

Instruction manual

Operating & Maintenance

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Vibratory roller

CA3500DCO

CA3600DCO

CA5000DCO

CA6000DCO

Engine

Cummins QSB 4.5 (IIIA/T3) / (IIIB/T4i)

Deutz TCD 2012 L6 (IIIA/T3) / TCD 6.1 L6 (IIIB/T4i)

Serial number

10000145x0A010028 -

10000146x0A00xxxx -

10000147x0A00xxxx -

10000148x0A00xxxx -

10000133xFA016993 -

10000129x0A008983 -

10000135x0A00xxxx -

10000131x0A00xxxx -



Translation of original instruction

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Introduction

The machine

CA3500/3600DCO are models of Dynapac's medium-heavy earth compaction rollers. The machine is a D (smooth drum) variant with optimized compaction system "Compaction Optimizer" (CO).

CA5000/6000DCO are models of Dynapac's heavy earth compaction rollers. The machine is a D (smooth drum) variant with optimized compaction system "Compaction Optimizer" (CO).

Intended use

All types of base courses and subbase courses can be compacted.

Dynapac Compaction Optimizer (DCO) optimizes the compaction work by continuously adjusting the compaction effect to the composition of the surface. It can be used together with another roller accessory, the Dynapac Compaction Analyzer (DCA), which enables the compaction results to be documented and stored.

The cab and safety-related accessories are described in this manual. Other accessories, such as tachograph "and "Analyzer" (DCA) are described in separate instructions.

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.



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

CALIFORNIA

Proposition 65 Warning

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

General

This manual contains instructions for machine operation and maintenance.

The machine must be correctly maintained for maximal performance.

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

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

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



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

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



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



If the roller is equipped with a Step IIIB/4i diesel engine and a particle filter (DPF-filter), the engine will automatically burn out soot. See more under the sections "Machine description" and "Operation".

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 directives applicable for this machine.

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

Safety - General instructions

(Also read the safety manual)



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

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

Safety - when operating



Prevent persons from entering or remaining in the danger area, i.e. a distance of at least 7 m (23 ft) in all directions from operating machines. The operator may allow a person to remain in the danger area, but should then observe caution and operate the machine only when the person is visible or has given clear indications of where he or she is.

Driving near edges

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



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

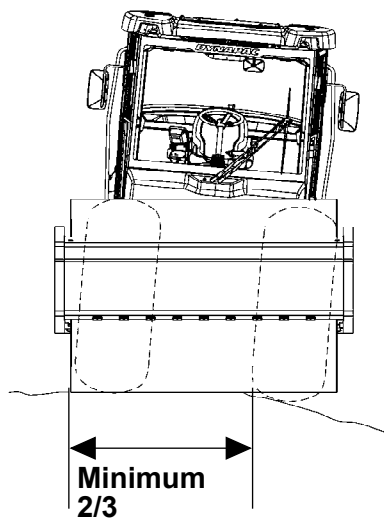


Fig. Position of drum when driving near an edge

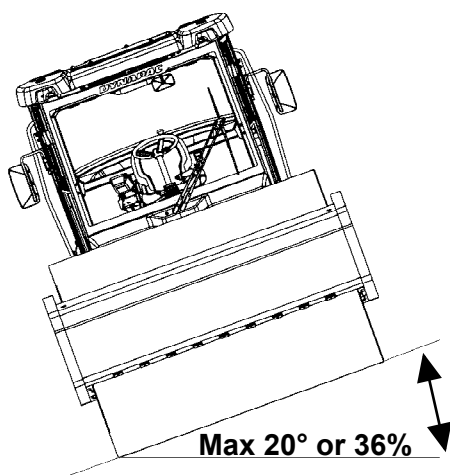


Fig. Operating on slopes

Slopes

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

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

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



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



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



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

Safety (Optional)

Air conditioning

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

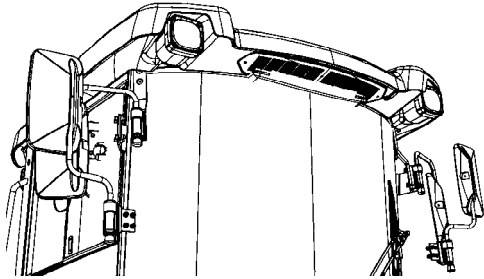


Fig. Cab



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



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



The system must be recharged with approved refrigerant as required by authorized personnel.

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

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

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 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 and hydraulic system can be run at this temperature using normal oil, but in other components that use transmission oil, Shell Spirax S3 AX85W/140, API GL-5 or equivalent must be used.

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 a high-pressure water jet on the instrument panel/display.



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



In certain cases there is an electrical control lever and associated electronic control unit (ECU) in the engine compartment, which must not be washed with a high-pressure jet or with any water at all. It is sufficient to wipe these off. The same applies to the engine electronic control unit (engine ECU).

Place a plastic bag over the fuel filler cap and secure

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

Place a plastic bag over the exhaust pipe and secure with a rubber band to avoid water in the muffler.



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

Fire fighting

If the machine catches fire, use an 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.

Welding



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

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

Battery handling



When removing batteries, always disconnect the negative cable first.



When fitting batteries, always connect the positive cable first.



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



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

Jump starting (24V)



Do not connect the negative cable to the negative terminal on the dead battery. A spark can ignite the oxy-hydrogen gas formed around the battery.



Check that the battery used for jump starting has the same voltage as the dead battery.

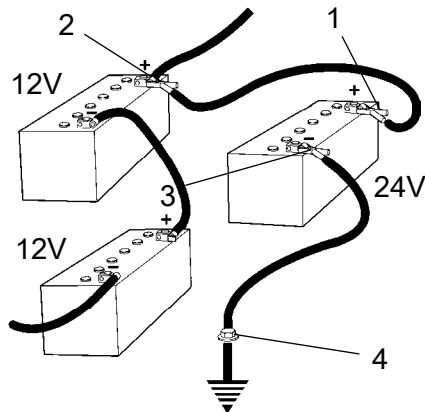


Fig. Jump starting

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

Jump leads must have 24V.

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

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

Technical specifications

Vibrations - Operator station (ISO 2631)

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

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

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

Noise level

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

Guaranteed sound power level, L_{WA} 103 dB (A)

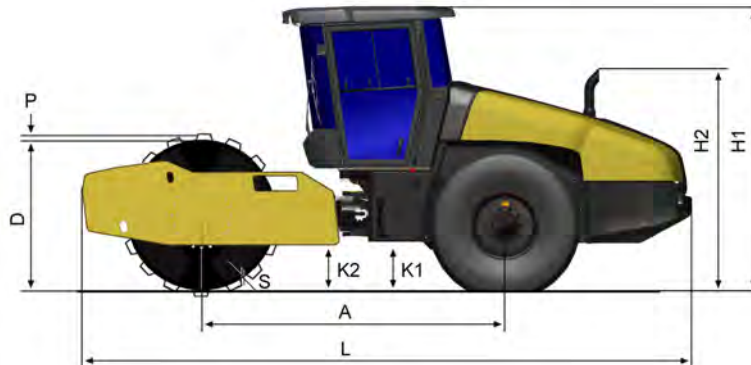
Sound pressure level at the driver's ear (platform/ROPS), L_{pA} XX dB (A)

Sound pressure level at the operator's ear (cab), L_{pA} 72 ± 3 dB (A)

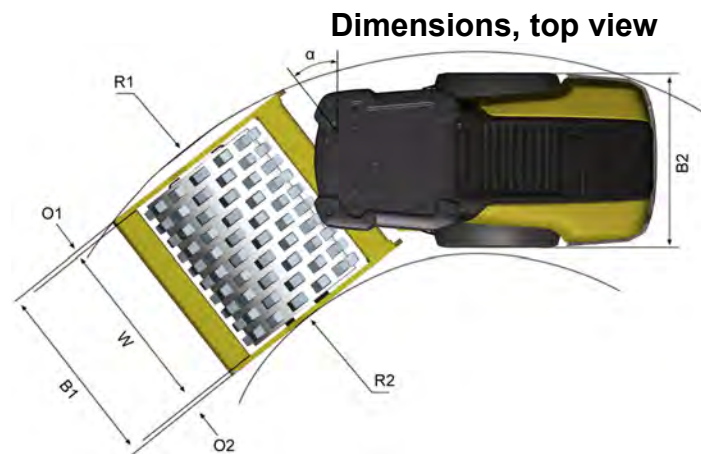
Electrical system

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

Dimensions, side view



	Dimensions	mm	in
A	Wheelbase, drum and wheel		
	CA3500, CA3600	2990	118
	CA5000, CA6000	3100	122
L	Length, standard equipped roller		
	CA3500, CA3600	6000	236
	CA5000, CA6000	6240	246
H1	Height, with ROPS/cab		
	CA3500, CA3600	2870	113
	CA5000, CA6000	2890	114
H2	Height, without ROPS		
	CA3500, CA3600	2267	89
	CA5000, CA6000	2267	89
D	Diameter, drum (D)		
	CA3500, CA3600	1518	60
	CA5000	1536	60.5
	CA6000	1546	60.9
S	Thickness, drum amplitude, Nominal (D)		
	CA3500, CA3600	34	1.3
	CA5000	43	1.7
	CA6000	48	1.9
P	N/A		
K1	Clearance, tractor frame	450	18
K2	Clearance, drum frame		
	CA3500, CA3600	442	17.5
	CA5000, CA6000	450	18



	Dimensions	mm	in
B	Width, standard equipped roller		
	CA3500, CA3600	2304	91
	CA5000, CA6000	2340	92
O1	Overhang, left frame side		
	CA3500, CA3600	87	3.4
	CA5000, CA6000	105	4.1
O2	Overhang, right frame side		
	CA3500, CA3600	87	3.4
	CA5000, CA6000	105	4.1
R1	Turn radius, external		
	CA3500, CA3600	5600	220
	CA5000, CA6000	5800	228
R2	Turning radius, inner		
	CA3500, CA3600	3210	126
	CA5000, CA6000	3330	131
W1	Width, tractor section	2130	84
W2	Width, drum	2130	84

Weights and volumes

Weights

Service weight	Cab	
CA3500	12 250	(kg)
	27 010	(lbs)
CA3600	12 670	(kg)
	27 940	(lbs)
CA5000	16 500	(kg)
	36 380	(lbs)
CA6000	19 820	(kg)
	43 700	(lbs)

Fluid volumes

Fuel tank	272 liters	72 gal
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Working capacity

Compaction data

Static linear load

CA3500, CA3600	35 (kg/cm)
	196 (pli)
CA5000	50 (kg/cm)
	280 (pli)
CA6000	60 (kg/cm)
	336 (pli)

Amplitude mode	mm (in)
1	0,2 (0.008)
2	0,4 (0.016)
3	0,6 (0.024)
4	0,8 (0.032)
5	1,0 (0.039)
6	1,2 (0.047)
7	1,4 (0.055)
8	1,6 (0.063)
9	1,8 (0.071)
10	2,0 (0.079)

The amplitude indicator shows the percentage (%) of maximum amplitude.

Vibration frequency	
CA3500, CA3600	28 (Hz)
	1680 (vpm)
CA5000	27 (Hz)
	1620 (vpm)
CA6000	27 (Hz)
	1620 (vpm)

Centrifugal force	
CA3500, CA3600	161 (kN)
	36 225 (lb)
CA5000	280 (kN)
	63 000 (lb)
CA6000	300 (kN)
	67 500 (lb)

Propulsion

Speed range	km/h (mph)	0-12 (0-7.5)
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Climbing capacity (theoretical) without vibration	%	56
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General

Engine

Manufacturer/Model	Power (SAE J1995), 2200 rpm	
Cummins QSB 4.5 (IIIB/T4i)	119kW	160 hp
Cummins QSB 4.5 (IIIA/T3)	119kW	160 hp
Deutz TCD 6.1 L06 4V (IIIB/T4i)	129 / 150kW	175 / 201 hp
Deutz TCD 2012 L06 2V (IIIA/T3)	128 / 150 kW	174 / 201 hp

Engine speed

- idling	900 rpm
- loading/unloading	1600 rpm
- work/transport	2 200 rpm



The new Tier 4i/Stage IIIB Cummins engines and the new Tier 4i/Stage IIIB DEUTZ engines with exhaust after-treatment system (EAT) require the use of Ultra Low Sulphur Diesel (ULSD) fuel, which has a sulphur content of 15 ppm (parts per million) or less. Higher sulphur contents cause operating problems and put the useful life of components at risk, which can lead to engine trouble.

Tire	Tire dimensions	Tire pressure
CA3500	23,1 x 26,0 - 8 ply	110 kPa (1,1 kp/cm) (16 psi)
CA3600, CA5000, CA6000	23.1 x 26.0 - 12 ply	150-170 kPa (1,5-1,7 kp/cm) (21,24 psi)

Liquid-filled tyres (Ballasted tyres)

The CA6000 is equipped with liquid-filled tyres as standard.



**Liquid-filled tires (extra weight up to 500 kg/tyre, 1100 lbs/tyre). When servicing, bear this extra weight in mind.
(Anti-freeze to -30°C (-22°F))**

Electrical system

Battery		24V (2x12V 74Ah)
Alternator	Deutz (IIIB/T4i)	24V 100A
	Deutz (IIIA/T3)	24V 80A
	Cummins (IIIB/T4i)	24V 70A
	Cummins (IIIA/T3)	24V 40A
Fuses		See the Electrical system section - fuses

Hydraulic system

Opening pressure	MPa
Drive system	42
Supply system	2.2
Vibration system	42
Control systems	20
Brake release	1.7
Hydraulic fan system	19

Automatic Climate Control (ACC) (Optional)

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

Coolant designation: HFC-R134:A

Coolant weight when full: 1350 gram (2.98 lbs)

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, Cummins

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

(IIIB/T4i)

The engine is also equipped with cooled exhaust gas recirculation (CEGR) and electronically controlled exhaust gas recirculation valves (EGR) together with a Cummins® diesel oxidation catalysator (DOC) system for exhaust after-treatment.

Diesel engine, Deutz

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

(IIIB/T4i)

The engine is also equipped with external exhaust gas recirculation (EGR) and a system for after-treatment of exhaust fumes (DPF-Diesel Particle Filter).

Exhaust afterburn system (regeneration) (IIIB/T4i)

To minimize particles and hydrocarbons, the engine is fitted with a diesel particle filter, as well as a control unit for after-treatment of exhaust fumes. The diesel particle filter incorporates active burnout.

When the engine is running, particles are collected in the DPF, and the particles have to be burned away in order to clean the filter.

During the burnout/regeneration process, the exhaust gas temperature increases significantly above the normal temperature in the exhaust pipe.

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/Transmission

The propulsion system is a hydrostatic system with a hydraulic pump supplying two motors connected in parallel, one for the rear axle and one for the drum.

The speed of the machine is proportional to the angle of the control lever (the deflection of the forward/reverse lever regulates the speed). An optional anti-spin system is available.

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 on the rear axle and the drum gear which are disengaged by hydraulic pressure.

Steering system

The steering system is a load-sensing hydrostatic system. The control valve on the steering column distributes the flow to the steering cylinders at the articulated joint. The steering angle is proportional to the amount the steering wheel is turned.

On certain markets, the machine is also equipped with an emergency steering system.

Vibration system

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

High amplitude or low amplitude are determined by the hydraulic motor's direction of rotation. System for variable amplitude is as standard.

Cab

The cab has a heating and ventilation system, with defrosters for all windows. Air conditioning is available as an accessory.

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.

FOPS and ROPS

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

The cab is approved as a protective cab in accordance with the FOPS and ROPS standards.

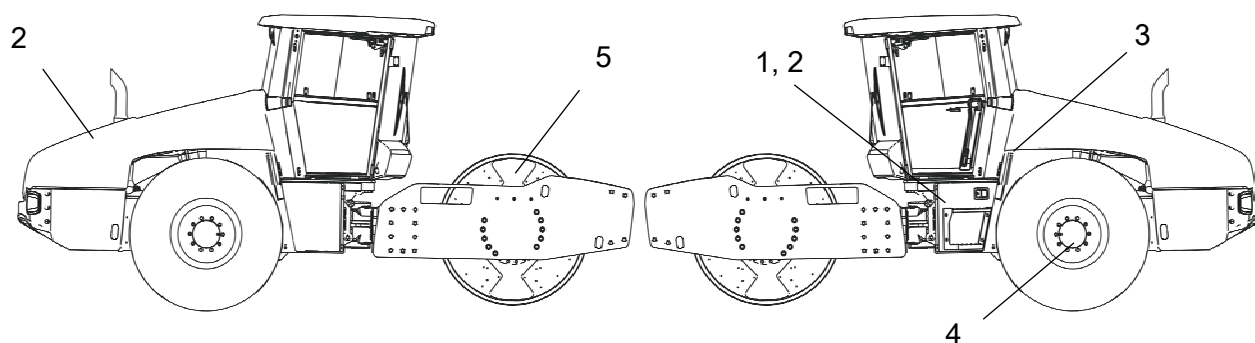
If any part of the cab's or the FOPS/ROPS structure's

protective construction displays plastic deformation or cracks, the cab or the FOPS/ROPS structure must be replaced immediately.

Never perform unauthorized modifications on the cab or FOPS/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 FOPS/ROPS standards 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, rear axle - Product and serial numbers
5. Component plate, drum - Product and serial numbers

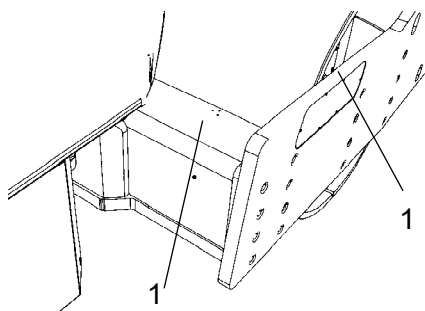


Fig. Front frame
1. PIN

Product identification number on the frame

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

Machine plate

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

The plate specifies the manufacturer's name and address, the type of machine, the PIN product identification number (serial number), service weight, engine power and year of manufacture. (If the machine is delivered outside the EU there are no CE markings, and on some machines the year of manufacture may not be specified.)

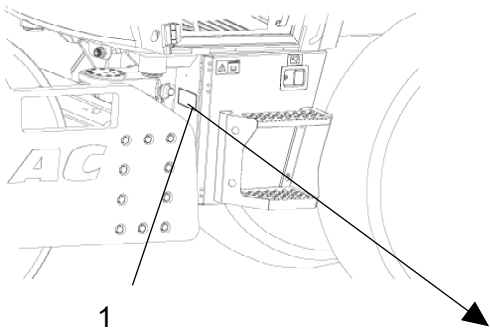




Fig. Operator's platform
1. Machine plate

		Dynapac Compaction Equipment AB Box 504, SE-371 23 Karlskrona Sweden		
Product Identification Number				
Designation	Type	Rated Power	Max axle load front / rear	
		kW	kg	
Gross machinery mass	Operating mass	Max ballast	Year of Mfg	
kg	kg	kg	kg	
			Made in Sweden	
			1011 0021 24	

Please state the machine's PIN when ordering spares.

100	00123	V	0	A	123456
A	B	C	F		

Explanation of 17PIN serial number

A= Manufacturer

B= Family/Model

C= Check letter

F= Serial number

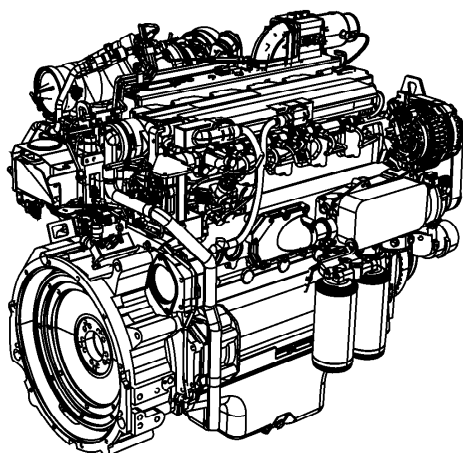
Engine plates

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

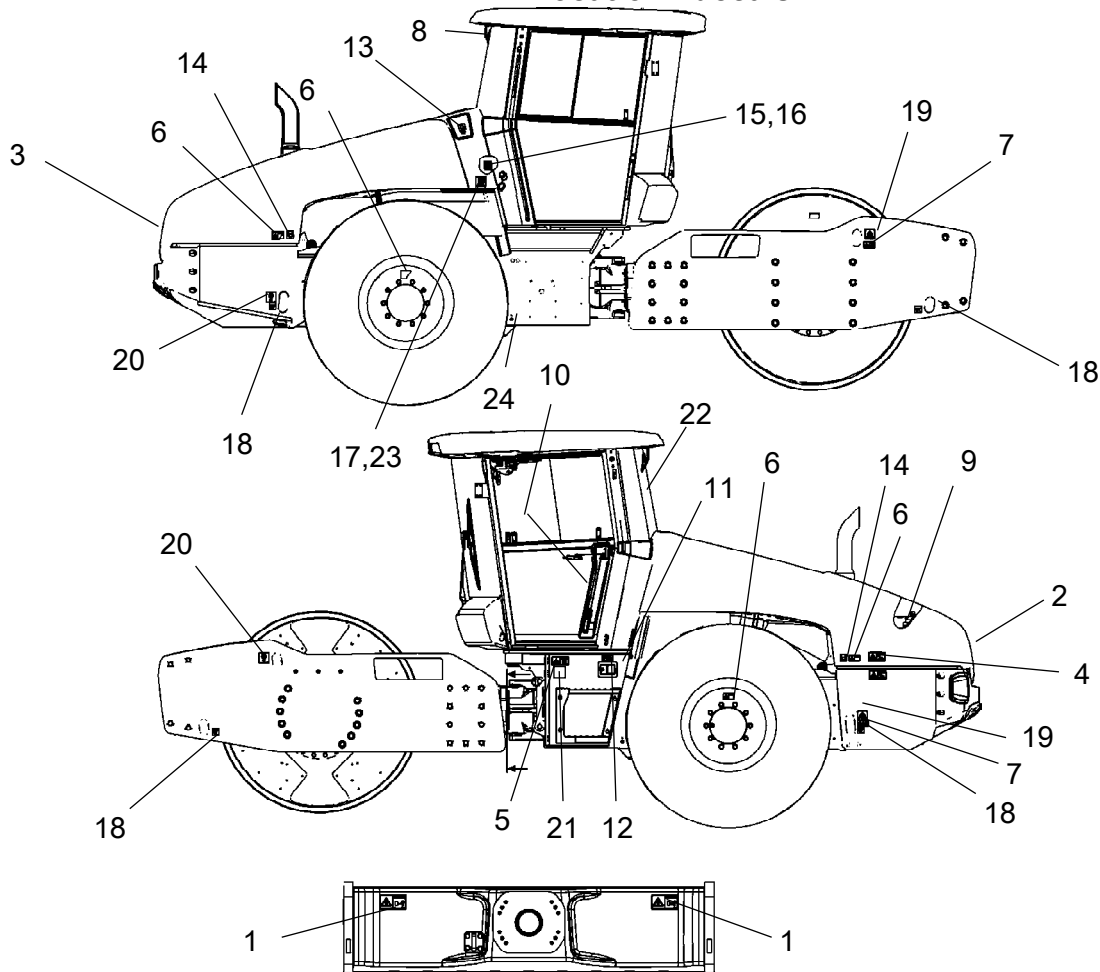


Fig. Location, decals and signs

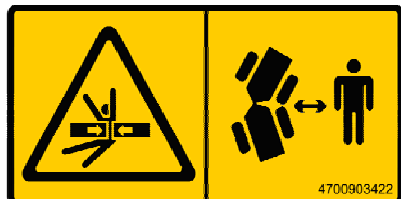
1. Warning, Crush zone	4700903422	12. Master switch	4700904835
2. Warning, Rotating engine components	4700903423	13. Coolant	4700388449
3. Warning, Hot surfaces	4700903424	14. Air pressure	4700385080
4. Warning, Brake release	4700904895	15. Hydraulic fluid level	4700272373
5. Warning, Instruction manual	4700903459	16. Hydraulic fluid Biological hydraulic fluid	4700272372 4700792772
6. Warning, Ballasted tires	4700903985	17. Diesel fuel	4700991658* 4811000345**
7. Warning, Locking	4700908229	18. Fixing point	4700382751
8. Warning, Toxic gas	4700904165	19. Hoisting plate	4700904870
9. Warning, Starting gas	4700791642	20. Lifting point	4700588176
10. Handbook compartment	4700903425	21. Sound effect level	4700791273
11. Battery voltage	4700393959	22. Emergency exit	4700903590
		23. Fuel with a low sulphur content	4811000344**
		24. Draining fuel	4811000443

* (IIIA/T3)

** (IIIB/T4i)

Safety decals

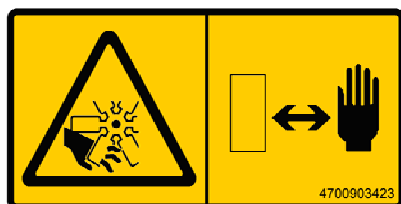
Always make sure that all safety decals are completely legible, and remove dirt or order new decals if they have become illegible. Use the part number specified on each decal.



