DYNAPAC
FAYAT GROUP

Instruction manual

Operating & Maintenance
4812159701_D.pdf

Vibratory roller
CC224C/324C
CC2200C/3200C

Engine
Cummins QSB 3.3 (IIIA/T3)
Deutz TCD 3.6 L04 (IIIB/T4i), (IIIB/T4f)
Deutz TCD 3.6 L04 (stage V)

Serial number
10000312xxA009632 -
10000316xxA010919 -
10000337xxA015716 -
10000341xxA011334 -
10000424xxA026658 -
10000428xxA022376 -
10000457xxA0xxxxx -
10000461xxA0xxxxx -

Translation of original instruction

Reservation for changes
Printed in Sweden

EN

Table of Contents

Introduction

The machine

Dynapac CC224CHF/CC324CHF/CC2200C/CC3200C is a self-propelled vibratory combination roller in 8 metric tonnes class featuring 1500/1730 mm (59/68 in) wide steel drum front and four smooth rubber tires at rear. The machine is equipped with drive, brakes, vibration and timer for water sprinkler on the drum.

The rubber tires are driven and braked in pairs and also equipped with a sprinkler system for the use of fluid from a seperate emulsion tank or from the central water tank.

Scrapers and cocoa mats are always mounted on the rubber tires and on the drum scrapers are mounted and cocoa mats are optional.

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 machine is mainly designed to be used for thin and thick asphalt layers with regards to dual vibration amplitudes that are optimized for this purpose. It is also possible to compact granular soil material, such as sand and gravel.

Warning symbols

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

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

Safety information

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

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

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

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

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

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

CALIFORNIA

Proposition 65

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.

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 manufactuer's engine manual.

Specific maintenance and checks on diesel engines must be carried out by the engine supplier’s certified 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 roller outside the edge, if the substrate does not have full bearing strength or is close to a slope. Avoid operating close to edges and ditches and the like as well as on poor ground conditions that 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 operator platform immediately. 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 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 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.**

- **Do not make any changes or modifications to the roller that could affect safety. Changes are only to be made after written approval has been given by Dynapac.**

- **Avoid using the roller before the hydraulic fluid has reached its normal working temperature. Braking distances can be longer than normal when the fluid is cold. See instructions in the STOP section.**

- **For your own protection always wear:**
  - helmet
  - working boots with steel toecaps
  - ear protectors
  - reflecting clothing/high visibility jacket
  - working gloves

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

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

Driving near edges

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

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

Work driving

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.

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

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

Safety (Optional)

Air conditioning

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

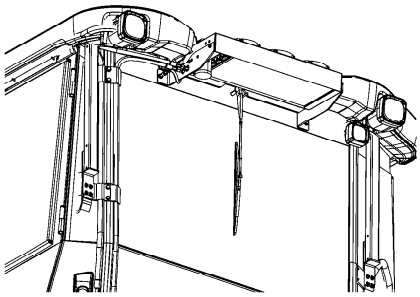


Fig. Air conditioning (ACC)

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

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

The system must be re-filled with an approved refrigerant by authorized personnel when necessary. See decal on or in the vicinity of the installation.

Edge cutter/compactor

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

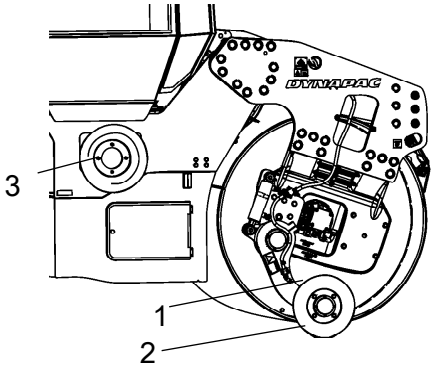


Fig. Edge cutter/compactor
1. Transport position
2. Operating position
3. Holder for cutter/compactor wheel.

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

Working lights - Xenon

Warning, high voltage!

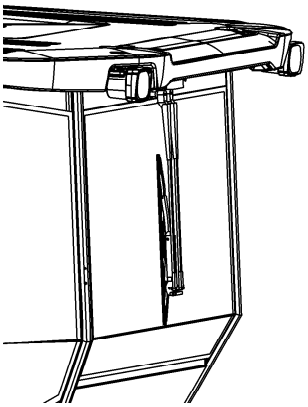


Figure. Xenon lighting on cab

The working lights of the Xenon type have a secondary high-voltage source.

Work on the lighting should only be conducted by an authorized electrician and with the primary voltage disconnected.

Contact a Dynapac dealer!

Warning, environmentally hazardous waste!

Working lights of the Xenon type include a discharge lamp that contains mercury (Hg).

A defective lamp is to be considered as hazardous waste and shall be disposed off as per local directives.

Special instructions

Standard lubricants and other recommended oils and fluids

Before leaving the factory, the systems and components are filled with the oils and fluids specified in the lubricant specification. These are suitable for ambient temperatures in the range -15°C to +40°C (5°F - 105°F).

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

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

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

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

Hydraulic system - mineral oil Shell Tellus S2V100 or similar.

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 outlet hose from the central tank can be disconnected and the end placed in a container with antifreeze to run this through the pump/filter.

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 directly onto electrical components.

Do not use high pressure cleaning for dashboard/display.

The Electrical Drive Control and the computer box may not be washed with high pressure cleaning and not at all with water. Clean them with a dry wiper.

Detergent that can destroy electrical parts, or which is conductive, must not be used.

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

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

Fire fighting

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

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

Roll Over Protective Structure (ROPS), ROPS approved cab

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

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

Battery handling

When removing batteries, always disconnect the negative cable first.

When fitting batteries, always connect the positive cable first.

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

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

Jump starting (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.

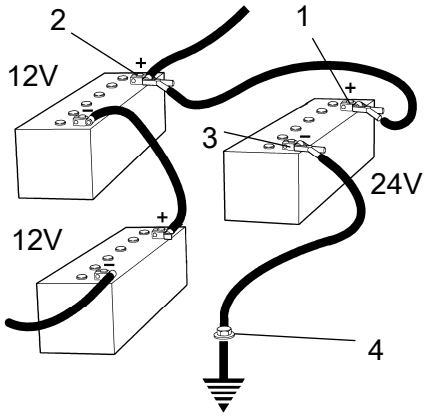


Fig. Jump starting

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}	55/60kW	106 dB (A)
	74/75kW	107 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}		85 ±3 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'

Max 20° or 36%

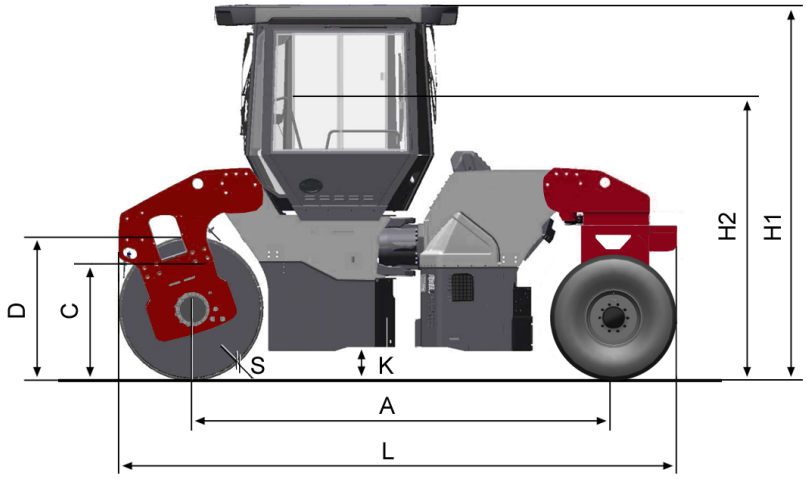
Slopes

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

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

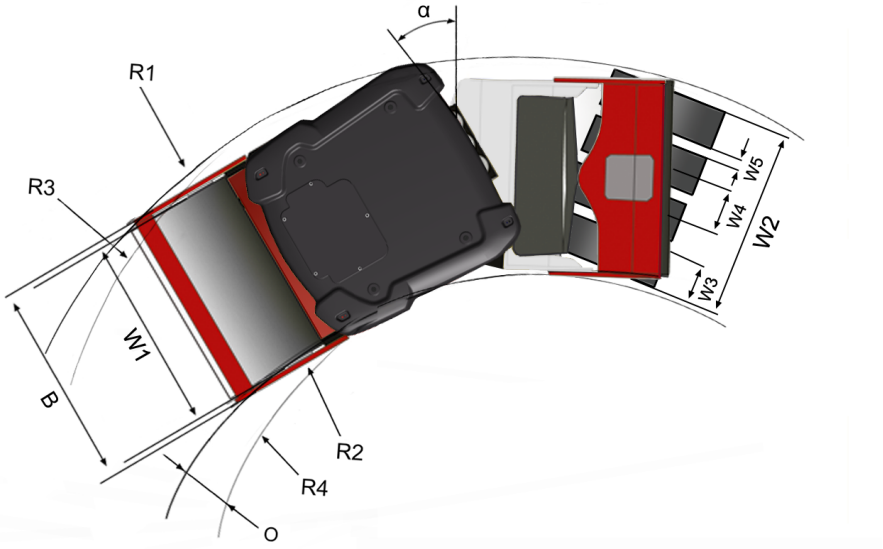
Always take into consideration that loose ground, steering the machine, vibration on, machine speed across the ground and raising the center of gravity can all cause the machine to topple at smaller slope angles than those specified here.

Dimensions, side view



	Dimensions	mm	in
A	Wheel base	3340	131
D	Diameter, drum	1150	45
H1	Height, with ROPS/cab	2990	118
H2	Height, without ROPS/cab	2275	90
L	Length, standard variant	4510	178
S	Thickness, drum amplitude, Nominal	20	0.8

Dimensions, top view



	Dimensions	mm	in
B1	Machine width, standard		
	CC224CHF/CC2200C	1620	64
	CC324CHF/CC3200C	1870	74
B2	Machine width, asymmetrical	2145	84.5
R1	Turning radius, outer		
	CC224CHF/CC2200C	5190	204
	CC324CHF/CC3200C	6305	209
R2	Turning radius, inner		
	CC224CHF/CC2200C	-	-
	CC324CHF/CC3200C	-	-
W1	Drum width		
	CC224CHF/CC2200C	1500	59
	CC324CHF/CC3200C	1730	68
W2	Combi width		
	CC224CHF/CC2200C	1514	60
	CC324CHF/CC3200C	1652	65
W3	Wheel width	285	11

Weights and volumes

Weights

Service weight		ROPS (EN500)
CC224CHF/CC2200C	(kg)	7 400
	(lbs)	16 320
CC324CHF/CC3200C	(kg)	7 700
	(lbs)	16 980

Fluid volumes

Fuel tank	140 liters	37 gal
Water tank/s		
- central	750 liters	198 gal
- emulsion	70 liters	18.5 gal

Working capacity

Compaction data

Static linear load	(Front)	(Rear)
CC224CHF/CC2200C	25,7 (kg/cm)	888 (kg/wheel)
	144 (pli)	
CC324CHF/CC3200C	23,6 (kg/cm)	888 (kg/wheel)
	132 (pli)	

Amplitude	**High**	**Low**	**Low**(CE-2006)
	0,7	0,3	0,2 (mm)
	0.028	0.012	0.008 (in)

Vibration frequency	**High amplitude**	**High amplitude** (CE-2006)	**Low amplitude**	**Low amplitude** (CE-2006)
	48	48	67	61 (Hz)
	2 850	2 850	4 020	3 660 (vpm)

Centrifugal force	High amplitude	High amplitude (CE-2006)	Low amplitude	Low amplitude (CE-2006)	
CC224CHF/CC2200C	78	72	67	38	(kN)
	17 550	16 200	15 075	8 550	(lb)
CC324CHF/CC3200C	90	77	75	43	(kN)
	20 250	17 325	16 875	9 675	(lb)

Propulsion

Speed range	0-11 km/h	0-7 mph
Climbing capacity (theoretical)		
CC224CHF/CC2200C	49 %	
CC324CHF/CC3200C	45 %	

General

Engine

Manufacturer/Model	Cummins QSB 3.3	(IIIA/T3)
	Deutz TCD 3.6 L04	(IIIB/T4i), (IIIB/T4f)
	Deutz TCD 3.6 L04	(stage V)
Power output (SAE J1995), 2200 rpm	60kW (IIIA/T3)	80hp
	74kW (IIIA/T3)	99hp
	75kW (IIIB/T4i)	100hp
	55kW (IIIB/T4f)	74hp
	55kW (stage V)	74hp
Engine speed		
- idling	900 rpm	
- loading/unloading	1600 rpm	
- work/transport	2 200 rpm	

Tier4i / T4f / Stage IIIB / 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. A higher sulphur content will 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)
Deutz TCD 3.6 L04	Stage V	NRTC	838,6

NRTC: Non-road transient test cycles.

Tires

Tire dimensions	11,00 R20, 13/80 R20	
Air pressure (kPa)	200	29 psi

Electrical system

Battery	24V (2x12V 74Ah)
Alternator	24V 60A
Fuses	See the Electrical system section - fuses

Bulbs (if mounted)	Watt	Socket
Drive lights, front	75/70	P43t (H4)
Direction lights, front	2	BA9s
Side lights	5	SV8,5
Brake-Position lights	21/5	BAY15d
Direction lights, rear	21	BA15s
License plate light	5	SV8,5
Working lights	70	PK22s (H3)
	35	Xenon
Cab lights	10	SV8,5

Hydraulic system

Opening pressure	MPa	Psi
Drive system	35	5 080
Supply system	2.5	365
Vibration system	19	2 760
Control systems	20	2 900
Brake release	1.8	260

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: 1.350 kg

CO_2-equivalent: 1.930 ton

GWP: 1430

Tightening torque

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

Metric coarse screw thread, bright galvanized (fzb):

STRENGTH CLASS:

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

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

STRENGTH CLASS:

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

Machine description

Diesel engine

The machine is equipped with a completely electronically controlled water-cooled four-cylinder, turbocharged (WGT) diesel engine with direct injection (HPCR) and intercooler.

WGT - Waste Gate Turbo

HPCR - High Pressure Common Rail fuel injection

(IIIB/T4i/T4f)

The engine is also equipped with cooled exhaust gas recirculation (ceGR) and a diesel oxidation catalysator (DOC) system for exhaust after-treatment.

The engine has also an electronically controlled variable flow turbo (VFT) and closed crankcase ventilation.

ceEGR - External Cooled EGR-electronically controlled

DOC - Diesel Oxidation Catalyst

VFT - Variable Flow turbocharger-el. controlled

(stage V)

The engine is also equipped with cooled exhaust gas recirculation (ceEGR) and a diesel particle filter (DPF) system for exhaust after-treatment.

The engine has also an electronically controlled variable flow turbo (VFT) and closed crankcase ventilation.

ceEGR - External Cooled EGR-electronically controlled

DPF - Diesel particle filter

VFT - Variable Flow turbocharger-el. controlled

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)
- I/O board (Control board)
- Display

Propulsion system

The propulsion system is a hydrostatic system

A drive unit (propulsion motor + gear) drives each drum or wheel pair.

Machines with split drum/s has a drive unit per drum half and an anti-spin system.

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 angle of the control lever (the deflection of the forward/reverse lever regulates the speed). A speed selector is available as option.

Brake system

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

Secondary/Parking brake

The secondary and parking brake system comprises sprung disc brakes to each drum, drum half respectively wheel pair.The disc brakes are disengaged by hydraulic pressure.

Steering system

The steering system is a hydrostatic system. The steering wheel is connected to a steering valve that distributes the flow to the steering cylinders at the articulated joint. A hydraulic pump supplies the steering valve with oil.

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 has a heating and ventilation system, with defrosters for all windows. The cab can be equipped with air conditioning (ACC).

Emergency exit

The cab has two emergency exits: the door and the

rear cab window, which can be broken with the emergency hammer located in the cab.

ROPS

ROPS is the abbreviation for "Roll Over Protective Structure".

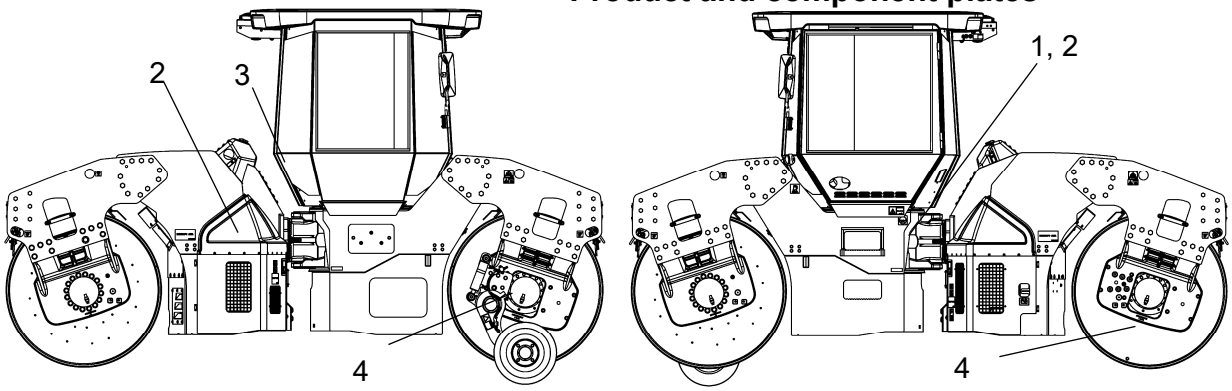
The cab is approved as a protective cab in accordance with the ROPS standard.

If any part of the cab's or the ROPS structure's protective construction displays plastic deformation or cracks, the cab or the ROPS structure must be replaced immediately.

Never perform any modifications on the cab or ROPS structure without first having discussed the modification with Dynapac's production unit. Dynapac determines whether the modification could result in the approval according to the ROPS standard becoming invalid.

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

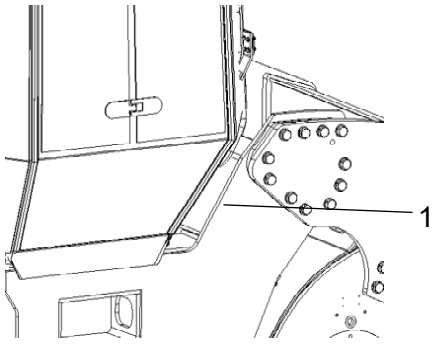


Fig. PIN Front frame

Product identification number on the frame

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

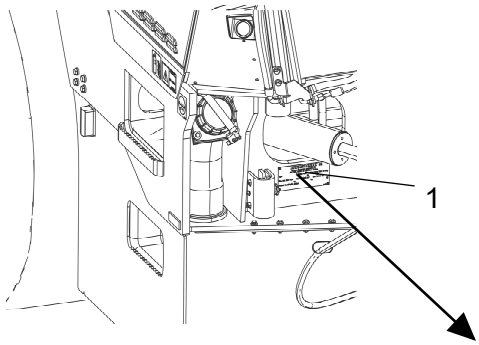


Fig. Operator platform
1. Machine plate

Machine plate

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

The plate specifies among other things the manufacturers name and address, the type of machine, the PIN, Product Identification Number (serial number), operating weight, engine power and year of manufacture. (In some cases there are no CE marking.)

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			

Please state the machine's PIN when ordering spares.

Explanation of 17PIN serial number

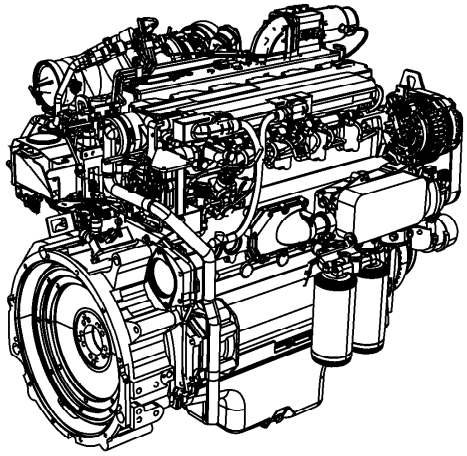
100	00123	V	x	A	123456
A	B	C	F		

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

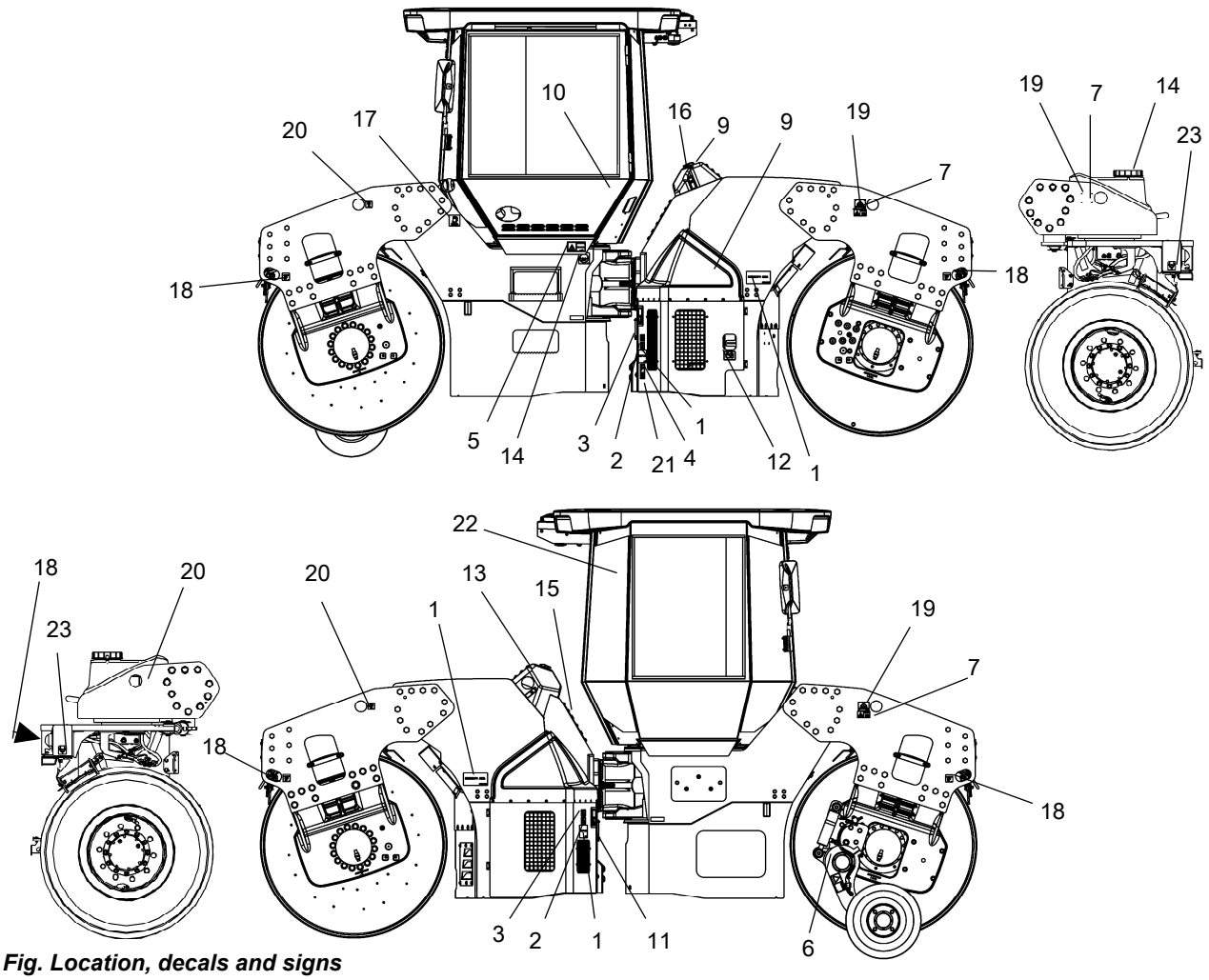


Fig. Location, decals and signs

1.	Warning, Crush zone	4700903422	12.	Master switch	4700904835
2.	Warning, Rotating engine components	4700903423	13.	Coolant	4700388449
3.	Warning, Hot surfaces	4700903424	14.	Water	4700991657
4.	Warning, Brake release	4700904895	15.	Hydraulic fluid level	4700272373
5.	Warning, Instruction manual	4700903459	16.	Hydraulic fluid Biological hydraulic fluid	4700272372 4700904601/792772
6.	Warning, Edge cutter	4700904083	17.	Diesel fuel	4700991658* 4811000345**
7.	Warning, Locking	4700908229 4812125363	18.	Fixing point	4700382751
			19.	Hoisting plate	4700904870
9.	Warning, Starting gas	4700791642	20.	Lifting point	4700357587
10.	Handbook compartment	4700903425	21.	Sound effect level	4700791276/77
11.	Battery voltage	4700393959	22.	Emergency exit	4700903590
			23.	Tire pressure (Combi)	4700355983 4812116992
	*) IIIA/T3		24	Fuel with a low sulphur content	4811000344**
	**) IIIB/T4i/T4f/Stage V				

Location - decals, CALIFORNIA

Proposition 65

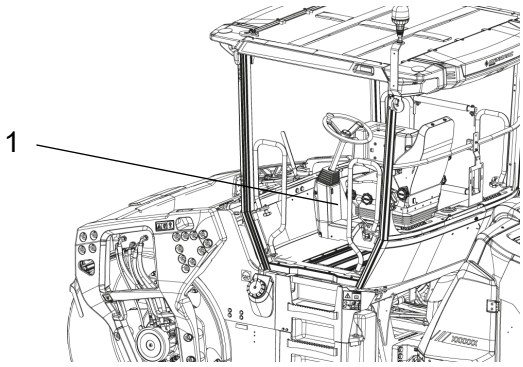
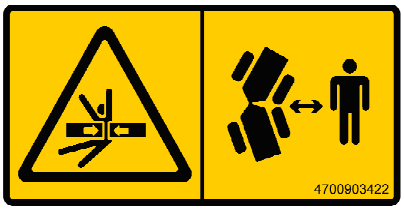


Fig. Location

1.	Warning, CALIFORNIA Proposition 65	4812129673

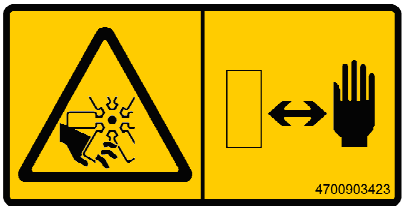
Safety decals

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.



