Instruction manual

Operating & Maintenance
4812162901_F.pdf

Vibratory roller
CC4000 VI, CC4200 VI
CC5200 VI, CC6200 VI

Engine
Cummins QSF 3.8 (Stage IV/T4F)
Cummins F 3.8 (Stage V)

Serial number
10000401xxA024156 -
10000402xxA020192 -
10000385xxA018993 -
10000403xxA020548 -
10000386xxA019539 -
10000404xxA019228 -
10000387xxA019044 -
10000490xxA032400 -
10000491xxA0xxxxx -
10000496xxA034158 -
10000497xxA038688 -
10000602xxA037241 -
10000603xxA0xxxxx -
10000608xxA031751 -



Translation of original instruction

Reservation for changes
Printed in Sweden

EN

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Introduction

The machine

Dynapac CC4000 VI, CC4200 VI, CC5200 VI, CC6200 VI is a vibratory tandem roller in the 10/12/13 tonnes class with 1680/1950/2130 mm (66/77/84 in) wide drums. It features power drive, brakes, vibration and timer controlled water sprinklers on both drums.

CC4000 VI, CC4200 VI, CC5200 VI is also available as a Combi-version, with four rubber wheels at the rear instead of steel drums.

A variety of different engine power settings, operator platforms, control possibilities and options makes the machine available in a lot of different configurations.

Intended use

The machines have mainly been designed to compact thin and thick asphalt surfacing and they are equipped with two vibration amplitudes optimised for this purpose. It is also possible to compact granular earth materials, such as sand and gravel.

Training

The purpose of operator training is to impart the operator the knowledge and skills necessary for proper operation and routine maintenance of the roller according to this manual.

Note to trainer: Further information on operator training can be found in ISO 7130.

Signal symbols and meaning

WARNING ! Indicates potential hazardous situation/procedure which, if not avoided, could result in death or serious injury.

CAUTION ! Indicates potential hazardous situation/procedure which, if not avoided, could result in minor or moderate injury, damage to the machine or property.

Safety information

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

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

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

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

Only the operator is allowed to be on the roller.

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

CALIFORNIA

Proposition 65

Decal and location of decal shown in section Machine description.

⚠ **WARNING**: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

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.

If faults or suspected damage are detected on the roller, contact the responsible supervisor for any action.



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, where maintenance after every 10 and 50 hours of operation can be performed by the machine operator. Other maintenance intervals must be carried out by accredited (Dynapac) service personnel.



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

Specific maintenance and checks on diesel engines must be performed by engine supplier authorized personnel.

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)



- **The operator must be familiar with the contents of the OPERATION section before starting the roller.**
- **Ensure that all instructions in the MAINTENANCE section are followed.**
- **Only the operator is allowed to be on the roller. Remain seated at all times when operating the roller.**
- **Never use the roller if it is in need of adjustment or repair.**
- **Only ascend and descend 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 ascending or descending the machine. Never jump down from the machine.**
- **Dynapac always recommends mounted ROPS (Roll Over Protective Structure), or a ROPS-approved cab and seat belt usage.**
- **Drive slowly in sharp bends.**
- **Avoid driving across slopes. Drive straight up or straight down the slope.**
- **Never operate with the drum outside the edge, the substrate might not have full bearing strength or the edge is close to a slope. Avoid operating close to edges and ditches and the like as well as on poor ground conditions that jeopardizes the bearing strength and capacity to support the roller.**
- **Make sure that there are no obstacles in the direction of travel, on the ground, in front of or behind the roller, or overhead.**
- **Drive particularly carefully on uneven ground.**
- **Keep the roller clean. Clean any dirt or grease that accumulates on the footsteps or operator platform to avoid slipping risk. Keep all signs and decals clean and legible.**
- **Safety measures before refueling:**
  - Stop the engine
  - Do not smoke.
  - No naked flames in the vicinity of the roller.
  - Earth the filling equipment nozzle by keeping it in contact to the tank opening to avoid sparks.
- **Before repairs or service:**
  - Chock the drums/wheels.
  - Lock the articulation if necessary.
  - Place blocks under overhanging equipment, such as strike-off blade, edge cutter/presser and chip spreader.

- **Hearing protection is recommended if the noise level exceeds 80 dB(A). The noise level can vary depending on the equipment on the machine and the surface the machine is being used on.**

- **Modifications to the roller, including the use of any attachment/equipment, not approved by Dynapac that might compromise safety (including visibility) are not allowed. Any modifications are only to be made after written approval has been given by Dynapac.**

- **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.**

- **For your own protection always wear:**
  - working boots with steel toecaps
  - ear protectors
  - reflecting clothing/high visibility jacket
  Also wear:
  - helmet if no cab or FOPS, or if required by worksite management
  - working gloves if no cab and for work outside operator´s platform.

- **If the machine seems to be responding abnormally during travel, stop and check it.**

Safety - when operating



Prevent persons from entering or remaining in the risk zone, 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.

Driving near edges



Never operate with the drum outside the edge, the substrate might not have full bearing strength or the edge 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.

Work driving

The cab has an emergency exit, the right opening windows, which can be crushed with the emergency hammer located in the cab.

Dynapac always recommends mounted ROPS (Roll Over Protective Structure), or a ROPS-approved cab and seat belt usage.

Avoid operating close to edges and ditches and the like as well as on poor ground conditions that jeopardizes 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.

Safety (Optional)

Air conditioning

The system described in this manual is an AC/ACC type (Automatic climate control)

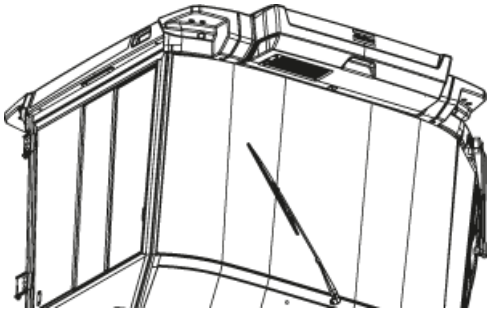


Fig. Cab

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

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 recharged with approved refrigerant as required by authorized personnel.

The refrigerant contains a tracing agent, enabling leak-tracing to be performed using UV light.

The condenser is located together with other radiators, and the drying filter is located on the right-hand side of the radiator stand.

Edge cutter/presser

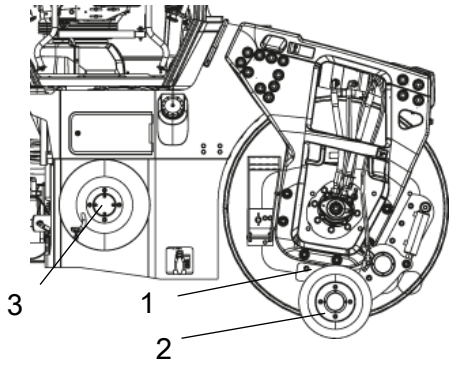


Fig. Edge cutter/presser
1. Transport position
2. Operating position
3. Holder for cutter/compactor wheel.

The operator must make sure that nobody is in the area of operation while the machine is in use.

The edge cutter/presser consists of rotating components and there is a risk of being crushed.

The tool must be returned to the transport position (raised position) (1) every time it has been used.

If the edge cutter/presser and its parts are dismantled, make sure that it is set in a relieved position and resting on the ground.

Chip spreader

The machine must not be lifted or transported on another vehicle with chips in the chip spreader. The weight for the chip spreader is specified on the unit rating plate. This weight is not included in the machine weight specified on the machine plate.

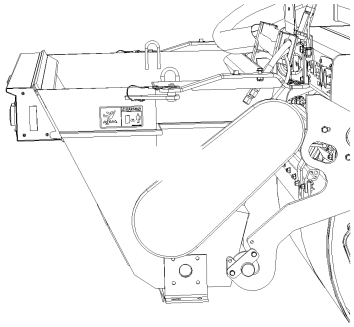


Fig. Chip spreader

The operator must make sure that nobody is in the area of operation while the machine is in use.

Risk of crushing and pinch injuries. The chip spreader has rotating parts.

The chip spreader must be reset in transport mode after it has been used.

Fitting the chip spreader changes the total length of the machine.

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 biodegradable hydraulic oil 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.

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.

The push button switch for the pump system can be used to supply the sprinkler system with antifreeze.

Refer to the maintenance sections for daily care (10 h) and draining the watering system (2,000 h) for instructions on how to frost-proof/drain the system.

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.

The machine has an electric control lever with accompanying control unit (ECU), which may not be washed at all with water. It is sufficient to wipe these off. The same applies to the engine program box (engine ECU)

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.

When working with compressed air, use the following protective equipment:



Eye protection



Protective gloves



Ear protectors

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.

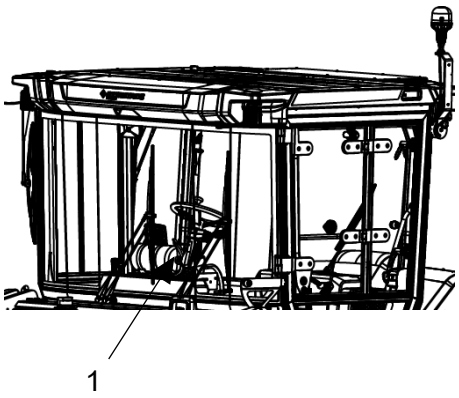


Fig. Cab
1. Fire extinguisher

Fire extinguisher

A fire extinguisher can be ordered as an option. Though, different standards are used around the world.

If not using the original fire extinguisher, place your extinguisher as in the picture. A 4 kg extinguisher is recommended.

Follow the installation instructions supplied with the fire extinguisher and make sure that the location does not create any risks.

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 ROPS structure in cab. These must be replaced with new ROPS structure or new cab.

Welding

When carrying out welding on the machine, the battery must be disconnected and the electronics disconnected from the electrical system.

If possible, remove the part(s) to be welded from the machine.

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 (24V)

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.

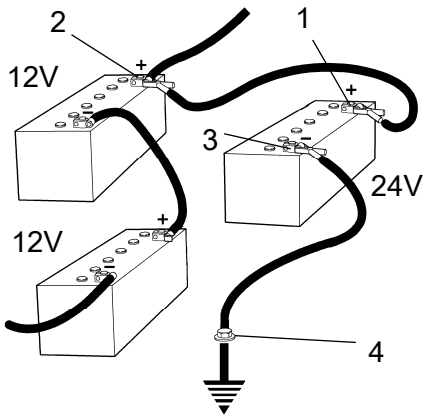


Fig. Jump starting

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

Jump leads must have 24V.

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

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

Technical specifications

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}	108 dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}	91 ±3 dB (A)
Sound pressure level at the operator's ear (cab), L_{pA}	79 ±4 dB (A)

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

Electrical system

Machines are EMC tested in accordance with EN 13309:2000 'Construction machinery'

Slopes

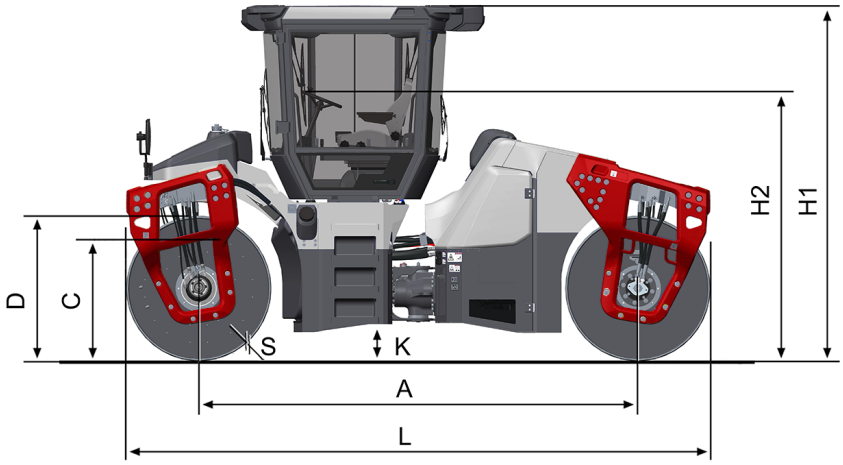


Max 20° or 36%

The recommended max slope angle is for a machine that runs straight on hard, flat surface.

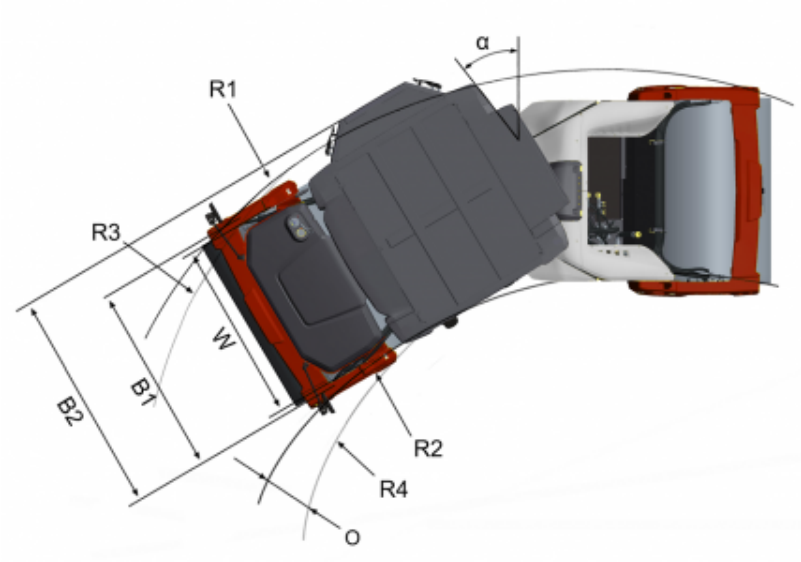
Unstable ground, vibration on, speed and steering the machine can all cause the machine to topple at smaller angles than specified here.

Dimensions, side view



	Dimensions	mm	in
A	Wheel base		
	CC4000 VI	3680	145
	CC4200 VI, CC5200 VI, CC6200 VI	3760	148
D	Diameter, drum		
	CC4000 VI	1220	48
	CC4200 VI, CC5200 VI, CC6200 VI	1300	51
H1	Height, with ROPS/cab	2990	118
K	Ground clearance	310	12
L	Length, standard variant		
	CC4000 VI	4900	193
	CC4200 VI, CC5200 VI, CC6200 VI	5060	199
S	Thickness, drum amplitude, Nominal		
	CC4000 VI	18	0.71
	CC4200 VI, CC5200 VI, CC6200 VI	20	0.79

Dimensions, top view



	Dimensions	mm	in
B1	Machine width, standard		
	CC4000 VI, CC4200 VI	1910	75.2
	CC5200 VI	2180	85.8
	CC6200 VI	2360	92.9
B2	Machine width, asymmetrical		
	CC4000 VI, CC4200 VI	2140	84.3
	CC5200 VI	2410	94.9
	CC6200 VI	2500	98.4
R1	Turning radius, outer		
	CC4000 VI, CC4200 VI	7270 / 5460*	286 / 215*
	CC5200 VI	7410 / 5580*	292 / 220*
	CC6200 VI	7500 / 5670*	295 / 223*
R2	Turning radius, inner		
	CC4000 VI, CC4200 VI	5590 / 3780*	220 / 149*
	CC5200 VI	5460 / 3630*	215 / 143*
	CC6200 VI	5370 / 3540*	211 / 139*
W	Drum width		
	CC4000 VI, CC4200 VI	1680	66
	CC5200 VI	1950	77
	CC6200 VI	2130	84
	*) with offset		

Weights and volumes

Weights

Service weight			ROPS (EN500)	Cab
CC4000 VI	No offset	(kg)	9 700	9 860
		(lbs)	21 390	21 740
	Offset	(kg)	9 780	9 940
		(lbs)	21 560	21 920
CC4200 VI	No offset	(kg)	10 000	10 160
		(lbs)	22 050	22 400
	Offset	(kg)	10 160	10 320
		(lbs)	22 400	22 760
CC5200 VI	No offset	(kg)	11 800	11 870
		(lbs)	26 020	26 170
	Offset	(kg)	11 800	11 870
		(lbs)	26 020	26 170
CC6200 VI	No offset	(kg)	12 400	12 470
		(lbs)	27 340	27 500
	Offset	(kg)	12 400	12 470
		(lbs)	27 340	27 500

Fluid volumes

Fuel tank		180 liters	48 gal
Urea tank		14 liters	14.8 qts
Water tank/s			
- central			
CC4000 VI, CC4200 VI	No offset	680 liters	180 gal
CC4000 VI, CC4200 VI	Offset	540 liters	143 gal
CC5200 VI, CC6200 VI	No offset	850 liters	224 gal
CC5200 VI	Offset	660 liters	174 gal
- rear (optional)*		200 liters	53 gal

*) Standard on machines with offset

Working capacity

Compaction data

Static linear load	(Front)	(Rear)	
CC4000 VI	28,9	28,9	(kg/cm)
	162	162	(pli)
CC4200 VI	29,8	29,8	(kg/cm)
	167	167	(pli)
CC5200 VI	30,3	30,3	(kg/cm)
	170	170	(pli)
CC6200 VI	29,1	29,1	(kg/cm)
	163	163	(pli)

Amplitude	High	Low	
	0,8	0,3	(mm)
	0.031	0.012	(in)

Vibration frequency	High amplitude	High amplitude (CE-2006)	Low amplitude	Low amplitude (CE-2006)	
CC4000 VI, CC4200 VI	51	51	67	64	(Hz)
-> s/n 023115	3 060	3 060	4 020	3 840	(vpm)
CC4000 VI, CC4200 VI	51	48	67	61	(Hz)
s/n 023116 ->	3 060	2 880	4 020	3 660	(vpm)
CC5200 VI, CC6200 VI	51	44	67	58	(Hz)
	3 060	2 640	4 020	3 480	(rpm)

Centrifugal force	High amplitude	High amplitude (CE-2006)	Low amplitude	Low amplitude (CE-2006)	
CC4000 VI	113	113	74	67	(kN)
-> s/n 023115	25 425	25 425	16 650	15 075	(lb)
CC4000 VI	113	100	74	61	(kN)
s/n 023116 ->	25 425	22 500	16 650	13 725	(lb)

CC4200 VI	128	128	84	76 (kN)
-> s/n 023115	28 800	28 800	18 900	17 100 (lb)
CC4200 VI	128	113	84	69 (kN)
s/n 023116 ->	28 800	25 425	18 900	15 525 (lb)
CC5200 VI	144	106	93	68 (kN)
	32 400	23 850	20 925	15 300 (lb)
CC6200 VI	157	115	103	73 (kN)
	35 325	25 875	23 175	16 425 (lb)

Propulsion

Speed range	0-12 km/h	0-7.5 mph
Climbing capacity (theoretical)		
CC4000 VI	45 %	
CC4200 VI	40 %	
CC5200 VI	34 %	
CC6200 VI	32 %	

General

Engine

Manufacturer/Model	Cummins QSF 3.8 (stage IV/Tier 4F)	Water-cooled turbo-diesel
Power output (SAE J1995), 2200 rpm	97 kW	132 hp
Manufacturer/Model	Cummins F 3.8 (stage V)	Water-cooled turbo-diesel
Power output (SAE J1995), 2200 rpm	100 kW	134 hp
Engine speed		
- idling	900 rpm	
- loading/unloading	1600 rpm	
- work/transport	2 200 rpm	

Stage IV/Stage V Cummins engines require the use of Ultra Low Sulphur Diesel (ULSD) fuel, which has a sulphur content of 15 ppm (parts per million) or less. Higher sulfur contents cause operating problems and put the useful life of components at risk, which can lead to engine trouble.

CO_2-emission

CO_2-emissions measured according to applicable test cycle in Regulation (EU) 2016/1628.

Manufacturer/Model		Test-cycle	CO_2-emission (g/kWh)
Cummins F 3.8	Stage V	NRTC	717.1

NRTC: Non-road transient test cycles.

Electrical system

Battery	24V (2x12V 74Ah)
Alternator	24V 70A
Fuses	See the Electrical system section - fuses

Bulbs (if mounted)	Watt	Socket
Drive lights, front	75/70	P43t (H4)
Direction lights, front	21	BA15s
Side lights	5	SV8,5
Brake-Position lights	21/5	BAY15d
Direction lights, rear	21	BA15s
License plate light	5	SV8,5
Cab lights	10	SV8,5

Hydraulic system

Opening pressure	MPa
Drive system	42.5
Supply system	2.5
Vibration system	35
Control systems	17.5
Brake release	1.2
Hydraulic fan system	19

Air Conditioning / Automatic Climate Control (ACC) (Optional)

The system described in this manual is an AC/ACC type (Automatic Climate Control). ACC is a system that maintains the set temperature in the cab, provided windows and doors are kept closed.

The system contains fluorinated greenhouse gases.

Coolant designation: HFC-134a

Coolant weight when full: 1.600 kg

CO_2-equivalent: 2.288 ton
GWP:1430

Technical data, Chip spreader (Optional)

	CC4000 VI, CO4000 VI	CC4200 VI, CO4200 VI	CC5200 VI, CO5200 VI
Weight of container (empty)	410 kg (904 lb)	410 kg (904 lb)	410 kg (904 lb)
Max total extra weight (full)	1860 kg (4101 lb)	1860 kg (4101 lb)	1890 kg (4168 lb)
Max permitted load volume	700 l (185 gal)	850 l (224 gal)	700 l (185 gal)
Spreading width	1800 mm (71 in)	1800 mm (71 in)	1800 mm (71 in)
Length of spreader	1200 mm (47 in)	1200 mm (47 in)	1200 mm (47 in)
Total length of machine (spreader fitted)	6125 mm (241 in)	6205 mm (244 in)	6205 mm (244 in)

If to mount a chip spreader, check in the spare part catalogue for correct Dynapac P/N of the chip spreader for the machine and follow the mounting instructions.

Tightening torque

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

Metric coarse screw thread, bright galvanized (fzb):

PROPERTY 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):

PROPERTY 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

Diesel engine

The machine is equipped with a water-cooled, straight four cylinder, four-stroke, turbocharged diesel engine with direct injection and a charge air cooler.

(Stage IV/Tier 4F)

The engine is also equipped with a Cummins® diesel oxidation catalyst and selective catalytic reduction (DOC-SCR) system) for exhaust gas aftertreatment.

(Stage V)

The engine is also equipped with a Cummins ® diesel oxidation catalyst, a diesel particulate filter and a selective catalytic reduction (DOC/DPF/SCR system) for exhaust gas aftertreatment.

Electrical system

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

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

Propulsion system

The propulsion system is a hydrostatic system

A drive unit drives each drum or wheel pair.

All propulsion motors are connected in parallel, a hydraulic pump supplies all motors with hydraulic oil.

The speed of the machine is proportional to the deflection/angle of the control lever from neutral.

Brake system

The brake system consists of a service brake, reserve brake and parking brake.
The service brake is hydrostatic and is activated by moving the control lever to neutral.

Reserve/Parking brake

The reserve and parking brake system consists of spring-applied disc brakes for each drum, drum half and wheel set. The brakes are released with hydraulic pressure and are operated with a switch on the instrument panel.

Steering system

The steering system is a hydrostatic system. The control valve on the steering column distributes the flow to the steering cylinders that affect the articulated joint. A hydraulic pump supplies the control valve with fluid.

The steering angle is proportional to the amount the steering wheel is turned.

In some markets, the machine is also equipped with an emergency steering system, either manually or electro-hydraulically.

Vibration system

The vibration system is a hydrostatic system in which a hydraulic motor drives the eccentric shaft, which generates the drum's vibrations.

An eccentric shaft in the front-resp. rear drum generates the the drum's vibrations.

Each eccentric shaft is driven by a hydraulic motor. A hydraulic pump supplies each hydraulic motor with oil.

High amplitude/low frequency or low amplitude/high frequency is controlled by the direction of rotation of the hydraulic motor.

Cab

The cab is an asymmetrical type and is available in the following variants:

- Standard cab – has a heating and ventilation system, with defrosters for all windows. Meets the requirements of ISO 10263.

- Comfort cab – has a heating and ventilation system, with defrosters for all windows. It is also equipped with AC/ACC and complies with ISO 10263.

Emergency exit

The cab has an emergency exit, the right opening windows, which can be crushed with the emergency hammer located in the cab.

FOPS and ROPS

FOPS is the abbreviation for "Falling Object Protective Structure" (roof protection (ISO 3449)) and ROPS is the abbreviation for "Roll Over Protective Structure" (ISO 3471).

If any part of the protective construction on the cab or FOPS/ROPS structure reveals plastic deformation or cracking, the FOPS/ROPS structure must be replaced immediately.

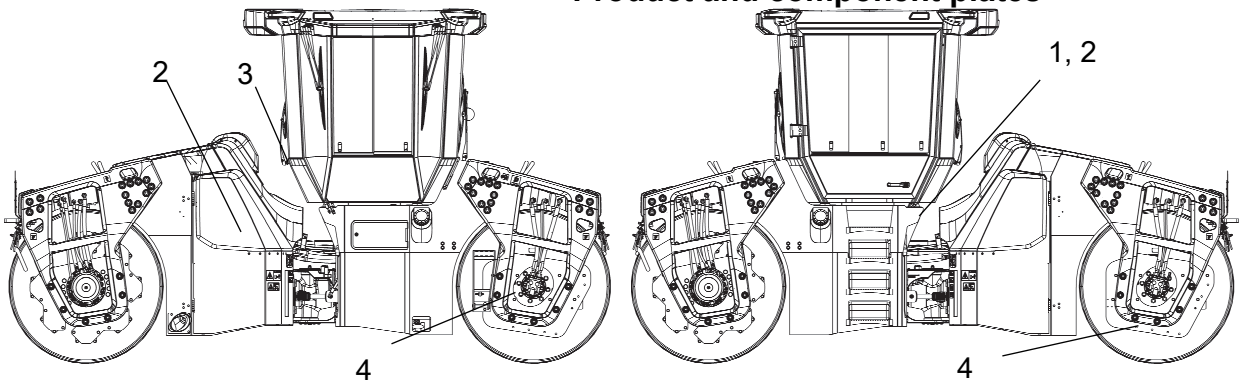
Never undertake modifications to the FOPS/ROPS structure without first having discussed the modification with Dynapac's production unit. Dynapac will resolve whether the modification would invalidate approval in line with FOPS/ROPS standard.

If the roller is equipped with a cab, it is approved in FOPS level I and ROPS.

If the roller is equipped with a ROPS roof, there is no FOPS approval.

Identification

Product and component plates



1. Product plate - Product Identification Number (PIN), model/type designation
2. Engine plate - Type description, product and serial numbers
3. Cab/ROPS plate - Certification, product and serial numbers
4. Component plate, drum - Product and serial numbers

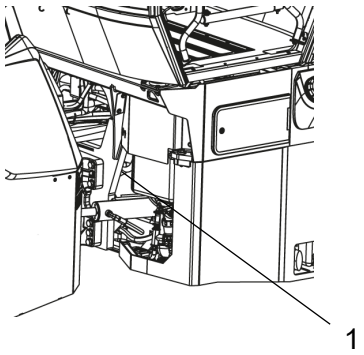


Fig. PIN Front frame

Product identification number on the frame

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

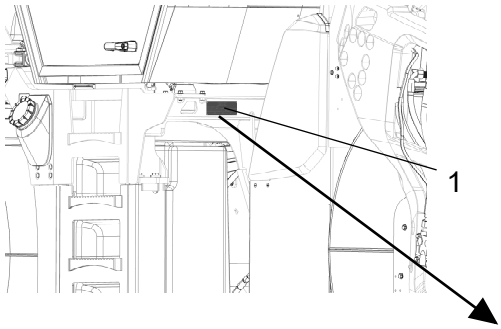


Fig. Operator platform
1. Machine plate

Machine plate

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

The plate includes the manufacturer's name and address, type of machine, PIN product identification number (serial number), operating weight, engine power and year of manufacture. (if the machine is delivered outside the EU, the CE marking is not included, some also lack the year of manufacture)

Service weight and max. axle load at the front/rear is the value that the roller has when delivered from the factory.

optional QR code

DYNAPAC FAYAT GROUP

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

CE

Product Identification Number	XXXXXXXXXXXXXXX		
Designation	Type	Rated Power	Max axle load front / rear
XXXXXX	XXXXXX	XXX kW	XXXX/XXXX kg
Gross machinery mass	Operating mass	Max ballast	[Date of Mfg]
XXXX kg	XXXX kg	XXXX kg	XXXX

Made in Sweden

4811 0001 33

Please state the machine's PIN when ordering spares.

100	00123	V	x	A	123456
A	B	C	F		

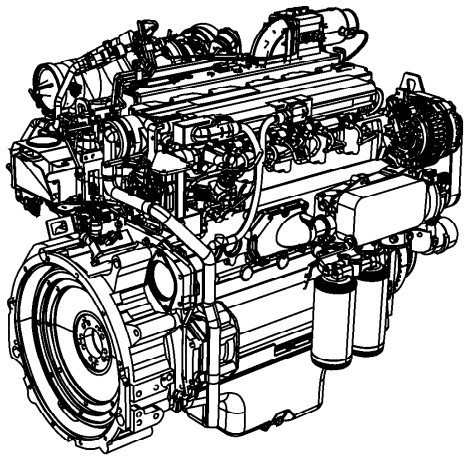
Explanation of 17PIN serial number

A= Manufacturer

B= Family/Model

C= Check letter

F= Serial number



Engine plates

The engine type plates (1) are affixed to the top and on the right side of the engine.

The plates specify the type of engine, serial number and the engine specification.

