil in a container and dispose of for environmentally correct handling.

Wipe around the plugs.

Unscrew the filler plug/dipstick (1) and the drain plug (2). Drain the oil, approx. 4 liters.

Clean and refit the drain plug.

Fill with new transmission oil according to the lubricant specification. Fill slowly so that the oil has time to level out.

Check with the dipstick and do not overfill. Tighten the filler plug/dipstick and wipe up any spilled oil.

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