4700903422

Warning - Crush zone, articulation/drum.

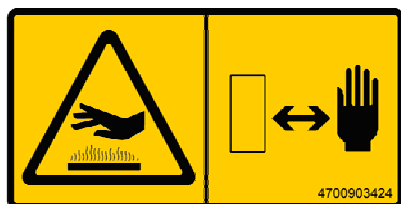
Maintain a safe distance from the crush zone.



4700903423

Warning - Rotating engine components.

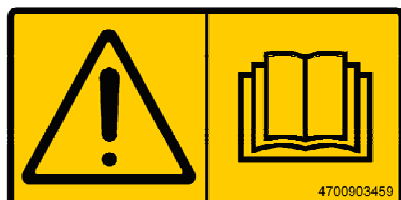
Keep your hands at a safe distance.



4700903424

Warning - Hot surfaces in the engine compartment.

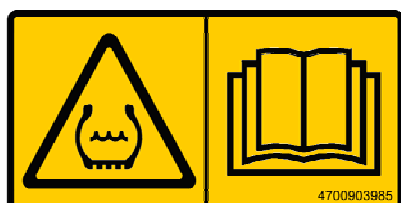
Keep your hands at a safe distance.



4700903459

Warning - Instruction manual

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



4700903985

Warning - Ballasted tire.

Read the instruction manual.

More information in section in Technical specifications.

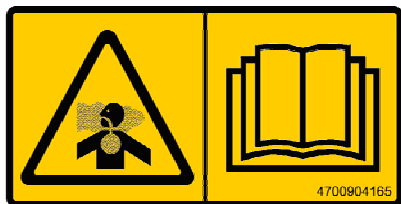


4700908229

Warning - Risk of crushing

The articulation must be locked when lifting.

Read the instruction manual.



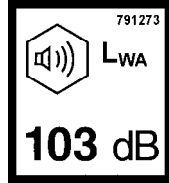
4700904165
Warning - Toxic gas (option, ACC)
Read the instruction manual.



4700903590
-Emergency exit

Info decals

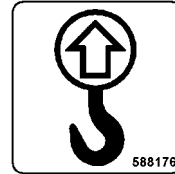
Noise power level



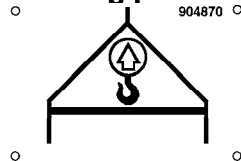
Diesel fuel



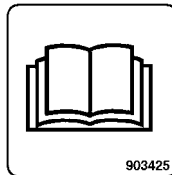
Lifting point



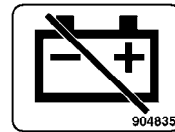
Hoisting plate



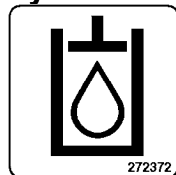
Handbook compartment



Master switch



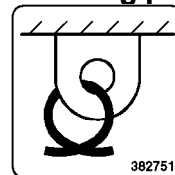
Hydraulic fluid



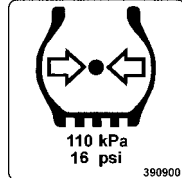
Biological hydraulic fluid



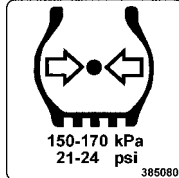
Securing point



Tire pressure



Tire pressure



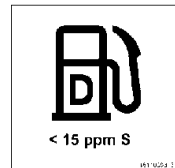
Battery voltage



Fuel with a low sulphur content

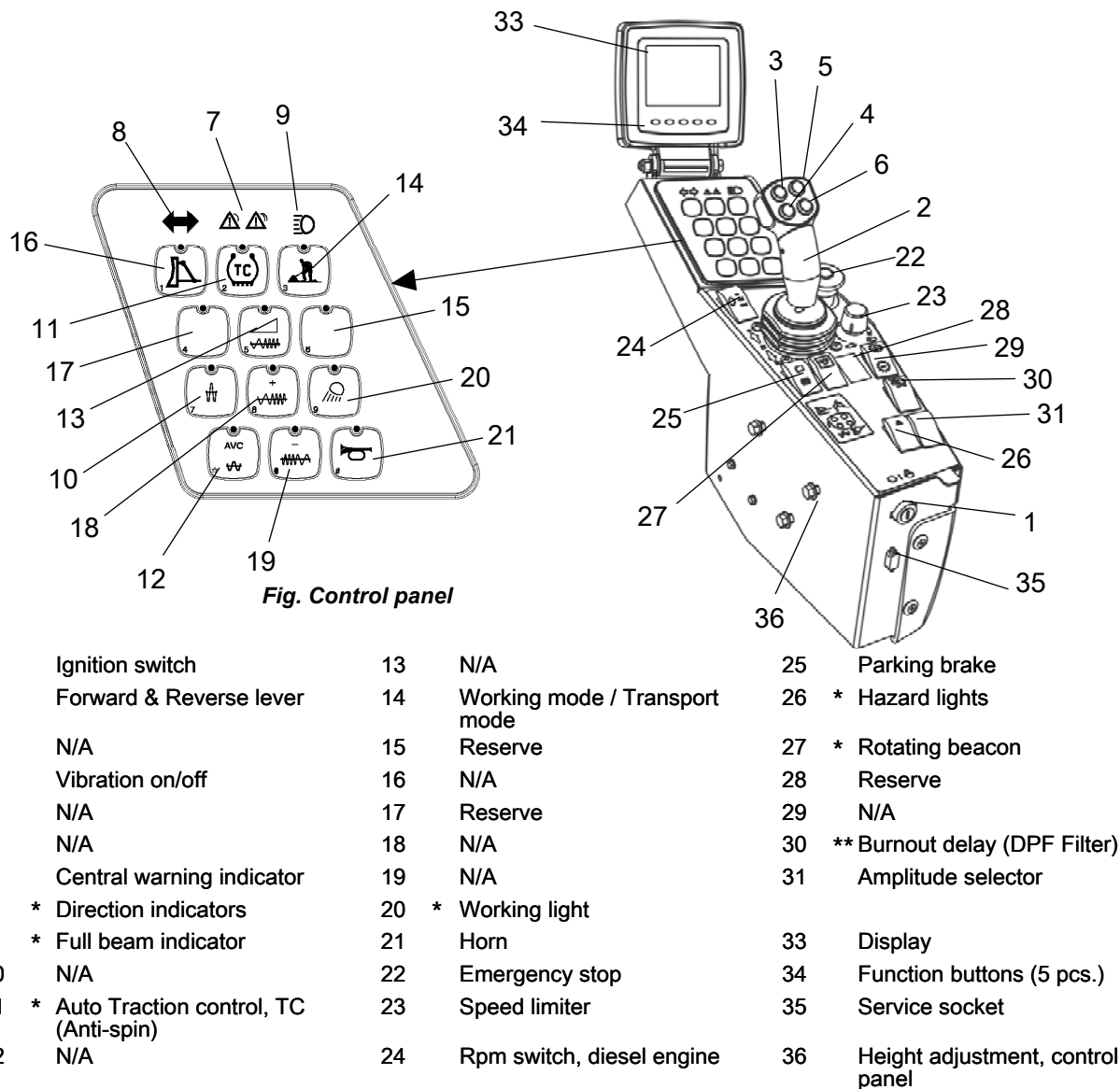


(IIIB/T4i)



Instruments/Controls













Control panel and controls






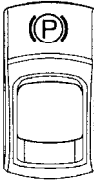

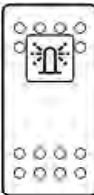



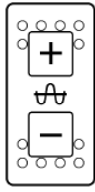
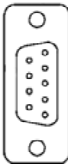
* Optional

** (Deutz IIIB/T4i)

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		NB! When starting the machine, the lever must be in neutral. The engine cannot be started if the forward/reverse lever is in any other position. The forward/reverse lever controls both the roller's driving direction and speed. When the lever is moved forward, the roller moves forward; when the lever is move backward, the roller moves backward. The roller's speed is proportional to the distance the lever is from the neutral position. The further the lever is from the neutral position, the higher the speed.
3	N/A		
4	Vibration on/off		First push will start vibrations, second push will stop vibrations.
5	N/A		
6	N/A		
7	Central warning indication		General fault indication. See the display (33) for description of the fault. For detailed information about the fault indication, see the table "Warning indication - membrane panel".
			Warning lights yellow - "less serious fault" or "DPF regeneration info"
			Warning lights red - "serious fault"
8	Direction indicator (Optional)		Shows direction indicators activated (Activated via the steering column switch).
9	Main beam indicator (Optional)		Shows main beam activated (Activated via the steering column switch).
10	N/A		
11	Auto traction control, TC (Anti-spin)		If the machine is equipped with TC (Anti-spin), this is activated when starting up. (TC can be disengaged) The speed limiter (23) is used to set the maximum speed at full deflection of the forward/reverse lever.
12	N/A		
13	N/A		
14	Working mode / Transport mode		Activates working mode, which makes it possible to use vibration and lower the strike-off blade (optional). The roller always starts in transport mode.
15	Reserve		

No	Designation	Symbol	Function
16	N/A		
17	Reserve		
18	N/A		
19	N/A		
20	Working lights (Optional)		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. NB! When starting the machine, the emergency stop must be inactive.
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 position for the desired max. speed.
24	Rpm switch, diesel engine		Three-position switch for idling (LO), intermediate speed (MID) and working speed (HI). NB! When starting the machine, the control must be in idling position (LO). The diesel engine drops to even lower revs during idling, 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 is equipped with a fuel optimization system, MID is replaced by ECO (and the switch is green).
25	Parking brake		To activate the brakes, press the top of the switch to change the position of the switch. To release the brakes, press down the red part at the same time as the switch and change the position of the switch. @@NOTE: When starting the machine, the parking brake must be activated.
26	Hazard indicators (Optional)		Activate the hazard warning light by depressing the button.
27	Rotating beacon (Optional)		Activate the rotating beacon by pressing the switch. (If the machine has two rotating beacons, both are activated)
28	Reserve		
29	N/A		

No	Designation	Symbol	Function
30	Burnout delay DPF Filter (Deutz Tier IIIB/4i)		Delay burnout of the DPF filter (approx. 20 min.) by pressing and holding the switch for 3 sec.
31	Amplitude selector		
35	Service socket		Diagnostic socket. Gateway is connected here to read the CAN-Open system.

Warning indication - membrane panel (Keypad)



"Yellow" - Warning

- The engine has an alarm in category yellow
 - Communication with the display is interrupted
 - The fuel level is below <10%
 - Charging absent
- (Deutz Tier IIIB/4i)
- DPF - regeneration in progress
 - DPF - regeneration delayed
 - DPF - regeneration required (soot load >100%, but other conditions not satisfied, e.g. cold engine)

(Alarm image shown in the display)

Continuous yellow light that goes out after 2 min
Flashes yellow at approx. 1 Hz (once per second)
Flashes yellow at approx. 0.5 Hz (every two seconds)



"Red" - Warning

- The engine has an alarm in category red
- Communication with the engine is interrupted
- The engine temperature is too high
- Low oil pressure in the engine
- The air filter is clogged
- The hydraulic fluid temperature is too high
- The hydraulic fluid filter is clogged

Flashes red continuously

(Alarm code shown in the display)

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.

Before activating the starter motor, wait until the start image has changed to the status image (the machine is performing a system check while the start image is being displayed).

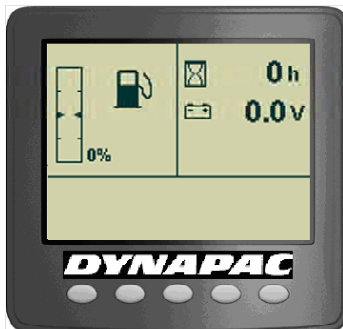


Fig. Status screen

The status image provides information on the fuel level, machine hours and voltage level. The fuel level is indicated as a percentage (%).

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. Working diagram DCO

If the engine is started before any buttons have been selected the display will show the working diagram for DCO.

This screen gives an overview and is kept during work:

The compaction value (cmv value) is shown at the top, and engine speed and speed are shown in the corners.

The amplitude selection, amplitude and control area are shown at the bottom.



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. Speed diagram

The speed diagram shows the speed in the middle of the diagram. (km/h or mph)

The engine speed, vibration frequency, cmv value for compaction meter and gradient value in % (optional), are shown in the corners.



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.







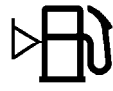




The alarm message shown is acknowledged by pressing the "OK" button on the display.



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	This symbol is shown when 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, hydraulic fluid temperature (cold)	This symbol is shown when the hydraulic fluid is too cold for the use of vibrations at full speed. (The oil must over 5 degrees (C)) Is the optional ECO chosen you can vibrate in ECO mode even if the oil has not reached 5 degrees (C).
	Warning symbol, low fuel level	If this symbol is shown, there is less than 10% of the fuel left.
	Warning symbol, low oil pressure, diesel engine	If this symbol is shown, the engine's oil pressure is too low. Switch off the engine immediately.
	Warning symbol, low coolant level	If this symbol is shown, fill with coolant/glycol and search for leaks.
	Warning symbol, water in the fuel	If this symbol is shown, the engine must be stopped and the fuel pre-filter drained of water.
	Warning symbol, low hydraulic fluid level	If this symbol is shown, fill with hydraulic fluid to the correct level and search for leaks.

Dynapac Sub System (DSS)

DSS code	Description	Note
1	Speed sensor, front	Optional
2	Speed sensor, rear	
3	Inclination sensor	Optional
4	DCM	Optional
5	IO-Card	
6	Cooling fan speed sensor	
7	Vibration frequency meter	Supervision only active if Adjustable frequency or ECO available.
8	Power group 1	see Fuse 3
9	Power group 2	see Fuse 4
10	Power group 3	see Fuse 5
11	Power group 4	see Fuse 6



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



Selection of Display alarms.

"ENGINE ALARM"

Logged engine alarms.





"MACHINE ALARM"

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



"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.



"SERVICE MENU"

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

"ADJUSTMENTS"

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

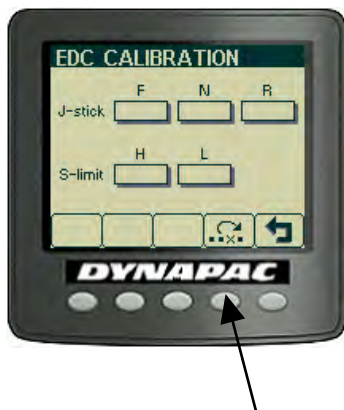




"CALIBRATION" - service personnel only, requires password.

"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.



"MACHINE SETTINGS"

In the setting for "DCO CONTROL MODE" the DCO status can be set to automatic or manual mode.



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
- Strike-off blade (Optional) (Not possible to use with DCO)

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

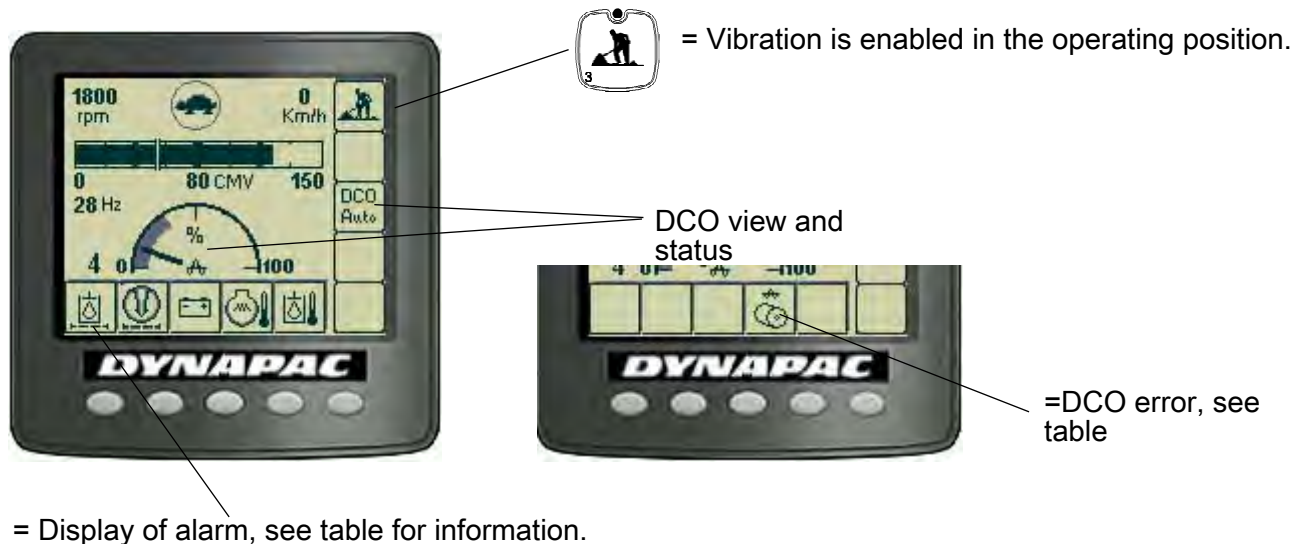
To activate the above functions it is necessary to make sure that the machine's Workmode is activated.



Display when activating choice via the button set.



The parking symbol is shown when the parking brake is activated.



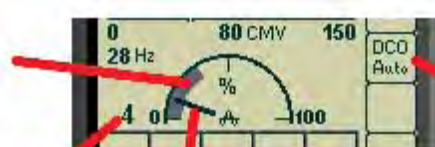
DCO view and status

Control range:

Grey marking shows active control range for selected amplitude mode.

Amplitude selection:

Shows amplitude mode to limit maximum amplitude.



Amplitude:







The amplitude indicator shows which amplitude the machine has at each stage of the compaction. 0-100 %.

Status mode:

Shows current DCO status. See Table.

DCO Auto	Automatic Control Mode
DCO Auto v	Automatic Control Mode with vibration switch enabled.
DCO Man	Manual Control Mode.
DCO Man v	Manual Control Mode with vibration switch enabled.

Error messages (DCO)

Symbol	Designation	Function
	Zero search fault	This fault can occur when the machine is started if it takes too long to position/calibrate the amplitude to 0. The fault can occur if there is a fault on a sensor/cable/connector for this system.
	Sensor fault	This fault can occur during vibration. If one of the two sensors for amplitude positioning malfunctions then this fault will occur. There could have a fault on the actual sensor, or on the cable/connector.
	Movement fault	This fault can occur during vibration. The fault occurs if the system does not detect any change in the amplitude when this is requested. It could be a result of mechanical or hydraulic inertia, or if both sensors for amplitude positioning malfunction at the same time.
	Min limit fault	This fault can occur during vibration. If the mechanical system for amplitude controlling should for some reason position itself outside the valid limits (low amplitude), this fault occurs.
	Max limit fault	This fault can occur during vibration. If the mechanical system for amplitude controlling should for some reason position itself outside the valid limits (high amplitude), this fault occurs.
	Direction fault	This fault occurs if the system detects that the direction of the movement is wrong in relation to the required change in amplitude. It could be a result of either an incorrect power or hydraulic connection.

Instruments and controls, cab

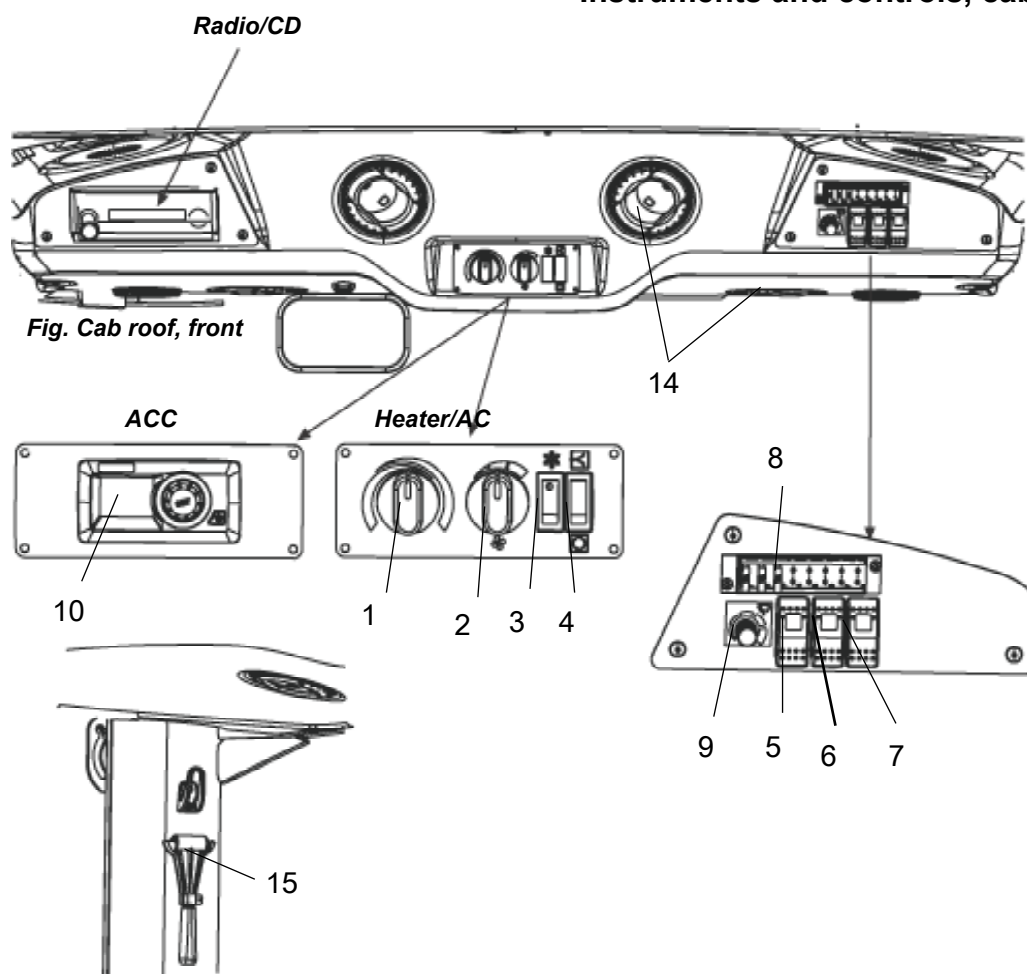












Fig. Right rear cab post
15. Hammer for emergency exit

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	Rear wiper, switch		Press to operate the rear screen wiper.
7	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.
8	Fuse box		Contains fuses for the electrical system in the cab.
9	Front wiper, intermittent		Intermittent function for front wiper.
10	Automatic Climate Control (ACC) (micro ECC)		Automatic control of the air conditioning.
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.