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

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

Location - decals

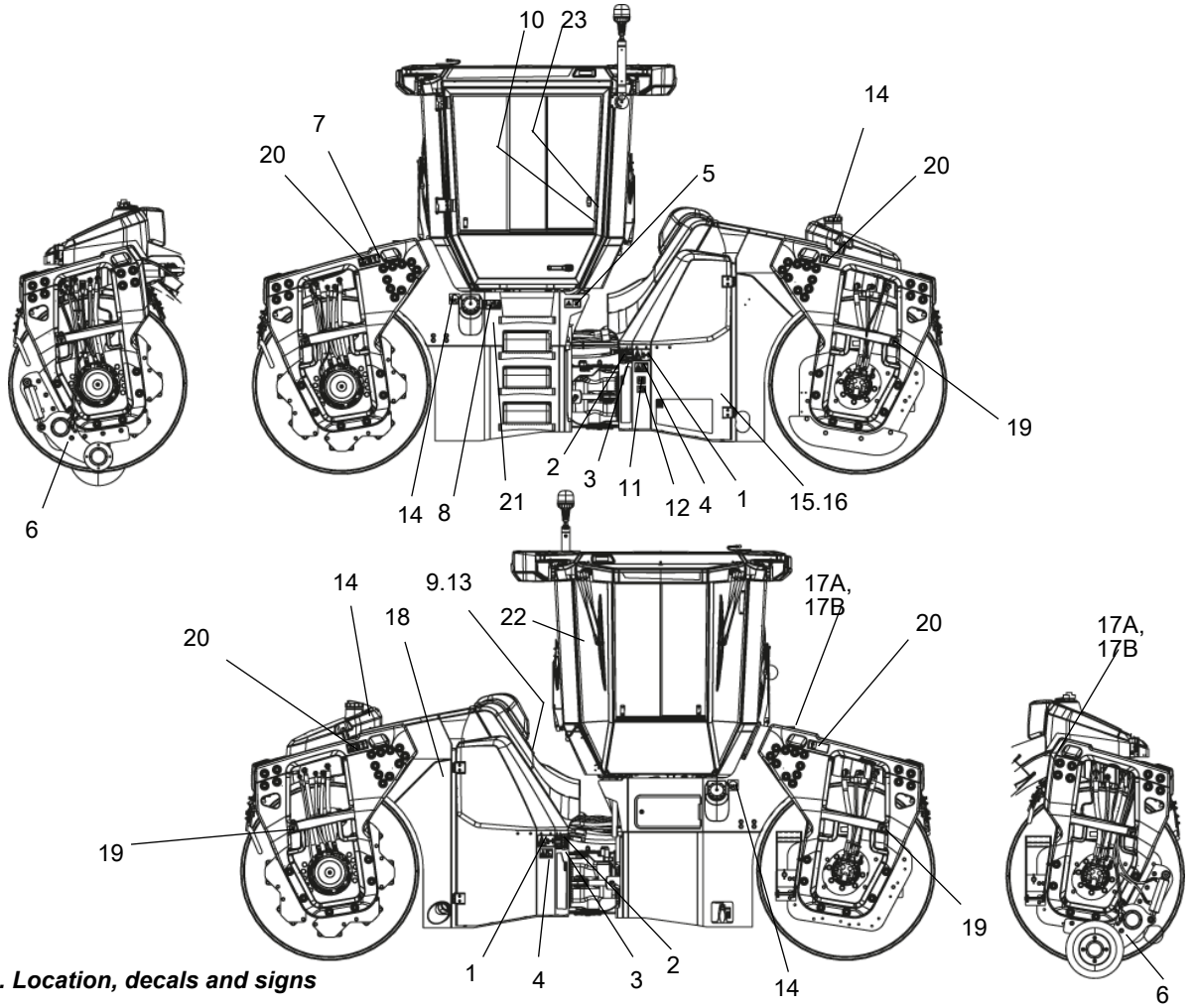


Fig. Location, decals and signs

1.	Warning - Crush zone, articulation/drum.	4700903422	12.	Master switch	4700904835
2.	Warning - Rotating engine components	4700903423	13.	Coolant	4700388449
3.	Warning - Hot surfaces in the engine compartment	4700903424	14.	Water	4700991657
4.	Warning - Brake disengagement	4700904895	15.	Hydraulic fluid level	4700272373
5.	Warning - Read instruction manual	4700903459	16.	Hydraulic fluid Biological hydraulic fluid	4700272372 4700792772
6.	Warning - Edge cutter	4700904083	17A.	Diesel fuel	4811000345
7.	Warning - Risk of crushing, apply locking device (lift)	4700908229	17B.	Fuel ultra low sulfur content	4811000344
8.	Warning - Locking during transport (transport)	4812125363	18	Urea/DEF	4812124070
			19	Tie-down point	4700382751
9.	Warning - Starting gas	4700791642	20.	Lifting point	4700357587
10.	Handbook compartment	4700903425	21.	Sound effect level	4700791278
11.	Battery voltage	4700393959	22.	Emergency exit	4700903590
			23	Washer fluid	4812132929

Location - decals, chip spreader (Optional)

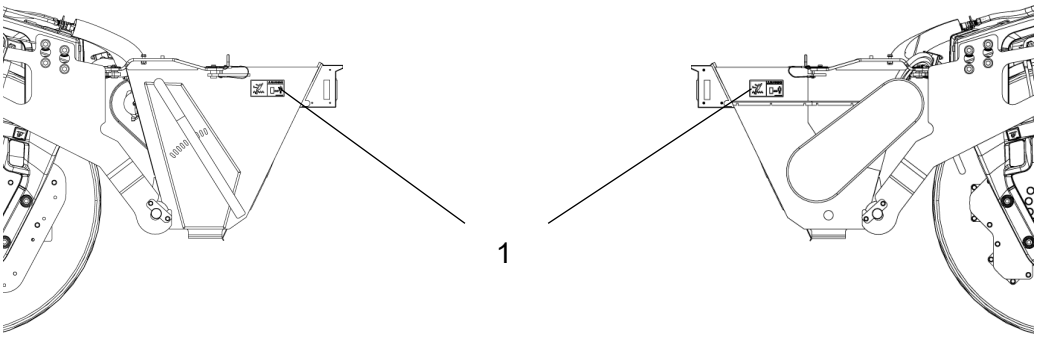
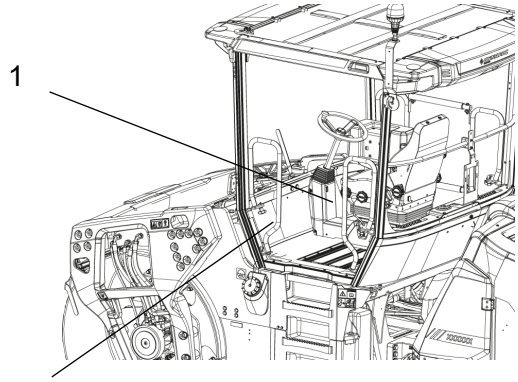


Fig. Location, decals and signs

1. Warning, Rotating components 4811000080

Location - decals, CALIFORNIA

Proposition 65



1 (Electronic steering)

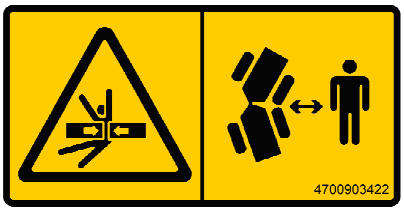
Fig. Location

1. Warning, CALIFORNIA Proposition 65 4812129673

Safety decals

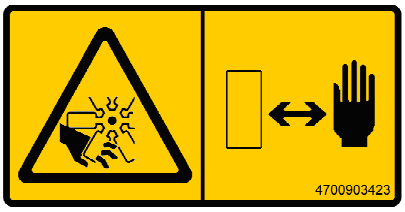
Always make sure that all safety decals are completely legible, and remove dirt or order new decals if they have become illegible. Use the part number specified on each decal.

If a part is replaced and this part have a decal, make sure to also order the decal.



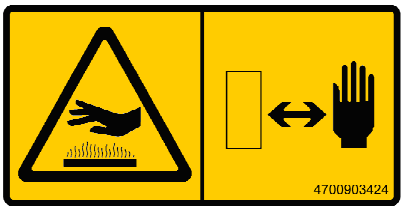
4700903422
Warning - Crush zone, articulation/drum.

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



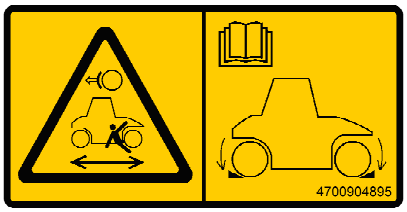
4700903423
Warning - Rotating engine components.

Keep your hands at a safe distance.



4700903424
Warning - Hot surfaces in the engine compartment.

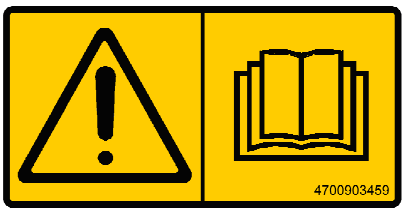
Keep your hands at a safe distance.



4700904895
Warning - Brake disengagement

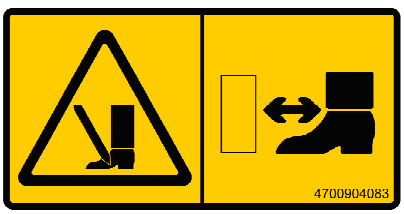
Study the towing chapter before disengaging the brakes.

Danger of being crushed.



4700903459
Warning - Read instruction manual

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



4700904083
Warning - Edge cutter/presser (optional)

Warning of rotating parts.

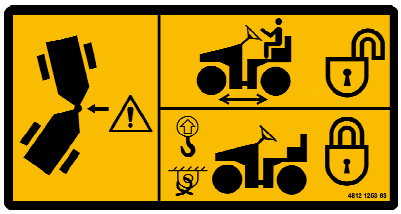
Maintain a safe distance from the crush zone.



4700908229
Warning - Risk of crushing, apply locking device

The articulation must be locked when lifting.

Read the instruction manual.



4812125363
Warning - Locking during transport

The articulation must be locked during transport and lifting,

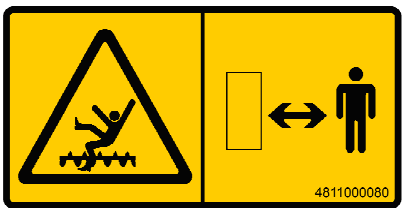
but be open during operation.

Read the instruction manual.



4700791642
Warning - Starting gas

Starting gas is not to be used.



4811000080
Warning - Chip spreader (optional)

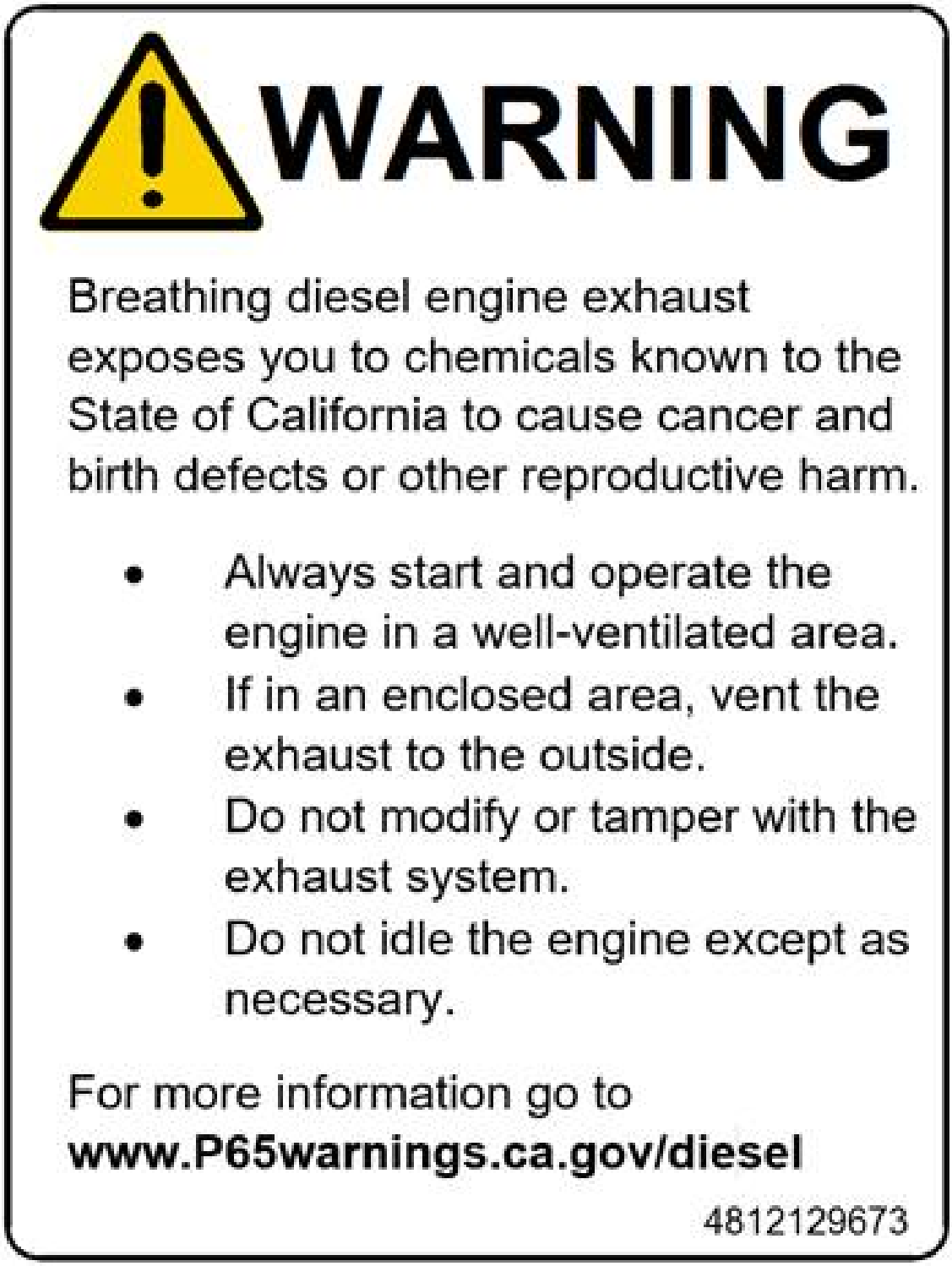
The spreader has rotating components.

Never insert your hands or any objects when the spreader is in operation.

Always stop the roller motor before carrying out adjustments or maintenance on the spreader.

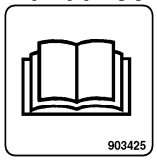
4812129673
Warning

CALIFORNIA - Proposition 65



Info decals

Manual compartment



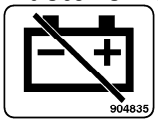
4700903425

Battery voltage



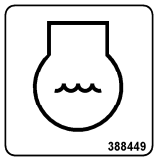
4700393959

Master switch



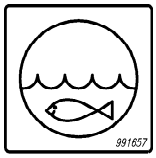
4700904835

Coolant



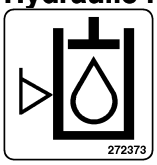
4700388449

Water



4700991657

Hydraulic fluid level



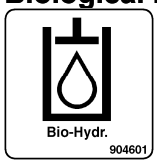
4700272373

Hydraulic fluid



4700272372

Biological hydraulic fluid



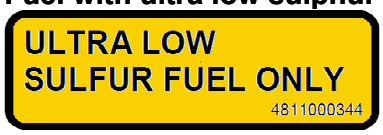
4700904601

Bio hydraulic fluid PANOLIN

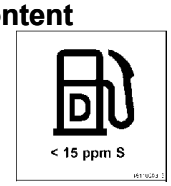


4700792772

Fuel with ultra low sulphur content



4811000344



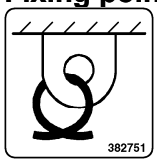
4811000345

DEF/AdBlue



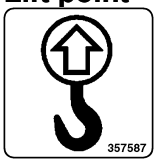
4812124070

Fixing point



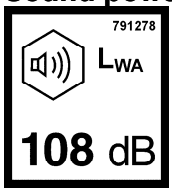
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Lift point



4700357587

Sound power level



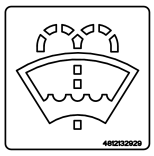
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Emergency exit



4700903590

Washer fluid



4812132929

Instruments/Controls

Control panel and controls

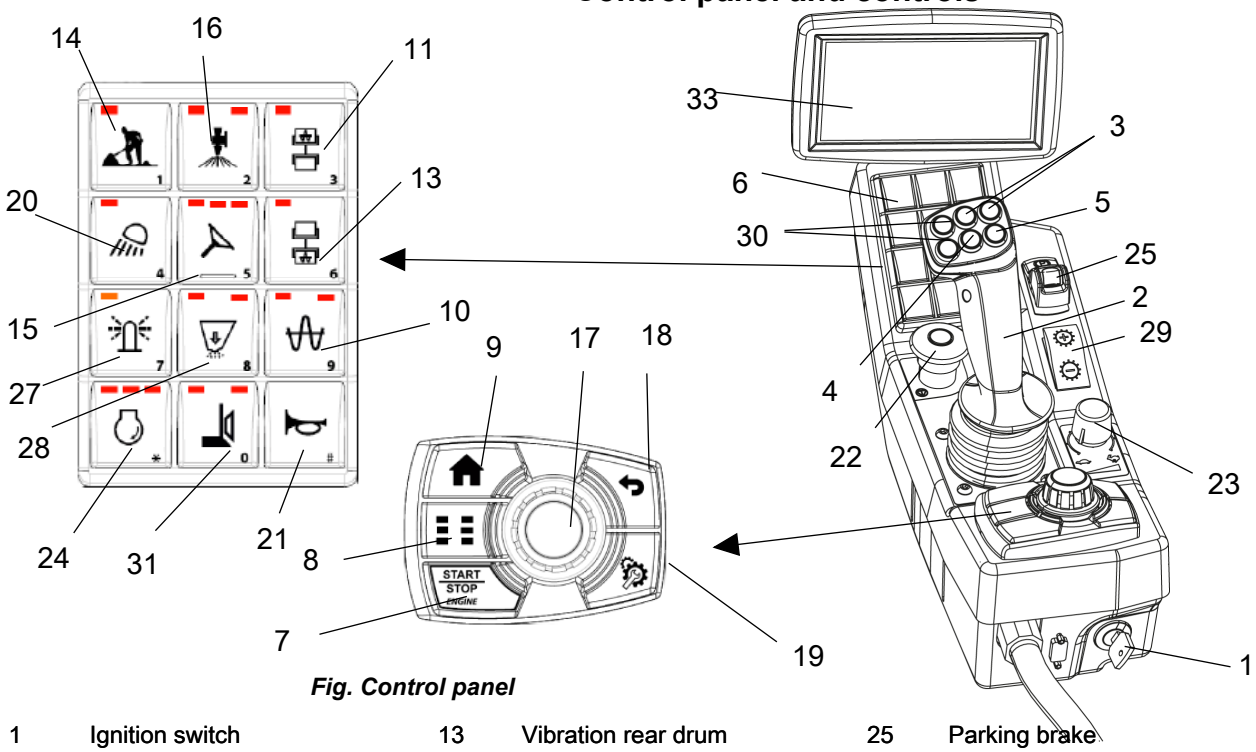


Fig. Control panel

1		Ignition switch	13		Vibration rear drum	25		Parking brake
2		Forward & Reverse lever	14		Work mode (Off-set and vibration permitted plus soft starting and stopping enabled)			
3	*	Offset left/right	15		CG – steering selection	27	*	Rotating beacon/Flashlight
4		Vibration off/on (red)	16		Watering, manual/automatic	28	*	Chip spreader, manual/automatic (not for combi-version)
5		Full flow ("full on"), edge cutter/presser, sprinkling (blue)	17		Display controller knob, select button	29		Gear position switch
6		Button set/Keypad	18		Return button, previous	30	*	Edge cutter/presser, up/down (green)
7		Start-stop button	19		Settings menu button	31	*	Edge cutter/presser left/right side
8		Menu button	20		Working light			
9		Main menu, return button	21		Horn	33		Display
10		Low/High amplitude	22		Emergency stop			
11		Vibration front drum	23		Speed limiter			
			24		Speed selector and ECO Mode, diesel engine			

* Optional

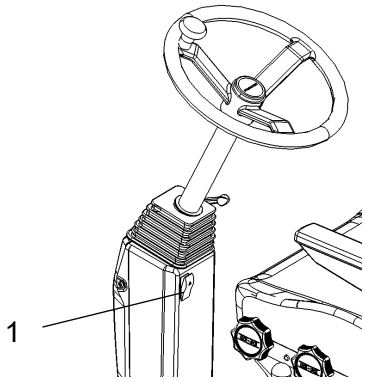
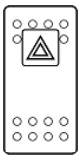


Fig. Steering column

1. Hazard indicators



Activate the hazard indicators with the switch.

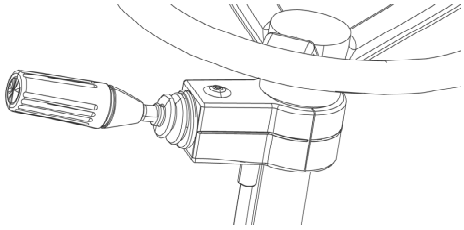
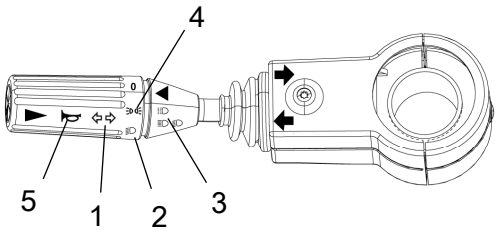


Fig. Steering column switch (optional)

	Functions
1.	Direction indicators
2.	Driving lights
3.	Full/Dipped beam
4.	Parking lights
5.	Horn



Mini-steering wheel, switches (Electronic steering) - Optional

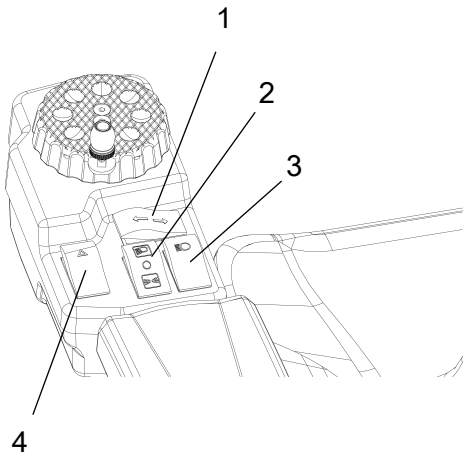
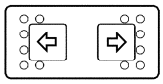


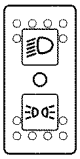
Fig. Mini steering wheel with switches

Functions

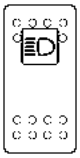
1. Direction indicators



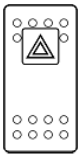
2. Driving lights (pos.lights/off /dipped beam)



3. Full beam (off/on)



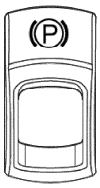
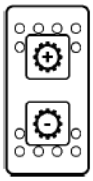
4. Warning light



Function descriptions

No	Designation	Symbol	Function
1	Ignition key		The electric circuit is broken.
			All instruments and electric controls are supplied with power.
2	Forward/Reverse lever		**NB!** 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; when the lever is move backward, the roller moves backward. 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.
3	Offset left/right		The left button turns the front drum to the left, the right button to the right. Always stop in neutral, to move to the other side press once again. On machines with electronic steering (reversible drivers seat) automatically centering of the front drum could be achieved by pressing both offset buttons at the same time.
4	Vibration on/off		First push will start vibrations, second push will stop vibrations.
5	Full flow		Full flow sprinkling of both drums, and watering of edge cutter/-compactor if mounted on the machine. Push the button to get full flow on watering.

No	Designation	Symbol	Function
6	Button set/Keypad		
7	Start-stop button		Start or stop the diesel engine.
8	Menu button		Menu selector
9	Main menu, return		Return button to the main menu, "Home."
10	Amplitude selector, low/high amplitude		Left LED indicates low amplitude, activation of the right LED gives high amplitude. (Low amplitude is the basic mode if the button is not activated.)
11	Vibration, front drum		Activation of vibration on front drum. If Working mode (14) is not activated, there will be no vibration on the drum.
13	Vibration rear drum		Activation of vibration on rear drum. If Working mode (14) is not activated, there will be no vibration on the drum.
14	Work mode (Off-set and vibration permitted plus soft starting and stopping enabled)		Activates working mode, which makes it possible to use vibration and offset (option), with soft start and stop activated. The roller always starts in transport mode.
(15)	Steering selection (CG)		Valid for pivot machines only (CG).
16	Sprinkler		Left LED, manual watering, gives continuous watering of the drums. Activation of the right LED gives automatic watering (auto active), watering is activated when the Forward/Reverse lever is outside of neutral.
17	Display controller knob, selection button		Scroll using the knob to the desired selection, select by pressing the knob in the middle.
18	Return button, previous		Return to last selection/display.
19	Settings menu button		
20	Working lights		By activating the working lights will turn ON.
21	Horn		Press to sound the horn.
22	Emergency stop		Brakes the roller and switches off the engine. The power supply goes off. **NOTE:** The emergency stop must be deactivated when starting the machine.
23	Speed limiter		Limitation of the machine's max. speed (max.speed is obtained with full deflection of the F/R lever). Set the knob to the required position and read the speed on the display (30).

No	Designation	Symbol	Function
24	Rpm switch, diesel engine		Speed adjustment, increases with each press. Selection illuminated in the top of the button, idling (-), intermediate speed/ECO (- -) and work speed (- - -). **NOTE!** When starting the machine, the control must be in the idling position (-). The diesel engine drops to even lower revs when stationary, more than approx. 10 seconds if the F&R lever is in neutral. If the F&B lever is moved from neutral, the revs rise to the set revs again.
25	Parking brake		To activate the brakes, press the top of the switch to change the position of the lever. To release the brakes, press down the red part at the same time as the switch and change the position of the lever. **NOTE:** When starting the machine, the parking brake must be activated.
27	Rotating beacon/flashlight		Activation of the rotating beacon/flashlight
28	Chip spreader		Activating the chip spreader. Manual/automatic spreading. Left LED, manual spreading, gives continuous spreading. Activation of the right LED gives automatic spreading (auto active), spreading is activated when the Forward/Reverse lever is outside of neutral.
29	Gear position switch		Activates the two different gear positions: (1), (2). The current gear position is shown in the display by means of the following figures.
			Position 1: Normal working gear, gives maximum hill-climbing capacity during vibratory compaction
			Position 2: Used for maximum transport speed or for high speed during smooth rolling without vibration
30	Edge press/cutter, UP/DOWN		The edge cutter can be moved up and down when the machine is in Work mode. The edge cutter can only be moved up when the machine is in Transport mode. Pressing on the bottom button moves the edge cutter down. Pressing on the top button moves the edge cutter up.
31	Edge press/cutter, Left/Right		Activate left or right edge cutter.

Display explanations



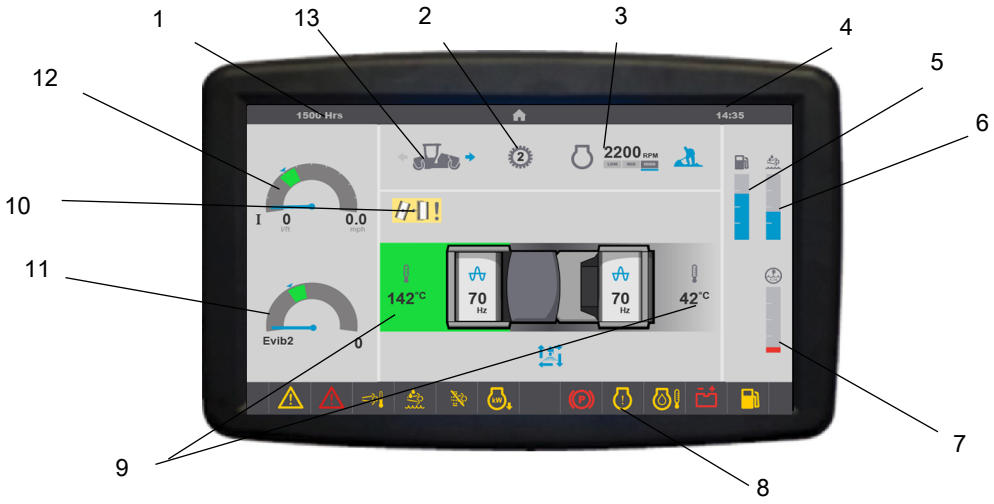
Fig. Start screen

When the ignition key is activated, a start screen becoms visible on the display. This screen is visible while the system is prepared for start.



Fig. Display screen - Home

The Home screen shows multiple information images.



1. Machine working hours
2. Gear indicator (2 gears)
3. Diesel engine rpm
4. Time watch
5. Fuel level
6. Urea level
7. Sprinkler tank level
8. Warning lamps (Yellow is warning and red is high alert)
9. Asphalt temperature meter (two sensors switching from front to rear depending on driving direction)
10. Off-set symbol (indicates if the front drum is in neutral position or in off-set position). Only for machines with off-set.
11. Compaction meter Evib (DCM Evib)
12. Impactometer (strokes per meter)
13. Driving direction

In the middle image is also displayed high / low amplitude and frequencies of operation, and if the

selected front and rear.

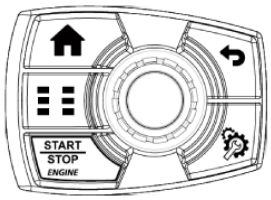


Fig. Display controller

The display is of "touch screen type" but can also be worked from the display controller.



Fig. Quick menus

The touch screen allows you to activate, adjust different functions etc. directly on the display. If you prefer you can use the display controller instead.

Pointing on the display, brings up a quick selection menu.

Selections in quick-choice menu:

Sprinkler

- Opens Sprinkler settings in the Settings menu.

Alarm

- Opens the alarms with logs and error codes.

Compacting

- Opens Compacting settings in the Settings menu (Asphalt temperature, Evib, Impactometer, AVC (automatic vibration control), Seismic, Chip spreader)

Brake test

- Must be performed daily according to procedure in separate section in Start chapter.

Main menu

- Opens the start page in the Main menu.

A display for the asphalt temperature and Impactometer value can also be shown when the accessory asphalt temperature gauge and/or Impactometer/frequency sensor is installed on the machine.



Fig. Asphalt temperature screen

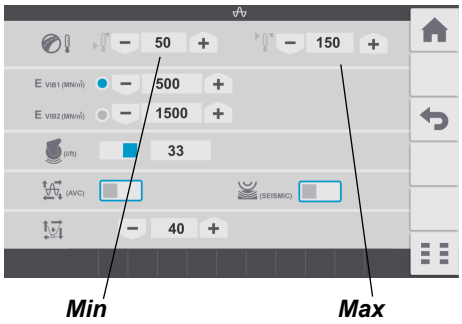


Fig. Temperature settings

Asphalt temperature meter

Asphalt temperatures are shown either in Celsius or Fahrenheit. (selected in User settings)

Dual temperature sensors, one front and one rear.

The sensor that sits foremost in the current direction of travel is highlighted and it is this one that is read to avoid the disruption of moisture from the drum's sprinklers. The sensor that is rearmost in the current direction of travel is shaded/dimmed.

Setting of max. and min values by plus or minus on the display image, the temperature area will be green if the temperature keeps within the desired values and turns yellow if the temperature is higher than the maximum value.

(asphalt temperature limit min 50°C, max 150°C (min 122°F, max 302°F))

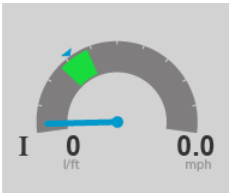


Fig. Impactometer screen

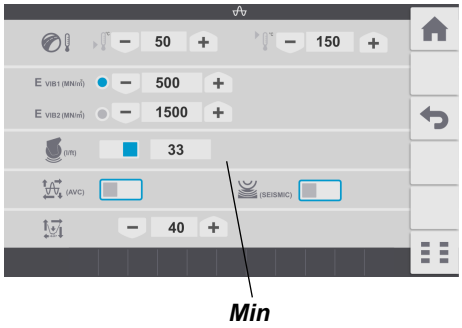


Fig. Impactometer value

Impactometer (strokes per meter)

The Impactometer shows how many strokes per meter the drum performs during vibration, the set minimum value is shown by a blue arrow on the meter image. The green area in the image shows our basic recommendation for the speed interval.

Setting of the minimum value by plus or minus on the display image.

The Impactometer value is calculated based on the operating speed and the vibration frequency. A higher operating speed gives fewer strokes per meter.

The recommendation is to not fall below 33 strokes/meter (10 impacts/feet) to avoid wave formation on the road surface.

The choice of high or low amplitude also impacts on the compaction result and should be taken into consideration.

	Frequency		Speed		Impacts	
	Hz	vpm	Km/h	mph	/meter	/feet
CC4200	70	4200	7,7	4,8	33	10
	51	3060	5,6	3,5	33	10

[l/m] = frequency/velocity [(l/s)/(m/s)]

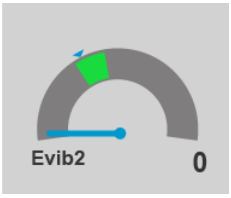


Fig. Compaction meter (DCM) with Evib

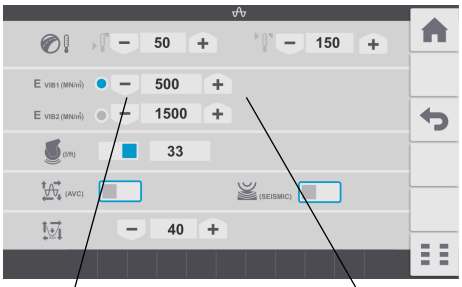


Fig. Evib settings



Evib compaction meter (DCM Evib)

Compaction meter measures compaction value Evib i MN / m2

Evib acceleration sensor on the front drum.

Min and max values of the Evib value (Evib 1 or Evib 2) on the relevant compaction meter can be adjusted by the plus and minus buttons on the various scales.

Evib 1 is calculated during the load cycle (when the drum is on the way down) during vibration, while Evib 2 is calculated during the load-relief cycle (when the drum is on the way up). It is up to the user to decide which value to use. (Evib 1 0-1000, Evib2 0-3000)

The best way of determining an Evib measurement value is to run a test surface with the same characteristics (substrate, material, temperature, amplitude and rolling speed, etc.) as the surface to be compacted and measured.

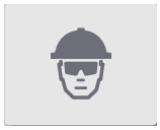
Compact the surface within the temperature interval for the asphalt in question, and note the Evib values for each run. The values should go up slightly with each run, with increased compaction, and falling temperature. The value read off for the final run, when the correct void content/compaction rate is reached, can then be used as guidance for the minimum or measured value

However, this must be viewed as indicative only. The maximum value is set rather higher and should not be exceeded. High values will occur in the case of low asphalt temperatures and high compaction levels. Further vibrating compaction in these cases risks crushing the stone aggregate, something which should be avoided.

