Instruction manual

Operating & Maintenance
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Vibratory roller
CA1300 - CA1400 D/PD

Engine
Kubota V3307-CR-TE4B (IIIB/Tier 4f)
Kubota V3307-CR-TE5B (Stage V)

Serial number
10000159xxA031263 -
10000185xxA030910 -
10000169xxA031137 -
10000186xxA031268 -

Translation of original instruction

Reservation for changes
Printed in Sweden

EN

Table of Contents

Introduction

The machine

CA1300/1400 are two vibratory rollers in the 5 - 6.5 tonne class intended for compaction work in pipe trenches, on roads and in confined spaces in connection with refilling work.

Intended use

The machines are available in a D (smooth drum) and PD (padfot) version. The smooth drum version with drum drive (D) ensures good accessibility even on very steep slopes. The PD version, with pads and drum drive, is specially intended for the compaction of silt and loamy soils. The roller can also be used for repair work on dams, power stations, car parks and airfields.

Signal symbols and meaning

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

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

Safety information

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

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

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

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

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

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

CALIFORNIA

Proposition 65

Decal and location of decal shown in section Machine description.

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

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

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

General

This manual contains instructions for machine operation and maintenance.

The machine must be correctly maintained for maximal performance.

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

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

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

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

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

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

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

CE marking and Declaration of conformity

(Applies to machines marketed in EU/EEC)

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

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

Safety - General instructions

(Also read the safety manual)

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

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

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

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

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

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

Safety - when operating

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

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

Work driving

Dynapac always recommends mounted ROPS (Roll Over Protective Structure) and seat belt usage.
On machines with foldable ROPS, make sure that the ROPS is correctly mounted in the upright position during all operation.

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

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

Driving near edges

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

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

Strike-off blade

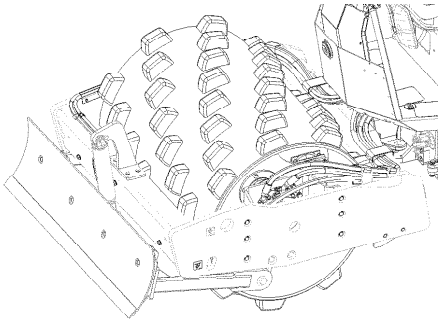


Fig. Strike-off blade

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

The strike-off blade must be retracted to the transport position at the end of each working period.

Special instructions

Standard lubricants and other recommended oils and fluids

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

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

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

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

The diesel engine 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.

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

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.

Place a plastic bag over the fuel filler cap and secure with a rubber band. This is to avoid high pressure water entering the vent hole in the filler cap. This could

cause malfunctions, such as the blocking of filters.

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

Fire fighting

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

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

Fire extinguisher

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

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

Mount it appropriately and make sure it does not create any hazards.

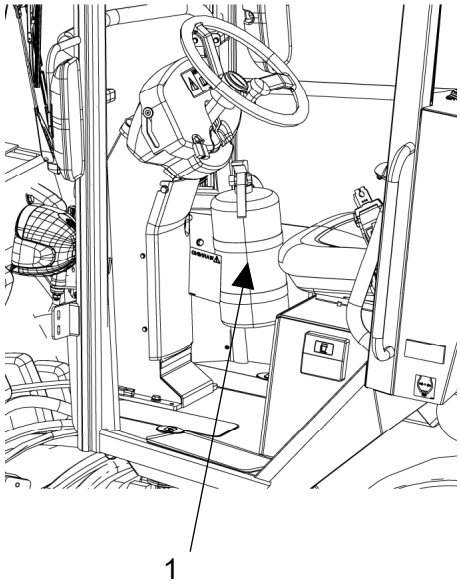


Fig. Cab
1. Fire extinguisher

Roll Over Protective Structure (ROPS)

Never carry out any welding or drilling operations of any kind on the Roll Over Protective Structure (ROPS).

Never attempt to repair a damaged ROPS structure. This must be replaced with new ROPS structure.

Battery handling

When removing batteries, always disconnect the negative cable first.

When fitting batteries, always connect the positive cable first.

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

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

Jump starting

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

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

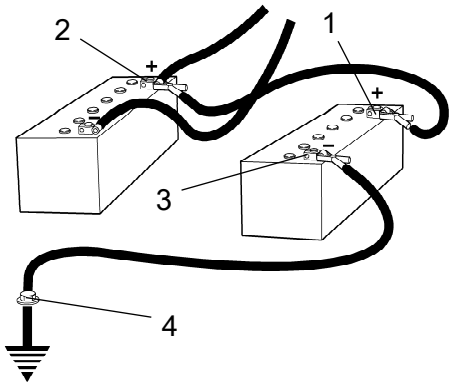


Fig. Jump starting

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

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

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

Technical specifications

Vibrations - Operator station

(ISO 2631)

The vibration levels are measured in accordance with the operational cycle described in EU directive 2000/14/EC on machines equipped for the EU market, with vibration switched on, on soft polymer material and with the operator's seat in the transport position.
Measured whole-body vibrations are below the action value of 0.5 m/s² as specified in Directive 2002/44/EC. (Limit is 1.15 m/s²)
Measured hand/arm vibrations also were below the action level of 2.5 m/s² specified in the same directive. (Limit is 5 m/s²)

Noise level

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

Guaranteed sound power level, L_{wA}	103	dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}		
- CA1300	85 ±3	dB (A)
- CA1400	88 ±3	dB (A)
Sound pressure level at the operator's ear (cab), L_{pA}	82 ±3	dB (A)

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

Electrical system

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

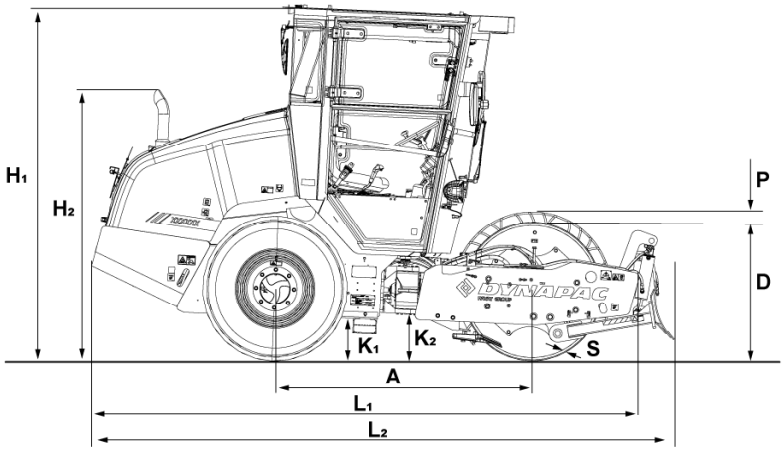
Max 20° or 36%

Slopes

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

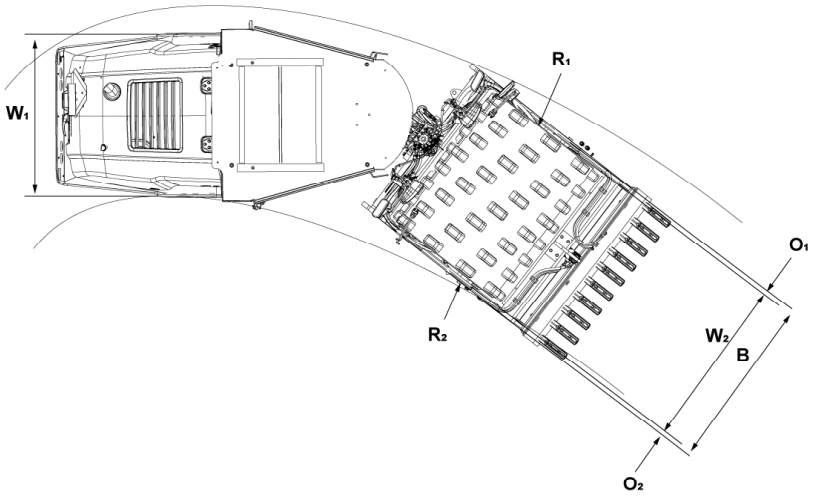
Unstable ground, vibration on, speed and steering the machine can all cause the machine to topple at smaller angles than specified here.

Dimensions, side view (CA1300)



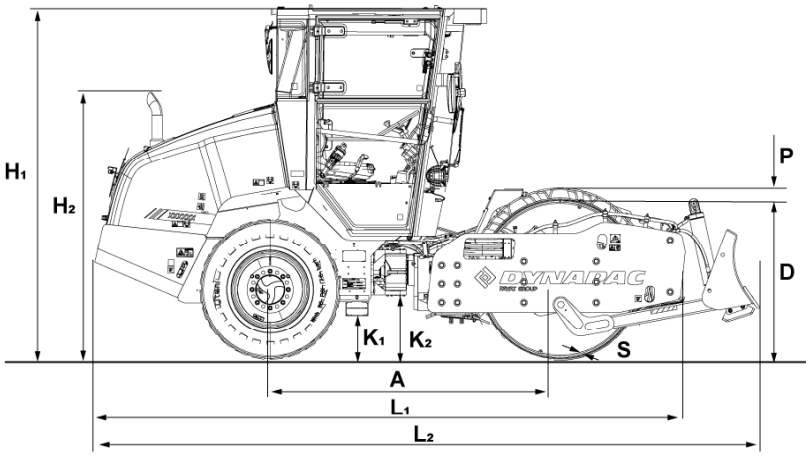
	Dimensions	mm	in
A	Wheelbase, drum and wheel	1860	73
L	Length, standard equipped roller	3960	156
L_1	Length, with cab	4005	158
L_1	Length, with cab and strike off blade	4286	169
L_2	Length, with strike off blade	4236	167
H_1	Height with ROPS / Cab	2565	101
H_2	Height without ROPS / Cab	1925	76
D	Diameter, drum	1000	39
S	Thickness, drum sweep, nominal	22	0.9
P	Height, pads (PD)	76	3
K_1	Clearance, tractor frame	350	13.7
K_2	Clearance, drum frame (D)	260	10
K_2	Clearance, drum frame (PD)	335	13.1

Dimensions, top view (CA1300)



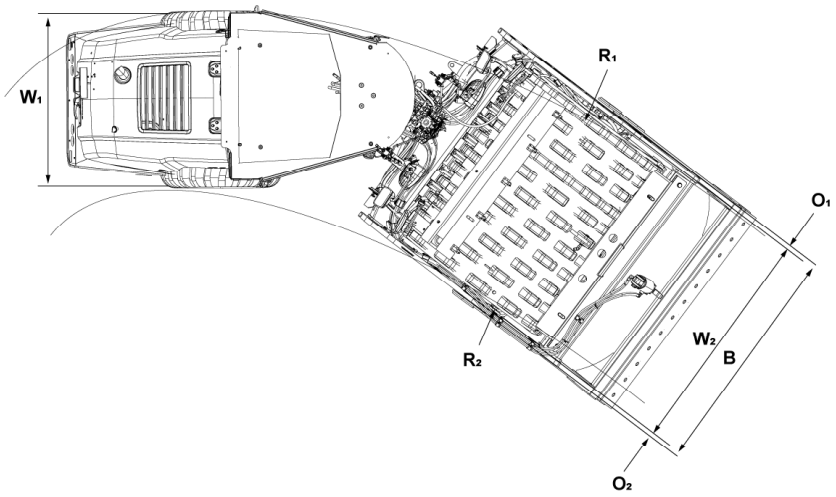
	Dimensions	mm	in
B	Width, standard equipped roller	1495	59
B_2	Width, with strike off blade	1550	61
O_1	Overhang, left frame side	62	2.4
O_2	Overhang, right frame side	62	2.4
R_1	Turn radius, external	3890	153
R_2	Turn radius, internal	2400	94
W_1	Width, tractor section	1380	54
W_2	Width, drum	1370	54
α	Steering angle	± 33°	

Dimensions, side view (CA1400)



	Dimensions	mm	in
A	Wheelbase, drum and wheel	2200	87
L	Length, standard equipped roller	4510	178
H_1	Height with ROPS / Cab (D)	2700	106
H_1	Height with ROPS / Cab (PD)	2710	107
H_2	Height without ROPS (D)	1810	71
H_2	Height without ROPS (PD)	1812	71
D	Diameter, drum (D)	1219	48
D	Diameter, drum (PD)	1209	47.6
S	Thickness, drum sweep, nominal (D)	22	0.9
S	Thickness, drum sweep, nominal (PD)	17	0.7
P	Height, pads (PD)	76	3
K_1	Clearance, tractor frame	360	14
K_2	Clearance, drum frame	360	14

Dimensions, top view (CA1400)



	Dimensions	mm	in
B	Width, standard equipped roller	1870	73
B_2	Width, with strike off blade	1972	78
O_1	Overhang, left frame side	95	4
O_2	Overhang, right frame side	95	4
R_1	Turn radius, external	4580	180
R_2	Turning radius, inner	2900	114
W_1	Width, tractor section	1530	60
W_2	Width, drum	1676	66
α	Steering angle	± 38°	

Weights and volumes

Weights	D			PD			
Operating mass, with ROPS (EN500)							
- CA1300	4 760	kg	10,495 lbs	5 010	kg	11,045	lbs
- CA1400	6 450	kg	14,220 lbs	6 500	kg	14,330	lbs
Operating mass, with cab (EN500)							
- CA1300	4 950	kg	10,915 lbs	5 200	kg	11,465	lbs
- CA1400	6 600	kg	14,550 lbs	6 650	kg	14,660	lbs
Operating mass, with ROPS + Ballast (EN500)							
- CA1300	4 970	kg	10,955 lbs	-		-	
- CA1400	6 805	kg	15,000 lbs	-		-	
Operating mass, with cab + Ballast (EN500)							
- CA1300	5 120	kg	11,290 lbs	-		-	
- CA1400	6 955	kg	15,335 lbs	-		-	
Operating mass, with ROPS + Pad shell							
- CA1300	5 340	kg	11,775 lbs	-		-	
- CA1400	7 325	kg	16,150 lbs	-		-	
Operating mass, with cab + Pad shell							
- CA1300	5 530	kg	12,410 lbs	-		-	
- CA1400	7 475	kg	16,480 lbs	-		-	
Operating mass, with ROPS + Strike-off blade (PD)							
- CA1300	5 025	kg	11,080 lbs	5 275	kg	11,630	lbs
- CA1400	6 820	kg	15,035 lbs	6 870	kg	15,145	lbs
Operating mass, with cab + Strike-off blade							
- CA1300	5 215	kg	11,495 lbs	5 465	kg	12,050	lbs
- CA1400	6 970	kg	15,365 lbs	7 020	kg	15,475	lbs

Fluid volumes

Fuel tank	117 liters	31 gal
Windscreen washer reservoir	2.1 litres	2.2 qts

Working capacity

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

Propulsion

Speed range				
- CA1300	0 - 6	km/h	0 - 4	mph
- CA1400	0 - 10	km/h	0 - 6.2	mph
Climbing capacity (theoretical) without vibration, forward	D		PD	
- CA1300	55	%	52	%
- CA1400	56	%	50	%

Weights	D				PD			
Static linear load, with ROPS								
- CA1300	13	kg/cm	72.8	pli	-			
- CA1400	20	kg/cm	114	pli	-			
Static linear load, with ROPS and Ballast load								
- CA1300	15	kg/cm	84	pli	-			
Amplitude								
- CA1300	1.72	mm	0.068	in.	1.45	mm	0.057	in.
- CA1400 (Hi/Lo)	1.7/0.8	mm	0.067/ 0.032	in.	1.6/0.8	mm	0.063/ 0.032	in.
Vibration frequency, amplitude								
- CA1300	35	Hz	2,100	vpm	35	Hz	2,100	vpm
- CA1300 (ECO)	30	Hz	1,800	rpm	30	Hz	1,800	rpm
- CA1400	32	Hz	1,920	vpm	32	Hz	1,920	vpm
- CA1400 (ECO)	28	Hz	1,680	rpm	28	Hz	1,680	rpm
Centrifugal force, amplitude								
- CA1300	87	kN	19,575	lbs	87	kN	19,575	lbs
- CA1400 (Hi/Lo)	114/55	kN	25,630/ 12,365	lbs	114/55	kN	25,630/ 12,365	lbs

General

Engine

Manufacturer/Model	Kubota V3307 CR-TE4	Turbo diesel
	Kubota V3307 CR-TE5B (Stage V)	Turbo diesel
Power (SAE J1995)	55 kW	75 hp
Engine speed, idling	800 rpm	
Engine speed, ECO	1900 rpm	
Engine speed, working/transport	2200 rpm	

CO_2-emission

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

Manufacturer/Model		Test-cycle	CO_2-emission (g/kWh)
Kubota V3307-CR-TE5B	Stage V	NRTC	857.6
Kubota V3307-CR-TE5B	Stage V	NRSC	799.2

NRTC: Non-road transient test cycles
NRSC: Non-road steady-state test cycles

Electrical system

Battery	12V 100Ah
Alternator	12V 60A
Fuses	See the Electrical system section - fuses

Tire	Tire dimensions	Tire pressure
CA1300		
Std-type	12,5-20	200 kPa (2.0 kp/cm²) (29 psi).
Tractor type	12,5-20	200 kPa (2,0kp/cm^2) (29 psi).
CA1400		
Floatation	400/60-22.5, 16 ply	150 kPa (1.5 kp/cm²) (21.8 psi).

Weight of complete wheel		
CA1300	85 kg/tyre	187 lbs/tyre
CA1400 (fluid-filled wheel)	241 kg/tyre	531 lbs/tyre

When servicing, bare in mind the extra weight caused by a complete, fluid-filled tyre.

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

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

ROPS - bolts

Bolt dimensions :	M16 (4700500082)
Strength class :	8.8
Tightening torque :	190 Nm

Hydraulic system

Opening pressure	**CA1300**		**CA1400**	
	MPa	**Psi**	**MPa**	**Psi**
Drive system	38.5	5,584	38.5	5,584
Supply system	2,0	290	2.0	290
Vibration system	22,7	3,292	34.5	5,004
Control systems	10,0	1,450	17.5	2,538

Release pressure	**MPa**	**Psi**
Brake release		
- CA1300	1.4	203
- CA1400	1.5	217

Machine description

Diesel engine

The machine is equipped with a four-cylinder, water-cooled diesel engine with direct injection.

The engine has an overlying camshaft and the cylinder head is shared by all the cylinders.

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

Exhaust after-treatment system

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 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)

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).
A flow divider is available as an option (CA1300).

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 consists of sprung multiple disc brakes in the rear axle and the drum drive, which are released by hydraulic pressure.

Steering system

The control system is a mechanical-hydraulic system of the load-sensing type. The control valve on the steering column distributes the flow to the control cylinder at the articulation. The steering angle is proportional to the deflection of the steering wheel.

Vibration system

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

The amplitude is determined by the direction of rotation of the hydraulic motor.

Cab

The cab has a heating and ventilation system with defrost for all windows.
The cab can be equipped with air conditioning.

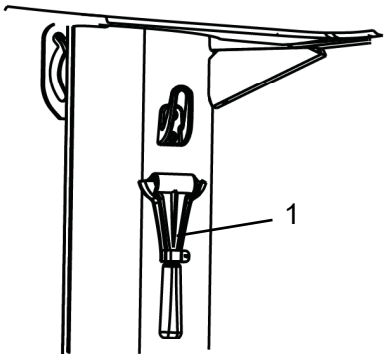


Fig. Operator's platform
1. Emergency hammer

Emergency exit

The cab has two emergency exits.
The door and rear window can be smashed using the emergency hammer located in the cab.

FOPS and ROPS

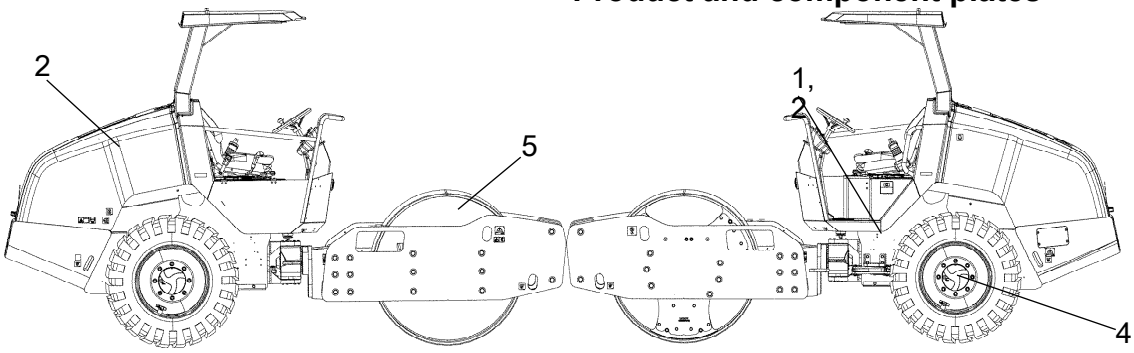
FOPS is the abbreviation for "Falling Object Protective Structure" (roof protection) and ROPS is the abbreviation for "Roll Over Protective Structure".

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

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

Identification

Product and component plates



1. Product plate - Product Identification Number (PIN), model/type designation
2. Engine plate - Type description, product and serial numbers
4. Component plate, rear axle - Product and serial numbers
5. Component plate, drum - Product and serial numbers

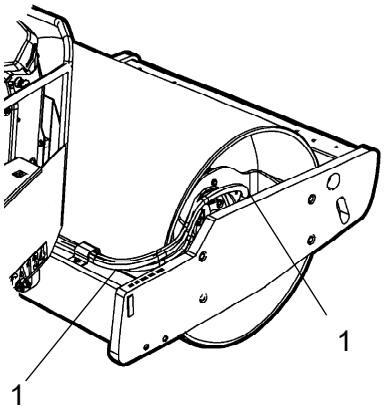


Fig. Front frame
1. PIN

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.

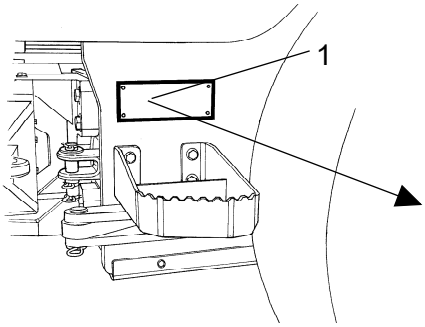


Fig. Operator platform
1. Machine plate

Machine plate

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

The plate specifies the manufacturer's name and address, the type of machine, the PIN product identification number (serial number), operating mass, 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.)

optional QR code

DYNAPAC FAYAT GROUP

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

CE

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

Made in Sweden

4811 0001 33

Please state the machine's PIN when ordering spares.

Explanation of 17PIN serial number

100	00123	V	x	A	123456
A	B	C	F		

A= Manufacturer

B= Family/Model

C= Check letter

F= Serial number

Engine plates

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

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

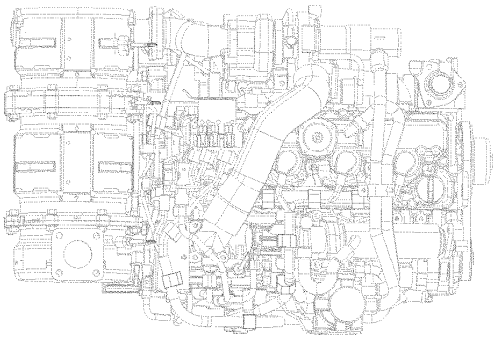


Fig. Engine
1. Type plate

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

TYPE	:	##########
FAMILY	:	##########
APPROVAL NUMBER:		##*##/#::P:*####/##*###*##
Kubota KUBOTA Corporation		
		#####

EMISSION CONTROL INFORMATION

THIS ENGINE MEETS 20## ##### EMISSION REGULATIONS
FOR U.S. EPA AND CALIFORNIA NONROAD CI ENGINES.

Kubota KUBOTA Corporation

MODEL :	#####	ENGINE DISP.:	####
FAMILY:	C ####		
POWER:	## kW / ### rpm	CATEGORY:	## - ## kW
VALVE CLEARANCE(COLD):		IN ## mm EX ## mm	
EGS:	### ####		
ULTRA LOW SULFUR DIESEL FUEL ONLY			
DEL ASSY.			#####

Location - decals, CALIFORNIA

Proposition 65

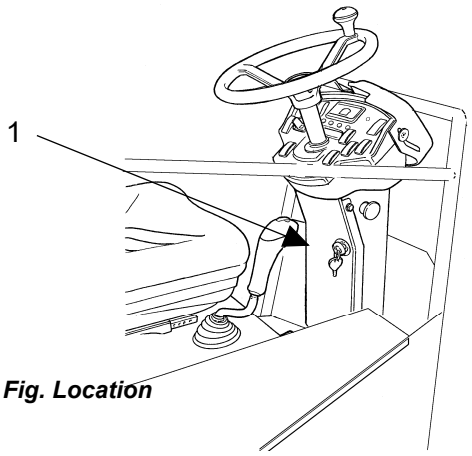
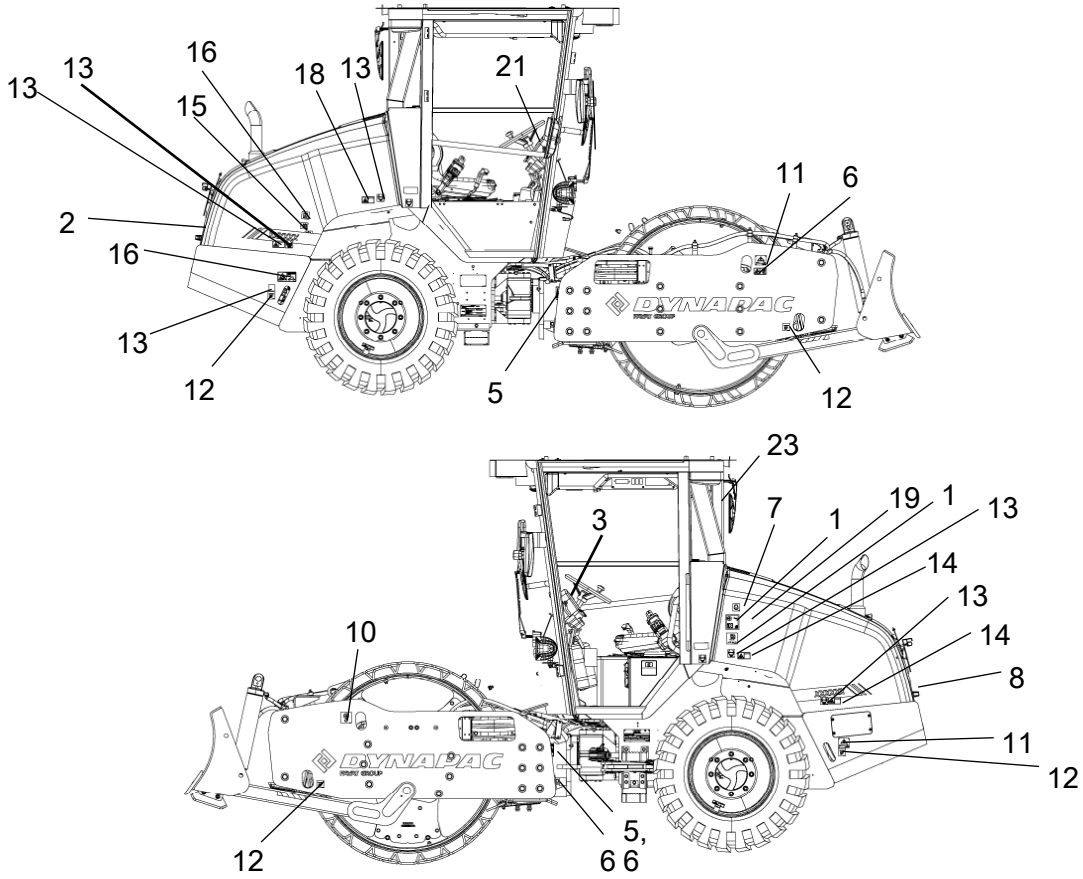


Fig. Location

1.	Warning, CALIFORNIA Proposition 65	4812129673

Decals

Location - decals

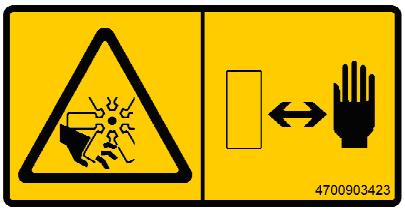


1.	Diesel fuel	4811000345	8.	Warning, Hot surfaces	4700903424	15.	Hydraulic fluid level	4700272373
2.	Warning, Rotating engine components	4700903423	9.	Battery master switch	4700904835	16.	Hydraulic fluid Bio hydraulic fluid	4700272372 4700792772
3.	Warning, Read instruction manual	4700903459	10.	Lift point	4700588176	17.	Sound power level	4700791273
4.	Handbook compartment	4700903425	11.	Hoisting plate	4700904870	18.	Warning, Starting gas	4700791642
5.	Warning, Crush zone	4700903422	12.	Tie down point	4700382751	19.	Fuel with a low sulphur content	4811000344
6.	Warning, Locking	4700908229 4812125363	13.	Tire pressure	4812117438	20.	Starting instructions	4812115918
7.	Coolant	4700388449	14.	Warning, Ballasted tires (CA1400)	4700903985	21.	Warning lamps	4812117993
						22.	Warning, Brake release	4700904895
						23	Emergency exit	4700903590

Safety decals

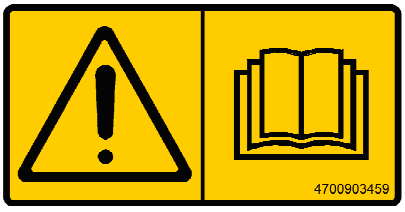
Always make sure that all safety decals are completely legible, and remove dirt or order new decals if they have become illegible. Use the part number specified on each decal.

