DYNAPAC
Part of the Atlas Copco Group

Instructions manual

ICA134-3EN2.pdf
Driving & Maintenance

Vibratory roller
CA134

Engine
John Deere 5030HF285

Serial number
10000100x0A009546 -

Translation of original instruction

Reservation for changes
Printed in Sweden

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Introduction

The machine

CA134 is a 5 ton vibratory roller intended for compaction work in trenches, on roads and in confined areas in conjunction with refilling work.

Intended use

CA134 is 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.

Warning symbols

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

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

Safety information

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

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

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

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

CALIFORNIA

Proposition 65 Warning

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

General

This manual contains instructions for machine operation and maintenance.

The machine must be correctly maintained for maximal performance.

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

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

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

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

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

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

CE marking and Declaration of conformity

(Applies to machines marketed in EU/EEC)

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

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

Safety - General instructions

(Also read the safety manual)

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

16. **Hearing protection is recommended if the noise level exceeds 85 dB(A). The noise level can vary depending on the equipment on the machine and the surface the machine is being used on.**

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

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

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

Safety - when operating

Driving near edges

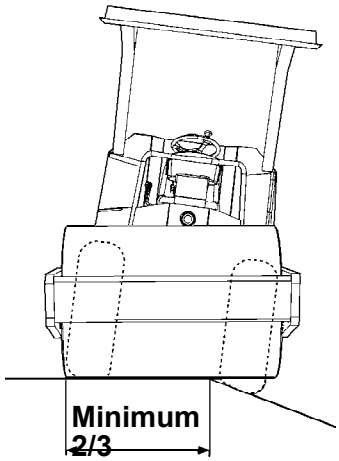


Fig. Position of drum when driving near an edge

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

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

Slopes

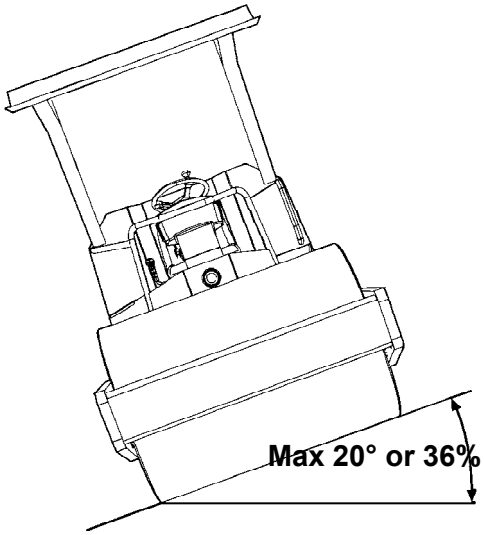


Fig. Operating on slopes

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

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

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

The ROPS (Roll Over Protective Structure) is always recommended when driving on slopes or unstable ground.

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

Safety (Optional)

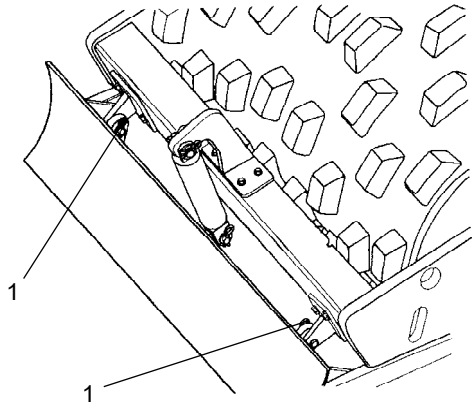


Fig. Strike-off blade
1. Locking pin (2) and stud (2)

Strike-off blade

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

Ensure always that the strike-off blade is secured by the locking pin (1) when driving with the blade in its raised position. Always lower the blade to the ground before leaving or parking the roller.

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

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

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

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

Hydraulic system - mineral oil Shell Tellus T100 or similar.

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.

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

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

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

Fire fighting

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

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

Roll Over Protective Structure (ROPS)

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.