Always keep track on the asphalt temperature and relate it to the compaction value. The Evib value will change not only with the degree of compaction but also with the asphalt temperature.

"MAIN MENU"

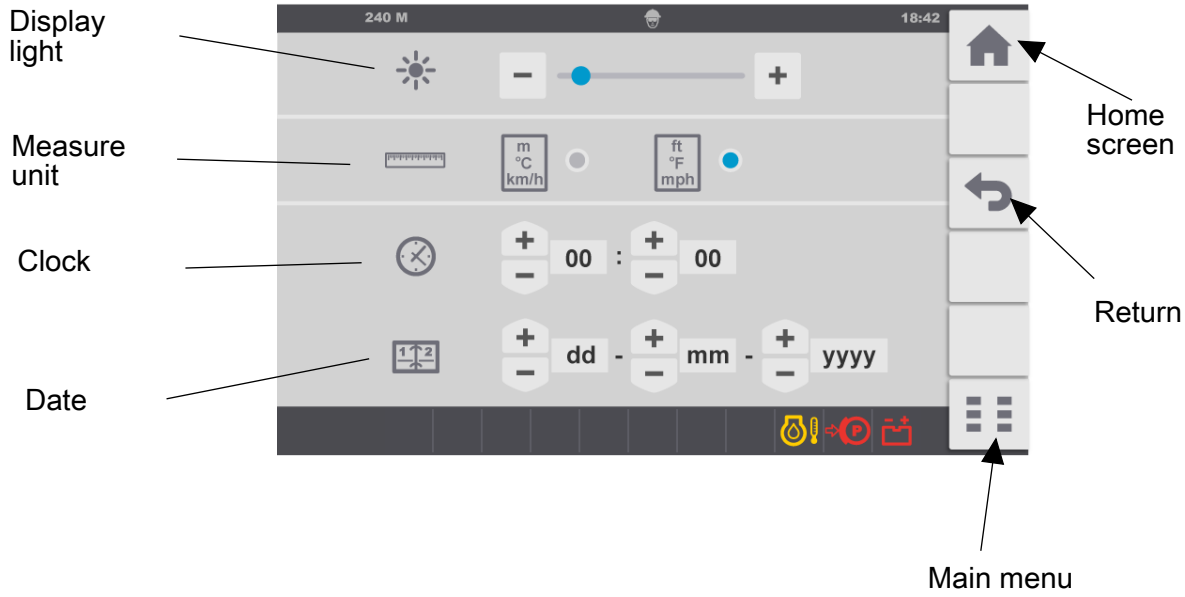
In the main menu it is also possible to change some user and machine settings, access the service menu and return to Home screen.

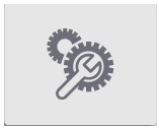


User settings

"USER SETTINGS"

Users can change the light settings, choose between the Metric or Imperial system, and set time and date.





Settings



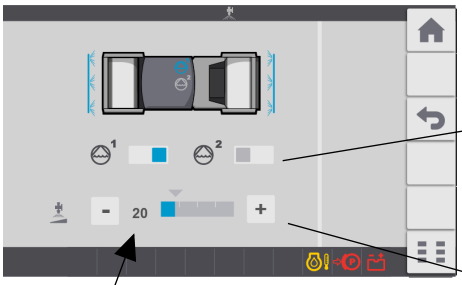
Settings menu ("SETTINGS MENU")

Different selections in the settings menu will bring up areas where settings can be altered for Sprinkler, Motor, Compacting, Seismic, EcoSave, DPF.



Sprinkler

SPRINKLER



The machine is equipped with two separate sprinkler systems. You can choose to have system 1 activated, alternatively system 2. In exceptional cases, you can choose to have both systems activated, but this results in increased water consumption and more water mist.

Selected pause time in sec.

The sprinklers activation time is always 4 seconds with automatic sprinkling (AWC). The pause time (sec) between sprinklings is adjustable. (1-30 sec)
(+) = longer pause time, (-) = shorter pause time



Full flow button (Blue)

The full flow button on the drive lever activates both sprinkler systems while the button is depressed.



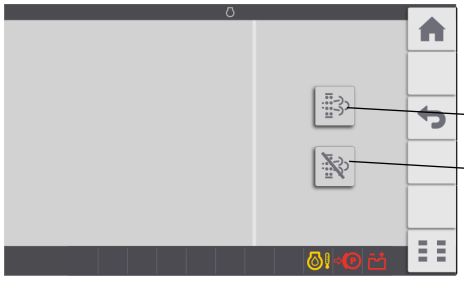
Engine

ENGINE

(Stage V)

Normally not necessary to use.

Regeneration delay only to be used to prevent exhaust gas cleaning when the machine is operating in a hazardous environment, or otherwise inappropriate with the elevated exhaust gas temperature during a regeneration.



Activation of parked regeneration.

Regeneration delay (Inhibit).

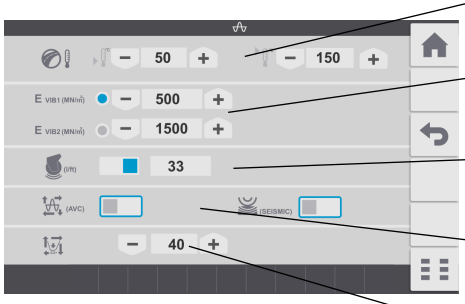
Activation of parked regeneration can be used if the exhaust gas cleaning / regeneration symbol appears with a steady light on the display. Initiate cleaning can be used if the Exhaust System Cleaning Symbol is shown in the display. Then a so-called parked regeneration can be done and the parking button must be activated and that low speed is selected, then the speed will increase to 1000-1200rpm for 20-45 minutes depending on the soot load.

NOTE: To initialize and complete regeneration, the engine coolant temperature must be >70°C (158°F).



Compaction

COMPACTION



Limit setting for asphalt temperature measurement.

Display option Evib1 or Evib2.

Activation of the Impactometer, and setting of minimum value

Activation of the automatic vibration control (AVC), Seismic.

Chip spreader value.



ECOSave

ECOSave

Coming machine feature

System for automatic shutdown of the diesel engine.



DPF

DPF (Diesel Particulate Filter)

(only for Deutz stage V)

Shows DPF status view, more information can be found in Regeneration section under chapter Operation.



Service

"SERVICE MENU"

The service menu is also accessible via the main menu for adjustments.



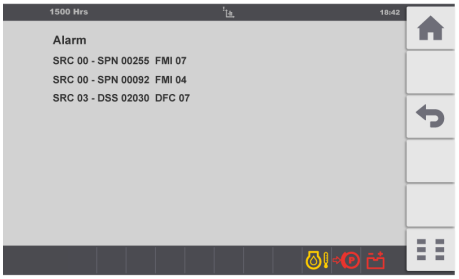


Alarms

"ALARMS" system logs and error codes

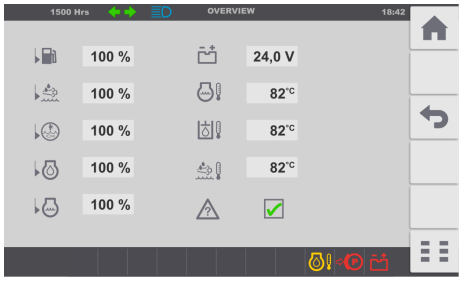
SRC00 - engine ECU (ECM) error codes

SRC03 - machine error codes





Machine status



"MACHINE STATUS" - Summary of levels, loads and temperatures.



Evib Calibrations

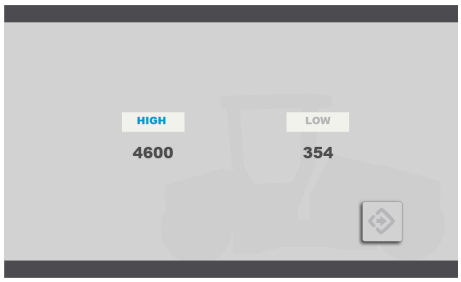
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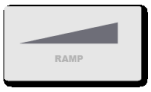




Spd Limit Calibrations

"SPD LIMIT CALIBRATIONS"
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Ramp settings



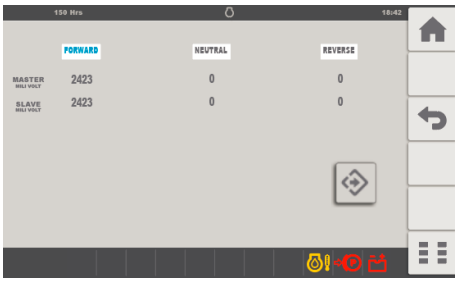
"RAMP SETTINGS"
This section is protected by Pin Code

There are 3 different modes that can be seleted in the machine's workmode. (Soft, Medium, Hard).
The machine alerts at startup when the setting is in Soft Mode.

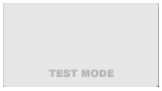
Mode does not change while driving, adjustment of mode selection changes after forward/reverse lever in neutral position.



Joystick calibrations



"JOYSTICK CALIBRATIONS"
This section is protected by Pin Code



Test mode



"TEST MODE" - Installation personnel only, requires pin code.



About

"ABOUT"

It is also possible to see the version of the installed software.



Alarm symbols - Machine

The following symbols can be shown at the bottom of the display:



Fig. Display - Symbols

Symbol	Designation	Function
	Warning symbol, hydraulic fluid filter	If the symbol is shown when the diesel engine is running at full speed, the hydraulic fluid filter must be changed.
	Warning symbol, clogged air filter	If this symbol is shown when the engine is running at full speed, the air filter must be checked/replaced.
	Warning symbol, battery charging	If the symbol is shown when the engine is running, then the alternator is not charging enough.(charging voltage is lower than 27V) Switch off the engine and locate the fault.
	Warning symbol, engine temperature	If this symbol is shown, the engine is too hot. Stop the engine immediately and locate the fault. Refer also to the engine manual.
	Warning symbol, hydraulic fluid temperature	If this symbol is shown, the hydraulic fluid is too hot. Do not drive the roller; allow the fluid to cool by running the engine on idle, and then locate the fault.
	Warning symbol, low fuel level	Less than 10% of the fuel is left if this symbol is shown.
	Warning symbol, low sprinkler water level	If this symbol is shown, there is less than 10% of the sprinkler water left in the main tank.

Symbol	Designation	Function
	Warning symbol, low oil pressure, diesel engine	If this symbol is shown, the engine's oil pressure is too low. Switch off the engine immediately.
	Warning symbol, low coolant level	If this symbol is shown, fill with coolant/glycol and search for leaks.
	Warning symbol, water in the fuel	If this symbol is shown, the engine must be stopped and the fuel pre-filter drained of water.
	Warning symbol, parking brake	If the symbol is shown, the parking brake is activated.
	Warning symbol, Pivotal steering/Offset	If the symbol is displayed, the drums are not aligned.

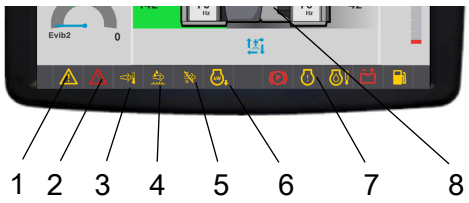


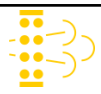
Fig. Display - Symbols

Alarm symbols - DEF system and exhaust aftertreatment

The following symbols can be shown at the bottom of the display:

Comment (Stage V): To initialize and complete regeneration, the engine coolant temperature must be >70°C (>158°F).

	Symbol	Designation and Function
1.		**Warning lamp (Yellow)**
		Less serious fault: Rectify as soon as possible.
2.		**Warning lamp (Red)**
		Serious fault: **Switch off engine immediately!**
3.		**Elevated exhaust gas temperature (Yellow)**
		Appears when the exhaust temperature exceeds the calibrated temperature limit, and when regeneration is in progress.
		**Engine tampering (Yellow)**
		The symbol is displayed if the operator has tried to make changes to the engine.
4.		**Urea tank level (Yellow)**
		Appears when the urea tank level is at a very low / critically low level. The level is shown in the level bar at the top right of the display.

	Symbol	Designation and Function
		**Urea qualitet (Yellow)**
		Appears when urea quality is out of tolerance.
5.		**Exhaust cleaning / regeneration symbol. Parked regeneration required (Yellow) (stage V)**
		Park the machine, set the FNR lever to the neutral position and apply the parking brake.
		**Regeneration not possible/Inhibited (delayed) regeneration activated (Yellow) (stage V)**
		This symbol is displayed when a regeneration, for some reason is not possible to perform or that inhibited (delayed) regeneration is selected.
6.		**Engine power reduction (Yellow)**
		This symbol is displayed when the regeneration error is at such a level that the engine power is reduced.
7.		**Engine fault (Yellow)**
		See error code.
8.		This symbol appears in the middle of the display, when the engine temperature is below 70° C and in connection with which no regeneration is possible. (stage V) Alternatively, it shows 158° F when Imperial unit display is selected.
		This symbol appears in the middle of the display, in the event of another engine failure in connection with no regeneration being possible. (stage V)

DEF-displays (Urea tank level)

Symbol		Warning	Level	Comment
	-	-	< 10%	The warning is shown when the Urea tank level is low. The operator should refill the Urea in the Urea tank.
	-	-	< 5%	When the level drops to a very low level, the Urea level symbol flashes. The operator should refill the Urea in the Urea tank.
			< 2.5%	When the level drops to a critical level, the Urea level symbol flashes together with the icon for reduced power and the “Yellow warning” lights on the panel. The operator should refill the Urea in the Urea tank. If the Urea tank is not refilled, the engine power is reduced and normal power is restored once the Urea has been refilled.
			0%	When the level drops close to zero, the Urea level symbol flashes together with the icon for reduced power and the “Yellow warning” lights on the panel. The operator should refill the Urea in the Urea tank. If the Urea tank is not refilled, the engine power is reduced further and normal power is restored once the Urea has been refilled.
				When the Urea meter reads of a value below zero for 30 minutes, the Urea level symbol flashes together with the icon for reduced power and the “Red warning” lights on the panel. The engine is limited to idling speed. The operator should stop immediately in a suitable location and refill the Urea in the Urea tank. Normally engine power is restored once the Urea has been refilled.

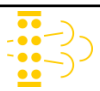
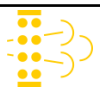
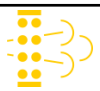
DEF-displays (Urea quality)

Symbol		Warning	Level	Comment
	-	-	1	The warning is shown when the Urea quality in the tank is outside of the tolerance. The operator should drain and refill the Urea tank with new Urea.
	-		2	When the Urea quality in the tank remains outside the tolerance, and nothing is done, the next Urea quality warning symbol flashes and the “Yellow warning” lights on the panel The operator should drain and refill the Urea tank with new Urea.
			3	In the event of continued driving without rectifying with better Urea quality the Urea quality symbol flashes together with the icon for reduced power and the “Yellow warning” lights on the panel. The operator should drain and refill the Urea tank with new Urea. If the Urea tank is not refilled, engine power is reduced and normal power is restored once the Urea has been refilled.
			4	In the event of continued driving without rectifying with better Urea quality the Urea quality symbol flashes together with the icon for reduced power and the “Yellow warning” lights on the panel. The operator should drain and refill the Urea tank with new Urea. If the Urea tank is not refilled, engine power is further reduced and normal power is restored once the Urea has been refilled.
			5	In the event of continued driving without rectifying with better Urea quality the Urea quality symbol flashes together with the icon for reduced power and the “Red warning” lights on the panel. The operator should stop immediately in a suitable location and drain and refill with new Urea in the Urea tank. Normally engine power is restored once the Urea has been refilled.

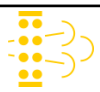
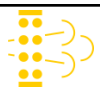
DEF displays (EAT - Tampering)

Symbol		Warning	Level	Comment
	-	-	1	The warning appears when a fault occurs in the exhaust system's after-treatment. **Immediately contact Service.**
	-		2	If nothing is done to rectify the fault in the exhaust gas system's after-treatment, the next warning is that the Tampering symbol flashes and the "Yellow warning" lights on the panel **Immediately contact Service.**
			3	A continued fault in the exhaust system's after-treatment gives a flashing Tampering symbol together with the icon for reduced power and the "Yellow warning" lights on the panel. Engine power is reduced. **Immediately contact Service.**
			4	A continued fault in the exhaust system's after-treatment gives a flashing Tampering symbol together with the icon for reduced power and the "Yellow warning" lights on the panel. Engine power is reduced further. **Immediately contact Service.**
			5	A continued fault in the exhaust system's after-treatment gives a flashing Tampering symbol together with the icon for reduced power and the "Red warning" lights on the panel. The engine is limited to idling speed. The operator should stop immediately in a suitable location. **Contact Service.**

DEF displays (Exhaust cleaning lamp) (Stage V)

Symbol		Warning	Level	Comment
	-	-	2	The High Exhaust system Temperature (HEST) Symbol will illuminate during exhaust system cleaning. In addition, the HEST Symbol will also illuminate if the exhaust temperature exceeds the calibrated temperature threshold.
	-	-	3	The High Exhaust system Temperature (HEST) symbol will illuminate during exhaust system cleaning. In addition, the HEST Symbol will also illuminate if the exhaust temperature exceeds the calibrated temperature threshold.
				The Exhaust System Cleaning/Regeneration Symbol notifies the operator that the aftertreatment system has not auto regenerated at the required time limit and requires an exhaust system cleaning. See machine settings (Engine)
			4	The Exhaust System Cleaning/Regeneration Symbol notifies the operator that the aftertreatment system has not auto regenerated at the required time limit and requires an exhaust system cleaning. See machine settings (Engine). Engine power is reduced.
			5	The Exhaust System Cleaning/Regeneration Symbol notifies the operator that the aftertreatment system has not auto regenerated at the required time limit and requires an exhaust system cleaning. See machine settings (Engine). Engine power is reduced. **Contact Service**

DEF displays (Exhaust cleaning lamp disabled (inhibit) (Stage V)

Symbol		Warning	Level	Comment
	-	-	2	The Exhaust System Cleaning/Regeneration Symbol notifies the operator that the aftertreatment system has not auto regenerated at the required time limit and requires an exhaust system cleaning. See machine settings (Engine)
				The Exhaust System Cleaning/Regeneration Disabled (Inhibit) Symbol indicates that Exhaust System Cleaning/Regeneration Disabled (Inhibit) Switch is active (see machine settings (Engine)), therefore automatic and manual (non-mission) exhaust system cleaning cannot occur. This may be used by operator to prevent exhaust system cleaning when the machine is operating in a hazardous environment
	-	-	3	The Exhaust System Cleaning/Regeneration Symbol notifies the operator that the aftertreatment system has not auto regenerated at the required time limit and requires an exhaust system cleaning. See machine settings (Engine)
				The Exhaust System Cleaning/Regeneration Disabled (Inhibit) Symbol indicates that Exhaust System Cleaning/Regeneration Disabled (Inhibit) Switch is active (see machine settings (Engine)), therefore automatic and manual (non-mission) exhaust system cleaning cannot occur. This may be used by operator to prevent exhaust system cleaning when the machine is operating in a hazardous environment
			4	The Exhaust System Cleaning/Regeneration Disabled (Inhibit) Symbol indicates that Exhaust System Cleaning/Regeneration Disabled (Inhibit) Switch is active (see machine settings (Engine)), therefore automatic and manual (non-mission) exhaust system cleaning cannot occur. This may be used by operator to prevent exhaust system cleaning when the machine is operating in a hazardous environment Engine power is reduced.

Instruments and controls, cab

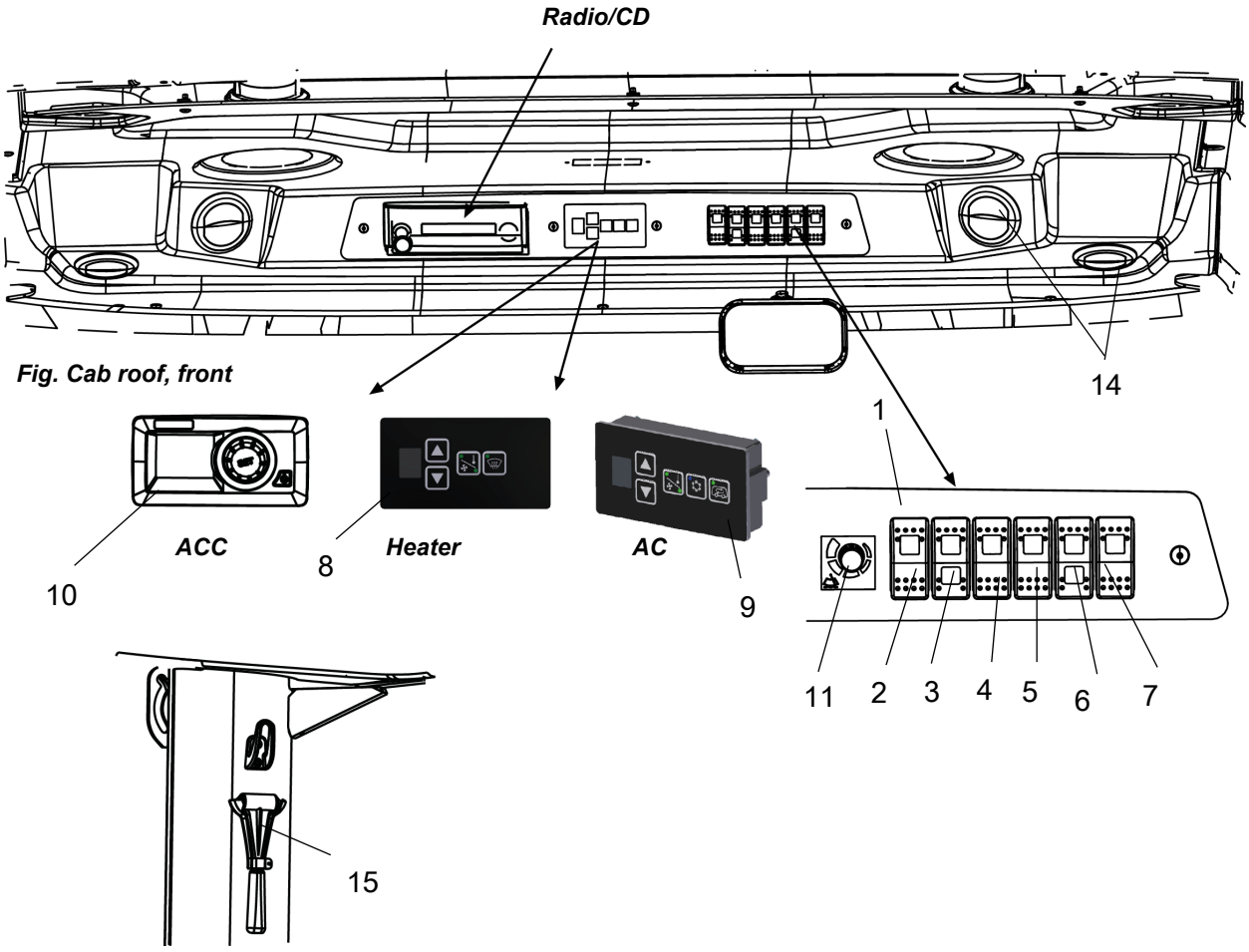
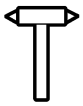


Fig. Cab roof, front

Fig. Right rear cab post
15. Hammer for emergency exit

Function description of instruments and controls in the cab

No	Designation	Symbol	Function
1	Fuse box		Contains fuses for the electrical system in the cab.
2	Front wiper, switch		Press to operate the front screen wiper.
3	Front and rear window screen washers, switch		Press at the top to spray the windscreen.
			Press at the bottom to spray the rear screen.
4	Rear wiper, switch		Press to activate the rear wiper.
5	Front side wiper, switch		Press to activate the front side wiper.
6	Front and rear side window screen washers, switch		Press at the top to wash the front side window.
			Press at the bottom to wash the rear side window.
7	Rear side wiper, switch		Press to activate the rear side wiper.
8	Heater		Cab heater.
9	Air conditioning.		Air conditioning AC
10	Automatic Climate Control (ACC) (micro ECC)		Automatic control of the air conditioning.
11	Front wiper, intermittent		Intermittent function for front wiper.
14	Defroster nozzle		Turn the nozzle to direct the flow of air.
15	Hammer for emergency exit		To escape from the cab in an emergency, release the hammer and break the opening windows on the right-hand side.

Using the cab controls.

Defroster

To quickly remove ice or mist, make sure that only the front and rear air nozzles are open.

Turn the heater and fan dial to max.

Adjust the nozzle so that it blows on the window to be de-iced, or to remove mist.

Heat

If the cab is cold, open the lower nozzle on the front columns and the middle nozzles just over the controls for the heater and fan.

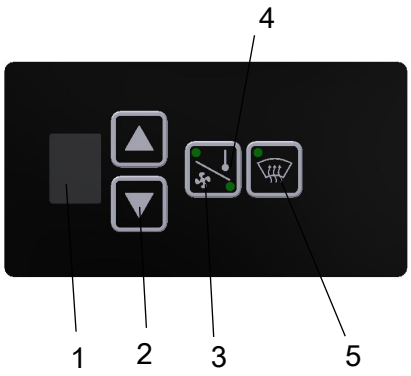
Turn to max heat and max fan speed.

When the required temperature has been reached, open the other nozzles and if necessary turn down the heat and fan speed.

AC/ACC

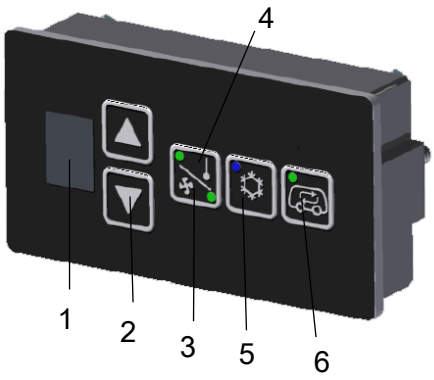
NOTE: When using AC/ACC all the windows must be closed for the system to work efficiently.

Heater panel



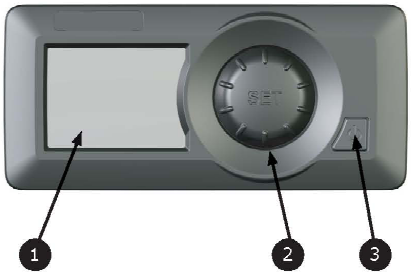
1. The display shows figures from 0 to 7. Seven steps for heating and seven steps for fan speed, where 7 is max.
2. Arrows for up and down steps on fan speed or heat.
3. **Fan.**When diode is lit it is possible to set the fan speed with the setting arrows (up and down)(2).
4. **Heater.**When diode is lit by the thermometer it is possible to set the heat with the setting arrows (up and down)(2).
5. Fan on or off. Diode is lit when fan is activated.

AC panel



1. Displays figures from 0 to 7. Seven steps to adjust heating or cooling, and seven steps to adjust fan speed, with 7 as maximum.
2. Arrows for up and down steps on heating/cooling or fan speed.
3. **Heating/Cooling**When diode is lit by the thermometer it is possible to set the heat with the setting arrows (up and down)(2).To set the cooling the AC needs to be activated (5).
4. **Fan.**When diode is lit it is possible to set the fan speed with the setting arrows (up and down) (2).
5. AC on or off. Diode is lit when AC is activated.
6. Recirculation mode (diode lit) or fresh air mode. (diode off)

ACC - Control panel



1. LCD Display

During normal operation, the set-point temperature, blower speed, operation mode and fresh/re-circulated air selection are displayed.

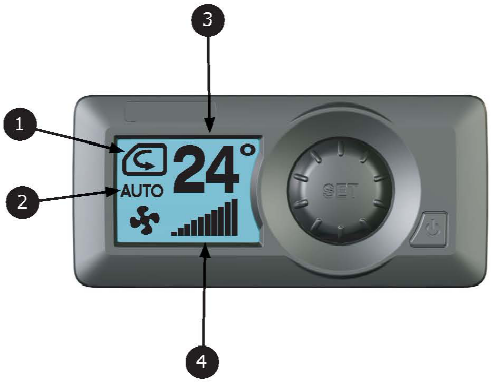
2. SET / SELECT Button

Under normal operation button is used for selecting between modes.

(Also used in Test/diagnostics mode for different options)

3. Power Button

Device ON/OFF.



Main display screen

1. Air mix control

The air mix can be set to full fresh air or full re-circulated air.

2. Mode

Displays the mode, "Automatic", "Heat", "Cool" and "Defrost"

3. Temperature Set-point

Displays current inside set-point temperature.

4. Blower speed

Displays current blower speed setting.

ACC - Operation menus



Main screen

When the unit is turned on, the main screen will appear. Current set-point temperature, climat control mode, air-circulation and blower speed are displayed.

A small warning icon appears if there is something wrong with the system.



Blower speed settings:

Press SET / SELECT button until the blower icon appears, then turn clockwise to increase blower speed and counterclockwise to decrease blower speed with 5% increments.

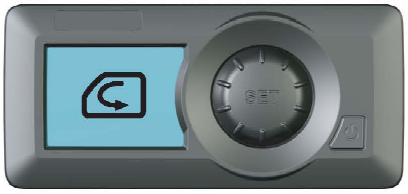
The blower speed can not be adjusted in defrost mode (Defrost).



Climate Control mode settings:

Press SET / SELECT button until the climate control mode icon appears, and then turn the button until the required mode is displayed.

AUTO	**AUTO**	The system runs automatically to keep the temperature that is selected (set-point temperature).
	Cool	A / C compressor is running to cool the interior temperature. Heating valve is turned off while cooling off ("Cool") is selected.
	Heat	Interior temperature warms up with the electronic heater valve. A / C compressor is turned off while warming ("Heat") is selected
	Defrost	When defrosting ("Defrost") is activated, the A / C compressor is turned on, the blower is turned on full speed and the heater valve is fully open.



Air circulation setting:

Press the SET button until the air circulation mode icon appears.

Turn the knob clockwise to fully recirculated air

or counterclockwise full fresh air.



Display settings:

To adjust the display settings and the temperature scale, press the SET button until the display settings screen appears, then turn the SET button clockwise or counterclockwise to adjust the settings.



Turning HVAC system OFF:

In the main screen, press the Power button to turn off the HVAC system. When the system is turned off, the backlight will turn off and the interior temperature will be displayed on the screen.

To turn off the HVAC system from Defrost mode, press the Power button until the HVAC system returns to the AUTO mode, then press the Power button again to turn off the HVAC unit.



Diesel Heat mode (if diesel heater is installed):

When a Diesel heat mode signal is received, the backlight will be turned off, the blower will run at 15%, the heater valve will be fully opened and the air circulation will switch to fresh air until the after coil temperature is above 20 ° C (78 ° F). When the after coil temperature is above 20 ° C (78 ° F), the blower will run at a preset speed. No other function is allowed.

Electrical system

Power in engine compartment/battery compartment

The fuses in the engine compartment are located alongside the master switch.

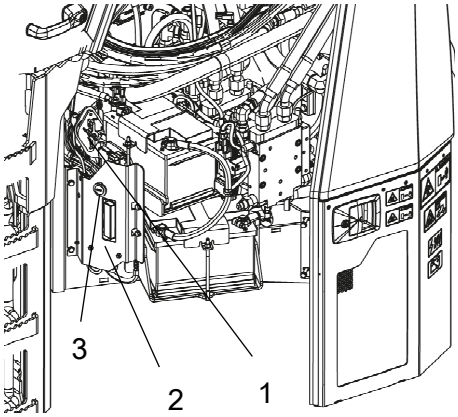


Fig. Battery bay
1. Master switch
2. Main fuse panel
3. Power outlet 24V

The roller is equipped with 24 V electrical system and an AC alternator.

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.

Main fuse panel

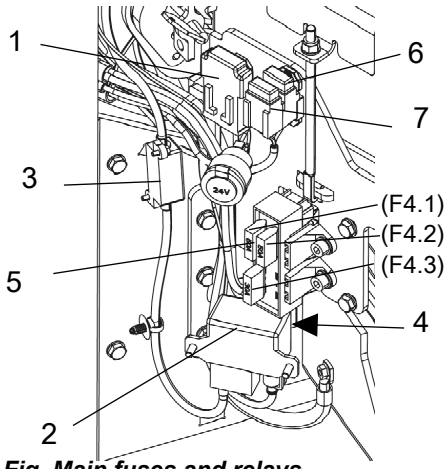


Fig. Main fuses and relays
1. Fuse (F13)
2. Preheating relay (K5)
3. Fuse (F20)
4. Starter relay (K1)
5. Fuses (F4.1, F4.2, F4.3)
6. Fuse (F23)
7. Fuse (F26)

The main fuse panel is located behind the left engine compartment door.