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



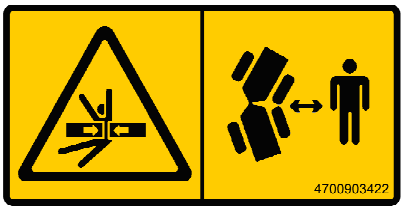
4700903423
Warning - Rotating engine components.

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.



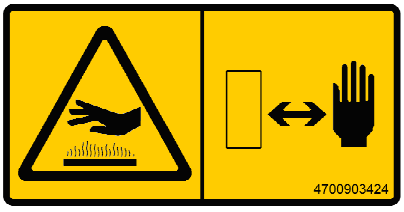
4700903422
Warning - Crush zone, articulation/drum.

Maintain a safe distance from the crush zone.

4700908229
Warning - Risk of crushing

The articulation must be locked when lifting.

Read the instruction manual.

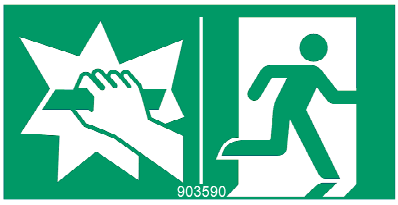


4700903424
Warning - Hot surfaces in the engine compartment.

Keep your hands at a safe distance.

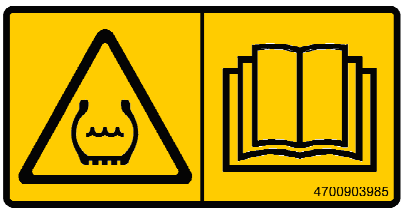
4700791642
Warning - Starting gas

Starting gas is not to be used.



4700903590
-Emergency exit

(CA1400)



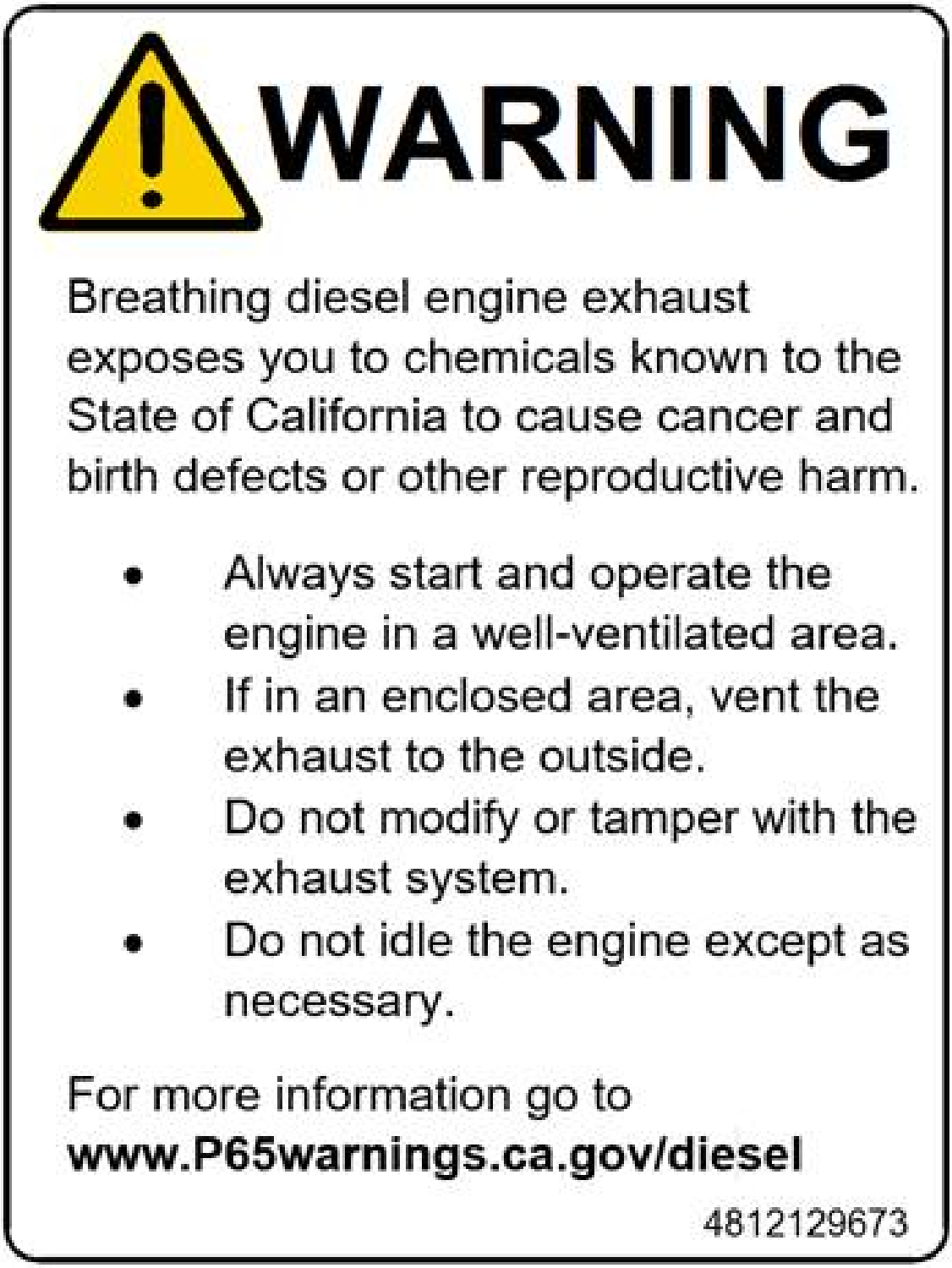
4700903985
Warning - Ballasted tire.

Read the instruction manual.

More information in section in Technical specifications.

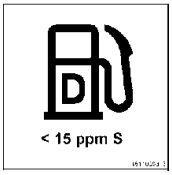
4812129673
Warning

CALIFORNIA - Proposition 65



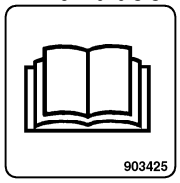
Info decals

1. Diesel fuel



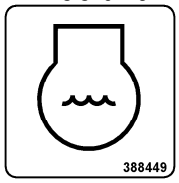
4811000345

4. Handbook compartment



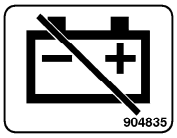
4700903425

7. Coolant



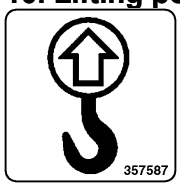
4700388449

9. Master switch



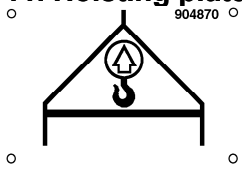
4700904835

10. Lifting point



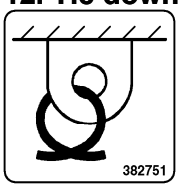
4700357587

11. Hoisting plate



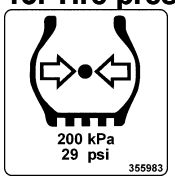
4700904870

12. Tie down point



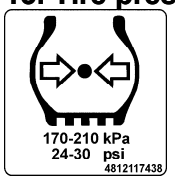
4700382751

13. Tire pressure (CA1300)



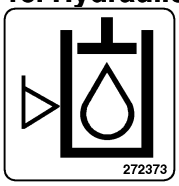
4700355983

13. Tire pressure (CA1400)



4812117438

15. Hydraulic fluid level

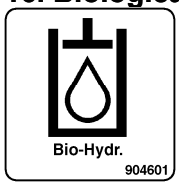


4700272373

16. Hydraulic fluid

4700272372

16. Biological hydraulic fluid

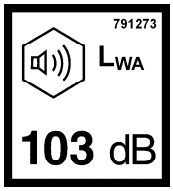


4700904601

16. Biological hydraulic fluid

4700792772

17. Sound power level

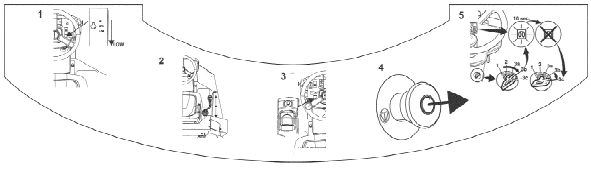


4700791273

19. Fuel with a low sulphur content

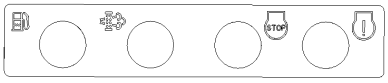
4811000344

20. Starting instructions



4812115918

Warning lamps



Instruments/Controls

Locations - Instruments and controls

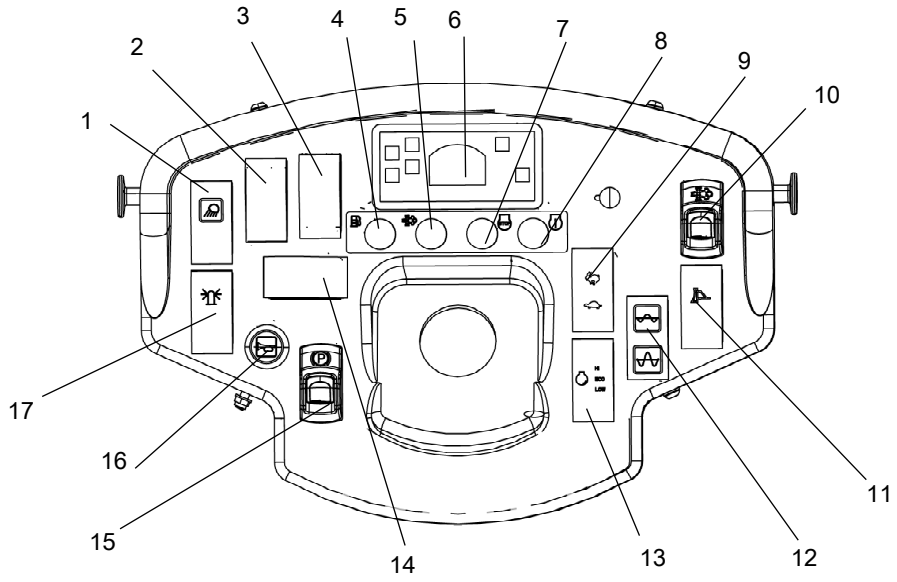


Fig. Instruments and control panel

1.	Working lights *	10.	Switch, parked regeneration
2.	Driving lights *	11.	Strike-off blade *
3.	Hazard lights *	12.	Amplitude selector, High/Low (CA1400) Vibration On/Off (CA1300)
4.	Control lamp, water separator	13.	Engine speed selector, LO/ECO/HI
5.	Control lamp, parked regeneration	14.	Direction indicator *
6.	Control panel	15.	Parking brake On/Off
7.	Engine diagnostics control light, serious fault	16.	Horn
8.	Engine diagnostics control light, less serious fault	17.	Rotating beacon *
9.	Speed selector, High/Low (CA1400)		

*) Depending on machine equipment status.

Locations - Control panel and controls

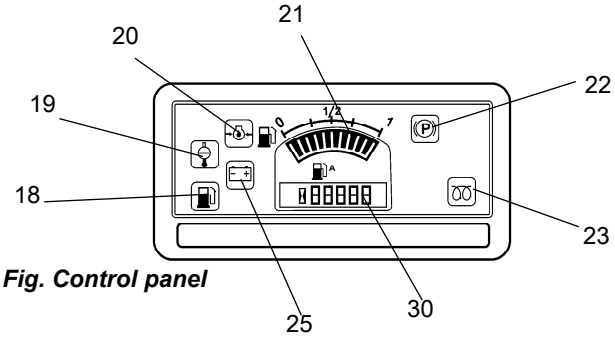


Fig. Control panel

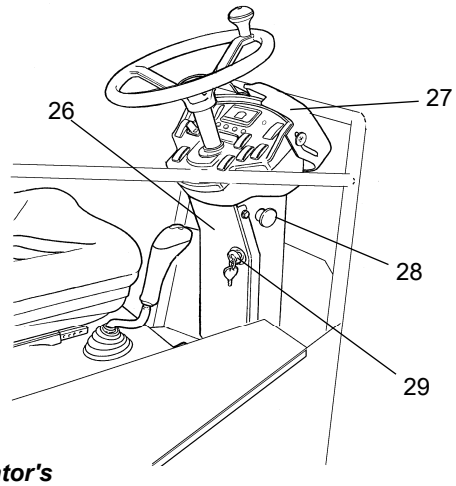


Fig. Operator's station

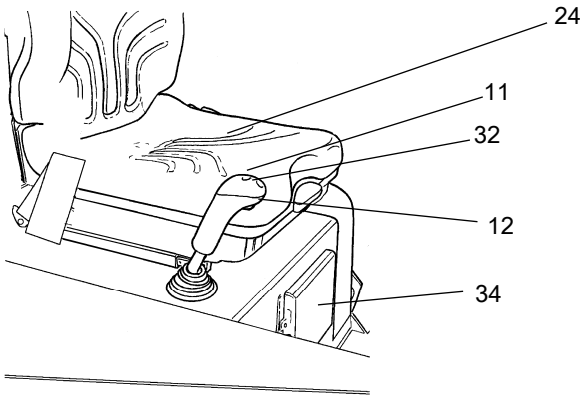
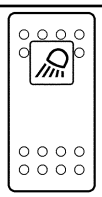
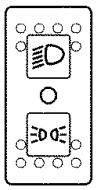
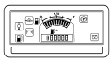
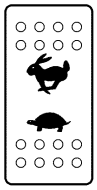
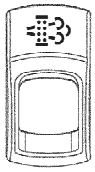
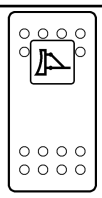
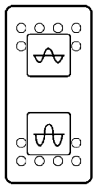
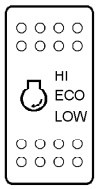
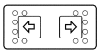
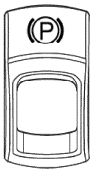
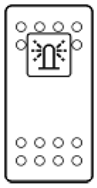


Fig. Operator position

11	Strike-off blade	25	Battery/charging
12	Vibration Vibration On/Off	26	Fuse box
18	Low fuel level	27	Instrument cover (For machine equipped with ROPS only).
19	Water temperature, engine	28	Emergency stop
20	Oil pressure, engine	29	Starter switch
21	Fuel level	30	Seat switch
22	Parking brake	32	Forward/reverse lever
23	Glow plug	34	Handbook compartment
24	Hourmeter/Error codes, engine		

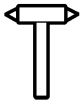
Function description

No	Designation	Symbol	Function
1.	Working lights, switch		When depressed, the working lights are on
2.	Driving lights, switch		Where the upper position is depressed, the driving lights are on. Where the lower position is,depressed the parking lights are on.
3.	Hazard warning lights, switch		Where depressed, the hazard warning lights are on
4.	Water separator		Yellow control lamp. If the lamp is lit, this indicates that there is water in the tank. Stop the roller and drain the fuel filter. (see chapter “Maintenance procedures 50h”)
5.	Regeneration parked		Yellow control lamp. If the lamp flashes, start a parked regeneration.
6.	Control panel		
7.	Engine diagnostics control light, serious fault		Red control lamp. Serious fault: **Switch off engine immediately!** Error codes are displayed alternating with the hourmeter on the control panel. Rectify before restarting.
8.	Engine diagnostics control light, less serious fault		Yellow control lamp. Less serious fault Rectify as soon as possible. Error codes are displayed alternating with the hourmeter on the control panel
9.	Speed selector, High/Low (CA1400)		The depressed upper position gives **Low** speed The depressed lower position gives **High** speed
10.	Regeneration parked, Switch		Parked regeneration is activated in pressed mode. If the indicator in the switch flashes, start a parked regeneration.

No	Designation	Symbol	Function
11.	Strike-off blade, On/Off, switch		When pressed, the strike-off blade is activated. Controls the position of the strike-off blade.
12.	Vibration, switch (CA1300)		Activates the vibration together with the switch in the forward/reverse lever.
	Amplitude selector, High/Low (CA1400)		The depressed upper position gives **Low** amplitude The depressed lower position gives **High** amplitude
13.	Electronic speed control regulator		Three-position switch for idling (LOW), fuel optimization (ECO) and working speed (HI). **N.B.** When starting the machine, the control must be in idling position (LOW).
14.	Direction indicators, switch		When depressed to the left, the left directionindicators are on etc. In the middle position thefunction is shut off.
15.	Parking brake		To activate the brakes, press the top of the switch to change the position of the lever. To disengage the brakes, press down the red part at the same time as the switch, and change the position of the lever. NOTE: When starting the machine, the parking brake must be activated.
16.	Horn, switch		Press to sound the horn.
17.	Hazard beacon, switch		Where depressed, the hazard beacon is on
18.	Warning lamp, low fuel level		The lamp goes on if the fuel level in the diesel tank is low.
19.	Warning lamp, water temperature		The light comes on if the water temperature is too high. Stop the engine immediately and locate the fault.
20.	Warning lamp, oil pressure		This lamp lights if the lubricating pressure in the engine is too low. Stop the engine immediately and locate the fault.
21.	Fuel level		Shows the fuel level in the diesel tank.
22.	Warning lamp, parking brake		The lamp lights when the parking brake is activated.

No	Designation	Symbol	Function
23.	Warning lamp, glow plug		The lamp must go out before the starter switch is moved to position 3c for activation of the starter motor.
24.	Hourmeter / Error codes, engine		Displays the number of working hours for the engine. Any error codes from the diesel engine are also shown here.
25.	Warning lamp, battery charging		If the lamp lights while the engine is running the alternator is not charging. Stop the engine and locate the fault. At a voltage below 12.5 volts, the engine revs will automatically be set to 1300 revs to ensure sufficient charging of the battery. This only applies when the parking brake is activated.
26.	Fuse box (on control column)		Contains fuses for the electrical system. See under the heading 'Electrical system' for a description of fuse functions.
27.	Instrument cover (For machine equipped with ROPS only)		Lowered over the instrument plate to protect the instruments from the weather and sabotage. Lockable
28.	Emergency stop		When pressed, the emergency stop is activated. Brakes the roller and switches off the engine. The power supply goes off. **N.B.** When starting the machine, the emergency stop must be inactive.
29.	Starter switch	  	Positions 1-2: Shut off position, key can be removed. Position 3a: All instruments and electric controls are supplied with power. Position 3b: Glowing. Hold the starter switch in this position until the lamp goes out. The starter motor is activated in the next position. Position 3c: Starter motor activation.
30.	Seat switch		Remain seated at all times when operating the roller. If the operator stands up during operation, a buzzer sounds. After 3 seconds the brakes are activated and the engine stops.
32.	Forward/Reverse lever		The lever must be in neutral to start the diesel engine. The engine cannot be started if the lever is in any other position. The forward/reverse lever controls both the roller's driving direction and speed. When the lever is moved forward, the roller moves forward etc. The roller's speed is proportional to the distance the lever is from the neutral position. The further the lever is from the neutral position, the higher the speed.
34.	Handbook compartment		Pull up and open the top of the compartment for access to handbooks.

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.
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.
11	Leds, switch		Activates the cab's internal leds

Instruments and controls, cab

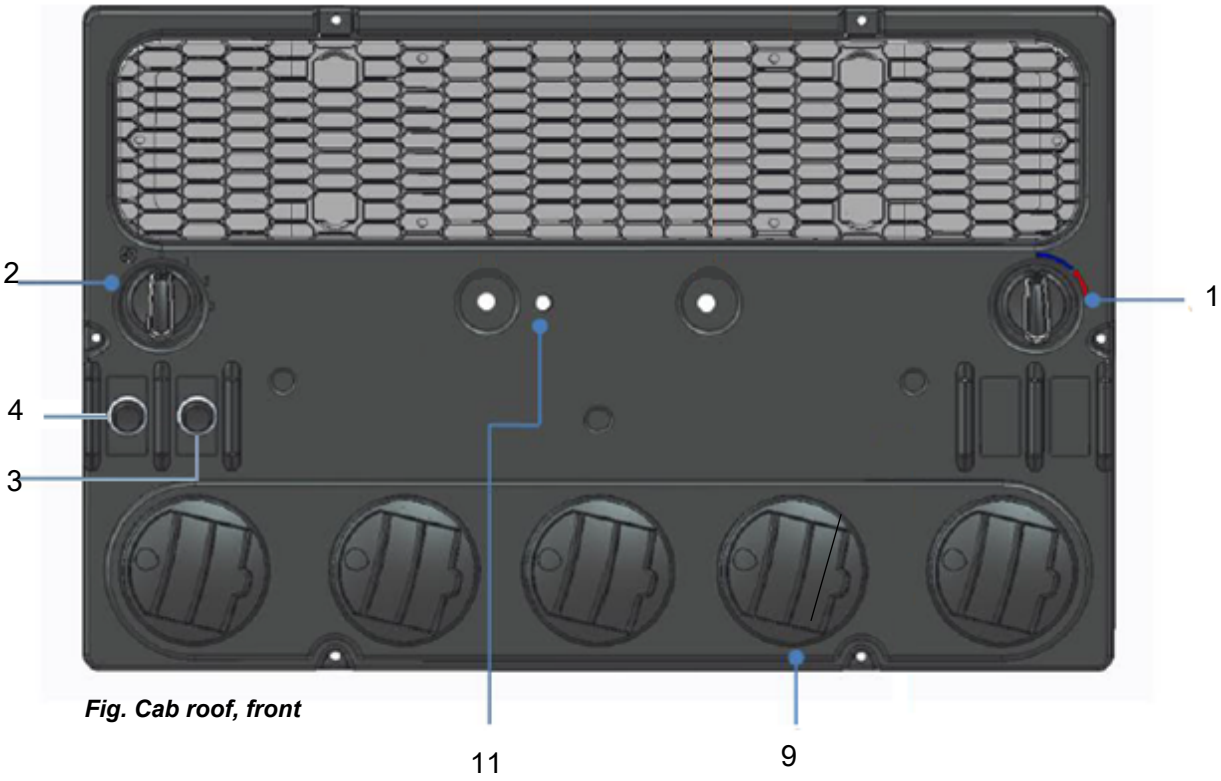


Fig. Cab roof, front

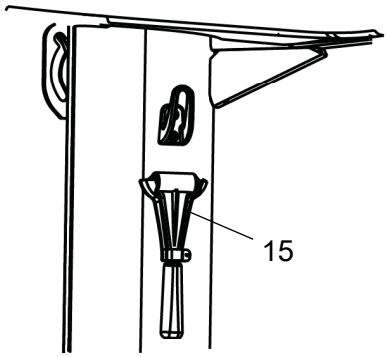


Fig. Rear cab post, right-hand side
10. Hammer for emergency escape

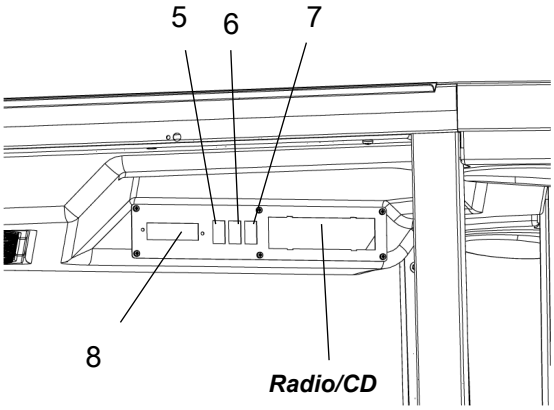


Fig. Cab roof, right side

A/C - System Operation

NOTE: When using AC, all windows must be closed for the system to function efficiently.

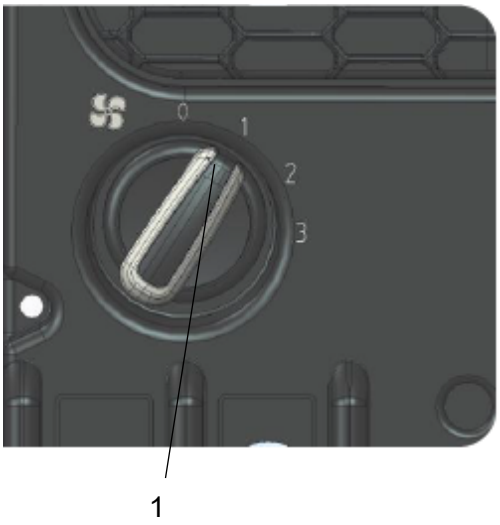


Fig. Activation of air conditioning
1. Knob in position 1

Activating air conditioning

To activate the air conditioning, set the ventilation knob to one of the three following positions:

- Low level - Knob in position 1
- Intermediate level - Knob in position 2
- High level - Knob in position 3

Fig. Activating cooling

Cooling mode

Use the following settings on the control panel for rapid temperature reduction in the cab:

- To activate cooling mode (compressor ON), press switch (3) on the AC.