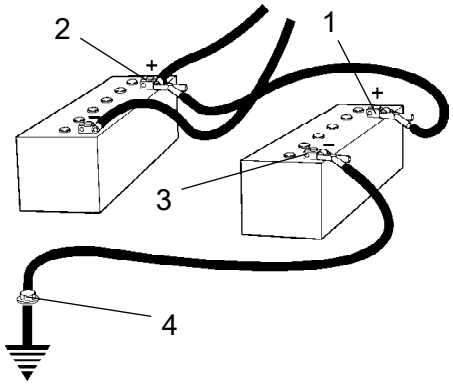


Fig. Jump starting

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 - Noise/Vibrations/Electrical

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}	105	dB (A)
Sound pressure level at the operator's ear (platform), L_{pA}	92 ±3	dB (A)

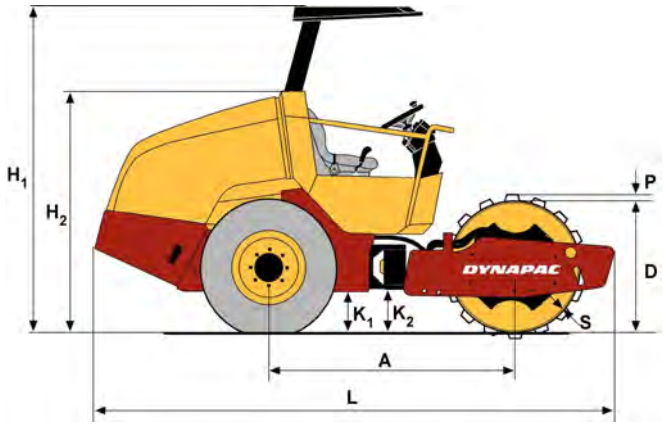
During operation the above values may differ because of the actual operational conditions.

Electrical system

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

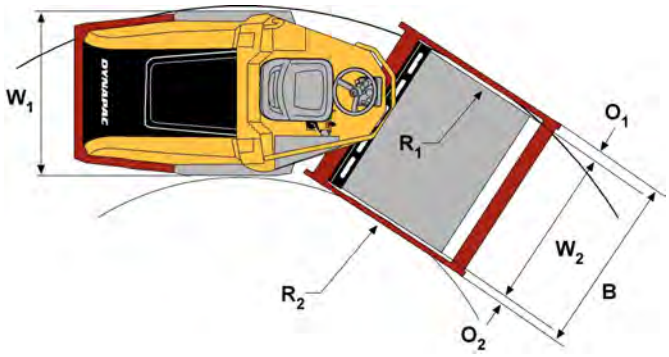
Technical specifications - Dimensions

Dimensions, side view



	Dimensions	mm	in
A	Wheelbase, drum and wheel	1860	73
L	Length, standard equipped roller (D)	3950	155
L	Length, standard equipped roller (PD)	3950	155
H_1	Height with ROPS (D)	2530	99
H_1	Height with ROPS (PD)	2540	100
H_2	Height without ROPS (D)	1810	71
H_2	Height without ROPS (PD)	1810	71
D	Diameter, drum	1000	39
S	Thickness, drum sweep, nominal	22	0.9
P	Height, pads (PD)	76	3
K_1	Clearance, tractor frame (D)	260	10
K_1	Clearance, tractor frame (PD)	260	10
K_2	Clearance, drum frame (D)	260	10
K_2	Clearance, drum frame (PD)	260	10

Dimensions, top view



	Dimensions	mm	in
B	Width, standard equipped roller	1494	59
O_1	Overhang, left frame side	62	2½
O_2	Overhang, right frame side	62	2½
R_1	Turn radius, external	3900	153
R_2	Turn radius, internal	2460	97
W_1	Width, tractor section	1400	55
W_2	Width, drum	1370	54

Technical specifications - Weights and volumes

Weights

Service weight with ROPS (EN500) (D)		4550 kg	10.100	lbs
Service weight with ROPS (EN500) (PD)		4750 kg	10.500	lbs
Service weight without ROPS (D)		4410 kg	9.730	lbs
Service weight without ROPS (PD)		4610 kg	10.170	lbs

Fluid volumes

Fuel tank	117.0 liters		30.9 gal	

Technical specifications - Working capacity

Compaction data

Static linear load (D)	13	kg/cm	73	pli
Static linear load, with Ballast weight (D)	15	kg/cm	84	pli
Static linear load (PD)	-	-	-	-
Static linear load, with Ballast weight (PD)	-	-	-	-
Static linear load with ROPS (D)	13	kg/cm	73	pli
Static linear load with ROPS and Ballast weight (D)	15	kg/cm	84	pli
Static linear load, with ROPS (PD)	-	-	-	-
Static linear load with ROPS and Ballast weight (PD)	-	-	-	-
Amplitude (D)	1.7	mm	0.067	in
Amplitude (PD)	1.5	mm	0.060	in
Vibration frequency, amplitude	35	Hz	2100	vpm
Centrifugal force, amplitude (D/PD)	89	kN	20.000	lb