Fuses by codes:

F4.1	Main ECU	(50A)
F4.2	Main fuse	(50A)
F4.3	Cab	(30A)
F13	ECM (Engine controller)	(30A)
F20	Grid heater	(150A)
F23	Diagnostic, ECM Service outlet (X22)	(5A)
F26	24V Power outlet	(10A)

Distribution box

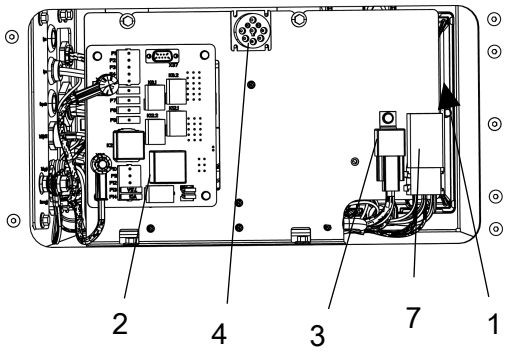


Fig. Distribution box
1. Control unit (ECU) (A7)
2. Circuit card (A6)
3. Main ECU relay (K23)
4. Diagnostic socket for ECM (X22)
7. Frequency converter, Tachograph

The distribution box is located on the right-hand side of the machine. There is a cover over the distribution box and fuses.

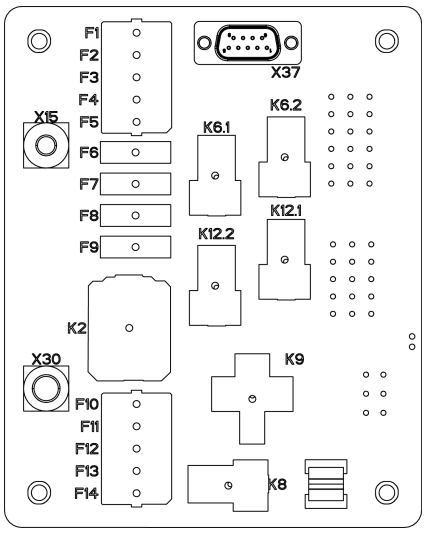


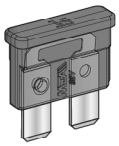
Fig. Circuit board A6.

Circuit board in distribution box

The figure shows the position of the fuses and the relays.

The table below gives fuse amperage and function. All fuses are flat pin fuses, type C (medium).

The table also shows the relay functions.



	Circuit board (A6)				
	Fuses				
F1	Display, Display control, Key pad, Line heater relay (K36)	15A	F8	Sprinkler pump 1, Control pressure sensor (SBW), seat position sensor (SBW)	10A
F2	DEF, Heater (K37), Tachograph (P11) terminal 15&58	15A	F9	Sprinkler pump 2 (combi), DCM	7.5A
F3	Main relay (K23)(ECU A7), NOX sensor, Temp.sensor, etc.	10A	F10	Reserve	
F4	Vibration sensor, Speed sensor, Fuel level sensor, Aspfalt temp.sensor	5A	F11	Dyn@lyzer, Tablet/Computer	7.5A
F5	Switches in operator platform, Backup alarm, Reverse lamp, Fleetlink, Seat belt, Seat switch	5A	F12	Fleetlink, Main relay (K2:86), Power supply (CPU) main ECU A7, K8:86 driving light relay, Terminal 15 main ECU A7	5A
F6	Working light right, 24/12V power converter	15A	F13	Direction lights	7.5A
F7	Working lights left, 24V power supply (driver seat)	15A	F14	Driving lights	10A
	Relays				
K2	Main relay		K9	Flash relay	
K6.1	Working lights left, ROPS/Cab		K12.1	Sprinkler pump 1	
K6.2	Working lights right, ROPS/Cab		K12.2	Sprinkler pump 2 (combi)	
K8	Driving lights relay				

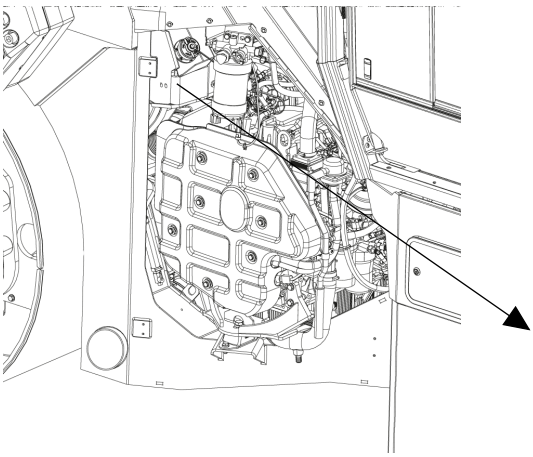
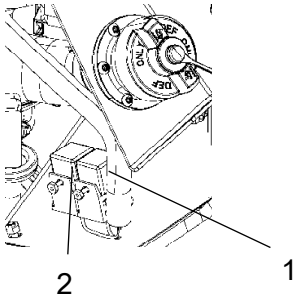


Fig. Cover, right-hand side

Electricity for Urea system

The relays (1 and 2) are located inside the right-hand engine cover in the urea tank compartment.



1. Line heater relay (K36)
2. DEF supply relay (K37)

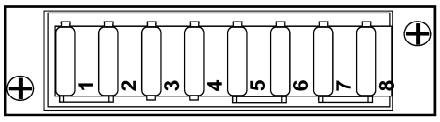


Fig. Cab roof fuse box (F7)

Fuses in cab

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

The figure shows fuse amperage and function.

All fuses are flat pin fuses.

1.	Interior light	10A
2.	Wiper motor/washer front/rear	10A
3.	AC/ACC	15A
4.	Heater blower	20A
5.	Front/rear side washer pump	10A
6.	Front/rear side wiper motor, Pressure guard AC	15A
7.	Dyn@lyzer	7.5A
8.	Reserve	

Operation

Before starting

Master switch - Switching on

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

The master switch is located in the engine compartment. Turn the key (1) to the on position. The entire roller is now supplied with power.

If the main battery/master switch is covered, the engine hood must be unlocked during operation, to be able to reach the switch in an emergency.

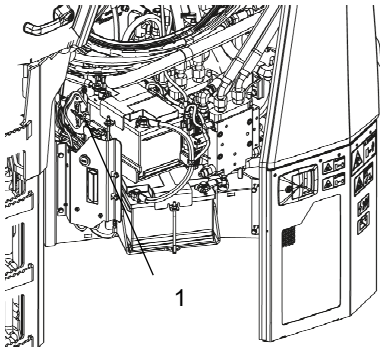


Figure. Engine door, left
1. Master switch

Operator's seat - Adjustment

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

The seat can be adjusted as follows.

- Length adjustment (1)
- Weight adjustment (2)
- Back support angle (3)

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

Do not forget to use the seatbelt (4).

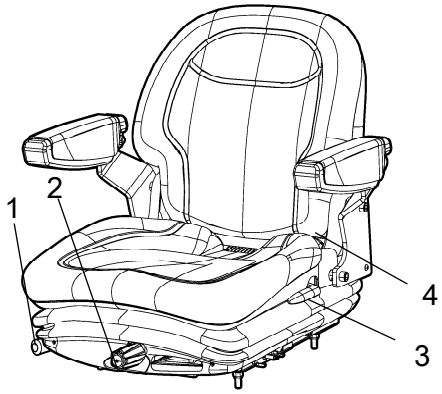


Fig. Operator's seat
1. Lock pack- Length adjustment
2. Weight adjustment
3. Back support angle
4. Seat belt

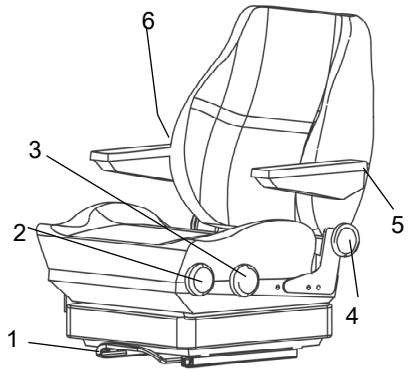


Fig. Operator's seat
1. Lever - length adjustment
2. Wheel - height adjustment
3. Wheel - seat cushion inclination
4. Wheel - backrest inclination
5. Wheel - armrest inclination
6. Wheel - lumbar support adjustment

Operator's seat, comfort - Adjustments

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

The seat can be adjusted as follows:
- Length adjustment (1)
- Height adjustment (2)
- Seat-cushion inclination (3)
- Backrest inclination (4)
- Armrest inclination (5)
- Lumbar support adjustment (6)

Always ensure that the seat is locked in position before operating the roller.

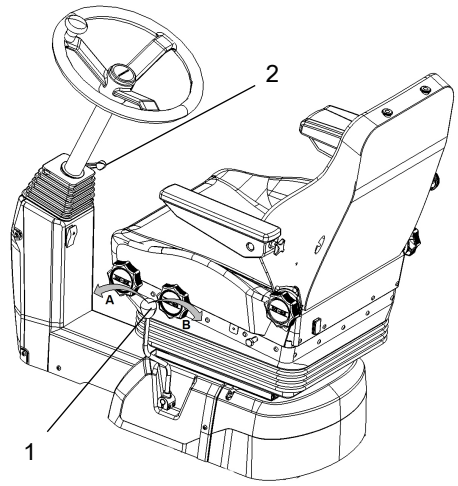


Fig. Operator's station
1. Lever - transverse travel/rotation
2. Locking lever - steering column angle

Positioning driver´s seat, adjustments

The driver´s seat unit has three adjustment options, transverse travel, rotation and steering column angle.

Pull the lever (1) forward (A) to release the transverse travel catch for transverse travel.

Pull the lever (1) backwards to perform rotation. (B) Ensure that the control unit locks in position before operating the machine.

Release locking lever (2) to adjust the steering column angle. Lock the steering column in the new position.

To adjust the operator's seat, see the section for basic/comfort seat.

Adjust all settings when the machine is stationary.

Always ensure that the seat is in locked position before operating the roller.

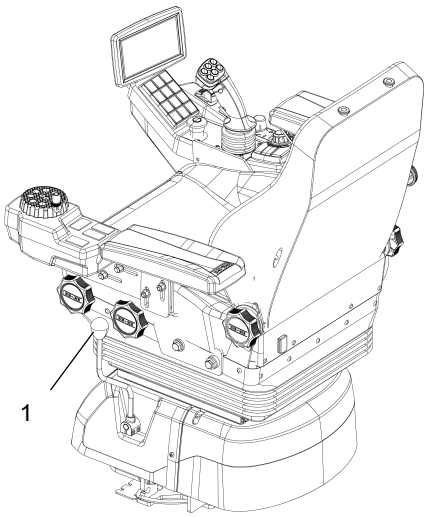


Fig. Driver´s seat (reversible driver´s seat)
1. Lever - transverse travel/rotation

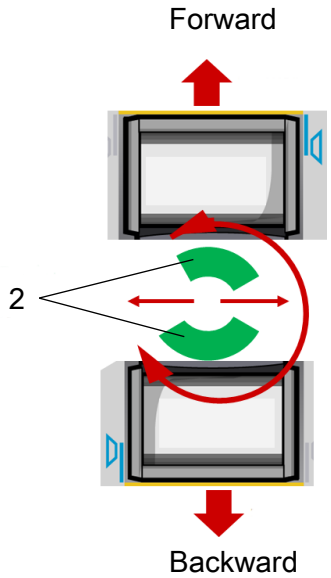
Positioning driver´s seat (reversible driver´s seat) - Adjustments (Optional)

The driver´s seat unit has two adjustments, transverse travel and rotation.

Pull the lever (1) forward (A) to release the transverse travel catch for transverse travel.

Pull the lever (1) backwards to perform rotation. (B)

Find your ideal position. Ensure that the control unit locks in position before operating the machine.



2. Possible seat positions

It's only possible to operate the machine when the seat is locked within marked area (2) (illustrated in the picture on the left).

If you change the rotation position of the driver´s seat unit outside marked area or from one marked area to the other, the forward/reverse lever must be moved to neutral position before it is possible to operate the machine again.

To adjust the operator's seat, see the section for basic/comfort seat.

If the machine is not stopped/or the lever is set to neutral before changing seat position:

- The machine slows down distinctly but gently.
- To make the machine move again, the forward/reverse lever must be in neutral and wait for 3 seconds.
- The forward/backward direction of the lever has now been changed so that the lever is pointing in the direction that the machine moves when the lever is moved forwards or backwards.
- The function of the electronic mini steering wheel has been changed so that the machine turns logically when the steering wheel is turned.

Adjust all settings when the machine is stationary.

Always ensure that the seat is in locked position before operating the roller.

Belt reminder



The machine can be equipped with seat belt with belt reminder.

Unless the seat belt is used, a warning image appear in the display and a warning buzzer sounds to alert the driver to use the seat belt.

Parking brake

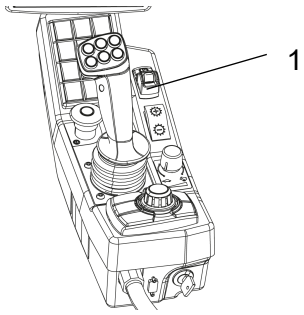


Fig. Control panel
1. Parking brake

Ensure that the parking brake (1) is definitely switched on.

The brake is always applied in Neutral. (activated automatically after 2 seconds)

The parking brake must be activated to start the machine!

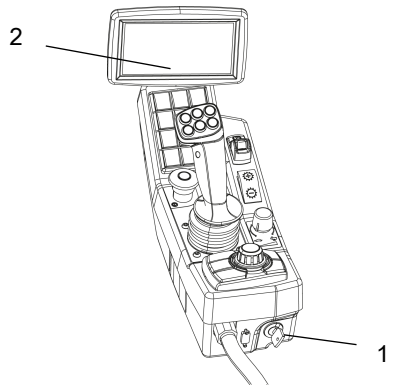


Fig. Instrument panel
1. Ignition key
2. Status image

Display - Control

Sit down for all operations.

Turn the ignition key (1) to the right so that a start image is shown on the display. Wait until the start image (2) goes out and the status image is shown on the display.



Fig. Status image
3. Fuel level
4. Water level
5. Hourmeter
6. Urea level

Check that the urea level (6) is not too low, the other level gauges (3, 4) show readings and that charging shows at least 24V.

The hourmeter (5) registers and shows the total number of hours the engine has run.

Interlock

The roller is equipped with Interlock.

If the operator rises from the driver's seat while driving forward/backward, the buzzer sounds and the machine stops after 4 seconds with the diesel engine running.

If the control is in neutral when the operator stands up a buzzer will go on until operator is seated or the parking brake is activated.

If the parking brake is activated, the diesel engine will not stop if the forward/reverse lever is moved out of neutral.

If for any reason the forward/reverse lever is moved out of neutral without sitting in the driver's seat and without having engaged the parking brake, the buzzer will sound and the diesel engine will still run, but the machine will remain stationary.



Sit down for all operations!

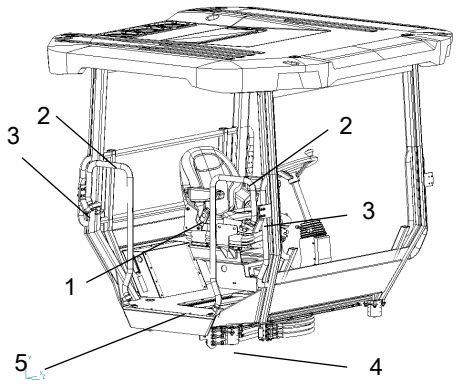


Fig. Operator position
1. Seat belt
2. Safety railing
3. Locking knob
4. Rubber element
5. Anti-slip

Operator position

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

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

The safety rails (2) around the cab are adjustable in the inner and the outer positions. Pull in the rails when driving close to walls or other obstacles, and when transporting the machine.

Inspect the ROPS/Cab for damages. Contact your supervisor for further actions if damages are detected.

Release the locking knob (3), set the the railings in the required position and relock in position.

Check that the rubber elements (4) on the platform are intact. Worn elements will reduce comfort.

Ensure that the anti-slip (5) on the platform is in good condition. Replace where anti-slip friction is poor.

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

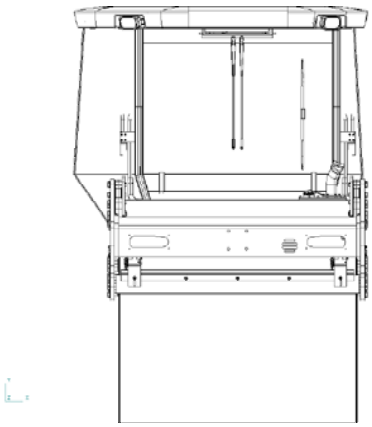


Fig. View

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.

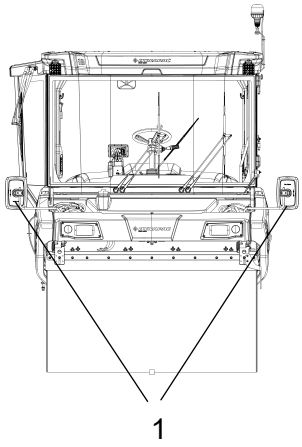


Fig. Rear view mirrors

Rear view mirrors - Adjustment

The rear view mirror adjustment is accessible from the ground.

The arm of the rear-view mirror has a stop in the maximum extended position. The mirror may then be adjusted for a good rear view.

The visibility requirement is fulfilled as per standard ISO 14401.

All rear view mirrors must be clean and adjusted for good backward visibility.

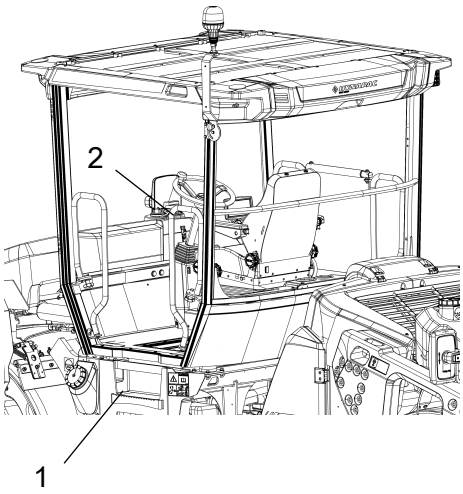


Fig. ROPS equipped roller
1. Step
2. Handrail

Foldable rotating beacon (Optional)

Stand firmly with both feet on the top step (1).

On a machine equipped with ROPS, hold a firm grip with one hand, on the left rear side rail (2) on the operator platform.

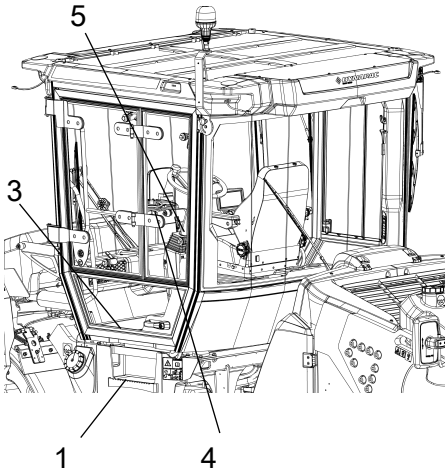


Fig. Cab equipped roller
1. Step
3. Cab door
4. Side window
5. Handle bar

On a machine equipped with a cab, make sure that the door (3) or the rear side window (4) on the door is open. Take a firm grip with one hand, on the handle (5) located on the left-hand rear cab pillar.

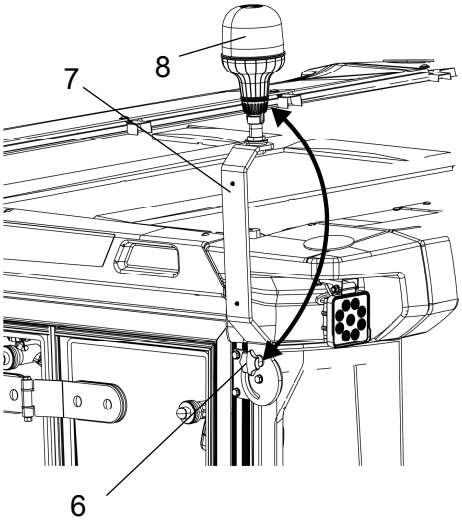


Fig. Rotating beacon
6. Knob
7. Lamp holder
8. Warning light

Now loosen the knob (6) with the other hand and fold down the lamp holder (7).

Undo and remove any warning light (8) from the lamp holder.

To raise the rotating beacon, perform the above procedure in reverse.

The rotating beacon should always be folded down before transport, where the total height of the trailer is less than three meters.

Prior to starting work, make sure that the rotating beacon is not damaged and in working order. If not, replace immediately.

Working lights - Adjustment

Use a ladder for easier access to adjust the working lights.

Cab windows - de-icing

To de-ice the cab windows, stand steadily on the cab step, or the water tank filling step.

Use a telescopic ice scraper and de-ice the windows as far as you can reach.

Adjust the seat to the left position for the best view through the de-iced section of the window.

Turn on the defroster fully, and the remaining part of the windows will be de-iced within a few minutes.

Wiper blade - Replacement

Ensure that the wiper blades are in good condition. Replace the blades when they no longer wipe the cab windows clean.

Use a ladder for easier access for wiper blade replacement.

Washer fluid - Checking and filling

Place the roller on a level surface.

Top up the washer fluid when if necessary, in the reservoir (1) located behind the operator’s seat.

The reservoir holds 2.1 liters (2.2 qts)

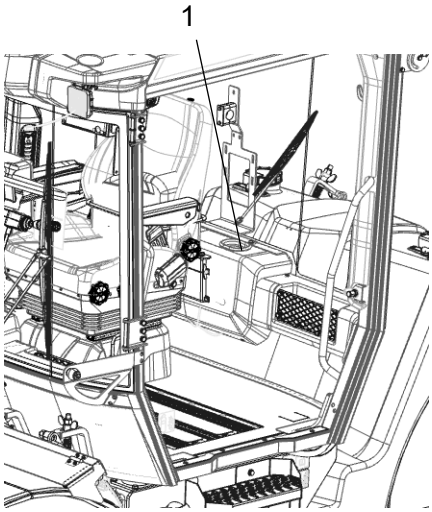


Fig. Operator’s platform
1. Washer fluid reservoir

Starting

Starting the engine

Make sure that the emergency stop is not activated, but the parking brake is switched on.

Set the forward/reverse lever (1) in neutral position.

The diesel engine cannot be started in any other position of the lever.

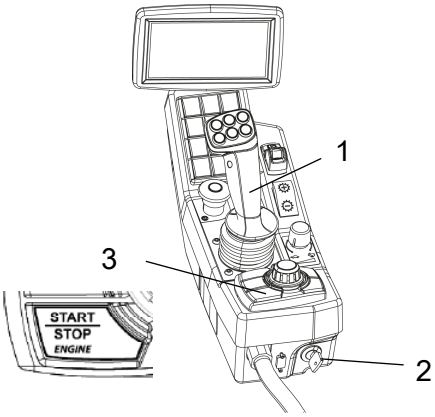


Fig. Control panel
1. F/R lever
2. Ignition key
3. Start-stop button

Turn the ignition key (2) to the right and a start screen appears on the display. Wait until the start screen turns off.

Activate start by pressing the start-stop button (3). The status image appears on the display.

The system will automatically take care of essential measures such as preheating and activation of the starter motor.



Fig. Display - Start screen

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



Figure. Display - Status image

When starting the diesel engine when the ambient temperature is lower than +10°C (50°F), the machine should be warmed up at idle (low speed) until the hydraulic oil temperature exceeds +10°C (50°F).

During warm up check that the fuel, urea and water indicators shows the levels and the charge shows at least 24V.

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.

The machine always starts in the Transport position, without it being possible to use off-set, vibration or sprinkling.

If the machine and drums are in off-set mode, switch to work mode and reset before loading the machine on a truck. This is indicated by a warning in the display.

Parking brake test

To be sure that the parking brake works and is in good condition, perform following procedure daily.

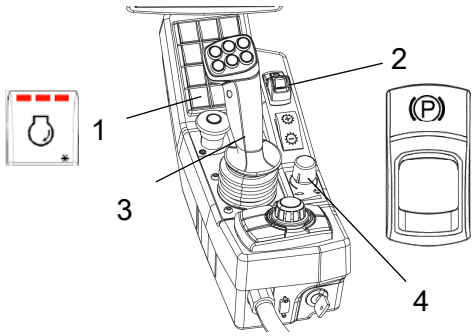


Fig. Control panel
1. Rpm switch
2. Parking brake
3. Forward/Reverse lever
4. Speed limiter

Put the machine on flat ground.

Make sure that there are no obstacles in the direction of travel, on the ground, in front of or behind the roller, or overhead.

Activate the parking brake with the parking brake button (2). Turn on the quick selection menu on the display, the brake test button (5) is now visible in the menu bar on the touch screen.

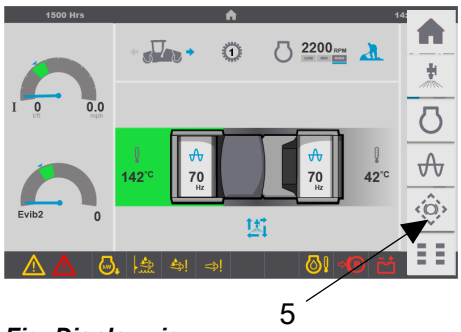


Fig. Display view
5. Brake test button

Set the engine speed (1) to medium or high speed and set the propulsion speed limiter (4) to max., i.e. no limitation.

Push the brake test button (5) in the touch screen on the display and keep it pushed, a pop-up symbol (6) shows on the screen when the button is activated.

NOTE! This activation is not possible to do from the display controller knob.

By pressing the brake test button, it is possible for the machine to run against the brakes and thus test the brakes under load.

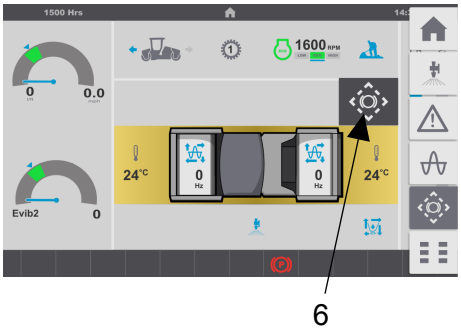


Fig. Display view
6. Pop-up symbol (parking brake test)

Wait 2-3 seconds and move the forward/reverse lever (3) slowly forward and slowly back to neutral again and then release the brake test button (5).**Be prepared for the machine to move during this operation.**
Then stop the machine by immediately pulling the lever to neutral

If the machine does **not** move the parking brake effect is approved.

If the machine moves the parking brake is not approved and brake discs are considered as worn out and need to be replaced.

The machine must be immediately taken out of operation and must not be used until the brakes are repaired and approved.

Display when activating choice via the button set.



Working mode, offset and vibration possible.

Low amplitude/High amplitude

Vibration on front and rear drums.

Automatic vibration control (AVC active), is selected in "settings-compaction", vibration is activated when the Forward/Reverse lever is outside of neutral.



Watering, manual/automatic

Automatic water control (auto active), watering is activated when the Forward/Reverse lever is outside of neutral.



Warning alarm display, see the table for details.

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.

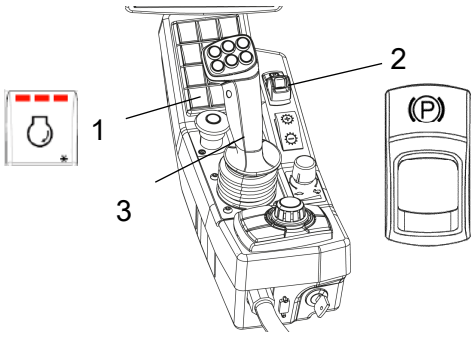


Fig. Control panel
1. Rpm switch
2. Parking brake
3. Forward/Reverse lever

Activate working speed (1) = HI or ECO if available.

In ECO, the machine automatically regulates the engine speed according to requirements.

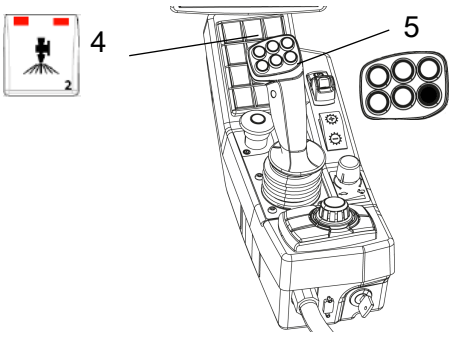
If the machine is only to be transported, MID or ECO should be selected instead.

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 (4) or (5).

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

Release the parking brake (2).



4. Manual/automatic watering
5. Full flow watering

Gear position switch

Switch (1) is a spring-return gear position switch, where gear changing take place by stepping through the two different gear positions: Position 1 and Position 2.

- Position 1: Used for maximum hill-climbing capacity during vibratory compaction
- Position 2: Used for maximum transport speed or eventually for high speed doing static compaction passes without vibration.

The forward/reverse lever must be in neutral in order to change gear.

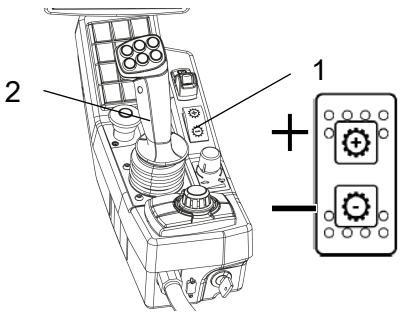


Fig. Control panel
1. Gear position switch
2. Forward/Reverse lever



Fig. The display shows the selection (position 1 or 2)

The machine's gear position is shown in the center of the speedometer; select the gear/speed for the task.

		Max. speed	
①	= Position 1	6 km/h	3.8 mph
②	= Position 2	12 km/h	7.5 mph

Carefully move the forward/reverse lever (2) forwards or backwards, depending on which direction of travel is required.

The speed increases as the lever is moved away from the neutral position.

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 7 seconds the engine switches off and the brakes are activated.



Check the function of the emergency stop by pressing the emergency stop button 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.
If a function error is detected when testing the emergency stop, this should be replaced immediately.



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.

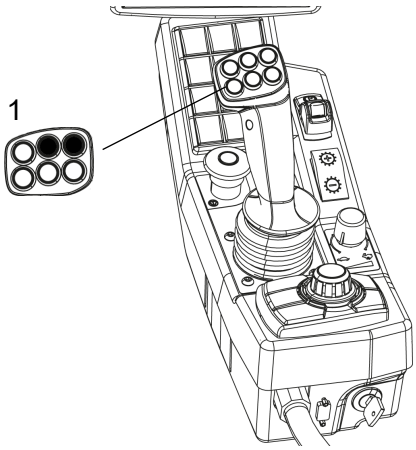


Fig. Forward/reverse lever
1. Pivotal steering

Pivotal steering/Offset (Optional)

The machine must be in the Working mode to activate the pivotal steering. Use the two front buttons (1) on the forward/reverse lever to operate the pivotal steering.

The pivotal steering control/offset icon (2) is highlighted in yellow when the drums are not aligned.



Fig. Display

To reset the front drum to neutral, adjust the buttons (1) until the machine has aligned the drums (the icon (2) is no longer highlighted).

When steering from the outer positions towards neutral, the pivotal steering will always stop in neutral. This is in order to end up in neutral. If you wish to pass through the neutral position, you may release the button and press it again.

On machines with electronic steering (reversible drivers seat) automatically centering of the front drum could be achieved by pressing both offset buttons at the same time.

Vibration

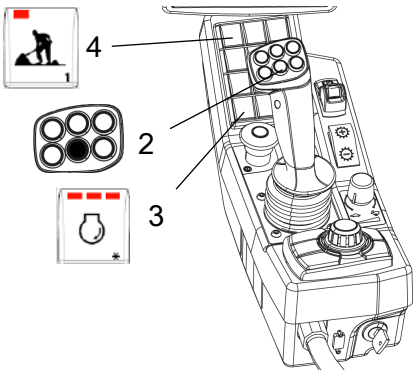


Fig. Control panel
2. Switch, vibration ON/OFF
3. Speed selector
4. Working mode

Manual/Automatic vibration

Activate the button for the Working mode (4).