- To activate recirculation of cab air, press switch (4) to close the fresh air vent.

- Set the heater control (1) to minimum and turn up the fan speed (2).

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

To deactivate cooling mode, set the knob back to the start position.

The LED will turn off, indicating that cooling mode is off.

When the ventilation knob is set to 0 (zero), cooling mode will automatically be switched off.

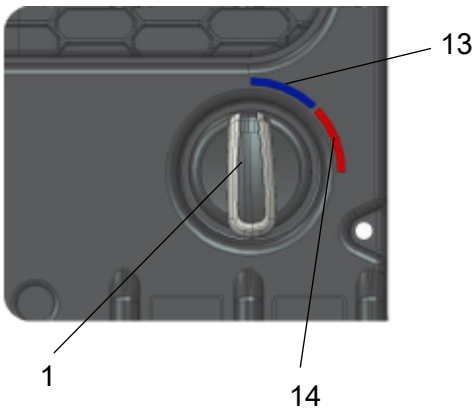


Fig. Heating mode
1. Control
13. Closed vent
14. Open vent

Heating mode

To activate heating mode, turn the control (1) on the right side of the system clockwise. Heat level is proportional to opening the vent using this command.

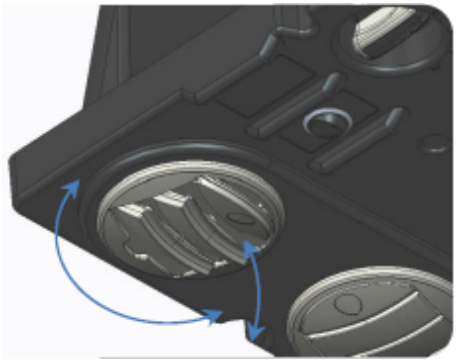


Fig. Diffuser

Airflow direction

Turn the air vents in any direction and adjust the opening using the flanges.

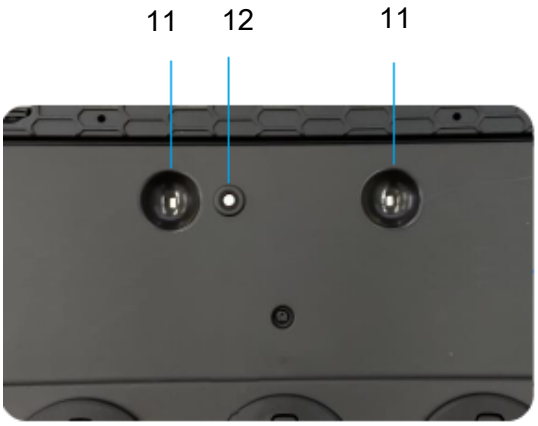


Fig. LEDs
11. LEDs
12. Switch

Activation of LEDs

LEDs (11) will be turned on when the machine door switch is activated, or when the switch (12) is activated. They will be turned off when the switch is activated a second time.

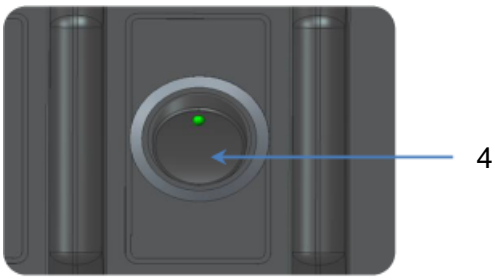


Fig. Recirculation activation

Air Recirculation

To activate the air recirculation mode (open external air inlet vent), press switch (4). After activation, the LED inside will light up to confirm that the vent is open.

To deactivate air circulation, turn the knob back to position 1. The LED will turn off, indicating that air recirculation mode is turned off.

Using the cab controls.

Defroster

For quick de-icing or demisting, make sure that only the outer air vents are open.

Turn the heater and fan dial to max.

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

Heat

If the cab is unheated, open the air exhaust located in front of the controls for heating and fan.

Turn to max heat and max fan speed.

When the desired heat is reached, turn down the heat and fan speed.

Electrical system

Fuses

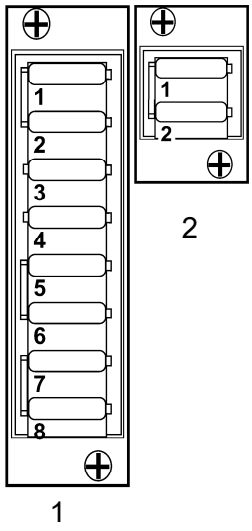


Fig. Fuse boxes
1. Upper
2. Lower

The figure shows the position of the fuses.

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

	Fuse box, Upper			Fuse box, Lower	
1.	Emergency stop, ECU, Backup alarm, Neutral position, Seat switch, Vibration	15A	1.	Driving lights	20A
2.	Horn, Summer, Instrument panel	10A	2.	Position lights	10A
3.	Hazard beacon, Strike off blade	10A			
4.	Working lights	20A			
5.	Engine ECU	5A			
6.	Alternator, Indication, Preheater	5A			
7.	EGR valve	5A			
8.	Reserve				

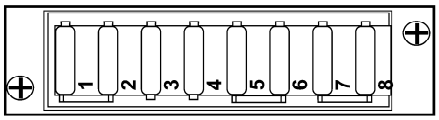


Fig. Cab roof fuse box (F7)

1.	F7.1	Interior lighting	3A
2.	F7.2	Windscreen wiper/washers (front/rear)	15A
3.	F7.3	Blower	15A
4.	F7.4	Thermostat	5A
5.	F7.5	Compressor clutch	5A
6.	F7.6	Recircle / Fresh air motor	1A
7.	F7.7	Radio	5A

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.

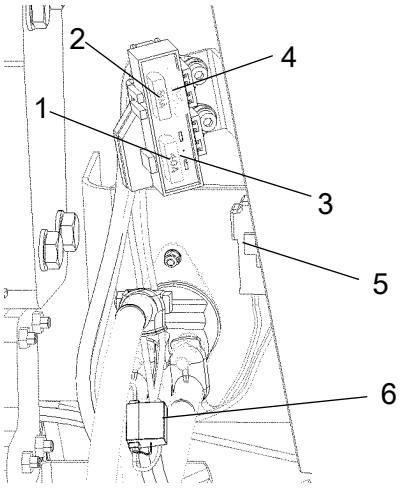


Fig. Engine compartment
1. Fuse, starter relay (40A)(F4.4)
2. Main fuse (50A) (F4.1)
3. Reserve
4. Fuse, preheating relay (80A) (F4.2)
5. Fuse, engine ECU (20A) (F8)
6. Fuse, 12V socket (10A) (F5)

Main fuses

There is one main fuse (2). It is located behind the battery disconnector, on the right side inside the engine hood.

The fuse if of the flat pin type.

Relays on machine

Control column

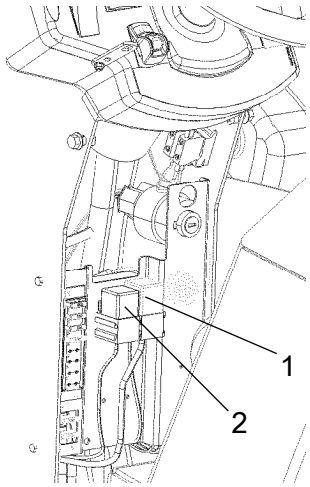


Fig. Relays Control column

1.	*K9*	*Position lights*
2.	*K10*	*Stop lights*

Engine room

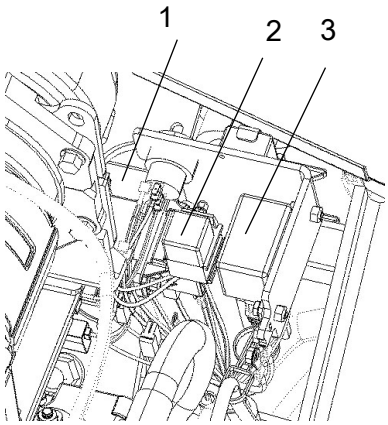


Fig. Relays Engine room

1	*K1*	*Starting*
2	*K2*	*ECU*
3	*K5*	*Preheating*

Cab

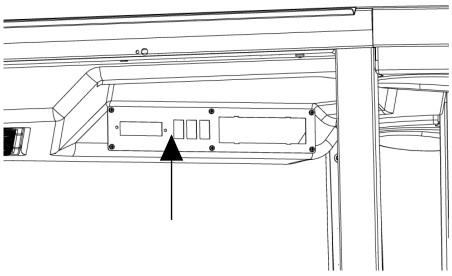


Fig. Relays in cab

The relays are located behind the plate where the fuse box and switches are located.

To access the relays, the plate must be unscrewed.

1	*K23*	*Recirc / Fresh air*
2	*K24*	*Recirc / Fresh air*
3	*K25*	*Compressor*
4	*K30*	*Cab*

Operation

Before starting

Master switch - Switching on

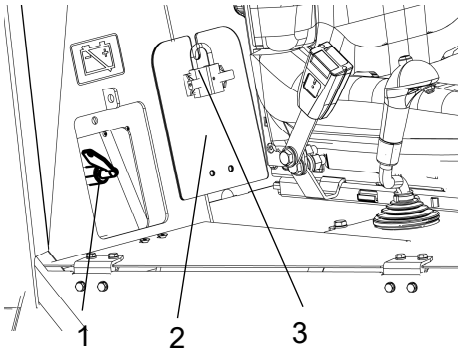


Fig. Battery master switch
1. Key
2. Door
(machines fitted with ROPS only)
3. Padlock

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

The master switch is located on the right side of the operator platform. Turn the key (1) to the On position. The roller is now supplied with power.

Don't lock the door during operation.
The key must be easy accessible.

Operator’s seat - Adjusting

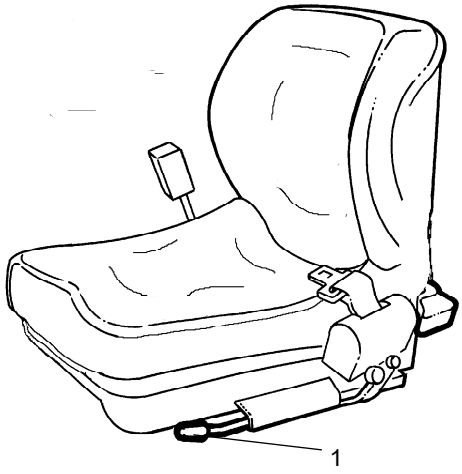


Fig. Operator's seat
1. Length adjustment

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 lengthways (1).

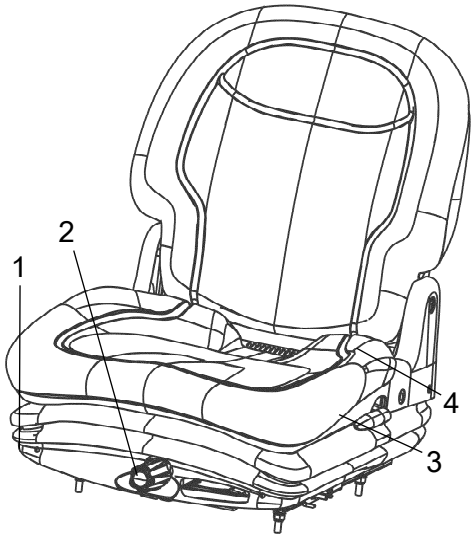


Fig. Driver seat
1. Lock lever - Length adjustment
2. Weight adjustment
3. Back support angle
4. Seat belt

Driver seat (Equipment status) - Adjustment

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

The seat can be adjusted as follows.

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

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

Do not forget to use the seat belt (4).

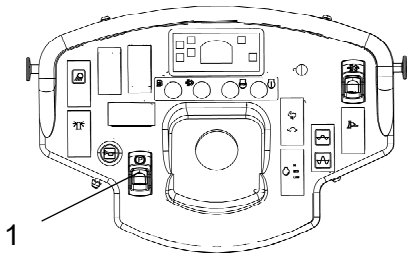


Fig. Control panel
1. Parking brake

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!

Interlock

The roller is equipped with Interlock.

The diesel engine with switch off after 4 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!

Instruments and lamps - Checking

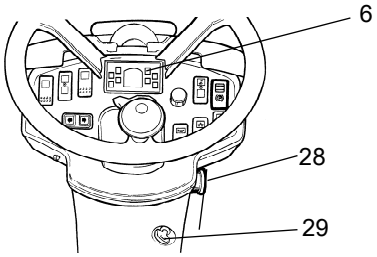


Fig. Instrument panel
29. Starter switch
28. Emergency stop
6. Warning panel

Make sure that the emergency stop (28) is pulled out. When the roller is in neutral or there is no load on the operator seat, the automatic brake function is engaged.

Pull out the emergency stop (28).

Turn the power switch (29) to position 3a.

Check that the warning lamps in the warning panel (6) illuminate.

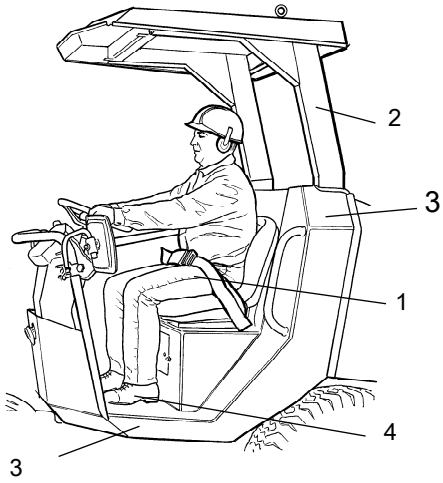


Fig. Operator's station
1. Seat belt
2. ROPS structure
3. Rubber element
4. Anti-slip

Operator position

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

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

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.

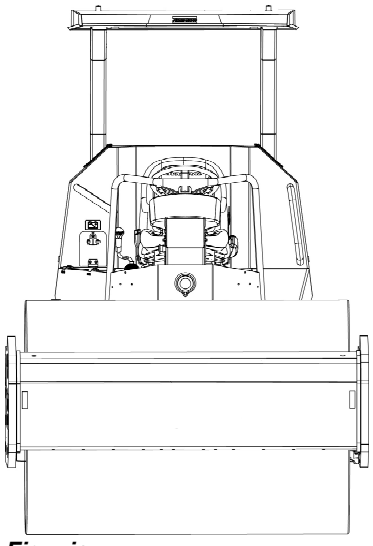


Fig. view

View

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

The rear view mirrors (depending on roller equipment status) should be adjusted for a good rear view.

Windscreen washer fluid - Checking and filling

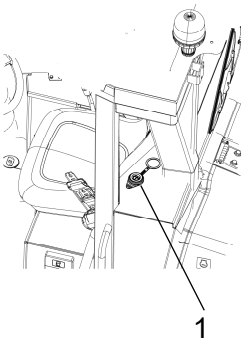


Fig. Operator's platform
1. Windscreen washer reservoir

Place the roller on a level surface.

Top up the windscreen washer fluid if necessary.

The reservoir holds 2.1 litres (2.2 qts)

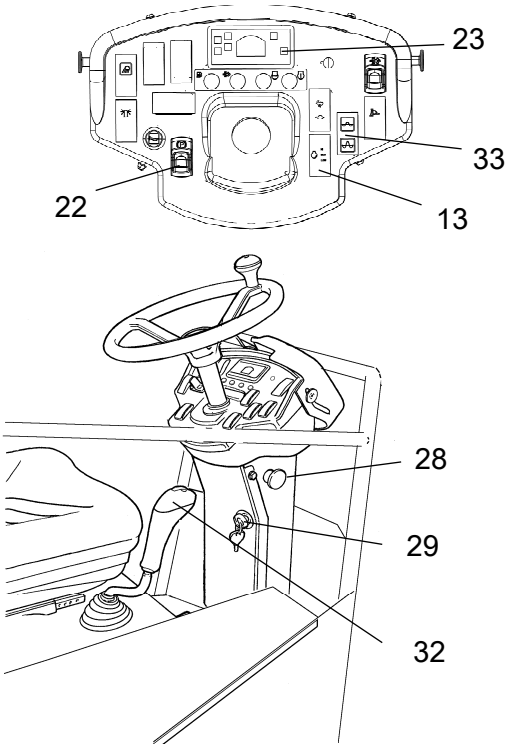


Fig. Control panel
29. Starter switch
13. Engine speed control
28. Emergency stop
32. Forward/Reverse lever
33. Vibration switch
23. Glow lamp
22. Parking brake

Starting

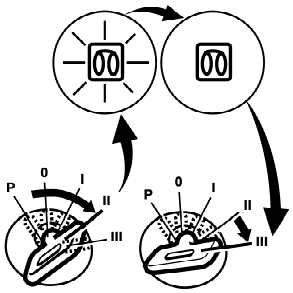
Starting the engine

Make sure that the emergency stop (28) is pulled out and the parking brake (22) is activated.

Set the forward/reverse lever (32) in neutral.
The engine can only be started when the lever is in neutral.

Turn the vibration switch (33) to the Off position (position O).

Set the engine speed control (13) to idling: Low.



Preheating: Turn the ignition key to position II.
When the glow lamp (23) goes out, turn the ignition key to position III.
As soon as the engine has started, release the ignition key.

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

Idle the engine for a few minutes until it is warm, longer if the ambient temperature is below +10 °C (50 °F)

At temperatures below 0°C (32°F) the diesel engine and hydraulic system should be warmed up for at least 15 minutes.

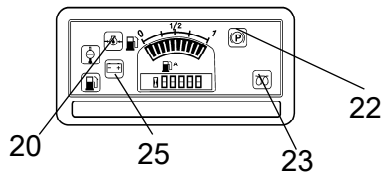


Fig. Control panel
25. Charging lamp
20. Oil pressure lamp
22. Brake lamp
23. Glow plug lamp

Check while warming the engine that the warning lamps for the oil pressure (20) and charging (25) go out.

The warning lamp (22) should remain on.

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

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

Driving

Operating the roller

Under no circumstances is the machine to be operated from the ground. The operator must be seated inside the machine during all operation.

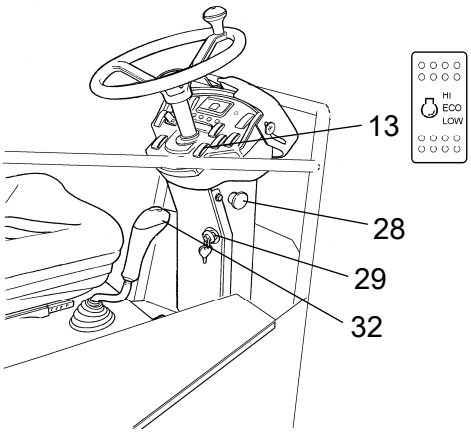


Fig. Instrument panel
29. Starter switch
13. Engine speed control
28. Emergency stop
32. Forward/Reverse lever

Set the speed control (13) in working position: High or Eco.

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.

Carefully move the forward/reverse lever (32) forwards or backwards, depending on which direction of travel is required.

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

Test the emergency stop by pressing the emergency stop button (28) while the roller is moving slowly forward. Brace yourself for a sudden stop. The engine will be switched off and the brakes activated.

Check while driving that the warning lamps have not gone on.

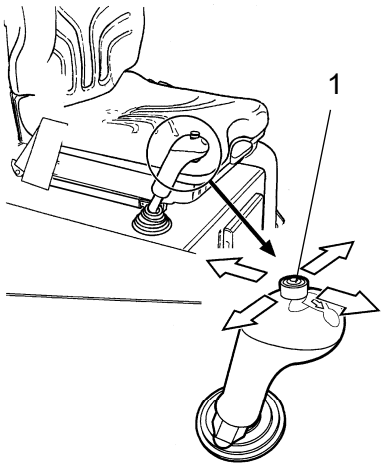


Fig. Forward/reverse lever
1. Joystick, strike-off blade

Operation of strike-off blade (Equipment status)

Before driving, make certain that the blade is in its uppermost position (raised). Inspect the condition of the ground before using the blade.

The joystick (1) has five positions.
Middle - Neutral.
Back - Lifting of blade.
Forward - Lowering of blade.
Tilting - Right/Left (Equipment status)

Lower the blade to the ground before leaving or parking the roller.

Use the blade only when driving FORWARD.

Interlock / Emergency stop /Parking brake - Check

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

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

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

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

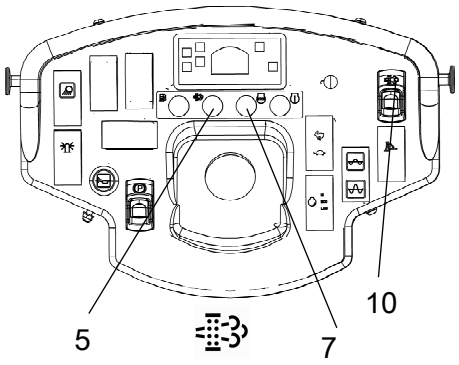


Fig. Control panel
7. Control lamp, fatal error
5. Control lamp, parked regen (regeneration)
10. Switch for parked regen (regeneration) of the DPF filter

Regeneration of DPF filter

The machine is equipped with a diesel particle filter (DPF filter).

The diesel engine does an automatic burnout of carbon when necessary and no indication is shown during normal operation.

If the machine is run frequently with partial load, starting and stopping, and at low temperatures etc., a **parked** regeneration may need to be done.

This is indicated by the lamp for **Parked regen (regeneration) requires (Parked Regen Requested)** (5) starts to flash parallel with the switch (10) and the buzzer sounds.

The operator should park the machine at a suitable place and allow the engine to run.

The parking brake should be activated, the machine should be stationary, and the control lever should be in neutral.

The engine should be warm.

To start the parked regeneration, press the switch for **Parked Regen Requested** (10).

This is done by moving up the yellow lock and pressing the switch. The switch will spring back afterwards.

The speed of the engine increases and the lamp stops flashing but remains on **Parked regen (regeneration) in progress (Parked Regen Requested)** 5.

The regeneration of the DPF filter takes about 20 minutes, after which the engine returns to low speed and the lamp goes off.

When the regeneration is finished and if the machine is going to be used again, disable the parking brake.

The machine can now be used.

If it is not possible to do a parked regeneration, because the place is not suitable or because the working conditions will not permit this, do as follows:

- Drive the roller as soon as possible to a suitable place.

- Park the roller, enable the parking brake and carry out a parked regeneration.

If the yellow flashing indicators on parked regeneration (5, 10) are ignored, error codes will be displayed and the engine power will be reduced. If the indicators continue to be ignored the red control lamp (7) will go on. Switch off the engine immediately, enable the parking brake and contact a service technician at once.

At a voltage below 12.5 volts, the engine revs will automatically be set to 1300 revs to ensure sufficient charging of the battery. This only applies when the parking brake is activated.

Ensure there is space for good ventilation around the machine.
Temperatures in the region of 350°C (662°F) can be generated at the exhaust pipe when performing regen (regeneration) of the DPF filter.

The engine hood should be kept closed while the regeneration is in progress.

Vibration

Vibration On/Off

Activation/deactivation of the vibration is selected with the switch (12).

The operator must activate the vibration via the switch (33) on the underside of the forward/reverse handle. See illustration below.

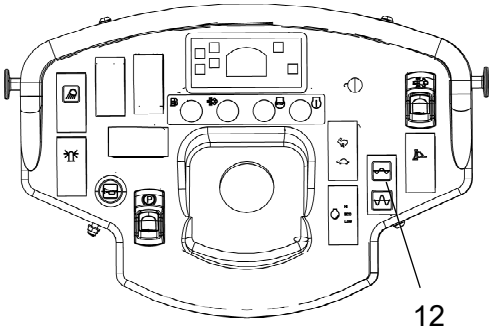


Fig. Instrument panel
12. Vibration switch.

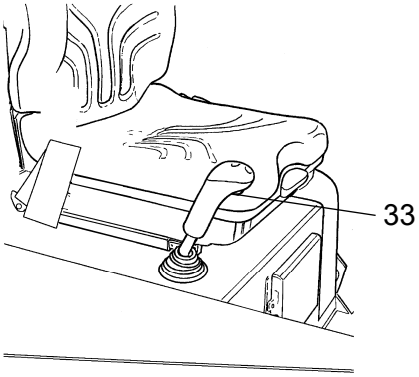


Fig. Forward/Reverse lever
33. Switch, vibration On/Off

Vibration - Activation

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

Engage and disengage vibration using the switch (33) on the underside of the forward/reverse lever.

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

Braking

Normal braking

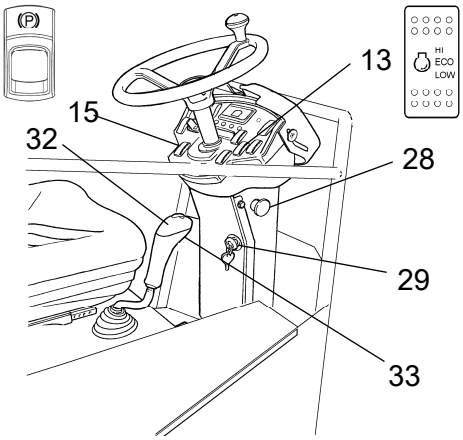


Fig. Instrument panel
29. Key
13. Engine speed control
28. Emergency stop
33. Vibration On/Off
32. Forward/reverse lever
15. Parking brake

Press the switch (33) to switch off the vibration.

Move the forward/reverse lever (32) to the neutral position to stop the roller.

Set the speed control (13) to idling position: Low.

Set the parkering brake switch (15) in the On position.

Always use the parking brake (15) when the machine is stationary on a sloping surface.

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.

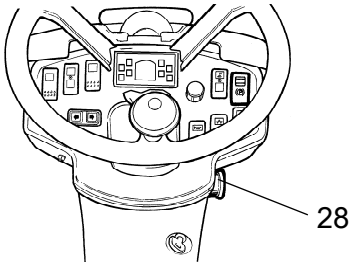


Fig. Instrument panel
28. Emergency stop

Emergency braking

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

There is also a brake in the drum motor and rear axle that acts as an emergency brake during operation.

For emergency braking, press the emergency stop (28), hold the steering wheel firmly and be prepared for a sudden stop. The brakes are applied and the engine stops.

After emergency braking, return the forward/reverse lever to neutral and pull out the emergency stop (28).

Enable the parking brake (15) and set the speed control (13) to Low.

The roller is equipped with an Interlock and therefore the operator must sit in the seat to start the engine.