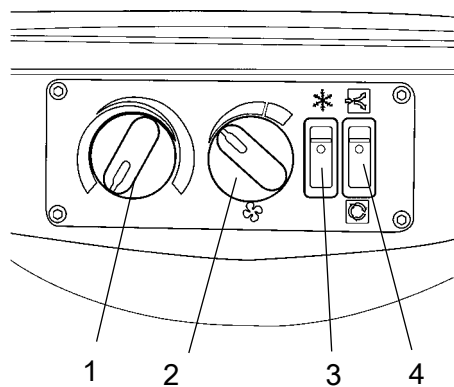
Using the cab controls

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.



AC

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.

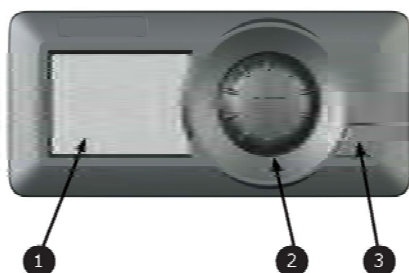
Turn on AC (3) and set the fresh air (4) in the lower position to switch off the fresh air valve.

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.



ACC - Control panel

1. LCD Display

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

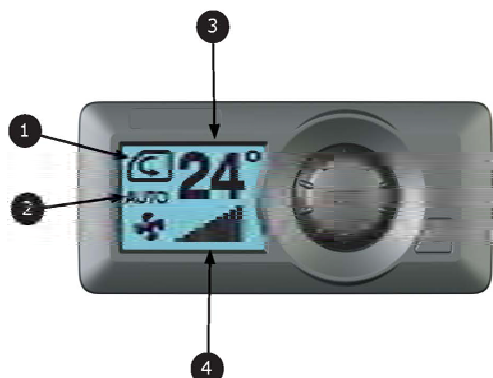
2. SET / SELECT Button

Under normal operation button is used for selecting between modes.

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

3. Power Button

Device ON/OFF.



Main display screen

1. Air mix control

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

2. Mode

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

3. Temperature Set-point

Displays current inside set-point temperature.

4. Blower speed

Displays current blower speed setting.



ACC - Operation menus

Main screen

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

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



Blower speed settings:

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

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



Climate Control mode settings:

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



AUTO

The system runs automatically to keep the temperature that is selected (set-point temperature).



Cool

A / C compressor is running to cool the interior temperature. Heating valve is turned off while cooling off ("Cool") is selected.



Heat

Interior temperature warms up with the electronic heater valve. A / C compressor is turned off while warming ("Heat") is selected.



Defrost

When defrosting ("Defrost") is activated, the A / C compressor is turned on, the blower is turned on full speed and the heater valve is fully open.



Air circulation setting:

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



Turn the knob clockwise to fully recirculated air



or counterclockwise full fresh air.



Display settings:

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



Turning HVAC system OFF:

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

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



Diesel Heat mode (if diesel heater is installed):

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

Electrical system

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

On the plastic cover there is a 24V socket (X96) and a 12V socket (X98)(optional).

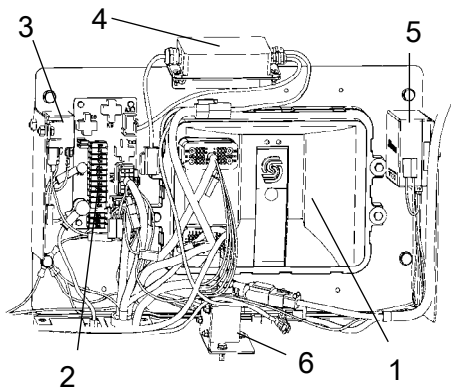


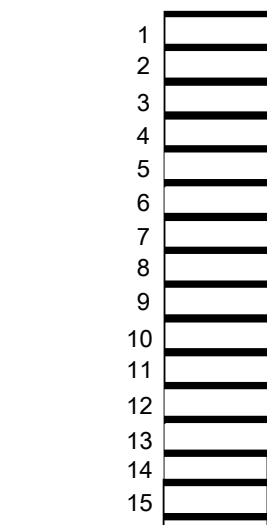
Fig. Main switchbox

- 1. Control unit (ECU)(A7)
- 2. Fuse card (A6)
- 3. Main relay (K2)
- 4. Power supply (A10), compaction meter(DCM) (Optional)
- 5. Power converter 24/12V DC (T1)
- 6. Tilt sensor (B14) (Optional)

Fuses in the main switchbox (Cummins)

The figure shows the position of the fuses.

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



1.	Main relay, 24V outlet engine compartment	10A	9.	Reserve	
2.	ECU, Outlet boot loading, I/O board, display	5A	10.	Reserve	
3.	ECU PWR1, Speed sensor	10A	11.	12V outlet, Radio/CD	10A
4.	ECU PWR2, Forward/Reverse lever	10A	12.	GPS, DCM, DCO, tilt sensor	10A
5.	ECU PWR 3	20A	13.	Reserve	
6.	ECU PWR 4	20A	14.	DCA	10A
7.	24V outlet operator's station, Tachograph	10A	15.	Indicator relay	7.5A
8.	Hydraulic/Fuel sensor, Engine	10A	16.	Driving lights	10A

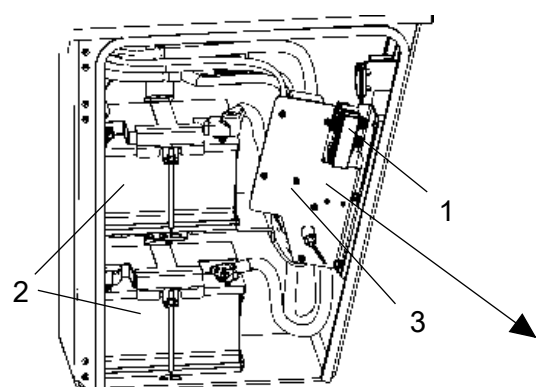


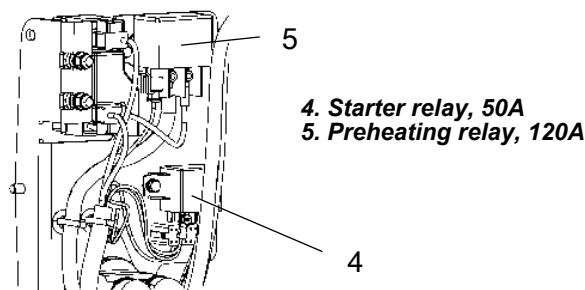
Fig. Cover, left side

- 1. Fuse box
- 2. Batteries (x2)
- 3. Battery disconnecter plate

Fuses at master switch (Cummins)

The fuse box (1) is located inside the cover by the steps on the left-hand side of the roller.

This is also where the batteries (2) are, and the starter relay (4) and preheating relay (5) are placed behind the battery disconnecter plate (3).



- 4. Starter relay, 50A
- 5. Preheating relay, 120A

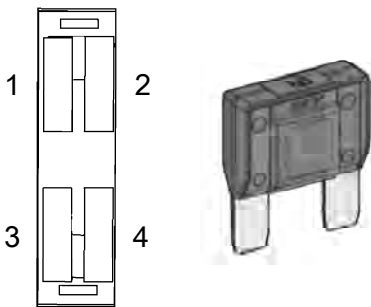


Fig. Fuse box, battery disconnect switch

Fuse box at master switch (Cummins)

The figure shows the position of the fuses.

The amperage and function of the fuses are shown below. All fuses are flat pin fuses.

1.	Main fuse	50A	
2.	Cab	30A	
3.	Diesel engine ECU	30A	(IIIA/T3)
		60A	(IIIB/T4i)
4.	Grid heater	40A	

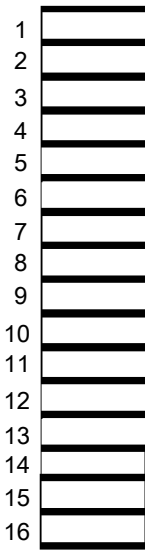


Fig. Fuses

Fuses in the main switchbox (Deutz)

The figure shows the position of the fuses.

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



1.	Main relay, 24V outlet engine compartment	10A	9.	* Glow plug relay ** NOX sensor	7,5A 15A
2.	ECU, Outlet boot loading, I/O board, display	5A	10.	* Reserve ** Diesel engine	10A
3.	ECU PWR1, Speed/Frequency sensor	10A	11.	12V outlet, Radio/CD	10A
4.	ECU PWR2, Forward/Reverse lever	10A	12.	GPS, DCM, DCO, tilt sensor	10A
5.	ECU PWR 3	20A	13.	Reserve	
6.	ECU PWR 4	20A	14.	DCA	10A
7.	24V outlet operator's station, Tachograph	10A	15.	Indicator relay	7.5A
8.	Hydraulic/Fuel sensor, Engine	10A	16.	Driving lights	10A
* (IIIA/T3)					
** (IIIB/T4i)					

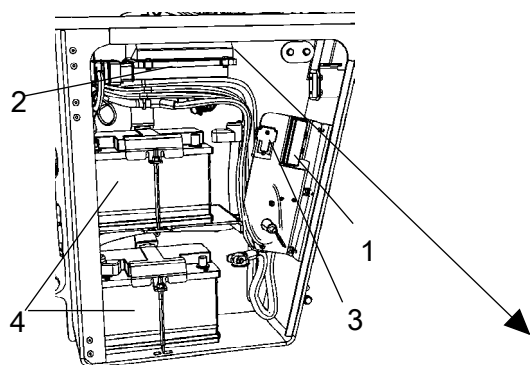


Fig. Cover, left side

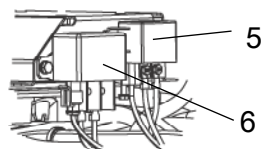
- 1. Fuse box
- 2. Engine control unit (ECM-box)
- 3. Fuse 30A, ECM-box (IIIB/T4i)
Relay 20A, ECM-box (IIIA/T3)
- 4. Batteries (2 pcs)

Fuses at master switch (Deutz)

The fuse box (1) is located inside the cover with the steps on the left-hand side of the roller. The engine's control unit (ECM-box) (2) and its fuse/relay (3) as well as the batteries (4), are also located here.

The ECM box's fuse/relay (3) is located on the back of the mounting plate for the master switch.

Is the machine equipped with Deutz engine IIIA/T3 there is a starter relay (5) and a grid heater relay (6) on the plate at the diesel engine control unit (ECM box).



- 5. Starter relay, 50A
- 6. Grid heater relay, 120A

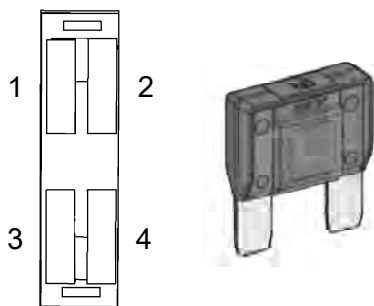


Fig. Fuse box, battery disconnect switch

Fuse box at master switch (Deutz)

The figure shows the position of the fuses.

The amperage and function of the fuses are shown below. All fuses are flat pin fuses.

1.	Main fuse	50A
2.	Cab	30A
3.	* Diesel engine ECU	30A
3.	** Burner, air pump	60A
4.	* Grid heater	40A
4.	** Burner, heater plug	25A

* (IIIA/T3)

** (IIIB/T4i)

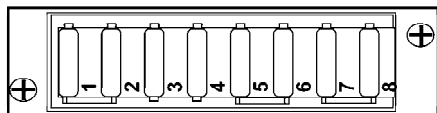


Fig. Cab roof fuse box (F7)

1.	Interior lighting	10A
2.	Windscreen wiper/washers	10A
3.	Cab fan	15A
4.	Reserve	
5.	Reserve	
6.	Reserve	
7.	Reserve	
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

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

The battery disconnect switch is located inside the cover by the steps on the left-hand side of the roller. Turn the key (1) to the On position. The roller is now supplied with power.



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

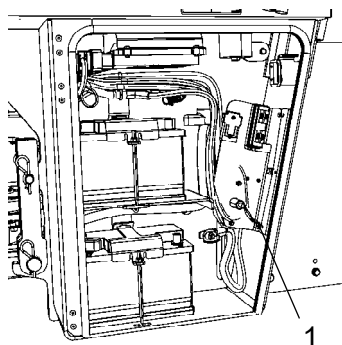


Fig. Cover, left side
1. Battery disconnect switch

Operator's seat - Adjustment

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

The seat can be adjusted as follows.

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

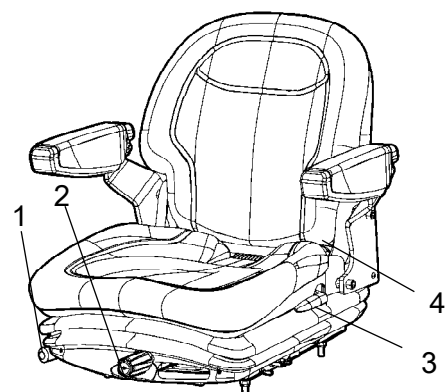


Fig. Operator's seat
1. Lock pack- Length adjustment
2. Weight adjustment
3. Back support angle
4. Seat belt



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.



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)

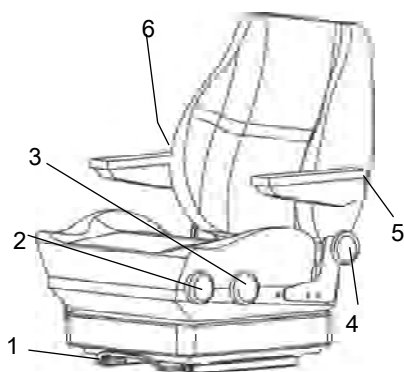


Fig. Operator's seat

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



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

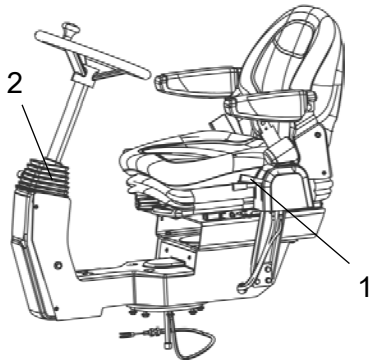


Fig. Operator's station
1. Locking lever - rotation
2. Locking lever - steering column angle

Control panel, adjustments

The control unit has two adjustment options, rotation and steering column angle.

For rotation, lift the lever (1).

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

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

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



Adjust all settings when the machine is stationary.



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

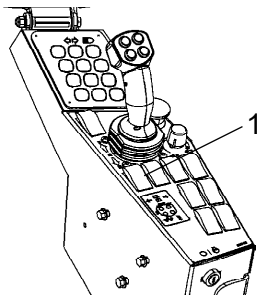


Fig. Control panel
1. Parking brake

Parking brake



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

Brake is always activated in Neutral position.
 (automatic 1.5 sec.)

The parking brake must be activated to start the machine!

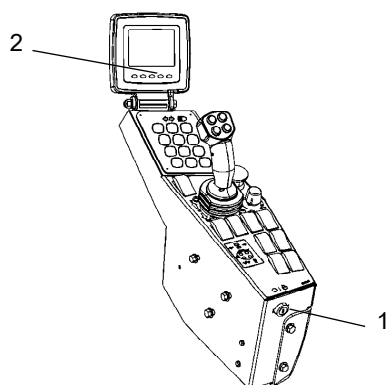


Fig. Control panel
1. Ignition key
2. Status screen

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 image
3. Fuel level
4. Hourmeter
5. Voltmeter

Check that the voltmeter (5) reads at least 24 volts, and that the fuel gauge (3) show a reading.

The hourmeter (4) registers and shows the total number of hours the engine has run.

Interlock

The roller is equipped with Interlock.

The diesel engine will 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!

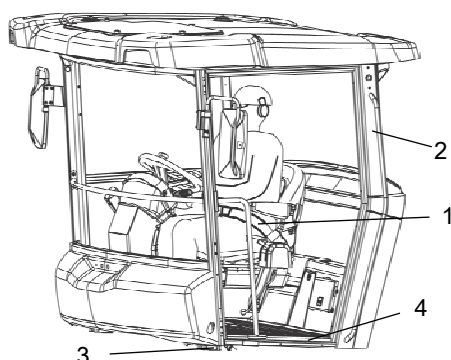


Fig. Operator's station

- 1. Seat belt
- 2. ROPS structure
- 3. Rubber element
- 4. Anti-slip



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



Check that rubber elements (3) on the platform are intact. Worn elements will impair comfort.



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



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

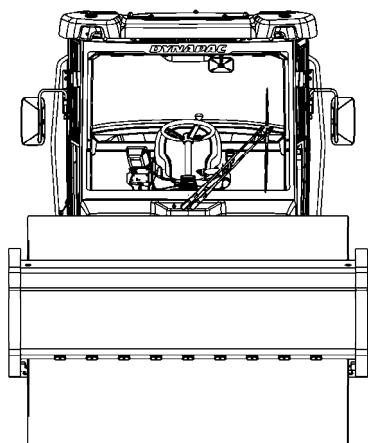


Fig. view

View

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

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

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 then engage the starter by turning it full right. Release back to I as soon as the engine starts.

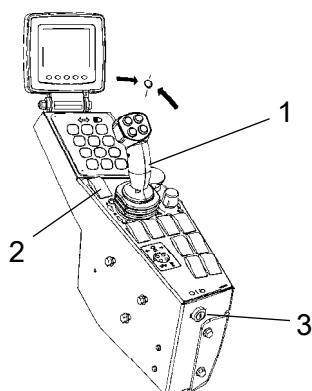


Fig. Control panel

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



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).



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

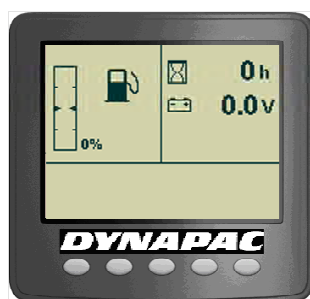


Figure. Display - Status image

While the engine is warming up, check that the fuel indicator shows the level and that the charge shows at least 24V.



When starting and driving a machine that is cold, remember that the hydraulic fluid is also cold and that braking distances can be longer than normal until the machine reaches the working temperature.



The machine always starts in Transport mode and without the option of vibration.

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.

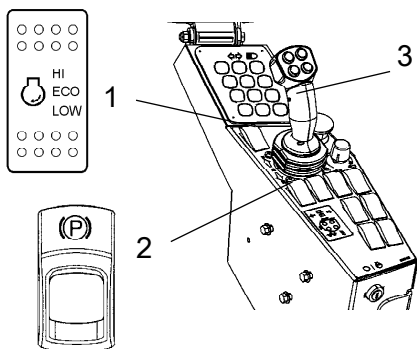


Fig. Control panel
1. Speed selector 2. Parking brake knob
2. Forward/Reverse lever

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, 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.



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



Release the parking brake button (2) by sliding the red lock on the button backwards and changing the position of the lever.

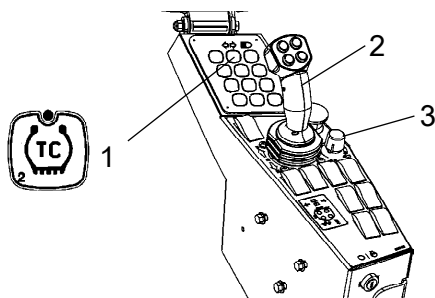


Fig. Control panel
1. TC (Anti-spin)
2. Forward/Reverse lever
3. Potentiometer (speed limiter)

Machine with TC (Anti-Spin)

TC (Anti-Spin) (1) is activated by default (LED lit).

Position the speed control (3) in suitable position.



Fig. The display shows whether TC (Anti-Spin) is activated or disengaged

TC (Anti-Spin) activated/disengaged is shown in the center of the speedometer.

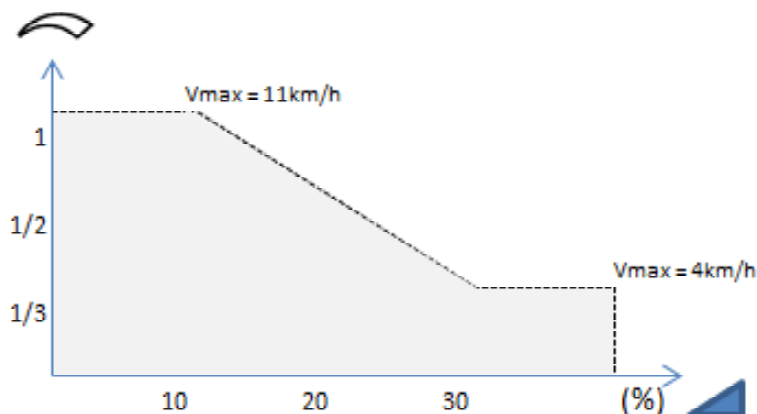
Carefully move the forward/reverse lever (2) forwards or backwards, depending on which direction of travel is required.

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

Slopes (TC (Anti-Spin))

To optimize available pulling force and protect the machine's engine against over-revving while working or during transport driving on steep slopes (>10%), you must select **low setting on the speed limiter (potentiometer)**.

Never drive with a higher gear/at a faster speed that the machine requires to climb up the same slope!



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.



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.

Burnout of DPF filter - (IIIB/T4i)

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.



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

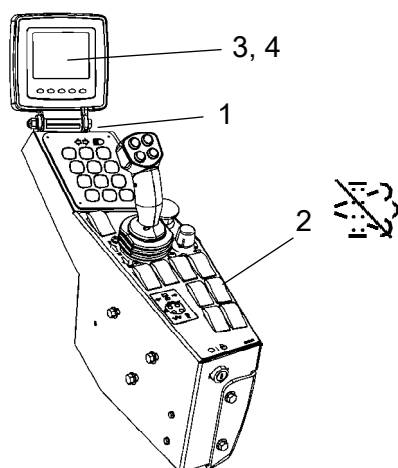


Fig. Control panel

1. Lamp
2. Switch for delayed burnout of DPF filter
3. High exhaust temperature
4. Delayed burnout

When burnout starts, the yellow lamp (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.

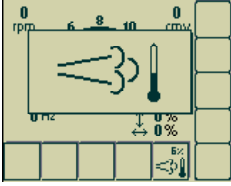
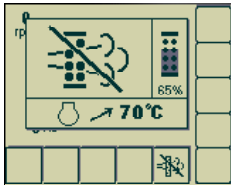
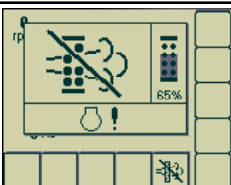
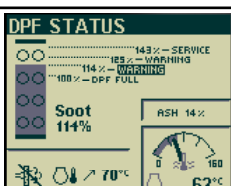
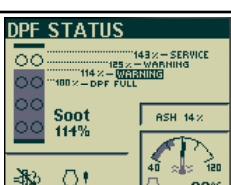

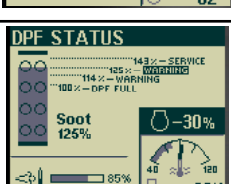
If it is not appropriate to allow the machine to perform automatic burnout, perhaps because the machine is in an unsuitable location or the prevailing working conditions do not permit this, it is possible to delay burnout by activating delayed burnout.

The switch for delaying burnout (2) must be pressed for 3 seconds to delay filter burnout for 20 minutes.