In the manual position the operator has to activate the vibration via the red switch on the forward/reverse lever (2).

Automatic vibration control (AVC active), is selected via the display in "settings-compaction", vibration is activated when the Forward/Reverse lever is outside of neutral.

In automatic mode (AVC), the vibrations are activated at driving speeds above 2.5 km/h (1.6 mph) and turn off when speed falls below 2km/h (1.2 mph).

If the driving speed has been over 4.5 km/h (2.8 mph), the vibration is switched off when the speed falls below 4.0 km/h (2.5 mph).

Activation of vibration for the first time, as well as disconnection of automatic vibration, are performed with the switch (2) on the forward/reverse lever.

Note that vibration can only be activated when the working mode (4) is activated, and when the Rpm switch (3) for the engine is in high (HI) or Eco mode (ECO). After 10 seconds in neutral, the vibration is switched off and the machine drops to low speed.

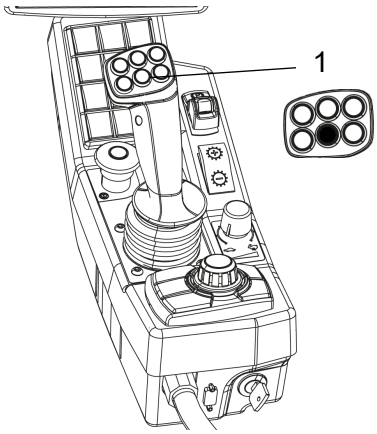


Fig. Forward/reverse lever
1. Switch, vibration ON/OFF

Manual vibration - Switching on

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

Engage and disengage vibration using the red switch (1) on the front of the forward/reverse lever.

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

When compacting thin layers of asphalt up to approx. 50 mm (2 inches) thick, the best results are achived with low amplitude/high frequency.

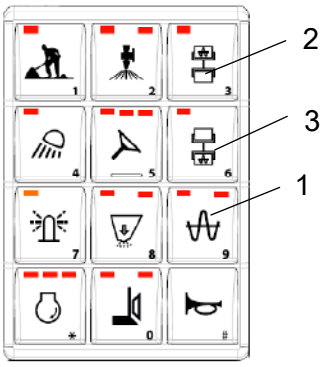


Fig. Control panel
1. High amplitude
2. Vibration fron drum
3. Vibration rear drum

Amplitude/frequency - Changeover

The amplitude setting must not be change when vibration is in operation
Switch the vibration off and wait until vibration stops before changing amplitude.

By pressing button (1) high amplitude is achieved.

The buttons (2) and (3) are used to get vibrations either on front or rear drum or on both.

- (2) vibration on front drum.

- (3) vibration on rear drum.



Fig. Seismic sticker

Machines equipped with Seismic function (Optional)

Seismic is Dynapac's intelligent compaction system.

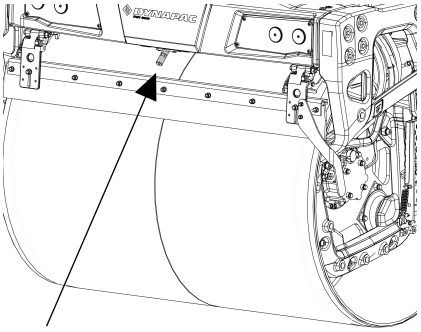
When Seismic is active, the machine itself adjusts the vibration frequency to the most optimal at the moment. This results in increased compaction performance, lower noise levels and reduced fuel consumption. The Seismic function is active every time the machine is started.

The function must be manually deactivated if you want to run the machine with the Seismic function deactivated.

When Seismic is active, the machine operates within defined frequency ranges. It is perfectly normal for the vibration frequency to vary during the compaction phase, depending on the nature of the surface and how many passes have been made, and this indicates that Seismic is working.

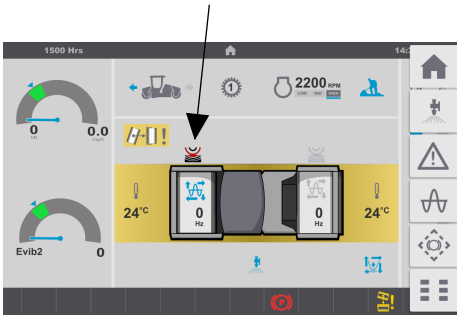
ATTENTION!

The Seismic system regulates the vibration frequency of both drums simultaneously, but note that the logic controlling the Seismic function is concentrated on the front drum. This means that if vibrations **are only** activated on the rear drum, the Seismic system will automatically disengage. As soon as the front drum's vibrations are activated (alone or together with the rear drum), the Seismic system will automatically return to being active, unless the operator has chosen to disable the function in the underlying settings menu.

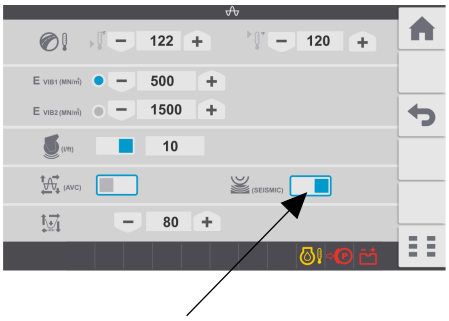


IR temperature sensor

For the Seismic function to deliver maximum performance, it is important that the machine's IR temperature sensors are kept clean from dirt. Check these regularly and clean the lens, if necessary, with a cotton swab and a mild detergent. Solvent-based detergents should be avoided as they can damage the surface of the lens and affect the sensor's measuring accuracy.



When the Seismic system is active (which is always the case every time the machine is started after the ignition has been switched off), this is indicated by a symbol in the display. As long as this symbol is switched on, the machine itself regulates the vibration frequency to the most optimal level.



If, for any reason, the operator does not want the Seismic system to be active, they can manually deactivate the system via the slider in the menu, under Compaction settings. When the Seismic system is deactivated, the machine will operate at a fixed vibration frequency, i.e. no optimization and regulation of the vibration frequency takes place.

ATTENTION!

Even if the operator has chosen on one occasion to deactivate the Seismic function, it will automatically be active the next time the ignition is switched on. This means that every time the ignition has been switched off, you must actively enter the menu and deactivate the Seismic system if you do not want it to be active.

Edge cutting/pressing (Optional)

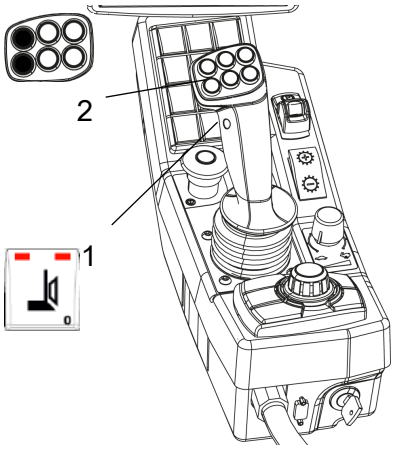


Fig. Switch
1. Edge cutter, left/right side
2. Edge cutter/presser, Up/Down

The machine must be running to activate the edge cutter/presser.

Selection with button (1) for use of the left or right edge cutter/presser and the sprinkler valve for the edge cutter/presser.

To avoid asphalt sticking to the edge cutter/presser, a sprinkler system is used for watering.

Water sprinkling of the edge cutter/presser is carried by activating the drums' regular sprinkler system and then running in auto mode at the set interval.

Sprinkling of the edge cutter/presser can also be carried out by pressing and holding the blue button on the control lever.

When the machine is in Working mode and if the lower left button on the lever (2) is pressed, the edge cutter/presser is lowered to the asphalt surface by means of a hydraulic cylinder. To return the edge cutter/presser to its original position, press on the upper left button on the lever to lift the edge cutter/presser.

Note that the edge cutter/presser can also be lifted if the machine is in Transport mode.

A bypass valve prevents the hydraulic system being overloaded.

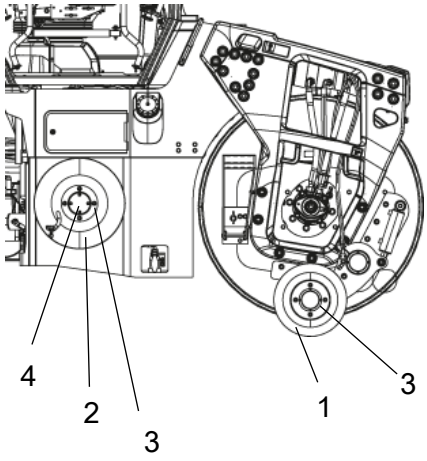


Fig. Replacing the tool
1. Edge presser
2. Edge cutter
3. Bolted joints
4. Holder for cutter/press wheel

There are two tools to choose between: a cutter wheel for edge cutting and a conical compaction wheel for edge pressing. In the figure the edge cutter (1) is mounted for work. The edge cutter (2) can easily be replaced with the edge presser by loosening the bolted joint (3).

Chip spreader (Optional)

Activate the button for Working mode (1).

Chip spreading is started with the button (2) on the control panel keypad.

The button can activate the chip spreader in two ways, Manual or Automatic spreading

Left LED, manual spreading, gives continuous spreading.

Activation of the right LED gives automatic spreading (auto active), spreading is activated when the Forward/Reverse lever is outside of neutral.

Press until the LEDs go out to shut down the chip spreader completely.

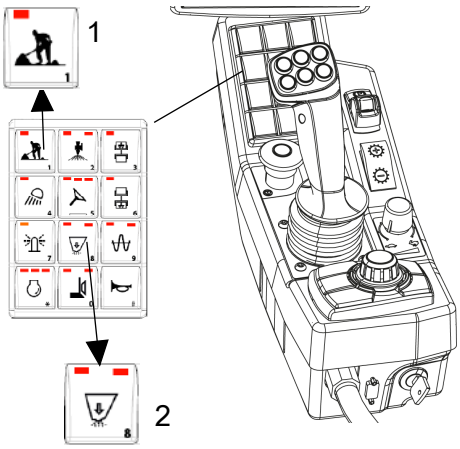


Fig. Control panel
1. Working mode
2. Chip spreader

Adjusting the feed volume

The quantity of chips spread per square metre is adusted by changing the speed of the feed roller.

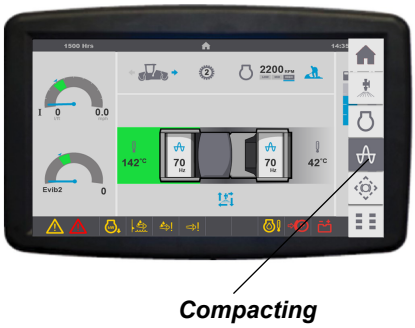


Fig. Home page with quick-choice menu

This setting/adjustment is made via the display in the Compacting menu. This can be reached directly from the start screen by selecting Compacting on the quick-choice menu.

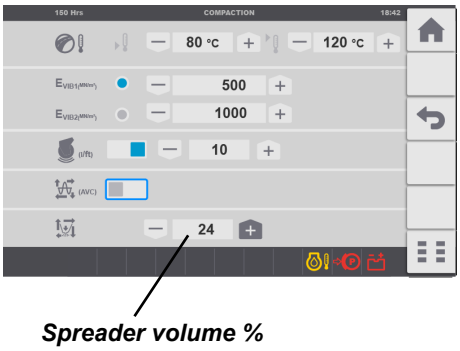
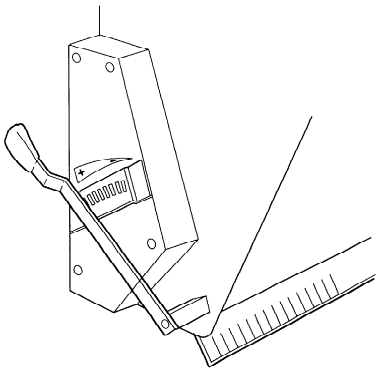


Fig. Compacting

Adjust spreading volume with minus for lower volume and plus for higher volume of chips.

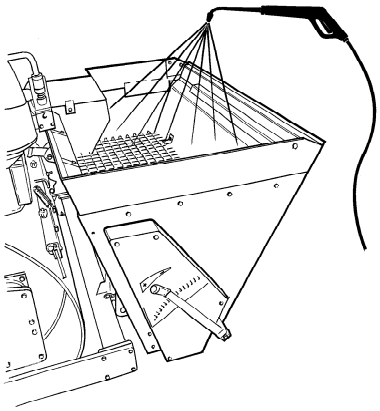
Preparations before adjustment / emptying.

The machine should be placed on a level surface with the engine switched off and brake applied.



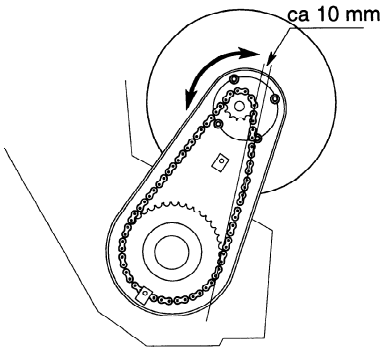
Emptying

Empty the spreader by setting it in transport mode over the required area and by fully opening the lever on the left-hand side.



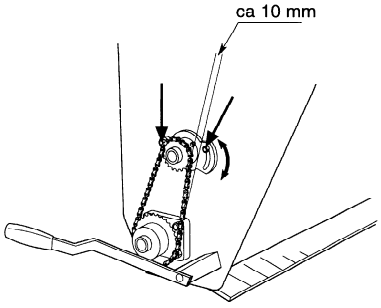
Washing the spreader

When corrosive material has been used the spreader must be flushed clean with water.
This should also be done when the spreader is not to be used for a long period.



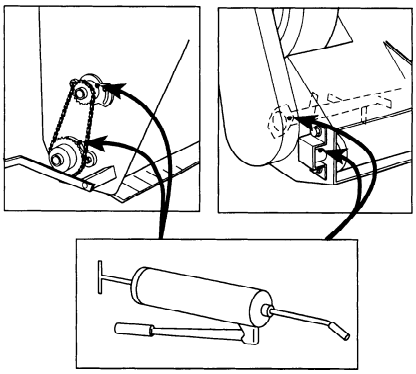
Adjusting the chain 1

Loosen the four bolts for the bearing housing and turn it to the correct position, where the chain has a clearance of approx. 10 mm. Tighten the bolts.



Adjusting the chain 2

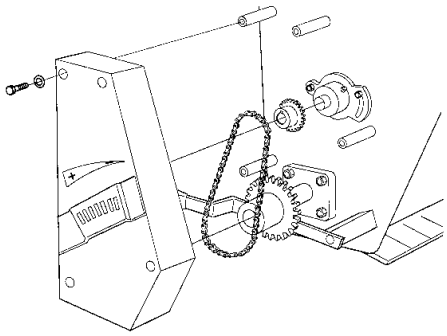
Loosen the two nuts, see arrows, for the bearing housing and turn it to the correct position, where the chain has a clearance of approx. 10 mm. Tighten the nuts.



Lubrication

At the start of every season and after every 40 hours of operation. Once per season is sufficient during infrequent use.

Lubricate after every season before putting into storage.



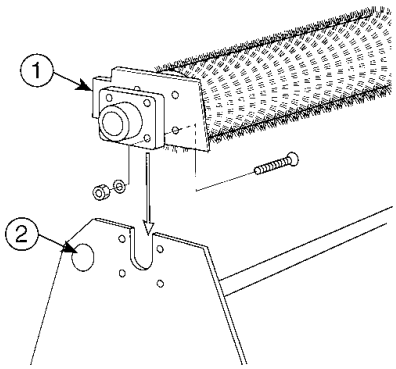
Changing the brush drum.

Release the protective cover.

Remove the chain.

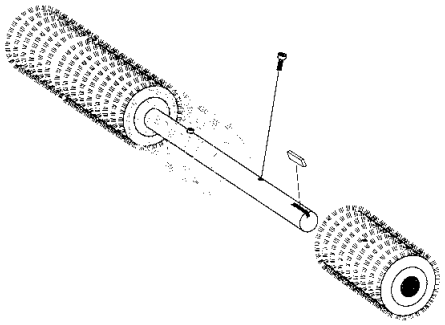
Remove the chain wheel on the outfeed drum and mixer shaft.

Release the screws and pull off the chain wheel.



Release the eight screws holding the outfeed drum. Lift off the drum and bearing.

Unscrew the outfeed rubber.

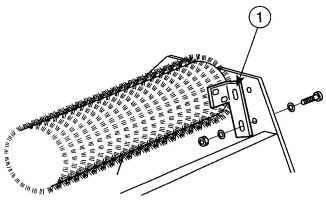


Changing the brushes.

Remove the bearings and seals.

Remove the old brushes and fit the new brushes.

Refit the assembled brush drum in the spreader.



Fit the scraper iron and rubber mat.

Fit the scraper iron attachments (No.1) left and right.

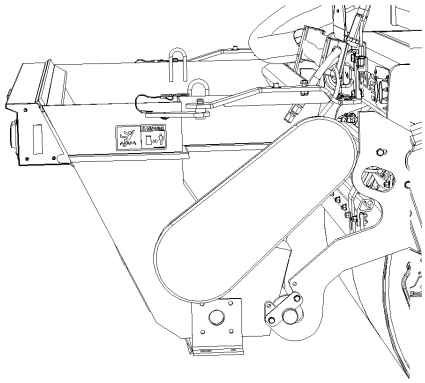
Adjust the scraper iron so that it goes 1-3 mm into the brush.

Adjust the rubber mat so that it is flush with brush, approx. 5 mm.

Preparations before dismantling/assembly.

The machine should be standing on a level surface with the engine switched off and the brakes on.

Use safe handling equipment to lift the chip spreader off/on. Make sure no-one is in the lifting area, risk of bodily and crushing injuries.

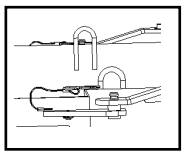


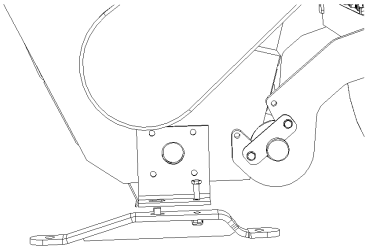
1

Make sure that the container is empty and does not contain any extra material before dismantling.

Attach the lifting devices in the eyes on both sides of the container.

1- Release the pin in the clamp and remove the clamp from the machine.

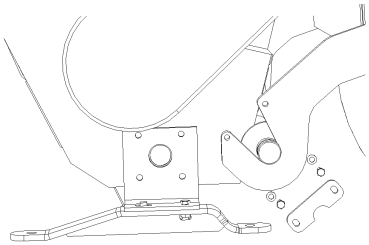




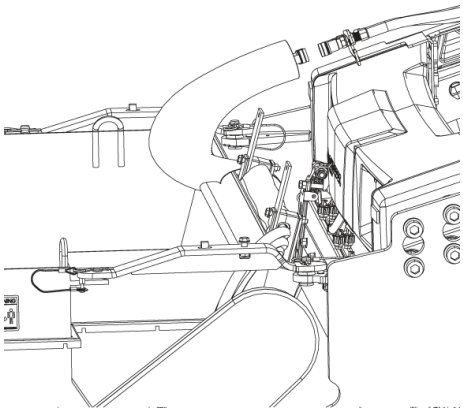
2

2- The clamp is now fitted at the base of the container as a foot.

3- Release the lock on the lower shaft.



3



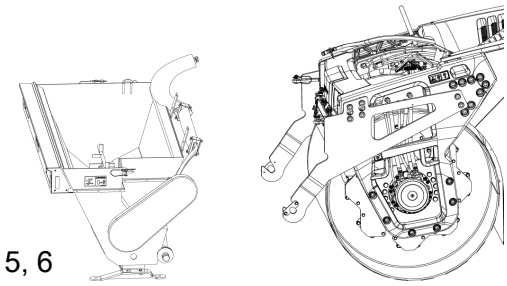
4

4- Release the hydraulic hoses and cabling.

Plug the hoses (dust seals) with the enclosed plugs.

5- Now lift off the container with the requisite lifting device and place on a level surface.

Always place a parked container in a safe place away from traffic and marked with reflectors so that it can also be seen at night.



5, 6

6- Refit the protective beam on the suspension arms.

To fit the container, follow the instructions in the reverse order.

Braking

Service brake

Press the switch (1) to switch off the vibration if they are on.

Move the forward/reverse lever (2) to the neutral position to stop the roller.

Always activate the parking brake (3), before leaving the operator platform.

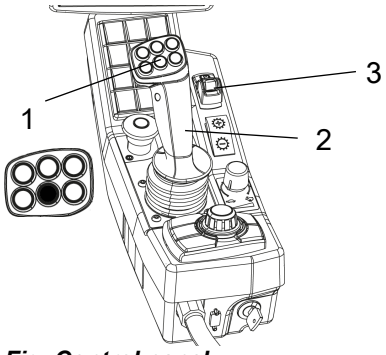


Fig. Control panel
1. Vibration On/Off switch
2. Forward/Reverse lever
3. Parking brake

If the forward/reverse lever is moved quickly (forwards or backwards) toward/past neutral, the system switches to a rapid braking Mode and the machine stops.

Activate normal driving Mode again by moving the forward/reverse lever back to neutral.

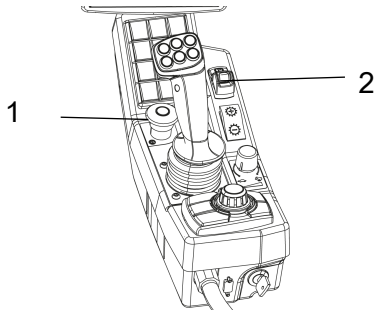


Fig. Control panel
1. Emergency stop
2. Parking brake

Reserve brake

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

In addition, there is a disc brake in the drive motors that acts as a reserve brake when operating, and as a parking brake when stationary (then activated with the parking brake button (2)).

For reserve braking, press the parking brake button (2), hold the steering wheel firmly and be prepared for a sudden stop.

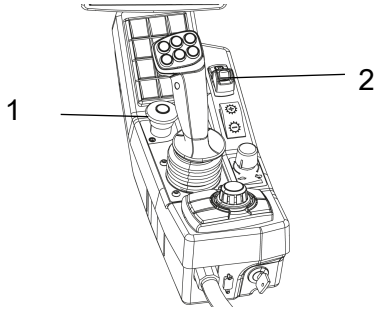


Fig. Control panel
1. Emergency stop
2. Parking brake

Emergency stop

The emergency stop is activated by pressing the button (1).

Hold the steering wheel firmly and brace yourself for a sudden stop.

The brake is applied and the engine stops.

After an emergency stop, return the forward/reverse lever to neutral and deactivate the emergency stop by pulling up the button (1).

Activate the parking brake (2) and the engine can be restarted.

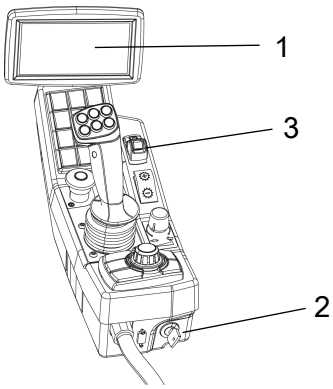


Fig. Control panel
1. Display
2. Ignition lock
3. Parking brake

Switching off

Set the speed control in idling position and allow the engine to idle for a few minutes to cool down.

Do not leave the engine idling for too long periods. Long periods of idling, more than 10 minutes, can cause poor engine performance and, if there is a particulate filter, the service life is reduced significantly.

Check the display to see if any faults are indicated. Switch off all lights and other electrical functions.

Activate the parking brake (3) and then turn the ignition lock (2) to the left to the off position.

Fit the instrument cover on the display and top of the control box (on rollers without cab), and lock it.

Parking

Chocking the drums

Never get off the roller when the diesel engine is running, without first activating the parking brake.

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.

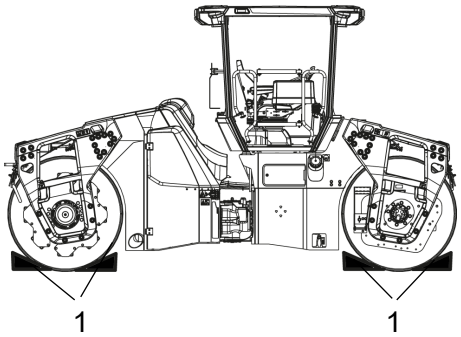


Fig. Arrangement
1. Chock

Keep in mind that there is a risk of freezing during the winter. Drain the water tanks, pumps and water lines.
Fill antifreeze in the engine cooling system and the washer fluid reservoir in the cab. Also see maintenance instructions.

Before using the roller again, make sure that the engine is switched off and the parking brake is activated. The brake chocks can then be removed

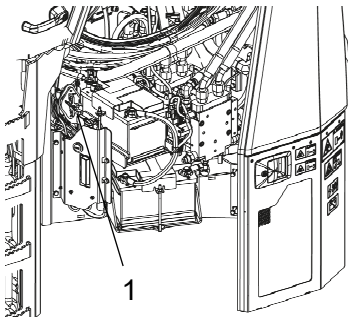


Figure. Engine door, left
1. Master switch

Master switch

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

Before switching off the master switch, wait for at least 30 seconds after the ignition lock has been switched off, in order to avoid the engine's electronic control unit (ECU) sustaining damage.

This will prevent battery discharging and will also make it difficult for unauthorized persons to start and operate the machine. Lock the service doors/covers.

Long-term parking

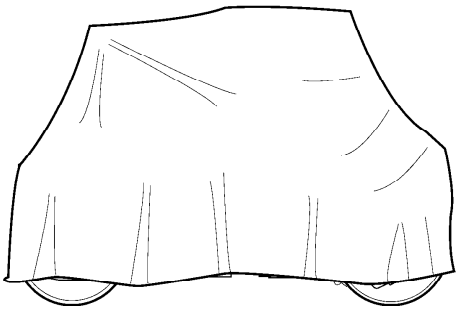


Fig. Roller weather protection

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

* Dismantle the battery/batteries from the machine, clean the outside and maintenance charge.

Air cleaner, exhaust pipe

* Cover the air cleaner or its opening with plastic or tape. Also cover the exhaust pipe opening. This is to avoid moisture entering the engine.

Watering system

* Empty the water tank and all hoses of water. Empty the filter housing and the water pump. Undo all sprinkler nozzles.

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 cylinders, hinges, etc.

Grease the steering cylinder pistons with conservation grease.

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

Engine coolant

Check that the coolant mix are within recommended levels and have a freezing temperature lower than expected lowest temperature during the storage period.

Urea tank (DEF tank)

Draining of the urea tank (DEF tank) is recommended if left unused for more than 6 months.



Deliver the drained liquid to an environmentally-friendly waste disposal station.

Hoods, tarpaulin

* Lower the instrument cover over the instrument panel.

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

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

Miscellaneous

Lifting

Locking the articulation

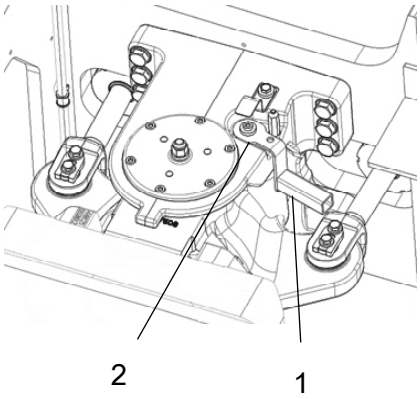


Fig. Steering joint lock, locked
1. Lock handle
2. Locking dowel

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

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

Front frame shall be in line with the rear frame.

Lift lock in the handle (1) while it is turned clockwise.

Make sure dowel (2) gets in position as illustrated. Arm must be in contact with the surface of the molded holder.

If this is not done, it's likely that the machine halves are out of line, steer then the machine so this is happening.

Lifting the roller

Weight: refer to the machine plate on the roller

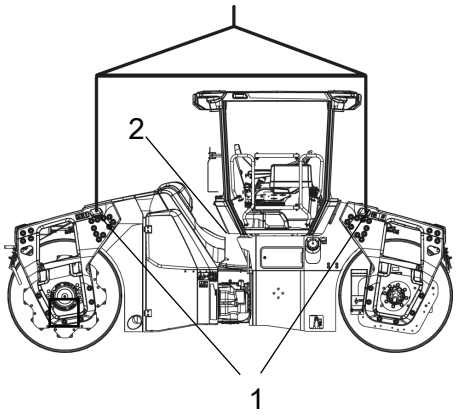


Fig. Roller prepared for lifting
1. Lifting point
2. Machine plate

The machine's gross weight (3) is specified on the machine plate (2).

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

3

optional QR code

DYNAPAC FAYAT GROUP

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

CE

Product Identification Number	XXXXXXXXXXXXXXXX		
Designation	Type	Rated Power	Max axle load front / rear
XXXXXX	XXXXXX	XXX kW	XXXX/XXXX kg
Gross machinery mass	Operating mass	Max ballast	[Date of Mfg]
XXXX kg	XXXX kg	XXXX kg	XXXX

Made in Sweden

4811 0001 33

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

Lifting the roller with jack:

The machine's gross weight (4) is specified on the machine plate (1).

Weight: refer to the machine plate on the roller

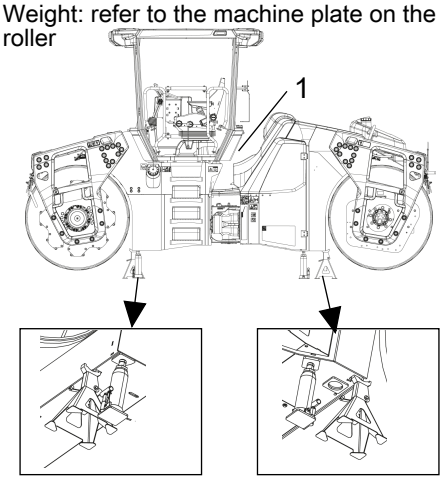


Figure. Roller lifted with jack
1. Machine plate
2. Jack
3. Marking

The lifting device such as a jack (2), or equivalent, must be dimensioned according to the safety regulations for lifting devices.

4

optional QR code

DYNAPAC FAYAT GROUP

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

CE

Product Identification Number			
XXXXXXXXXXXXXXXX			
Designation	Type	Rated Power	Max axle load front / rear
XXXXXX	XXXXXX	XXX kW	XXXX/XXXX kg
Gross machinery mass	Operating mass	Max ballast	[Date of Mfg]
XXXX kg	XXXX kg	XXXX kg	XXXX

Made in Sweden

4811 0001 33

Do not go under a lifted load! Make sure that the lifting device is secure in its position, and on a level and stable suface.

The machine **must only be lifted** with a jack, or the like, positioned as per the **markings** (3). The frame is reinforced at these points to withstand the tension. Lifting at any other place can result in damage to the machine or personal injury.

Unlocking the articulation

Remember to restore the steering joint lock on the steering joint to open before operating.

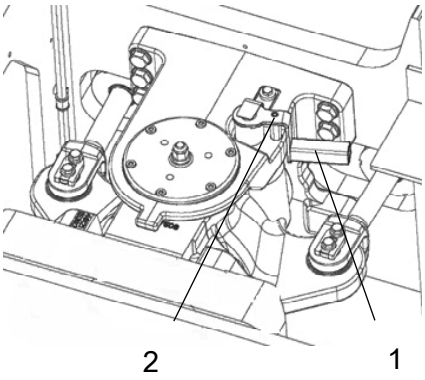


Fig. Steering joint lock, open
1. Lock handle
2. Locking dowel

Lift lock in the handle while turning it counterclockwise.

Make sure lock gets in position on the dowel by trying to turn the handle clockwise or counterclockwise without lifting the lock.

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 stop the diesel engine. Chock the drums to prevent the roller from moving

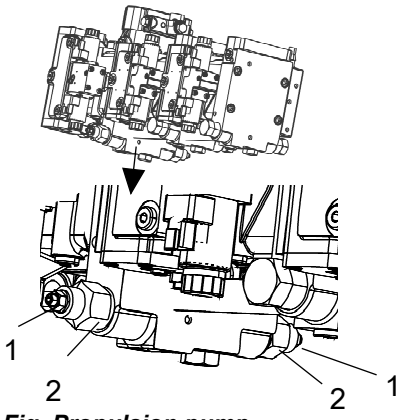


Fig. Propulsion pump
1. Towing valve
2. Bypass valve

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

At the bottom on the forward drive pump are two towing valves (1) which need to be set in bypass mode.