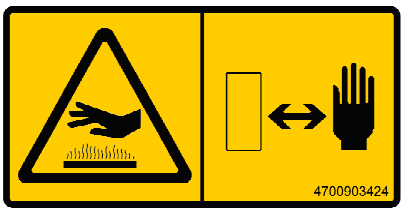
4700903422
Warning - Crush zone, articulation/drum.

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



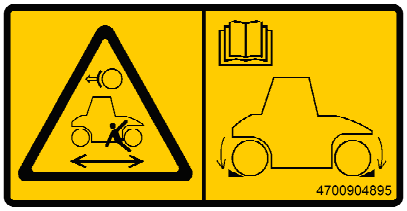
4700903423
Warning - Rotating engine components.

Keep your hands at a safe distance.



4700903424
Warning - Hot surfaces in the engine compartment.

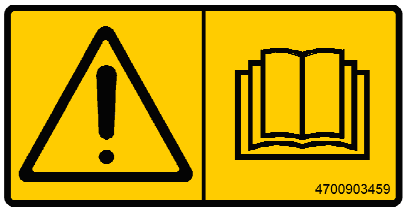
Keep your hands at a safe distance.



4700904895
Warning - Brake disengagement

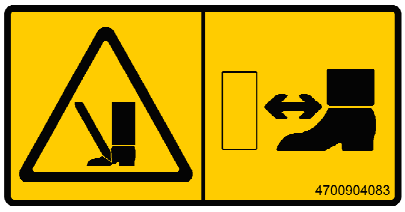
Study the towing chapter before disengaging the brakes.

Danger of being crushed.



4700903459
Warning - Instruction manual

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



4700904083
Warning - Edge cutter (option)

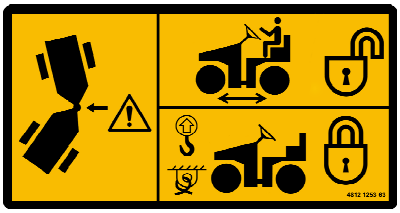
Warning of rotating parts.

Maintain a safe distance from the crush zone.

4700908229
Warning - Risk of crushing

The articulation must be locked when lifting.

Read the instruction manual.



4812125363
Warning - Locking

The articulation must be locked during transport and lifting,

but be open during operation.

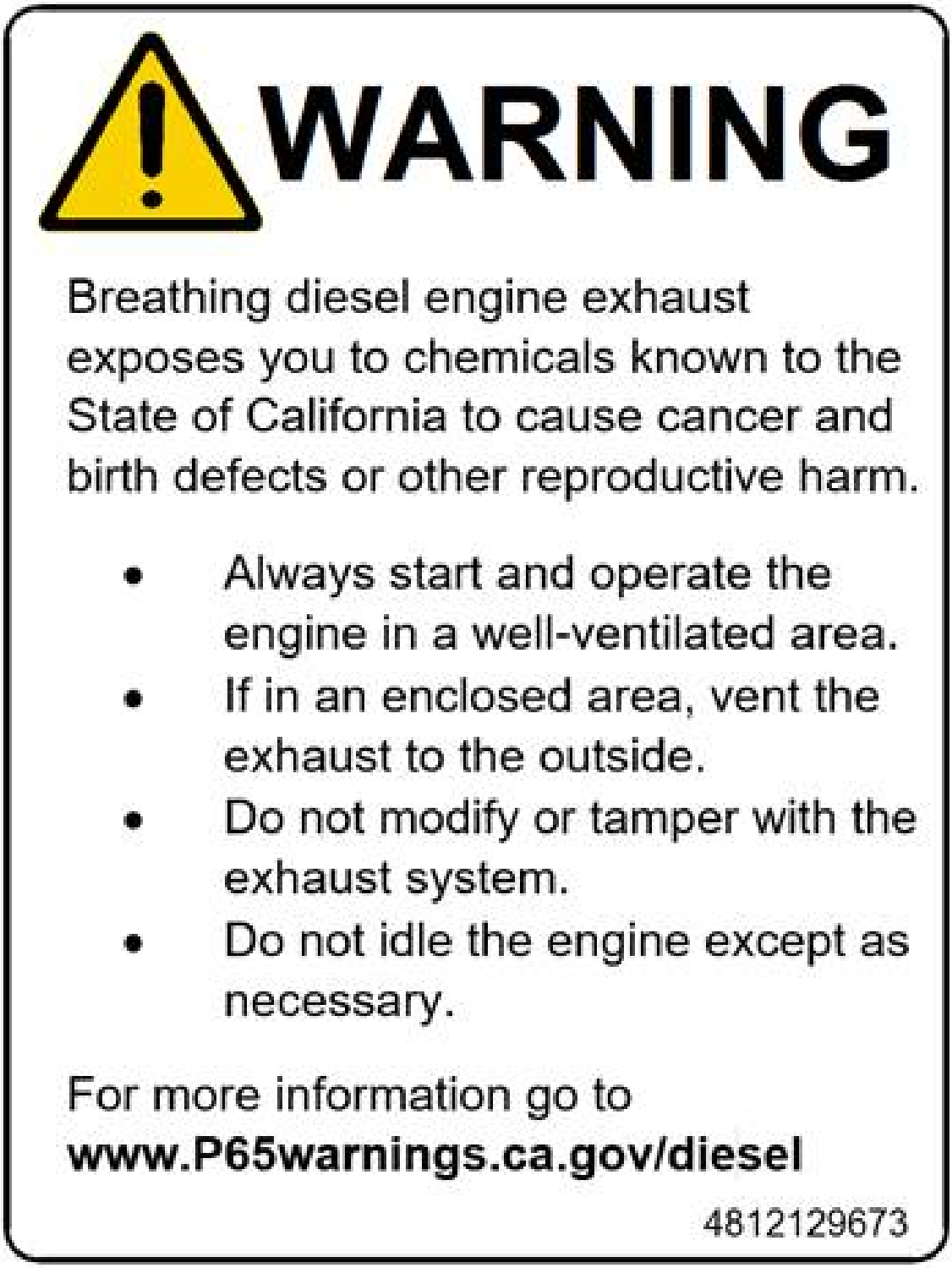
Read the instruction manual.

4700791642
Warning - Starting gas

Starting gas is not to be used.

4812129673
Warning

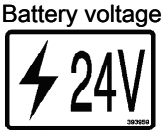
CALIFORNIA - Proposition 65



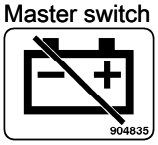
Info decals

Manual compartment

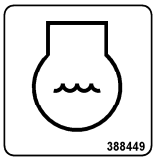
Battery voltage



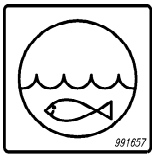
Master switch



Coolant



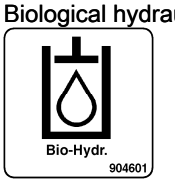
Water



Hydraulic fluid level

Hydraulic fluid

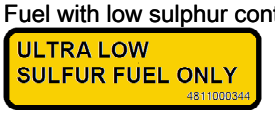
Biological hydraulic fluid



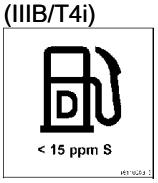
Diesel fuel

Bio-hydraulic fluid PANOLIN

Fuel with low sulphur content

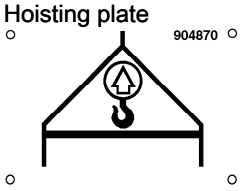


(IIIB/T4i)



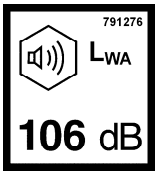
Fixing point

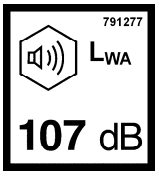
Hoisting plate



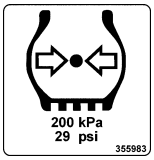
Lift point

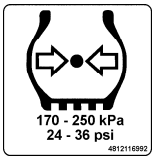
Sound effect level



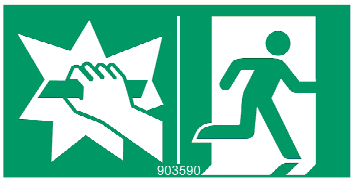


Tire pressure(combi)





Emergency exit



Instruments/Controls

Control panel and controls

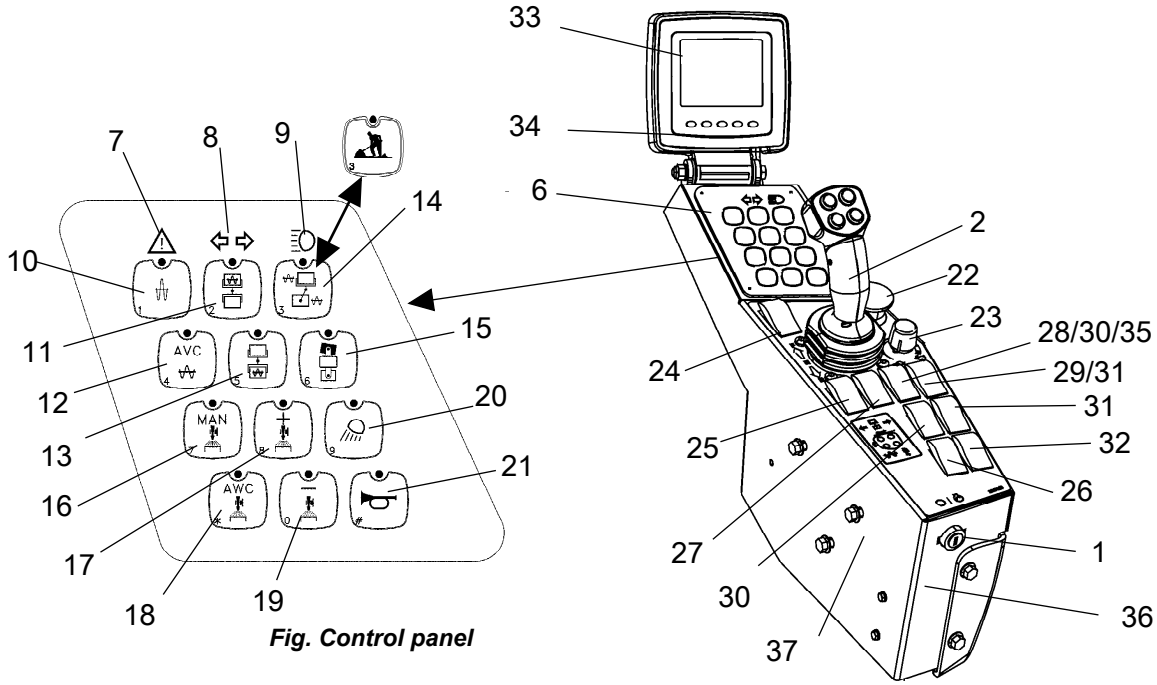
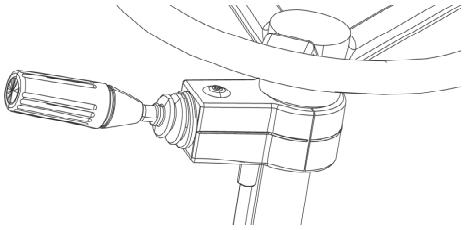


Fig. Control panel

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)	26	*	Hazard lights
			15		CG – front drum steering only	27	*	Rotating beacon
			16		Manual sprinkler	28	*	Gravel spreader (not for combi)
			17		Increase sprinkler (timer)	29		Gear position switch
6		Button set	18		Auto sprinkler (AWC)	30	*	Edge cutter, Up/Down
7		Central warning indicator	19		Decrease sprinkler (timer)	31	*	Edge cutter, sprinkling
8	*	Direction indicators	20	*	Working light	32	*	Drum edge lights
9	*	Full beam indicator	21		Horn	33		Display
10		High amplitud	22		Emergency stop	34		Function buttons (5 pcs.)
11		Vibration front drum	23		Speed limiter	35		Sprinkling, emulsion tank (combi)
12		Auto vibration control (AVC)	24		Rpm switch, diesel engine	36		Service socket
						37		Height adjustment, control panel

* Optional



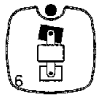
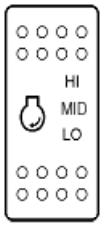
Functions

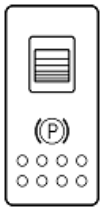
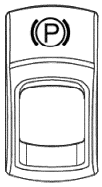
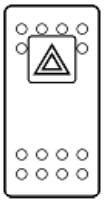
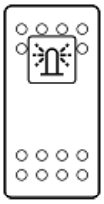
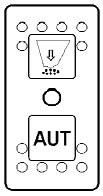
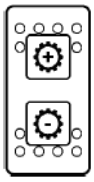
1. Direction indicators
2. Driving lights
3. Full/Dipped beam
4. Parking lights
5. Horn

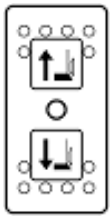
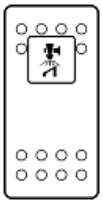
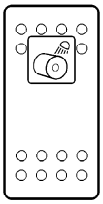
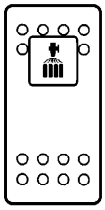
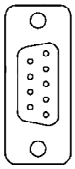
Figure. Steering column switch (optional)

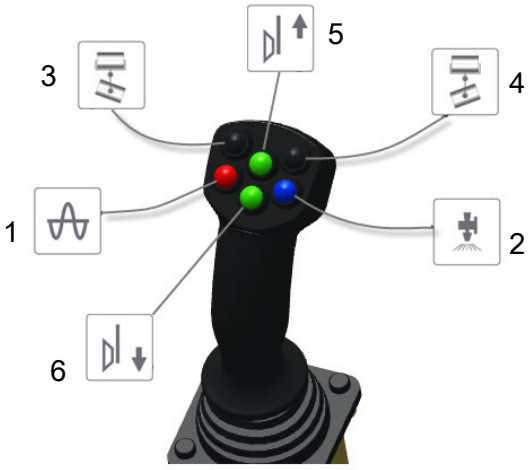
Function descriptions

No	Designation	Symbol	Function
1	Ignition key		The electric circuit is broken.
			All instruments and electric controls are supplied with power.
			Starter motor activation.
			To start: Turn ignition key to the right until the display LIGHTS UP, and wait until the displayed roller GOES OFF and changes to the status image.
2	Forward/Reverse lever		**NOTE:** The lever must be in neutral to start the machine. The engine will not start if the lever is in any other position. The direction and speed are controlled with the forward/reverse lever. Moving the lever forward moves the roller forward, and moving it back moves the roller back. The speed of the roller is proportional to the distance of the lever from neutral. The further the lever is from neutral, the higher the speed.
6	Button set		
7	Central warning indication		General fault indication. See display (33) for fault description.
8	Direction indicators		Shows direction indicators activated (Activated via the steering column switch).
9	Main beam indicator		Shows main beam activated (Activated via the steering column switch).
10	Amplitude selector, high amplitude		Activation produces 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.
12	Automatic vibration control (AVC)		By activating the vibrations will be switched ON and OFF automatically when the F/R lever is moved from neutral and the roller reaches a preset speed.

No	Designation	Symbol	Function
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)	Front drum steering only (CG)		Valid for pivot machines only (CG). By activating steering on front drum only.
16	Manual sprinkler		Continuous sprinkling on both drums.
17	Increasing sprinkling (timer)		Each push on the button gives higher sprinkling water volume on drums.
18	Automatic sprinkling		By activating the sprinkling water will engage and disengage automatically when the F/R lever is moved from neutral.
19	Decreasing sprinkling (timer)		Each push on the button gives lower sprinkling water volume on drums.
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).
24	Rpm switch, diesel engine		Three-position switch for idling (LO), intermediate speed (MID) and working speed (HI). **NOTE:** The lever must be in neutral (LO) when starting the machine. The engine also runs at low speed when stationary, more than approx. 10 seconds if the F&R lever is in neutral. If the F&R lever is moved out of neutral the speed will increase to the set speed again. If the machine has a fuel optimization system, MID is replaced by ECO (and the switch is green).

No	Designation	Symbol	Function
25	Parking brake		When pressed, the parking brake is activated. To release the brakes, slide the red part back (towards you) and change the position of the lever. **NOTE:** When starting the machine, the parking brake must be activated.
			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.
26	Hazard warning lights		Activate the hazard warning light by depressing the button.
27	Rotating beacon		Activate the rotating beacon by depressing the button.
28	Gravel spreader		Activating the gravel spreader. Manual/Automatic spreading. (CC224-324, CC2200-3200)
29	Gear position switch		Activates the three different gear positions: (1), (2), (3). The current gear position is shown in the display by means of the following figures.
			Position 1: Used for maximum hill-climbing capacity during vibratory compaction
			Position 2: Normal position
			Position 3: Used for maximum transport speed or for high speed during smooth rolling without vibration

No	Designation	Symbol	Function
30	Edge press/cutter, UP/DOWN		The edge cutter can be moved up and down when the machine is in the operating position. The edge cutter can only be moved up when the machine is in transport position. Pressing on the lower edge moves the edge cutter down. Pressing on the upper edge moves the edge cutter up.
31	Edge press/cutter, sprinkling		Activate edge press/cutter sprinkling by depressing the switch.
32	Drum edge lights		Activate the drum edge lights by depressing the switch.
35	Sprinkler combi wheel		Activate the emulsion sprinkler for combi wheels by depressing the switch.
36	Service socket		Diagnostic socket. Gateway is connected here to read the CAN-Open system.



Forward & Reverse lever

1 Vibration on/off
2 Panic sprinkler (ON as long as button depressed)
3 * Offset left
4 * Offset right
5 * Edge cutter, Up
6 * Edge cutter, Down

* Optional

Fig. Forward & Reverse lever

Function descriptions

No	Designation	Symbol	Function
1	Vibration on/off		First push will start vibrations, second push will stop vibrations.
2	Panic sprinkling		Panic sprinkling of both drums. Push the button to get full flow on sprinkler pump.
3, 4	Offset left/right		The left button moves the rear drum to the left, the right button to the right. Always stop in neutral and to switch to the other side press once again. Steady light in working mode. (flashes in offset)
5, 6	Edge press/cutter, UP/DOWN		The edge cutter can be moved up and down when the machine is in the operating position. The edge cutter can only be moved up when the machine is in transport position.

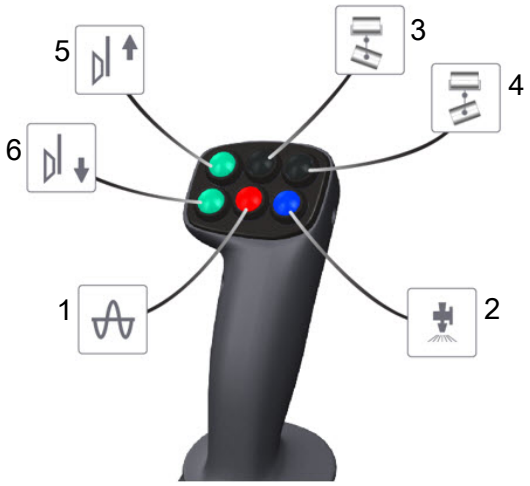


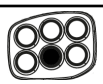
Fig. Forward & Reverse lever

Forward & Reverse lever

1 Vibration on/off
2 Panic sprinkler (ON as long as button depressed)
3 * Offset left
4 * Offset right
5 * Edge cutter, Up
6 * Edge cutter, Down

* Optional

Function descriptions

No	Designation	Symbol	Function
1	Vibration on/off		First push will start vibrations, second push will stop vibrations.
2	Panic sprinkling		Panic sprinkling of both drums. Push the button to get full flow on sprinkler pump.
3, 4	Offset left/right		The left button moves the rear drum to the left, the right button to the right. Always stop in neutral and to switch to the other side press once again. Steady light in working mode. (flashes in offset)
5, 6	Edge press/cutter, UP/DOWN		The edge cutter can be moved up and down when the machine is in the operating position. The edge cutter can only be moved up when the machine is in transport position.