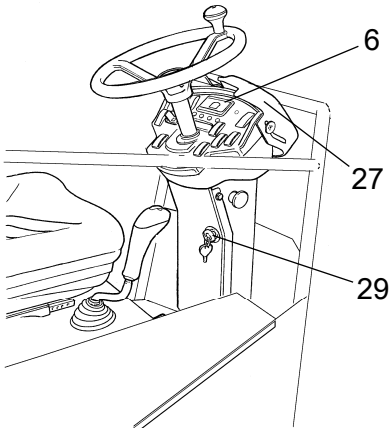


Fig. Instrument panel
29. Starter switch
27. Instrument guard
6. Panel for warning lamps

Switching off

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

Turn the starter switch (29) to the left to switched off position 1. At the end of the shift, lower the instrument cover (6) and lock it.

Parking

Chocking the drums

Never leave the roller when the engine is running without enabling the parking brake.

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

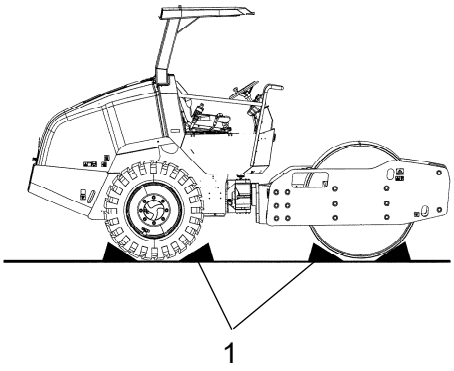


Fig. Arrangement
1. Chock

Master switch

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

This prevents the battery from discharging and makes it difficult for unauthorised persons to start and operate the machine.

On a machine fitted with ROPS, the door (2) must also be locked at the end of the working day.

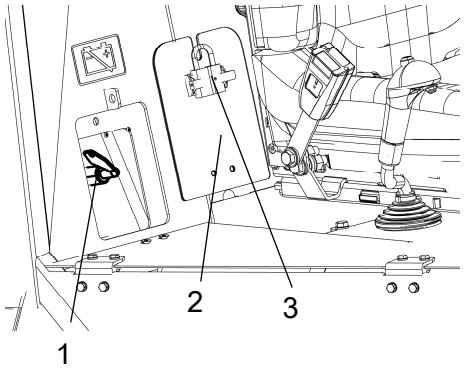


Fig. Battery master switch
1. Key
2. Door
(machine fitted with ROPS only)
3. Padlock

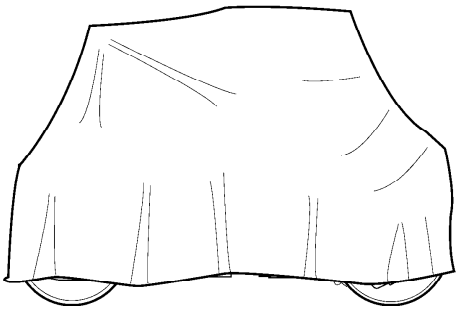


Fig. Roller weather protection

Long-term parking

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

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

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

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

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

Engine

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

Battery

* Remove the battery from the machine, clean, grease the cable connectors (terminals) and trickle charge the battery once a month. The battery is otherwise maintenance free.

Air cleaner, exhaust pipe

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

Fuel tank

Fill the fuel tank completely full to prevent condensation.

Hydraulic reservoir

Fill the hydraulic reservoir to the uppermost level mark (see under the heading ‘Every 10 hours of operation.’)

Tires

Check that the tire pressure is:

CA1300 200 kPa (2.0 kp/cm^2) (29 psi).

CA1400 150 kPa (1.5 kp/cm^2) (21.8 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.

Steering cylinder, hinges, etc.

Grease the steering cylinder piston with conservation grease.

Grease the hinges on the doors to the engine compartment. Grease both ends of the forward/reverse control (bright parts) (see under the heading ‘Every 500 hours of operation’).

Miscellaneous

Lifting

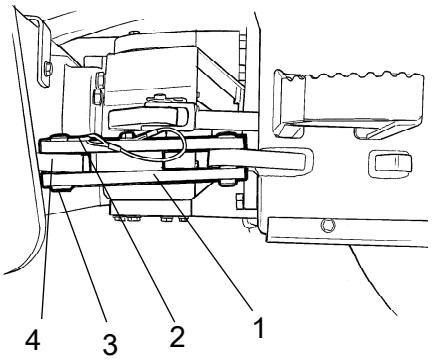


Fig. Articulation in the locked position
1. Locking arm
2. Locking pin
3. Locking stud
4. Locking lug

Locking the articulation

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

Turn the steering wheel to the straight ahead position. Enable the parking brake (31).

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

Fold out the locking arm (1) and place it over the locking lug (4) on the drum frame.

Fit the locking stub (3) in the holes through the locking arm (1) and locking lug (4) and secure the stud in position with the locking pin (2).

Weight: refer to the hoisting plate on the roller

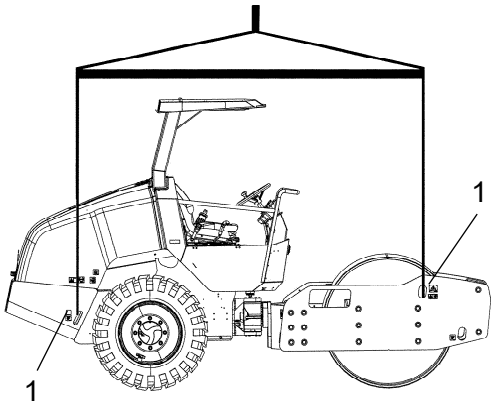


Fig. Roller prepared for lifting
1. Hoisting plate

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.

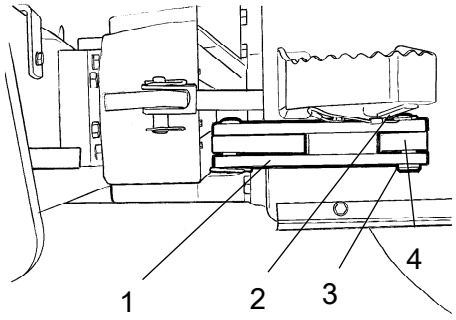


Fig. Articulation in the open position
1. Locking arm
2. Locking pin
3. Locking stud
4. Locking lug

Unlocking the articulation

Remember to unlock the articulation before operating.

Fold the locking arm (3) back and secure it in the locking lug (4) with the stud (3). Insert the locking pin (2) fitted with a wire, to secure the stud (3). The locking lug (4) is located on the tractor frame.

Towing

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

Short distance towing with the diesel engine switched off/not running (CA1300)

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

The machine must not be operated at a speed higher than 3 km/h (2 mph) and must not travel further than 300 metres (330 yards). Failure to comply may result in damage to the drive motors.

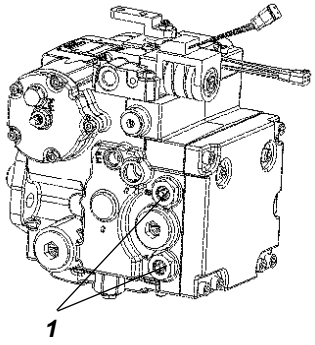


Fig. Propulsion pump
1. By-pass valve

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

On the pump there are two by-pass valves (1), which should be pressed in to set the system in by-pass mode.

This function enables a machine to be moved without the drive shaft on the propulsion pump rotating.

The by-pass pistons (1) are automatically reset when the engine is started and the feed pressure builds up.

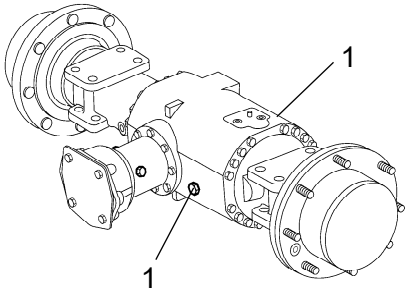


Fig. Rear axle
1. Brake release screw (2).

Rear axle brake

The two brake release screws (1) are located on the front and back of the rear axle.

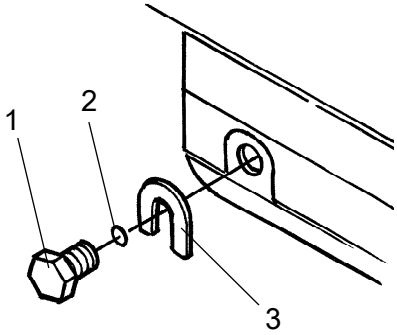


Fig. Brake disengagement
1. Brake release screw
2. O-ring
3. Stop washer

Brake disengagement

Unscrew the brake release screws (1) and remove the stop washers (3). The screws must not be completely removed, only unscrewed enough to remove the washers.

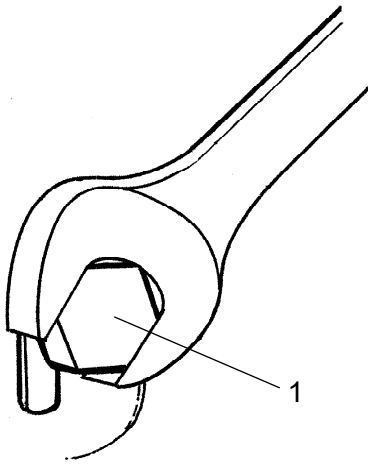


Fig. Brake disengagement
1. Brake release screw

Now tighten the brake release screws (1) alternately until they are fully screwed in.

The brake is now disengaged.

Reset the drum motor brake after towing.

Releasing the drum brake (CA1300)

Drum motor brake

Remove the drum brake centre plug (2), which is accessible through the centre hole (1) in the left frame side.

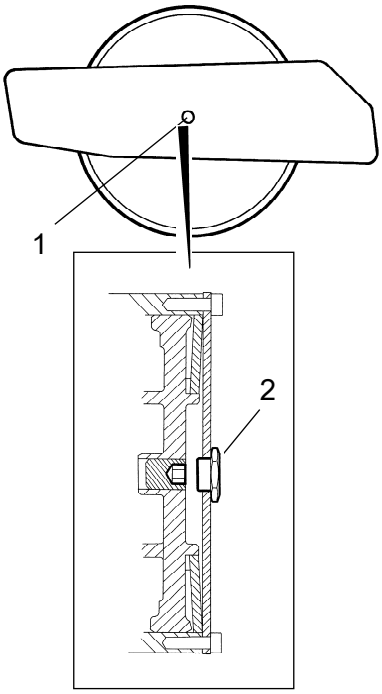


Fig. Left frame side
1. Center hole
2. Center plug

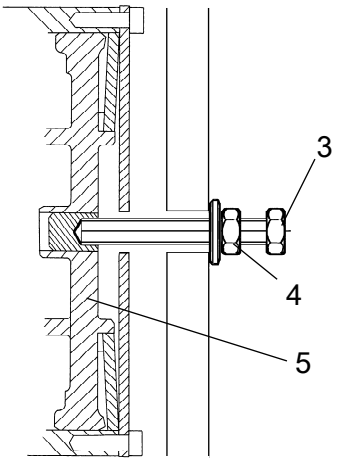


Fig. Cross-section of brake housing
3. Bolt
4. Nut
5. Brake piston

Screw in the bolt (3) all the way as shown in the figure. Now screw in the nut (4) so that it is flush with the washer, and then an additional 0,75 - 1 turns, holding the screw in place (3).

The brakes are now released and the machine can be towed.

Reset the drum motor brake after towing.

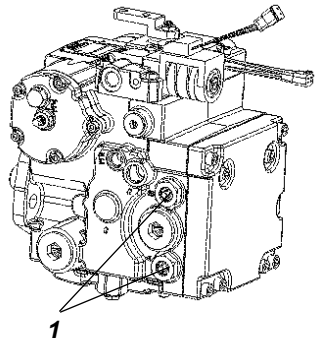


Fig. Propulsion pump
1. By-pass valve

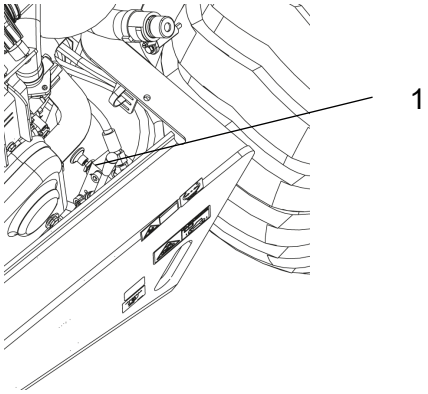


Fig. Engine compartment, right side
1. Brake disengagement pump

Short distance towing with the diesel engine switched off/not running (CA1400)

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

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

On the pump there are two by-pass valves (1), which should be pressed in to set the system in by-pass mode.

This function enables a machine to be moved without the drive shaft on the propulsion pump rotating.

The by-pass valves (1) are automatically reset when the engine is started and the feed pressure builds up.

Brake disengagement pump

The release pump for the brakes is located in the engine compartment, right side.

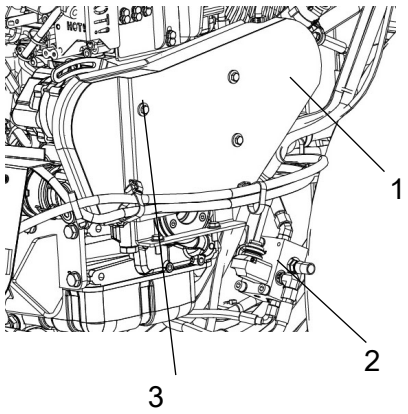


Fig. Engine room
1. Belt guard
2. Hand pump
3. Screw

For roller equipped with AC

To be able to use the hand pump (2), the belt guard for the compressor has to be removed.

Unscrew the screws (3) and remove the cover (1).

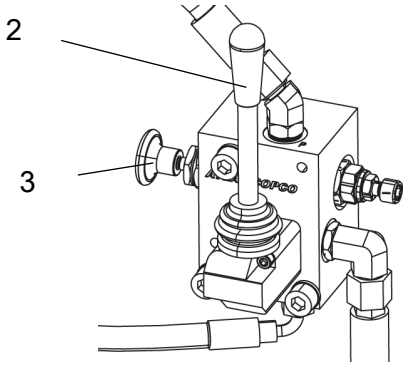


Fig. Brake disengagement pump
2. Pump arm
3. Brake release button

For towing:

Press in the brake 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) out to apply the brakes.

If the diesel engine is once again in working order and starts, the brakes are reactivated if the supply pressure is reached.

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.

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.

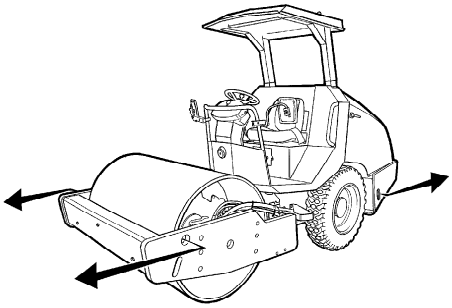


Fig. Towing

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

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 illustrated.

Maximum tow capacity:

- CA1300: 70 kN (15,740 lbf)

- CA1400: 96 kN (21,600 lbf).

Reset the towing procedures described on the previous pages.

Transport

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

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

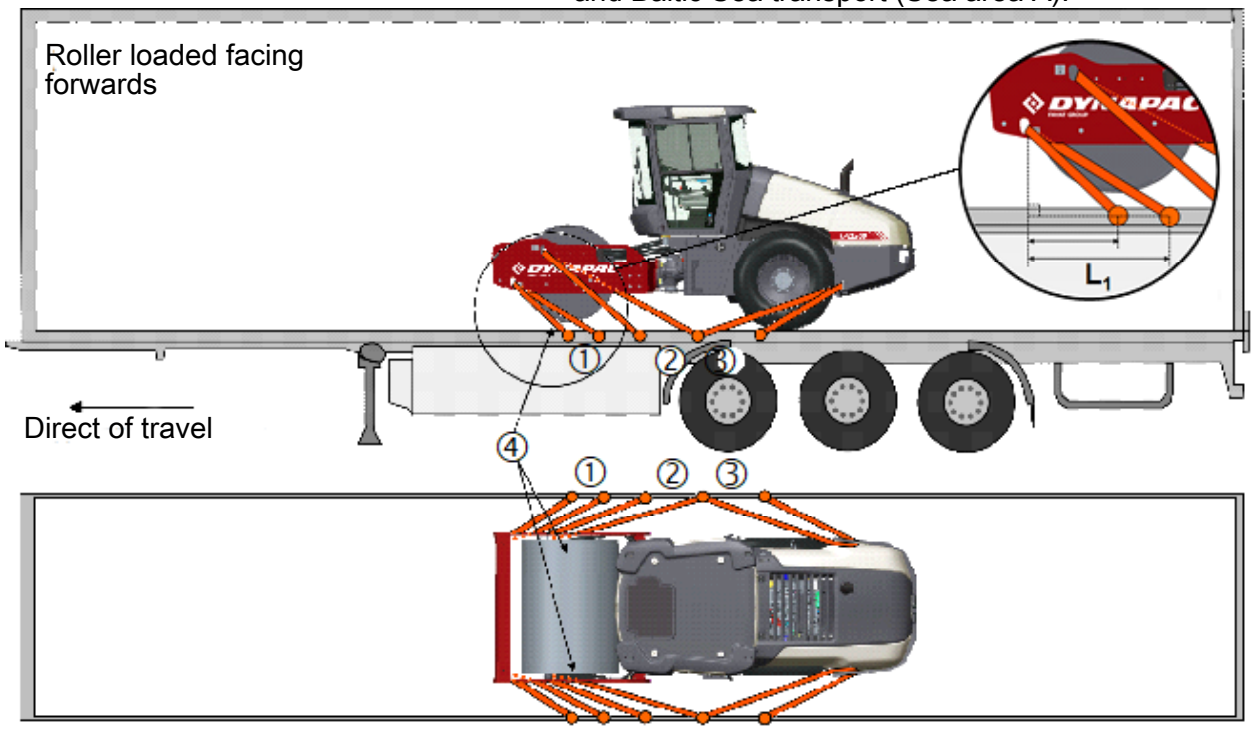
Never lash over the machine's articulated joint, nor over the machine's operator platform.

Before securing the machine ensure that :

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

Securing CA1300 - CA1400

Securing CA1300 - CA1400 vibratory rollers from Dynapac loaded facing forwards on a trailer for road and Baltic Sea transport (Sea area A).



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 friction pads

The lashings' permitted distance interval in meters		
(1 - 3: Double lashings, LC at least 1.6 tonnes (1 600 daN)		
Double L_1	Double L_2	Double L_3
0.2 - 2.5	0.3 - 2.5	0.1 - 2.5

L_1 - L_3 *are the longitudinal distances between the lashing points on the roller and lashing points on the platform.*

Load carrier

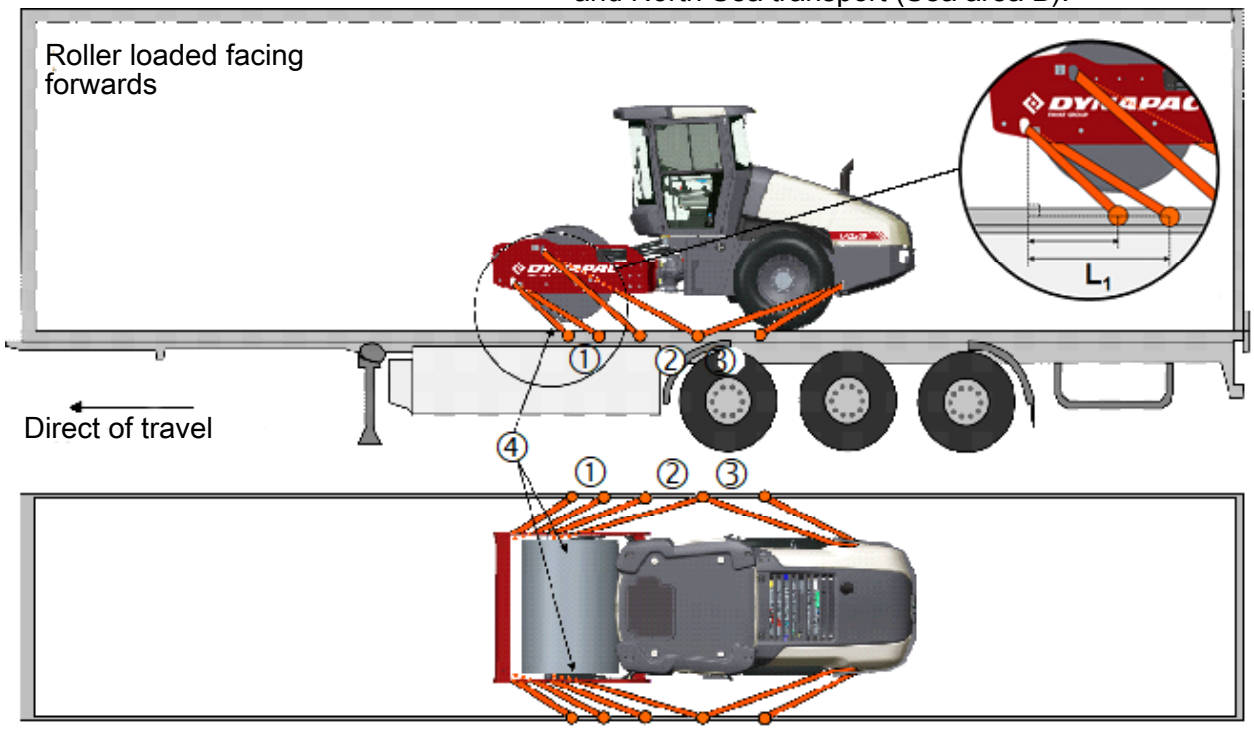
- Load the roller in the centre of the platform from the sides (± 5 cm) and facing forwards.
- The parking brake is applied and in good working condition.
- The drums are placed on rubber friction pads (4) to achieve the static friction 0.6 between the surfaces.
- The contact surfaces must be clean, wet or dry, and free from frost, ice and snow. If there is a risk of frost, ice and/or snow the platform has to be salted.
- The lashing mounts on the load carrier have MSL/LC/SWL at least 2 tonnes.

Lashings

- The maximum securing load (MSL/LC/SWL) of the lashings (strap or chain) is at least 1.6 tonnes (1,600 daN) and the lashings are well pre-tensioned during the entire transport.
- Each of lashings 1-3 is either one double or two single lashings. The double lashing is the same lashing in a sling through a lashing eye or round a machinery part down in two different lashing points 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 CA1300 - CA1400

Securing CA1300 - CA1400 vibratory rollers from Dynapac loaded facing forwards on a trailer for road and North Sea transport (Sea area B).



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 friction pads

The lashings' permitted distance interval in meters		
(1 - 3: Double lashings, LC at least 1.6 tonnes (1 600 daN)		
Double L_1	Double L_2	Double L_3
0.2 - 2.0	0.3 - 2.0	0.1 - 2.0

L_1 - L_3 *are the longitudinal distances between the lashing points on the roller and lashing points on the platform.*

Load carrier

- Load the roller in the centre of the platform from the sides (± 5 cm) and facing forwards.
- The parking brake is applied and in good working condition.
- The drums are placed on rubber friction pads (4) to achieve the static friction 0.6 between the surfaces.
- The contact surfaces must be clean, wet or dry, and free from frost, ice and snow. If there is a risk of frost, ice and/or snow the platform has to be salted.
- The lashing mounts on the load carrier have MSL/LC/SWL at least 2 tonnes.

Lashings

- The maximum securing load (MSL/LC/SWL) of the lashings (strap or chain) is at least 1.6 tonnes (1,600 daN) and the lashings are well pre-tensioned during the entire transport.
- Each of lashings 1-3 is either one double or two single lashings. The double lashing is the same lashing in a sling through a lashing eye or round a machinery part down in two different lashing points on the platform.
- Lashings in the same direction are placed in different lashing mounts on the trailer. Lashings that are pulled in opposite directions may be placed in the same lashing mount, however.
- The lashings are as short as possible.
- The lashing hooks must not lose grip if the lashings become slack.
- The lashings are protected against sharp edges and corners.
- The lashings are located symmetrically in pairs on the right and left sides.

Operating instructions - Summary

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

2. Make sure that all instructions in the MAINTENANCE section are followed.

3. Turn the battery disconnector to ON and ensure that the articulated joint lock is open.

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

5. Set the vibration switch in position 0.

6. Set the speed control in the idling position (LOW).

7. Set the emergency stop in the pulled out position.

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

9. Set the speed control to the operating position (ECO or HI).

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

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

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

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

14. When parking:
    - Press the emergency stop.
    - Chock the drum and wheels.

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

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

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

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

Preventive maintenance

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

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

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

Acceptance and delivery inspection

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

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

Any transport damage must be reported immediately to the transport company, as this is not covered by the product warranty.