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

DPF displays

Display symbol	Sound	Soot level	Comment	"Yellow warning"
	Beep	<100%	Press and hold the delay switch for 3 sec. 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	$\geq 100\%$	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	$\geq 114\%$	One of the stipulated requirements is not satisfied and burnout is delayed. Engine temperature below 70°C.	1Hz
			Other engine fault	
		$\geq 114\%$	"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

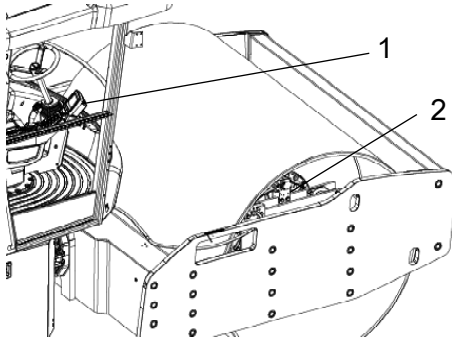


Fig. Principal components
1. Display with CMV view
2. Sensor/Processor unit



Dynapac Compaction Meter (DCM) including Active Bouncing Control (ABC) - Optional

The Compaction Meter is an accessory used to ensure the compaction result and enables optimal material processing. If the Compaction Meter is mounted on the machine a separate view in the machine display indicates the stiffness of the surface as CMV (Compaction Meter Value).

The Active Bouncing Control is always integrated in the Compaction Meter and after a certain warning time shuts off vibration if the machine is run in double-jump (bouncing). This is to save both machine and material as well as the operator from damages when the machine starts to double-jump.

The Compaction Meter is available for both D and PD machines but as the ground contact area varies a lot on PD the readings may not give any sure conclusions but the ABC is still active. The ABC is only possible to disable via the service tool

Setting limit

The CMV view in display will give the operator all information needed during compaction; engine rpm, gear position, speed, frequency and inclinations are in display together with actual CMV and the limit set in brackets. Use the buttons underneath the display to set the limit. The scale will switch automatically between 0-75 and 0-250 depending on the CMV reading.

With DCO in manual mode the system can respond with a double jump (Bouncing).



If double-jump occurs the operator will first get a warning (!).

Secondly the ABC will shut off vibrations and give a message to the operator to continue compaction with a lower vibration amplitude setting or if variable frequency is available reduce the vibration frequency.



The sensor is fitted on the mounting plate of the main bearing and it senses the vibrating motion of the drum. The information is transmitted to the processor unit where it is analyzed.

The analyzed information is presented in the display as a digital value expressed in CMV (Compaction Meter Value). High or low measuring range is automatically selected and viewed in the display. The resulting numerical value is a relative measure of the ground stiffness achieved.

Operation CMV

The Compaction Meter is measuring the dynamic stiffness of the ground. The CMV is influenced by the rolling speed, rolling direction (forward or reverse), amplitude setting and vibration frequency. DCM is less sensitive to small variation in vibration frequency.

Some reference CMV for some compacted materials:

Material	CMV
rock fill	40 - 200
gravel	25 - 100
sand	20 - 60
silt	5 - 30
clay	0 - 80

The water content in the compacted soil, not rock fill, has a large influence on stiffness, wet soil will result in low CMV and dry soil will result in higher CMV.

When double-jump occur CMV will be reduced and this lower CMV should not be used for determine if compaction is ready or not.

NOTE: The operator shall always keep an eye on where they are driving and not focus too much on the CMV display, due to safety.

Vibration

Activate the button for the Working mode (1).

Activation of vibration, and also disconnection of vibration, take place with the switch (2) on the forward/reverse lever.

Note that vibration can only be activated when the working mode (1) is activated, and when the speed selector (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.

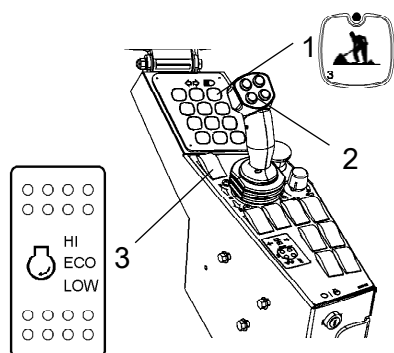


Fig. Control panel
1. Working mode
2. Switch, vibration On/Off
3. Speed selector

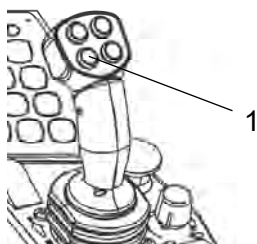


Fig. F/R lever
1. Vibration ON/OFF

Different operating modes



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.

The normal operating mode for this roller during vibration is automatic with the amplitude selector in position 10. The vibrations are started and stopped with the switch (1) on the control lever. The roller's control system for the vibration amplitude will now automatically select an amplitude between zero and maximum adjusted to the rigidity of the surface.

To limit the maximum amplitude the position of the amplitude selector (2) can be adjusted down to 9, 8, etc. The control system will then automatically select an amplitude between zero and the selected maximum value. The amplitude selected by the control system is shown by the amplitude indicator (3), which shows the current amplitude as a percentage of the maximum amplitude for this roller.

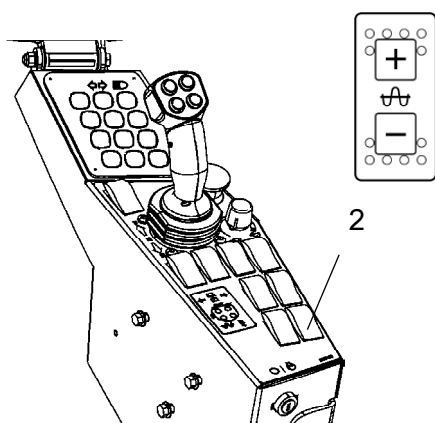


Fig. Control panel
2. Amplitude selector

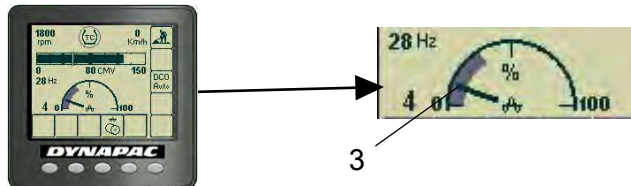


Fig. Selection of manual mode

It is possible to select manual mode by going into the display menu and selecting Manual under "Machine Settings" in the view "DCO Control Mode".

It is not normally necessary to use manual mode, except possibly during servicing. The next time the machine is started it will return to automatic mode.

Recommended layer thickness for different material and amplitude settings.

In general automatic mode (AUT) and position 10 on the amplitude selector are used. In those cases where it can be an advantage to reduce the amplitude, the following settings are recommended for different material and layer thicknesses.

(A) - Compaction of thin layer

(B) - Compaction of layer over surface sensitive to vibration

Amplitude mode table with recommended layer thicknesses (m).

Mode	(A)	(B)	(A)	(B)	(A)	(B)	(A)	(B)
	CA3500		CA3600		CA5000		CA6000	
1								
2	0,1		0,1		0,1		0.1/DCA	
3	0,2	0,3	0,2	0,3	0.2/DCA	0,4	0,2	0,5
4	/DCA	0,4	/DCA	0,4		0,6		0,7
5	0,3	0,5	0,3	0,5	0,3	0,8	0,3	0,9
6		0,6		0,6		1,0		1,1
7		0,7		0,7			0,4	1,3
8		0,8		0,8	0,4	1,2		1,5
9		0,9		0,9				
10	0,4	1,0	0,4	1,0	0,5	1,4	0,6	1,8

Recommended layer thicknesses for the different amplitude modes for the cases described above.

If the surface is very sensitive to vibration it is recommended to do a test compaction to determine the optimal amplitude mode.

/DCA is the recommended mode for compaction control and documentation with "Dynapac Compaction Analyzer" (DCA).

Advice when using DCO

DCO functions so that the amplitude is reduced or increased in relation to the rigidity of the underlying surface. When moving from a soft to a solid surface, the amplitude is reduced and vice versa.

The DCO sensor depth measurement is always larger than the actual compaction depth, and this affects the performance of the control system. The rigidity of the underlying layer affects the control system, even if the compacted layer is very rigid. The control system is limited, or does not operate.

In almost all cases it is recommended to select automatic with the amplitude selector in position 10. The control system automatically selects the optimal amplitude in relation to the rigidity of the compacted layer. The control system does not come into operation until a specific rigidity has been achieved. If this rigidity is never reached in the compacted layer, the control system does not activate. The best compaction performance is most often achieved with maximum amplitude.

There are some exceptions when it is an advantage to reduce the maximum amplitude with the amplitude selector:

- When compacting a thin layer of coarse grade earth, or gravel, the depth of the surface loosening is reduced by selecting to limit the maximum amplitude.
- When compacting a layer of coarse grade earth, or gravel, over a layer of vibration-sensitive earth such as silt, silty clay or clay with a high water ratio. Excessive vibrations can damage the underlying layer.

When extra runs are made for compaction control and documentation with the documentation system DCA it is recommended to set the amplitude selector in position 2 to 4, depending on the size of the machine and expected rigidity of the surface.

Braking

Normal braking

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.

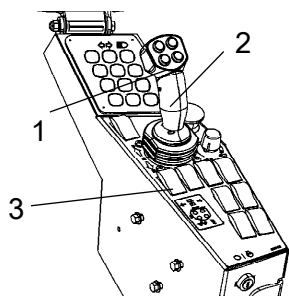


Fig. Control panel
1. Vibration On/Off switch
2. Forward/Reverse lever
3. Parking brake

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

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

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.

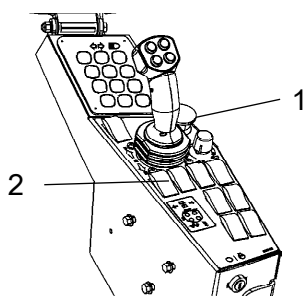


Fig. Control panel
1. Emergency stop
2. Parking brake

The Diesel engine will stop and must be restarted.

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

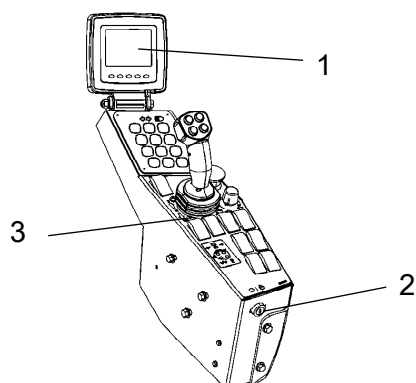


Fig. Control panel
1. Display
2. Ignition lock
3. Parking brake

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 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.

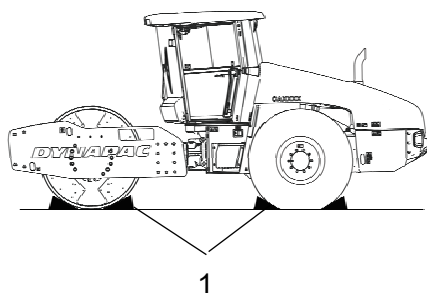


Fig. Positioning
1. Chocks



Remember the risk of freezing during the winter. Fill the engine cooling system and the screenwash bottle in the cab with suitable anti-freeze mixtures. See also the maintenance instructions.

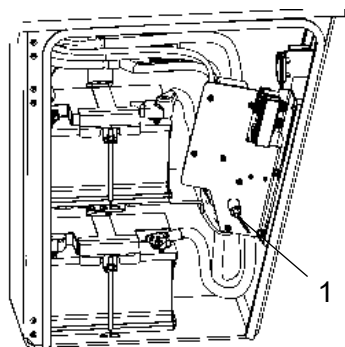


Fig. Cover, left side
1. Master switch

Master switch

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



Before switching off the battery isolation 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. Also lock the hood to the engine compartment.

Long-term parking



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

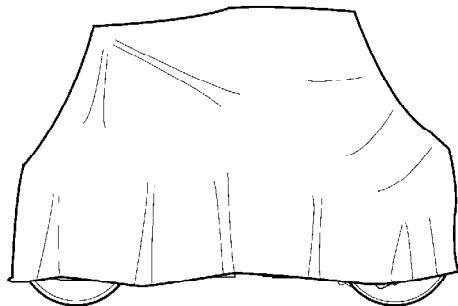


Fig. Roller weather protection

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

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

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

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

Engine

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

Battery

* Remove the battery/batteries from the machine, clean the outside and trickle charge once a month.

Air cleaner, exhaust pipe

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

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.')

Tires (All-weather)

Check that tire pressure is 110 kPa (1.1 kp/cm²), (16 psi).

Hoods, tarpaulin

- * Lower the instrument cover over the instrument panel.
- * Cover the entire roller with a tarpaulin. A gap must be left between the tarpaulin and the ground.
- * If possible, store the roller indoors and ideally in a building where the temperature is constant.

Miscellaneous

Lifting

Locking the articulation



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

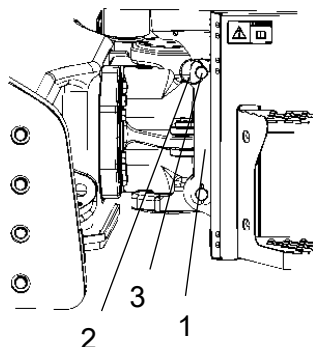


Fig. Steering joint lock
1. Locking arm
2. Locking pin
3. Locking dowel

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

Pull out the upper locking pin (2) fitted with a wire, and pull out the locking dowel (3) fitted with a wire.

Fold down the locking arm (1) so that it rests against the drum frame.

Reinstall the locking dowel (3) in the uppermost locking lug, and secure the dowel in position with the locking pin (2).

Locking the articulation



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

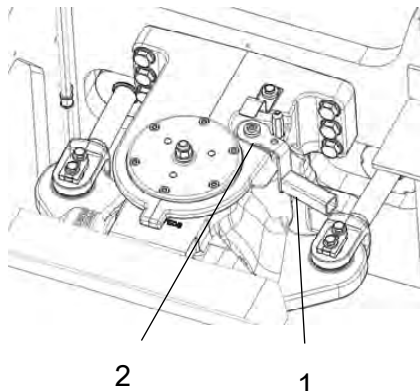


Fig. Steering joint lock, locked
1. Lock handle
2. Locking dowel

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

Front frame shall be in line with the rear frame.

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

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

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

Weight: refer to the hoisting plate on the roller

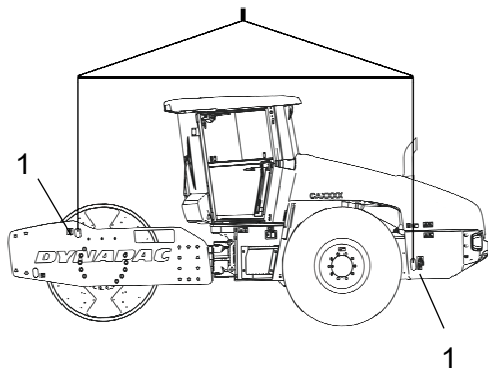


Fig. Roller prepared for lifting
1. Lifting plate

Lifting the roller



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



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



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

Weight: refer to the hoisting plate on the roller

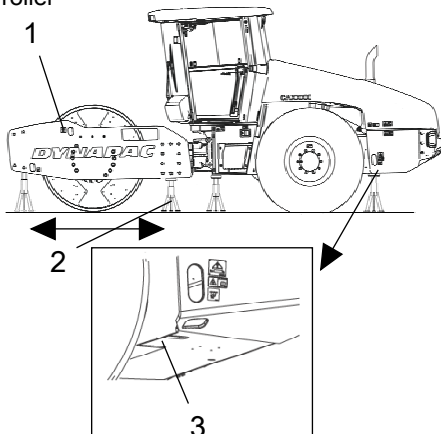


Figure. Roller lifted with jack
1. Lifting plate
2. Jack
3. Marking

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 surface.

You are **recommended to lift** the machine with a jack or similar positioned **at the marking (3)** and/or at alternative locations as illustrated. Lifting at any other place can result in damage to the machine or personal injury.

Regarding the drum frame, axle stands can be placed along the entire side plates and cross members if necessary.

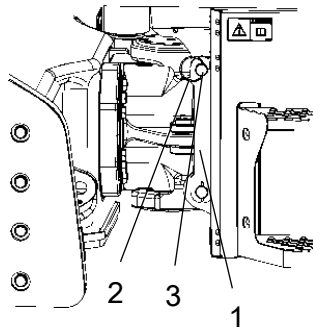


Fig. Steering joint lock
1. Locking arm
2. Locking pin
3. Locking dowel

Unlocking the articulation



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

Fold up the locking arm (1) and secure it in upper the locking lug with the locking dowel (3). Insert the locking pin (2) to secure the locking dowel (3).

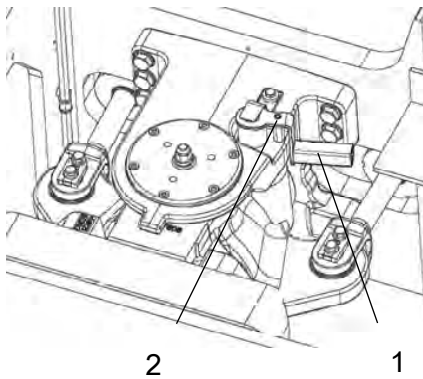


Fig. Steering joint lock, open
1. Lock handle
2. Locking dowel

Unlocking the articulation



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

Lift lock in the handle while turning it counterclockwise.

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

Towing/Recovering

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

Short distance towing with the engine running



Activate the parking brake, and temporarily stop the engine. Chock the wheels to prevent the roller from moving.

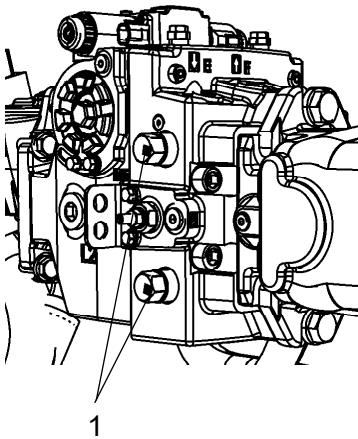


Fig. Propulsion pump
1. By-pass valves

Open the hood and make sure that the propulsion pump is accessible.

On the pump there are two by-pass valves (1) (hex screws), which should be turned three turns anticlockwise to put the system in by-pass mode.

This function enables a machine to be moved.

Start the engine and allow it to idle.

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.

To disengage the by-pass mode, turn back the by-pass valves (1) three turns clockwise.



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

Short distance towing when the engine is inoperative.



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

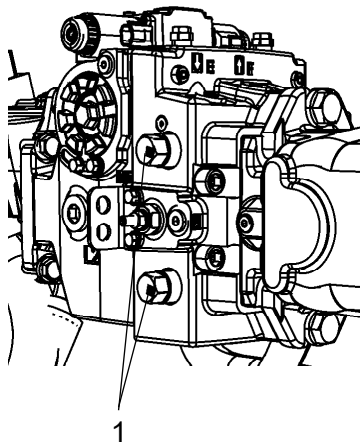


Fig. Propulsion pump
1. By-pass valve

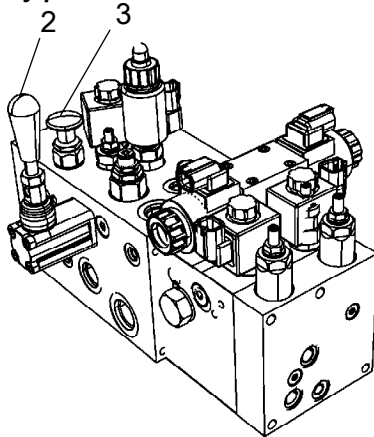


Fig. Valve block, engine compartment
2. Pump arm
3. Brake release button

Open the hood and make sure that the propulsion pump is accessible.

On the pump there are two by-pass valves (1) (hex screws), which should be turned three turns anticlockwise to put the system in by-pass mode.

This function enables a machine to be moved.

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

Press the break release button (3).

Pump with the arm (2) until the brakes are released.

The roller can now be towed.

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

To disengage the by-pass mode, turn back the hex screws (1) three turns clockwise.



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

Towing the roller



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



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

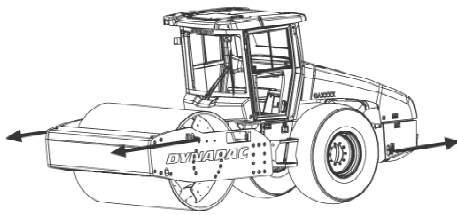


Fig. Towing

When towing/retrieving a machine, the towing device must be connected to both lifting holes. The pulling force must act longitudinally on the machine as shown in the figure. Maximum gross pulling force 308 kN (69241 lbf).



Reverse the towing preparations according to alternative 1 or 2 in the preceding section.

Transport

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

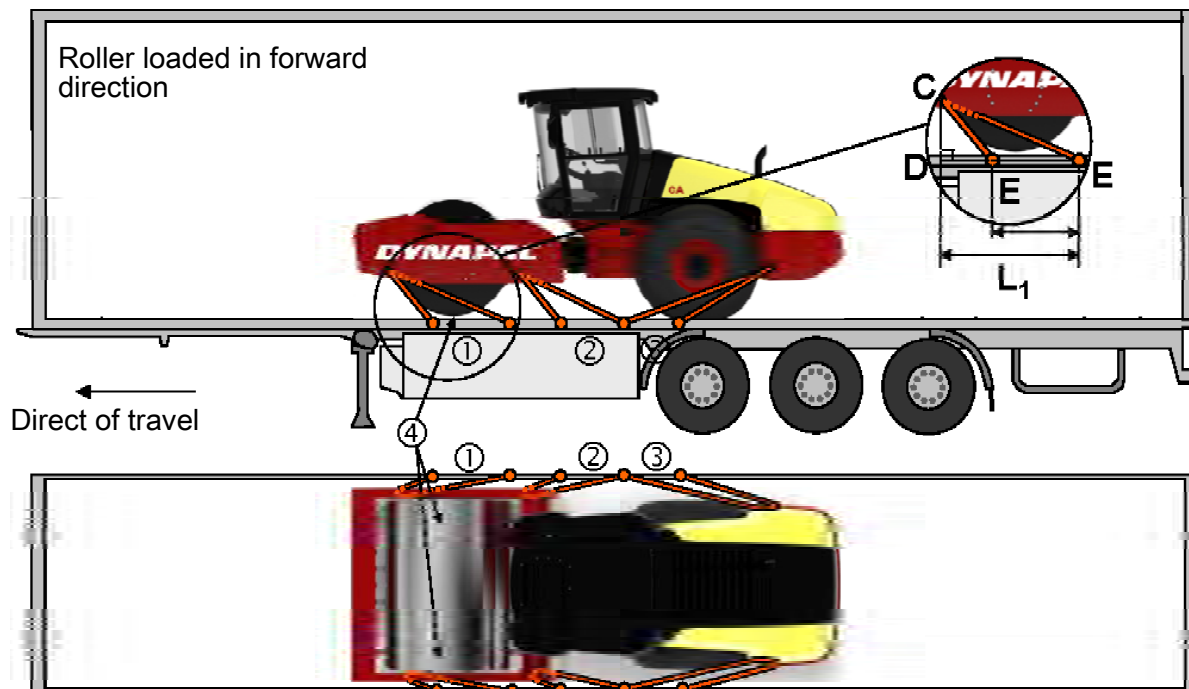
If not, tie down and secure the machine according to the cargo securing rules that are valid for the country where the transport takes place.

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.

Securing CA1500-CA4600 for loading

Securing the CA1500-4600D/PD vibratory roller from Dynapac for transport.



- 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	0,9 - 2,5	0,1 - 2,5

The distance L₁ above is between points D and E. D is the projected point directly at right angles laterally in relation to the edge of the platform from the lashing mount C on the roller. E is the lashing mount at the edge of the platform. L₂ – L₃ have a corresponding relationship.

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 drum is placed on a rubber liner, 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.