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

Technical specifications - General

Engine

Manufacturer/Model	John Deere 5030HF285	Turbo diesel
Power (SAE J1995)	62 kW	84 hp
Engine speed, idling	900 rpm	
Engine speed, working/transport	2,870 rpm	

Electrical system

Battery	12V 100Ah
Alternator	12V 70A
Fuses	See the Electrical system section - fuses

Tire	Tire dimensions	Tire pressure
Std-type	12,5-20	200 kPa (2,0kp/cm^2) (29 psi).
Tractor type	12,5-20	200 kPa (2,0kp/cm^2) (29 psi).

The tires can as an option be filled with fluid (extra weight up to 85 kg/tire, 187 lbs/tire). When servicing, bear this extra weight in mind.

Tightening torque

Tightening torque in Nm (lbf.ft) 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 (500082)
Strength class :	8.8
Tightening torque :	190 Nm

Hydraulic system

Opening pressure	**MPa**
Drive system	40.0
Supply system	2.1
Vibration system	23.0
Control systems	14.0
Brake release	1.5

Machine plate - Identification

Product identification number on the frame

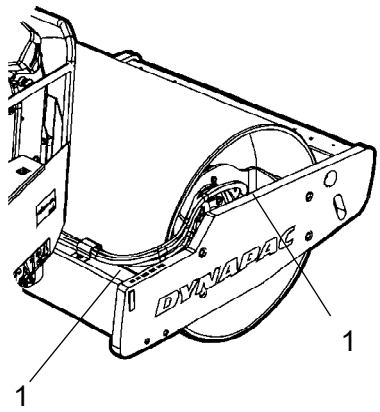


Fig. Front frame
1. PIN

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

Machine plate

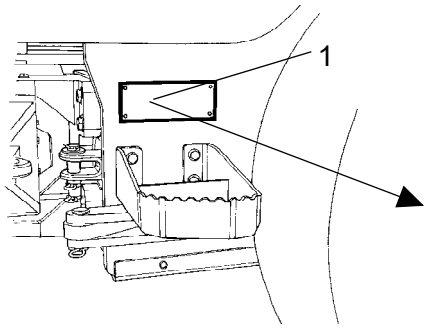


Fig. Operator platform
1. Machine plate

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

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

DYNAPAC CE

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

Product Identification Number

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

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

Made in Sweden

Please state the machine's PIN when ordering spares.

100	00123	V	0	A	123456
A	B	C	D	E	F

Explanation of 17PIN serial number

A= Manufacturer

B= Family/Model

C= Check letter

D= No coding

E= Production unit

F= Serial number

Engine plates

The engine's type plate (1) is affixed to the right side of the engine, and the EPA plate (2) is on the left.

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

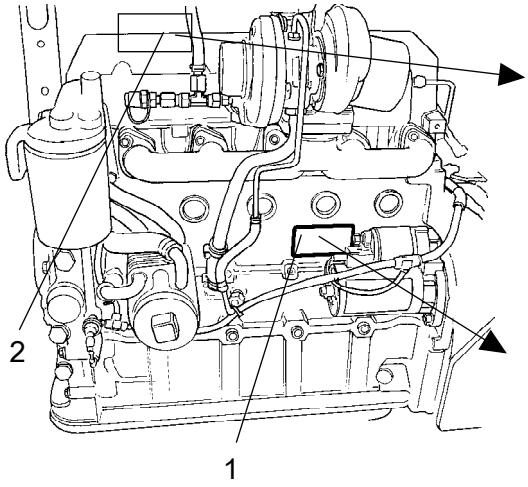
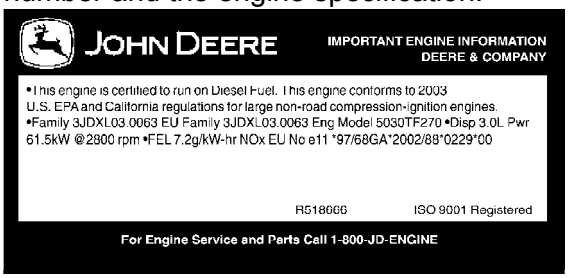
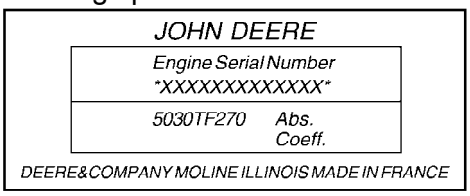