Warranty

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

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

Maintenance - Lubricants and symbols

Fluid volumes

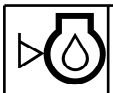
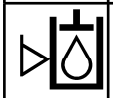
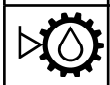
Rear axle		
- Differential	4.5 liters	4.8 qts
- Planetary gear	0.9 liters/side	0.95 qts/side
- Pinion housing	0.3 liters	0.32 qts
Drum		
- Drum (CA1300)	6,5 liters	6.8 qts
- Drum (CA1400)	10.5 liters	11.1 qts
- Drum gear (CA1400)	1.1 liters	1.2 qts
Hydraulic reservoir	32.0 liters	8.5 gal
Oil in hydraulic system		
- CA1300	42.0 liters	11.1 gal
- CA1400	52.0 liters	13.7 gal
Diesel engine		
- Lubricating oil (incl. change of engine oil filters)	11.7 liters	12.3 qts
- Coolant	10.0 liters	12.7 qts
- without cab	16.0 liters	16.9 qts
- with cab	17.4 liters	18.4 qts
AC gas volume	620 gram	

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

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

ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F)	**Dynapac Engine Oil 200**	P/N 4812161855 (5 liters) P/N 4812161856 (20 liters)
HYDRAULIC FLUID	Air temperature -15°C - +50°C (5°F-104°F)	**Dynapac Hydraulic 300**	P/N 4812161868 (20 liters) P/N 4812161869 (209 liters)
	Air temperature over +50°C (104°F)	Shell Tellus S2 V100	
BIOLOGICAL HYDRAULIC FLUID, PANOLIN	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 temp. -15°C - +40°C (5°F-104°F)	**Dynapac gear oil 300**	P/N 4812161883 (5 liters), P/N 4812161884 (20 liters)
	Air temp. 0°C (32°F) - above +40°C (104°F)	Shell Spirax AX 85W/140, API GL-5	
GREASE		for the articulation joint.	**Dynapac Roller Grease** (0.4 kg), P/N 4812030096
		Shell Retinax LX2 for other grease points.	
FUEL	See engine manual.	-	-
TRANSMISSION OIL	Air temperature -15°C - +40°C (5°F-104°F)	**Dynapac Gear oil 300**	P/N 4812161883 (5 liters), P/N 4812161884 (20 liters)
	Air temperature 0°C (32°F) - above +40°C (104°F)	Shell Spirax AX 85W/140, API GL-5	
COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	**Dynapac Coolant 100**(mixed 50/50 with water)	P/N 4812161854 (20 liters)
WASHER FLUID	Use alcohol-based windscreen washer fluid with the concentration recommended by the manufacturer for the expected lowest ambient temperature.		
COMPRESSOR OIL		**RFL-100X**	
AC - GAS REFRIGERANT		**R134a**	

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

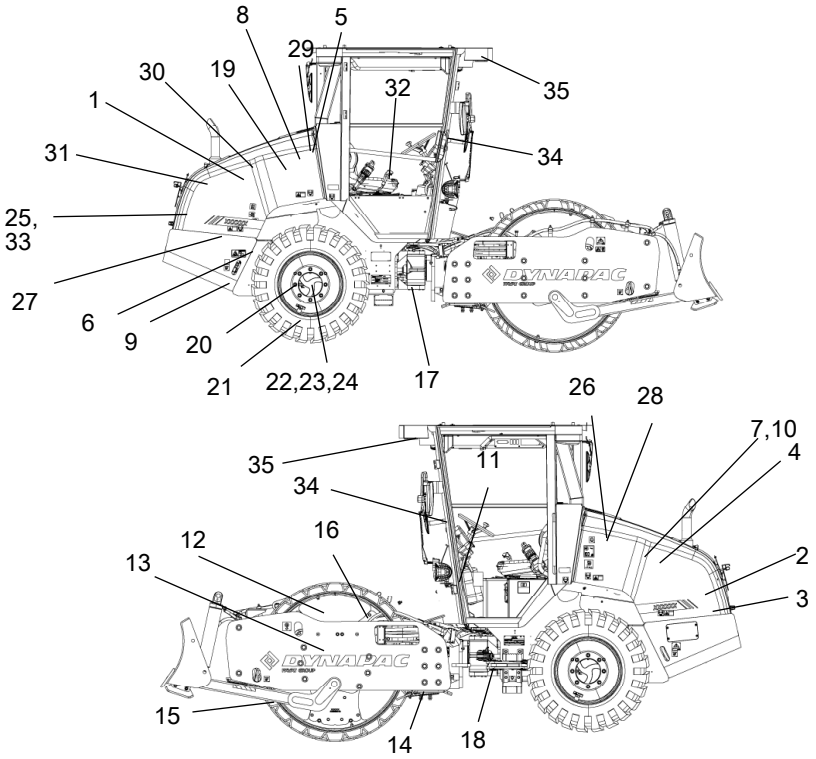


Fig. Service and maintenance points

1. Radiator grille
2. Oil level, diesel engine
3. Fuel filter
4. Air filter
5. Engine cover, hinges
6. Hydraulic reservoir, sight glass
7. Bleeding filter
8. Hydraulic filter, 1 pcs.
9. Drainage, hydraulic fluid reservoir
10. Hydraulic fluid, filling
11. Fuse box
12. Drum oil, filling
13. Drum motor (CA1300) Drum gear (CA1400)
14. Scraper
15. Drum oil, level plug, 1 pc.
16. Rubber elements and fastening screws
17. Steering joint
18. Steering cylinder, 1 pc.
19. Flywheel casing, hydraulic pumps
20. Wheel nuts
21. Tires, pressure
22. Rear axle, differential and pinion housing
23. Rear axle, planetary gears, 2 pcs.
24. Rear axle suspension, 2 sides
25. Oil filter, diesel engine
26. Cleaning, fuel tank
27. Engine suspension, 4 pcs.
28. Diesel fuel, filler
29. Battery
30. Radiator
31. Drive belt, alternator
32. Forward/reverse lever
33. Oil separator, diesel engine (CA1400)
34. Cab
35. Cab, air filter

General

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

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

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

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

Every 10 hours of operation (Daily)

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

Pos. in fig	Action	Comment
	Before starting up for the first time on that day	
14	Check scraper setting	
1	Check for free circulation of cooling air	
30	Check coolant level	
	Checking and filling the windscreen washer fluid	
2	Check the engine oil level	Refer to the engine manual
28	Refuel	
6	Check fluid level in hydraulic reservoir	
	Check the drive belt	Refer to the Instruction manual for the engine
4	Check air cleaner	Replace if necessary
	Check hoses and connections for leaks	
	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	
20	Check the wheel-nuts are tightened	
21	Check the tire pressure	
13	Change the oil in the drum gearbox	CA1400
3	Replace fuel filter	See also engine manual
25	Change diesel engine lubricating oil and oil filter	See also engine manual

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
3	Draining the fuel prefilter	Performed if the control lamp for the water separator lights on the instrument panel.

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	Check oil level in rear axle/planetary gearing	
22	Check the oil level in the rear axle pinion housing	
15	Check the oil level in the drum	
	Check the oil level in the drum gear box	CA1400 only
30	Clean coolers	
	Adjust the engine drive belt	Refer to the engine manual
	Check the air intake hoses	
16	Check rubber elements and bolted joints	

Every 500 hours of operation

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

Pos. in fig	Action	Comment
23	Check oil level in rear axle/planetary gearing	
22	Check oil level in the rear axle pinion housing	
15	Check oil level in the drum	
30	Clean coolers	
16	Check rubber elements and bolted joints	
29	Check battery	
3	Replace fuel filter	Refer to the engine manual
25	Change the engine oil and oil filter	Refer to the engine manual
31	Adjust the belt tension for the drive system	Refer to the engine manual
	Replace the belt for the drive system	Refer to the engine manual
32	Lubricate controls and joints	
7	Check air cleaner on hydraulic reservoir	
	Lubrication of the hinges on the cab	
29	Check battery	
	Replace cab air filter	
	Check and adjust compressor belt	

Every 1000 hours of operation

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

Pos. in fig	Action	Comment
15	Check oil level in the drum	
13	Change oil in the drum gear	CA1400
30	Check coolers	
	Replace the belt for the drive system	Refer to the engine manual
	Valve adjustment, engine	Refer to the engine manual
16	Check rubber elements and bolted joints	
29	Check battery	
3	Replace fuel filter	Also refer to the engine manual
32	Lubricate controls and joints	
25	Change the engine oil and oil filter	Also refer to the engine manual
7	Check air cleaner on hydraulic reservoir	
31	Check the belt tension for the drive system	Refer to the engine manual
8	Change hydraulic fluid filter	
9	Drain the condensate from hydraulic reservoir	
26	Drain condensate from fuel tank	
22	Change oil in rear axle differential	
22	Change the oil in the rear axle pinion housing	
23	Change oil in the rear axle planetary gearing	
	Check and adjust compressor belt	

Every 1500 hours of operation

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

Pos. in fig	Action	Comment
23	Check oil level in rear axle/planetary gearing	
22	Check oil level in the rear axle pinion housing	
15	Check the oil level in the drum	
30	Clean coolers	
	Cleaning the water separator	
16	Check rubber elements and bolted joints	
29	Check battery	
3	Replace fuel filter	Also refer to the engine manual
32	Lubricate controls and joints	
25	Change the engine oil and oil filter	Also refer to the engine manual
7	Check air cleaner on hydraulic reservoir	
31	Adjust the belt tension for the drive system	Refer to the engine manual
31	Replace the belt for the drive system	Refer to the engine manual
33	Change oil separator element	Also refer to the engine manual
	Check and adjust compressor belt	

Every 2000 hours of operation

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

Pos. in fig	Action	Comment
30	Clean coolers	
20, 24	Check bolted joints	The above applies to new or reconditioned components only
16	Check rubber elements and bolted joints	
29	Check battery	
3	Replace fuel filter	See also engine manual
32	Lubricate controls and joints	
25	Change the engine oil and oil filter	See also engine manual
7	Check air cleaner on hydraulic reservoir	
31	Check the belt tension for the drive system	Refer to the engine manual
	Change the belt for the drive system	Refer to the engine manual
8	Change hydraulic oil filter	
9	Drain the condensate from hydraulic reservoir	
26	Drain the condensate from fuel tank	
22	Change oil in rear axle differential	
22	Change oil in the rear axle pinion housing	
23	Change oil in the rear axle planetary gearing	
9	Change the hydraulic fluid	
12	Change the oil in the drum	
13	Change oil in drum gear	CA1400 only
17	Check the steering joint	
	Check and adjust compressor belt	

Every 12th month (Annually)

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

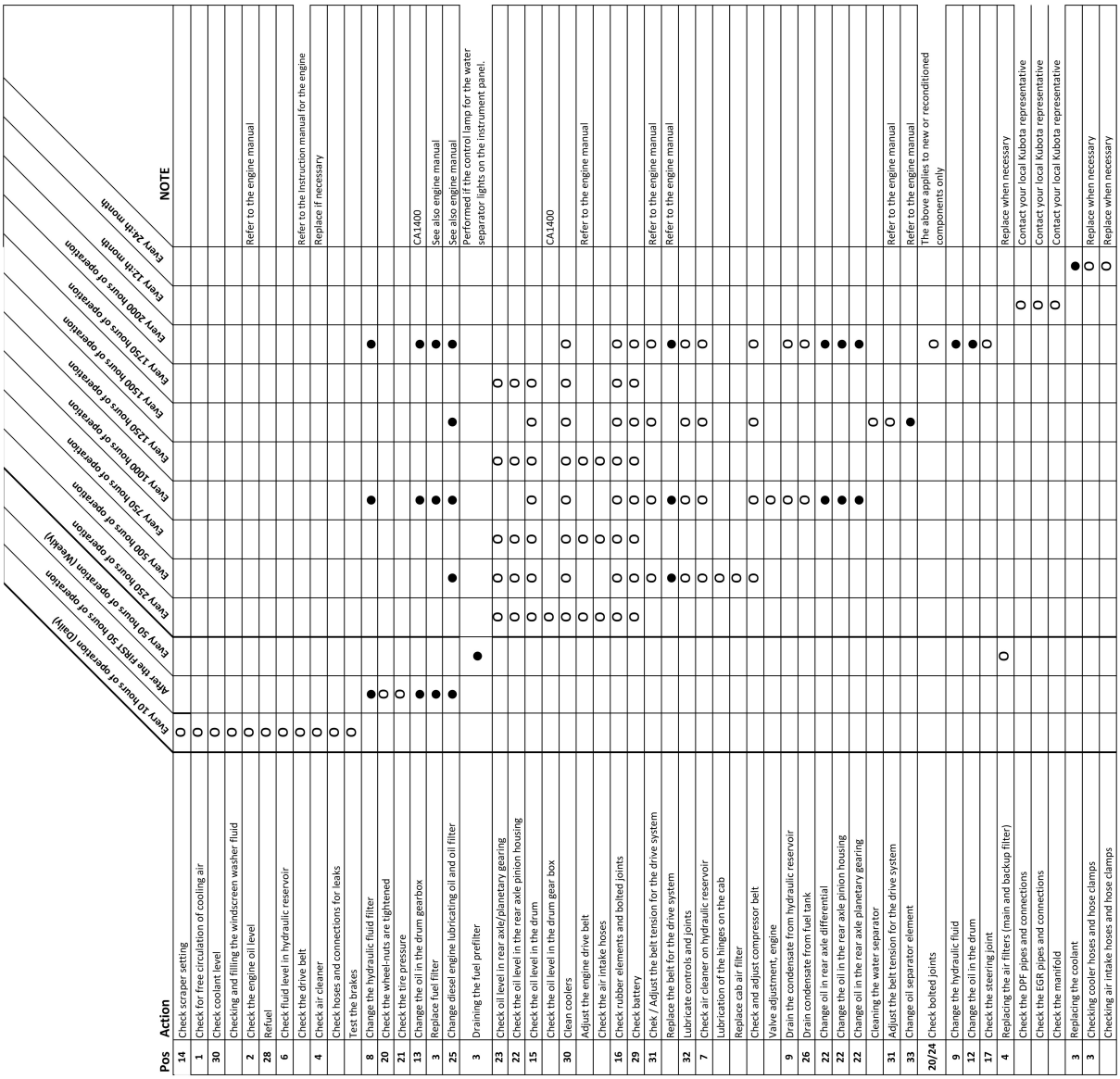
Pos. in fig	Action	Comment
4	Replacing the air filters (main and backup filter)	
	Check the DPF pipes and connections	Contact your local Kubota representative
	Check the EGR pipes and connections	Contact your local Kubota representative
	Check the manifold	Contact your local Kubota representative

Every 24th month (Every other year)

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

Pos. in fig	Action	Comment
3	Replacing the coolant	
3	Checking cooler hoses and hose clamps	Replace when necessary
	Checking air intake hoses and hose clamps	Replace when necessary

Service - Checklist



Pos	Action	Every 10 hours of operation (Daily)	After the first 50 hours of operation	Every 50 hours of operation	Every 250 hours of operation (Weekly)	Every 500 hours of operation	Every 750 hours of operation	Every 1000 hours of operation	Every 1250 hours of operation	Every 1500 hours of operation	Every 1750 hours of operation	Every 2000 hours of operation	Every 12 Mth months	Every 24 Mth months	NOTE
14	Check scraper setting	O													
1	Check for free circulation of cooling air	O													
30	Check coolant level	O													
	Checking and filling the windscreen washer fluid	O													
2	Check the engine oil level	O													Refer to the engine manual
28	Refuel	O													
6	Check fluid level in hydraulic reservoir	O													
	Check the drive belt	O													Refer to the instruction manual for the engine
4	Check air cleaner	O													Replace if necessary
	Check hoses and connections for leaks	O													
	Test the brakes	O													
8	Change the hydraulic fluid filter		●					●				●			
20	Check the wheel-nuts are tightened		O												
21	Check the tire pressure		O												
13	Change the oil in the drum gearbox		●						●			●			CA1400
3	Replace fuel filter		●						●			●			See also engine manual
25	Change diesel engine lubricating oil and oil filter		●			●			●			●			See also engine manual
3	Draining the fuel prefilter	●													Performed if the control lamp for the water separator lights on the instrument panel.
23	Check oil level in rear axle/planetary gearing			O	O	O	O		O						
22	Check the oil level in the rear axle pinion housing			O	O	O	O		O						
15	Check the oil level in the drum			O	O	O	O	O	O						
	Check the oil level in the drum gear box			O											CA1400
30	Clean coolers			O	O	O	O	O	O	O	O	O			
	Adjust the engine drive belt			O		O			O						Refer to the engine manual
	Check the air intake hoses			O		O			O						
16	Check rubber elements and bolted joints			O	O	O	O	O	O	O	O	O			
29	Check battery			O	O	O	O	O	O	O	O	O			
31	Chek / Adjust the belt tension for the drive system				O		O		O			O			Refer to the engine manual
	Replace the belt for the drive system				●		●					●			Refer to the engine manual
32	Lubricate controls and joints				O		O		O			O			
7	Check air cleaner on hydraulic reservoir				O		O		O			O			
	Lubrication of the hinges on the cab				O										
	Replace cab air filter				O										
	Check and adjust compressor belt				O		O		O			O			
	Valve adjustment, engine						O								
9	Drain the condensate from hydraulic reservoir						O					O			
26	Drain condensate from fuel tank						O					O			
22	Change oil in rear axle differential						●					●			
22	Change the oil in the rear axle pinion housing						●					●			
22	Change oil in the rear axle planetary gearing						●					●			
	Cleaning the water separator									O					
31	Adjust the belt tension for the drive system									O					Refer to the engine manual
33	Change oil separator element														Refer to the engine manual
20/24	Check bolted joints														The above applies to new or reconditioned components only
9	Change the hydraulic fluid														
12	Change the oil in the drum														
17	Check the steering joint														
4	Replacing the air filters (main and backup filter)		O												Replace when necessary
	Check the DPF pipes and connections												O		Contact your local Kubota representative
	Check the EGR pipes and connections												O		Contact your local Kubota representative
	Check the manifold												O		Contact your local Kubota representative
3	Replacing the coolant													●	
3	Checking cooler hoses and hose clamps													O	Replace when necessary
	Checking air intake hoses and hose clamps													O	Replace when necessary

O Check ● Change

Maintenance, 10h

Every 10 hours of operation (Daily)

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

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.

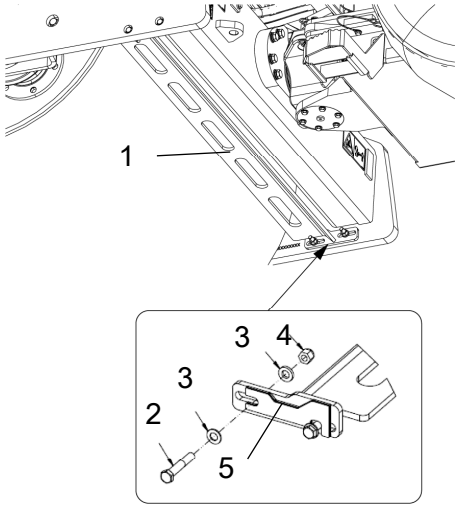


Fig. Scraper (CA1300 D)
1. Scraper blade
2. Screw
3. Washer
4. Nut
5. Scraper bracket

If necessary, adjust distance to the drum as follows:

CA1300 D

Undo the screws (2), washers (3) and nuts (4) on the scraper bracket.

Adjust the scraper blade (1).

Tighten the screws (2), washers (3) and nuts (4) on the scraper bracket.

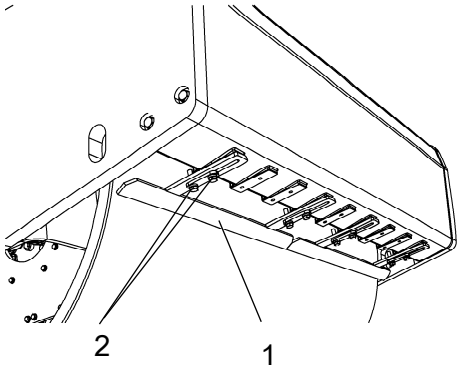


Fig. Scraper (CA1400 D)
1. Scraper blade (4)
2. Screws

CA1400 D

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).

Scrapers, Pad-drum

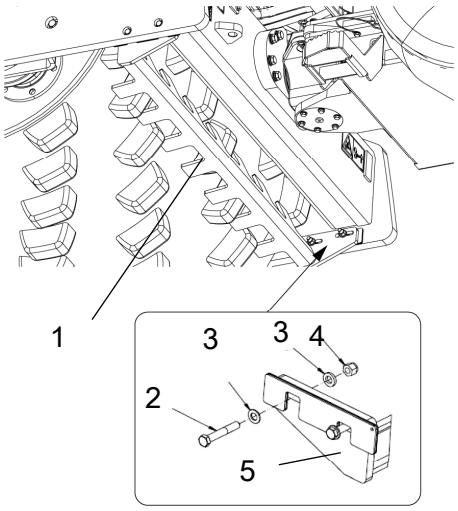


Fig. Scraper (CA1300 PD)
1. Scraper tooth
2. Screw
3. Washer
4. Nut
5. Scraper bracket

CA1300 PD

Undo the screws (2), washers (3) and nuts (4) from the scraper bracket (5).

Adjust the scraper blade to 25 mm (1.0 in) and centre each scraper tooth (1) between the pads when fitting.

Tighten the screws (2), washers (3) and nuts (4) on the scraper bracket (5).

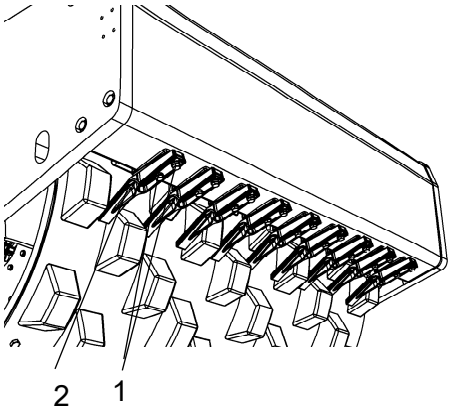


Fig. Scraper (CA1400 PD)
1. Screws
2. Scraper teeth (18 pcs)

CA1400 PD

Undo the screws (1), then adjust each scraper tooth (2) to 25 mm (1.0 in) between scraper tooth and drum.

Center each scraper tooth (2) between the pads.

Tighten the screws (1).

Air circulation - Check

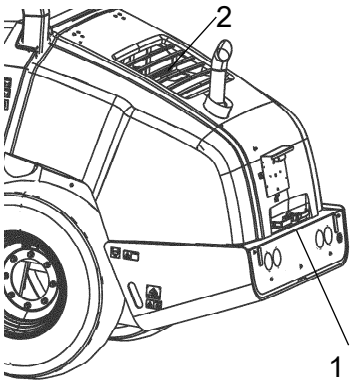


Fig. Engine hood
1. Hood lock
2. Protective grille

Ensure that the engine has free circulation of cooling air through the protective grille (2) in the hood.

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

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

Coolant level - Check

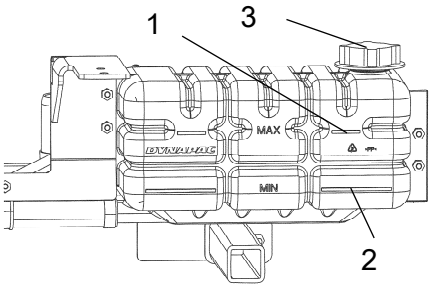


Fig. Water tank
1. Max. level
2. Min. level
3. Filler cap

Place the roller on a level surface.

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

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

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

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

Fuel tank - Filling

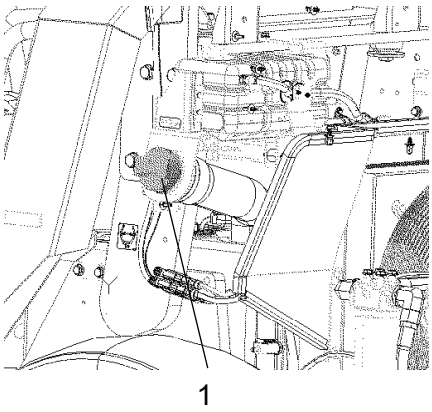


Fig. Filling with fuel
1. Filler pipe

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

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

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

The tank holds 117 liters (31.7 gal) of fuel.

Diesel engine Check oil level

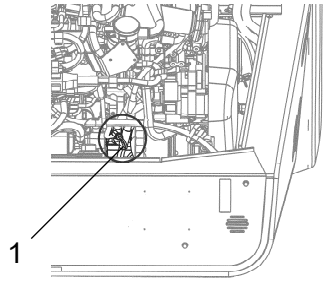


Fig. Engine compartment
1. Dipstick

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

The dipstick is located on the right side of the engine.

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.

Hydraulic reservoir - Check fluid level

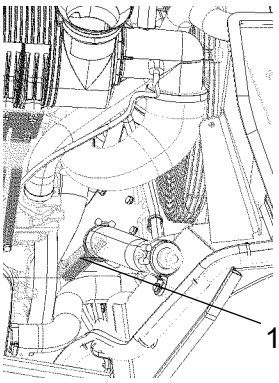


Fig. Sight glass hydraulic reservoir
1. Sight glass

The sight glass is located on the hydraulic tank in the engine compartment. It is accessible and visible from the right side of the roller.

Place the roller on a flat surface and check the fluid level in the sight glass.
If the level is too low, top up with the type of hydraulic fluid specified in
the lubricant specification.

Windscreen washer fluid - Checking and filling

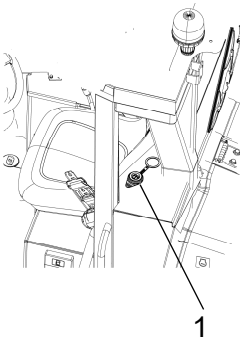


Fig. Operator's platform
1. Windscreen washer reservoir

Place the roller on a level surface.

Top up the windscreen washer fluid if necessary.

The reservoir holds 2.1 litres (2.2 qts)

Air cleaner
Check - Replacement of main filter

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

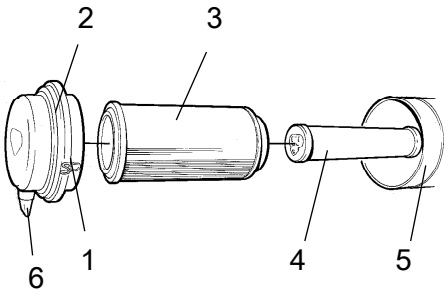


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

Do not remove the backup filter (4).

Clean the air cleaner if necessary.
See section Air cleaner - Cleaning.

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

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

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

Air filter indicator - Resetting

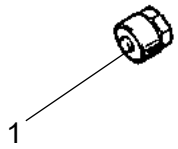


Fig. Indicator
1. Button

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

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

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

Backup filter - Change

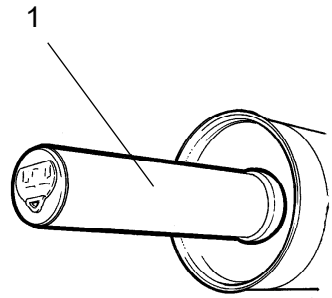


Fig. Air filter
1. Backup filter

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

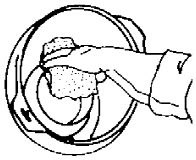
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

Clean the air cleaner if necessary.
See section Air cleaner - Cleaning.

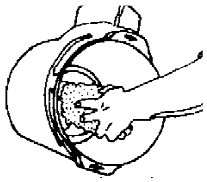
Air cleaner
- Cleaning

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

Wipe clean on both sides of the outlet pipe.



Inner edge of outlet pipe.



Outer edge of outlet pipe.

Wipe also both surfaces for the outlet pipe. See adjacent figure.

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

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

Brakes - Check

Check operation of the brakes as follows:

Checking the emergency stop

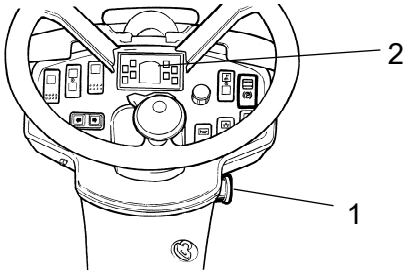


Fig. Instrument panel
1. Emergency stop
2. Parking brake lamp

Drive the roller slowly forward. Hold the steering wheel firmly and brace yourself for a sudden stop.

Press the emergency stop (1).
The roller will stop abruptly and the engine will be switched off.

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

Pull out the emergency stop (1). Start the engine.

The roller is now ready for operation.

Refer also to the section in the manual on operation.

Brakes - Check

Check operation of the brakes as follows:

Checking the parking brake

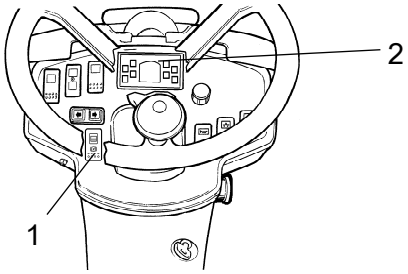


Fig. Instrument panel
1. Parking brake
2. Parking brake lamp

Drive the roller slowly forward. Hold the steering wheel firmly and brace yourself for a sudden stop.

Enable the parking brake (1).
The roller should stop immediately with the engine running.

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

Reset the parkering brake (1).

The roller is now ready for operation.

Refer also to the section in the manual on operation.