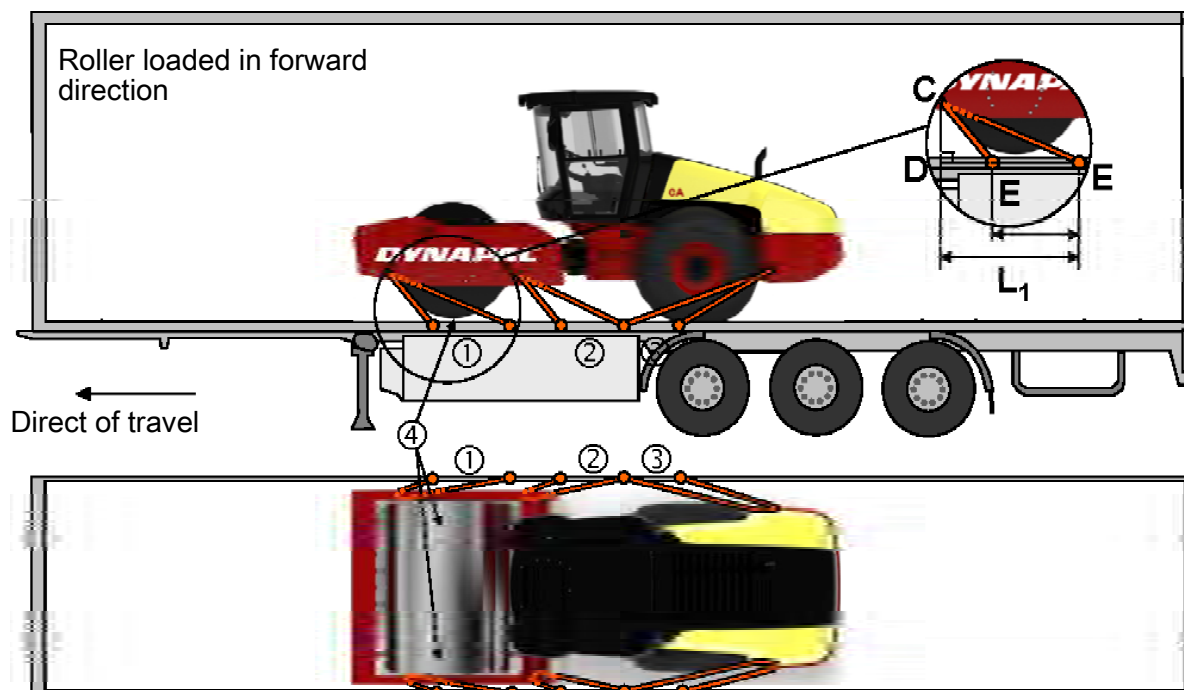
Lashings

- 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 mounts on the platform.
- Lashings in the same direction are placed in different lashing mounts on the trailer. Lashings that are pulled in opposite directions may be placed in the same lashing mount, however.
- The lashings are as short as possible.
- The lashing hooks must not lose grip if the lashings become slack.
- The lashings are protected against sharp edges and corners.
- The lashings are located symmetrically in pairs on the right and left sides.

Securing CA5000 for loading

Securing the CA5000D/PD vibratory roller from Dynapac for transport.

NOTE: CA5000D with fitted PD-shell must be lashed in accordance with the instructions for CA6000/6500.



- 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
1,1 - 3,0	1,1 - 3,0	0,1 - 2,0

The distance L_1 above is between points **D** and **E**. **D** is the projected point directly at right angles laterally in relation to the edge of the platform from the lashing mount **C** on the roller. **E** is the lashing mount at the edge of the platform. L_2 - L_3 have a corresponding relationship.

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 drum is placed on a rubber liner, 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.

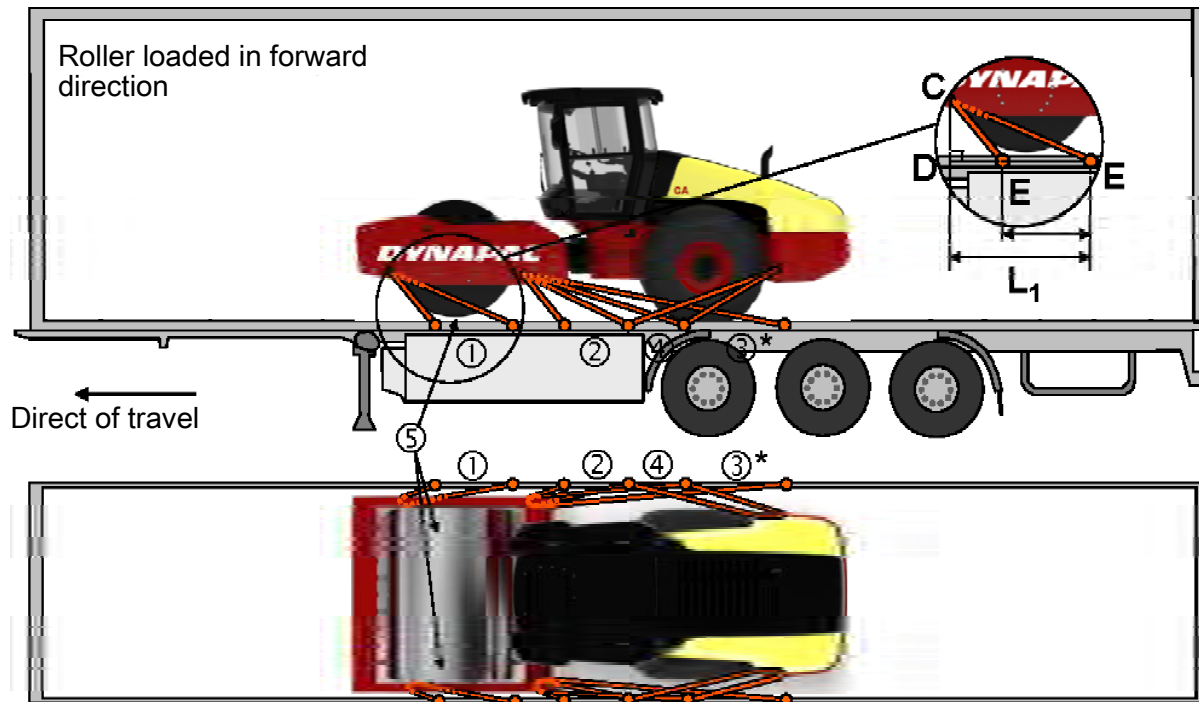
Lashings

- 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 mounts on the platform.
- Lashings in the same direction are placed in different lashing mounts on the trailer. Lashings that are pulled in opposite directions may be placed in the same lashing mount, however.
- The lashings are as short as possible.
- The lashing hooks must not lose grip if the lashings become slack.
- The lashings are protected against sharp edges and corners.
- The lashings are located symmetrically in pairs on the right and left sides.

Securing CA5500/6000/6500 for loading

Securing the CA5500D/PD-CA6500D/PD vibratory roller from Dynapac for transport.

(The instructions also apply to the CA5000D with installed PD-shell)



- * Lashing 3 can be moved to the rear lashing mount on the roller if necessary.
- 1 - 4 = double lashings, i.e. one lashing with two parts secured to two different lashing mounts, symmetrically located on the right and left sides.
- 5 = rubber

The lashings' permitted distance interval in meters			
(1 - 4: Double lashings, LC at least 1.7 tonnes (1700 daN), S _{TF} 300 kg (300daN))			
Double L ₁	Double L ₂	Double L ₃	Double L ₄
0,9 - 2,6	0,6 - 2,6	0,9 - 2,6	0,2 - 2,6

The distance L_1 above is between points **D** and **E**. **D** is the projected point directly at right angles laterally in relation to the edge of the platform from the lashing mount **C** on the roller. **E** is the lashing mount at the edge of the platform. $L_2 - L_4$ have a corresponding relationship.

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 drum is placed on a rubber liner, 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 1-4 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 mounts on the platform. Note that lashing 3 can be moved to the rear lashing mount on the roller if necessary.
- 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. Ensure that all instructions in the MAINTENANCE section are followed.
3. Turn the master switch to the ON position.
4. Move the forward/reverse lever to the NEUTRAL position. Sit down in the seat.
5. Activate the parking brake.
6. Disengage the emergency stop.
7. Set the engine speed switch to idle (LO).
8. Start the engine and allow it to warm up.
9. Set the engine speed switch to Mid/working mode.
10. Deactivate 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. **IN AN EMERGENCY:**
 - Press the **EMERGENCY STOP**.
 - Hold the steering wheel firmly.
 - Brace yourself for a sudden stop.
16. When parking:
 - Activate the parking brake.
 - Switch off the engine and block the drum and wheels if the roller is on an inclined surface.
17. When lifting: - Refer to the relevant section in the Instruction Manual.
18. When towing: - Refer to the relevant section in the Instruction Manual.
19. When transporting: - Refer to the relevant section in the Instruction Manual.
20. When recovering - Refer to the relevant section in the Instruction Manual.

Preventive maintenance

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

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

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

Acceptance and delivery inspection

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

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

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

Warranty

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

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

Maintenance - Lubricants and symbols



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

Fluid volumes

Rear axle (No-Spin)

- Differential	12,5 liters	13.2 qts
- Planetary gear	1,9 liters/side	2.0 qts/side

Drum

- Drum gear

CA3500	2,5 liters	2.6 qts
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CA3600, CA5000, CA6000	3,5 liters	3.7 qts
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- Drum cartridge	2,2 liters/side	2.3 qts/side
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Hydraulic reservoir	41 liters	10.8 gal
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Oil in hydraulic system

CA3500	80 liters	21.1 gal
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CA3600, CA5000, CA6000	84 liters	22.2 gal
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Diesel engine, Cummins

- Lubricating oil	11 liter	11.6 qts
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- Coolant, with cab (IIIA/T3)	26,2 liters	27.7 qts
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- Coolant, with cab (IIIB/T4i)	28,2 liters	29.8 qts
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Diesel engine, Deutz

- Lubricating oil	14 liters	14.8 qts
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



- Coolant, with cab	32,2 liters	34 qts
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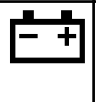





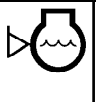

Other fuel and lubricants are required when operating in areas with extremely high or extremely low ambient temperatures. See the 'Special instructions' chapter, or consult Dynapac.

	ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F)	PAROIL E GREEN	P/N 1630047100 (5 liters), P/N 1630047200 (20 liters)
	HYDRAULIC FLUID	Air temperature -15°C - +50°C (5°F-122°F)	AtlasCopco Hydraulic 300	P/N 9106230330 (20 liters), P/N 9106230331 (209 liters)
		Ambient air temperature above +40°C (104°F)	Shell Tellus S2 V100	

Maintenance - Lubricants and symbols

	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)	AtlasCopco Drum Oil 1000 P/N 4812156456 (5 liters)
	GREASE		Dynapac Roller Grease (0.4kg), P/N 4812030095
	FUEL	See engine manual.	-
	TRANSMISSION OIL	Air temperature -15°C - +40°C (5°F-104°F)	AC Fluid Gearbox 100 P/N 4812008274 (5 liters), P/N 4812008275 (20 liters)
		Air temperature 0°C (32°F) - above +40°C (104°F)	Shell Spirax S3 AX 85W-140, API GL-5 or equivalent.
	COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	GlycoShell/Carcoolant 774C (mixed 50/50 with water)

Maintenance symbols

	Engine, oil level		Tyre pressure
	Engine, oil filter		Air filter
	Hydraulic reservoir, level		Battery
	Hydraulic fluid, filter		Recycling
	Transmission, oil level		Fuel filter
	Drum, oil level		Coolant, level
	Oil for lubrication		

Maintenance - Maintenance schedule

Service and maintenance points

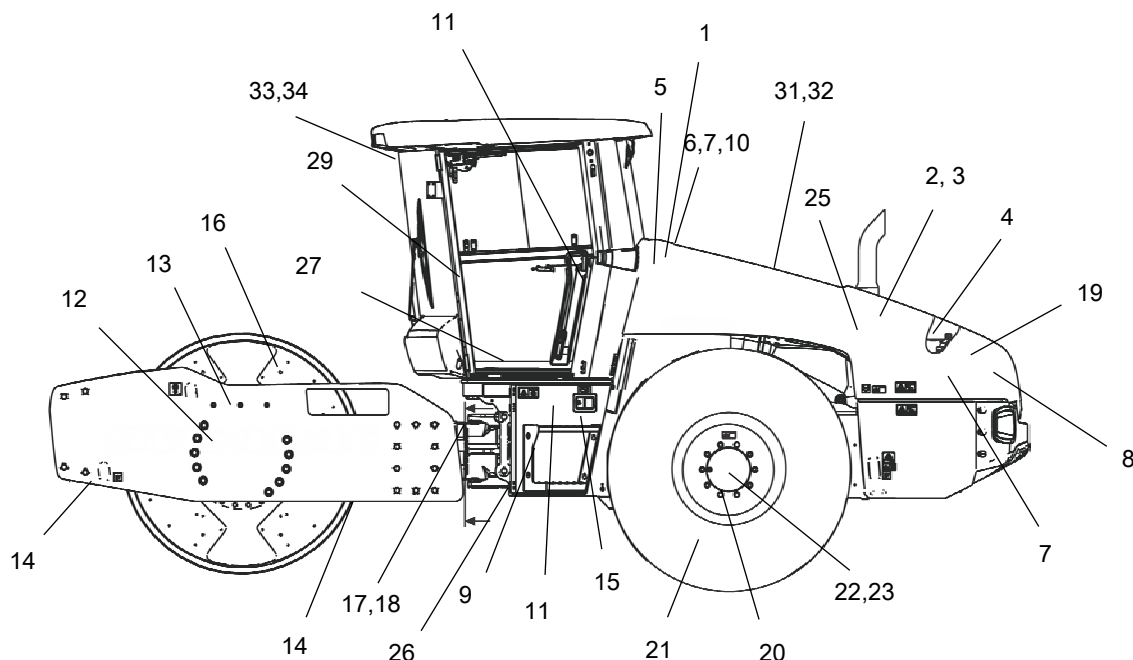


Fig. Service and maintenance points

- | | | |
|--|--|----------------------------|
| 1. Diesel fuel, filling | 14. Scrapers | 27. Seat bearing * |
| 2. Oil level, diesel engine | 15. Battery | 28. Steering chain * |
| 3. Fuel filter, fuel pre-filter | 16. Rubber elements and fastening screws | 29. Forward/reverse lever |
| 4. Air filter | 17. Steering joint | |
| 5. Engine cover, hinges | 18. Steering cylinders, x2 | 31. Water cooler |
| 6. Hydraulic reservoir, sight glass | 19. Drive belts | 32. Hydraulic fluid cooler |
| 7. Bleeding filter | 20. Wheel nuts | 33. Fresh air filter * |
| 8. Hydraulic fluid filter, x1 | 21. Tires, pressure | 34. Air conditioning * |
| 9. Drainage, hydraulic fluid reservoir | 22. Rear axle, differential | |
| 10. Hydraulic fluid, filling | 23. Rear axle, planetary gears, 2 pcs. | |
| 11. Fuse box(es), main fuses | | |
| 12. Drum oil | 25. Oil filter, diesel engine | |
| 13. Drum gearbox | 26. Draining, fuel tank * | |

* Optional equipment

General

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

Maintenance - Maintenance schedule



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



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



Periodic service (service message) - Optional

A Service message (Periodic Service) is shown in the display 15 hours before First Service (50h).

For Periodic Service (250h-1000h) a Service message is shown in the same way but with the difference that it is shown 30 hours before the Periodic service interval.

Service interval	Display start
50h	35h
250h	220h
500h	470h
750h	720h
1000h	970h
The message continues to be displayed for 15 engine starts or until it is reset by the Service tool.	



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

A Service symbol is now visible at the bottom of the display screen.

Maintenance - Maintenance schedule

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	
14	Check the scraper setting	
	Check for free circulation of cooling air	
31	Check coolant level	Refer to the engine manual
2	Check the engine oil level	Refer to the engine manual
1	Refuel	
6	Check fluid level in hydraulic reservoir	
	Test the brakes	

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
8	Change the hydraulic fluid filter	
12	Change the drum cartridge oil	
20	Check the wheel-nuts are tightened	
21	Check the tire pressure	
13	Change the oil in the drum gearbox	
17	Steering hitch - Tightening	

Every 50 hours of operation (Weekly)

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

Pos. in fig	Action	Comment
	Check that hoses and couplings are not leaking	
	Check DCO cables and connectors in the drum	

Maintenance - Maintenance schedule

Every 250 / 750 / 1250 / 1750 hours of operation

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

Pos. in fig	Action	Comment
23,22	Check the oil level in rear axle/planetary gears	
12	Check the oil level in the drum	
13	Check the oil level in drum gearbox	
32,31	Clean the coolers	
16	Check rubber elements and bolted joints	
15	Check batteries	
34	Check the AC	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
4	Inspect the filter element in the air cleaner	Replace as required
23,22	Check the oil level in rear axle/planetary gears	
12	Check the oil level in the drum.	
12	Change the oil in the drum gearbox	
13	Check the oil level in drum gearbox	
32,31	Clean the coolers	
3	Replace the fuel filter	Refer to the engine manual
3	Replace the fuel pre-filter	Refer to the engine manual
5	Lubricate controls and joints	
2,25	Change the engine oil and oil filter. *	Refer to the engine manual *) 500h or once every 6 months/once a year (Cummins/Deutz).
27,28	Lubricate seat bearing/steering chain	Optional
	Check the engine's valve clearance (after the first 500 h)	Refer to the engine manual

Every 1000 hours of operation

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

Pos. in fig	Action	Comment
8	Change the hydraulic fluid filter	
4	Inspect the filter element in the air cleaner	Replace as required
22	Change oil in rear axle differential	
23	Change oil in the rear axle planetary gearing	
12	Check the oil level in the drum.	
12	Change the oil in the drum gearbox.	
13	Change the oil in drum gearbox	
32,31	Clean the coolers	
3	Replace the fuel filter	Refer to the engine manual
3	Replace the fuel pre-filter	Refer to the engine manual
2,25	Change the engine oil and oil filter. *	Refer to the engine manual *) 500h or once every 6 months/once a year (Cummins/Deutz).
7	Check bleeder filter on hydraulic reservoir	
9	Drain the condensate from hydraulic reservoir	
26	Drain condensate from fuel tank	Optional
33	Replace the fresh air filter in the cab	Optional
19	Check belt tension in the drive belt system	Refer to the engine manual
17	Steering hitch - Tightening	

Maintenance - Maintenance schedule

Every 2000 hours of operation

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

Pos. in fig	Action	Comment
6,10	Change the hydraulic fluid	
8	Change the hydraulic fluid filter	
4	Inspect the filter element in the air cleaner	Replace as required
22	Change oil in rear axle differential	
23	Change oil in the rear axle planetary gearing	
12	Change the oil in the drum	
12	Change the oil in the drum gearbox.	
13	Change the oil in the drum gearbox	
32,31	Clean the coolers	
3	Replace the fuel filter	Refer to the engine manual
3	Replace the fuel pre-filter	Refer to the engine manual
29	Lubricate the Forward/Reverse lever	
2,25	Change the engine oil and oil filter. *	See the engine manual *) 500 h, or once every 6 months/once a year (Cummins/Deutz)
27,28	Grease the steering bearing / steering chain	Optional
7	Check bleeder filter on hydraulic reservoir	
9	Drain the condensate from hydraulic reservoir	
26	Drain condensate from fuel tank	Optional
34	Overhaul air conditioning	Optional
	Check engine's valve clearances	Refer to the engine manual
19	Check belt tension in the drive belt system	Refer to the engine manual
	Replace ventilation filter in the crankcase **	See engine manual **), only applies to Cummins IIB/T4i
17	Steering hitch - Tightening	

Every other year

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

Pos. in fig	Action	Comment
31	Change the coolant (glycol)	
10	Change the oil in the hydraulic tank	
4	Inspect the filter element in the air cleaner	Replace as required
22	Check the oil level in the rear axle's differential	
23	Check oil level in rear axle's planetary gearing	
12	Check the oil level in the drum/drum gearbox.	
13	Change the oil in drum gearbox	
16	Check rubber elements and bolted joints	
9	Drain the condensate from hydraulic reservoir	
26	Drain condensate from fuel tank	Optional
19	Check belt tension in the drive belt system	Refer to the engine manual

Maintenance, 10h



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



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

Scrapers - Check, adjustment



It is important to consider movement of the drum when the machine turns, i.e., the scrapers can be damaged or wear of the drum may increase if adjustment is made closer than the values stated.

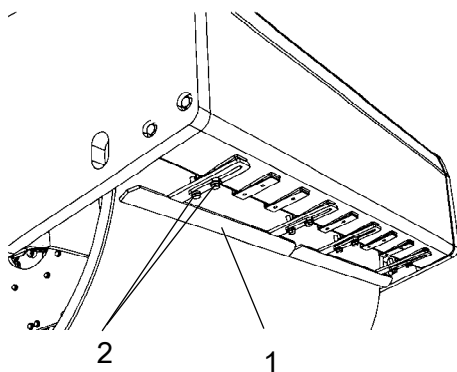


Fig. Scrapers
1. Scraper blade (x 4)
2. Screws

If necessary, adjust distance to the drum as follows:

Loosen the screws (2) on the scraper attachment.

Then adjust the scraper blade (1) to 25 mm (1 in) from the drum.

Tighten the screws (2).

Repeat the procedure for the other scraper blades (x4).

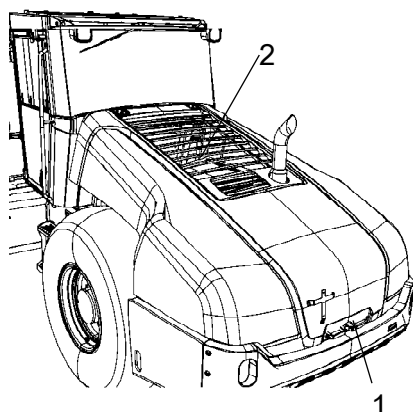


Fig. Engine hood
1. Hood lock
2. Protective grille

Air circulation - Check

Ensure that the engine has free circulation of cooling air through the protective grille in the hood.

To open the engine hood, turn the lock handle (1) upward. Raise the hood to its fully open position, checking that the red safety catch on the left gas spring is latched.



If the gas-springs for the hood are loosened and the hood is raised to its upper position - block the hood so that it cannot fall.



Coolant level - Check

Place the roller on a flat surface and check the level of the coolant in the sight glass (2). Top up with coolant if the level is too low.



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

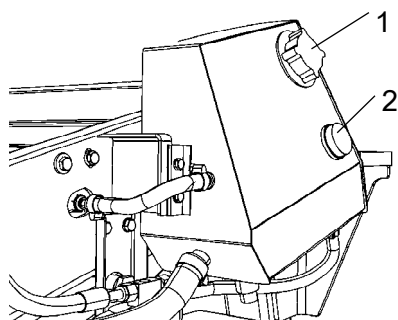


Fig. Expansion tank
1. Filler cap
2. Sight glass

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



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



Diesel engine Check oil level



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

The dipstick is located beside the engine's oil and fuel filter.

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

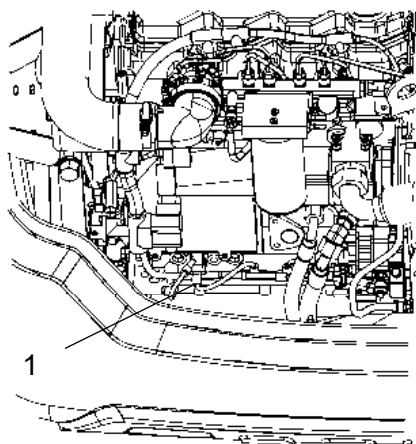


Fig. Engine compartment
1. Dipstick



Fuel tank - Filling

Top up the fuel tank every day. Follow the engine manufacturer's specifications for diesel fuel.



The new Tier 4i/Stage IIIB Cummins engines require the use of Ultra Low Sulphur Diesel (ULSD) fuel, which has a sulphur content of 15 ppm (parts per million) or less. A higher sulphur content will cause operating problems and put the useful life of components at risk, which can lead to engine trouble.