Display explanations

Fig. Start screen

When the ignition key is activated to position I, a start screen is visible in display. This is shown for a few seconds and then switches over to the status screen.

Fig. Status screen

A status screen provides information on the fuel level, water level in the sprinkler tank, machine hours and voltage level. Fuel and water levels are specified in per cent (%).

This screen is active until the Diesel engine is started or an active screen choice is made via the function buttons below the display.

Fig. Main screen/Working screen

If the engine is started before any active screen choice is made the display will switch over to main screen.

This screen gives an overview and is kept during work:

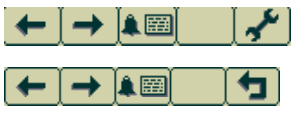
- The speed is shown in the middle of the screen.

- The engine speed, vibration frequencies for forward and reverse (Option), strokes/meter - Impactometer (Option), and asphalt temperature (Option), are shown in the corner.

Fig. Main screen/Working screen with menu selection buttons (1)

A menu field is shown by pressing one of the menu select buttons. The field is visible for a short while, if no selection is made the field fades out. Menu field will appear again upon pressing either one of the selection buttons (1).

Example of menu field.



	Scroll/Selection buttons to choose between available functions.
	Alarm log button to display engine and machine alarms.
	Settings/Button select menu, which opens the main menu. Settings can be changed in the main menu.
	Exit/Return button returns 1 step at once. Pressing the button (approx. 2 sec.) displays the main menu again.

Fig. Temperature screen

The temperature screen shows the temperature of the engine (top of display) and hydraulic fluid (bottom of display). The values are shown in Celsius or Fahrenheit, depending on the choice of unit system.

When an engine alarm is activated, the alarm is shown on the display.

The engine alarm is sent out from the engine ECM, which handles the monitoring of the engine functions.

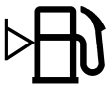
The message, which consists of an SPN and FMI code, can be interpreted via the engine supplier error code list.

The alarm message shown is acknowledged by pressing the "OK" button on the display.

When a machine alarm is activated the alarm is shown on the display, plus a warning text that describes the alarm.

The alarm message shown is acknowledged by pressing the "OK" button on the display.

Machine alarm

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. 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.
	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.

Alarms received are saved/logged and can be seen by selecting Display alarms.

 Selection of Display alarms.

"ENGINE ALARM"

Saved/Logged engine alarms.

"MACHINE ALARM"

Saved/Logged machine alarms. These alarms come from the other systems on the machine.

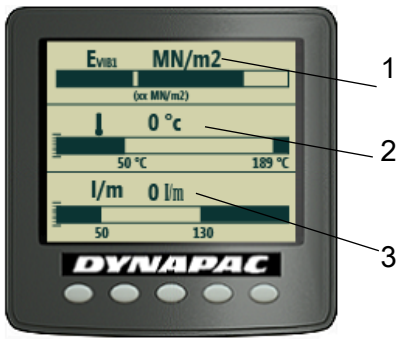


Fig. Compaction meter Evib (DCM Evib), Asphalt temperature, Impactometer
1. Compaction meter Evib (DCM Evib)
2. Asphalt temperature
3. Impactometer value

A screen for Compaction meter Evib (DCM Evib) (Optional), Asphalt temperature (Optional) and Impactometer value can also be shown in the display when installed on the machine.

Asphalt temperature meter (Optional, always included when Compaction meter Evib installed)

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

Dual temperature sensors, one front and one rear.

The one that goes first is highlighted and that is the one to be read to avoid disturbance of moisture from the drum water spray.

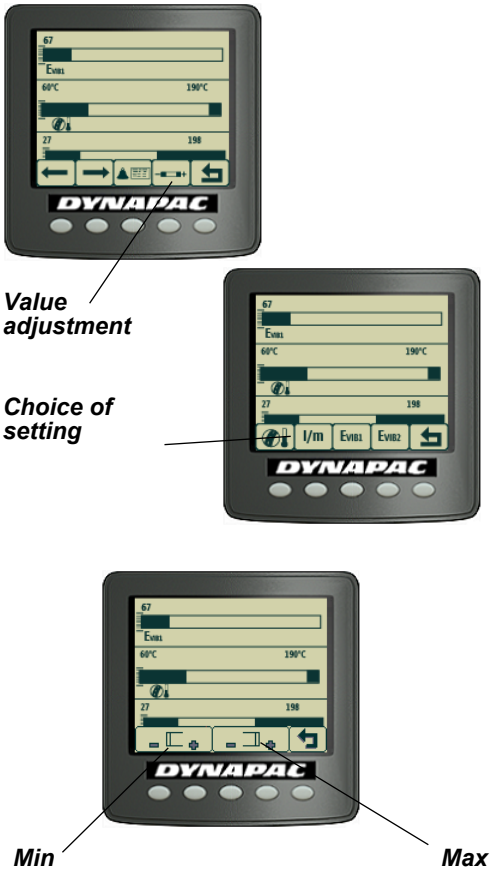


Fig. Value settings

Setting of max and min values by plus or minus on the display screen, for Evib1 and 2 only the minimum value can be set.

Impactometer (impacts per meter)

The Impactometer shows how many impacts per meter the drum performs during vibration, the set minimum value is shown by a shaded left and right field on the meter image.

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

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

The recommendation is to not fall below 33 impacts/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)]

Evib compaction meter (DCM Evib) (Optional)

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 display screen.

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.

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 for calibration purposes (special service personnel only, requires pin code), and to see the version of installed software.

"USER SETTINGS"

Users can change the light settings, choose between the Metric or Imperial system, and set warning sounds On/Off.

Adjustment of the light and contrast settings on the display, including brightness of the panel light.

"MACHINE SETTINGS"

The selection "Sprinkler Pump: 1 & 2" is in machine settings.

If the machine is fitted with double sprinkler pumps (Option) this is the menu in which the selection is made for which of the sprinkler pumps are to be activated to water the drum(s).

If the machine is fitted with accessories, e.g. a Chip spreader, the settings for these can also be changed.

"WORKMODE 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.

Diesel engine (Stage V)

"EXHAUST CLEANING"

Normally not necessary to use.

Initiate cleaning can be used if the Exhaust System Cleaning Lamp 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 that the engine must have reached operating temperature before this can be done.

"SERVICE MENU"

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

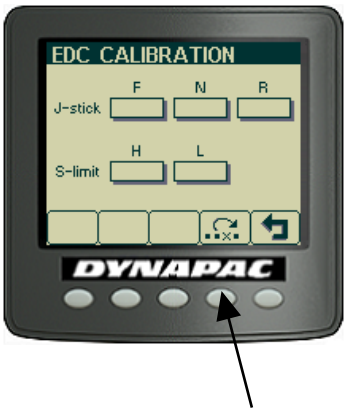
"ADJUSTMENTS"

"TESTMODES" - Installation personnel only, requires pin code.

"CALIBRATION" - service personnel only, requires password.

"EDC Calibration" used to calibrate the joystick and speed potentiometer.

"TX Program" only used to change software in the display and requires special equipment and know-how.



"EDC CALIBRATION"

To calibrate, move the joystick fully forward (F) and press in both black buttons on the top of the joystick. (See also manual W3025)

Continue in the same way with the other positions for the joystick (N), (R) and the speed potentiometer.

Press the disk button to save the values.

"ABOUT"

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

Operator help when starting

When trying to start the machine without having set one, two or three of the conditions required to start machine, the missing conditions are shown in the display.

The missing conditions must be set before it is possible to start the machine.

Conditions that must be set:

- Activated P-brake

- Selector lever in neutral

- Speed selector for diesel engine in low (Low = idling) (not all models)

Operator help Workmode

When attempting to activate

- Vibration

- Offset control (Option)

- Edge cutter/compactor (Option)

with the machine in Transport mode the display will show "Workmode" for a few seconds.

To activate the above functions it is necessary to make sure that the machine's Workmode is activated.

Instruments and controls, cab

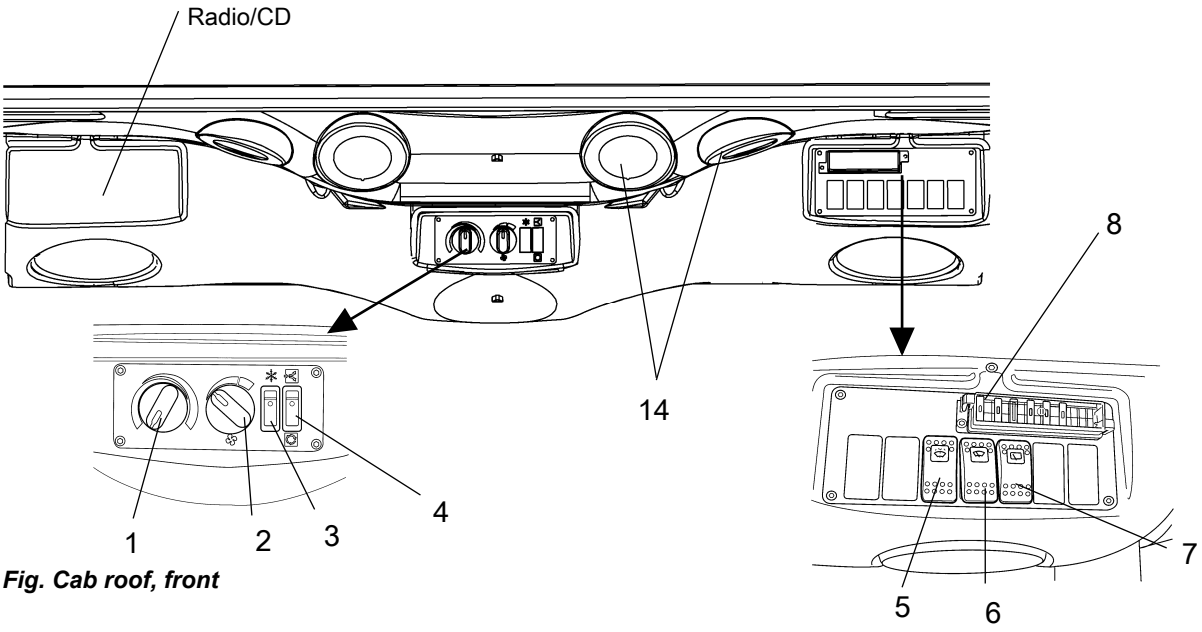


Fig. Cab roof, front

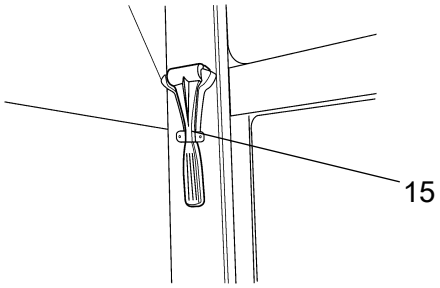
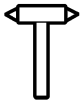


Fig. Right rear cab post

Function description of instruments and controls in the cab

No	Designation	Symbol	Function
1	Heater control		Turn to the right to increase heating. Turn to the left to reduce heating.
2	Ventilation fan, switch		In the left position, the fan is off. Turning the knob to the right increases the volume of air entering the cab.
3	Air conditioning, switch		Starts and stops the air conditioning.
4	Cab air recirculation, switch	 	Pressing the top opens the air damper so that fresh air comes into the cab. Pressing the bottom closes the damper so that the air recirculates inside the cab.
5	Front wiper, switch		Press to operate the front screen wiper.
6	Front and rear window screen washers, switch		Press the upper edge to activate the front screen washers. Press the lower edge to activate the rear screen washers.
7	Rear wiper, switch		Press to operate the rear screen wiper.
8	Fuse box		Contains fuses for the electrical system in the cab.
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.

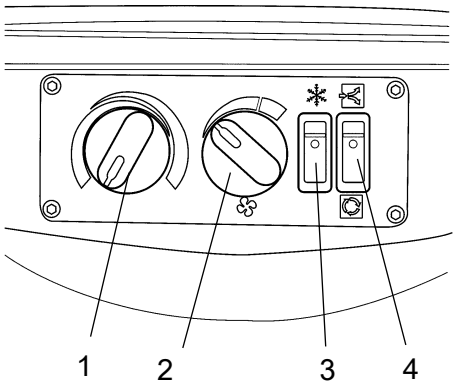
Using the cab controls.

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 (1 and 2) 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.

To quickly reduce the temperature in the cab, adjust the following settings on the control panel.

Turn on AC/ACC (3) and set the fresh air (4) in the lower position to switch off the fresh air valve.

Set the heater control (1) to minimum and turn up the fan speed (2). Keep only the front middle nozzles in the ceiling open.

When the temperature has dropped to a comfortable level, adjust the required temperature on the heater control (1) and reduce the fan speed (2).

Now open the remaining nozzles in the roof to achieve a comfortable temperature in the cab.

Reset the fresh air button (4) to the upper position for fresh air.

Electrical system (version 1)

The machine's main switchbox (1) is located on the rear of the operator platform. There is a plastic cover over the distribution box and fuses.

On the plastic cover there is a 24V socket.

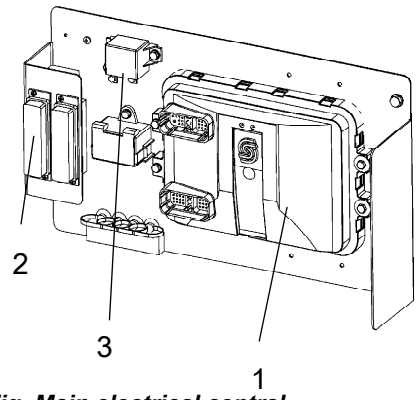
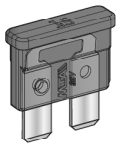


Fig. Main electrical central
1. Control unit (ECU)
2. Fuses
3. Main relay

Fuse boxes in main switchbox

The figure shows the position of the fuses.

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



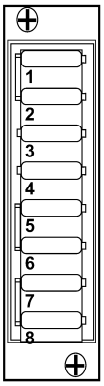


Fig. Fuse box

	Fuse box (F1)				
1.	Main relay (F1.1)	5A	5.	Power group 3, Main ECU (F1.5)	20A
2.	Supply, Main ECU, I/O unit, Display (F1.2)	5A	6.	Power group 4, Main ECU (F1.6)	20A
3.	Power group 1, Main ECU (F1.3)	10A	7.	24V outlet, Lighting for tachograph (F1.7)	10A
4.	Power group 2, Main ECU (F1.4)	10A	8.	Accessory ECU (F1.8)	20A
	Fuse box (F2)				
1.			5.		
2.	DCA Asphalt (F2.2)	10A	6.	Process lightning (F2.6)	15A
3.			7.	Driving lights (turn signals) (F2.7)	7.5A
4.			8.	Driving lights (main.) (F2.8)	10A

Electrical system (version 2)

The machine's main switchbox (1) is located on the rear of the operator platform. There is a plastic cover over the distribution box and fuses.

On the plastic cover there is a 24V socket and a 12V socket (optional).

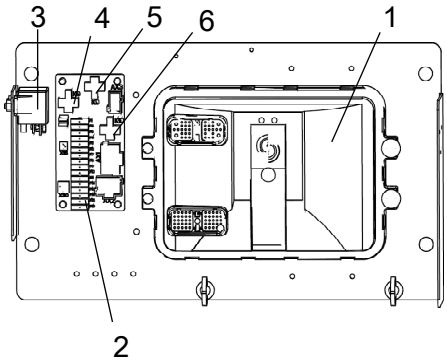


Fig. Main switchbox
1.Control unit (ECU) (A7)
2. Fuse card (A6)
3. Main relay (K2)
4. Relay, drum edge lights (K8)
5. Relay, direction indicators (K9)
6. Relay, driving lights (K10)

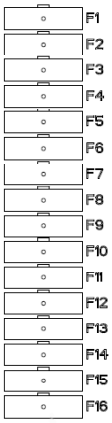
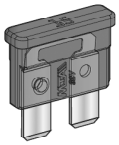


Fig. Fuse card.

Fuse card in main switchbox

The figure shows the position of the fuses.

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



	Fuse card (A6)				
F1	Main relay (K2), 24V outlet engine compartment(X97)	10A	F9	Sprinkler pump 1	10A
F2	Supply, Main ECU (A7), I/O unit (A12), Display (A13), Diagnostic socket engine (X22)*	5A	F10	Sprinkler pump 2	10A
F3	Power group 1, Main ECU, Power for frequency sensor	10A	F11	24/12V converter (12V socket cab)	10A
F4	Power group 2, Main ECU, Terminal 15, Control panel	10A	F12	GPS receiver (DCA) (A26)	5A
F5	Power group 3, Main ECU	20A	F13	Process lighting (Drum edge lighting)	15A
F6	Power group 4, Main ECU	20A	F14	DCA computer (PC) (A25)	10A
F7	24V outlet driver seat (X96), Lighting tachograph	10A	F15	Direction indicators	7.5A
F8	Power for speed sensor, Fuel pump (M13)*	10A	F16	Driving lights (Pos., Full/Dipped beam)	10A
*)	Only valid for CC224-384, CC2200-3800 with Deutz engine.				

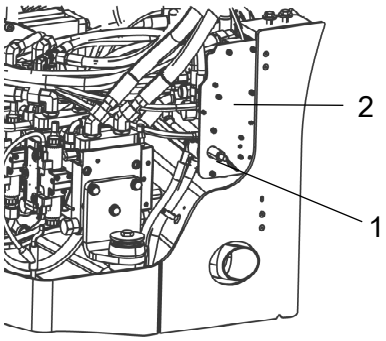


Fig. Battery bay
1. Master switch
2. Main fuse panel

Power in engine compartment/battery compartment

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

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 (Cummins)

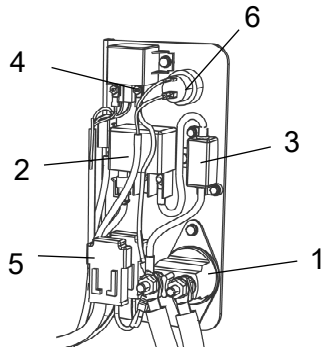


Fig. Main fuse panel
1. Master switch
2. Preheating relay (100A)
3. Fuse (F20) (125A)
4. Starter relay (50A)
5. Fuses (F13, F10, F11)
6. Power socket 24V

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

The fuses are placed in the order shown below, starting by the plate.

F13	Engine ECU	(30A)
F10	Main fuse	(50A)
F11	Cab	(50A)

Main fuse panel (Deutz)

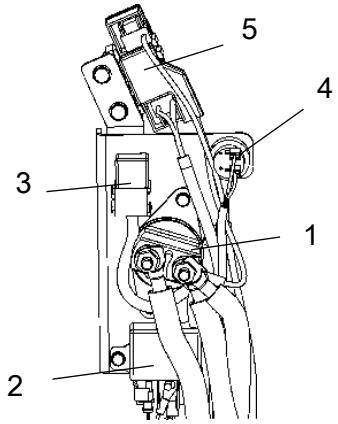


Fig. Main fuse panel
1. Master switch
2. Preheating relay (100A)
3. Starter relay
4. Power socket 24V
5. Fuse box (F4)

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

Fuse box at master switch (Deutz)

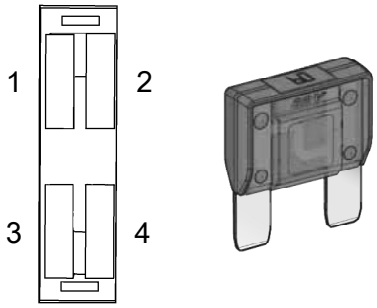


Fig. Fuse box, master switch

The figure shows the position of the fuses.

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

F4	Fuse box	
F4.1.	Main fuse	50A
F4.2.	Cab	50A
F4.3.	Preheating relay	100A
F4.4.	Diesel engine ECU	30A

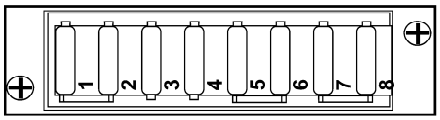


Fig. Cab roof fuse box (F7)

1.	Interior lighting	10A
2.	CD/Radio	10A
3.	AC condensor	15A
4.	Cab fan	15A
5.	Windscreen wiper/washers, front	10A
6.	Windscreen wiper/washers, rear	10A
7.	Dyn@lyzer	7.5A
8.	Reserve	

Fuses in cab

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

The figure shows fuse amperage and function.

All fuses are flat pin fuses.

Operation

Before starting

Master switch - Switching on

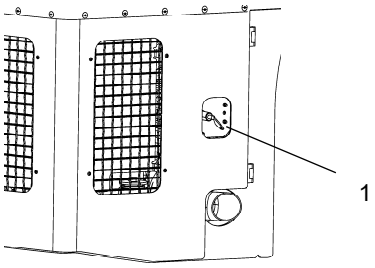


Figure. Engine door, left
1. Master switch

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.

Control panel, adjustments

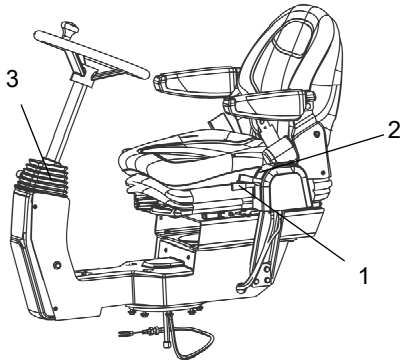


Fig. Operator position
1. Locking lever - transverse travel
2. Locking lever - rotation
3. Locking lever - steering column angle

The control unit has three adjustment options, transverse travel, rotation and steering column angle.

For transverse travel, raise the inner lever (1), which releases the catch.

For rotation, lift the outer lever (2).
Ensure that the control unit locks in position before operating the machine.

Release locking lever (3) to adjust the steering column. Lock 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.

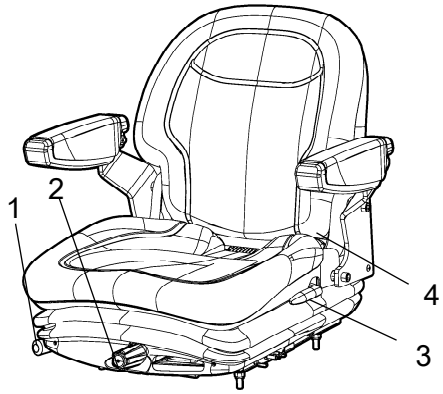


Fig. Operator's seat
1. Lock pack- Length adjustment
2. Weight adjustment
3. Back support angle
4. Seat belt

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).

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.