Maintenance, first 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

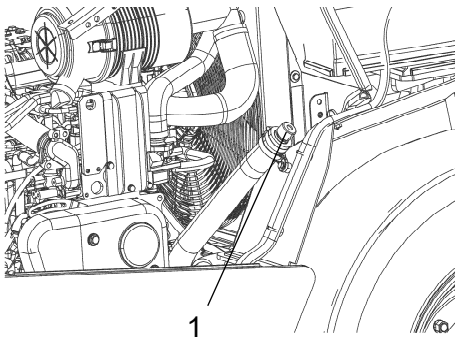


Fig. Hydraulic reservoir
1. Filler cap/Breather filter

Release the filler cap/breather filter (1) so that any overpressure inside the reservoir is eliminated.

Check that the breather filter (1) is not clogged.
Air should be able to pass freely 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.

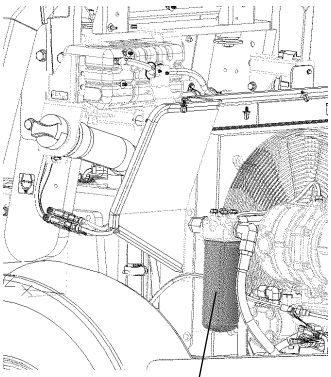


Fig. Engine compartment
1. Hydraulic fluid filter (1pc).

Carefully clean round the filter.

Remove the oil filter (1) and hand in to an environment-friendly waste disposal station. This is a disposable 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 and old seal.

Thoroughly clean the sealing surfaces on the filter holder.

Apply a thin coat of fresh hydraulic fluid to the seals on the new filter and 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 the fluid level in the sight glass and top up if necessary.

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

Tires - Air pressure - Wheel nuts - Tightening

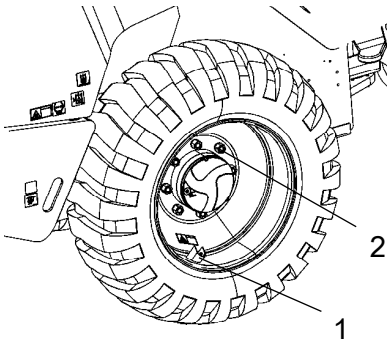


Fig. Wheels
1. Air valve
2. Wheel nuts

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 limited slip differential in the rear axle.

Check the tightening torque on the wheel nuts (2) with 253 Nm (26 kpm).

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 gear - Oil change (CA1400)

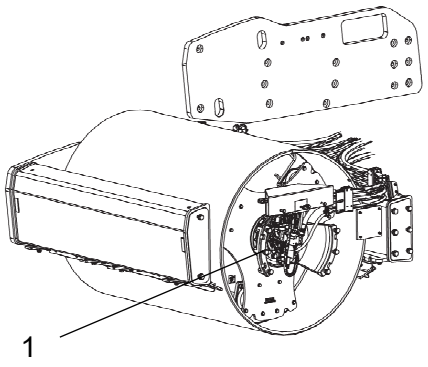


Fig. Oil change - drum gear
1. Drum gear

Place the roller on a level surface so the drain/ventilating plugs are in location for drain.

Wipe clean, unscrew the plugs (2, 3) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

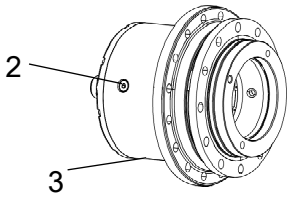


Fig. Drum gear

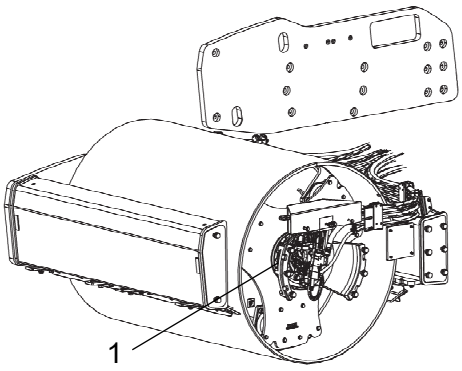


Fig. Oil filling - drum gear
1. Drum gear

Drum gear - Oil filling (CA1400)

Move the machine until the inspection (2) / filling holes (3) are in position for filling.

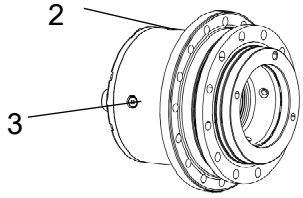


Fig. Drum gear

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

Ensure that the oil level reaches up to the lower edge of the plug hole (3).

Clean and refit the plugs.

The engine fuel filter - replacement/cleaning

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

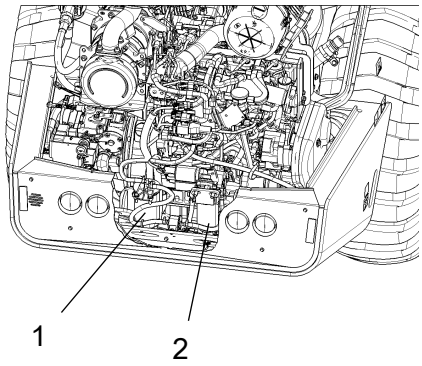


Fig. Engine compartment
1. Fuel filter
2. Fuel prefilter

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

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

Unscrew the lower part of the fuel prefilter (2). Drain off any water, and then replace the filter unit.

Start the engine and check that the fuel filters are tight.

N.B. Under no circumstances may new fuel filters be pre-filled with fuel before assembly due to the demands on the cleanliness of the fuel system.
Use the hand pump on the fuel prefilter to fill from the machine's fuel system.

Diesel engine - Oil- and Filter change

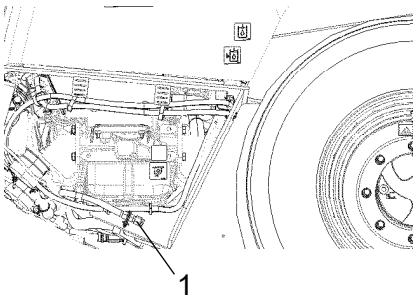


Fig. Right side of engine
1. Drain plug

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

The oil plug (1) is most easily accessible from the underside of the engine, and is fitted with a hose on the tractor frame.

Place a receptacle that holds 15 liters (4 gal) under the drain plug.

Release the hose from its attachment and pull it forward to the tie-down hole.

Loosen the drain plug (1) and drain the oil, when the engine is warm.

Screw back the plug again and refit the hose in its attachment.

Change the engine oil filter (2) at the same time. Refer also to the Instruction Manual for the engine.

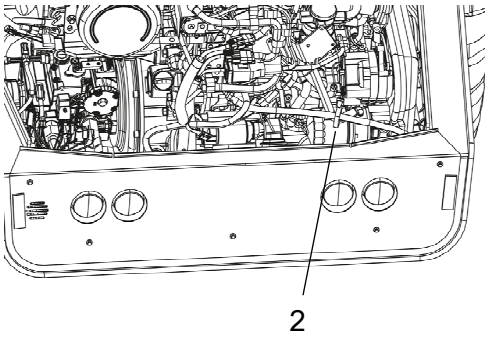


Fig. Engine compartment
2. Oil filter

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

Maintenance - 50h

Every 50 hours of operation (Weekly)

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

Pre-fuel filter - Draining

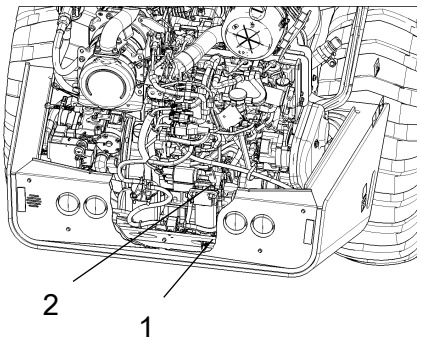


Fig. Pre-fuel filter
1. Drain plug
2. Hand pump

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

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

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

Maintenance measures - 250 h

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

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

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.

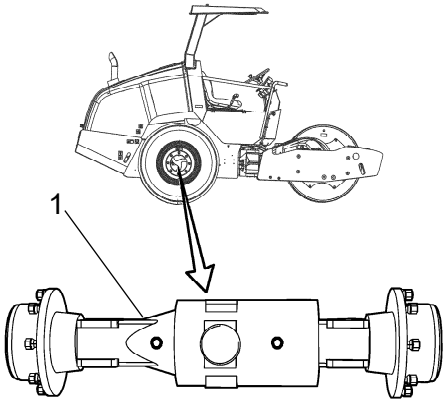


Fig. Level check - differential housing
1. Level/Filler plug

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 according to the lubricant specification.

Clean and refit the plug.

Rear axle pinion housing - Checking the oil level

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

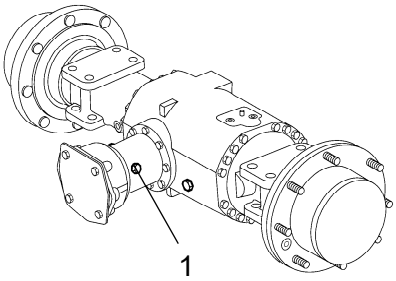


Fig. Level check - Pinion housing
1. Level/Filler plug

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 according to the lubricant specification.

Clean and refit the plug.

Rear axle planetary gears - Check oil level

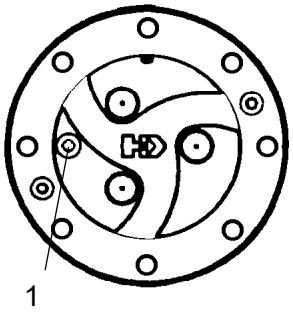


Fig. Level check - planetary gear
1. Level/Filler plug

Position the roller with the plug in the planetary gear (1) in the "9 o'clock" position.

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 according to the lubricant 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 (CA1300)

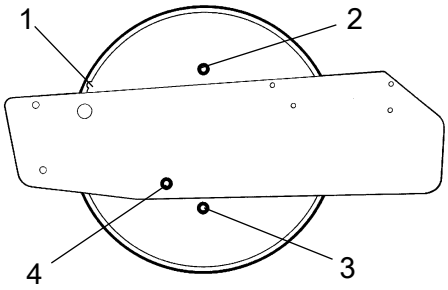


Fig. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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.

Release the level plug (4) and unscrew until oil starts to run out through the plug hole.

If necessary, release the filler plug (2) and fill with oil until it starts to run out through the level plug (4) hole.

Clean and screw in the level plug (4).

Clean and refit the filler plug (2).

See the lubrication specification for the correct oil grade.

Do not overfill with oil - risk for overheating.

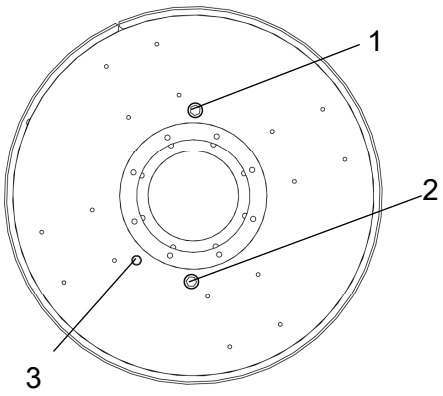


Fig. Roller, left side
1. Filler plug
2. Drain/Magnetic plug
3. Level plug

If filling is necessary, loosen the filler plug (1) and fill.

Do not overfill with oil - risk of overheating.

Be sure to use only
Dynapac gear oil 300 in the roller.

Clean and refit filler plug (1).

Drum - Checking the oil level (CA1400)

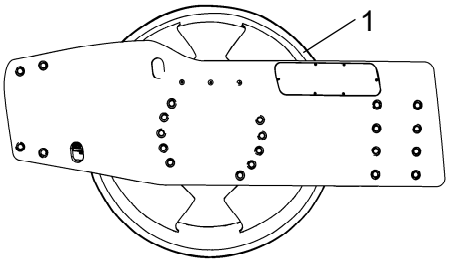


Fig. Left drum side
1. Groove

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).

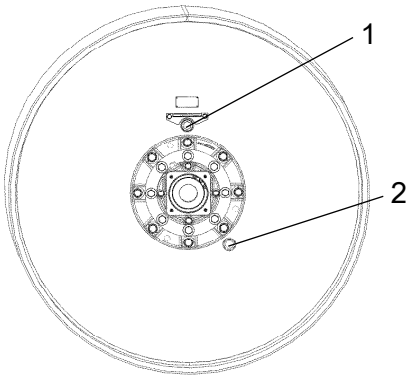


Fig. Drum, right side
1. Filler plug
2. Level glass

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

Do not overfill with oil - risk of overheating.

Ensure only Dynapac gearoil 300 is used in the drum.

Clean and refit filler plug (1).

Drum gearbox - Checking the oil level (CA1400)

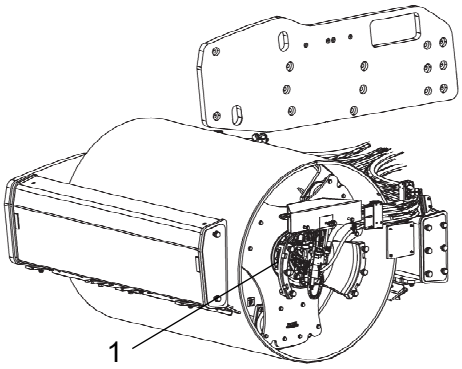


Fig. Checking the oil level - Drum gearbox
1. Drum gearbox

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

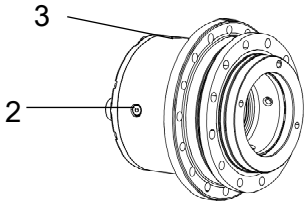


Fig. Drum gear

Clean the area around the level plug (2) and loosen the plug.

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

At low oil level fill oil through the filler hole (3) up to the right level. Use transmission oil.
See lubricant specification.

Clean and refit the plugs.

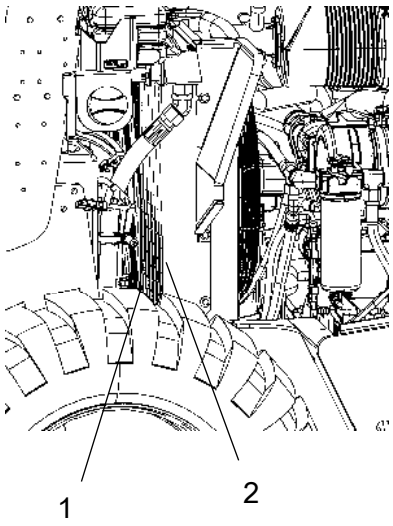


Fig. Engine compartment
1. Water cooler
2. Hydraulic fluid cooler

Coolers
Checking - Cleaning

Make sure that the air flow through the coolers (1) and (2) is unobstructed.
Dirty coolers are blown clean with compressed air or washed clean using a high-pressure water cleaner.

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

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

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

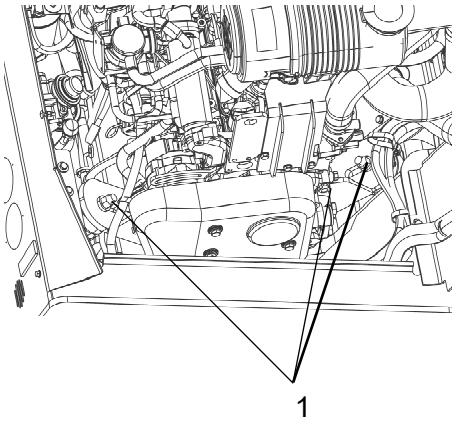


Fig. Engine suspension
1. Bolted joint

Bolted joints - Checking tightening torque

Check that all the bolts for the suspension of the engine and the drive unit are tightened.
See under Specifications - tightening torque.

Check the bolted joint between the motor and the pump drive, and that all the hydraulic components are tightened to the set tightening torque.

(The above applies to new or replaced components only).

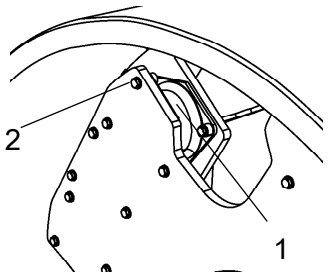


Fig. Drum, drive side
1. Rubber element
2. Attachment screws

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.

Maintenance measures - 500 h

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

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

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

Rear axle differential - Check oil level

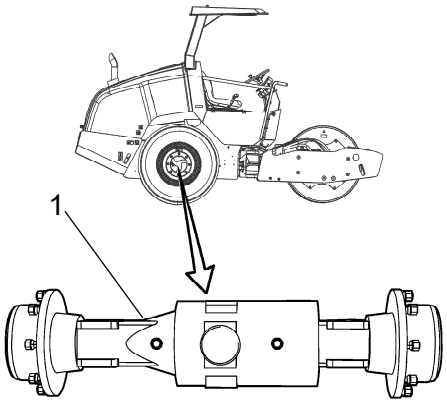


Fig. Level check - differential housing
1. Level/Filler plug

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

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 according to the lubricant specification.

Clean and refit the plug.

Rear axle pinion housing - Checking the oil level

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

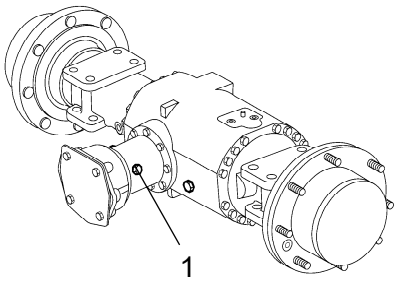


Fig. Level check - Pinion housing
1. Level/Filler plug

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 according to the lubricant specification.

Clean and refit the plug.

Rear axle planetary gears - Check oil level

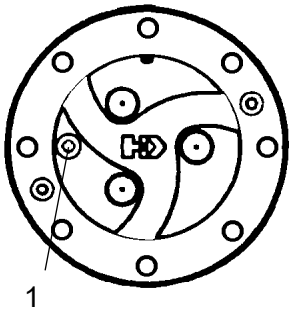


Fig. Level check - planetary gear
1. Level/Filler plug

Position the roller with the plug in the planetary gear (1) in the "9 o'clock" position.

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 according to the lubricant 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 (CA1300)

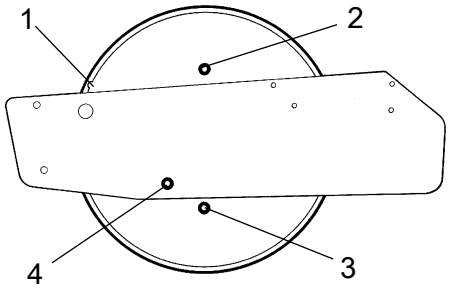


Fig. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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.

Release the level plug (4) and unscrew until oil starts to run out through the plug hole.

If necessary, release the filler plug (2) and fill with oil until it starts to run out through the level plug (4) hole.

Clean and screw in the level plug (4).

Clean and refit the filler plug (2).

See the lubrication specification for the correct oil grade.

Do not overfill with oil - risk for overheating.

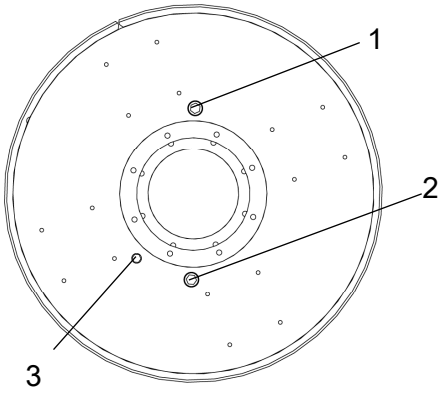


Fig. Roller, left side
1. Filler plug
2. Drain/Magnetic plug
3. Level plug

If filling is necessary, loosen the filler plug (1) and fill.

Do not overfill with oil - risk of overheating.

Be sure to use only Dynapac gear oil 300 in the roller.

Clean and refit filler plug (1).

Drum - Checking the oil level (CA1400)

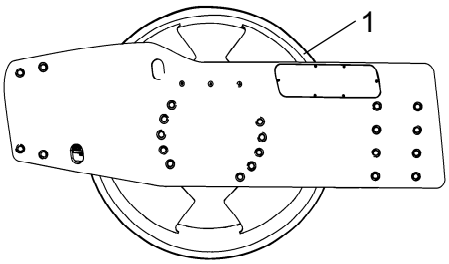


Fig. Left drum side
1. Groove

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).

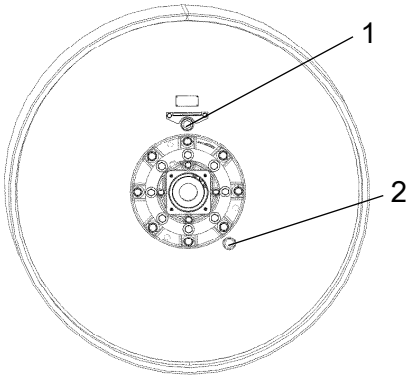


Fig. Drum, right side
1. Filler plug
2. Level glass

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

Do not overfill with oil - risk of overheating.

Ensure only Dynapac gearoil 300 is used in the drum.

Clean and refit filler plug (1).

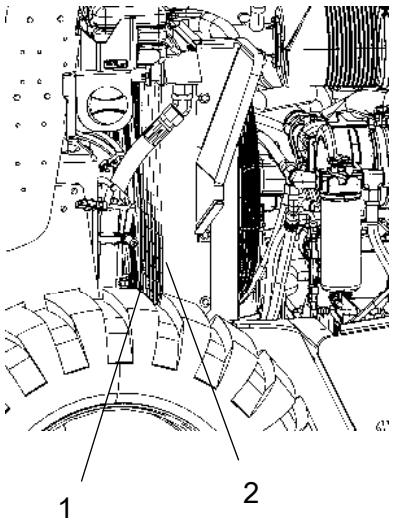


Fig. Engine compartment
1. Water cooler
2. Hydraulic fluid cooler

Coolers
Checking - Cleaning

Make sure that the air flow through the coolers (1) and (2) is unobstructed.
Dirty coolers are blown clean with compressed air or washed clean using a high-pressure water cleaner.

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

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

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

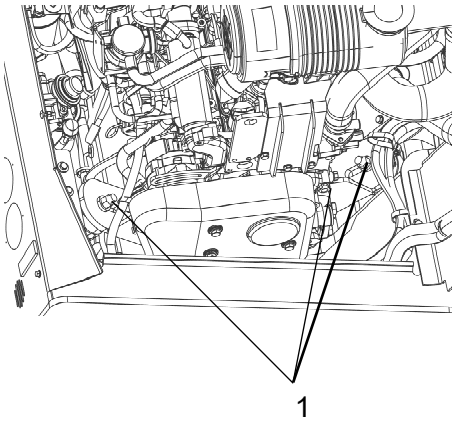


Fig. Engine suspension
1. Bolted joint

Bolted joints - Checking tightening torque

Check that all the bolts for the suspension of the engine and the drive unit are tightened.
See under Specifications - tightening torque.

Check the bolted joint between the motor and the pump drive, and that all the hydraulic components are tightened to the set tightening torque.

(The above applies to new or replaced components only).

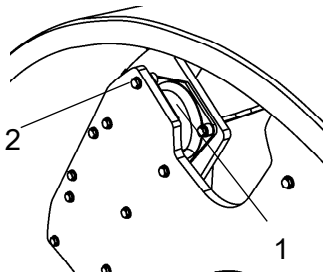


Fig. Drum, drive side
1. Rubber element
2. Attachment screws

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.

Battery - Check condition

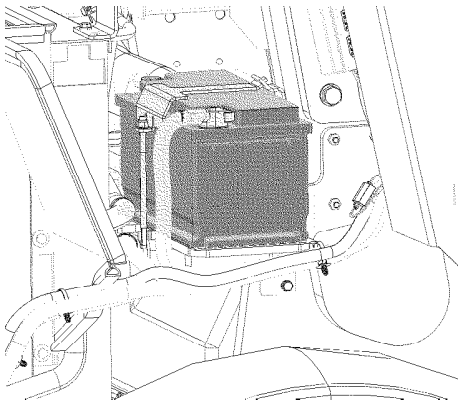


Fig. Battery

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.

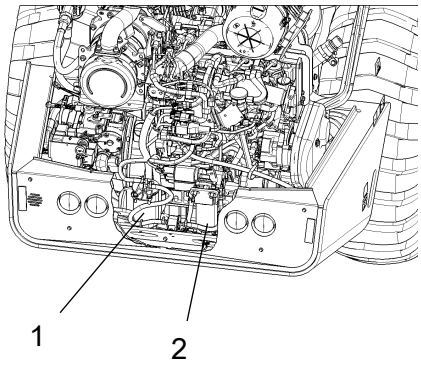


Fig. Engine compartment
1. Fuel filter
2. Fuel prefilter

The engine fuel filter - replacement/cleaning

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.
Han in to environment-friendly station.

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

Unscrew the lower part of the fuel prefilter (2). Drain off any water, and then replace the filter unit.

Start the engine and check that the fuel filters are tight.

N.B. Under no circumstances may new fuel filters be pre-filled with fuel before assembly due to the demands on the cleanliness of the fuel system.
Use the hand pump on the fuel prefilter to fill from the machine's fuel system.

Diesel engine - Oil- and Filter change

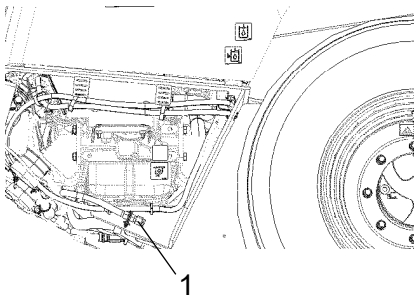


Fig. Right side of engine
1. Drain plug

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

The oil plug (1) is most easily accessible from the underside of the engine, and is fitted with a hose on the tractor frame.

Place a receptacle that holds 15 liters (4 gal) under the drain plug.

Release the hose from its attachment and pull it forward to the tie-down hole.

Loosen the drain plug (1) and drain the oil, when the engine is warm.

Screw back the plug again and refit the hose in its attachment.

Change the engine oil filter (2) at the same time. Refer also to the Instruction Manual for the engine.

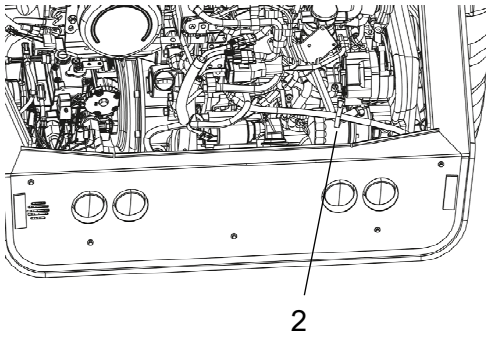


Fig. Engine compartment
2. Oil filter

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

Forward/Reverse controls and joints - Check and lubrication

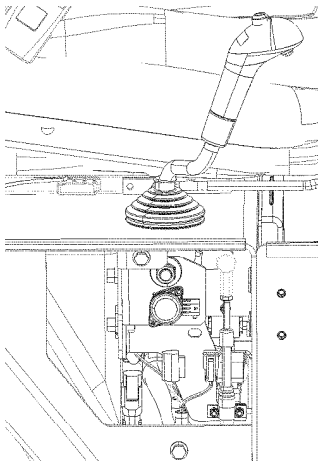


Fig. Forward/reverse lever

Accessing the machine fitted with ROPS

The easiest way to access the forward/reverse lever pivot points is via the operator's manual pocket on the right-hand side of the driver's seat.