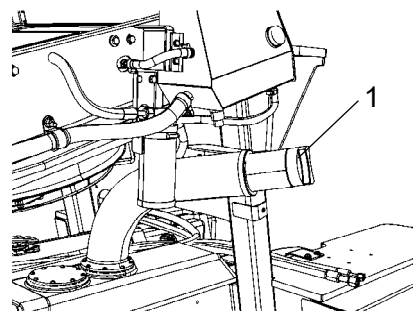


Fig. Fuel tank
1. Filler pipe



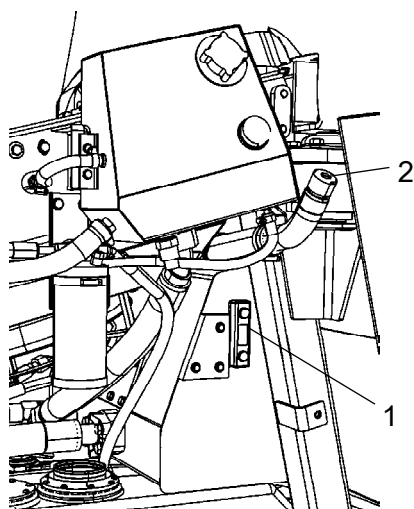
Stop the engine. Short-circuit (press) the filler gun against a non-insulated part of the roller before refuelling, and against the filler pipe (1) while refuelling.



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



Hydraulic reservoir - Check fluid level



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.

The volume between the min. and max. lines is approx. 4 liters (4.2 qts).

Fig. Hydraulic reservoir

- 1. Sight glass**
- 2. Filler pipe**

Maintenance - 50h



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



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



Hydraulic filter - Replacement

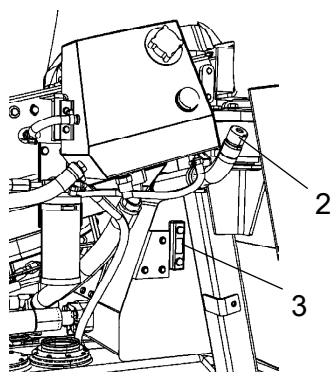


Fig. Hydraulic reservoir
2. Filler cap/Bleeding filter
3. Sight glass

Undo the filler cap/bleeder filter (2) on top of the reservoir so that over-pressure inside the reservoir can be eliminated.

Make sure that the bleeding filter (2) 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.***

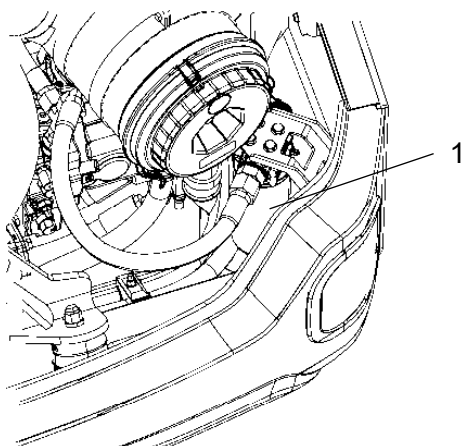


Fig. Engine compartment
1. Hydraulic fluid filter (x1).

Clean thoroughly around the oil filter.



Remove the oil filter (1) and hand in to an environment-friendly waste disposal station. This is a single-use filter and cannot be cleaned.



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

Thoroughly clean the filter holder's sealing surfaces.

Apply a thin coat of fresh hydraulic fluid on the new filter seal. Screw tight the filter by hand.



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

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



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



Tires - Air pressure - Wheel nuts - Tightening

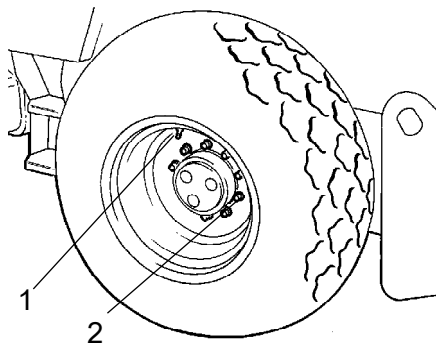


Fig. Wheels
1. Air valve
2. Wheel nut

Check the tire pressures using a pressure gauge.

If the tires are filled with fluid, the air valve (1) must be in the "12 o'clock" position during pumping.

Recommended pressure: See Technical Specifications.

Check the tire pressure.



When changing the tires it is important that both of them have the same rolling radius. This is necessary to ensure proper functioning of the anti-slip in the rear axle.

Check the tightening torque of the wheel nuts (2) at 630 Nm (465 lbf.ft).

Check both wheels and all nuts. (This only applies to a new machine or newly fitted wheels).



Check the safety manual that accompanies the roller before filling the tires with air.



Drum gearbox - Oil change

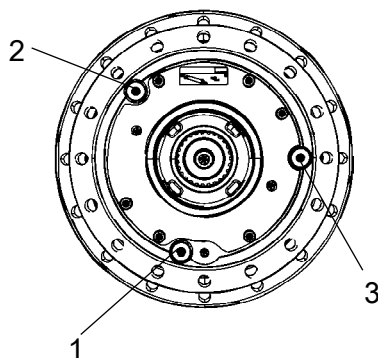


Fig. Drum gearbox
1. Drain plug
2. Filler plug
3. Level plug

Wipe clean, unscrew the plugs (1, 2 and 3) and drain the oil into a suitable receptacle, capacity about 5.0 liters (5,3 qts.).

Refit the drain plug (1) and fill with oil up to the level plug (3), according to "Drum gearbox - Checking the oil level".

Use transmission oil according to the lubricant specification.

Clean and refit the level plug (3) and filler plug (2).

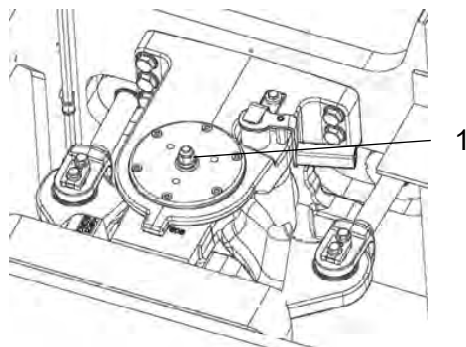


Fig. Steering hitch
1. Nut

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

Maintenance - 50h



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



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

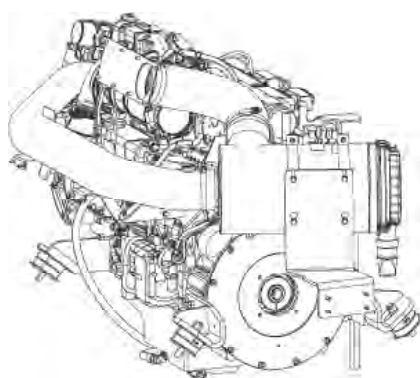


Air cleaner

- Check hoses and connections



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



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



Drum - Oil change

NOTE: This 50 hour oil change only applies to a new machine, or after renovation of the drum.

Position the roller on a flat surface with the groove (1) on the inside of the drum aligned with the top of the drum frame.

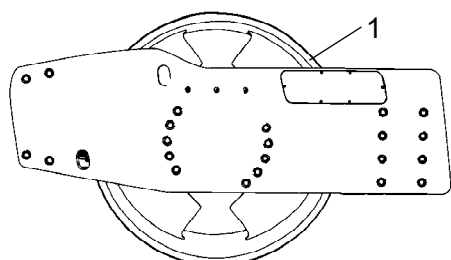


Fig. Left drum side
1. Groove

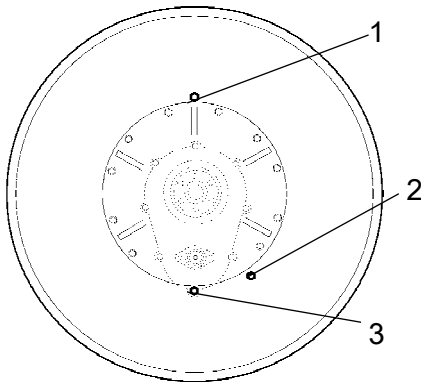


Fig. Drum, right side
1. Filler plug
2. Level glass
3. Drain plug

Drum - Oil change

Ensure that the drum's plugs and level glass are positioned as in Fig 2.

Place a vessel capable of holding at least 20 liters (5.3 gal) under drain plug (3).

Remove and clean filler plug (1) and drain plug (3).

Allow all the oil to drain out. Clean and refit drain plug (3) and fill with new synthetic oil. The total volume of oil in the drum must be 15 liters (4.0 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the drum.

Clean and refit filler plug (1).

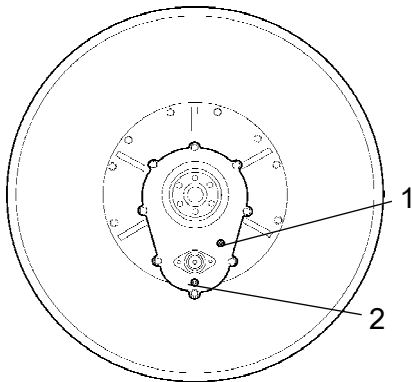


Fig. Gearbox - Drum, right side
1. Filler plug/Level plug
2. Drain plug

Gearbox - Oil change

Place the roller on a level surface.

Place a receptacle that holds at least 1 liter (0.3 gal)) under the drain plug (2).

Unscrew and clean the filler/level plug (1) and the drain plug (2).

Allow all of the oil to drain off. Clean and refit drain plug (2) and fill with oil up to filler/level plug (1). The total volume of oil in the gearbox must be 0.3 liters (0.08 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the gearbox.

Clean and refit filler/level plug (1).

Maintenance - 250 / 750 / 1250 / 1750h



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



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



Rear axle differential - Check oil level



Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

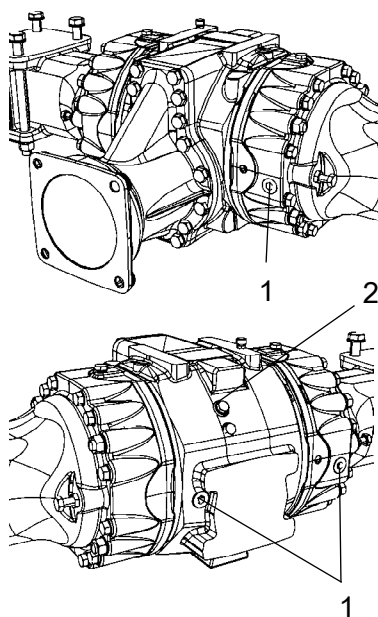


Fig. Level control - differential housing
1. Level plugs (x 3)
2. Filler plug

Wipe clean and remove the level plugs (1) and check that the oil level reaches the lower edge of the plug holes. The plugs can be found at the front or rear of the rear axle.

At a low level, remove the filler plug (2) and top up with oil to the correct level. Use transmission oil, see lubricant specifications.

Clean and refit the plug.



Rear axle planetary gears - Check oil level

Position the roller so that the level plug (1) in the planetary gear is at "9 o'clock" or "3 o'clock".

Wipe clean and remove the level plug (1) and check that the oil level reaches the lower edge of the plug hole. Top off with oil to the right level if the level is low. Use transmission oil. See lubrication specification.

Clean and refit the plug.

Check the fluid level in the same way on the rear axle's other planetary gear.

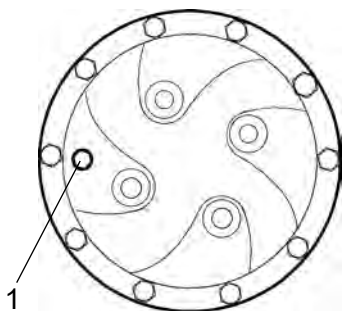


Fig. Level check - planetary gear
1. Level/Filler plug



Drum - Checking the oil level

Position the roller on a flat surface with the groove (1) on the inside of the drum aligned with the top of the drum frame.

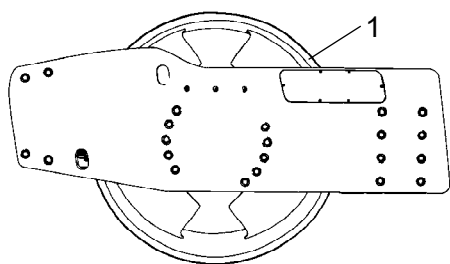


Fig. Left drum side
1. Groove



The oil should now come up to the sight glass (2).

If necessary, release the filler plug (1) and fill to half the sight glass (2).



Do not overfill with oil - risk of overheating.



Make sure to only use Dynapac Drum Oil 1000 in the drum.

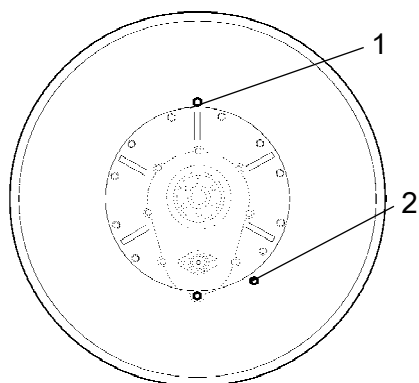


Fig. Drum, right side
1. Filler plug
2. Level glass

Clean and refit filler plug (1).



Gearbox - Checking the oil level

Park the roller on flat ground.

Clean and dry around filler/level plug (1) and unscrew the plug.

Check that the oil is level with the bottom edge of the plug hole.

If the oil is too low, fill until the oil reaches filler/level plug (1).



Overfilling with oil can cause overheating.



Make sure to only use Dynapac Drum Oil 1000 in the gearbox.

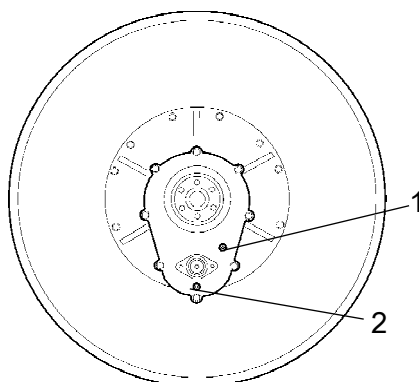


Fig. Gearbox - Drum, right side
1. Filler/Level plug
2. Drain plug

Clean and refit filler/level plug (1).



Drum gearbox - Checking the oil level

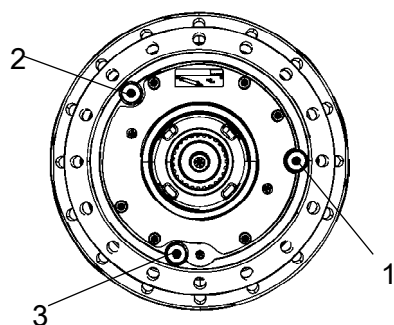


Fig. Oil level check - drum gearbox

- 1. Level plug
- 2. Filler plug
- 3. Drain plug

Wipe clean the area around the level plug (1) and then undo the plug.

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

Top off with oil to the right level if the level is low. Use transmission oil according to the lubricant specification.

Clean and refit the plugs.

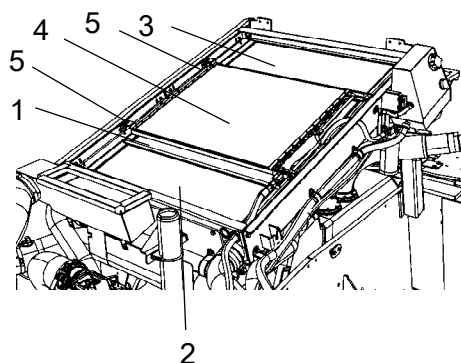


Fig. Engine compartment

- 1. Water cooler
- 2. Charge air cooler
- 3. Hydraulic fluid cooler
- 4. Condenser element AC (Optional)
- 5. Screws (x 2)

Radiator - Check/Cleaning

Check that air can pass unobstructed through the radiators (1), (2) and (3).

Clean a dirty radiator using compressed air or a high-pressure water jet.

Undo the two screws (5) and tilt the condenser element upwards.

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



Be careful when using a high-pressure washer - do not place the nozzle too close to the radiator.



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

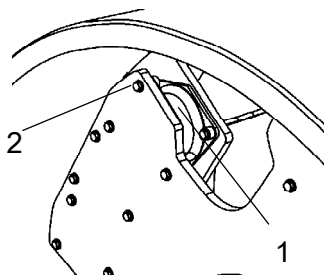


Fig. Drum, drive side
1. Rubber element
2. Attachment screws

Rubber elements and fastening screws - Check

Check all rubber elements (1), replace all of the elements if more than 25% of them on one side of the drum are cracked deeper than 10-15 mm (0.4-0.6 in).

Check using a knife blade or pointed object.

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

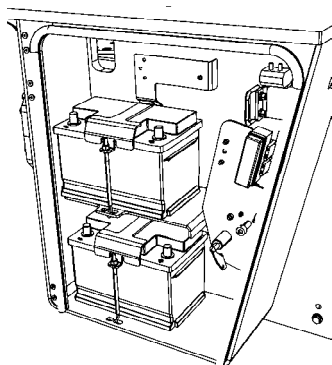


Figure. Batteries

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.

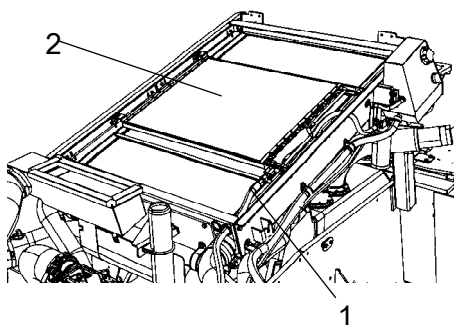


Fig. Air conditioning
1. Refrigerant hoses
2. Condenser element

Air conditioning (Optional) **- Inspection**

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

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



Automatic Climate Control (Optional) - **Inspection**

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

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

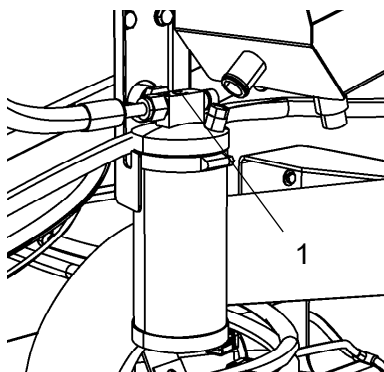


Fig. Drying filter
1. Sight glass

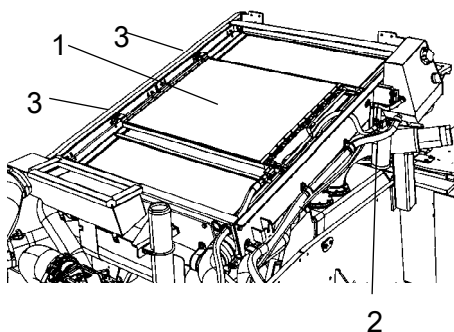


Fig. Engine compartment
1. Condenser element
2. Drying filter
3. Screws (x 2)

If there is a significant loss of cooling capacity, clean the condenser element (1) located above the coolers in the engine compartment.

Undo the two screws (3) and tilt the condenser element (1) upwards.

Also clean the cooling unit in the cab. See under the heading 2000 hours, air conditioning - overhaul.

Maintenance - 500 / 1500h



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



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



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.

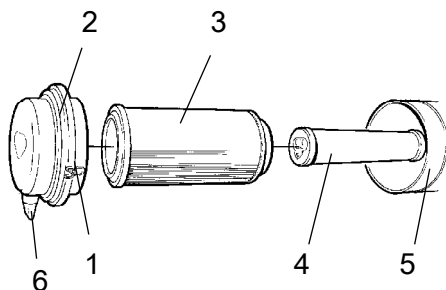


Fig. Air cleaner

- 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

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.

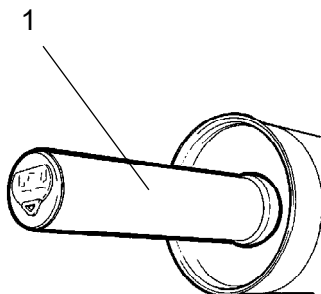


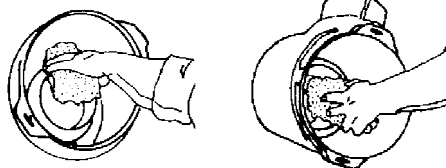
Fig. Air filter
1. Backup filter



Air cleaner - Cleaning

Wipe clean on both sides of the outlet pipe.

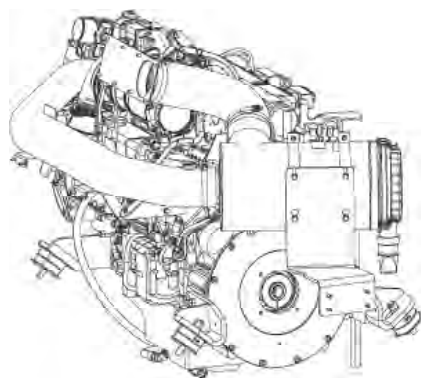
Wipe clean the inside of the cover (2) and the filter housing (5). See the previous illustration.



Inner edge of outlet pipe.

Outer edge of outlet pipe.

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



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



Rear axle differential - Check oil level



Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

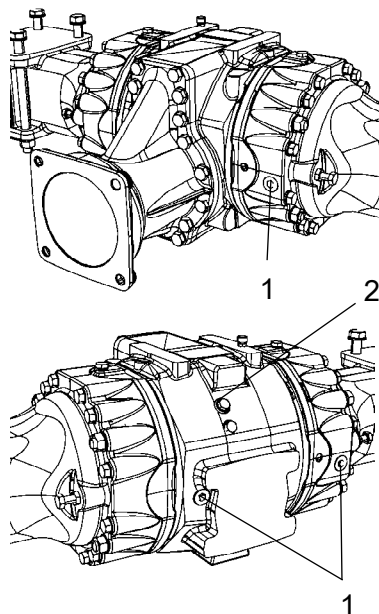


Fig. Level control - differential housing
1. Level plugs (x 3)
2. Filler plug

Wipe clean and remove the level plugs (1) and check that the oil level reaches the lower edge of the plug holes. The plugs can be found at the front or rear of the rear axle.

At a low level, remove the filler plug (2) and top up with oil to the correct level. Use transmission oil, see lubricant specifications.

Clean and refit the plug.



Rear axle planetary gears - Check oil level

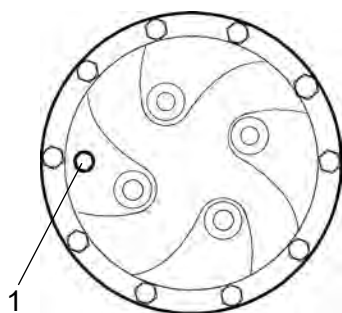


Fig. Level check - planetary gear
1. Level/Filler plug

Position the roller so that the level plug (1) in the planetary gear is at "9 o'clock" or "3 o'clock".

Wipe clean and remove the level plug (1) and check that the oil level reaches the lower edge of the plug hole. Top off with oil to the right level if the level is low. Use transmission oil. See lubrication specification.

Clean and refit the plug.

Check the fluid level in the same way on the rear axle's other planetary gear.



Drum - Checking the oil level

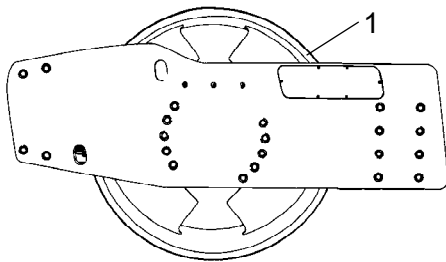


Fig. Left drum side
1. Groove

Position the roller on a flat surface with the groove (1) on the inside of the drum aligned with the top of the drum frame.



The oil should now come up to the sight glass (2).

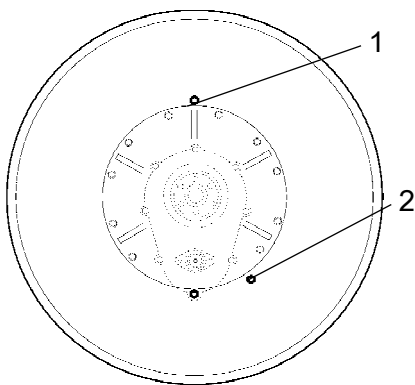


Fig. Drum, right side
1. Filler plug
2. Level glass

If necessary, release the filler plug (1) and fill to half the sight glass (2).