Fig. Engine
1. Type plate
2. EPA plate (USA)

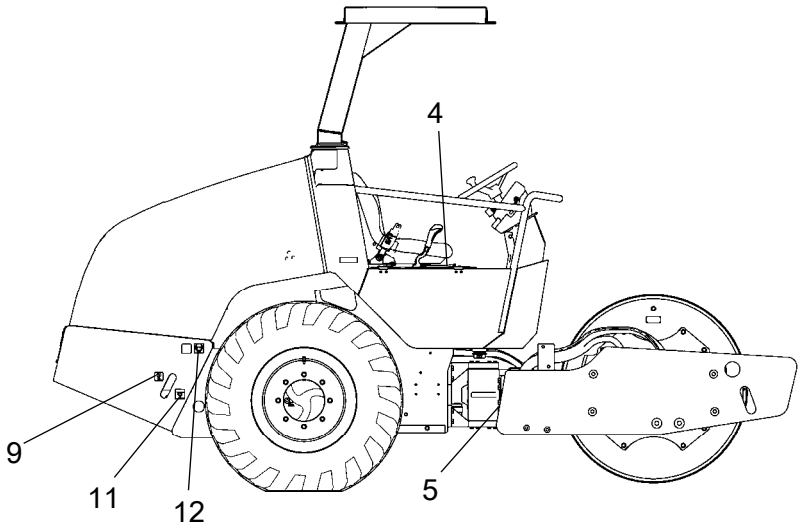


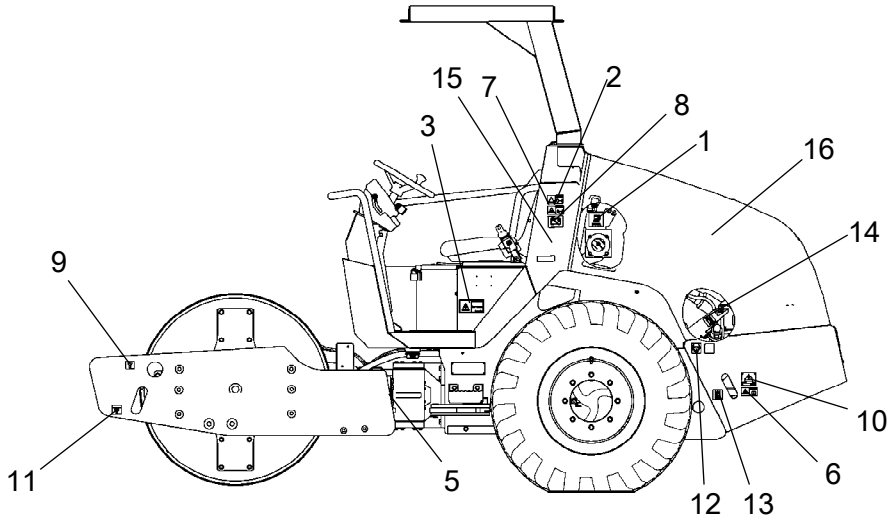
Please specify the engine serial number when ordering spares. Refer also to the engine manual.



Machine description- Decals

Location - decals

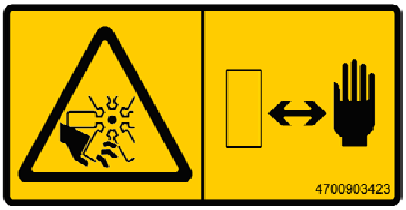




1.	Diesel fuel	4700991658	7.	Warning, Hot surfaces	4700903424	13.	Hydraulic fluid level	4700272373
2.	Warning, Rotating engine components	4700903423	8.	Battery master switch	4700904835	14.	Biohydraulic fluid	4700904601
3.	Warning, Read instruction manual	4700903459	9.	Lift point	4700357587	15.	Sound power level	4700791275
4.	Handbook compartment	4700903425	10.	Hoisting plate	4700904870	16.	Warning, Starting gas	4700791642
5.	Warning, Crush zone	4700903422	11.	Tie down point	4700382751			
6.	Warning, Locking	4700908229	12.	Tire pressure	4700355983			

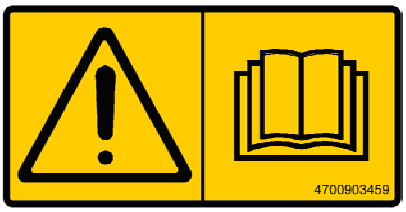
Safety decals

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.