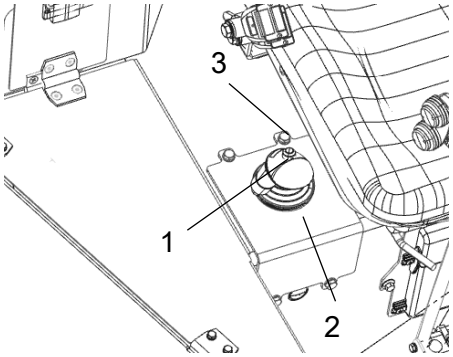


Fig. Forward/reverse lever, Cab
1. Forward/Reverse lever
2. Plate
3. Screw

Access on machine with cab

The forward/reverse lever pivot points are accessed by removing four screws (3) on the plate (2) under the forward/reverse lever (1).

Check friction of the forward/reverse lever.
The friction screws must be sufficiently tightened to retain the forward/reverse lever in the position set during operation. The "0" position of the controls is determined by a screw that engages in the groove on the shaft between the controls.

If the lever begins to become stiff after prolonged used, lubricate the lever at the control cable with a few drops of oil at each point.

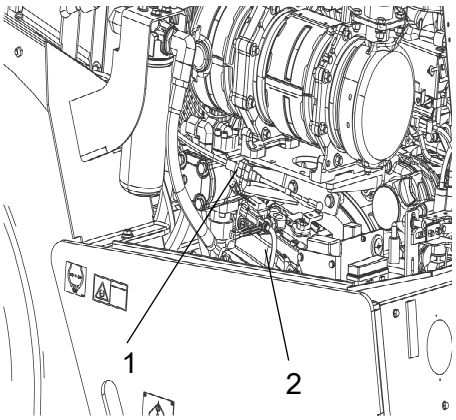


Fig. Engine compartment
1. Forward/Reverse-control cable
2. Propulsion pump

If the forward/reverse lever still is stiff after the above adjustments, lubricate the other end of the control cable with a few drops of oil. The cable is located on the top of the propulsion pump.

Hood, hinges - Lubrication

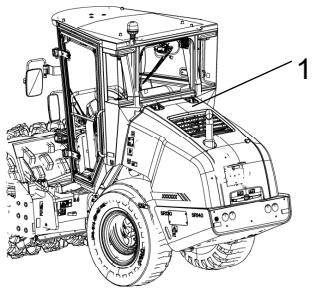


Fig. Engine hood
1. Hood hinge

Lubricate the engine hood hinges (1) and the driver's seat slide rails with grease, other joints and controls with oil.

Replacing the diesel engine's oil separator filter

(applies to 1500h)

N.B. The engine must be switched off when changing the filter.

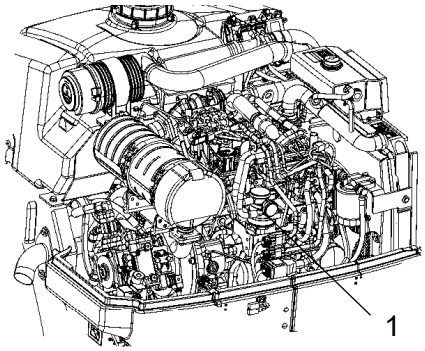


Fig. Engine compartment
1. Oil separator filter

Loosen the filter's bottom cover (2) and remove the filter insert and O-ring (3).

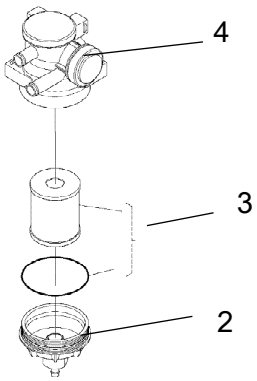


Fig. Oil separator filter
2. Cover
3. Filter insert and O-ring
4. Filter housing

Remove the filter insert (3) and hand in to a waste disposal station. This is a disposable filter and cannot be cleaned.

Wipe out any deposits in the bottom cover (2) and filter housing (4).

Fit the new filter insert with O-ring (3) and refit the bottom cover (2).

Start the diesel engine and allow it to run at full revs for 30 seconds.
Check that the filter cap (2) is tight.

Cab, hinges - Lubrication

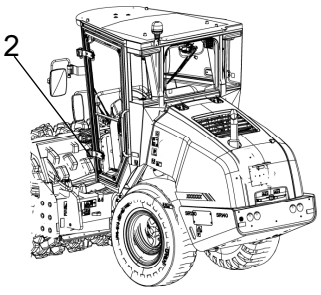


Fig. Cab
2. Hinge, cab

Lubricate the hinges (2) on the cab doors with grease. See lubricant specification.

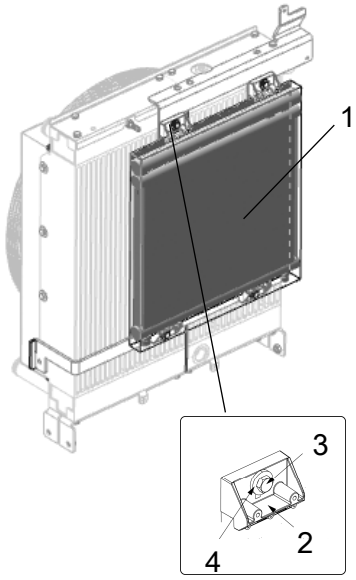


Fig. Condenser
1. Condenser element
2. Brackets (4 pcs)
3. Screws (4 pcs)
4. Washers (4 pcs)

Air conditioning (Optional) - Check

If cooling capacity is noticeably impaired, clean the condenser element (1) located in front of the radiator in the engine compartment
(see Radiator, Check - Cleaning).

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

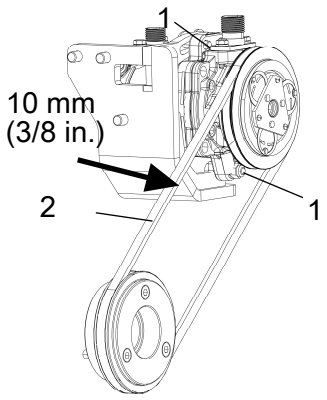


Fig. Compressor
1. Screw
2. Belt

Compressor belt - Adjustment

Undo the two screws (1) on top of the compressor and the screw (1) under the compressor.

The belt (2) is now slackened and can be adjusted. Tighten the belt to 10 mm (3/8 in.).

When the belt is tightened,
tighten the screws (1) again.

Maintenance - 1000h

Performed after 1000 operating hours (each year)

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

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

Drum - Checking the oil level (CA1300)

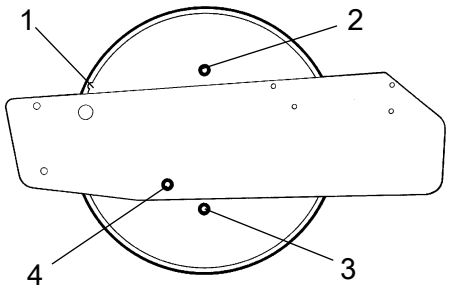


Fig. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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.

Release the level plug (4) and unscrew until oil starts to run out through the plug hole.

If necessary, release the filler plug (2) and fill with oil until it starts to run out through the level plug (4) hole.

Clean and screw in the level plug (4).

Clean and refit the filler plug (2).

See the lubrication specification for the correct oil grade.

Do not overfill with oil - risk for overheating.

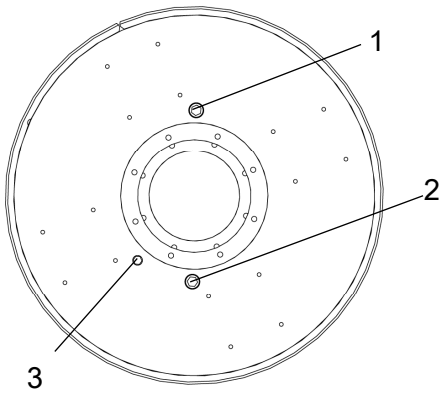


Fig. Roller, left side
1. Filler plug
2. Drain/Magnetic plug
3. Level plug

If filling is necessary, loosen the filler plug (1) and fill.

Do not overfill with oil - risk of overheating.

Be sure to use only
Dynapac gear oil 300 in the roller.

Clean and refit filler plug (1).

Drum - Checking the oil level (CA1400)

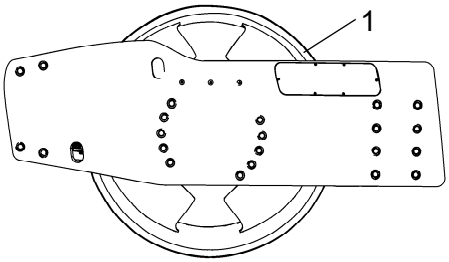
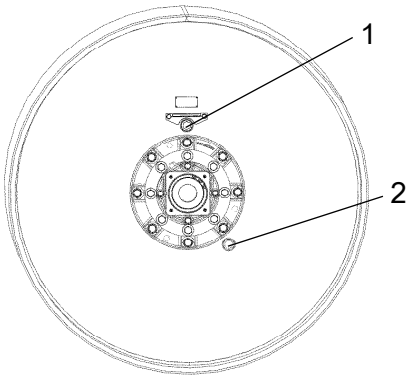


Fig. Left drum side
1. Groove

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).



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

Do not overfill with oil - risk of overheating.

Ensure only Dynapac gearoil 300 is used in the drum.

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

Clean and refit filler plug (1).

Drum gear - Oil change

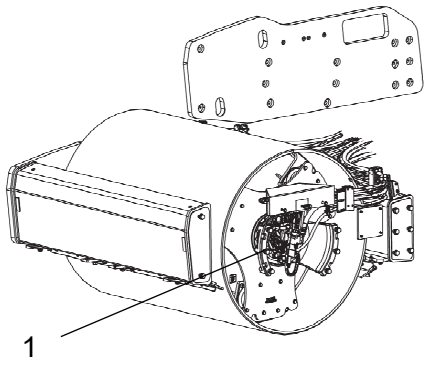


Fig. Oil change - drum gear
1. Drum gear

Place the roller on a level surface so the drain/ventilating plugs are in location for drain.

Wipe clean, unscrew the plugs (2, 3) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

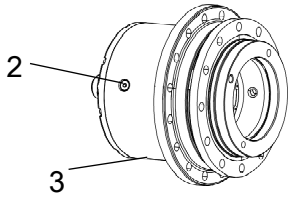


Fig. Drum gear

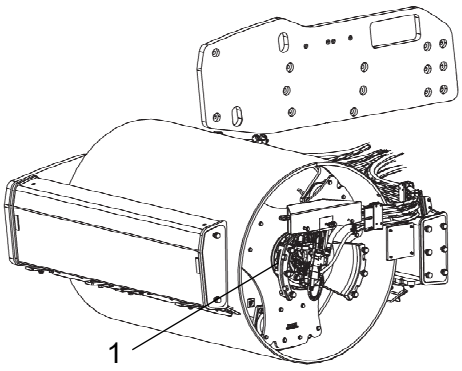


Fig. Oil filling - drum gear
1. Drum gear

Drum gear - Oil filling

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

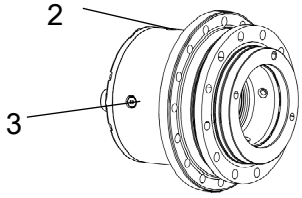


Fig. Drum gear

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

Ensure that the oil level reaches up to the lower edge of the plug hole (3).

Clean and refit the plugs.

Coolers
Checking - Cleaning

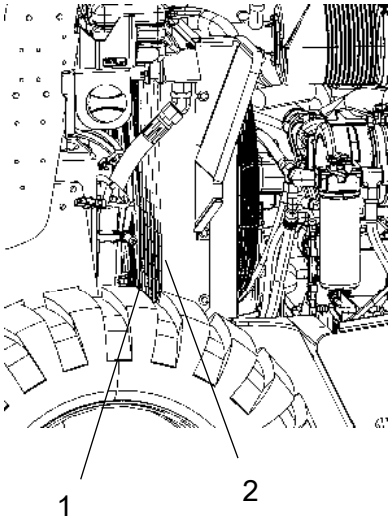


Fig. Engine compartment
1. Water cooler
2. Hydraulic fluid cooler

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

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

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

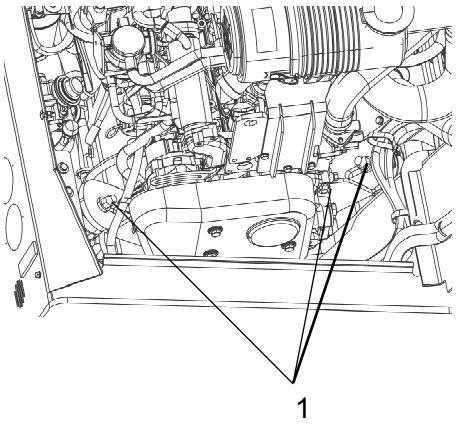

Fig. Engine suspension
1. Bolted joint

Bolted joints - Checking tightening torque

Check that all the bolts for the suspension of the engine and the drive unit are tightened.
See under Specifications - tightening torque.

Check the bolted joint between the motor and the pump drive, and that all the hydraulic components are tightened to the set tightening torque.

(The above applies to new or replaced components only).

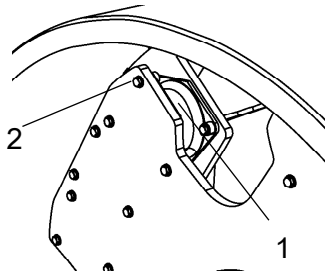

Fig. Drum, drive side
1. Rubber element
2. Attachment screws

Rubber elements and fastening screws - Check

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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.

Battery - Check condition

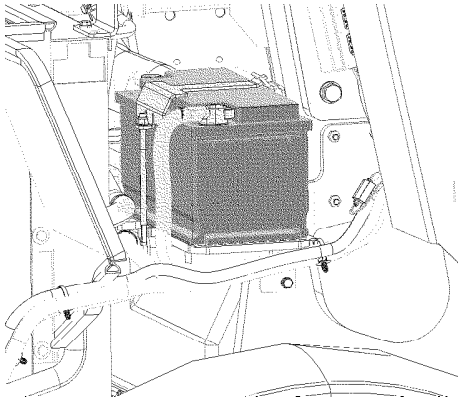

Fig. Battery

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.

The engine fuel filter - replacement/cleaning

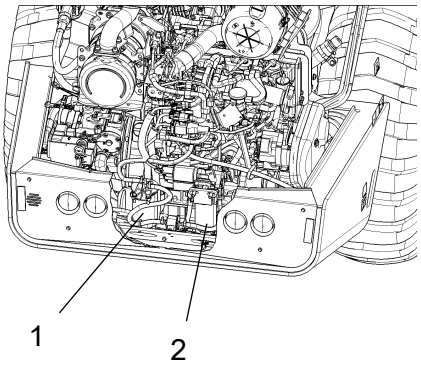

Fig. Engine compartment
1. Fuel filter
2. Fuel prefilter

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.
Han in to environment-friendly station.

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

Unscrew the lower part of the fuel prefilter (2). Drain off any water, and then replace the filter unit.

Start the engine and check that the fuel filters are tight.

N.B. Under no circumstances may new fuel filters be pre-filled with fuel before assembly due to the demands on the cleanliness of the fuel system.
Use the hand pump on the fuel prefilter to fill from the machine's fuel system.

Diesel engine - Oil- and Filter change

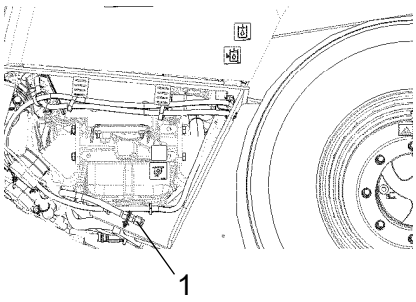

Fig. Right side of engine
1. Drain plug

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

The oil plug (1) is most easily accessible from the underside of the engine, and is fitted with a hose on the tractor frame.

Place a receptacle that holds 15 liters (4 gal) under the drain plug.

Release the hose from its attachment and pull it forward to the tie-down hole.

Loosen the drain plug (1) and drain the oil, when the engine is warm.

Screw back the plug again and refit the hose in its attachment.

Change the engine oil filter (2) at the same time. Refer also to the Instruction Manual for the engine.

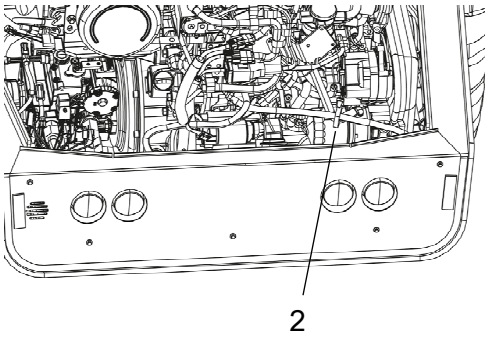

Fig. Engine compartment
2. Oil filter

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

Forward/Reverse controls and joints - Check and lubrication

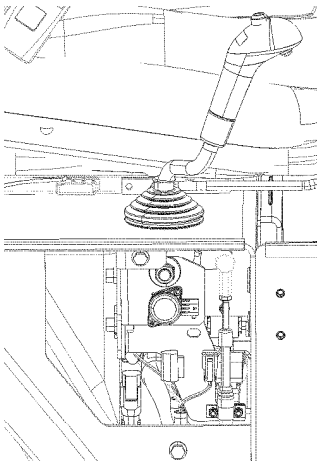

Fig. Forward/reverse lever

Accessing the machine fitted with ROPS

The easiest way to access the forward/reverse lever pivot points is via the operator's manual pocket on the right-hand side of the driver's seat.

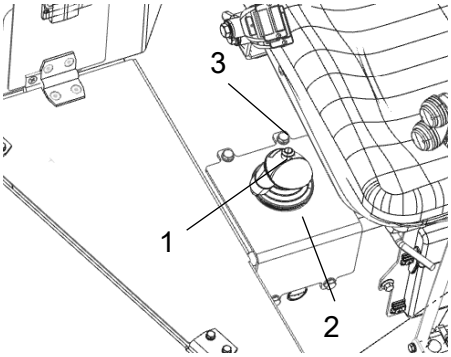

Fig. Forward/reverse lever, Cab
1. Forward/Reverse lever
2. Plate
3. Screw

Access on machine with cab

The forward/reverse lever pivot points are accessed by removing four screws (3) on the plate (2) under the forward/reverse lever (1).

Check friction of the forward/reverse lever.
The friction screws must be sufficiently tightened to retain the forward/reverse lever in the position set during operation. The "0" position of the controls is determined by a screw that engages in the groove on the shaft between the controls.

If the lever begins to become stiff after prolonged used, lubricate the lever at the control cable with a few drops of oil at each point.

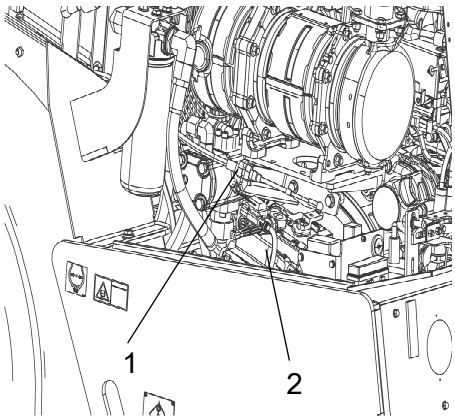

Fig. Engine compartment
1. Forward/Reverse-control cable
2. Propulsion pump

If the forward/reverse lever still is stiff after the above adjustments, lubricate the other end of the control cable with a few drops of oil. The cable is located on the top of the propulsion pump.

Hood, hinges - Lubrication

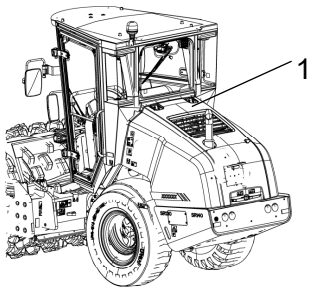

Fig. Engine hood
1. Hood hinge

Lubricate the engine hood hinges (1) and the driver's seat slide rails with grease, other joints and controls with oil.

Hydraulic filter - Replacement

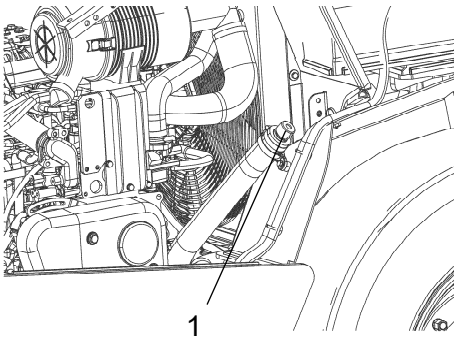

Fig. Hydraulic reservoir
1. Filler cap/Breather filter

Release the filler cap/breather filter (1) so that any overpressure inside the reservoir is eliminated.

Check that the breather filter (1) is not clogged.
Air should be able to pass freely 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.

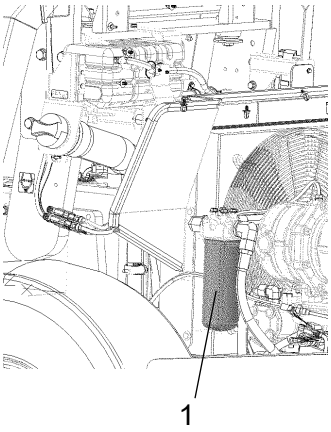

Fig. Engine compartment
1. Hydraulic fluid filter (1pc).

Carefully clean round the filter.

Remove the oil filter (1) and hand in to an environment-friendly waste disposal station.
This is a disposable 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 and old seal.

Thoroughly clean the sealing surfaces on the filter holder.

Apply a thin coat of fresh hydraulic fluid to the seals on the new filter and 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 the fluid level in the sight glass and top up if necessary.

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

Fuel tank - Cleaning

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

Pump out any bottom sediment using a suitable pump, such as an oil drain pump.

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

Keep in mind fire risk when handling fuel.

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

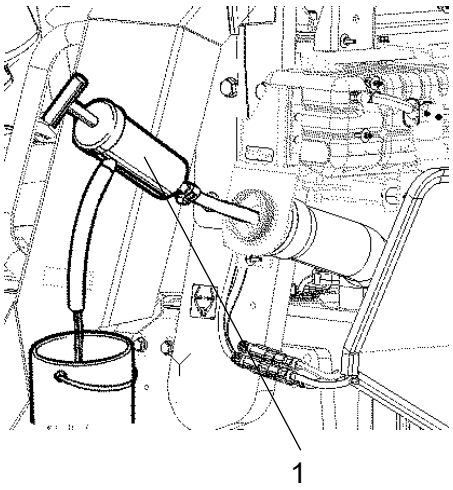

Fig. Fuel tank
1. Oil drain pump

Fuel tank - Draining (Equipment status)

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

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

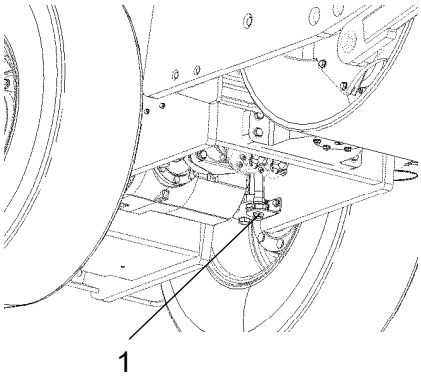

Fig. Left underside of the machine
1. Drain plug

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 the drain plug somewhat lower, so that water and sediment collect at the drain plug (1). Drain as follows:

Place a container under the plug (1).

Undo the drain plug (1) and drain out water and sediment until only pure diesel fuel comes out at the plug. Screw in the plug again.

Hydraulic reservoir - Draining

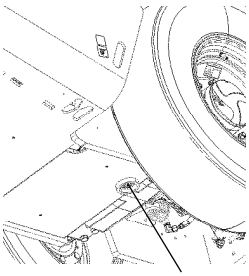

Fig. Hydraulic reservoir, bottom
1. Drain plug

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

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

Place a container under the drain hole.

Remove the plug (1).

Drain off any condensate.

Refit the plug.

Rear axle differential - Oil change

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

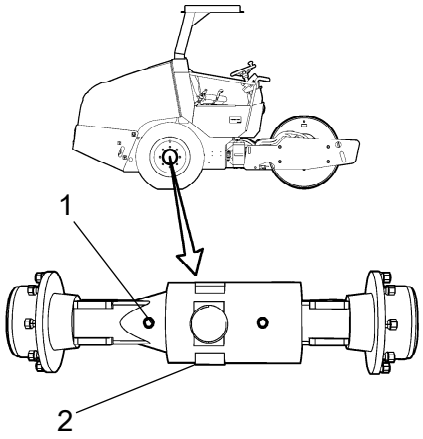

Fig. Rear axle
1. Level/Filler plug
2. Drain plug

Wipe clean and remove the filler/level plug (1) and the drain plug (2).
The drain plug (2) is on the back of the shaft.
Drain the oil into a container.
The volume is approx. 4.5 liters (4.2 qts).

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

Replace the drain plug and top up with fresh oil to the correct level.
Replace the level/filler plug.
Use transmission oil.
See the lubricant specification.

Rear axle pinion housing - Oil change

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

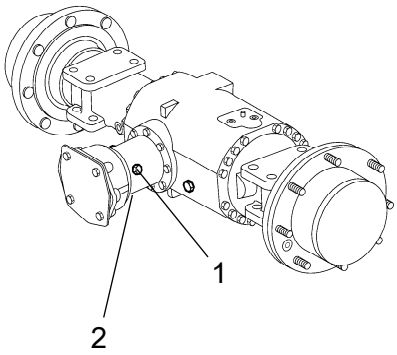

Fig. Rear axle
1. Level/Filler plug
2. Drain plug

Wipe clean and remove the level/filler plug (1) and the drain plug (2).
The drain plug (2) is on the underside of the pinion housing.
Drain off the oil into a container.
The volume is approx. 0.3 liters (0.32 qts).

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

Replace the drain plug and top up with fresh oil to the correct level.
Replace the level/filler plug.
Use transmission oil.
See the lubricant specification.

Rear axle planetary gear - Oil change

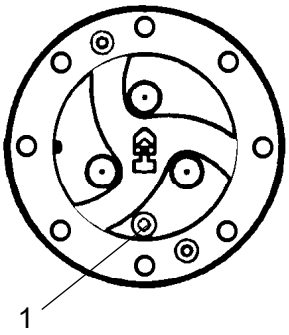

Fig. Planetary gear/drainage position
1. Plug

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 approx. 0,9 liters (0,95 qts)/side.