Do not overfill with oil - risk of overheating.



Make sure to only use Dynapac Drum Oil 1000 in the drum.

Clean and refit filler plug (1).

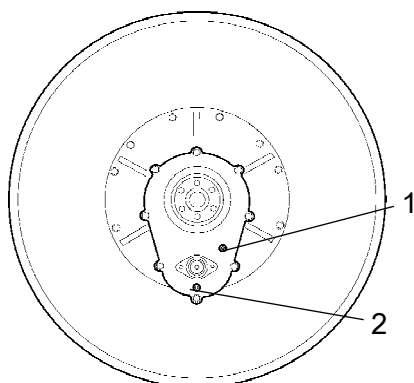


Fig. Gearbox - Drum, right side
1. Filler plug/Level plug
2. Drain plug

Gearbox - Oil change

Place the roller on a level surface.

Place a receptacle that holds at least 1 liter (0.3 gal)) under the drain plug (2).

Unscrew and clean the filler/level plug (1) and the drain plug (2).

Allow all of the oil to drain off. Clean and refit drain plug (2) and fill with oil up to filler/level plug (1). The total volume of oil in the gearbox must be 0.3 liters (0.08 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the gearbox.

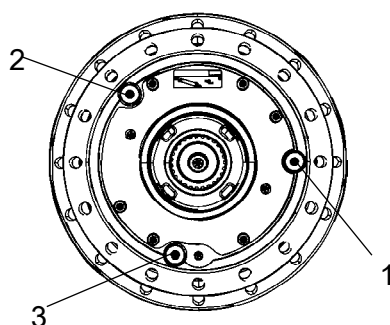


Fig. Oil level check - drum gearbox
1. Level plug
2. Filler plug
3. Drain plug

Clean and refit filler/level plug (1).

Drum gearbox - Checking the oil level

Wipe clean the area around the level plug (1) and then undo the plug.

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

Top off with oil to the right level if the level is low. Use transmission oil according to the lubricant specification.

Clean and refit the plugs.

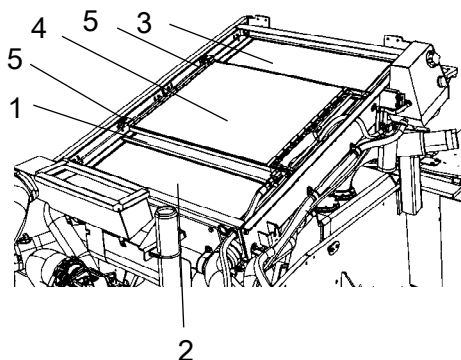


Fig. Engine compartment

- 1. Water cooler
- 2. Charge air cooler
- 3. Hydraulic fluid cooler
- 4. Condenser element AC (Optional)
- 5. Screws (x 2)

Radiator - Check/Cleaning

Check that air can pass unobstructed through the radiators (1), (2) and (3).

Clean a dirty radiator using compressed air or a high-pressure water jet.

Undo the two screws (5) and tilt the condenser element upwards.

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



Be careful when using a high-pressure washer - do not place the nozzle too close to the radiator.



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



Fuel pre-filter - Replacement



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

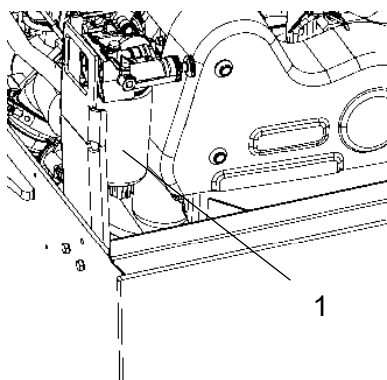


Fig. Engine compartment

- 1. Fuel prefilter

See the engine's instruction manual for filter replacement, in the Fuel system chapter.



Replacing the fuel filter

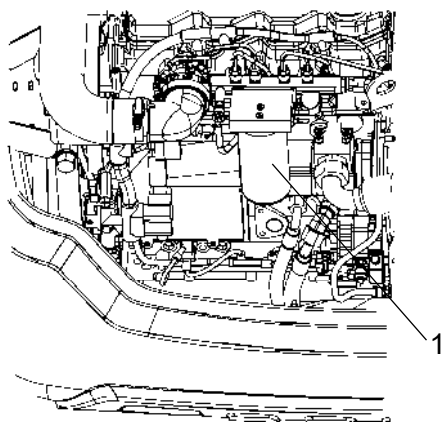


Fig. Engine compartment
1. Fuel filter

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

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



Deliver the drain oil to environmentally correct handling.



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

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



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

NOTE! The new fuel filters must not under any circumstances be pre-filled with fuel due to the purity requirements of the fuel system.@@



Diesel engine - Oil and Filter change

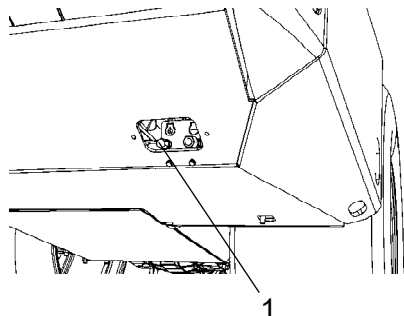


Fig. Tractor frame
1. Drain plug

The oil drain plug (1) can be accessed most easily from the right rear underside of the tractor frame, and is installed with a hose in the engine.

Drain the oil when the engine is warm. Place a receptacle that holds 19 liters (5 gal) under the drain plug.

Replace the engine oil filter (2) at the same time. Refer to the engine manual.

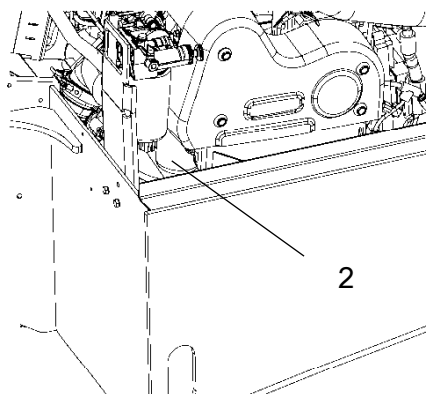


Fig. Engine compartment
2. Oil filter



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



Hand in the drained oil and filter to an environment-friendly waste disposal station.



Hood, hinges - Lubrication

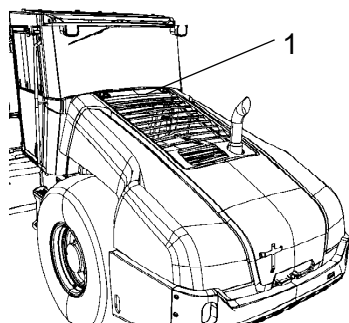
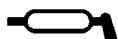


Fig. Hood
1. Hinge

Lubricate engine hood hinges (1) and the slide rails of the operator's seat with grease, other joints and controls with oil. Lubricate the cab hinges with grease. See the lubrication specification.



Seat bearing - Lubrication



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

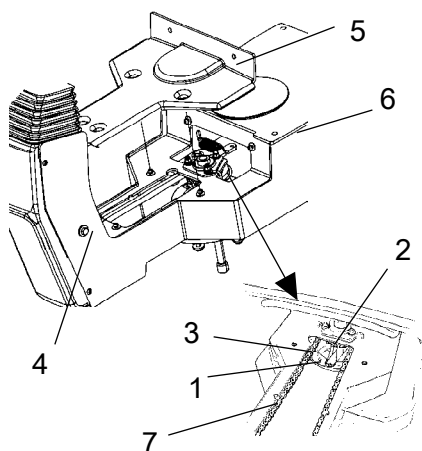


Figure. Seat bearing

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

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.

Do 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.

Maintenance - 1000h



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



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



Hydraulic filter - Replacement

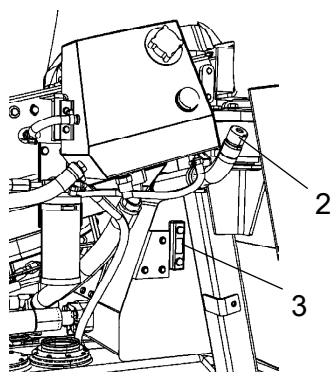


Fig. Hydraulic reservoir
2. Filler cap/Bleeding filter
3. Sight glass

Undo the filler cap/bleeder filter (2) on top of the reservoir so that over-pressure inside the reservoir can be eliminated.

Make sure that the bleeding filter (2) 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.

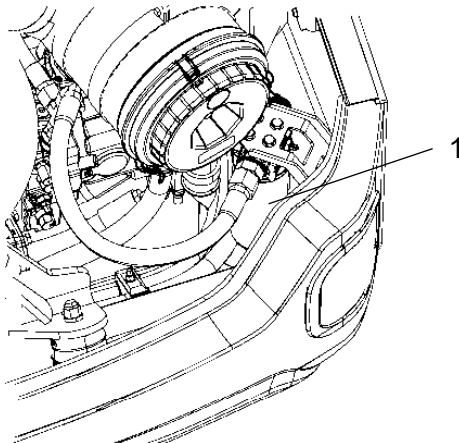


Fig. Engine compartment
1. Hydraulic fluid filter (x1).

Clean thoroughly around the oil filter.



Remove the oil filter (1) and hand in to an environment-friendly waste disposal station. This is a single-use filter and cannot be cleaned.



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

Thoroughly clean the filter holder's sealing surfaces.

Apply a thin coat of fresh hydraulic fluid on the new filter seal. Screw tight the filter by hand.



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

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



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



Air cleaner

Checking - Change the main air filter



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

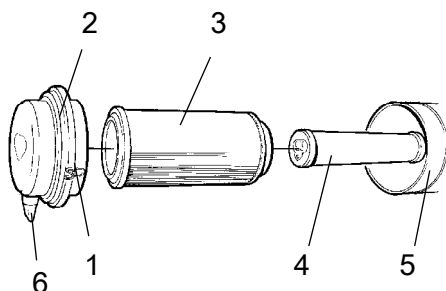


Fig. Air cleaner

- 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

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.

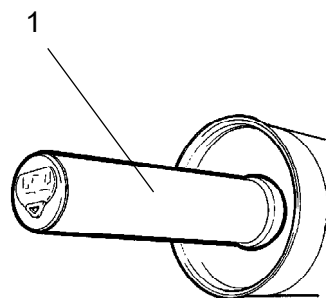


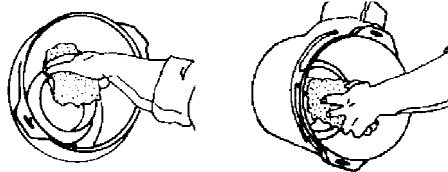
Fig. Air filter

- 1. Backup filter



Air cleaner - Cleaning

Wipe clean on both sides of the outlet pipe.

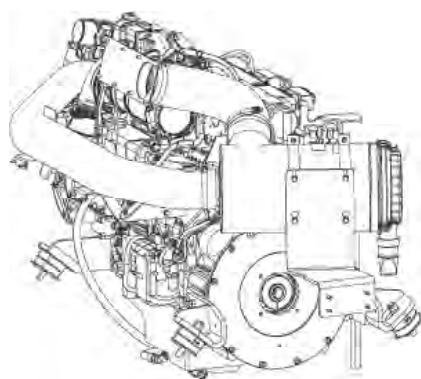


Inner edge of outlet pipe.

Outer edge of outlet pipe.

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.



Rear axle differential - Oil change



Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

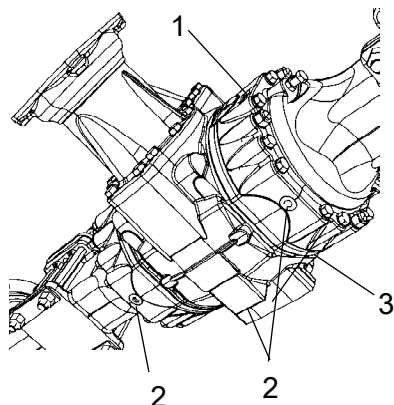


Fig. Rear axle, underside
 1. Level/Filler plugs (x 3)
 2. Drain plugs (x 3)
 3. Filler plugs (x x)

Wipe clean and remove the three level/filler plugs (1) and (3) and all three drain plugs (2). The level/filler plugs are located on the front and rear of the axle, and the drain plugs are located on the underside and rear. Drain the oil into a container. The volume is approx. 12.5 litres (13.2 qts).



Deliver the drain oil to environmentally correct handling.

Refit the drainage plugs and top up with fresh oil until the correct level is reached. Refit the level/filler plugs. Use transmission oil, see Lubricant Specification.



Rear axle planetary gear - Oil change

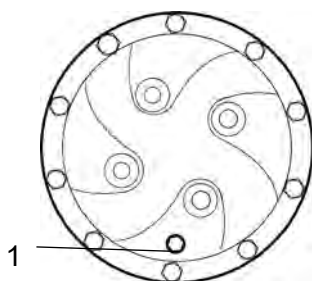


Fig. Planetary gear/drainage position
 1. Plug

Position the roller with the plug (1) at its lowest position.

Wipe clean, unscrew the plug (1) and drain the oil into a suitable receptacle. The volume is approximately 1.85 liters (1.95 qts).



Oil should be taken to your local waste disposal station.

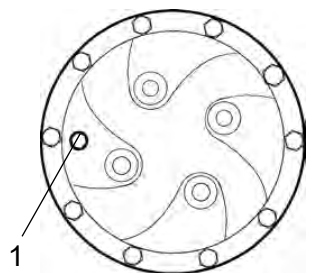


Fig. Planetary gear/filling position
 1. Plug

Position the roller so that the plug (1) in the planetary gear is at "9 o'clock" or "3 o'clock".

Fill with oil to lower edge of level hole. Use transmission oil. See the lubrication specification.

Clean and refit the plug.

Check the fluid level in the same way on the rear axle's other planetary gear.



Drum - Checking the oil level

Position the roller on a flat surface with the groove (1) on the inside of the drum aligned with the top of the drum frame.

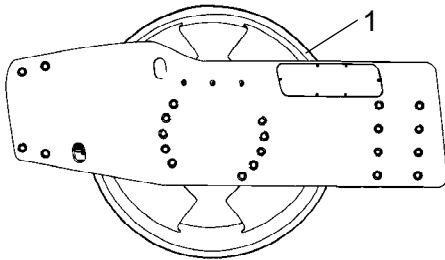


Fig. Left drum side
1. Groove



The oil should now come up to the sight glass (2).

If necessary, release the filler plug (1) and fill to half the sight glass (2).



Do not overfill with oil - risk of overheating.



Make sure to only use Dynapac Drum Oil 1000 in the drum.

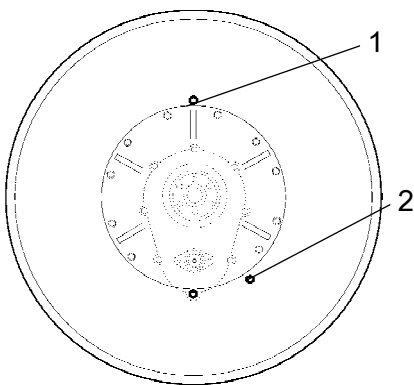


Fig. Drum, right side
1. Filler plug
2. Level glass

Clean and refit filler plug (1).

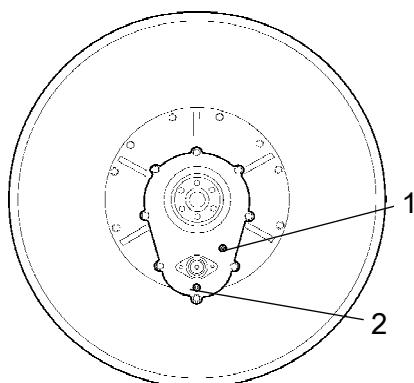


Fig. Gearbox - Drum, right side
 1. Filler plug/Level plug
 2. Drain plug

Gearbox - Oil change

Place the roller on a level surface.

Place a receptacle that holds at least 1 liter (0.3 gal)) under the drain plug (2).

Unscrew and clean the filler/level plug (1) and the drain plug (2).

Allow all of the oil to drain off. Clean and refit drain plug (2) and fill with oil up to filler/level plug (1). The total volume of oil in the gearbox must be 0.3 liters (0.08 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the gearbox.

Clean and refit filler/level plug (1).

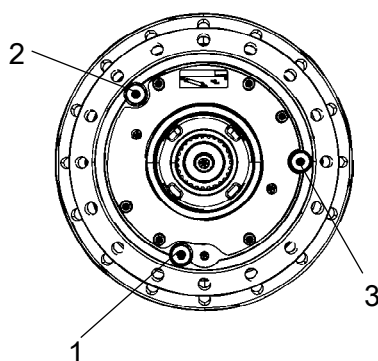


Fig. Drum gearbox
 1. Drain plug
 2. Filler plug
 3. Level plug

Drum gearbox - Oil change

Wipe clean, unscrew the plugs (1, 2 and 3) and drain the oil into a suitable receptacle, capacity about 5.0 liters (5,3 qts.).

Refit the drain plug (1) and fill with oil up to the level plug (3), according to "Drum gearbox - Checking the oil level".

Use transmission oil according to the lubricant specification.

Clean and refit the level plug (3) and filler plug (2).

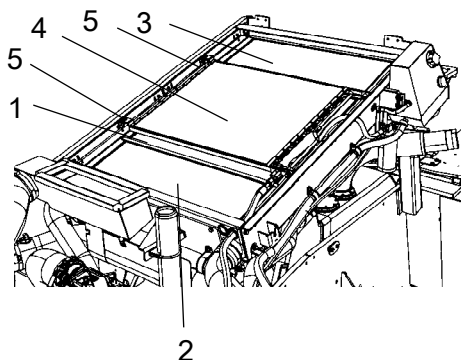


Fig. Engine compartment

- 1. Water cooler
- 2. Charge air cooler
- 3. Hydraulic fluid cooler
- 4. Condenser element AC (Optional)
- 5. Screws (x 2)

Radiator - Check/Cleaning

Check that air can pass unobstructed through the radiators (1), (2) and (3).

Clean a dirty radiator using compressed air or a high-pressure water jet.

Undo the two screws (5) and tilt the condenser element upwards.

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



Be careful when using a high-pressure washer - do not place the nozzle too close to the radiator.



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



Fuel pre-filter - Replacement



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

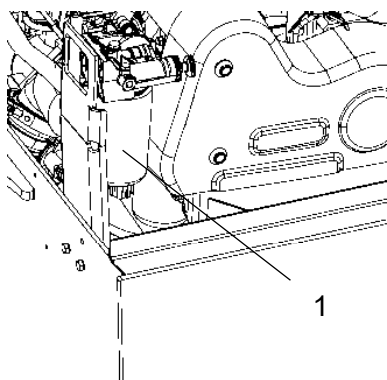


Fig. Engine compartment

- 1. Fuel prefilter

See the engine's instruction manual for filter replacement, in the Fuel system chapter.



Replacing the fuel filter

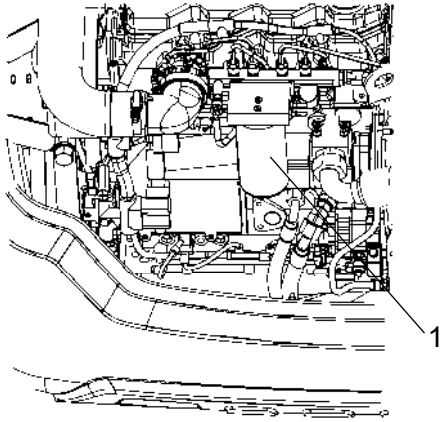


Fig. Engine compartment
1. Fuel filter

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

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



Deliver the drain oil to environmentally correct handling.



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

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



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

NOTE! The new fuel filters must not under any circumstances be pre-filled with fuel due to the purity requirements of the fuel system.@@



Diesel engine - Oil and Filter change

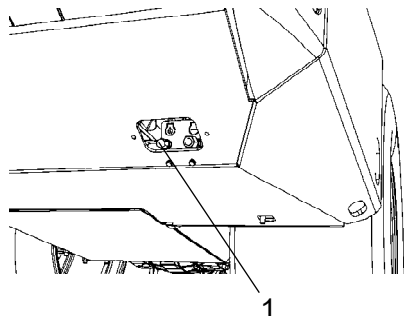


Fig. Tractor frame
1. Drain plug

The oil drain plug (1) can be accessed most easily from the right rear underside of the tractor frame, and is installed with a hose in the engine.

Drain the oil when the engine is warm. Place a receptacle that holds 19 liters (5 gal) under the drain plug.

Replace the engine oil filter (2) at the same time. Refer to the engine manual.

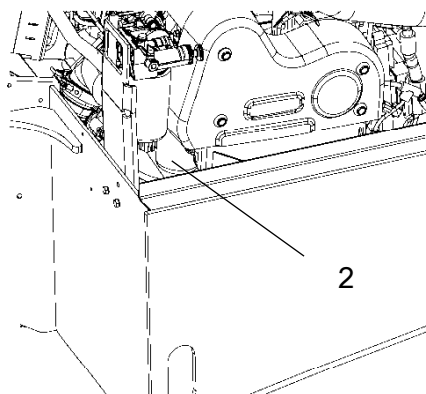


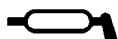
Fig. Engine compartment
2. Oil filter



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



Hand in the drained oil and filter to an environment-friendly waste disposal station.



Seat bearing - Lubrication



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

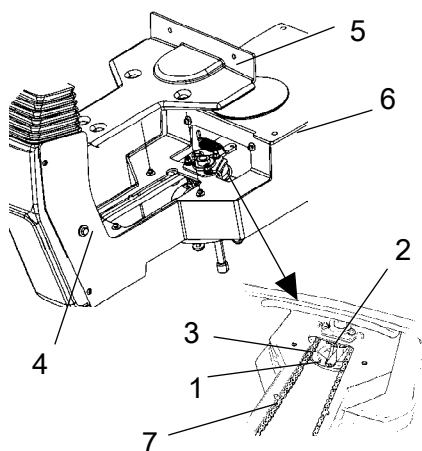


Figure. Seat bearing

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

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.

Do 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 - Draining

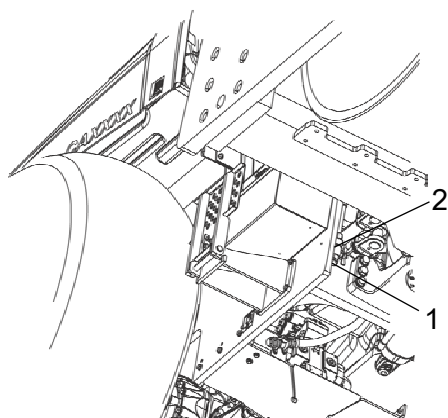


Fig. Machine's right underside

1. Drain cock
2. Plug

The condensate from the hydraulic reservoir is drained through the drainage tap (1).

Drain the roller after it has been stationary for a long time, e.g. after standing overnight. Drain as follows:

Remove the plug (2).

Place a container under the tap.

Open the tap (1) and let any trapped condensate run out.

Shut the drainage tap.

Refit the plug.



Fuel tank - Draining (Optional)

Water and sediment in the fuel tank are removed via the drainage plug in the bottom of the fuel tank.



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

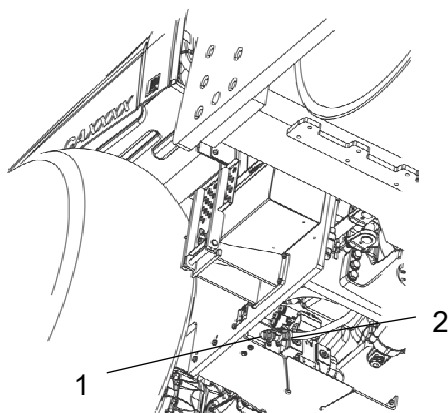


Fig. Machine's right underside
1. Drain plug
2. Drain cock

Drain the roller after it has been stationary for a long time, e.g. after standing overnight. The fuel level should be as low as possible.