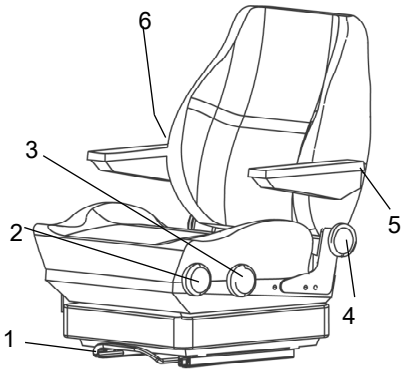


Fig. Operator's seat
1. Lever - length adjustment
2. Wheel - height adjustment
3. Wheel - seat cushion inclination
4. Wheel - backrest inclination
5. Wheel - armrest inclination
6. Wheel - lumbar support adjustment

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.

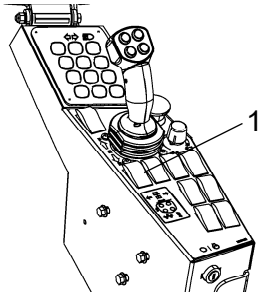


Fig. Control panel
1. Parking brake

Parking brake

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

Brake is always activated in Neutral. (automatic 2 sec.)

The parking brake must be activated to start the machine!

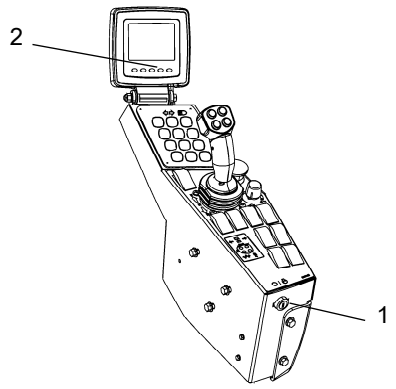


Fig. Control panel
1. Ignition key
2. Status screen

Display - Control

Sit down for all operations.

Turn the ignition key (1) to position I, the start screen will be shown in display.

Fig. Status screen
3. Fuel level
4. Water level
5. Hour meter
6. Voltmeter

Check that the voltmeter (6) shows at least 24 volts and the levels for fuel (3) and water (4) indicates a percentage value.

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

Interlock

The roller is equipped with Interlock.

The diesel engine with switch off after 7 seconds if the operator gets off the seat when going forwards/backwards.

If the control is in neutral when the operator stands up a buzzer will go on until 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.

The diesel engine will switch off immediately if for any reason the forward/reverse lever is moved out of neutral when the operator is not sitting down and the parking brake has not been activated.

Sit down for all operations!

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.

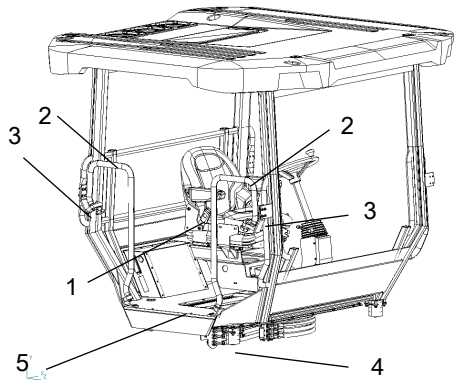


Fig. Operator position
1. Seat belt
2. Safety railing
3. Locking knob
4. Rubber element
5. Anti-slip

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.

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.

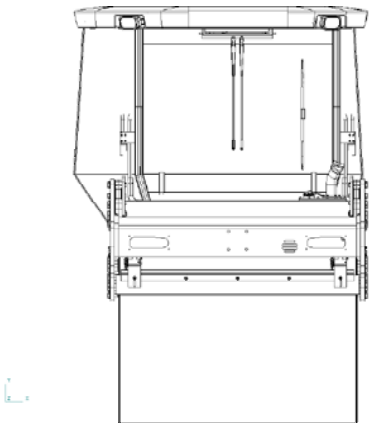


Fig. View

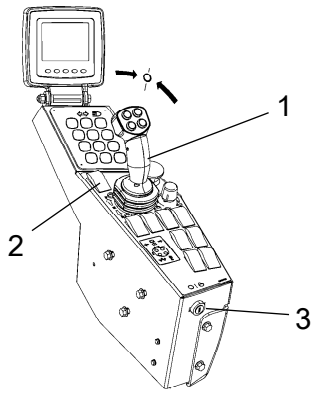


Fig. Control panel
1. F/R lever
2. Rpm switch
3. Ignition key

Starting

Starting the engine

Make sure that the emergency stop is OFF and the parking brake ON.

Set the forward/reverse lever (1) in neutral position, and set the speed selector (2) in the idling position (LO) or (ECO) if that option is installed on the machine.

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

Turn the ignition key (3) right to position I and wait for the grid heater symbol to disappear from the display. Then engage the starter by turning it full right. Release back to I as soon as the engine starts.

While preheating of diesel engine is running the symbol grid heater is shown in the center of the display.

Do not run the starter motor for too long (max. 30 seconds). If the engine will not start, wait a minute before trying again.

At the start of the diesel engine when the ambient temperature is below +10 ° C (50 ° F), it must be warmed up at idle (low speed) until the hydraulic oil temperature exceeds +10 ° C (50 ° F).

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

Figure. Display - Status image

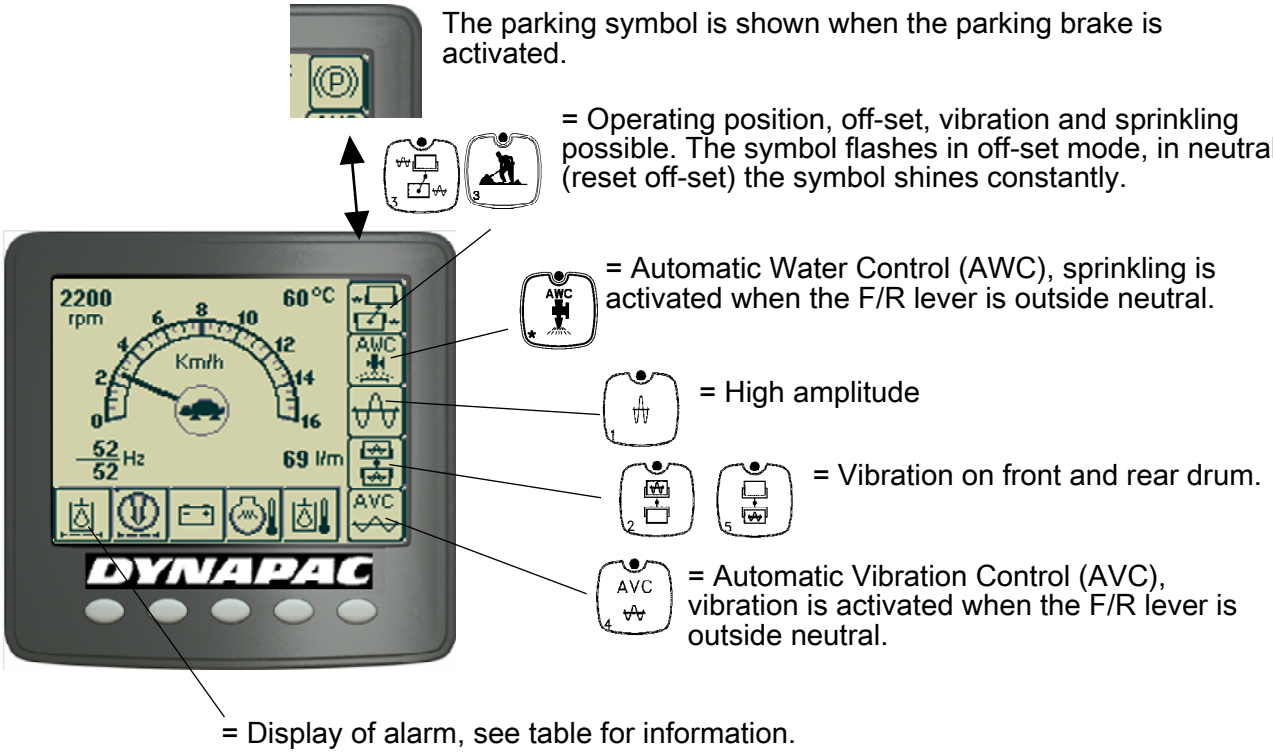
Check during warming up of the engine that fuel and water levels are shown correctly and that the voltage is at least 24V.

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.

Display when activating choice via the button set.



Alarm descriptions

Symbol	Designation	Function
	Warning lamp, hydraulic filter	If the lamp comes on while the engine is running at full speed, the hydraulic filter must be changed.
	Warning lamp, air filter	If the lamp comes on while the engine is running at full speed, the air filter must be cleaned or replaced.
	Warning lamp, battery charging	If the lamp comes on while the engine is running, the alternator is not charging. Stop the engine and locate the fault.
	Warning light, engine temperature	If the lamp comes on, the engine is too hot. Stop the engine immediately and locate the fault. Refer also to the engine manual.
	Warning lamp, hydraulic fluid temperature	If the lamp comes on, the hydraulic fluid is too hot. Do not drive the roller. Cool the fluid by allowing the engine to idle and locate the fault.

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.

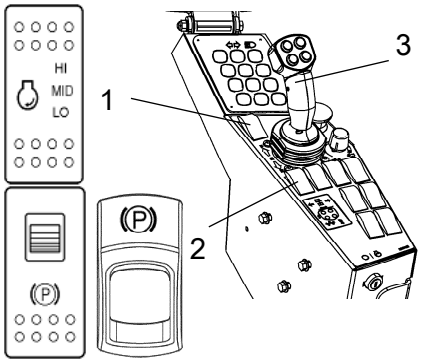


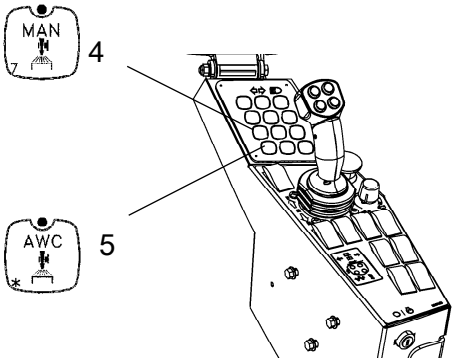
Fig. Control panel
1. Rpm switch
2. Parking brake
3. Forward/Reverse lever

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.



4. Manual sprinkling
5. Auto sprinkling (AWC)

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).

The watering of the combination wheels can be activated from the emulsion tank.

Push and hold pressed the button for the wheel sprinklers to water the tires.

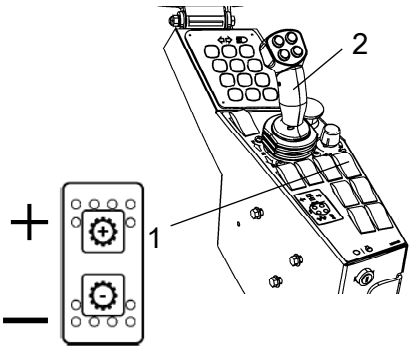


Fig. Control panel
1. Gear position switch
2. Forward/Reverse lever

Machine with gear change in separate spring-return switch (gear position switch)

Switch (1) is a spring-return gear position switch, where gear changing take place by stepping through the three different gear positions: Position 1, Position 2 and Position 3.

- Position 1: Used for maximum hill-climbing capacity during vibratory compaction
- Position 2: Normal position
- Position 3: Used for maximum transport speed or for high speed during smooth rolling without vibration

Fig. The display shows the selection in the middle (position 1, 2 or 3)

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

The machine does not need to be stopped to change gear position.

		Max. speed	
	= Position 1	6 km/h	3.8 mph
	= Position 2	8 km/h	5 mph
	= Position 3	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.

Combi machines

Inspect the tire treads from time to time to ensure no asphalt has stuck to the tires. This can occur before the tires are sufficiently warm. Mixing 2-4% cutting fluid to the tire sprinkler water can prevent this problem.

Pivotal steering (Optional)

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

To reset the rear drum to neutral, adjust the buttons (1) until the display (2) shows that the machine has aligned the drums.

The symbol for Work mode shines continuously in neutral (drums in line)

If fault indication on the display is shown or if the buzzer sounds, stop immediately the roller in a safe place and shut off the Diesel engine. Check the cause for failure and remedy, see also maintenance manual, trouble shooting guide or engine manual.

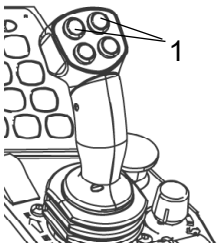


Fig. F/R lever
1. Offset steering

Figure. Display

Burnout of DPF-filter (Regeneration) - (stage V)

The machine is equipped with a diesel particle filter (DPF filter), and the engine performs an automatic burnout of soot and ash if necessary.

The burnout is performed after 6-10 hours of operation, depending on the operating mode.

When burnout starts, the yellow warning indication (1) lights continuously and then goes out after 2 min.

The burnout of the DPF filter lasts for approx. 30 minutes, and the machine can be operated as normal or be allowed to idle during this time.

An image indicating high exhaust temperature (3) is displayed when burnout starts (pop-up), and goes out after 10 seconds. An indication (3) in the display's status field is shown throughout the period when the engine is performing burnout.

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

Selection for delaying burnout is in the menu "Machine settings - EAT cleaning" on the display and delays filter burnout for 20 minutes.

An image indicating delayed burnout (4) is now instead shown in the display picture.

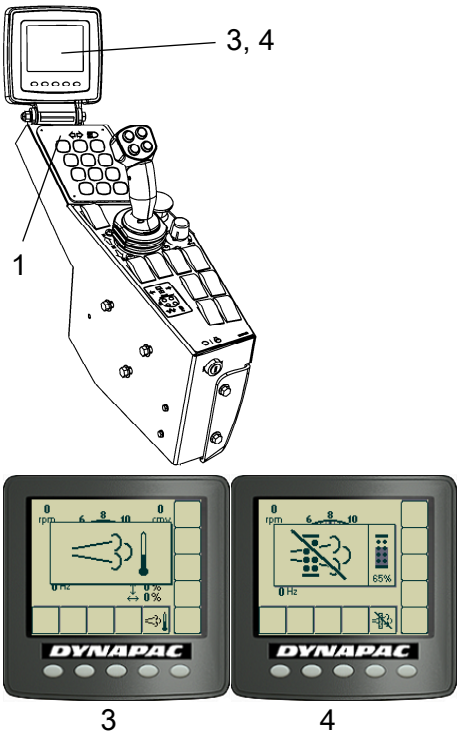
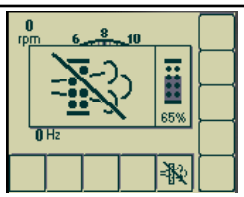
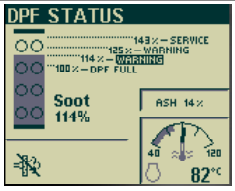
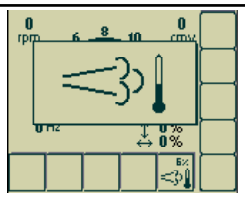
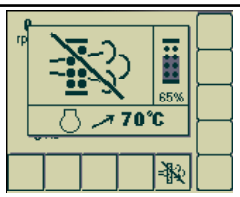
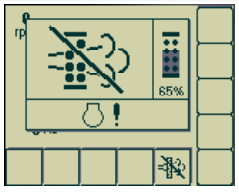
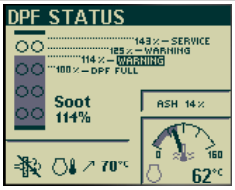
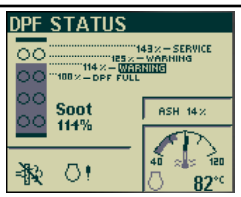
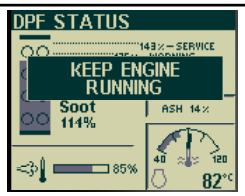
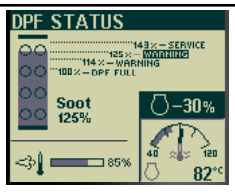


Fig. Control panel
1. Lamp
3. High exhaust temperature
4. Delayed burnout

DPF displays

Display symbol	Sound	Soot level	Comment	"Yellow warning"
	Beep	<100%	Delayed burnout selected, to delay burnout by 20 min. Deactivated automatically when the machine is restarted.	-
		100% - <114%		0.5Hz
		>100%	This view appears after an active selection in the display screen.	

Display symbol	Sound	Soot level	Comment	"Yellow warning"
	Beep	>=100%	Normal burnout is taking place; if possible do not turn off the machine until burnout is complete, approx. 25 min. or 100% reached.	Flashes for a few seconds, then lights continuously for 2 min.
	Long beep	>100%	Burnout delayed due to low engine temperature. The temperature of the engine must be above 70°C before burnout can start.	0.5Hz
			Burnout delayed due to other engine fault.	
	Long beep	>=114%	One of the stipulated requirements is not satisfied and burnout is delayed. Engine temperature below 70°C.	1Hz
			Other engine fault	
		>=114%	"Keep engine running" is displayed if burnout is in progress or if there is a delay due to low engine temperature or other engine fault. **Allow the engine to run until burnout is complete.**	
	Buzzer	>125%	The engine's output is reduced by 30% and vibration may stop working. **Allow the engine to run until burnout is complete.**	1Hz
		>143%	"Red warning" flashes on the panel. The engine's output is reduced by 30% and max. 1200 rpm. **DEUTZ service must be contacted**	1Hz
		>214%	"Red warning" flashes on the panel. The engine's output is reduced by 30% and max. 1200 rpm. **DEUTZ service must be contacted** **Burnout not possible, as DPF must be replaced.**	1Hz

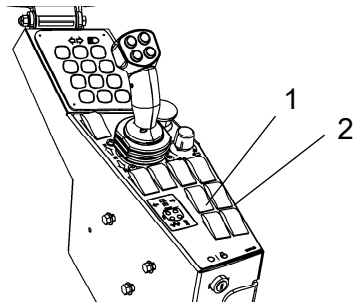


Figure. Switch
1. Edge cutter/compactor Up/Down
2. Sprinkler, edge cutter/compactor

Edge cutting (Optional)

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

When the machine is in the operating position and the switch (1) is pressed at the bottom, the edge cutter/compactor is lowered to the asphalt surface by means of a hydraulic cylinder. To reset the edge cutter/compactor in its original position, press the top of the switch to lift the edge cutter/compactor.

The edge cutter/compactor can also be lifted if the machine is in transport position.

A bypass valve prevents the hydraulic system being overloaded.

There is a separate sprinkler system which the operator should use to avoid asphalt sticking to the edge cutter/compactor. The system is operated with a switch (2). The water is drawn from the main water tank, which is also used for the normal sprinkler system.

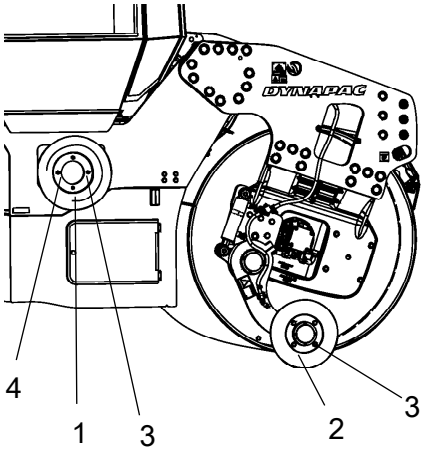


Fig. Changing the tool
1. Edge compactor
2. Edge cutter
3. Bolted joint
4. Holder for cutter/compactor wheel

The operator can choose between two tools, the edge cutter or edge compactor. The edge cutter (1) in the figure is shown in the operating position. The edge compactor (1) can easily be replaced with the edge cutter by releasing the bolted joint (3).

Vibration

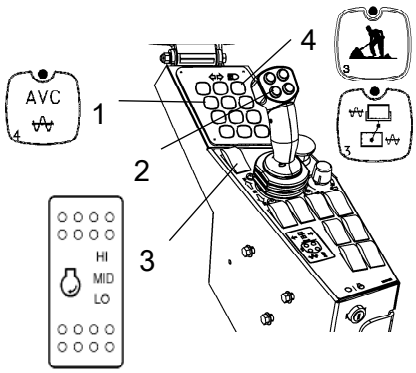


Fig. Control panel
1. Automatic vibration control (AVC)
2. Switch, vibration On/Off
3. Rpm switch
4. Working mode

Manual/Automatic vibration

Activate the button for the Working mode (4).

Manual or automatic vibration activation/deactivation is selected using button (1).

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

In automatic mode (AVC), vibration is activated when the speed is ≥ x km/h (... mph) and turns off at a speed of x km/h (...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.

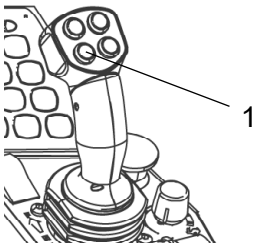


Fig. F/R lever
1. Vibration ON/OFF

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 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.

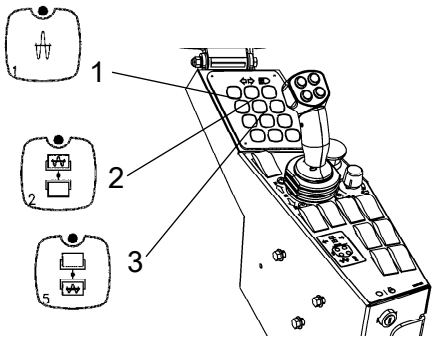


Fig. Control panel
1. High amplitude
2. Vibration fron drum
3. Vibration rear drum

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.

Braking

Normal braking

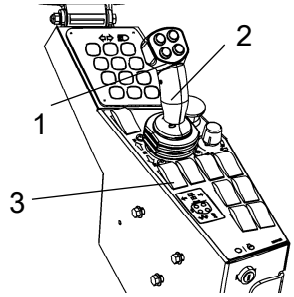


Fig. Control panel
1. Vibration On/Off switch
2. Forward/Reverse lever
3. Parking brake

Press the switch (1) to switch off the vibration.

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.

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.

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.

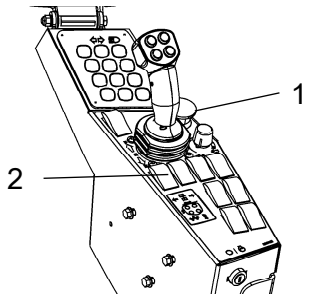


Fig. Control panel
1. Emergency stop
2. Parking brake

Emergency braking

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

A disc brake in each drum motor/drum gear and the rear axle also acts a secondary brake when in motion, and as a parking brake when stationary. Activated with the parking brake (2).

For emergency braking, press the emergency stop (1), hold the steering wheel firmly and be prepared for a sudden stop. The engine stops.

The Diesel engine will stop and must be restarted.

After emergency braking, return the forward/reverse lever to neutral and deactivate the emergency stop.

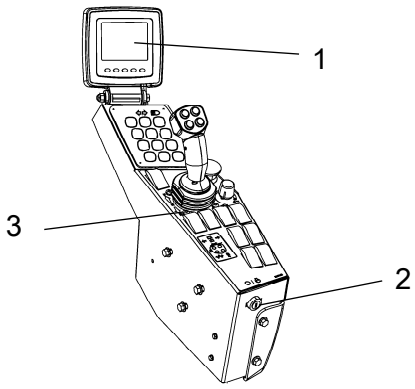


Fig. Control panel
1. Display
2. Ignition lock
3. Parking brake

Switching off

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

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 disembark from the machine when the diesel engine is running, unless the parking brake is activated.