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

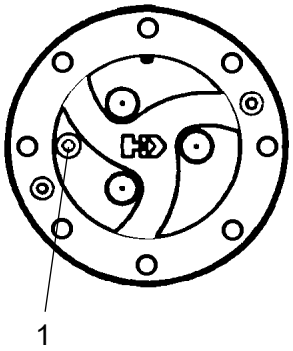

Fig. Planetary gear/filling position
1. Plug

Position the roller with the plug (1) in the planetary gear in the "9 o'clock" position.

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.

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.

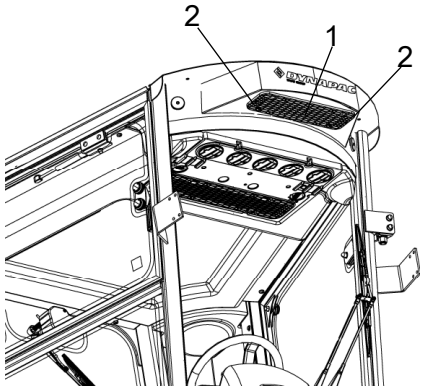

Fig. Cab
1. Fresh air filter (x 1)
2. Screws (x 8)

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

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

Remove the air filter inserts and replace with a new.

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

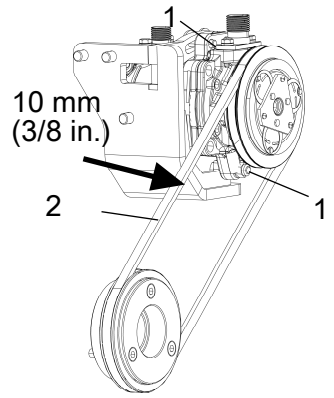

Fig. Compressor
1. Screw
2. Belt

Compressor belt - Adjustment

Undo the two screws (1) on top of the compressor and the screw (1) under the compressor.

The belt (2) is now slackened and can be adjusted. Tighten the belt to 10 mm (3/8 in.).

When the belt is tightened,
tighten the screws (1) again.

Maintenance - 2000h

Performed after 2000 operating hours
(every two years)

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

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

Hydraulic reservoir - Oil change

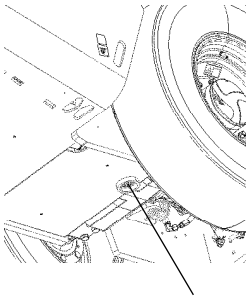

Fig. Hydraulic reservoir, bottom
1. Drain plug

Use a container to collect the used fluid.
The container should hold at least 45 liters (11.8 gal).

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

Place the container under the hydraulic reservoir.
Remove the drain plug (1) and allow the fluid to run down into the container.
Wipe clean and replace the drain plug (1) in the hydraulic reservoir.

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 filter at the same time.

Start the diesel engine and operate the various hydraulic functions.

Check the fluid level and top up if necessary.

Steering joint - Check

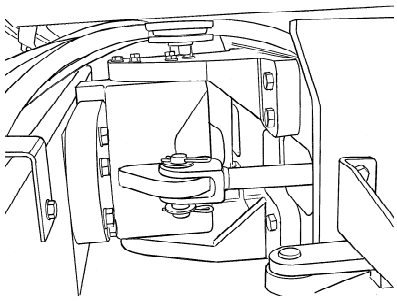

Fig. Steering joint

Inspect the steering joint to detect any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness and play.

Drum - Oil change

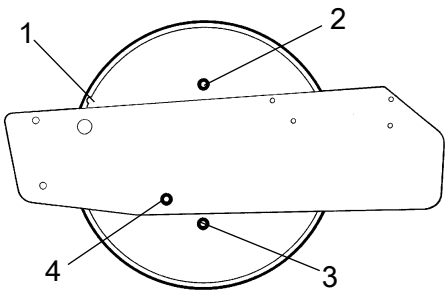

Fig. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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.

Place a receptacle that holds 10 liters (2.6 gal) under the drain plug (3).

Clean and unscrew the filler plug (2) and drain plug (3), and allow all the oil to run out.

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

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

Clean and refit the drain plug (3) and fill with oil as per "Drum - Checking the oil level".

Clean and refit the filler plug (2).

Battery - Check condition

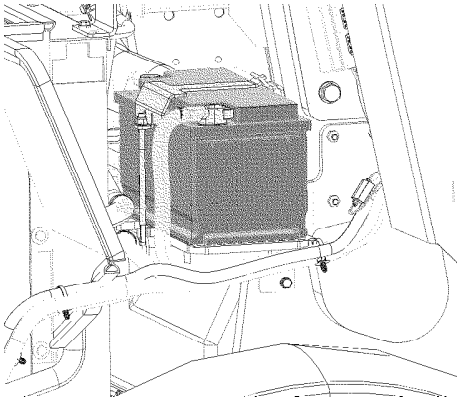

Fig. Battery

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.

Rubber elements and fastening screws - Check

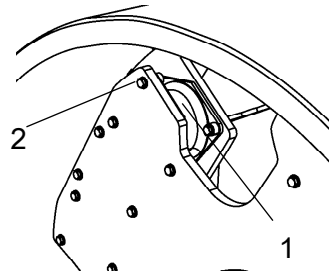

Fig. Drum, drive side
1. Rubber element
2. Attachment screws

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.

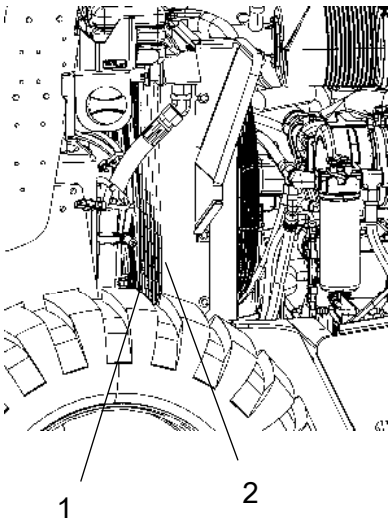

Fig. Engine compartment
1. Water cooler
2. Hydraulic fluid cooler

Coolers
Checking - Cleaning

Make sure that the air flow through the coolers (1) and (2) is unobstructed.
Dirty coolers are blown clean with compressed air or washed clean using a high-pressure water cleaner.

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

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

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

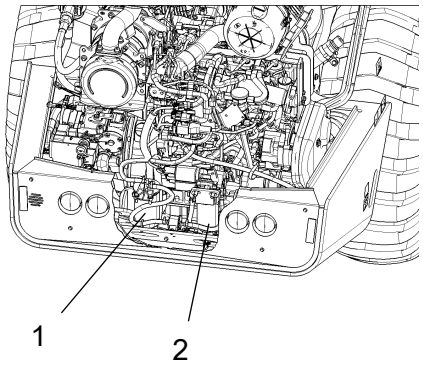

Fig. Engine compartment
1. Fuel filter
2. Fuel prefilter

The engine fuel filter - replacement/cleaning

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.
Han in to environment-friendly station.

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

Unscrew the lower part of the fuel prefilter (2). Drain off any water, and then replace the filter unit.

Start the engine and check that the fuel filters are tight.

N.B. Under no circumstances may new fuel filters be pre-filled with fuel before assembly due to the demands on the cleanliness of the fuel system.
Use the hand pump on the fuel prefilter to fill from the machine's fuel system.

Forward/Reverse controls and joints - Check and lubrication

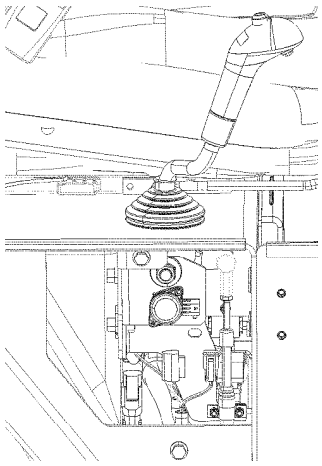

Fig. Forward/reverse lever

Accessing the machine fitted with ROPS

The easiest way to access the forward/reverse lever pivot points is via the operator's manual pocket on the right-hand side of the driver's seat.

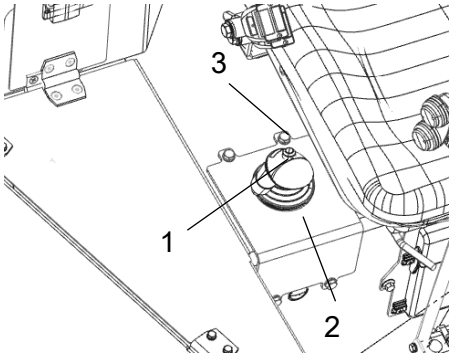

Fig. Forward/reverse lever, Cab
1. Forward/Reverse lever
2. Plate
3. Screw

Access on machine with cab

The forward/reverse lever pivot points are accessed by removing four screws (3) on the plate (2) under the forward/reverse lever (1).

Check friction of the forward/reverse lever.
The friction screws must be sufficiently tightened to retain the forward/reverse lever in the position set during operation. The "0" position of the controls is determined by a screw that engages in the groove on the shaft between the controls.

If the lever begins to become stiff after prolonged used, lubricate the lever at the control cable with a few drops of oil at each point.

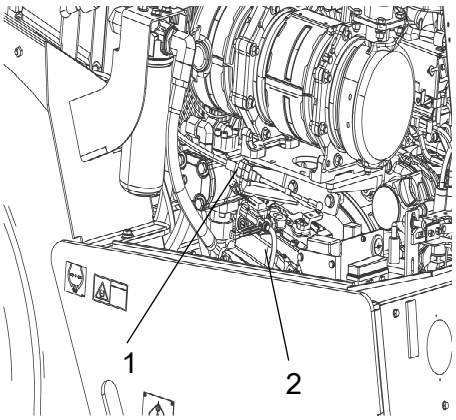

Fig. Engine compartment
1. Forward/Reverse-control cable
2. Propulsion pump

If the forward/reverse lever still is stiff after the above adjustments, lubricate the other end of the control cable with a few drops of oil. The cable is located on the top of the propulsion pump.

Hood, hinges - Lubrication

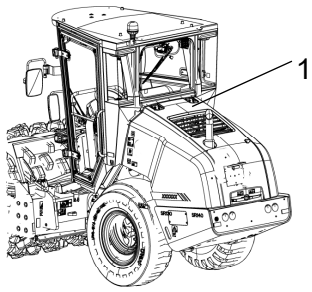

Fig. Engine hood
1. Hood hinge

Lubricate the engine hood hinges (1) and the driver's seat slide rails with grease, other joints and controls with oil.

Diesel engine - Oil- and Filter change

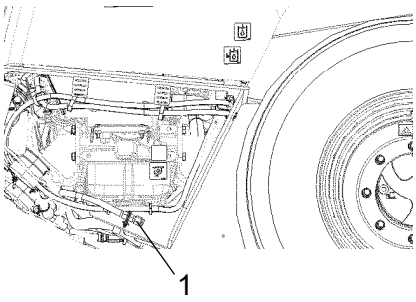

Fig. Right side of engine
1. Drain plug

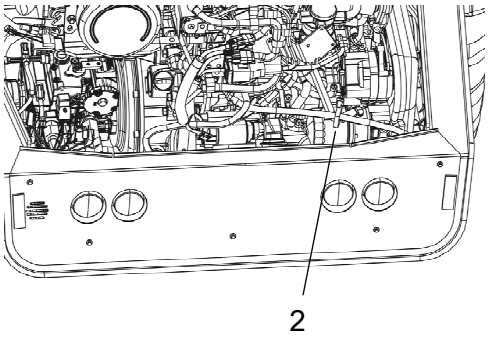

Fig. Engine compartment
2. Oil filter

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

The oil plug (1) is most easily accessible from the underside of the engine, and is fitted with a hose on the tractor frame.

Place a receptacle that holds 15 liters (4 gal) under the drain plug.

Release the hose from its attachment and pull it forward to the tie-down hole.

Loosen the drain plug (1) and drain the oil, when the engine is warm.

Screw back the plug again and refit the hose in its attachment.

Change the engine oil filter (2) at the same time. Refer also to the Instruction Manual for the engine.

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

Hydraulic filter - Replacement

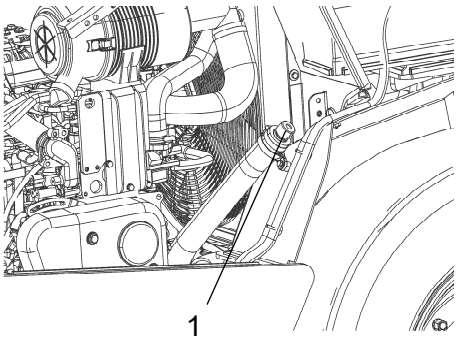

Fig. Hydraulic reservoir
1. Filler cap/Breather filter

Release the filler cap/breather filter (1) so that any overpressure inside the reservoir is eliminated.

Check that the breather filter (1) is not clogged.
Air should be able to pass freely 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.

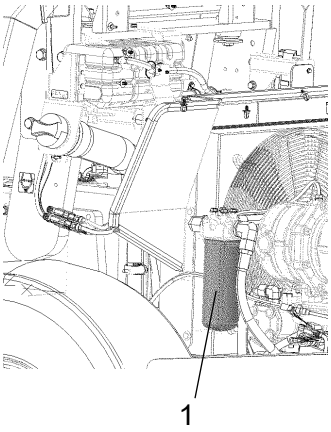

Fig. Engine compartment
1. Hydraulic fluid filter (1pc).

Carefully clean round the filter.

Remove the oil filter (1) and hand in to an environment-friendly waste disposal station.
This is a disposable 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 and old seal.

Thoroughly clean the sealing surfaces on the filter holder.

Apply a thin coat of fresh hydraulic fluid to the seals on the new filter and 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 the fluid level in the sight glass and top up if necessary.

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

Fuel tank - Cleaning

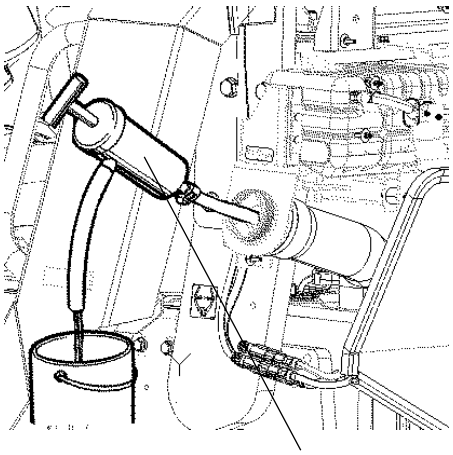

Fig. Fuel tank
1. Oil drain pump

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

Pump out any bottom sediment using a suitable pump, such as an oil drain pump.

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

Keep in mind fire risk when handling fuel.

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

Fuel tank - Draining (Equipment status)

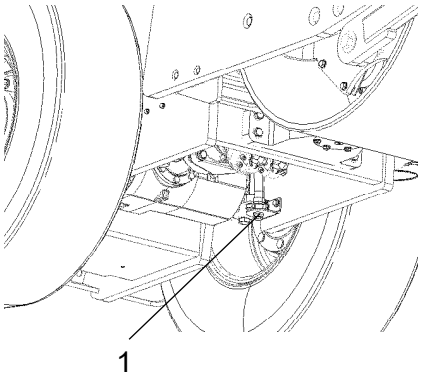

Fig. Left underside of the machine
1. Drain plug

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

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

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 the drain plug somewhat lower, so that water and sediment collect at the drain plug (1). Drain as follows:

Place a container under the plug (1).

Undo the drain plug (1) and drain out water and sediment until only pure diesel fuel comes out at the plug. Screw in the plug again.

Hydraulic reservoir - Draining

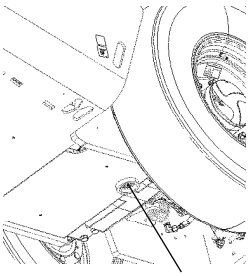

Fig. Hydraulic reservoir, bottom
1. Drain plug

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

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

Place a container under the drain hole.

Remove the plug (1).

Drain off any condensate.

Refit the plug.

Rear axle differential - Oil change

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

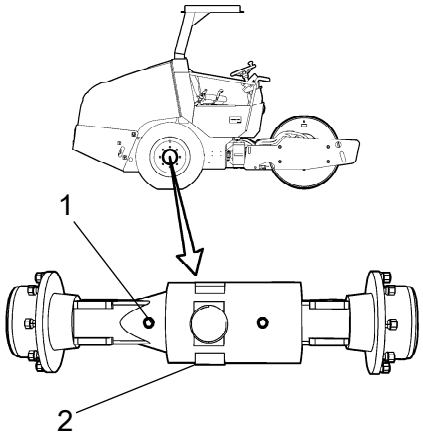

Fig. Rear axle
1. Level/Filler plug
2. Drain plug

Wipe clean and remove the filler/level plug (1) and the drain plug (2).
The drain plug (2) is on the back of the shaft.
Drain the oil into a container.
The volume is approx. 4.5 liters (4.2 qts).

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

Replace the drain plug and top up with fresh oil to the correct level.
Replace the level/filler plug.
Use transmission oil.
See the lubricant specification.

Rear axle pinion housing - Oil change

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

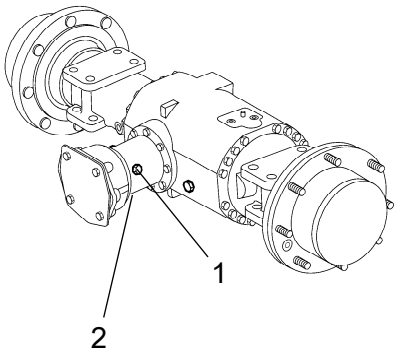

Fig. Rear axle
1. Level/Filler plug
2. Drain plug

Wipe clean and remove the level/filler plug (1) and the drain plug (2).
The drain plug (2) is on the underside of the pinion housing.
Drain off the oil into a container.
The volume is approx. 0.3 liters (0.32 qts).

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

Replace the drain plug and top up with fresh oil to the correct level.
Replace the level/filler plug.
Use transmission oil.
See the lubricant specification.

Rear axle planetary gear - Oil change

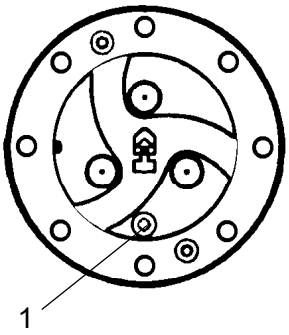

Fig. Planetary gear/drainage position
1. Plug

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 approx. 0,9 liters (0,95 qts)/side.

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

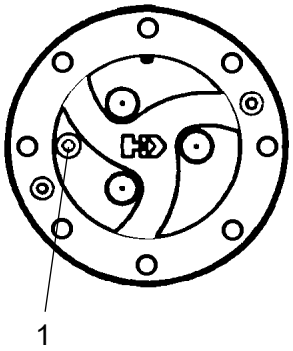

Fig. Planetary gear/filling position
1. Plug

Position the roller with the plug (1) in the planetary gear in the "9 o'clock" position.

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.

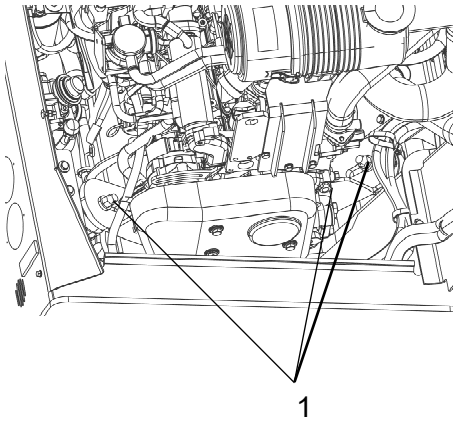

Fig. Engine suspension
1. Bolted joint

Bolted joints - Checking tightening torque

Check that all the bolts for the suspension of the engine and the drive unit are tightened.
See under Specifications - tightening torque.

Check the bolted joint between the motor and the pump drive, and that all the hydraulic components are tightened to the set tightening torque.

(The above applies to new or replaced components only).

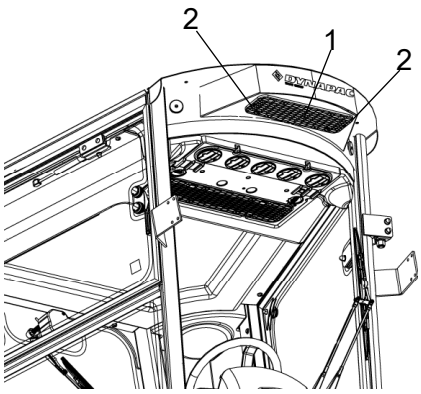

Fig. Cab
1. Fresh air filter (x 1)
2. Screws (x 8)

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.

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

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

Remove the air filter inserts and replace with a new.

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

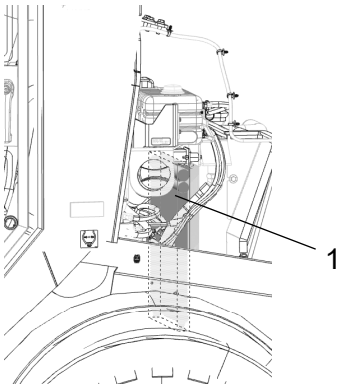

Fig. Engine compartment
1. Code element

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.

Drum gear - Oil change (CA1400)

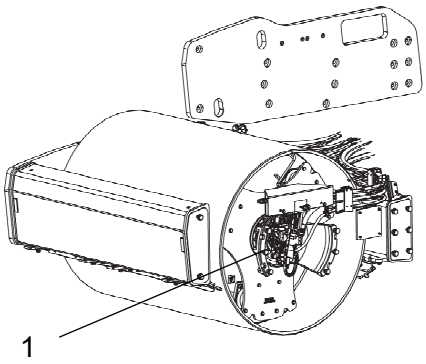

Fig. Oil change - drum gear
1. Drum gear

Place the roller on a level surface so the drain/ventilating plugs are in location for drain.

Wipe clean, unscrew the plugs (2, 3) and drain the oil into a suitable receptacle, capacity about 2 liters (0.5 gal.).

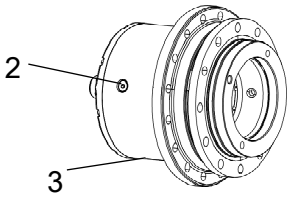

Fig. Drum gear

Compressor belt - Adjustment

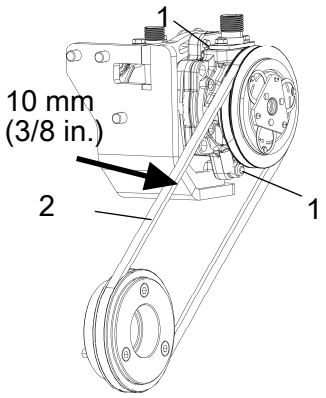

Fig. Compressor
1. Screw
2. Belt

Undo the two screws (1) on top of the compressor and the screw (1) under the compressor.

The belt (2) is now slackened and can be adjusted. Tighten the belt to 10 mm (3/8 in.).

When the belt is tightened, tighten the screws (1) again.

Maintenance, every 12th month (Annually)

Air cleaner
Check - Replacement of main filter

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

Air filter indicator - Resetting

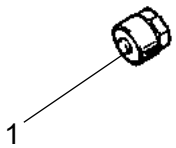

Fig. Indicator
1. Button

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

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

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

Backup filter - Change

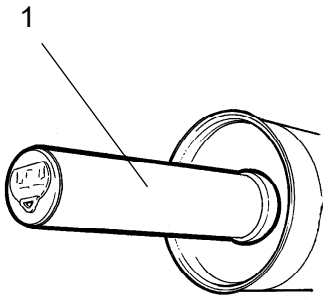

Fig. Air filter
1. Backup filter

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

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.

Checking the DPF pipes and connections (Tier 4f / Stage V)

Contact your local Kubota representative for this service

Checking the EGR pipes and connections (Tier 4f / Stage V)

Contact your local Kubota representative for this service

Check the Manifold (Tier 4f / Stage V)

Contact your local Kubota representative for this service.

Maintenance, every 24th month (Every other year)

Cooling water system - Check

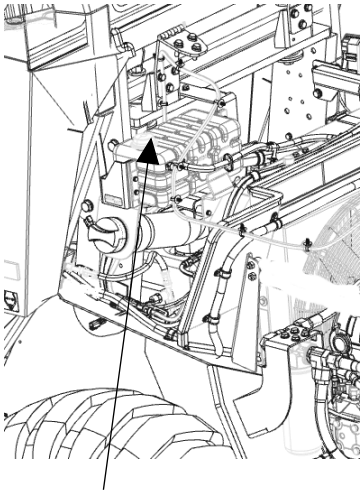

Fig. Cooling water container
1. Filler cap

Check that all hoses/hose connectors are intact and tight.
Fill with coolant as specified in the lubricants specification.

Take great care when opening the radiator cap while the engine is hot.
Wear protective gloves and goggles.

Also check the freezing point.
Change the coolant every other year.

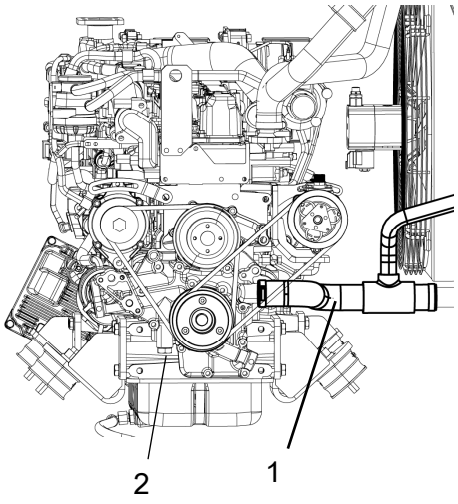

Fig. Drain, radiator
1. Radiator hose
2. Drain plug (27 mm)

Coolant - Change

Put a 22 l (23.2 qts) vessel under the cooling hose (1).

Replace via coolant hose

Detach the hose (1) and drain the fluid into the vessel.

When all the fluid has drained into the vessel, attach the hose (1) in its original position.

Change via drain plug

Loosen the drain plug (27 mm) (2) and drain the fluid into the vessel.

When all the fluid has drained into the vessel, replace the drain plug (27 mm) (2).

Dispose of the drained coolant in an environmentally friendly manner.

Check - Air intake hoses

Check that all hoses/hose connections are intact and tight.

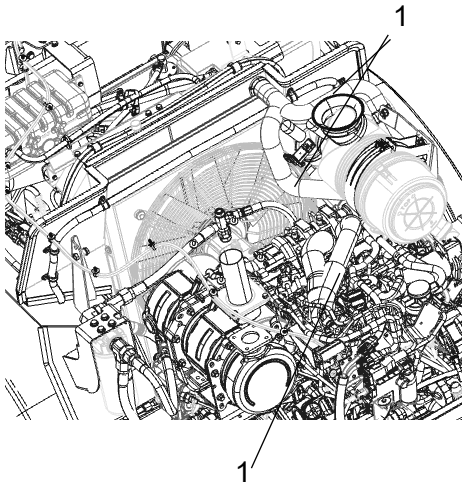

Fig. Engine compartment
1. Air intake hoses

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