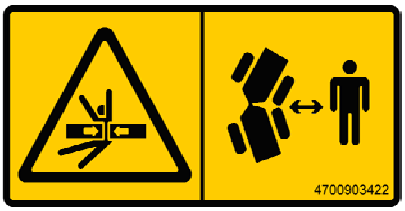
4700903423
Warning - Rotating engine components.

Keep your hands at a safe distance from the danger zone.



4700903459
Warning - Instruction manual

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



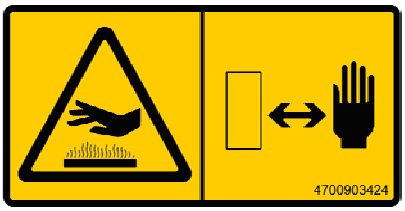
4700903422
Warning - Crush zone, articulation/drum.

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 from the danger zone.

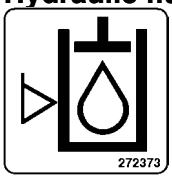
4700791642
Warning - Starting gas

Starting gas is not to be used.

Info decals

Diesel fuel

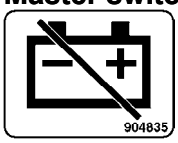
Hydraulic fluid level



Hoisting plate

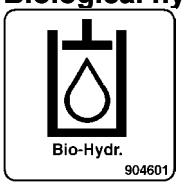
Handbook compartment

Master switch

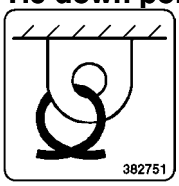


Hydraulic fluid

Biological hydraulic fluid

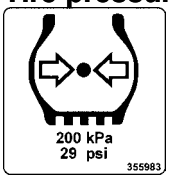


Tie down point

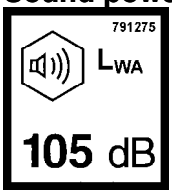


Lift point

Tire pressure



Sound power level



Machine description - Instruments/Controls

Locations - Instruments and controls

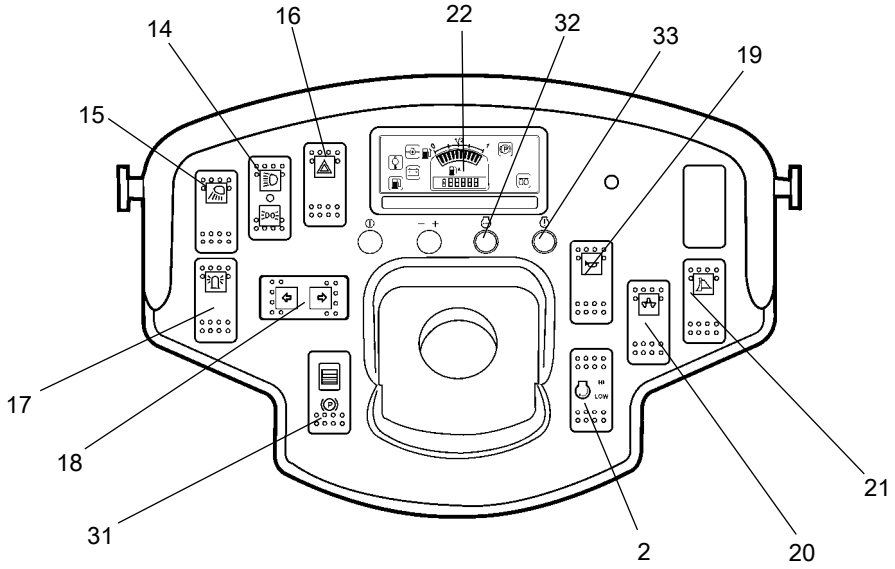


Fig. Instruments and control panel

2.	Electronic speed control regulator Low/High	20.	Vibration ON/OFF
14.	Driving lights	21.	Strike-off blade
15.	Working lights	22.	Control panel
16.	Hazard flashers	31.	Parking brake On/Off
17.	Hazard beacon	32.	Motor diagnostics control light serious fault
18.	Direction indicators	33.	Motor diagnostics control light less serious fault
19.	Horn		