Loosen the towing valve (1) with the hexagonal nut (A) by turning it a number of turns to the left, counter-hold on the overflow valve (2).

After releasing the hexagonal nut (A), screw in the adjusting screw (B) with a hex key until it touches the pin (C) and then turn an additional ½ turn. The valve is now open.

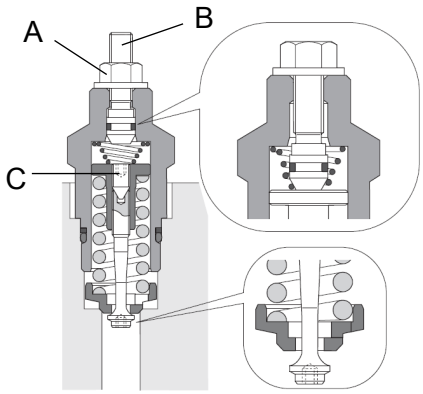


Figure. Towing valve

Start the engine and allow it to idle.

Deactivate the parking brake and place the forward/reverse lever in the forward or reverse position. If the lever is in neutral, the brakes in the hydraulic motors are activated.

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

Do not forget to reset the towing valves after performing towing.

To leave the by-pass position, unscrew the adjusting screw (B) until it stops and then lock the valve again with the hex nut (A).

Short distance towing with the diesel engine switched off/not running

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

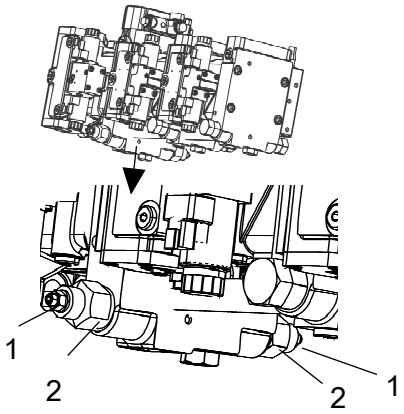


Fig. Propulsion pump
1. Towing valve
2. Bypass valve

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

At the bottom on the forward drive pump are two towing valves (1) which need to be set in bypass mode.

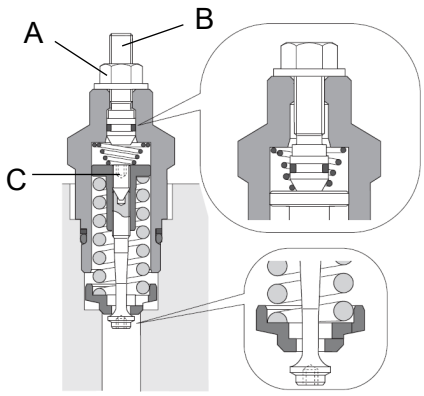


Figure. Towing valve

Loosen the towing valve (1) with the hexagonal nut (A) by turning it a number of turns to the left, counter-hold on the overflow valve (2).

After releasing the hexagonal nut (A), screw in the adjusting screw (B) with a hex key until it touches the pin (C) and then turn an additional ½ turn. The valve is now open.

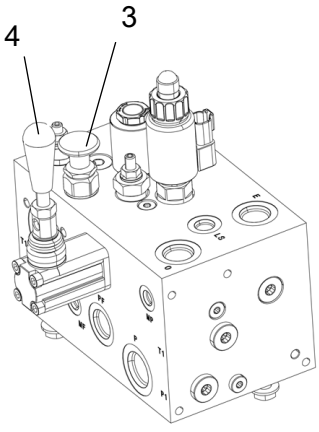


Fig. Valve block, engine compartment
3. Brake release button
4. Pump arm

The release pump for the brakes is located on the valve block, which is positioned in the rear of the engine compartment.

Press the break release button (3).

Pump with the arm (4) until the brakes are released.

The roller can now be towed.

After towing, pull the brake release button (3) up.

The machine must not be moved at a speed higher than 3 km/h (2 mph), and no more than 300 meters (330 yards). Otherwise there is a risk of damaging the drives. Be sure to reset the towing valves after towing.

To leave the bypass position, unscrew the adjusting screw (B) until it stops and then lock the valve again with the hex nut (A).

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).

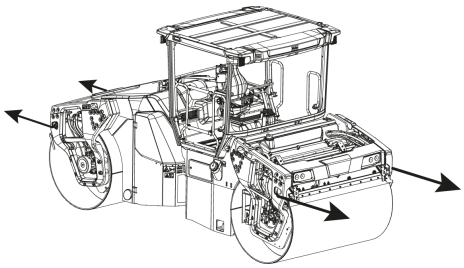


Fig. Towing

When towing/retrieving a machine, the towing device must be connected to both lifting holes in the diagram.

The load is uniformly divided between the two lugs.

Note! Towing in only one hole is not permitted.

The pulling forces should act parallel to the machine's longitudinal axis, as shown in the figure. See table below for maximum permitted pulling force.

Model	kN	lbf
CC4000-6200	190	42 750

Reverse the towing preparations made to the hydraulic pump and/or the motor.

Towing eye

The roller may be fitted with an additional towing eye, which must not be used for retrieval (max. permitted pulling force 3000 kg (6 600 lb)).

Be sure to follow local traffic rules.

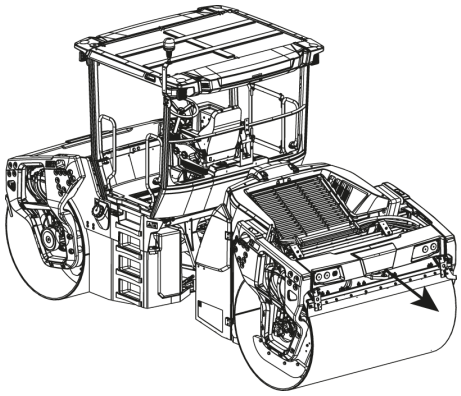


Fig. Towing eye

Transport

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

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

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

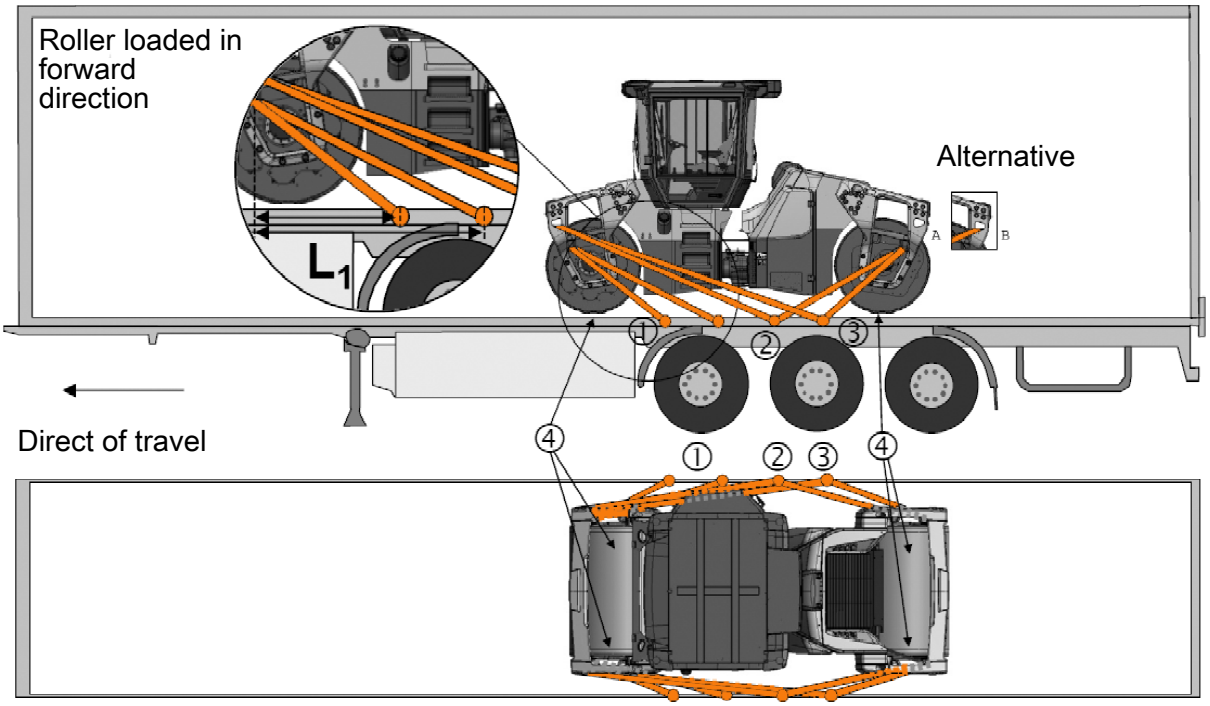
Before securing the machine ensure that :

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

Loading CC4000 VI-CC6200 VI and CO4000 VI-CO6200 VI

Securing vibratory roller CC4000 VI-CC6200 VI and CO4000 VI-CO6200 VI from Dynapac for transport.

(The instructions also apply to Combi machines)



1 - 3 = double lashings, i.e. one lashing with two parts attached to two different lashing points, on thetrailer, symmetrically placed on the right and left side

4 = rubber

The lashings' permitted distance interval in meters		
(1 - 3: Double lashings, LC at least 1.7 tonnes (1700 daN), S_{TF} 300 kg (300daN))		
Double L_1	Double L_2	Double L_3
0,7 - 2,5	0,9 - 2,5	0,3 - 2,5

*For lashing 1 is **L_1** the distance between the lashing point on the edge of the platform and the point directly sideways from the lashing point on the roller perpendicular to the platform edge. **L_2 och L_3** for lashing 2 and 3 the relationship is the same.*

Load carrier

- When loaded, the vibratory roller is centered laterally on the platform (± 5 cm).
- The parking brake is applied and in good working condition, and the articulated joint lock is closed.
- The drums are placed on rubber liners, so that the static friction between the surfaces is at least 0.6.
- The contact surfaces must be clean, wet or dry, and free from frost, ice and snow.
- The lashing mounts on the load carrier have LC/MSL at least 2 tonnes.

Lashings

- The lashings comprise a lashing strap or chain with a permitted load (LC/MSL) of at least 1.7 tonnes (1,700 daN) and a pre-tension S_{TF} of at least 300 kg (300 daN). The lashings are re-tightened as required.
- Each of lashings 1-3 is either a double or two single lashings. A double lashing runs in a sling through a lashing point or around a machine part and down into two different fasteners on the platform.
- Lashings in the same direction are placed in different lashing mounts on the trailer. Lashings that are pulled in opposite directions may be placed in the same lashing mount, however.
- The lashings are as short as possible.
- The lashing hooks must not lose grip if the lashings become slack.
- The lashings are protected against sharp edges and corners.
- The lashings are located symmetrically in pairs on the right and left sides.

Operating instructions - Summary



- **Follow the SAFETY INSTRUCTIONS specified in the Safety Manual.**

- Make sure that all instructions in the MAINTENANCE section int the Instruction manual are followed and that the steering hitch lock is unlocked.
- Turn the master switch to the ON position.
- Move the forward/reverse lever to the NEUTRAL position. Sit down in the seat.
- Engage the parking brake.
- Disengage the emergency stop.
- Set the rpm switch in position idle (LO).
- Start the engine and allow it to warm up.
- Set the rpm switch in position working speed (HI) or (ECO).
- Disengage the parking brake.
- The roller is always starting in transport mode.



- **Drive the roller. Operate the F/R lever with care.**



- **Test the brakes. Remember that the braking distance will be longer if the hydraulic fluid is cold.**
- Set the transportation/working mode button in position working mode.
- Use vibration only when the roller is in motion.
- Check that the drums are thoroughly watered when watering is required.



- **IN AN EMERGENCY:**
  - Press the EMERGENCY STOP.
  - Hold the steering wheel firmly.
  - Brace yourself for a sudden stop.
- When parking:
  - Activate the parking brake.
  - Switch off the diesel engine and block the drums if the roller is on an inclined surface.
- When lifting: - Refer to the relevant section in the Instruction Manual.
- When towing: - Refer to the relevant section in the Instruction Manual.

- When transporting: - Refer to the relevant section in the Instruction Manual.
- 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 reported immediately to the transport company, as this is not covered by the product warranty.

Warranty

The warranty is only valid if the stipulated 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 authorization.

CALIFORNIA

Proposition 65

Decal and location of decal shown in section Machine description.

⚠ **WARNING**: Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to www.P65warnings.ca.gov/diesel.

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.

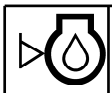
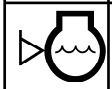
Other fuel and lubricants are required when operating in areas with extremely high or extremely low ambient temperatures. See the 'Special instructions' chapter, or consult Dynapac.

ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F)	**Dynapac engine oil 200**	P/N 4812161855 (5 liters), P/N 4812161856 (20 liters)
HYDRAULIC FLUID	Air temperature -15°C - +50°C (5°F-122°F)	**Dynapac Hydraulic 300**	P/N 4812161868 (20 litres), P/N 4812161869 (209 litres)
	Ambient air temperature above +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 Drum Oil 1000**	P/N 4812161887 (5 liters), P/N 4812161888 (20 liters)
GREASE		**Dynapac Roller Grease** (0.4kg)	P/N 4812030096
FUEL	See engine manual.	-	-
COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	**Dynapac coolant 100** (mixed 50/50 with water)	P/N 4812161854 (20 liters)
UREA (DEF)		**DEF/AdBlue®** as per ISO 2224-1	API AMERICAN PETROLEUM INSTITUTE CERTIFIED DIESEL EXHAUST FLUID

Fluid volumes

Drum		
- Drum CC4000 VI	13 liters	14 qts
- Drum CC4200 VI	14 liters	15 qts
- Drum CC5200 VI	15 liters	16 qts
- Drum CC6200 VI	17 liters	18 qts
Hydraulic reservoir	78 liters	82.5 qts
Diesel engine		
- oil, incl. filter replacement	12 liters	13 qts
- coolant, no cab	24 liters	25.5 qts
- coolant, with cab	26,2 liters	28 qts

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
	Air pressure		Sprinkler, tires
	Urea (DEF)		

Maintenance - Maintenance schedule

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.

Specific maintenance and checks on diesel engines must be carried out by the engine supplier's certified personnel.

Applying authorized oil and correct maintenance interval are essential factors of component to its operation safety and service life!

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	
1	Check the engine oil level	Refer to the engine manual
9	Check the engine coolant level	
5	Check the hydraulic reservoir level	
11	Refuel	
13	Fill the water tanks	
14	Check the sprinkler system	
12	Check the scraper setting	
	Fill the urea tank	

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
4	Change the hydraulic fluid filter	Refer to 1000h.
17	Steering hitch - Tightening	Refer to 1000h.

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
	Check that hoses and couplings are not leaking	
3	Draining the fuel prefilter	Performed if the varning symbol for water in fuel is shown on the display.

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

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

Pos. in fig	Action	Comment
8	Clean the hydraulic fluid cooler/water cooler	Or when required
20	Check the batteries condition.	
22,23	Check the AC	Optional
24	Check/lubricate the edge cutter	Optional

Every 500/1500..... hours of operation (Every six months)

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

Pos. in fig	Action	Comment
8	Clean the hydraulic fluid cooler/water cooler	Or when necessary
10	Check the filter element in the air cleaner	Replace when necessary
20	Check the condition of the batteries	
1,2	Change the diesel engine oil and oil filter *	See the engine's instruction manual *) 500 h or once every 6 months
	Check the engine belt drive system	Refer to the engine manual
3	Replace fuel filter	Refer to the engine manual
3	Replace fuel prefilter	
16	Check the oil level in the drums	
19	Check rubber elements and bolted joints	
18	Grease the chair bearing	
21	Lubricate the pivot bearings	Machines with Offset

Every 1000/3000..... hours of operation (Each year)

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

Pos. in fig	Action	Comment
8	Clean the hydraulic fluid cooler/water cooler	
10	Check the filter element in the air cleaner	Replace when necessary
20	Check the condition of the batteries	
1,2	Change the diesel engine oil and oil filter *	See the engine's instruction manual *) 500 h or once every 6 months
	Check the engine belt drive system	Refer to the engine manual
3	Replace fuel filter	Refer to the engine manual
3	Replace fuel prefilter	Refer to the engine manual
16	Change the oil in the drums	
19	Check the rubber elements and bolted joints	
4	Change the hydraulic fluid filter	
7	Check bleeder filter on hydraulic reservoir	
18	Grease the chair bearing	
17	Steering hitch - Tightening	
21	Lubricate the pivot bearing	Machines with Offset
22	Replace the air cleaner filter in the cab	Optional

Every 2000/4000..... hours of operation (Every two years)

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

Pos. in fig	Action	Comment
8	Clean the hydraulic fluid cooler/water cooler	
10	Check the filter element in the air cleaner	Replace when necessary
1,2	Change the diesel engine oil and oil filter *	See the engine's instruction manual *) 500 h or once every 6 months
	Check the engine belt drive system	Refer to the engine manual
3	Replace fuel filter	Refer to the engine manual
3	Replace fuel prefilter	Refer to the engine manual
11	Drain and clean the fuel tank	
16	Change the oil in the drums	
4	Change hydraulic fluid filter	
6	Change the hydraulic fluid **	**) not for PANOLIN hydraulic fluid
7	Check bleeder filter on hydraulic reservoir	
13	Drain and clean the water tanks	
17	Check the condition of the articulation	
17	Steering hitch - Tightening	
21	Lubricate the pivot bearing	Machines with Offset
	Replace the filter in the urea tank	
	Replace the filter in the urea pump	
22	Replace the air cleaner filter in the cab	Optional
23	Overhaul the air conditioning	Optional

Every other year

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

Pos. in fig	Action	Comment
31	Change the coolant (glycol)	
10	Change the fluid in the hydraulic reservoir *)	*) not for PANOLIN hydraulic oil
4	Inspect the filter element in the air cleaner	Replace as required
16	Check rubber elements and bolted joints	
19	Check belt tension in the drive belt system	Refer to the engine manual

Maintenance - Every 10h

Every 10 hours of operation (Daily)

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

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

Diesel engine - Check oil level

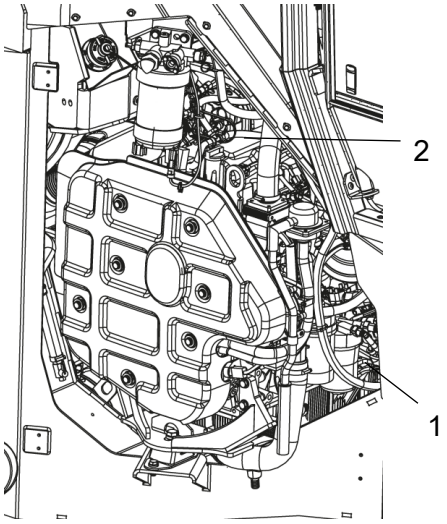


Fig. Engine compartment
1. Dipstick
2. Oil filler cap

The dipstick is accessible in the engine compartment on the right side of the machine.

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

The dipstick is located down on the front of the engine.

Pull out 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.

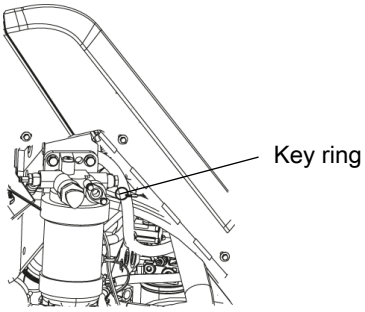


Fig. Open the right-hand engine compartment door.

Coolant level - Check

Release the expansion tank hood locks, with the help of the wire with key ring, accessed inside the right-hand engine compartment door.

Check that the coolant level is between the max. and min. marks (2).

Top up with coolant if the level is too low.

Use the following protective equipment:

Eye protection

Protective gloves

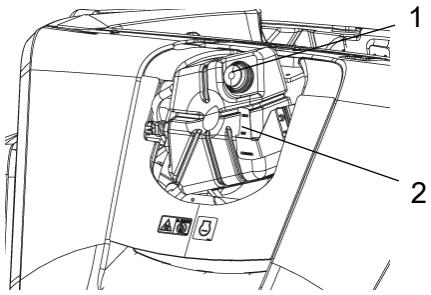


Fig. Expansion tank
1. Filler cap
2. Level marks

For filling, loosen the filler cap (1) and make sure that the coolant level is between the max/minmarking (2).

Now screw on the filler cap (1) again.

Do not open the radiator cap while the engine is warm, as the radiator may contain fluid and/or steam under pressure, which may cause skin and eye damage.

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

Flush the system every other year and change the coolant. Also check that the air has unobstructed passage through the reservoir.

Hydraulic reservoir - Check fluid level

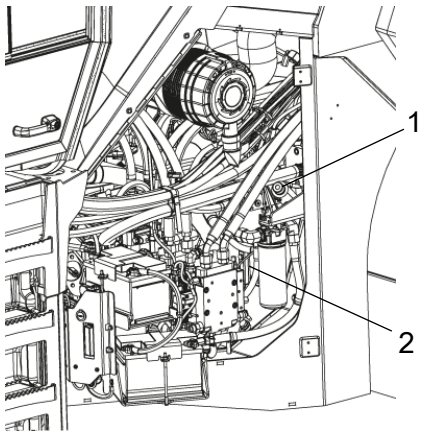


Figure. Hydraulic reservoir
1. Oil sight glass
2. Filler cap

Place the roller on a level surface and check that the oil level in the sight glass (1) is between the max and min markings.

If necessary, fill with hydraulic fluid by unscrewing the filler cap (2). See under the "Lubricants" heading for the correct oil grade.

Urea tank - Refilling

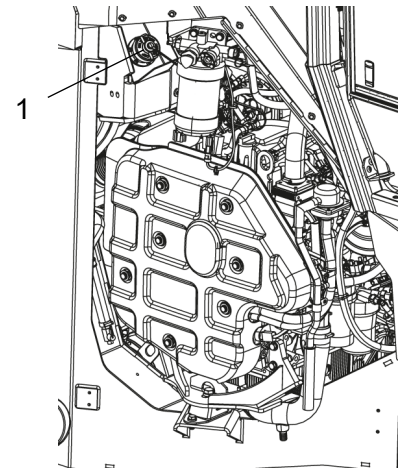


Fig. Urea tank
1. Refilling

Top up the urea tank every day. Follow the engine manufacturer's specifications for urea usage.

The urea solution may only be filled in the tank designed for this. Unintentional filling with another media (e.g. diesel fuel) will cause irreparable damage to the metering system. If the tank is unintentionally filled with water, the Onboard diagnosis system (OBD) generates an error message.

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

Fuel tank - Filling

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

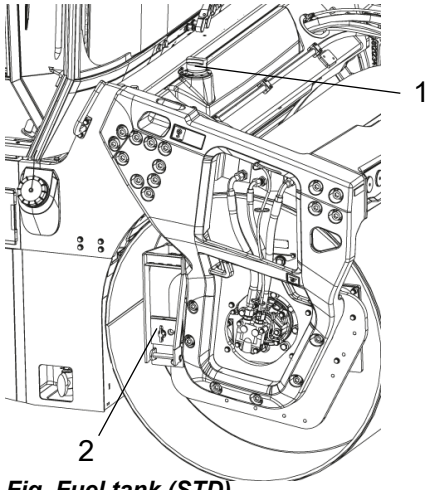


Fig. Fuel tank (STD)
1. Filler pipe
2. Step

The fuel tank is located on the front drum frame and the filling is on the right side of the machine. Step (2) for easier access is mounted on the right front fork.

Top up the fuel tank every day.

Unscrew the lockable tank cap on the filling pipe (1) fill with diesel up to the lower edge of the filler pipe.

Refit and lock the tank cap after refueling.

See the engine handbook for the grade of diesel fuel.

The tank holds 180 l (48 gallons) of fuel.

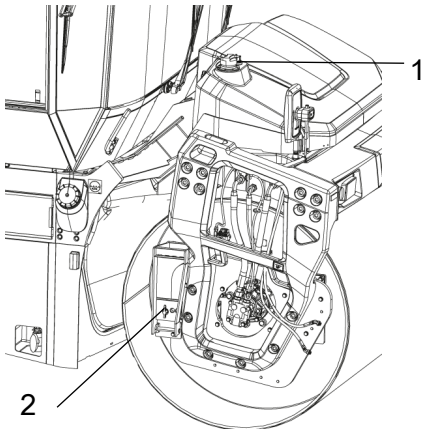


Fig. Fuel tank (OFFSET)
1. Filler pipe
2. Step

Stage IV/Stage V engines require the use of Ultra Low Sulphur Diesel (ULSD) fuel, which has a sulphur content of 15 ppm (parts per million) or less. Higher sulfur contents cause operating problems and put the useful life of components at risk, which can lead to engine trouble.

It is important to ground the filling device nozzle when refuelling to avoid static electricity with the risk of sparking and ignition.

Make sure that the step (2) for access to the fuel tank is folded in and locked.

Water tank, Std - Filling

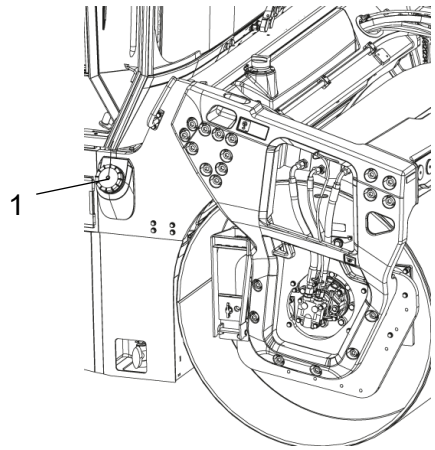


Fig. Standard water tank
1. Tank cap

Filler caps are on the front right and left side of the front frame.

When quick-filling on a machine with two filling pipes, loosen the filler cap on the nonfilling side to ventilate the water tank.

Unscrew the tank cap (1) and fill with clean water. Do not remove the strainer (2).

Fill the central (standard) tank, it holds 540 - 850 liters (143 - 224 gal) depending on machine model, see Technical specifications

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

Water tank, extra at rear - Filling

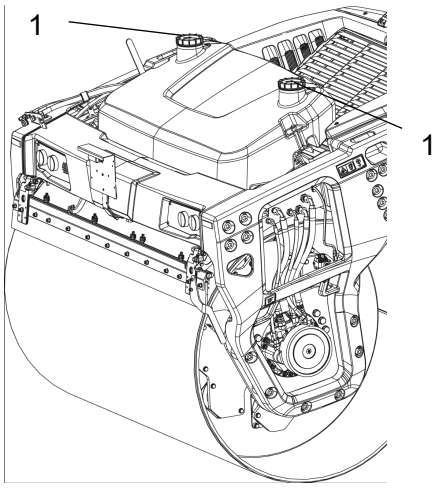


Fig. Rear water tank
1. Tank cap

Filler capa (1) are located on both sides of the tank.

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

Fill the rear tank, it holds 200 liters (53 gal) of water.

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

Sprinkler system/Drum
Check

Start the sprinkler system and make sure that none of the nozzles (1) are clogged. If necessary, clean blocked nozzles and the coarse filter placed by the water pump (2). See next section.

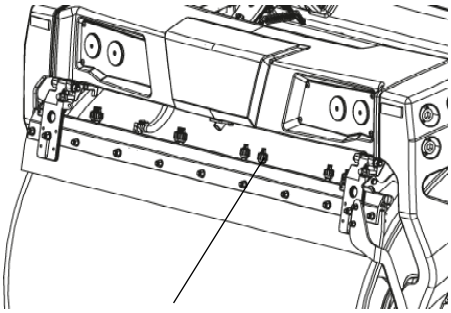


Figure. Front drum
1. Nozzle

Cleaning the coarse filter

The pumping system is available on the articulation joint on the right side of the front frame.

To clean the coarse filter (1) open the drain cock (2) on the filter and allow any dirt to run out.

If necessary, clean the filter and filter housing. Check that the rubber gasket in the filter housing is intact.

After inspecting and cleaning, reset and start the system to check that it works.

To drain the complete sprinkler system, see section for Watering system - Draining, 2,000 h.

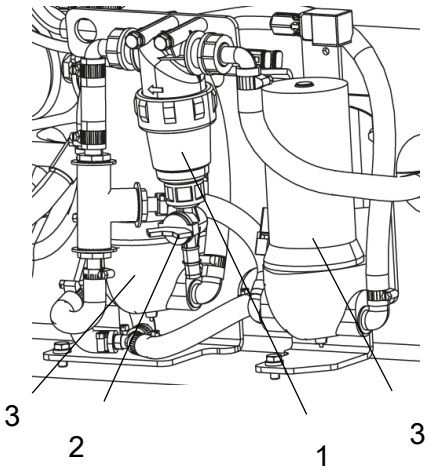


Fig. Pump system, front frame right side
1. Coarse filter
2. Drain cock, filter
3. Water pump

The power button for the pump system can supply the sprinkler system with antifreeze.

The flow valve to the system must be closed first and the drain valve for the water filter opened. The end of the hose can then be put into a container containing antifreeze, and by activating the power button for the pump system, this can be run through the pump(s)/filter out to the sprinkler nozzles.

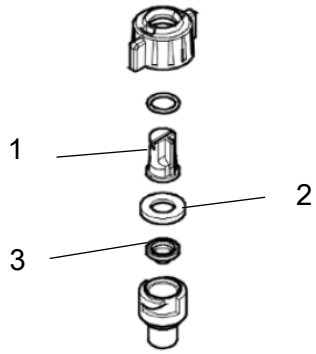


Fig. Nozzle
1. Nozzle
2. Gasket
3. Filter

Sprinkler system/Drum
Cleaning of sprinkler nozzle

Dismantle the blocked nozzle by hand.

Blow the nozzle (1) and fine filter (3) clean using compressed air. Alternatively, fit replacement parts and clean the blocked parts later on.

When working with compressed air, use the following protective equipment:



Eye protection



Protective gloves



Ear protection

Nozzle	Colour	l/min (at 2.0 bar)	gal/min (at 40 psi)
Standard	yellow	0.63	0.20
Option	blue	0.98	0.30
Option	red	1.31	0.40
Option	brown	1.63	0.50

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

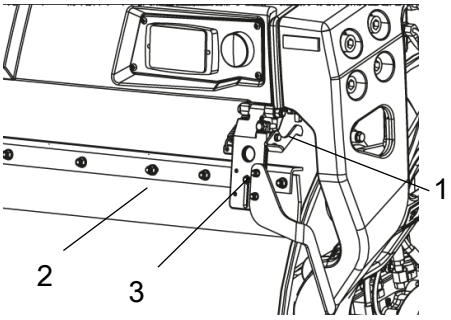


Fig. Outer scrapers
1. Release arm
2. Scraper blade
3. Adjusting screw

Scrapers, spring-action
Check

Make sure that the scrapers are undamaged.

Release with the arm (1).

Loosen the screws (3) to adjust the scraper blade up or down.

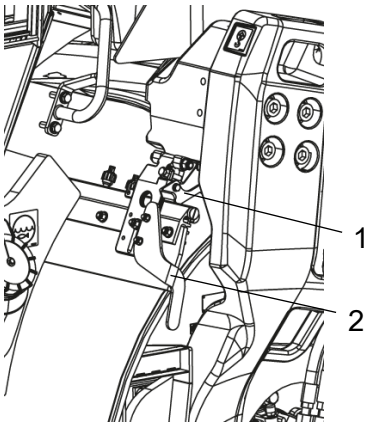
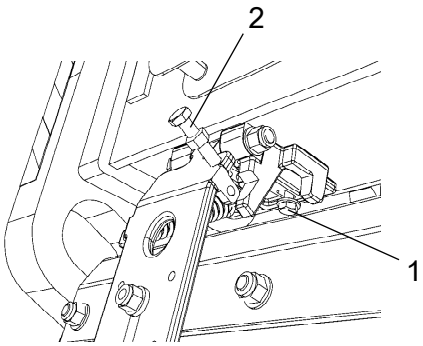


Fig. Inner scrapers
1. Release arm
2. Lifting handle

Asphalt remnants can accumulate on the scraper and affect the contact force. Clean when necessary.

The scrapers must be retracted from the drum during transport driving.