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

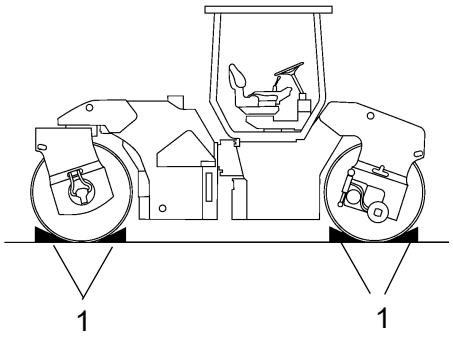


Fig. Positioning
1. Chocks

Keep in mind that there is a risk of freezing during the winter. 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.

Master switch

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

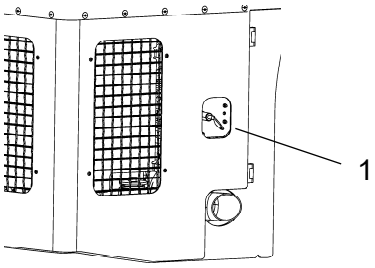


Figure. Engine door, left
1. Master switch

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

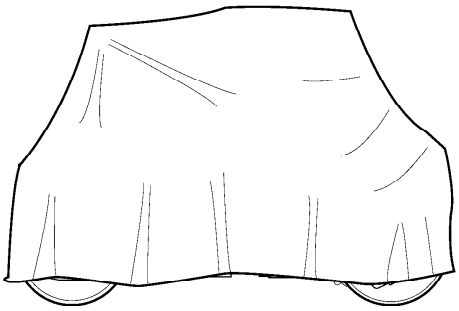


Fig. Roller weather protection

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

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.’)

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.

Steering cylinder, hinges, etc.

Grease the steering cylinder piston with conservation grease.

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

Miscellaneous

Lifting

Locking the articulation

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

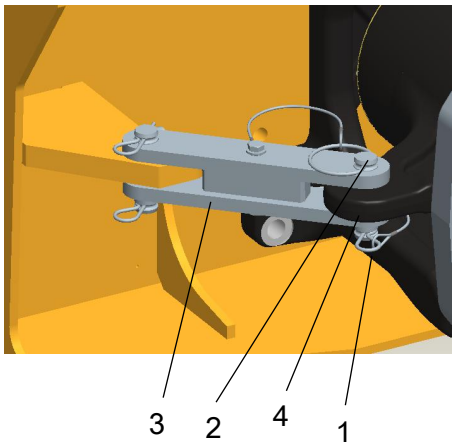


Fig. Articulation in the locked position
1. Locking pin
2. Locking dowel
3. Locking arm
4. Locking lug

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

Pull out the lowermost locking pin (1), which has a a wire attached. Pull up the locking dowel (2) which also has a wire attached.

Fold out the locking arm (3) and secure it to the upper locking lug (4) on the articulated link.

Fit the locking dowel into the holes through the locking arm and locking lug. Lock the dowel in position with the locking pin (1).

Lifting the roller

Weight: refer to the hoisting plate on the roller

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

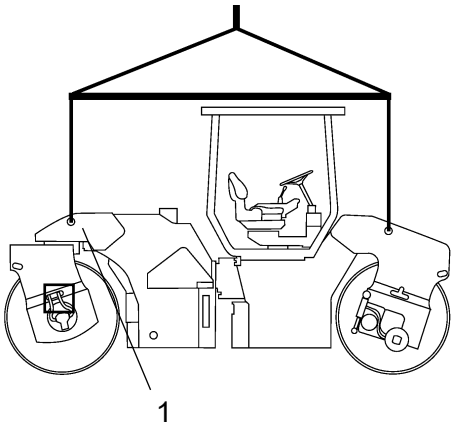


Fig. Roller prepared for lifting
1. Hoisting plate

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

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

Weight: refer to the hoisting plate on the roller

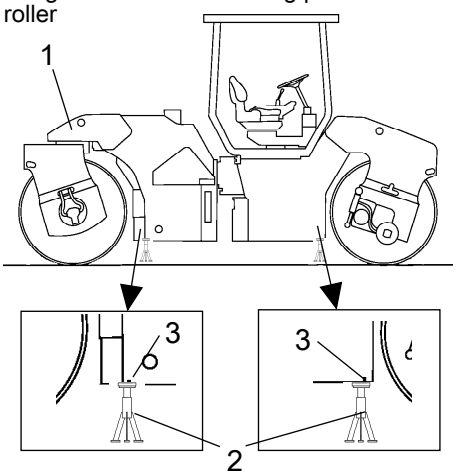


Figure. Roller lifted with jack
1. Lifting plate
2. Jack
3. Marking

Lifting the roller with jack:

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

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

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 unlock the articulation before operating.

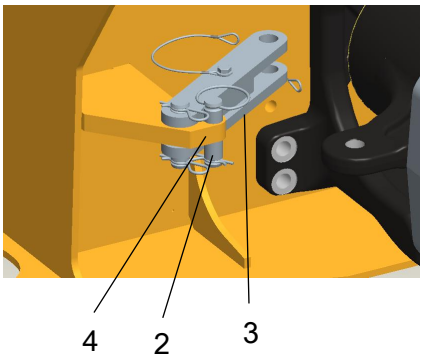


Fig. Articulation in the unlocked position
2. Locking dowel
3. Locking arm
4. Locking lug

Pull out the lowermost locking pin (1), which has a a wire attached. Pull up the locking dowel (2) which also has a wire attached.

Fold the locking arm (3) back and secure it in the locking lug (4) with the locking dowel (2).

The locking lug is located on the front frame of the machine.

Towing/Recovering

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

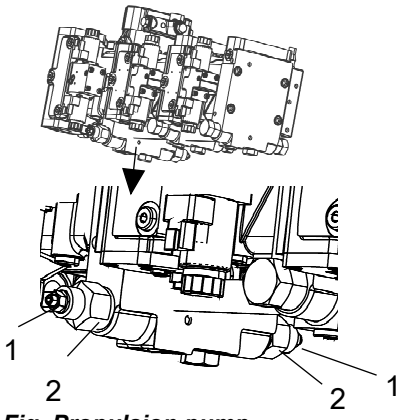


Fig. Propulsion pump
1. Towing valve
2. Bypass valve

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

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.

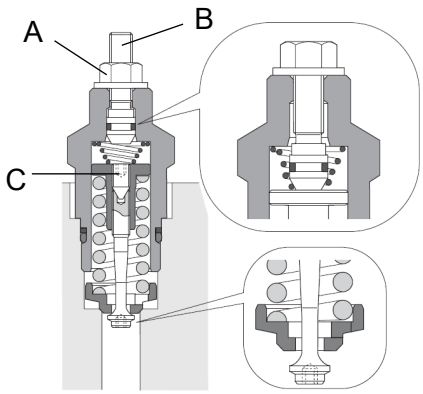


Figure. Towing valve

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).

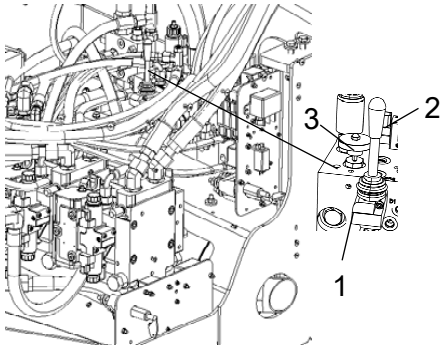


Fig. Brake disengagement valve
1. Valve
2. Pump arm
3. Knob

Short distance towing when the engine is inoperative.

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

Open both towing valves as described earlier.

The brake disengagement pump is located behind the left door of the engine compartment.

Make sure that the valve (1) is closed, this is done by tightening clockwise with the knob (3). Pump with the pump arm (2) until the brakes are disengaged.

Ensure that the valve is reset into open position after finished towing. This is done by turning the knob counter clockwise to full extracted position.

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).

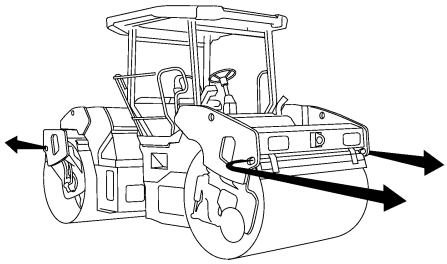


Fig. Towing

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.

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
CC224-384, CC2200-3800	140	31 500
CC424-624, CC4200-6200	190	42 750

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

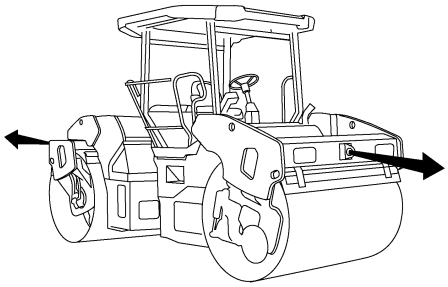


Fig. Trailer eye

Trailer eye

The roller can be fitted with a trailer eye.

The trailer eye is not designed to be used for towing/recovering. It is designed for trailers and other towed objects weighing no more than 2 600 kg (5 750 lbs).

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.

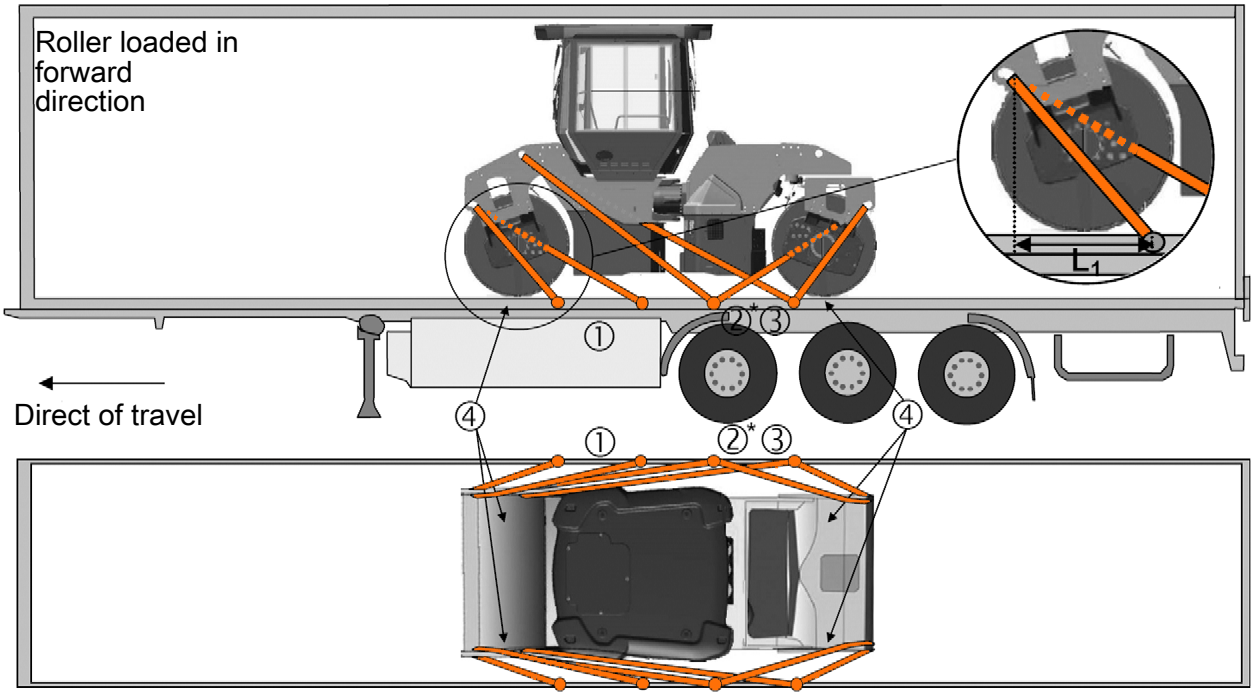
Before securing the machine ensure that :

- 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 CC224-624, CC2200-6200

Securing vibratory roller CC224-624, CC2200-6200 from Dynapac for transport.

(The instructions also apply to Combi machines)



*) Lashing 2 to be moved to a rear lashing point if side beam on the trailer is missing.
1 - 3 = double lashings, i.e. one lashing with two parts secured to two different lashing mounts, symmetrically located on the right and left sides.
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
0,9 - 2,5	0,8 - 2,5	0,1 - 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. The relationship for lashings **L_2** and **L_3** 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. Note that lashing 2 may be moved to a rear lashing point if side beam on the trailer is missing.
- 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

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

2. Make sure that all instructions in the MAINTENANCE section are followed and the steering hitch lock is unlocked.

3. Turn the master switch to the ON position.

4. Move the forward/reverse lever to the NEUTRAL position. Sit down in the seat.

5. Engage the parking brake.

6. Disengage the emergency stop. The roller is always starting in transportation mode.

7. Set the rpm switch in position idle (LO).

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

9. Set the rpm switch in position working speed (HI) or (ECO).

10. Disengage the parking brake.

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

12. **Test the brakes. Remember that the braking distance will be longer if the hydraulic fluid is cold.**

13. Set the transportation/working mode button in position working mode.

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

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

16. **IN AN EMERGENCY:**
    - Press the EMERGENCY STOP.
    - Hold the steering wheel firmly.
    - Brace yourself for a sudden stop.

17. When parking:
    - Activate the parking brake.
    - Switch off the engine and block the drums if the roller is on an inclined surface.

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

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

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

21. 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 stiplulated delivery inspection and the separate service inspection have been completed as per the warranty document, and when the machine has been registered for starting under the warranty.

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

Maintenance - Lubricants and symbols

Fluid volumes

Drum		
- Drum CC224CHF/CC2200C	13 liters	13.7 qts
- Drum CC324CHF/CC3200C	14 liters	14.8 qts
- Drum gear	0,8 liters	0.85 qts
Wheels		
- Wheel gear (x2)	0,8 (x2) liters	0.85 (x2) qts
Hydraulic reservoir	40 liters	42 qts
Diesel engine, Cummins		
- oil	7 liters	7.4 qts
- coolant, without cab	18,6 liters	19.7 qts
- coolant, with cab	20,1 liters	21.2 qts
Diesel engine, Deutz		
- oil	8 liters	8.5 qts
- coolant, without cab	18,9 liters	20.0 qts
- coolant, with cab	20,1 liters	21.2 qts

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 liters), P/N 4812161869 (209 liters)
	Air temperature over +40°C (104°F)	Shell Tellus S2 V100	

Bio-Hydr. BIOLOGICAL HYDRAULIC FLUID, PANOLIN	Air temperature -10°C - +35°C (14°F-95°F) When it leaves the factory, the machine may be filled with biologically degradable fluid. The same type of fluid must be used when changing or topping up.	PANOLIN HLP Synth 46 (www.panolin.com)	
DRUM OIL	Air temperature -15°C - +40°C (5°F-104°F)	**Dynapac 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.	-	-
TRANSMISSION OIL	Air temperature -15°C - +40°C (5°F-104°F)	**Dynapac Gear oil 300**	P/N 4812161883 (5 liters), P/N 4812161884 (20 liters)
	Air temperature 0°C (32°F) - above +40°C (104°F)	Shell Spirax S3 AX 85W/140, API GL-5	
COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	**Dynapac coolant 100** (mixed 50/50 with water)	P/N 4812161854 (20 liters)

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

Maintenance - Maintenance schedule

Service and maintenance points

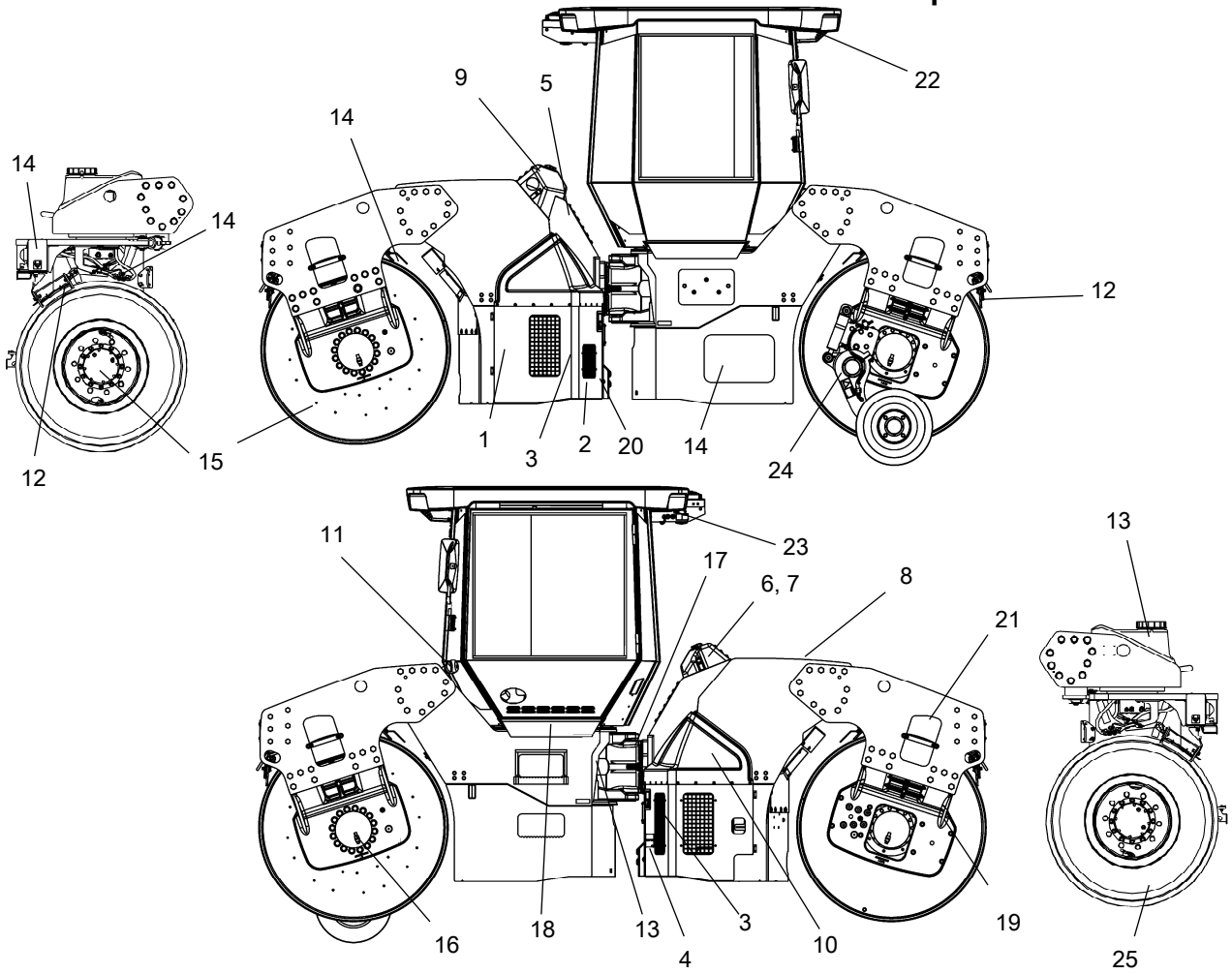


Fig. Service and maintenance points

1. Engine oil
2. Oil filter
3. Fuel filter
4. Hydraulic filter
5. Hydraulic fluid level
6. Hydraulic fluid, filling
7. Hydraulic tank cap
8. Hydraulic fluid cooler
9. Coolant
10. Air cleaner
11. Refueling point
12. Scrapers
13. Water tank(s), filling
14. Watering system
15. Drum gear/Wheel gear
16. Drum oil
17. Steering joint
18. Seat bearing
19. Rubber element
20. Battery
21. Pivot bearing
22. Cab, air filter
23. Cab, AC
24. Edge cutter
25. Wheel

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.

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	
14	Emergency watering (Extra pump in pump system)	
12	Check the scraper setting	
14	Check the sprinkler system - tires	
12	Check the scraper setting - tires	

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.
15	Change oil in the drum gear boxes	Refer to 1000h.
15	Change oil in the wheel gear boxes	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
15	Check the oil level in the drum gears	
3	Draining the fuel prefilter	
	Check that hoses and connections are tight	

Every 250 hours of operation (Monthly)

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

Pos. in fig	Action	Comment
1,2	Change the engine oil and oil filter *	Refer to the engine manual *) only for Cummins
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

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

Pos. in fig	Action	Comment
1,2	Change the diesel engine oil and oil filter **, ***	See the engine's instruction manual **) only for Deutz ***) 500 h or once every 6 months
3	Replace fuel filter *	Refer to the engine manual *) only for Cummins
3	Replace fuel prefilter *	*) only for Cummins
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	
16	Check the oil level in the drums	
19	Check rubber elements and bolted joints	
18	Grease the chair bearing	
22,23	Check the AC	Optional
21	Lubricate the pivot bearings	Optional

Every 1000 hours of operation

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

Pos. in fig	Action	Comment
3	Change the diesel engine oil and oil filter **,***	Refer to the engine manual **) Deutz, 500h or once every 6 months ***) Cummins, 1000h or once every year
3	Replace fuel filter	
3	Replace fuel prefilter (filter insert*)	*) Deutz
3	Replace engine V-belt *	*) only for Deutz
	Check engine valve clearances	Refer to the engine manual
	Check the engine belt drive system	Refer to the engine manual
8	Clean the hydraulic fluid cooler/water cooler	Or when necessary
10	Check the filter elements in the air cleaner	Replace when necessary
20	Check the condition of the batteries	
4	Change the hydraulic fluid filter	
7	Check the hydraulic reservoir cover/breather	
16	Change the oil in the drums	
15	Change the oil in the drum gear boxes	
15	Change the oil in the wheel gear boxes	
19	Check the rubber elements and bolted joints	
18	Grease the chair bearing	
22	Replace the air cleaner filter in the cab	
22,23	Check the air condition	

Every 2000 hours of operation

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

Pos. in fig	Action	Comment
3	Change the diesel engine oil and oil filter **,***	Refer to the engine manual **) Deutz, 500h or once every 6 months ***) Cummins, 1000h or once a year
3	Replace fuel filter	
3	Replace fuel filter (filter insert*)	*) Deutz
3	Replace engine V-belt *	*) only for Deutz
	Check engine valve clearances	Refer to the engine manual
	Check the engine belt drive system	Refer to the engine manual
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	
4	Change the hydraulic fluid filter	
7	Check the hydraulic reservoir cover/breather	
6	Change the hydraulic fluid	
16	Change the oil in the drums	
15	Change the oil in the drum gear boxes	
15	Change the oil in the wheel gear boxes	
19	Check the rubber elements and bolted joints	
18	Grease the chair bearing	
22	Replace the air cleaner filter in the cab	
23	Overhaul the air conditioning	
21	Lubricate the pivot bearing	Offset drum

Maintenance, 10h

Every 10 hours of operation (Daily)

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

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

Diesel engine - Check oil level

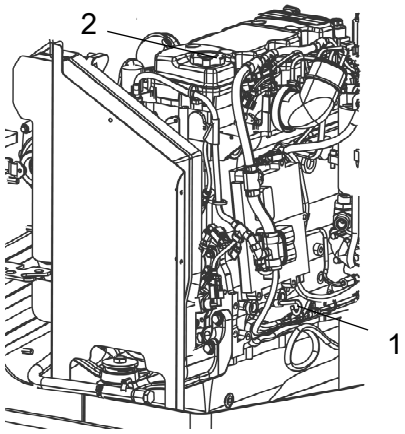


Fig. Engine compartment
1. Dipstick
2. Oil filler cap

The dipstick is accessed through the right door of the engine compartment.