The roller should preferably have been standing with this side somewhat lower, so that water and sediment will gather near the drainage plug (1). Drain as follows:

Place a container under the plug (1).

Loosen the drain plug (1). Then open the drain cock (2) and drain out water and sediment until only pure diesel fuel emerges at the plug. Close the drain cock and screw in the plug again.



Air conditioning (Optional)

Fresh air filter - Change



Use a step ladder to reach the filter (1). The filter can also be accessed via the right cab window.

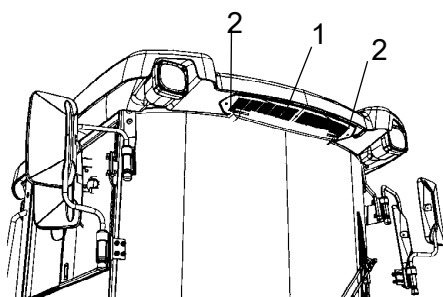


Fig. Cab
1. Fresh air filter (x 2)
2. Screws (x 3)

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

Undo the three screws (2) and remove the protective cover.

Remove the two air filter inserts and replace with new ones.

It may be necessary to change the filters more often if the machine is working in a dusty environment.

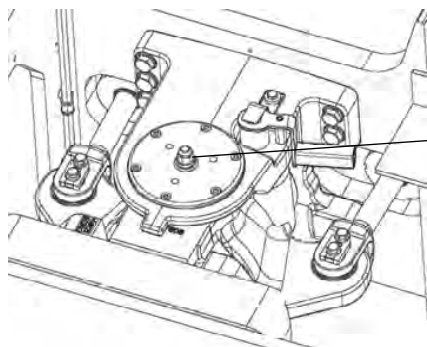


Fig. Steering hitch
1. Nut

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

Maintenance - 2000h



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



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



Hydraulic reservoir - Oil change

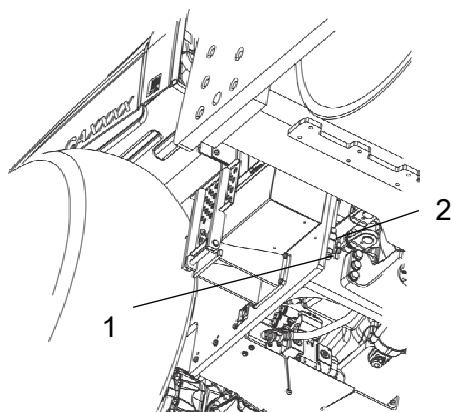


Fig. Machine's right underside
1. Drain cock
2. Plug

Obtain a container for collecting the used fluid. The container should be able to hold at least 60 liters (16 gal).



**Observe care when draining hot hydraulic fluid.
Wear protective gloves and goggles.**

A suitable receptacle may be an empty oil drum or similar item which is placed beside the roller. The oil then runs from the drain cock (1) to the receptacle, after the plug (2) has been removed and the cock opened.



Save the oil and hand in to an environment-friendly waste disposal station.

Fill up with fresh hydraulic fluid as per the instructions under the heading "Hydraulic reservoir - Check fluid level". Replace the hydraulic fluid filters at the same time.

Start the diesel engine and operate the various hydraulic functions.

Check the fluid level and top up if necessary.



Hydraulic filter - Replacement

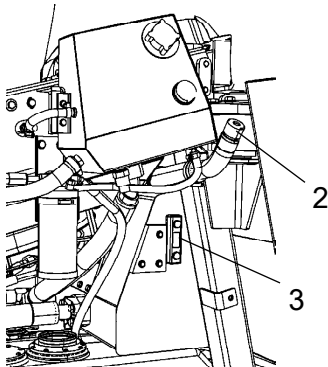


Fig. Hydraulic reservoir
2. Filler cap/Bleeding filter
3. Sight glass

Undo the filler cap/bleeder filter (2) on top of the reservoir so that over-pressure inside the reservoir can be eliminated.

Make sure that the bleeding filter (2) 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.

Clean thoroughly around the oil filter.



Remove the oil filter (1) and hand in to an environment-friendly waste disposal station. This is a single-use filter and cannot be cleaned.



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

Thoroughly clean the filter holder's sealing surfaces.

Apply a thin coat of fresh hydraulic fluid on the new filter seal. Screw tight the filter by hand.



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

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



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

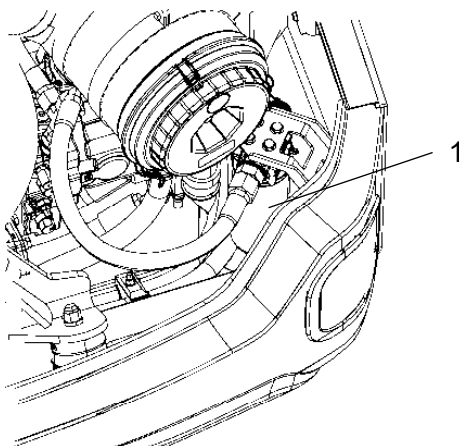


Fig. Engine compartment
1. Hydraulic fluid filter (x1).



Drum gearbox - Oil change

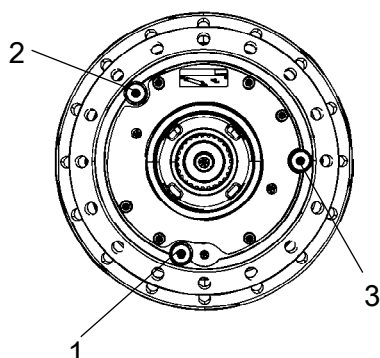


Fig. Drum gearbox

- 1. Drain plug
- 2. Filler plug
- 3. Level plug

Wipe clean, unscrew the plugs (1, 2 and 3) and drain the oil into a suitable receptacle, capacity about 5.0 liters (5,3 qts.).

Refit the drain plug (1) and fill with oil up to the level plug (3), according to "Drum gearbox - Checking the oil level".

Use transmission oil according to the lubricant specification.

Clean and refit the level plug (3) and filler plug (2).



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.

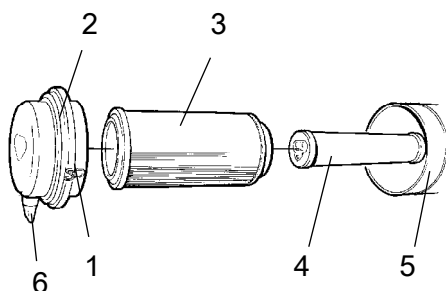


Fig. Air cleaner

- 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

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.

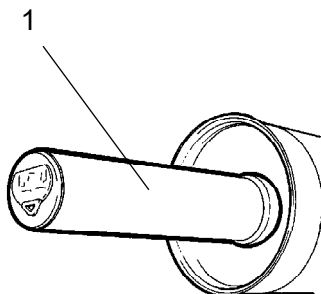


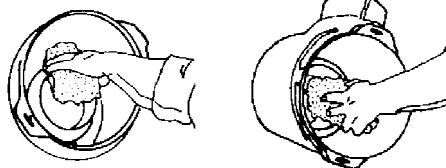
Fig. Air filter
1. Backup filter



Air cleaner - Cleaning

Wipe clean on both sides of the outlet pipe.

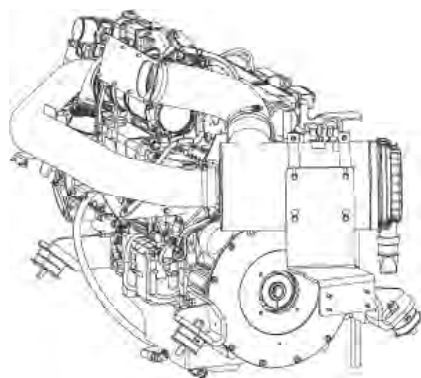
Wipe clean the inside of the cover (2) and the filter housing (5). See the previous illustration.



Inner edge of outlet pipe.

Outer edge of outlet pipe.

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



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



Rear axle planetary gear - Oil change

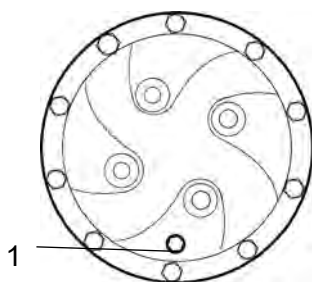


Fig. Planetary gear/drainage position
1. Plug

Position the roller with the plug (1) at its lowest position.

Wipe clean, unscrew the plug (1) and drain the oil into a suitable receptacle. The volume is approximately 1.85 liters (1.95 qts).



Oil should be taken to your local waste disposal station.

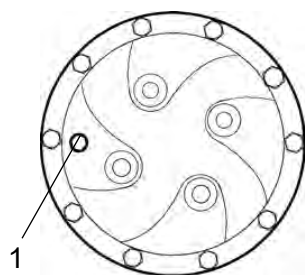


Fig. Planetary gear/filling position
1. Plug

Position the roller so that the plug (1) in the planetary gear is at "9 o'clock" or "3 o'clock".

Fill with oil to lower edge of level hole. Use transmission oil. See the lubrication specification.

Clean and refit the plug.

Check the fluid level in the same way on the rear axle's other planetary gear.



Rear axle differential - Oil change



Never work under the roller when the engine is running. Park on a level surface. Block the wheels securely.

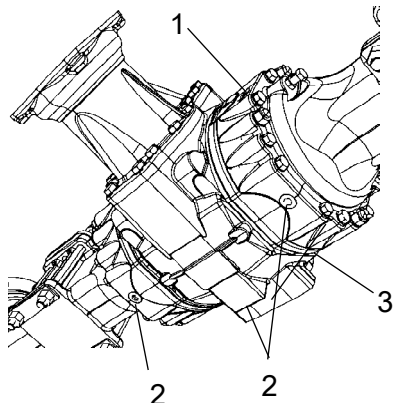


Fig. Rear axle, underside
 1. Level/Filler plugs (x 3)
 2. Drain plugs (x 3)
 3. Filler plugs (x 2)

Wipe clean and remove the three level/filler plugs (1) and (3) and all three drain plugs (2). The level/filler plugs are located on the front and rear of the axle, and the drain plugs are located on the underside and rear. Drain the oil into a container. The volume is approx. 12.5 litres (13.2 qts).



Deliver the drain oil to environmentally correct handling.

Refit the drainage plugs and top up with fresh oil until the correct level is reached. Refit the level/filler plugs. Use transmission oil, see Lubricant Specification.



Drum - Oil change

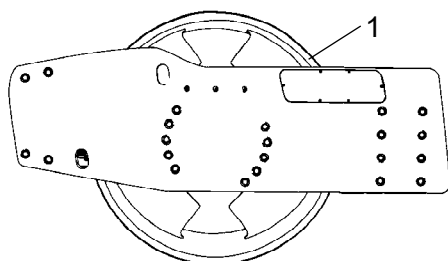


Fig. Left drum side
 1. Groove

Position the roller on a flat surface with the groove (1) on the inside of the drum aligned with the top of the drum frame.

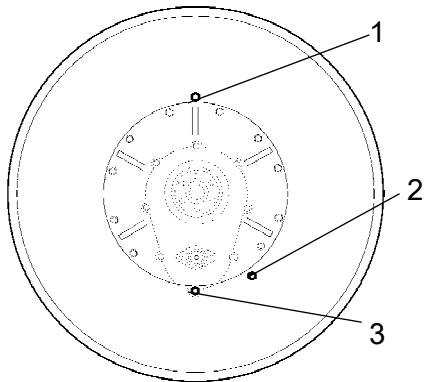


Fig. Drum, right side
1. Filler plug
2. Level glass
3. Drain plug

Drum - Oil change

Ensure that the drum's plugs and level glass are positioned as in Fig 2.

Place a vessel capable of holding at least 20 liters (5.3 gal) under drain plug (3).

Remove and clean filler plug (1) and drain plug (3).

Allow all the oil to drain out. Clean and refit drain plug (3) and fill with new synthetic oil. The total volume of oil in the drum must be 15 liters (4.0 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the drum.

Clean and refit filler plug (1).

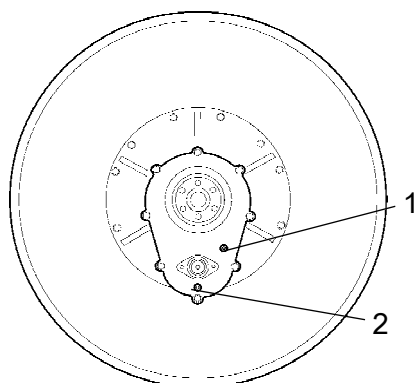


Fig. Gearbox - Drum, right side
1. Filler plug/Level plug
2. Drain plug

Gearbox - Oil change

Place the roller on a level surface.

Place a receptacle that holds at least 1 liter (0.3 gal)) under the drain plug (2).

Unscrew and clean the filler/level plug (1) and the drain plug (2).

Allow all of the oil to drain off. Clean and refit drain plug (2) and fill with oil up to filler/level plug (1). The total volume of oil in the gearbox must be 0.3 liters (0.08 gal).



Deliver the drain oil to environmentally correct handling.



Make sure to only use Dynapac Drum Oil 1000 in the gearbox.

Clean and refit filler/level plug (1).

Radiator - Check/Cleaning

Check that air can pass unobstructed through the radiators (1), (2) and (3).

Clean a dirty radiator using compressed air or a high-pressure water jet.

Undo the two screws (5) and tilt the condenser element upwards.

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



Be careful when using a high-pressure washer - do not place the nozzle too close to the radiator.

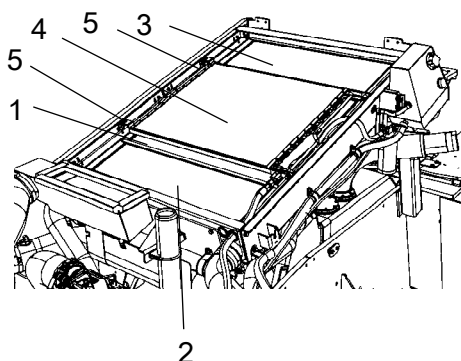


Fig. Engine compartment
1. Water cooler
2. Charge air cooler
3. Hydraulic fluid cooler
4. Condenser element AC (Optional)
5. Screws (x 2)



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



Fuel pre-filter - Replacement



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

See the engine's instruction manual for filter replacement, in the Fuel system chapter.

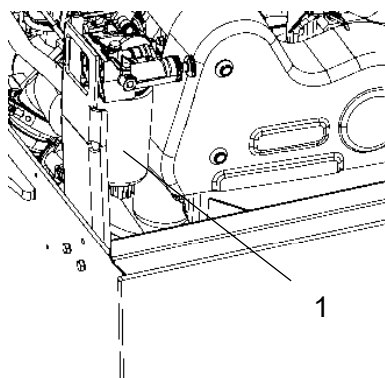


Fig. Engine compartment
1. Fuel prefilter



Replacing the fuel filter

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

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



Deliver the drain oil to environmentally correct handling.



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

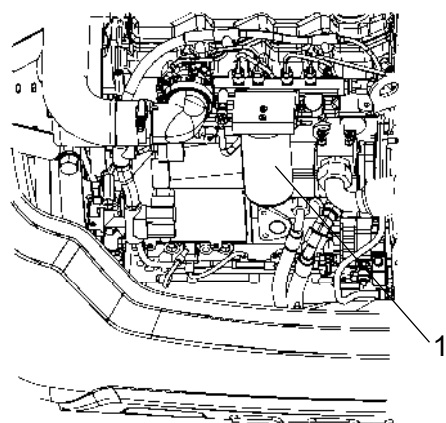


Fig. Engine compartment
1. Fuel filter

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



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

NOTE! The new fuel filters must not under any circumstances be pre-filled with fuel due to the purity requirements of the fuel system.@@



Diesel engine - Oil and Filter change

The oil drain plug (1) can be accessed most easily from the right rear underside of the tractor frame, and is installed with a hose in the engine.

Drain the oil when the engine is warm. Place a receptacle that holds 19 liters (5 gal) under the drain plug.

Replace the engine oil filter (2) at the same time. Refer to the engine manual.

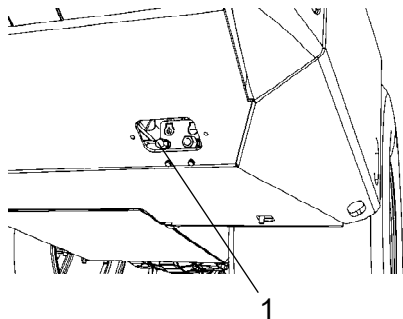


Fig. Tractor frame
1. Drain plug

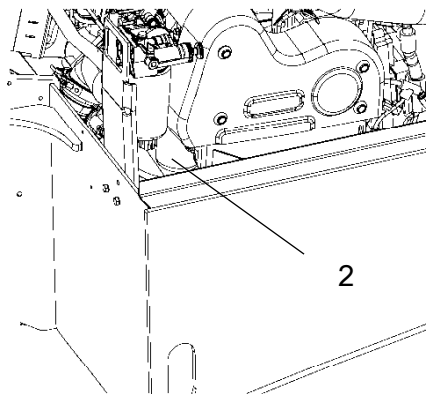


Fig. Engine compartment
2. Oil filter



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



Hand in the drained oil and filter to an environment-friendly waste disposal station.



Seat bearing - Lubrication



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

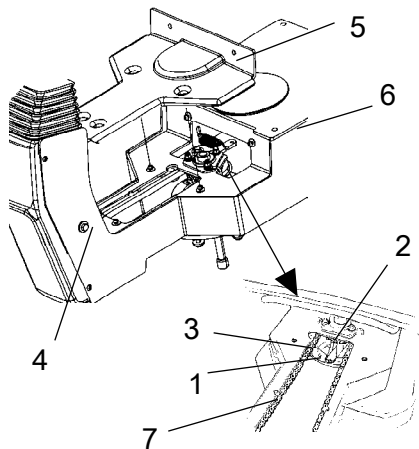


Figure. Seat bearing

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

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.

Do 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 - Draining

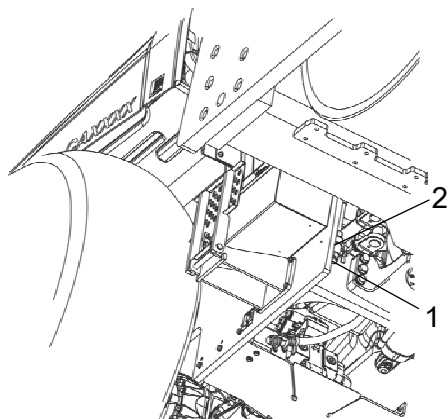


Fig. Machine's right underside

- 1. Drain cock
- 2. Plug

The condensate from the hydraulic reservoir is drained through the drainage tap (1).

Drain the roller after it has been stationary for a long time, e.g. after standing overnight. Drain as follows:

Remove the plug (2).

Place a container under the tap.

Open the tap (1) and let any trapped condensate run out.

Shut the drainage tap.

Refit the plug.



Fuel tank - Draining (Optional)

Water and sediment in the fuel tank are removed via the drainage plug in the bottom of the fuel tank.



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

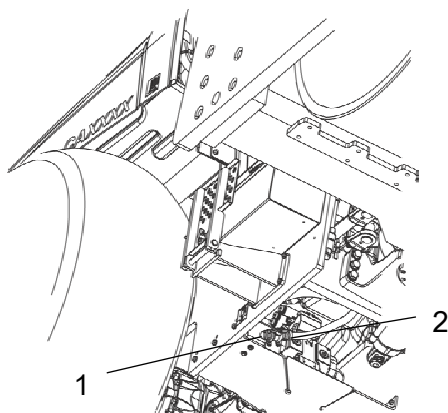


Fig. Machine's right underside
1. Drain plug
2. Drain cock

Drain the roller after it has been stationary for a long time, e.g. after standing overnight. The fuel level should be as low as possible.

The roller should preferably have been standing with this side somewhat lower, so that water and sediment will gather near the drainage plug (1). Drain as follows:

Place a container under the plug (1).

Loosen the drain plug (1). Then open the drain cock (2) and drain out water and sediment until only pure diesel fuel emerges at the plug. Close the drain cock and screw in the plug again.



Air conditioning (Optional)

Fresh air filter - Change



Use a step ladder to reach the filter (1). The filter can also be accessed via the right cab window.

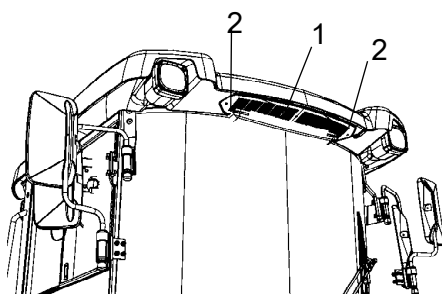


Fig. Cab
1. Fresh air filter (x 2)
2. Screws (x 3)

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

Undo the three screws (2) and remove the protective cover.

Remove the two air filter inserts and replace with new ones.

It may be necessary to change the filters more often if the machine is working in a dusty environment.

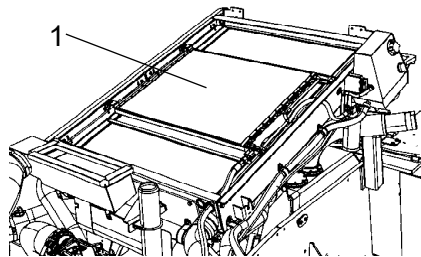


Fig. Engine compartment
1. Code element

Automatic Climate Control (Optional) - Overhaul

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

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



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



Wear protective goggles when working with compressed air.

Inspect the condenser element attachment.

Drying filter - Check

With the unit in operation, open the engine hood and check using the sight glass (1) that bubbles are not visible on the drying filter. If bubbles are visible through the sight glass, it is a sign that the refrigerant level is too low. If so, stop the unit. The unit may be damaged if it is run with insufficient refrigerant.

Check the moisture indicator (2). It should be blue. If it is beige, the dryer cartridge should be changed by an authorized service company.



The compressor will be damaged if the unit is run with too little refrigerant.



Do not disconnect or undo the hose couplings.



The cooling system is pressurized. Incorrect handling can result in serious personal injury.



The system contains pressurized refrigerant. It is forbidden to release refrigerants into the atmosphere. Work on the refrigerant circuit is only to be carried out by authorized companies.

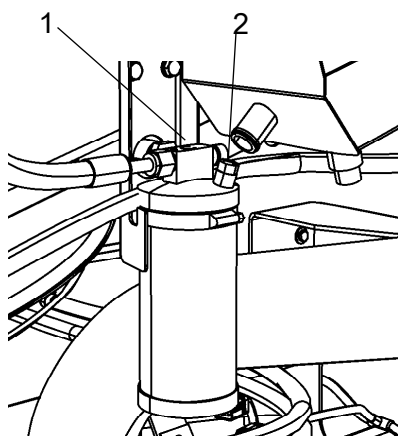


Fig. Drying filter in engine compartment
1. Sight glass
2. Moisture indicator

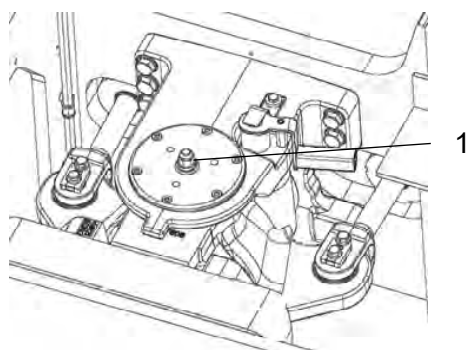


Fig. Steering hitch
1. Nut

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



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