Scrapers
Setting - Adjustment

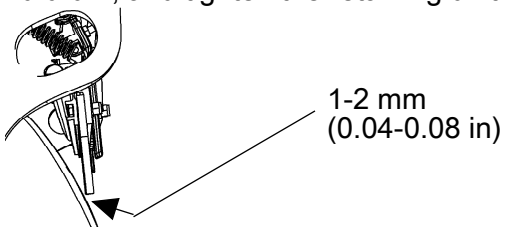


Release the retaining unit (1) for the scraper bracket and unscrew the adjusting screw (2) to release.

Push in the scraper bracket and tighten.

Adjust the screw (2) so that the scraper blade lies approx. 2 mm (0.08 in) from the drum on the same side as the screw.

Adjust the scraper bracket in or out on the other side so that there is an equal gap between the scraper blade and drum, and tighten the retaining unit (1).



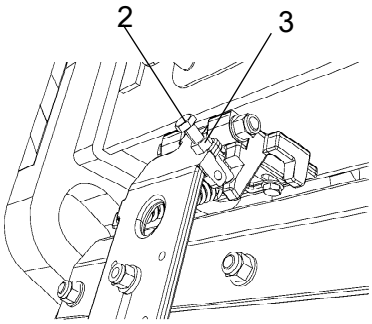


Figure. Scraper setting
1. Retaining unit
2. Adjusting screw
3. Lock nut

The adjusting screw (2) is adjusted until the scraper blade has a gap of approx. 1 mm (0.04 in) to the roller, or lies loosely on the roller, along its entire length.

Tighten the lock nut (3).

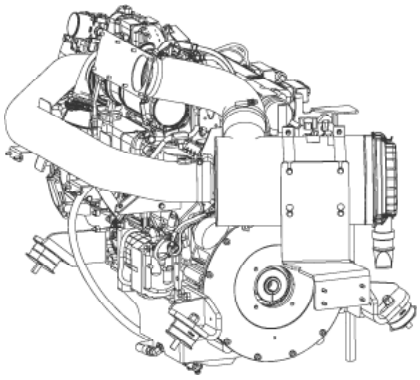
Maintenance - Every 50h

Every 50 hours of operation (Every week)

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
- Check hoses and connections



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.

Replace if necessary, as damage to hoses/hose clamps can seriously damage the engine

Pre-fuel filter - Draining

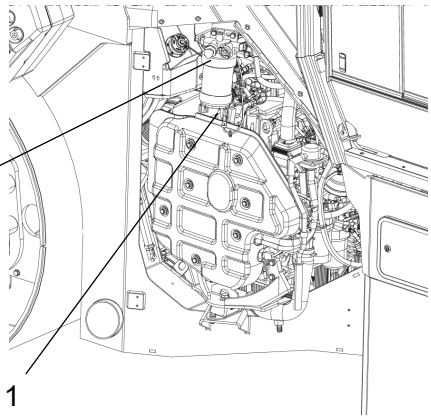


Figure. Pre-fuel filter
1. Drain plug
2. Hand pump

Unscrew the drain plug (1) at the bottom of the fuel prefilter.

With the aid of the secondary hand-operated pump, make certain that all sediment comes out.

Tighten the drain plug as soon as uncontaminated fuel runs out.

Maintenance - Every 250h

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

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

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

Cooler
Check - Clean

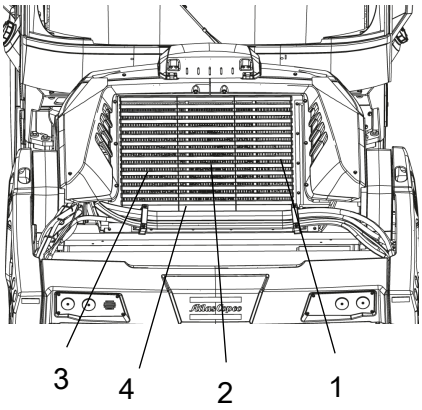


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

The water and hydraulic fluid coolers are accessible when the cooler grill (4) is removed.

Make sure that the air flow through the coolers is unobstructed. Clean a dirty cooler using compressed air or wash with a high-pressure washer.

Blow or wash the coolers in the reverse order to the cooling air.

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

When working with compressed air or a high-pressure washer, use the following protective equipment:



Eye protection



Protective gloves



Ear protectors

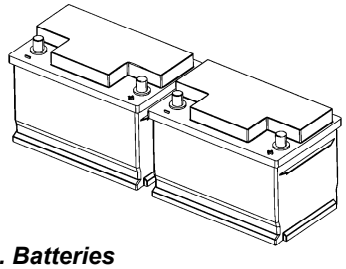


Fig. Batteries

Battery
- Check condition

The batteries are sealed and maintenance-free.

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

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

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

Wipe the top of the battery.

Automatic Climate Control (Optional) - Inspection

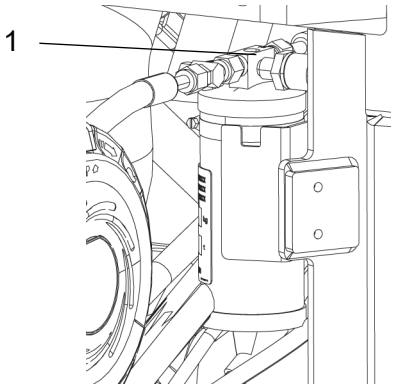


Fig. Drying filter
1. Sight glass

Open the left-hand engine compartment door with the unit in operation and check using the sight glass (1) that bubbles are not visible on the drying filter.

The filter is located on the rear frame on the outer edge of the engine compartment. If bubbles are visible through the sight glass, this is a sign that the refrigerant level is too low. If so, stop the unit. The unit may be damaged if it is run with insufficient refrigerant.

Air conditioning (Optional) - Cleaning

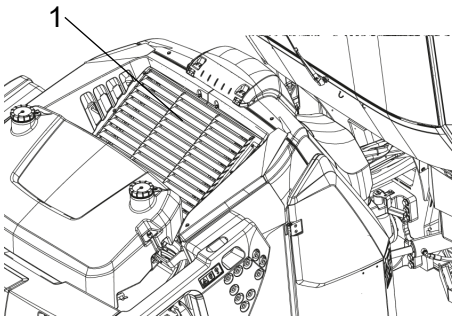


Fig. Rear frame
1. Condenser element

If there is a significant loss of cooling capacity, clean the condenser element (1).

Air conditioning (Optional) - Inspection

Inspect refrigerant hoses and connections and make sure that there are no signs of an oil film that can indicate a refrigerant leakage.

The refrigerant contains tracing liquid, which makes it possible to detect leaks with the aid of a UV lamp. If the areas around the connections are strongly coloured, this is an indication of a leak.

Edge cutter (Optional) - Lubrication

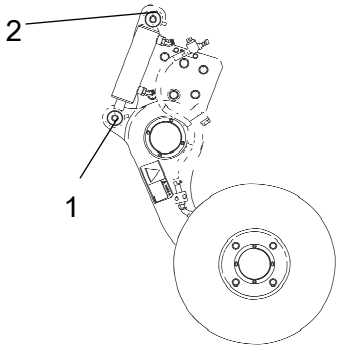


Fig. Two grease points for lubricating the edge cutter

Refer to the operation section for information on how to operate the edge cutter.

Grease the two points as shown in the figure.

Grease should always be used for lubrication. See the lubricant specifications.

Grease all bearing points with five strokes of a hand-operated grease gun.

Maintenance - Every 500h

Every 500/1500..... hours of operation
(every six months)

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

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

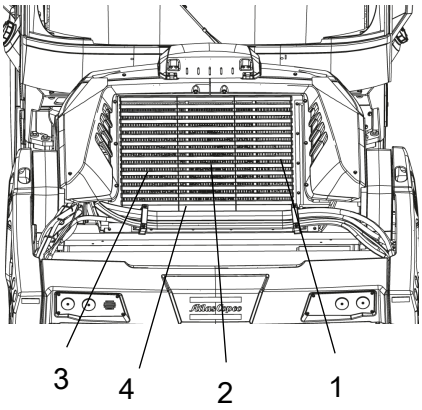


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

Cooler
Check - Clean

The water and hydraulic fluid coolers are accessible when the cooler grill (4) is removed.

Make sure that the air flow through the coolers is unobstructed. Clean a dirty cooler using compressed air or wash with a high-pressure washer.

Blow or wash the coolers in the reverse order to the cooling air.

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

When working with compressed air or a high-pressure washer, use the following protective equipment:



Eye protection



Protective gloves



Ear protectors

Air cleaner
Checking - Change the main air filter

Change the air cleaner's main filter when the warning lamp on the display lights when the diesel engine is operating at full speed.

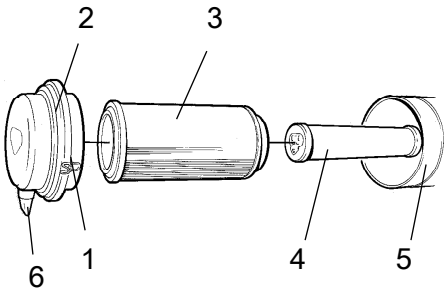


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

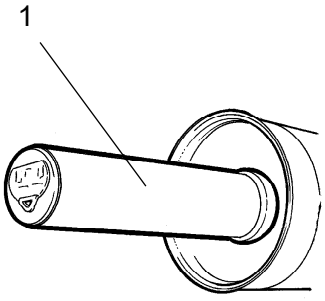


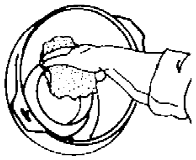
Fig. Air filter
1. Backup filter

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

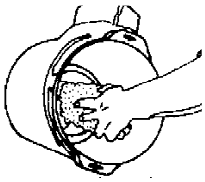
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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

Wipe clean on both sides of the outlet pipe.



Inner edge of outlet pipe.

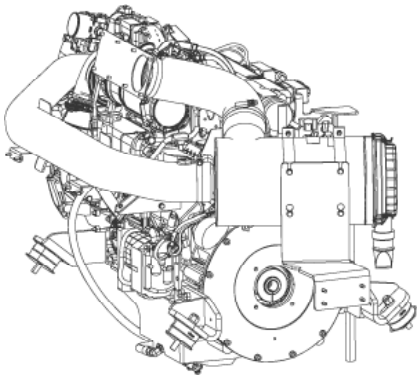


Outer edge of outlet pipe.

Air cleaner
- Cleaning

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

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.

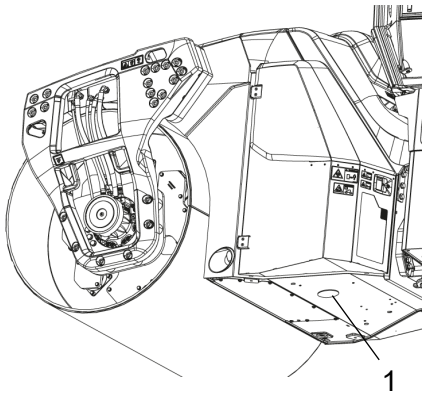


Figure. Underside of rear frame
1. Oil draining of diesel engine

Diesel engine
Oil change

The engine's oil drain plug is located under the rear frame on the machine on the right side.The drain plug is accessed by first removing the rubber plug on the underside of the frame.

Observe care when draining hot engine oil. Use the following protective equipment:

Protective gloves

Eye protection

Drain the oil when the engine is warm. Place a receptacle that holds at least 14 liters (15 qts) under the drain plugs.

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

Deliver the drain oil for environmentally correct handling.

Fill with fresh engine oil, see Lubricant specification or the engine manual for the correct grade of oil.

Fill with the requisite volume of engine oil. See technical specifications before starting the machine. Allow the engine to idle for a few minutes, and then switch off the engine.

Check the dipstick to ensure that the engine oil level is correct. Refer to the engine manual for details. Top up with oil if necessary to the max mark on the dipstick.

Engine
Replacing oil filter

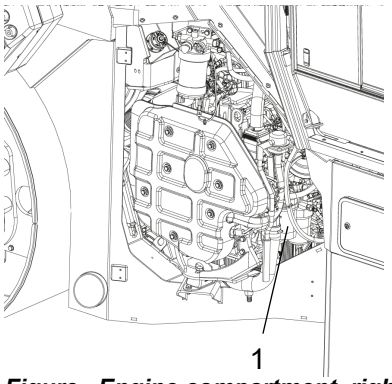


Figure. Engine compartment, right side
1. Oil filter

The oil filter (1) is located at the front of the engine and is accessible in the engine compartment inside the right engine door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

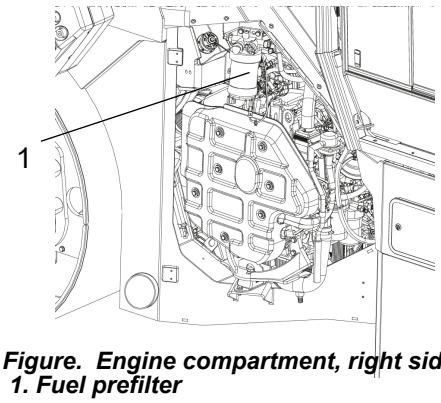


Figure. Engine compartment, right side
1. Fuel prefilter

The fuel prefilter is placed on the right side of the engine compartment.

Unscrew the bottom and drain off any water, and then replace the filter unit.

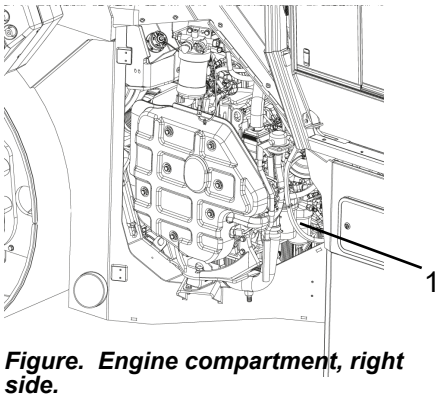


Figure. Engine compartment, right side.
1. Fuel filter

Replace the fuel filter, located on the right side of the engine compartment.

Start the engine and check that the filter is well sealed.

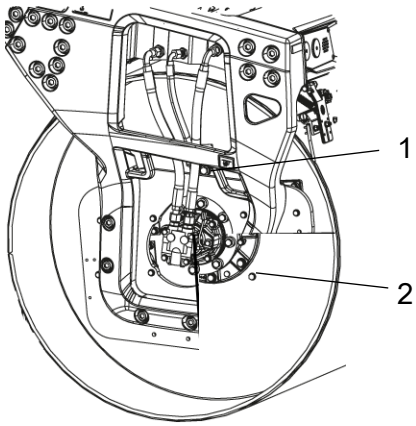


Fig. Drum, vibration side
1. Filler plug
2. Level plug

Drum - oil level
Inspection - filling

Position the roller with the filler plug (1), the large plug, at the highest point in its rotation.

Wipe clean around the level plug (2), the small plug, and remove the plug.

Make sure that the oil level is up to the lower edge of the hole. Top off with fresh oil if the level is low. Use oil as specified in the lubricants specification.

When removing the filler plug, wipe any metal accumulated on the plug magnet off. Make sure that plug seals are intact and replace with new seals if not.

Refit the plugs and check that they are tight by driving the roller and then rechecking.

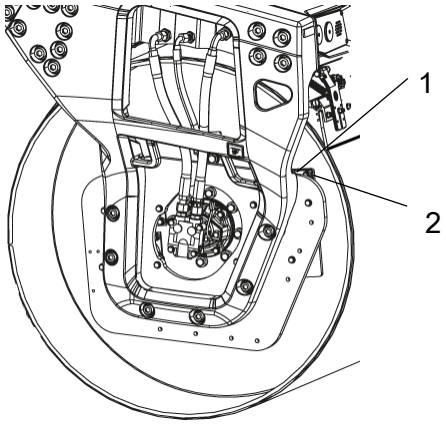


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

Rubber elements and attachment screws
Check

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

Check using a knife blade or pointed object.

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

Pivot bearing (OFFSET) - Lubrication

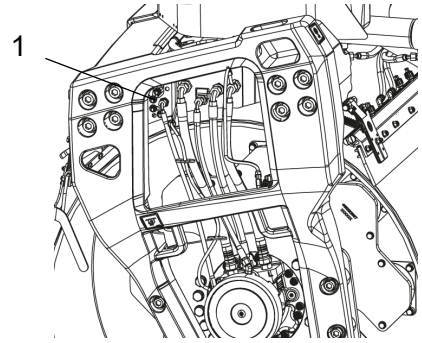


Fig. Front drum, left side
1. Grease nipples, 4 off

Grease each nipple (1) with five strokes of a hand-operated grease gun.

Use grease as specified in the lubricant specification.

Seat bearing - Lubrication

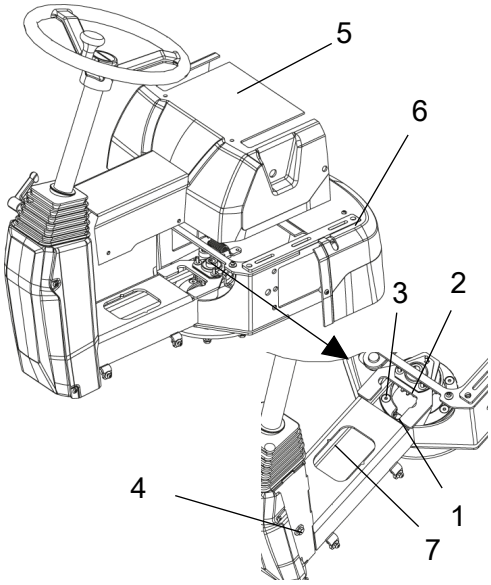


Fig. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Covers
6. Slide rails
7. Marking

Keep in mind that the chain is a vital part of the steering mechanism.

Remove the covers (5) to access the lubrication nipple (1). Lubricate the driver seat slew bearing with three strokes of a hand-operated grease gun.

Clean and grease the chain (3) between the seat and the steering column.

Also grease the seat slide rails (6).

If the chain is slack on the sprocket (2), loosen the screws (4) and move the steering column forward. Tighten the screws and check chain tension.

No not tension the chain too tightly. It should be possible to move the chain about 10 mm (0.4 in) to the side with a forefinger/thumb at the marking (7) in seat frame. Fit the chain lock at the bottom.

If the seat starts to be stiff when adjusting, it should be lubricated more often than specified here.

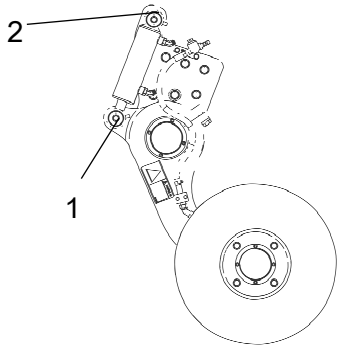


Fig. Two grease points for lubricating the edge cutter

Edge cutter (Optional) - Lubrication

Refer to the operation section for information on how to operate the edge cutter.

Grease the two points as shown in the figure.

Grease should always be used for lubrication. See the lubricant specifications.

Grease all bearing points with five strokes of a hand-operated grease gun.

Maintenance - Every 1000h

Every 1000/3000..... hours of operation
(yearly)

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.

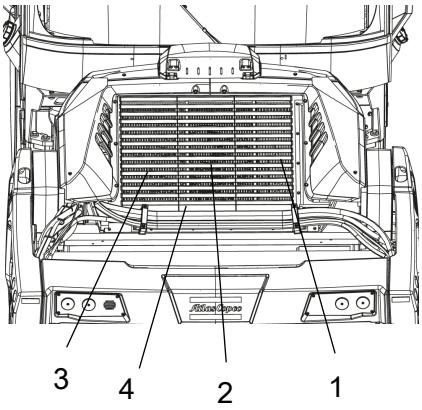


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

Cooler
Check - Clean

The water and hydraulic fluid coolers are accessible when the cooler grill (4) is removed.

Make sure that the air flow through the coolers is unobstructed. Clean a dirty cooler using compressed air or wash with a high-pressure washer.

Blow or wash the coolers in the reverse order to the cooling air.

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

When working with compressed air or a high-pressure washer, use the following protective equipment:



Eye protection



Protective gloves



Ear protectors

Air cleaner
Checking - Change the main air filter

Change the air cleaner's main filter when the warning lamp on the display lights when the diesel engine is operating at full speed.

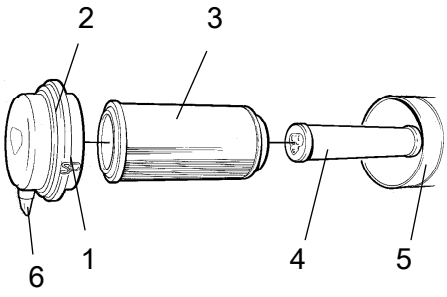


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

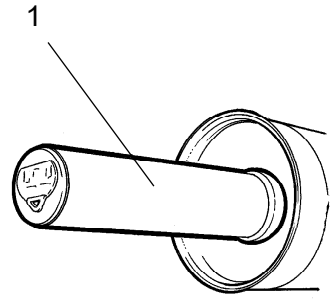


Fig. Air filter
1. Backup filter

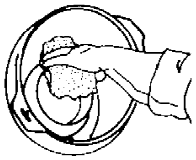
Change the backup filter with a new filter after every second replacement of the main filter.

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.

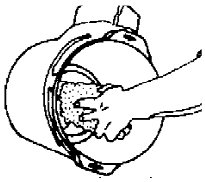
Clean the air cleaner if necessary, see section Air cleaner - Cleaning.



Wipe clean on both sides of the outlet pipe.



Inner edge of outlet pipe.

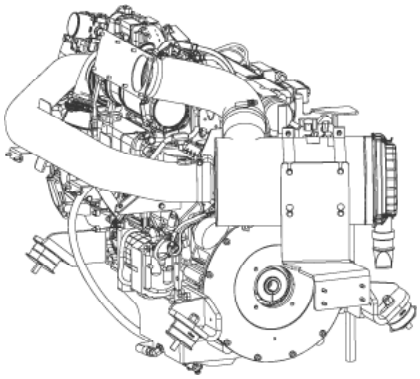


Outer edge of outlet pipe.

Air cleaner
- Cleaning

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

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.

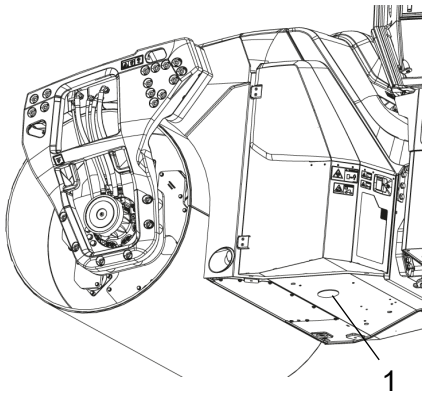


Figure. Underside of rear frame
1. Oil draining of diesel engine

Diesel engine
Oil change

The engine's oil drain plug is located under the rear frame on the machine on the right side.The drain plug is accessed by first removing the rubber plug on the underside of the frame.

Observe care when draining hot engine oil. Use the following protective equipment:

Protective gloves

Eye protection

Drain the oil when the engine is warm. Place a receptacle that holds at least 14 liters (15 qts) under the drain plugs.

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

Deliver the drain oil for environmentally correct handling.

Fill with fresh engine oil, see Lubricant specification or the engine manual for the correct grade of oil.

Fill with the requisite volume of engine oil. See technical specifications before starting the machine. Allow the engine to idle for a few minutes, and then switch off the engine.

Check the dipstick to ensure that the engine oil level is correct. Refer to the engine manual for details. Top up with oil if necessary to the max mark on the dipstick.

Engine
Replacing oil filter

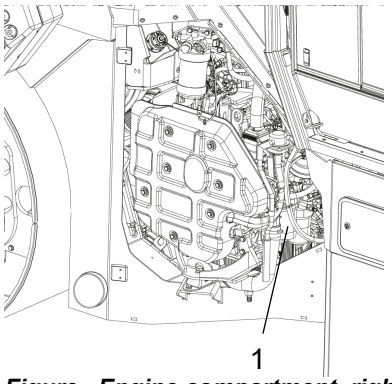


Figure. Engine compartment, right side
1. Oil filter

The oil filter (1) is located at the front of the engine and is accessible in the engine compartment inside the right engine door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

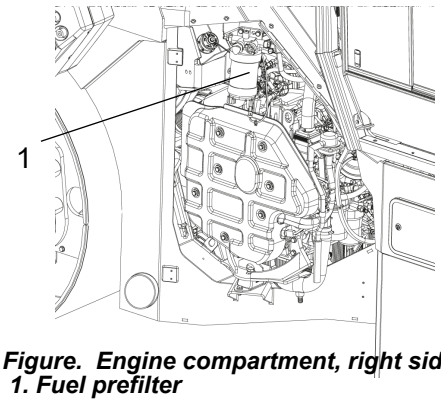


Figure. Engine compartment, right side
1. Fuel prefilter

The fuel prefilter is placed on the right side of the engine compartment.

Unscrew the bottom and drain off any water, and then replace the filter unit.

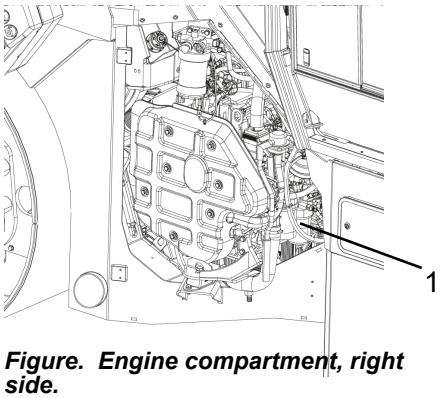


Figure. Engine compartment, right side.
1. Fuel filter

Replace the fuel filter, located on the right side of the engine compartment.

Start the engine and check that the filter is well sealed.

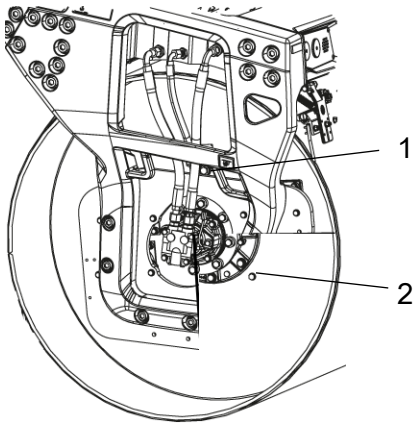


Fig. Drum, vibration side
1. Filler plug
2. Level plug

Drum - oil level
Inspection - filling

Position the roller with the filler plug (1), the large plug, at the highest point in its rotation.

Wipe clean around the level plug (2), the small plug, and remove the plug.

Make sure that the oil level is up to the lower edge of the hole. Top off with fresh oil if the level is low. Use oil as specified in the lubricants specification.

When removing the filler plug, wipe any metal accumulated on the plug magnet off. Make sure that plug seals are intact and replace with new seals if not.

Refit the plugs and check that they are tight by driving the roller and then rechecking.

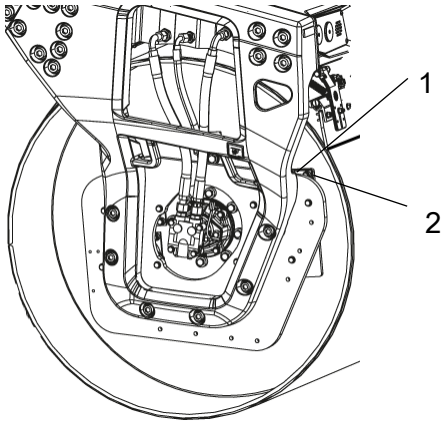


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

Rubber elements and attachment screws
Check

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

Check using a knife blade or pointed object.

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

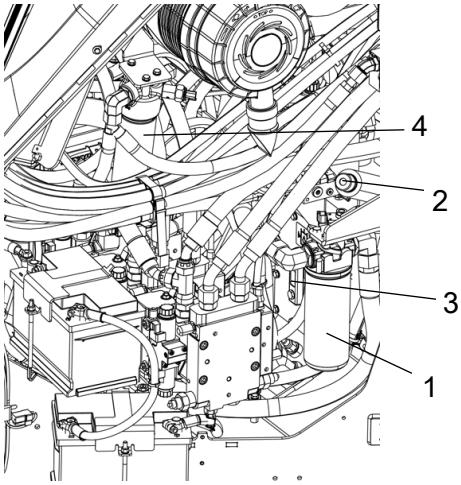


Fig. Engine compartment left
1. Hydraulic oil filter (Main filter)
2. Hydraulic reservoir cap
3. Sight glass
4. High pressure filter - electronic steering (Optional)

Hydraulic filter
Change

Filter is accessible from the left side of the machine, in the engine compartment.

(1) Hydraulic fluid filter (Main filter)

Remove the hydraulic oil filter (1) and deliver to environmentally correct handling. The filter is of disposable type and cannot be cleaned.

Make sure that the old sealing ring is not left on the filter holder. Otherwise, this could cause leakage between the new and old seals.

Thoroughly clean the filter holder sealing surface.

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

Screw the filter on by hand, firstly until the filter gasket makes contact with the filter base. Then rotate a further $^{1}/_{5}$ turn.

(4) High pressure filter - electronic steering (Optional)

Unscrew the filter bowl and empty any liquid into a container.

Remove the filter element and deliver to environmentally correct handling.

Clean the filter bowl and filter head, also check the o-rings and replace them if necessary.

Apply a thin layer of pure hydraulic oil to sealing surfaces and threads.

Place a new filter element carefully on the filter head guide pin.

Screw in the filter bowl completely, then unscrew with $^{1}/_{4}$ turn.

Check the hydraulic fluid level in the sight glass (3) and top off as required. See under the heading 'Every 10 hours of operation' for more information.

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

Hydraulic reservoir cap - Check

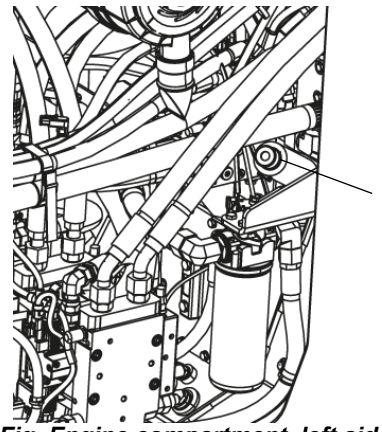


Fig. Engine compartment, left side
1. Tank cap

The cap is accessible from the left side of the machine, in the engine compartment.

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

If passage in either direction is blocked, clean the filter with a little diesel oil and blow through with compressed air until the block is removed, or replace the cap with a new one.

When working with compressed air, use the following protective equipment:


Eye protection


Protective gloves


Ear protectors

Pivot bearing (OFFSET) - Lubrication

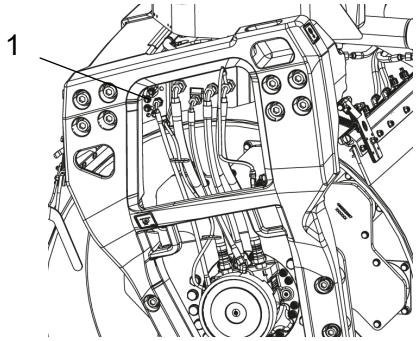


Fig. Front drum, left side
1. Grease nipples, 4 off

Grease each nipple (1) with five strokes of a hand-operated grease gun.

Use grease as specified in the lubricant specification.

Seat bearing - Lubrication

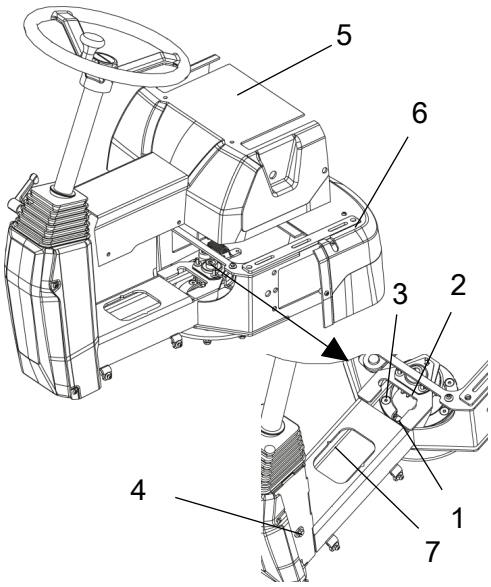


Fig. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Covers
6. Slide rails
7. Marking

Keep in mind that the chain is a vital part of the steering mechanism.