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.

Coolant level - Check

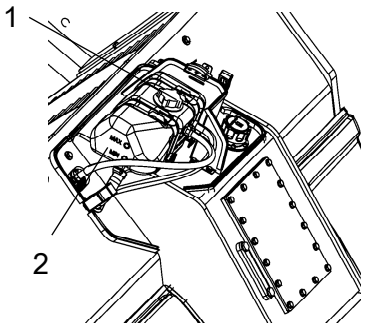


Fig. Expansion tank
1. Filler cap
2. Level marks

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

Observe great caution if the cap has to be opened while the engine is hot. Wear protective gloves and goggles.

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

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

Fuel tank - Refueling

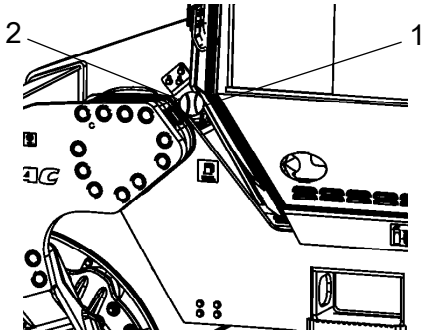


Fig. Fuel tank
1. Tank cap
2. Filler pipe

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

The filler pipe and tank cap are on the left side of the front frame.

Refuel the tank every day before starting work, or fill the tank at end of work. Unscrew the lockable tank cap (1) and fill fuel up to the lower edge of the filler pipe.

The tank holds 130 liters (34 gal) of fuel. Refer to the engine manual for information on diesel grade.

Water tank, Std - Filling

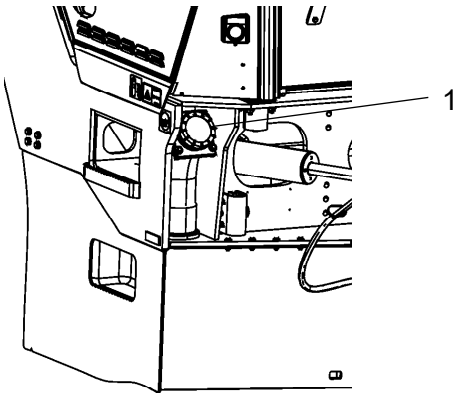


Figure. Standard water tank
1. Tank cap

The filler cap is on the rear left side of the front frame.

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

Fill the central (standard) tank, it holds 750 liters (198 gal).

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

Hydraulic reservoir - Check fluid level

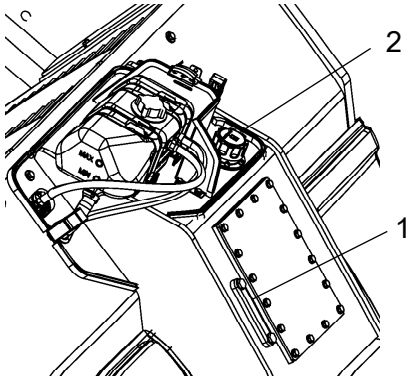


Figure. Hydraulic reservoir
1. Oil sight glass
2. Filler cap

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. Top up with the type of hydraulic fluid specified in the lubricant specification, if the level is too low.

Sprinkler system/Drum
Check

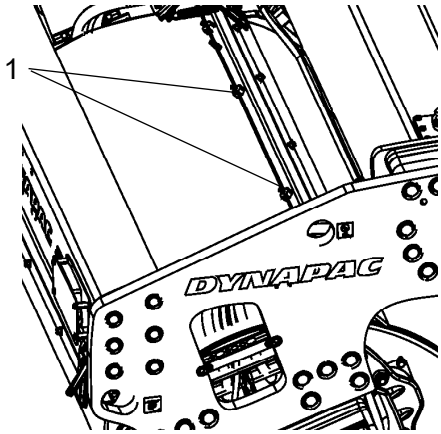


Figure. Front drum
1. Nozzle

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.

Newer machines can have sprinkler systems with dual sprinkler pipes and sprinkler pumps as standard.

Cleaning the coarse filter

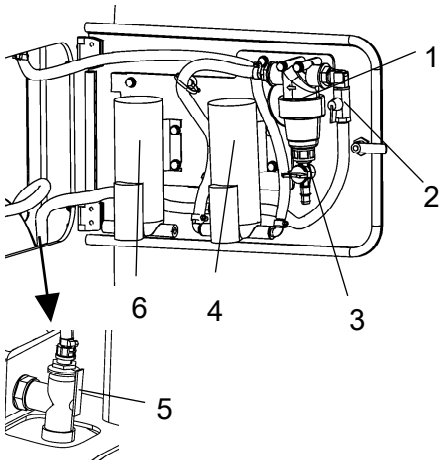


Figure. Pump system, front frame right side
1. Coarse filter
2. Stop cock
3. Drain cock kran, filter
4. Water pump
5. Drain cock
6. Extra pump (optional)

To clean the coarse filter (1) open the drain cock (3) on the filter and allow any dirt to run out.

If necessary close the cock (2) and 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.

There is a drain cock (5) in the space for the pump system. This can be used to drain the tank and the pump system.

An extra pump (6) can be installed in case the standard water pump stops working. See section for emergency watering.

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

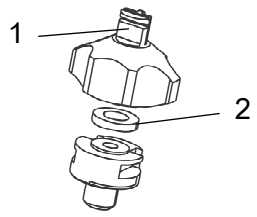


Figure. Nozzle
1. Sleeve, nozzle, filter
2. Packing

Sprinkler system/Drum
Cleaning of sprinkler nozzle

Dismantle the blocked nozzle by hand.

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

Nozzle	Colour	Ø (mm)	l/min (2.0 bar)	gal/min (40 psi)
Standard	yellow	0.8	0.63	0.20
Option	blue	1.0	1.00	0.31
Option	red	1.2	1.25	0.39
Option	brown	1.3	1.63	0.50

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

Wear protective goggles when working with compressed air.

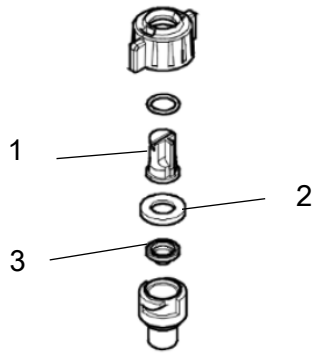


Figure. Nozzle
1. Nozzle
2. Gasket
3. Filter

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.

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.

Wear protective goggles when working with compressed air.

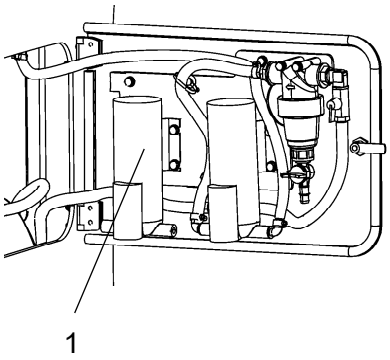


Figure. Panel on right side of front frame
1. Extra pump

Emergency watering (Accessory) - Extra pump in pump system

If the water pump stops, an extra pump will keep the sprinkler system in operation.

Connect the electric cable and water hoses to the extra pump instead of the standard pump.

The water hoses are connected to the pump with quick couplings to simplify draining and where appropriate replacement to a reserve pump (option).

Newer machines can have sprinkler systems with dual sprinkler pipes and sprinkler pumps as standard.

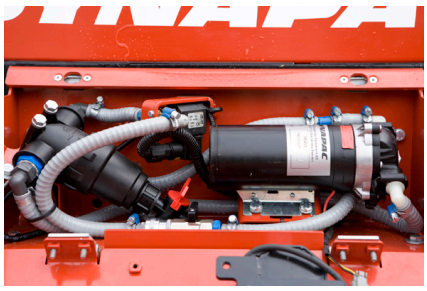
Fig. Wheel rack
1. Rear water tank
2. Sprinkler nozzle
3. Sprinkler system

Sprinkler system/Wheels - Freeze risk

Preventive measures when there is a risk of freezing.

Draining the system.

- Close the valve
- Separate the hose
- Open the coarse filter
- Loosen the intake to the pump by moving the plastic clamp to the left and pulling the white plastic adapter from the pump housing.
- Open the valves in the ends of the sprinkler ramps.
- Allow the fluid to run out and run the sprinkler pump for about 10 seconds.



The tank can be drained by opening the valve by the divider hose.

Freeze protection

Freeze protection can also be achieved by connecting a separate container, after dividing the hose, with water mixed with glycol and running approx. 2 liters in the system.

Fig. Wheel rack
1. Rear water tank
2. Sprinkler nozzle

Sprinkler system/Wheels - Check

Fill the rear tank with emulsion fluid, e.g. water mixed with 2% cutting fluid. Check that the sprinkler nozzles (2) are not blocked, and if necessary clean them and the filter. See under Sprinkler system/Drum; Check - Cleaning, for detailed instructions.

Inspect the tire treads from time to time to ensure that no asphalt has stuck to the tires. This can happen before the tires have warmed up.

Fluids that are flammable or detrimental to the environment must not be used in the emulsion tank.

The footstep is accessible when the cover is folded down.

The footstep is folded out by lifting it up and then pulling it out.

To close the cover the footstep must be folded back.

The foot step should not be used while operating, is only for usage on a non-operative machine.

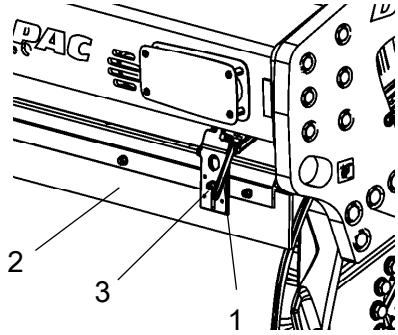


Figure. Outer scrapers
1. Release arm
2. Scraper blade
3. Adjusting screw

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.

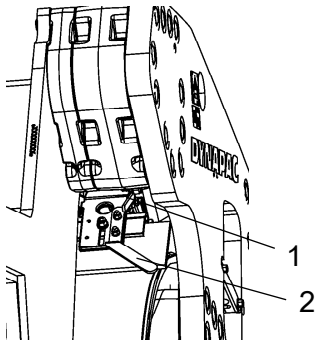
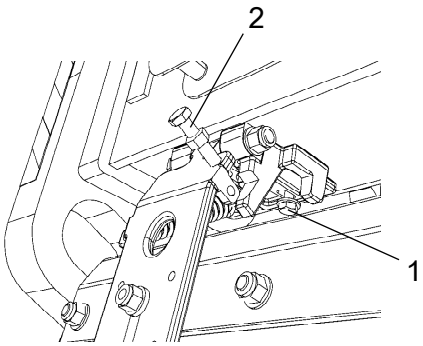


Figure. Inner scrapers
1. Release arm
2. Lifting handle

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

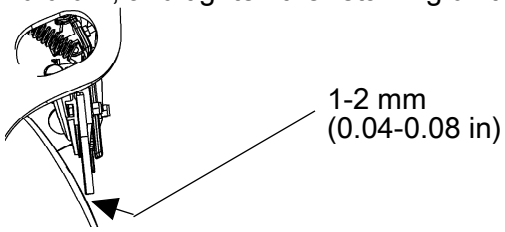


Release the retaining unit (1) for the scraper bracket and unscrew the adjusting screw (2) to release.

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).



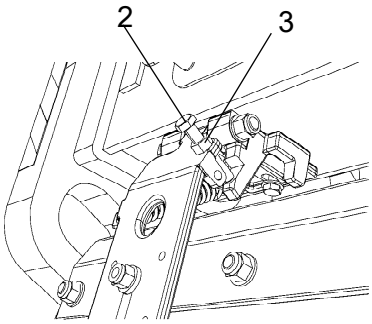


Figure. Scraper setting
1. Retaining unit
2. Adjusting screw
3. Lock nut

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).

Wheel scrapers
Control - Adjustment

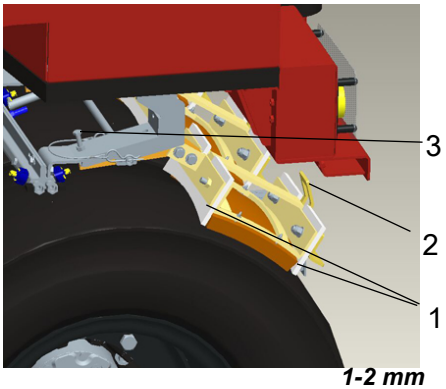


Fig. Wheel scrapers
1. Scraper blades
2. Locking hook
3. Adjusting screw

Make sure that the scrapers are undamaged. Adjust the scrapers so that they are 1-2 mm from the tires. For special asphalt compounds it can be better if the scraper blades (1) are only in light contact with the tires. The contact is adjusted with the screw on the back of the scraper bracket.

Fig. Wheel scrapers
1. Scraper blades
2. Locking hook

The scrapers must hang free from the tires during transportation.

Lift up the scraper blades (1) and make sure that they are locked in raised position by the looking hooks.

To lower down the scrapers, lift the scraper slightly while pressing in the locking hook.

Removing the scapers

The scrapers can easily be removed for cleaning and inspection.

Release the inner pin on the hook-up axle, grip the outer pin and pull the axle straight out.

The scrapers must be hooked in the release locking hook to avoid risking that they drop down to the ground.

When refitting after inspection etc., the scraper must first be hooked in the locking hook before the hook-up axle is put in position.

Refit the inner pin and make sure that the rubber coated wire comes over the scraper attachment.

Maintenance - 50h

Every 50 hours of operation (Weekly)

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.

Fuel filter - Draining

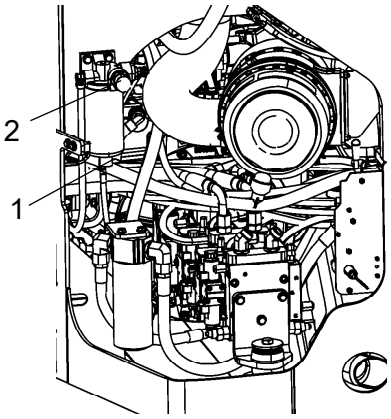


Figure. Fuel filter
1. Drain plug
2. Hand pump

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

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

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

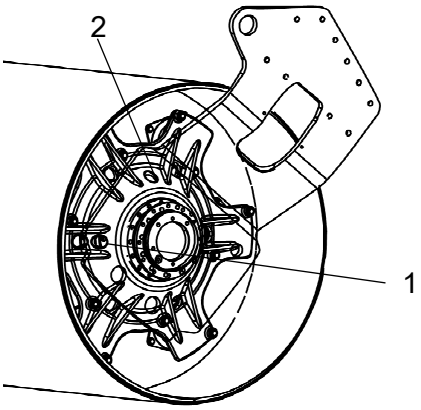


Fig. Oil level check - drum gear
1. Level plug
2. Filling plug

Drum gear - Checking the oil level

Move the machine until the inspection/filling holes are in position for filling.

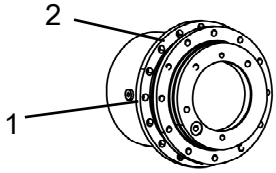


Fig. Drum gear

Refill with new oil. Use transmission oil according to the lubricant specification.

Ensure that the oil level reaches up to the lower edge of the plug hole.

Clean and refit the plugs.

Tires - Tire pressure

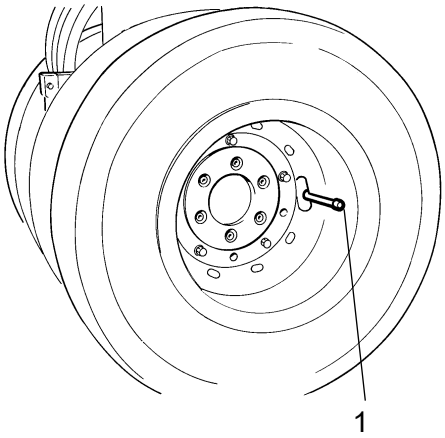


Fig. Outer wheels
1. Air valve

Check the tire pressure with a pressure gauge.

Make sure that the tires have the same pressure.

Recommended pressure: See Technical Specifications.

The figure shows the position of the air valve on the outer tires.

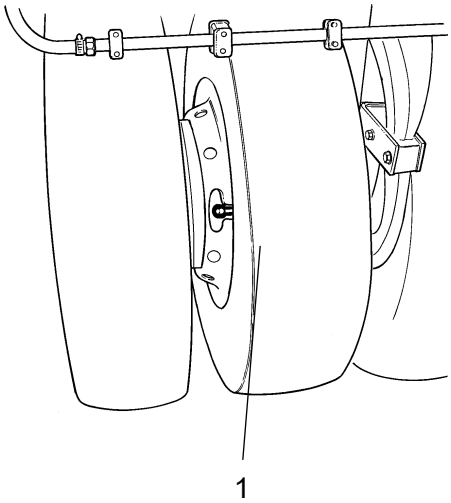


Fig. Inner wheels
1. Air valve

The figure shows the position of the air valve on the inner tires.

Check the Safety Manual that accompanies the roller before filling the tires with air.

Maintenance - 250h

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
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.

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

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

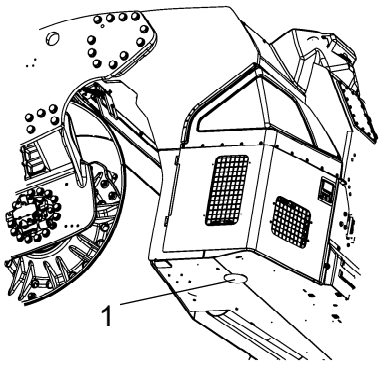


Figure. Underside of rear frame
1. Oil draining of diesel engine

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

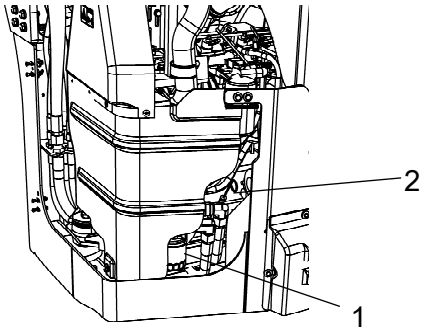


Fig. Engine compartment, right side
1. Oil filter
2. Dipstick

Check the dipstick (2) to ensure that the engine oil level is correct. Refer to the engine manual for details.

The oil filter (1) can be accessed via the right engine compartment door.

See the engine manual for information about replacing the filter.

Hydraulic fluid cooler
Checking - Cleaning

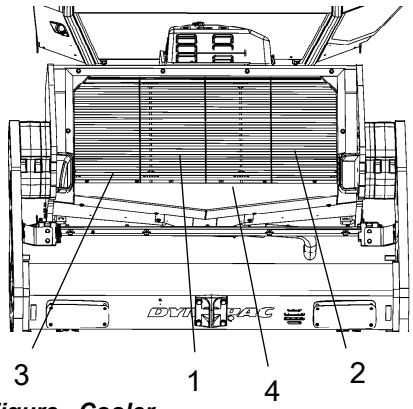


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

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

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

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

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

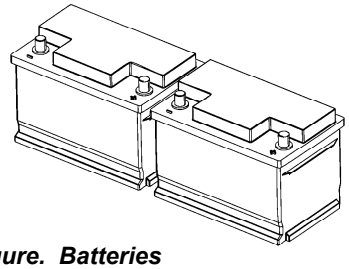


Figure. Batteries

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.

Air conditioning (Optional)
- Inspection

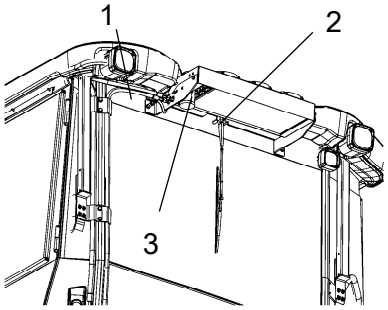


Fig. Air conditioning
1. Refrigerant hoses
2. Condensor element
3. Drying filter

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

If there is a signifcant loss of cooling capacity, clean the condensor element (2) on the rear edge of the cab roof.

Air conditioning (Optional)
Drying filter - Inspection

With the unit in operation, check using the sight glass (1) that bubbles are not visible on the drying filter.

Park the roller on a level surface, chock the wheels and activate the parking brake.

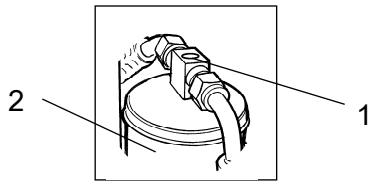


Figure. Drying filter
1. Sight glass
2. Filter holder

The filter is placed at the top of the rear part of the cab roof.
If bubbles are visible through the sight glass, this indicates that the refrigerant level is too low. Stop the unit to avoid risking damage. Fill up with refrigerant.

The refrigerant circuit is only to be worked on by authorized companies.

Edge cutter (Optional)
- Lubrication

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

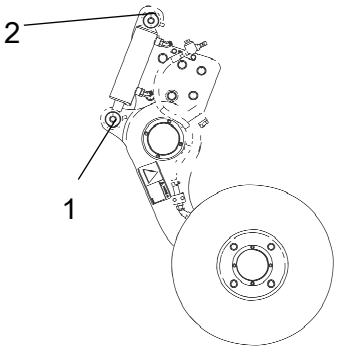


Figure. Two grease points for lubricating the edge cutter

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 - 500h

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
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.

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

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

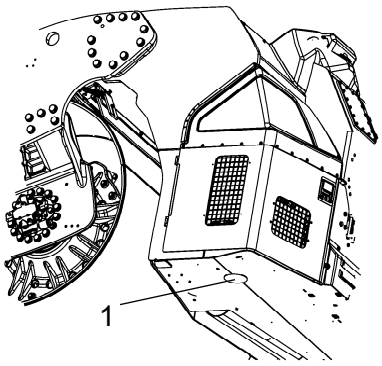


Figure. Underside of rear frame
1. Oil draining of diesel engine

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

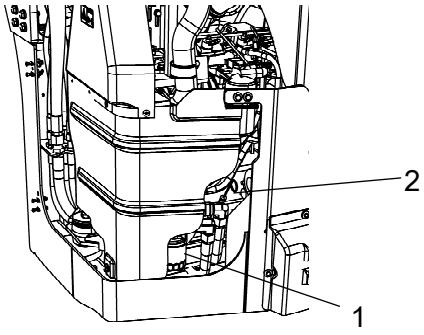


Fig. Engine compartment, right side
1. Oil filter
2. Dipstick

Check the dipstick (2) to ensure that the engine oil level is correct. Refer to the engine manual for details.

The oil filter (1) can be accessed via the right engine compartment door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

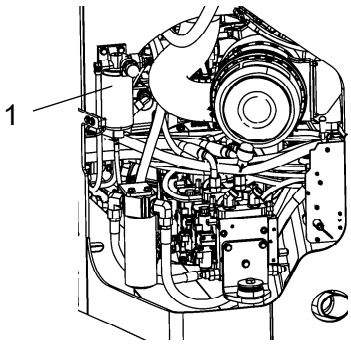


Figure. Engine compartment, left side
1. Prefilter

The fuel filter is placed on the left side of the engine compartment.

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

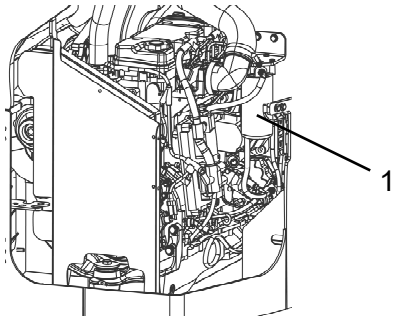


Figure. Engine compartment, right side.
1. Fuel filter

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

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

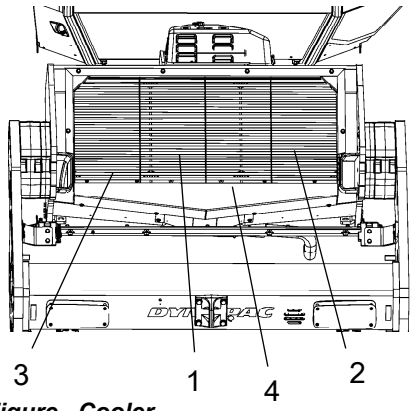


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

Hydraulic fluid cooler
Checking - Cleaning

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

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

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

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

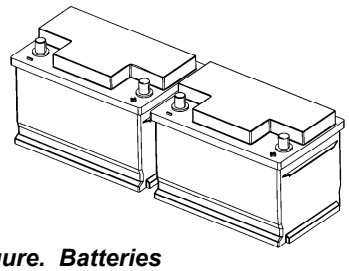


Figure. Batteries

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.

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.

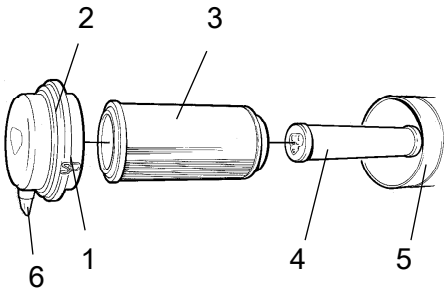


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

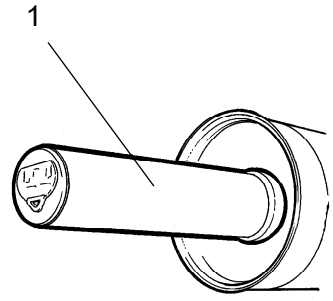


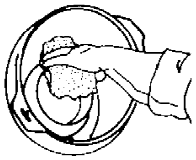
Fig. Air filter
1. Backup filter

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

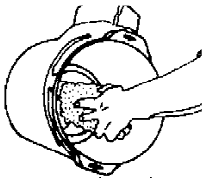
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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.

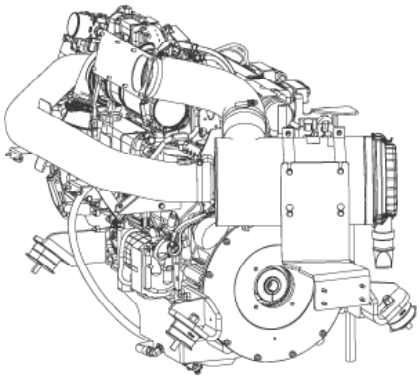


Outer edge of outlet pipe.

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.

Drum - oil level
Inspection - filling

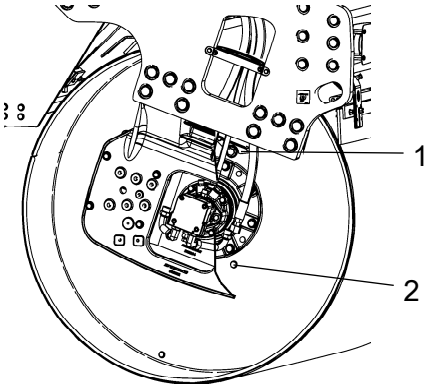


Fig. Drum, vibration side
1. Filler plug
2. Level plug

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.

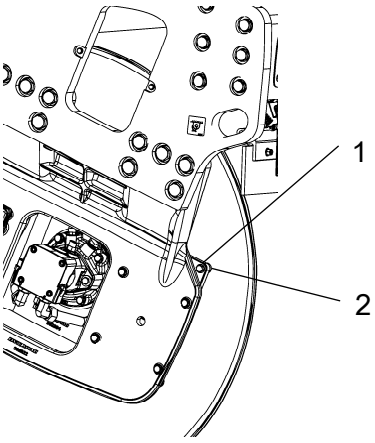


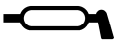
Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

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.



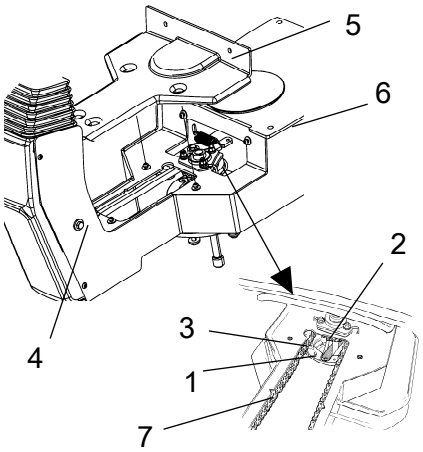


Figure. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Cover
6. Slide rails
7. Marking

Seat bearing - Lubrication

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

Remove the cover (5) to access the lubrication nipple (1). Lubricate the operator 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.

Hydraulic reservoir cap - Check

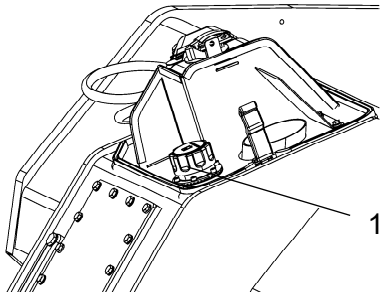


Figure. Rear frame front left side
1. Hydraulic reservoir cap

Turn up the machine so that the tank cap is accessible from the left side of the machine.

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.

Wear protective goggles when working with compressed air.

Air conditioning (Optional) - Inspection

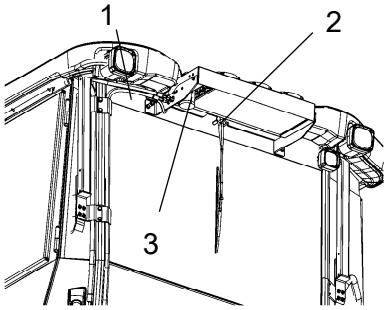


Fig. Air conditioning
1. Refrigerant hoses
2. Condensor element
3. Drying filter

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

If there is a signifcant loss of cooling capacity, clean the condensor element (2) on the rear edge of the cab roof.

Air conditioning (Optional)
Drying filter - Inspection

With the unit in operation, check using the sight glass (1) that bubbles are not visible on the drying filter.

Park the roller on a level surface, chock the wheels and activate the parking brake.

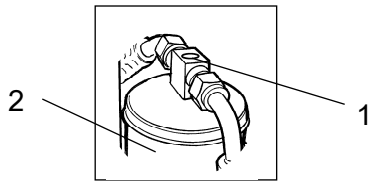


Figure. Drying filter
1. Sight glass
2. Filter holder

The filter is placed at the top of the rear part of the cab roof.
If bubbles are visible through the sight glass, this indicates that the refrigerant level is too low. Stop the unit to avoid risking damage. Fill up with refrigerant.

The refrigerant circuit is only to be worked on by authorized companies.

Edge cutter (Optional)
- Lubrication

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

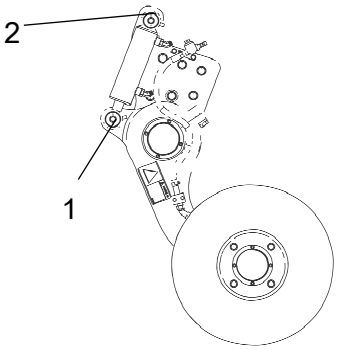


Figure. Two grease points for lubricating the edge cutter

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 - 1000h

Performed after 1000 operating hours (each year)

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
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.

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

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

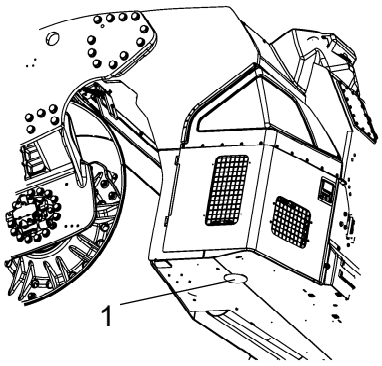


Figure. Underside of rear frame
1. Oil draining of diesel engine

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

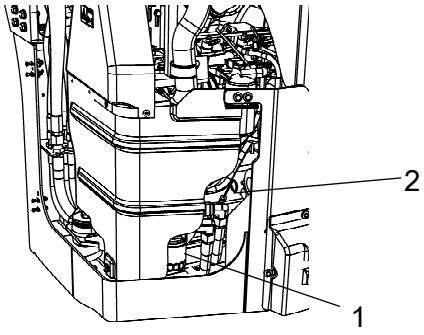


Fig. Engine compartment, right side
1. Oil filter
2. Dipstick

Check the dipstick (2) to ensure that the engine oil level is correct. Refer to the engine manual for details.

The oil filter (1) can be accessed via the right engine compartment door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

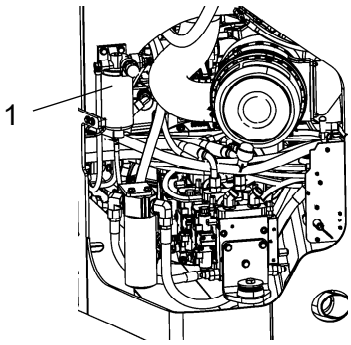


Figure. Engine compartment, left side
1. Prefilter

The fuel filter is placed on the left side of the engine compartment.

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

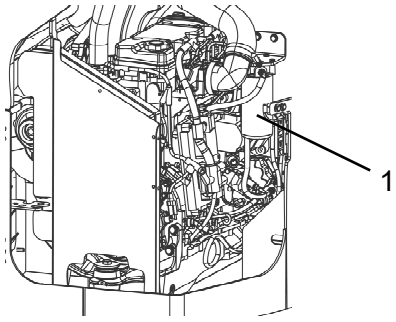


Figure. Engine compartment, right side.
1. Fuel filter

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

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

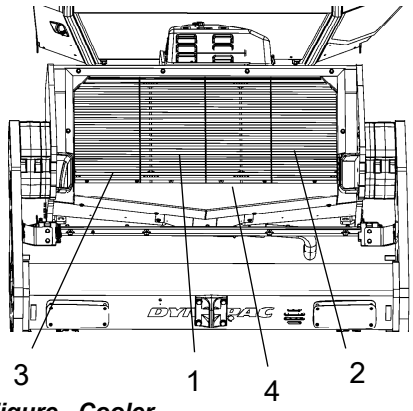


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

Hydraulic fluid cooler
Checking - Cleaning

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

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

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

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

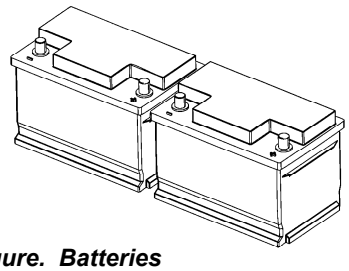


Figure. Batteries

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.

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.

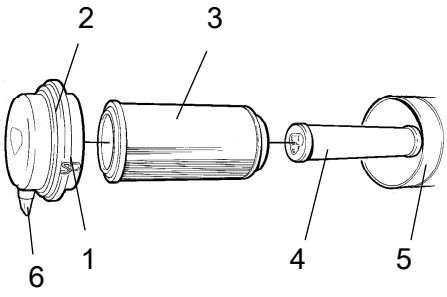


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

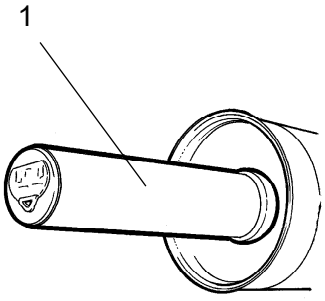


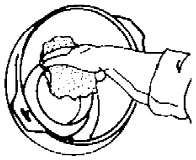
Fig. Air filter
1. Backup filter

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

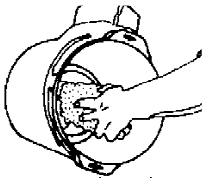
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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.

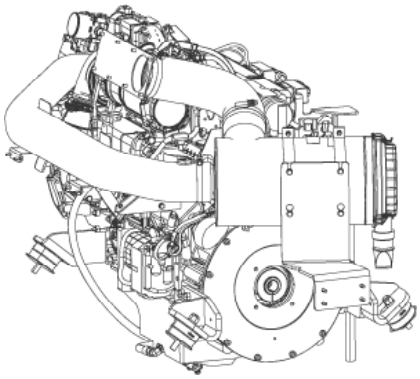


Outer edge of outlet pipe.

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.

Hydraulic filter
Change

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

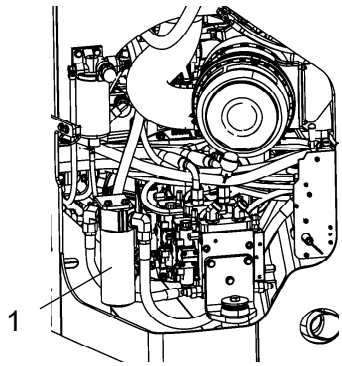


Figure. Engine compartment, left
1. Hydraulic fluid filter

Thoroughly clean the filter holder sealing surface.

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

Screw the filter on by hand, firstly until the filter gasket makes contact with the filter base. Then rotate a further ½ turn.

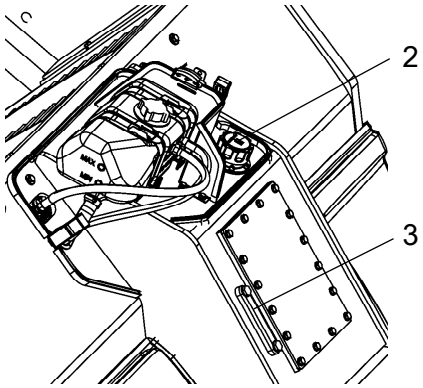


Figure. Hydraulic tank
2. Hydraulic reservoir cap
3. Sight glass

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.

Drum - Oil change

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

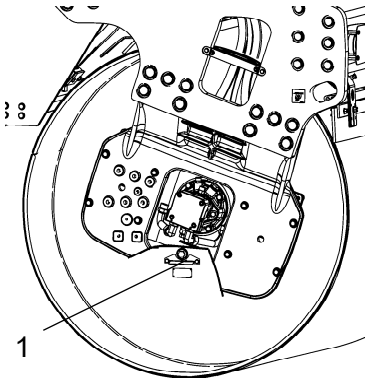


Fig. Drum, vibration side
1. Drain plug

Set the roller so that the drain plug (1), the large plug, is at the lowest position in its rotation.

Place a receptacle that holds at least 20 liters (5.3 gal) under the drain plug.

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

Deliver the drain oil to environmentally correct handling.

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

Drum gear - Oil change

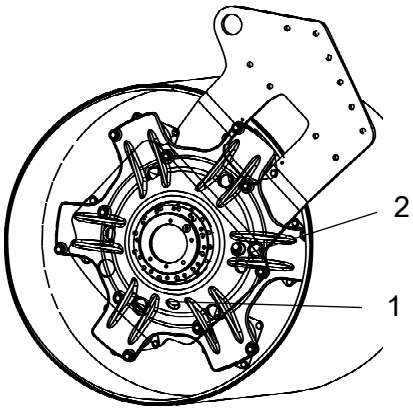


Fig. Drum gear
1. Drain plug
2. Ventilating plug

Place the roller on a level surface.

Wipe clean, unscrew the plugs (1, 2) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

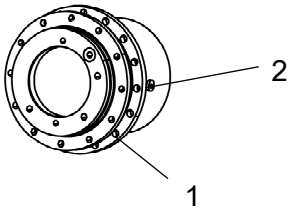


Fig. Drum gear

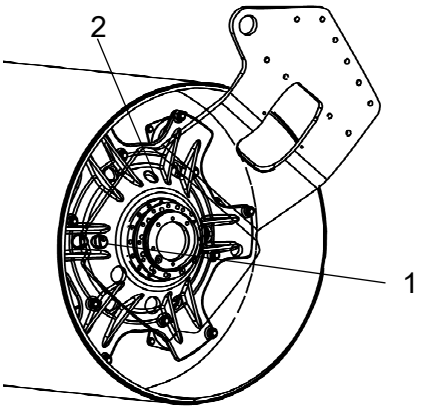


Fig. Oil level check - drum gear
1. Level plug
2. Filling plug

Drum gear - Checking the oil level

Move the machine until the inspection/filling holes are in position for filling.

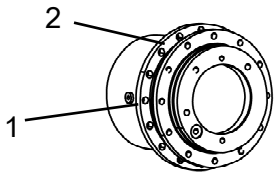


Fig. Drum gear

Refill with new oil. Use transmission oil according to the lubricant specification.

Ensure that the oil level reaches up to the lower edge of the plug hole.

Clean and refit the plugs.

Wheel gear - Oil change

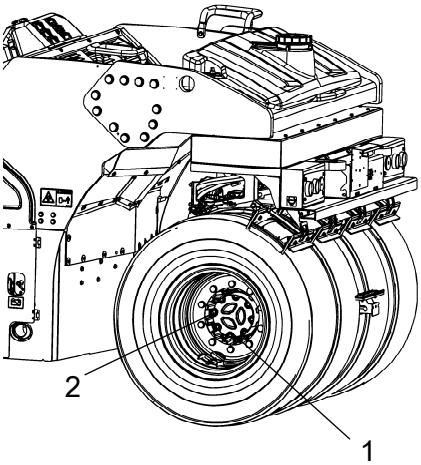


Fig. Wheel gear
1. Drain plug
2. Ventilating plug

Place the roller on a level surface. Move the machine until the drain/breathing holes are in position for filling.

Wipe clean, unscrew the plugs (1, 2) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

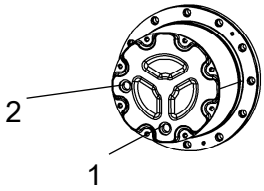


Fig. Wheel gear

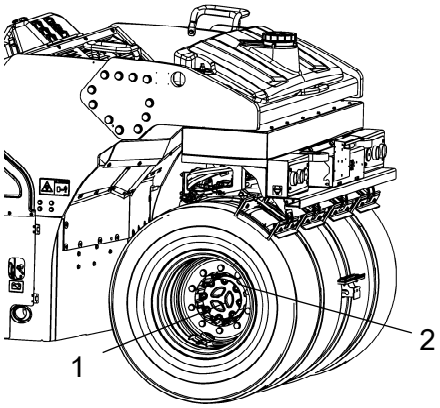


Fig. Oil level check - wheel gear
1. Level plug
2. Filling plug

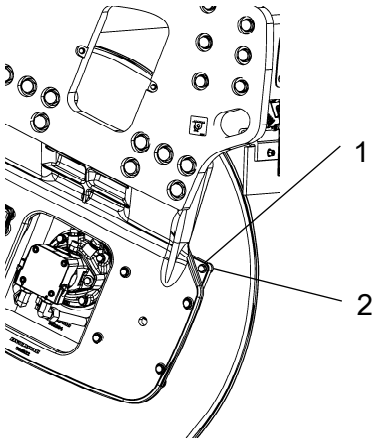


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

Wheel gear - Checking the oil level/Filling the oil

Place the roller on a level surface. Move the machine until the inspection/filling holes are in position for filling.

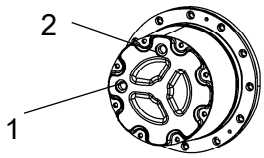


Fig. Wheel gear

Refill with new oil, about 0.8 l (0.85 qts). Use transmission oil according to the lubricant specification.

Ensure that the oil level reaches up to the lower edge of the plug hole.

Clean and refit the plugs.

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.

Seat bearing - Lubrication

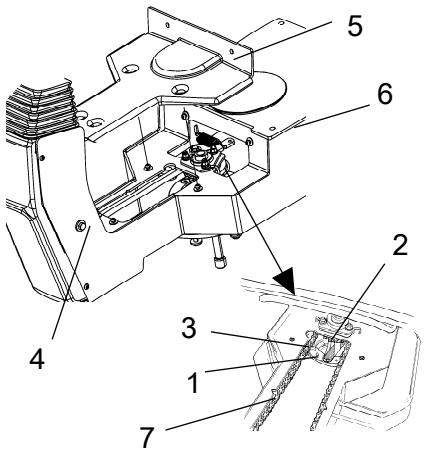


Figure. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Cover
6. Slide rails
7. Marking

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

Remove the cover (5) to access the lubrication nipple (1). Lubricate the operator 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.

Hydraulic reservoir cap - Check

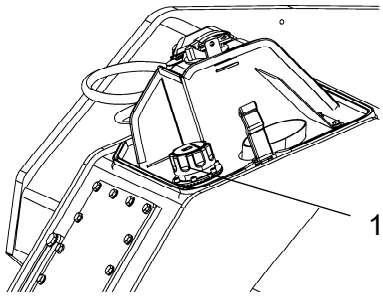


Figure. Rear frame front left side
1. Hydraulic reservoir cap

Turn up the machine so that the tank cap is accessible from the left side of the machine.

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.

Wear protective goggles when working with compressed air.

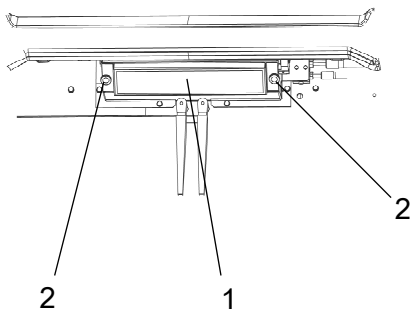


Fig. Cab, front
1. Fresh air filter (x1)
2. Screw (x2)

Cab
Fresh air filter - Replacing

There is one fresh air filter (1), placed on the front of the cab.

Remove the protective cover.

Undo the screws (2) and remove the complete holder. Remove the filter insert and replace with a new filter.