Remove the covers (5) to access the lubrication nipple (1). Lubricate the driver seat slew bearing with three strokes of a hand-operated grease gun.

Clean and grease the chain (3) between the seat and the steering column.

Also grease the seat slide rails (6).

If the chain is slack on the sprocket (2), loosen the screws (4) and move the steering column forward. Tighten the screws and check chain tension.

No not tension the chain too tightly. It should be possible to move the chain about 10 mm (0.4 in) to the side with a forefinger/thumb at the marking (7) in seat frame. Fit the chain lock at the bottom.

If the seat starts to be stiff when adjusting, it should be lubricated more often than specified here.

Steering hitch - Tightening

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.

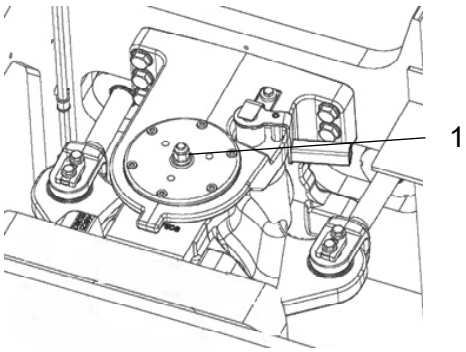


Fig. Steering hitch
1. Nut

The easiest way to identify if you have this type of steering hitch is that it has a new type of nut (1) at the top, as shown.

Actual torque (Nm) should be when the machine's position is straight ahead.

M14	174 Nm
M16	270 Nm

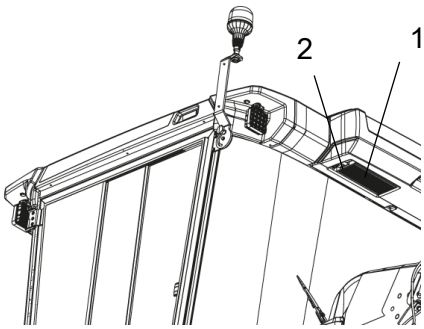


Fig. Cab
1. Fresh air filter
2. Quick lock

Air conditioning (Optional) Fresh air filter - Change

Use a step ladder to reach the filter (1).

There is a fresh air filter (1), located at the rear of the cab.

Loosen the quick lock (2) and open the protective cover.

Remove the filter insert and replace with a new filter insert.

The filter may need to be changed more often if the machine is operated in a dusty environment.

Do not drive in contaminated areas, as the air filter is not intended for air contaminated with, for example, gas, radioactive particles or similar.

The filter is of disposable type and cannot be cleaned. Dispose of the replaced filter in an environment-friendly manner.

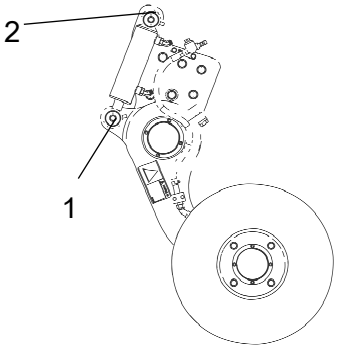


Fig. Two grease points for lubricating the edge cutter

Edge cutter (Optional) - Lubrication

Refer to the operation section for information on how to operate the edge cutter.

Grease the two points as shown in the figure.

Grease should always be used for lubrication. See the lubricant specifications.

Grease all bearing points with five strokes of a hand-operated grease gun.

Maintenance - Every 2000h

Every 2000/4000..... hours of operation
(every two years)

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.

Cooler
Check - Clean

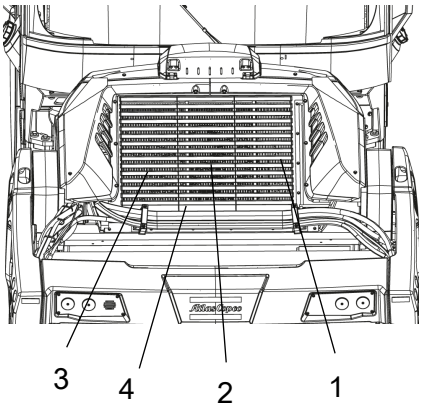


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

The water and hydraulic fluid coolers are accessible when the cooler grill (4) is removed.

Make sure that the air flow through the coolers is unobstructed. Clean a dirty cooler using compressed air or wash with a high-pressure washer.

Blow or wash the coolers in the reverse order to the cooling air.

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

When working with compressed air or a high-pressure washer, use the following protective equipment:



Eye protection



Protective gloves



Ear protectors

Air cleaner
Checking - Change the main air filter

Change the air cleaner's main filter when the warning lamp on the display lights when the diesel engine is operating at full speed.

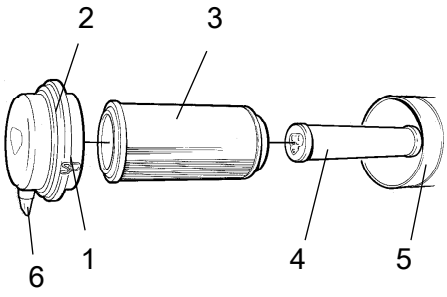


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

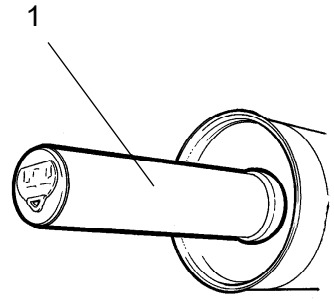


Fig. Air filter
1. Backup filter

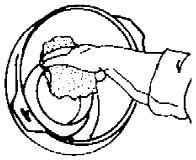
Change the backup filter with a new filter after every second replacement of the main filter.

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.

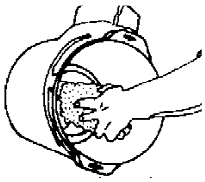
Clean the air cleaner if necessary, see section Air cleaner - Cleaning.



Wipe clean on both sides of the outlet pipe.



Inner edge of outlet pipe.

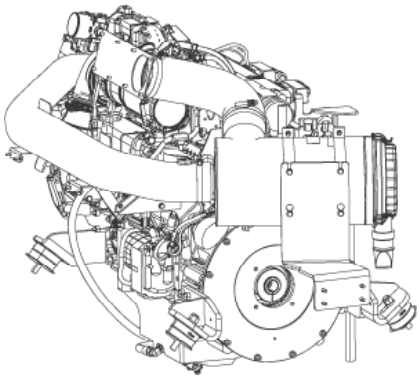


Outer edge of outlet pipe.

Air cleaner
- Cleaning

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

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.

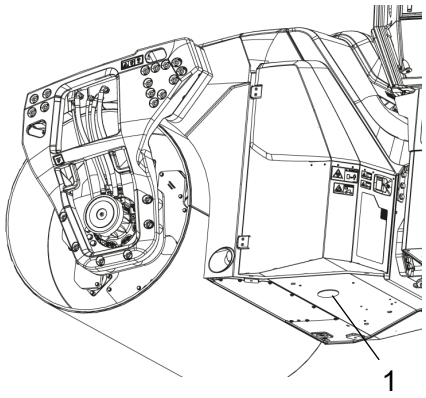


Figure. Underside of rear frame
1. Oil draining of diesel engine

Diesel engine
Oil change

The engine's oil drain plug is located under the rear frame on the machine on the right side.The drain plug is accessed by first removing the rubber plug on the underside of the frame.

Observe care when draining hot engine oil. Use the following protective equipment:

Protective gloves

Eye protection

Drain the oil when the engine is warm. Place a receptacle that holds at least 14 liters (15 qts) under the drain plugs.

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

Deliver the drain oil for environmentally correct handling.

Fill with fresh engine oil, see Lubricant specification or the engine manual for the correct grade of oil.

Fill with the requisite volume of engine oil. See technical specifications before starting the machine. Allow the engine to idle for a few minutes, and then switch off the engine.

Check the dipstick to ensure that the engine oil level is correct. Refer to the engine manual for details. Top up with oil if necessary to the max mark on the dipstick.

Engine
Replacing oil filter

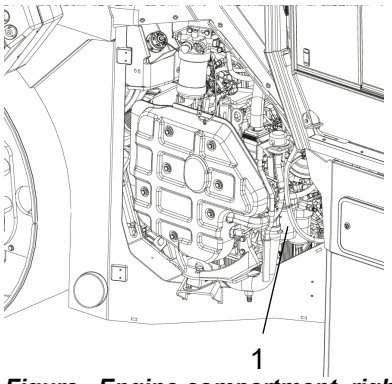


Figure. Engine compartment, right side
1. Oil filter

The oil filter (1) is located at the front of the engine and is accessible in the engine compartment inside the right engine door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

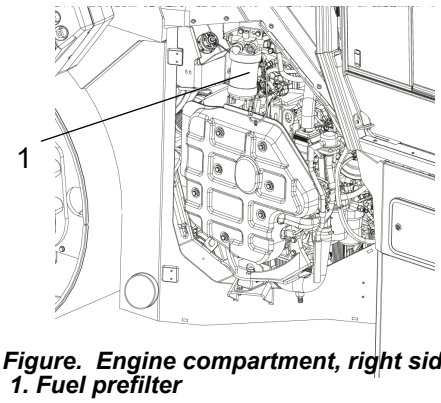


Figure. Engine compartment, right side
1. Fuel prefilter

The fuel prefilter is placed on the right side of the engine compartment.

Unscrew the bottom and drain off any water, and then replace the filter unit.

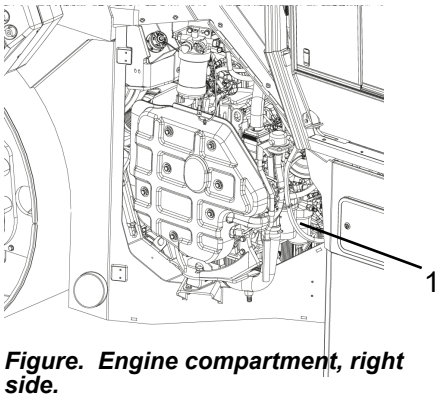


Figure. Engine compartment, right side.
1. Fuel filter

Replace the fuel filter, located on the right side of the engine compartment.

Start the engine and check that the filter is well sealed.

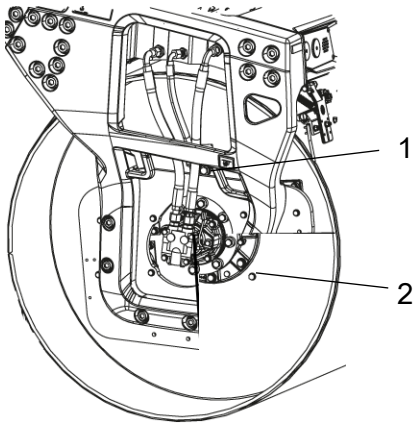


Fig. Drum, vibration side
1. Filler plug
2. Level plug

Drum - oil level
Inspection - filling

Position the roller with the filler plug (1), the large plug, at the highest point in its rotation.

Wipe clean around the level plug (2), the small plug, and remove the plug.

Make sure that the oil level is up to the lower edge of the hole. Top off with fresh oil if the level is low. Use oil as specified in the lubricants specification.

When removing the filler plug, wipe any metal accumulated on the plug magnet off. Make sure that plug seals are intact and replace with new seals if not.

Refit the plugs and check that they are tight by driving the roller and then rechecking.

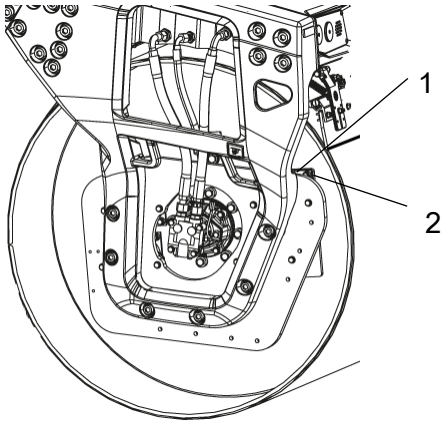


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

Rubber elements and attachment screws
Check

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

Check using a knife blade or pointed object.

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

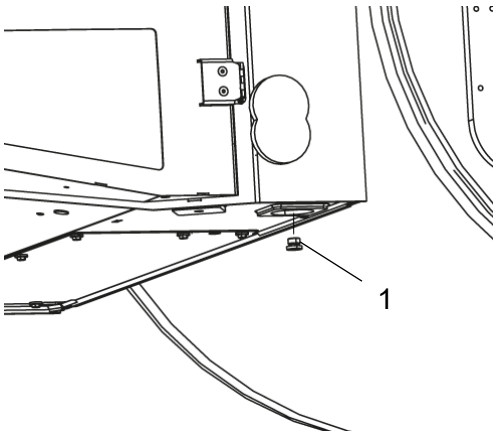


Fig. Rear frame left side
1. Oil drain

Hydraulic reservoir
Fluid change

Take care when draining the hydraulic fluid. Use the following protective equipment:

Protective gloves

Eye protection

Drain plug (1) is located under the left-hand side of the rear frame.

Place a receptacle that holds at least 50 liters (13.2 gal) under the drain plug.

Unscrew the drain plug (1). Allow all the oil to drain out and refit the plug, change the hydraulic fluid filter at the same time (2).

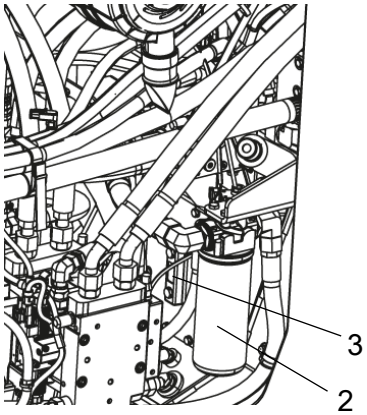


Fig. Left engine compartment
2. Hydraulic fluid filter
3. Sight glass

Deliver the drained fluid to environmentally correct handling.

Fill with fresh hydraulic fluid. Refer to the lubricant specification for grade information.

Start the diesel engine and operate the hydraulic functions. Check the fluid level (3) in the reservoir and top up as required.

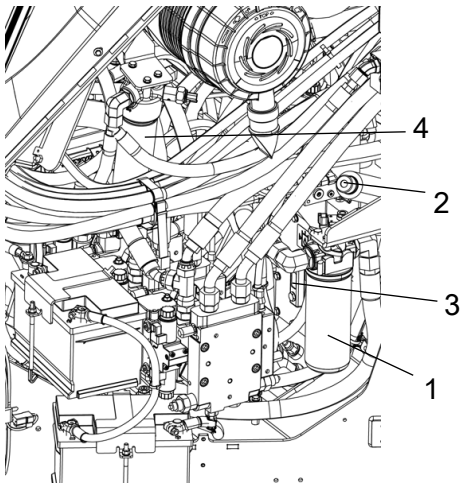


Fig. Engine compartment left
1. Hydraulic oil filter (Main filter)
2. Hydraulic reservoir cap
3. Sight glass
4. High pressure filter - electronic steering (Optional)

Hydraulic filter
Change

Filter is accessible from the left side of the machine, in the engine compartment.

(1) Hydraulic fluid filter (Main filter)

Remove the hydraulic oil filter (1) and deliver to environmentally correct handling. The filter is of disposable type and cannot be cleaned.

Make sure that the old sealing ring is not left on the filter holder. Otherwise, this could cause leakage between the new and old seals.

Thoroughly clean the filter holder sealing surface.

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

Screw the filter on by hand, firstly until the filter gasket makes contact with the filter base. Then rotate a further $^{1}/_{5}$ turn.

(4) High pressure filter - electronic steering (Optional)

Unscrew the filter bowl and empty any liquid into a container.

Remove the filter element and deliver to environmentally correct handling.

Clean the filter bowl and filter head, also check the o-rings and replace them if necessary.

Apply a thin layer of pure hydraulic oil to sealing surfaces and threads.

Place a new filter element carefully on the filter head guide pin.

Screw in the filter bowl completely, then unscrew with $^{1}/_{4}$ turn.

Check the hydraulic fluid level in the sight glass (3) and top off as required. See under the heading 'Every 10 hours of operation' for more information.

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

Hydraulic reservoir cap - Check

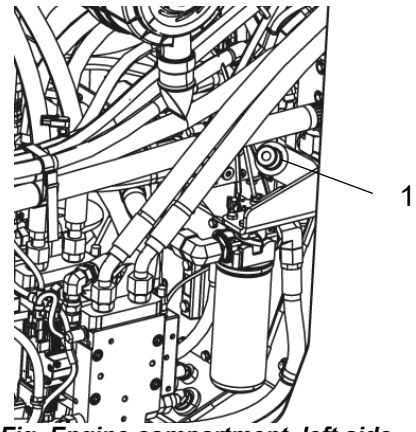


Fig. Engine compartment, left side
1. Tank cap

The cap is accessible from the left side of the machine, in the engine compartment.

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

If passage in either direction is blocked, clean the filter with a little diesel oil and blow through with compressed air until the block is removed, or replace the cap with a new one.

When working with compressed air, use the following protective equipment:


Eye protection


Protective gloves


Ear protectors

Pivot bearing (OFFSET) - Lubrication

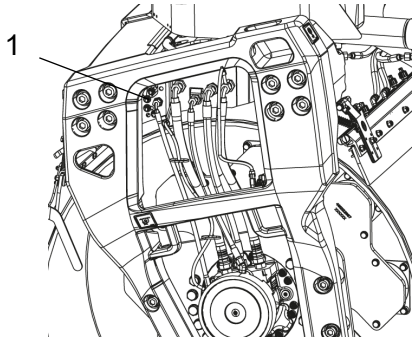


Fig. Front drum, left side
1. Grease nipples, 4 off

Grease each nipple (1) with five strokes of a hand-operated grease gun.

Use grease as specified in the lubricant specification.

Seat bearing - Lubrication

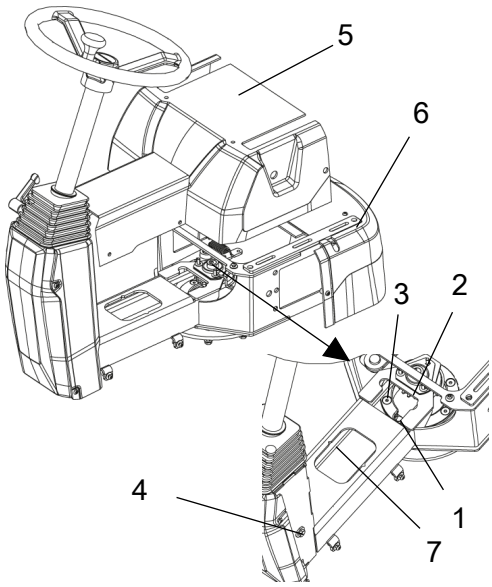


Fig. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Covers
6. Slide rails
7. Marking

Keep in mind that the chain is a vital part of the steering mechanism.

Remove the covers (5) to access the lubrication nipple (1). Lubricate the driver seat slew bearing with three strokes of a hand-operated grease gun.

Clean and grease the chain (3) between the seat and the steering column.

Also grease the seat slide rails (6).

If the chain is slack on the sprocket (2), loosen the screws (4) and move the steering column forward. Tighten the screws and check chain tension.

No not tension the chain too tightly. It should be possible to move the chain about 10 mm (0.4 in) to the side with a forefinger/thumb at the marking (7) in seat frame. Fit the chain lock at the bottom.

If the seat starts to be stiff when adjusting, it should be lubricated more often than specified here.

Steering hitch - Tightening

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.

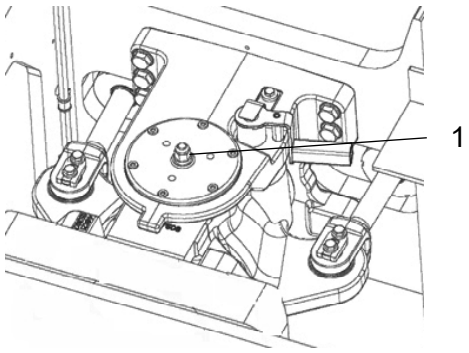


Fig. Steering hitch
1. Nut

The easiest way to identify if you have this type of steering hitch is that it has a new type of nut (1) at the top, as shown.

Actual torque (Nm) should be when the machine's position is straight ahead.

M14	174 Nm
M16	270 Nm

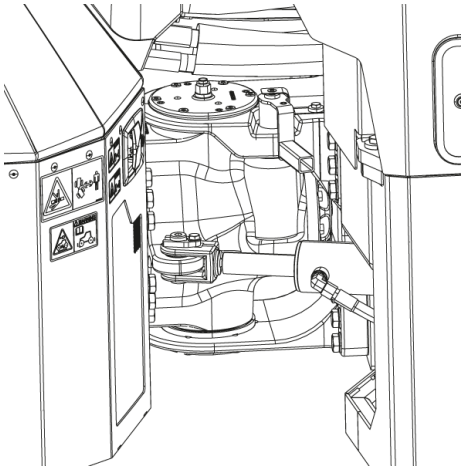


Fig. Steering joint

Steering joint - Check

Inspect the steering joint to detect any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness or play in the steering joint.

Fuel tank (STD) - Drainage

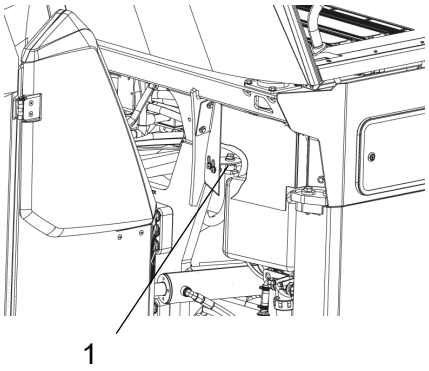
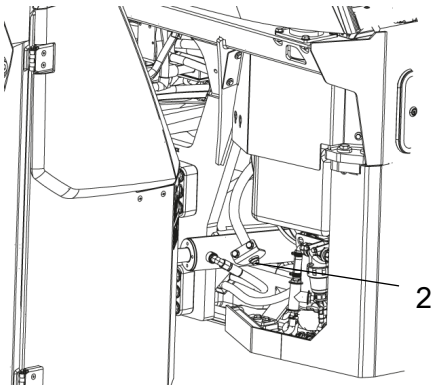


Fig. The machine's front frame, right rear
1. Fastening, drain hose
2. Drain plug



Water and sediment in the fuel tank are drained via a drainage hose.

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

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

Drain as follows:

Loosen the screws holding the drain (1), so that it can be lifted out of the groove and becomes available for drainage.

Undo the drain plug (2) and drain the water and sediment until only pure diesel fuel comes out at the plug. Screw in the plug again and refit the bracket in the front frame.

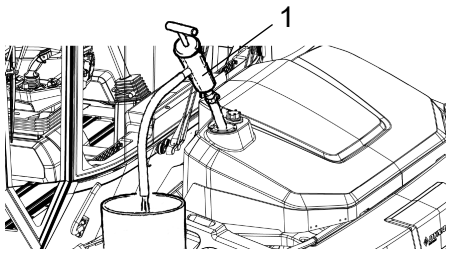


Fig. Fuel tank (OFFSET)
1. Oil emptying pump

Fuel tank (OFFSET)
- Cleaning

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

Drain the tank with a suitable pump, for example, an oil drain pump, to bring up any bottom sediment.

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

Keep in mind fire risk when handling fuel.

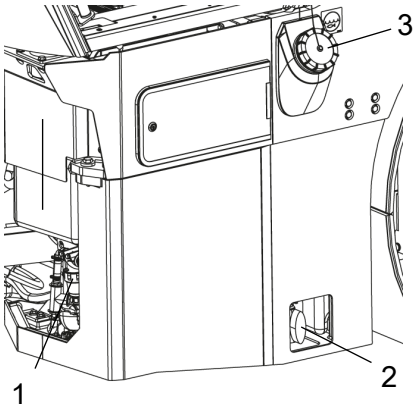


Fig. Sprinkler system
1. Pump system
2. Drain cock
3. Filler cap

Watering system
- Draining

Remember that there is a risk of freezing during the winter. Empty the tank, pump, filter and lines, or mix antifreeze in the water.

There is a drain cock (2) located on the central water tank. This can be used to drain both the tank and parts of the pump system.

Watering system
- Watering, rear tank

Remember that there is a risk of freezing during the winter. Empty the tank, pump, filter and lines, or mix antifreeze in the water.

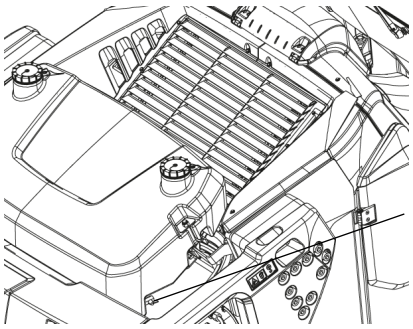


Fig. Water tank rear, draining
1. Ball valve

The water tank is drained by opening the ballvalve (1) on the tank.

The power button for the pump system can supply the sprinkler system with antifreeze.

The flow valve to the system must be closed first and the drain valve for the water filter opened. The end of the hose can then be put into a container containing antifreeze, and by activating the power button for the pump system, this can be run through the pump(s)/filter out to the sprinkler nozzles.

Water tank - Cleaning

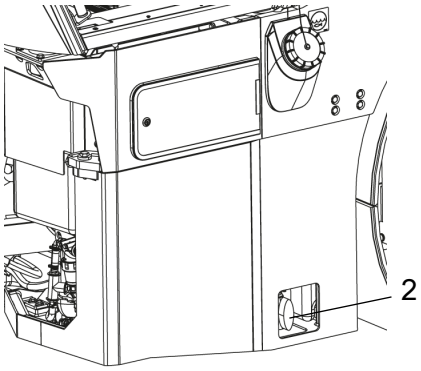


Fig. Water tank
2. Drain cock

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

Close the drain cock (2), fill with water and check for leaks.

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

Replacing the urea tank suction filter

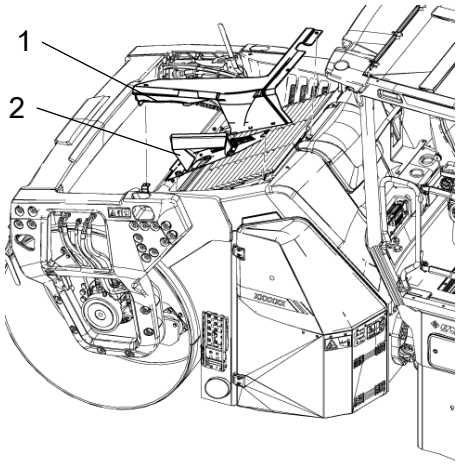


Fig. Guard, right-hand rear frame
1. Plastic cap
2. Cover plate

The urea tank is located on the right-hand side of the machine. For access, the overlying plastic cap (1) and cover plate (2) must be removed.

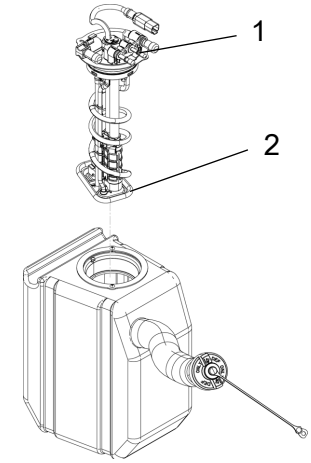


Fig. Urea tank
1. Multifunction unit
2. Suction filter

Loosen and remove the tank multifunction unit (1), then remove the suction filter (2) that is located in the bottom of the unit.

Hand in the filter to an environment-friendly waste disposal station.

Install the new suction filter (2) and refit the multifunction unit (1) in the tank.

Replacing the urea pump filter

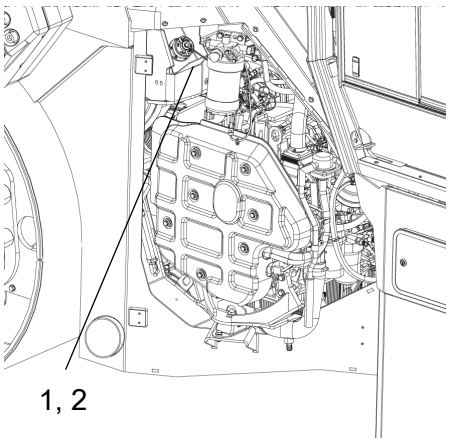


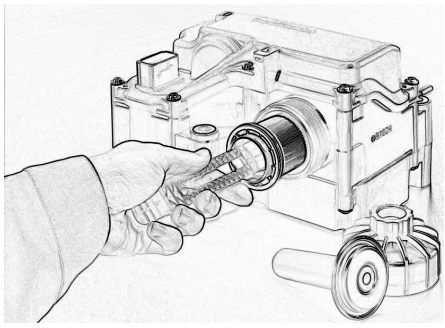
Fig. Urea tank volume
1. Urea pump
2. Cover plate/heat guard

The urea pump is located on the right-hand side of the machine, in the compartment alongside the urea tank.

Release the cover plate and heat guard (2) for access to the urea pump (1), then dismount the filter at the bottom of the unit.

To reach the filter, undo the lid with a 27 mm socket and remove the filter with the tool supplied with the filter spare.

Replace with the new filter and remount the lid with a torque of 20 Nm. Replace the urea pump in its original position in the urea tank compartment.



Hand in the filter to an environment-friendly waste disposal station.



Edge cutter (Optional)
- Lubrication

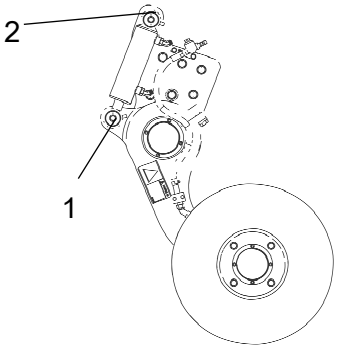


Fig. Two grease points for lubricating the edge cutter

Refer to the operation section for information on how to operate the edge cutter.

Grease the two points as shown in the figure.

Grease should always be used for lubrication. See the lubricant specifications.

Grease all bearing points with five strokes of a hand-operated grease gun.



Automatic Climate Control (Optional)
- Overhaul

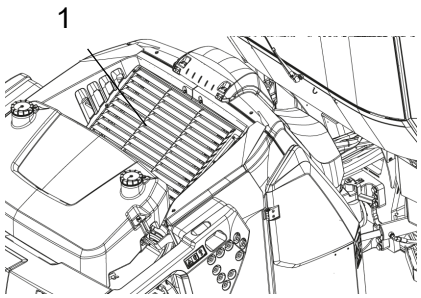


Fig. Rear frame
1. Code element

Regular inspection and maintenance are necessary to ensure satisfactory long-term operation.

Clean all dust from the condenser element (1) using compressed air. Blow from underneath.

The air jet can damage the element flanges if it is too powerful.

When working with compressed air, use the following protective equipment:



Safety glasses



Protective gloves



Ear protectors

Inspect the condenser element attachment.

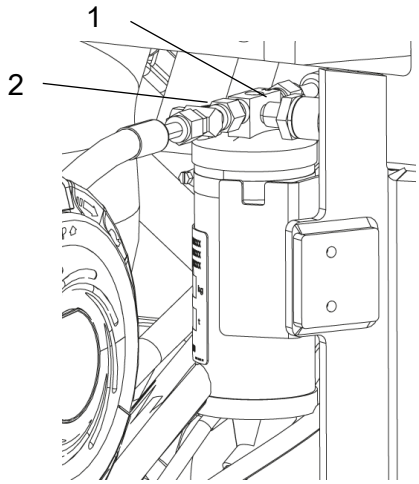


Fig. Drying filter in engine compartment
1. Sight glass
2. Moisture indicator

Drying filter - Check

The compressor will be damaged if the unit is run with too little refrigerant.

Do not disconnect or undo the hose couplings.

The cooling system is pressurized. Incorrect handling can result in serious personal injury.

The system contains pressurized refrigerant. It is forbidden to release refrigerants into the atmosphere. Work on the refrigerant circuit is only to be carriedd out by authorized companies.

With the unit in operation, open the engine hood and check using the sight glass (1) that bubbles are not visible on the drying filter. If bubbles are visible through the sight glass, it is a sign that the refrigerant level is too low. If so, stop the unit. The unit may be damaged if it is run with insufficient refrigerant.

Check the moisture indicator (2). It should be blue. If it is beige, the dryer cartridge should be changed by an authorized service company.

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