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

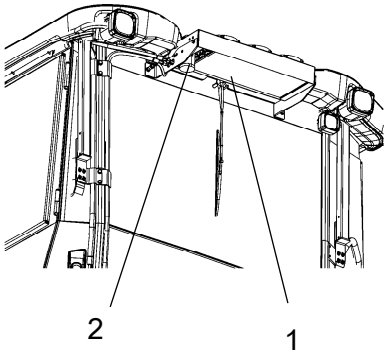


Figure. Cab
1. Condensor element
2. Drying filter

Air conditioning (Optional)
- Overhaul

Regular inspection and maintenance is necessary to ensure satisfactory long-term operation.

Clean all dust from the condenser element (1) using compressed air. Blow from above downwards.

The air jet can damage the element flanges if it is too powerful.

Wear protective goggles when working with compressed air.

Inspect the condenser element attachment.

Check the system hoses for chafing. Make sure that drainage from the cooling unit is unobstructed so that condensation does not accumulate inside the unit.

Air conditioning (Optional)
Drying filter - Inspection

With the unit in operation, check using the sight glass (1) that bubbles are not visible on the drying filter.

Park the roller on a level surface, chock the wheels and activate the parking brake.

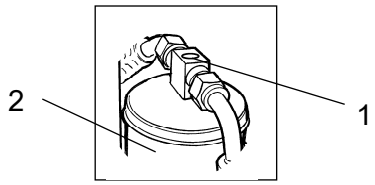


Figure. Drying filter
1. Sight glass
2. Filter holder

The filter is placed at the top of the rear part of the cab roof.
If bubbles are visible through the sight glass, this indicates that the refrigerant level is too low. Stop the unit to avoid risking damage. Fill up with refrigerant.

The refrigerant circuit is only to be worked on by authorized companies.

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.

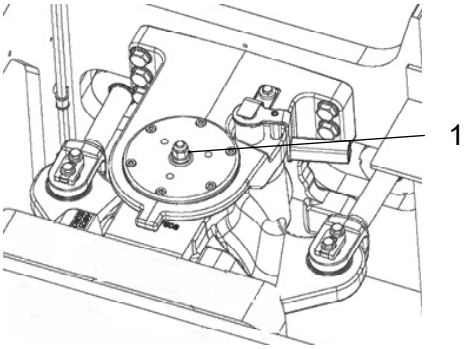


Fig. Steering hitch
1. Nut

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

Maintenance - 2000h

Performed after 2000 operating hours (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.

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.

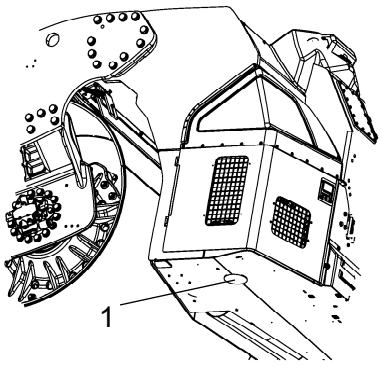


Figure. Underside of rear frame
1. Oil draining of diesel engine

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

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

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

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

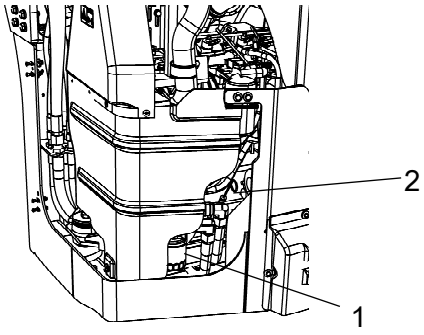


Fig. Engine compartment, right side
1. Oil filter
2. Dipstick

Check the dipstick (2) to ensure that the engine oil level is correct. Refer to the engine manual for details.

The oil filter (1) can be accessed via the right engine compartment door.

See the engine manual for information about replacing the filter.

The engine fuel filter - replacement/cleaning

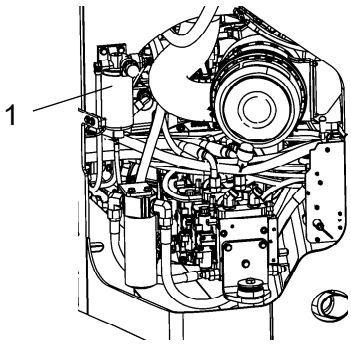


Figure. Engine compartment, left side
1. Prefilter

The fuel filter is placed on the left side of the engine compartment.

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

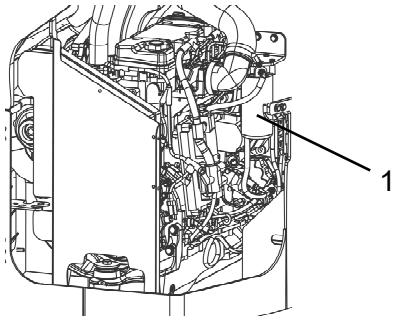


Figure. Engine compartment, right side.
1. Fuel filter

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

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

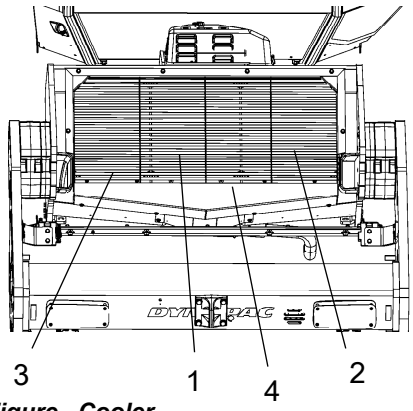


Figure. Cooler
1. Charge air cooler
2. Water cooler
3. Hydraulic fluid cooler
4. Cooler grill

Hydraulic fluid cooler
Checking - Cleaning

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

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

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

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

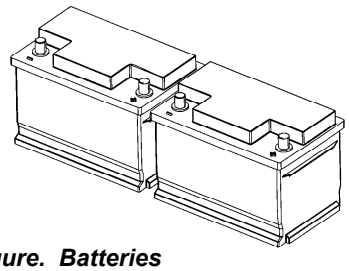


Figure. Batteries

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.

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.

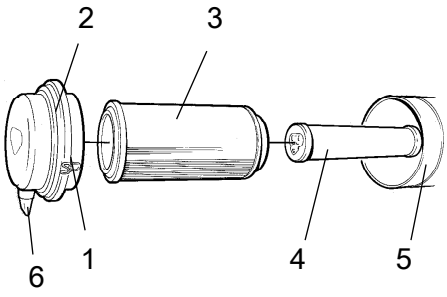


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

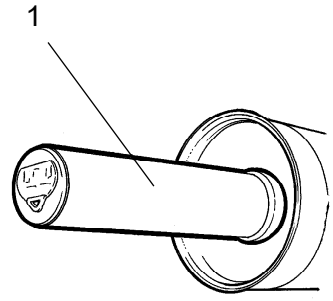


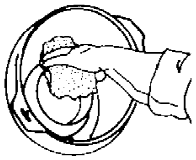
Fig. Air filter
1. Backup filter

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

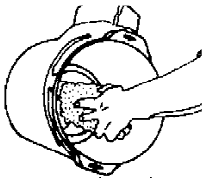
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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.

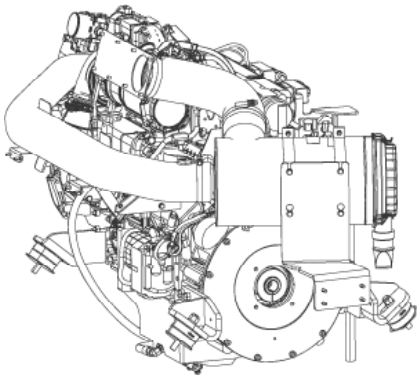


Outer edge of outlet pipe.

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.

Hydraulic filter
Change

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

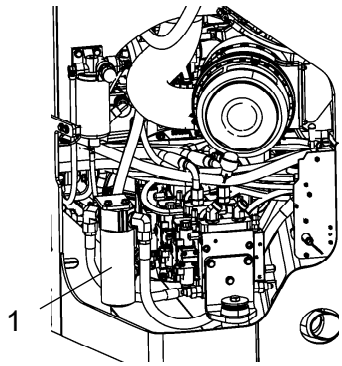


Figure. Engine compartment, left
1. Hydraulic fluid filter

Thoroughly clean the filter holder sealing surface.

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

Screw the filter on by hand, firstly until the filter gasket makes contact with the filter base. Then rotate a further ½ turn.

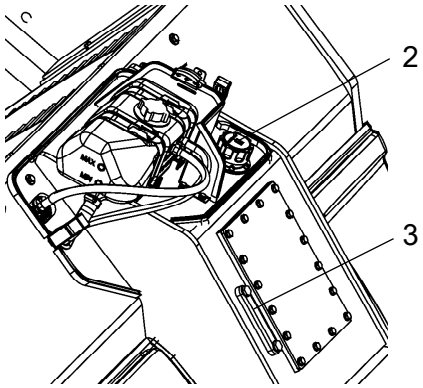


Figure. Hydraulic tank
2. Hydraulic reservoir cap
3. Sight glass

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.

Drum - Oil change

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

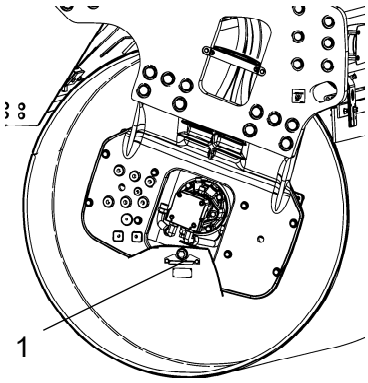


Fig. Drum, vibration side
1. Drain plug

Set the roller so that the drain plug (1), the large plug, is at the lowest position in its rotation.

Place a receptacle that holds at least 20 liters (5.3 gal) under the drain plug.

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

Deliver the drain oil to environmentally correct handling.

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

Drum gear - Oil change

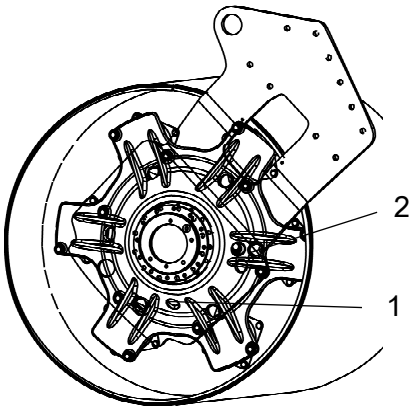


Fig. Drum gear
1. Drain plug
2. Ventilating plug

Place the roller on a level surface.

Wipe clean, unscrew the plugs (1, 2) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

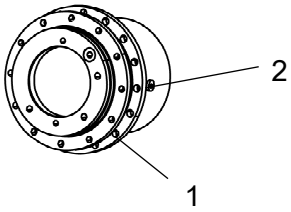


Fig. Drum gear

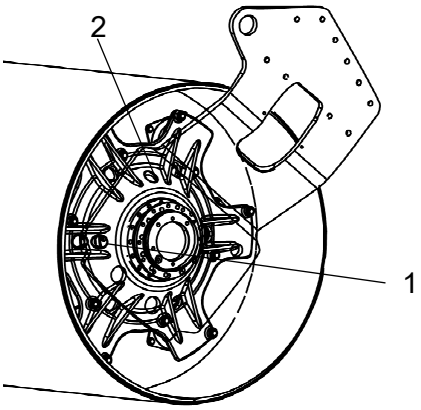


Fig. Oil level check - drum gear
1. Level plug
2. Filling plug

Drum gear - Checking the oil level

Move the machine until the inspection/filling holes are in position for filling.

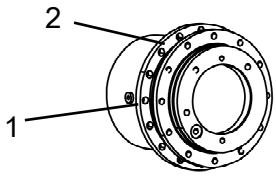


Fig. Drum gear

Refill with new oil. Use transmission oil according to the lubricant specification.

Ensure that the oil level reaches up to the lower edge of the plug hole.

Clean and refit the plugs.

Wheel gear - Oil change

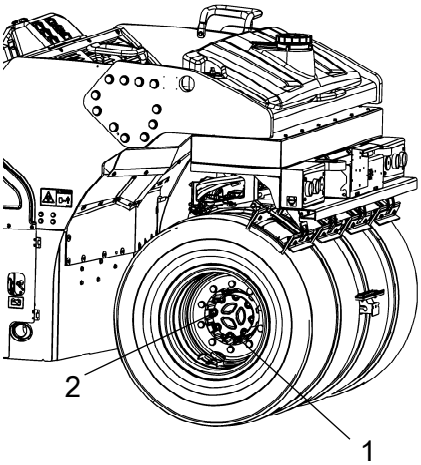


Fig. Wheel gear
1. Drain plug
2. Ventilating plug

Place the roller on a level surface. Move the machine until the drain/breathing holes are in position for filling.

Wipe clean, unscrew the plugs (1, 2) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

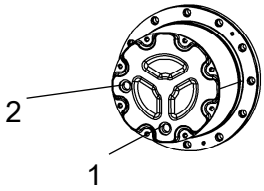


Fig. Wheel gear

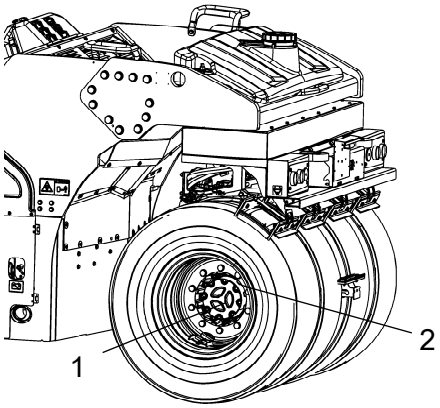


Fig. Oil level check - wheel gear
1. Level plug
2. Filling plug

Wheel gear - Checking the oil level/Filling the oil

Place the roller on a level surface. Move the machine until the inspection/filling holes are in position for filling.

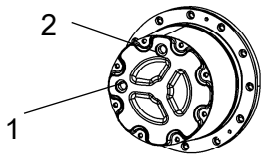


Fig. Wheel gear

Refill with new oil, about 0.8 l (0.85 qts). Use transmission oil according to the lubricant specification.

Ensure that the oil level reaches up to the lower edge of the plug hole.

Clean and refit the plugs.

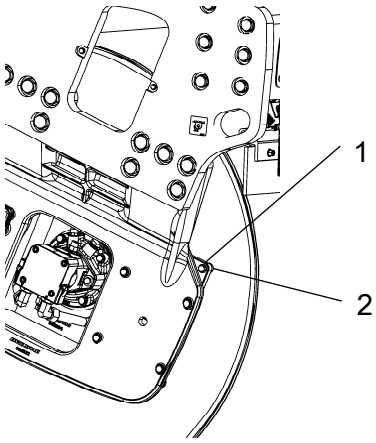


Fig. Drum, vibration side
1. Rubber element
2. Attachment screws

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.

Seat bearing - Lubrication

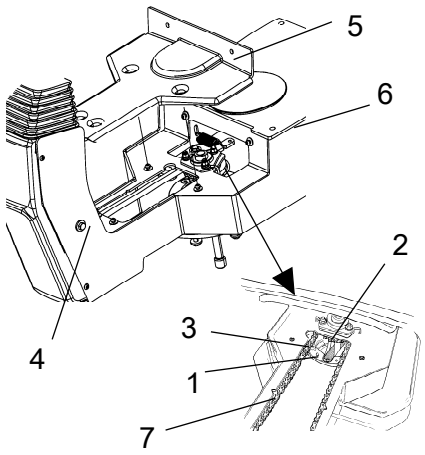


Figure. Seat bearing
1. Grease nipple
2. Gearwheel
3. Steering chain
4. Adjusting screw
5. Cover
6. Slide rails
7. Marking

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

Remove the cover (5) to access the lubrication nipple (1). Lubricate the operator 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.

Hydraulic reservoir cap - Check

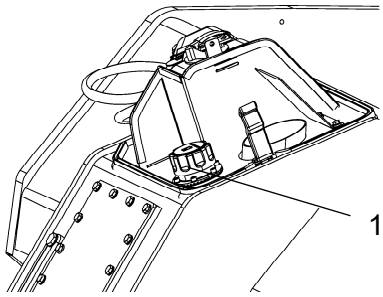


Figure. Rear frame front left side
1. Hydraulic reservoir cap

Turn up the machine so that the tank cap is accessible from the left side of the machine.

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.

Wear protective goggles when working with compressed air.

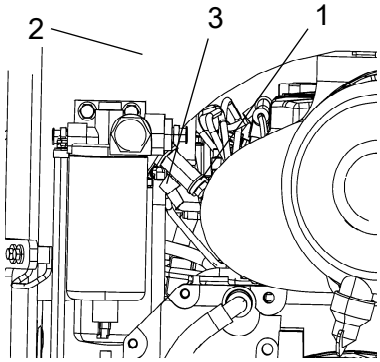


Figure. Engine compartment under hydraulic tank (via left side)
1. Oil drain
2. Hydraulic tank
3. Valve

Hydraulic reservoir
Fluid change

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

Open left engine compartment. The drain plug/valve is in the area under the hydraulic tank.

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

Make sure that the valve (3) is closed.

Unscrew the oil drain plug (1), and connect a drain hose out from the engine compartment.

Open the valve (3) and allow all the oil to run out. Reset by closing the valve and refitting the plug (1).

Deliver the drained fluid to environmentally correct handling.

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

Replace the hydraulic filter. See section "Maintenance - 1000 hours".

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

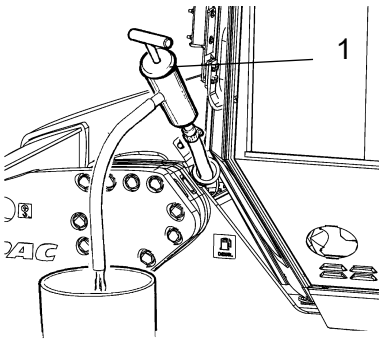


Fig. Fuel tank
1. Oil drain pump

Fuel tank
- Cleaning

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

A drain plug is placed under the left side of the front frame.

Alternatively drain the tank with a suitable pump, e.g. 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.

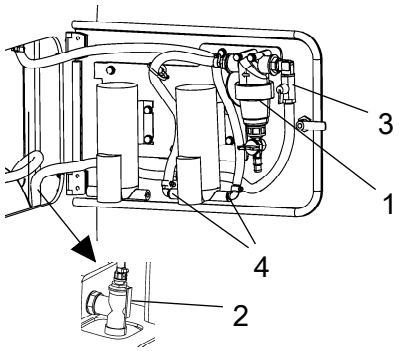


Figure. Pump system
1. Filter housing
2. Drain cock
3. Stop cock
4. Quick couplings

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) in the space for the pump system on the central water tank. This can be used to drain both the tank and parts of the pump system.

The water hoses are connected to the pump with quick couplings (4) to simplify draining and where appropriate replacement to a reserve pump (option).

Newer machines can have sprinkler systems with dual sprinkler pipes and sprinkler pumps as standard.

The outlet hose from the central tank can be disconnected and the end placed in a container with antifreeze to run this through the pump/filter.

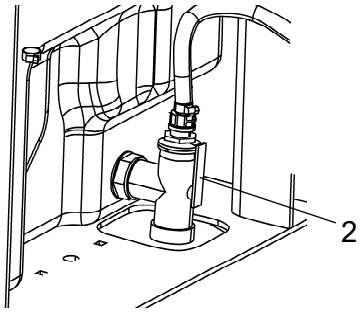


Figure. Water tank
2. Drain plug

Water tank - Cleaning

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.

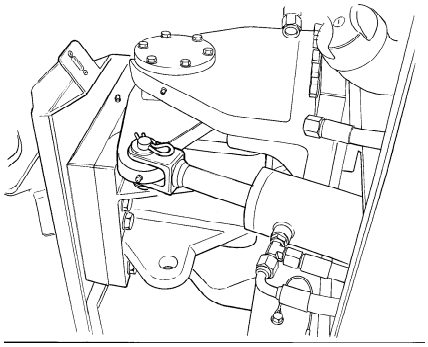


Fig. Steering joint

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.

Cab
Fresh air filter - Replacing

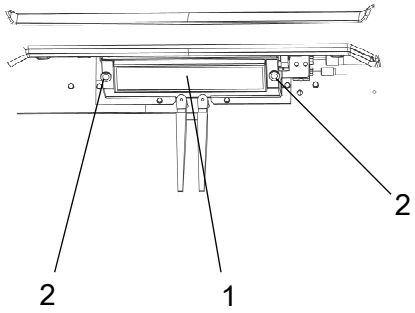


Fig. Cab, front
1. Fresh air filter (x1)
2. Screw (x2)

There is one fresh air filter (1), placed on the front of the cab.

Remove the protective cover.

Undo the screws (2) and remove the complete holder. Remove the filter insert and replace with a new filter.

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

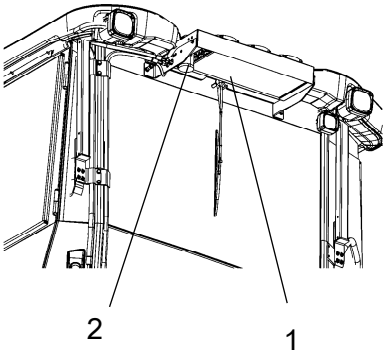


Figure. Cab
1. Condensor element
2. Drying filter

Air conditioning (Optional) - Overhaul

Regular inspection and maintenance is necessary to ensure satisfactory long-term operation.

Clean all dust from the condenser element (1) using compressed air. Blow from above downwards.

The air jet can damage the element flanges if it is too powerful.

Wear protective goggles when working with compressed air.

Inspect the condenser element attachment.

Check the system hoses for chafing. Make sure that drainage from the cooling unit is unobstructed so that condensation does not accumulate inside the unit.

Air conditioning (Optional) Drying filter - Inspection

With the unit in operation, check using the sight glass (1) that bubbles are not visible on the drying filter.

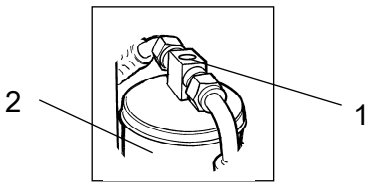


Figure. Drying filter
1. Sight glass
2. Filter holder

Park the roller on a level surface, chock the wheels and activate the parking brake.

The filter is placed at the top of the rear part of the cab roof.
If bubbles are visible through the sight glass, this indicates that the refrigerant level is too low. Stop the unit to avoid risking damage. Fill up with refrigerant.

The refrigerant circuit is only to be worked on by authorized companies.

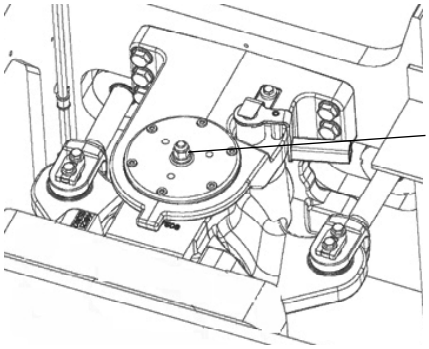


Fig. Steering hitch
1. Nut

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.

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

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

www.dynapac.com