Locations - Control panel and controls

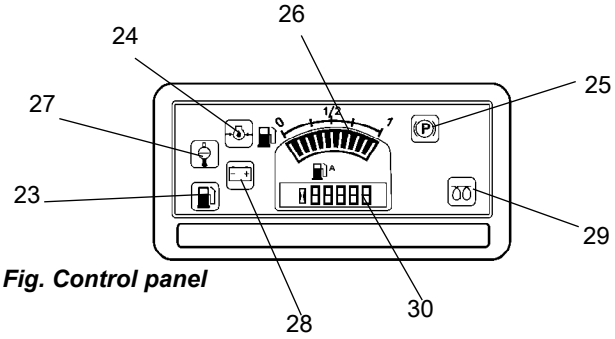


Fig. Control panel

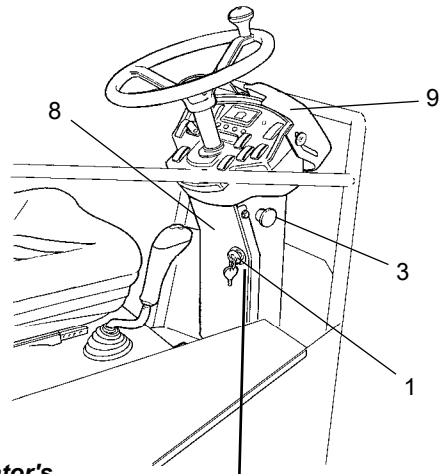


Fig. Operator's station

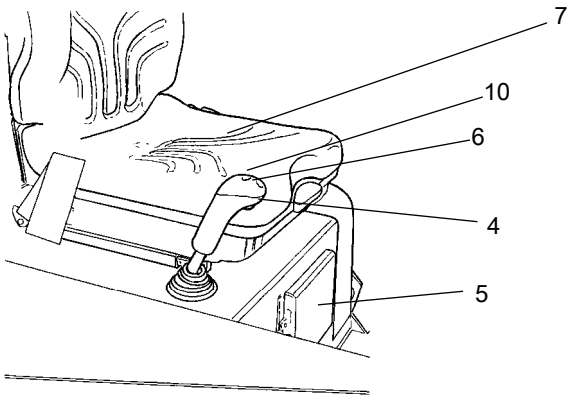
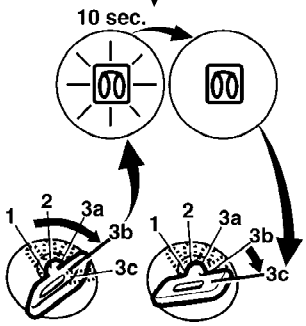


Fig. Operator position



1	Starter switch	23	Low fuel level
3	Emergency stop	24	Oil pressure, engine
4	Vibration On/Off	25	Parking brake
5	Handbook compartment	26	Fuel level
6	Forward/reverse lever	27	Water temperature, engine
7	Seat switch	28	Battery/charging
8	Fuse box	29	Glow plug
9	Instrument cover	30	Hourmeter
10	Strike-off blade		

Function description

No	Designation	Symbol	Function
1.	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.
2.	Electronic speed control regulator		Regulate the number of revs of the diesel motor. Low (900 rpm) High (2870 rpm).
3.	Emergency stop		When pressed, the emergency stop is activated. The brake is applied and the engine stops. Brace yourself for a sudden stop.
4.	Vibration On/Off. Switch		Press once and release to switch vibration on. Press again to switch the vibration off.
5.	Handbook compartment		Pull up and open the top of the compartment for access to handbooks.
6.	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.
7.	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.
8.	Fuse box (on control column)		Contains fuses for the electrical system. See under the heading 'Electrical system' for a description of fuse functions.
9.	Instrument cover		Lowered over the instrument plate to protect the instruments from the weather and sabotage. Lockable
10.	Strike-off blade, switch (Optional)		Controls the position of the strike-off blade.
14.	Road lights, switch (Optional)	 	Where the upper position is depressed, the road lights are on. Where the lower position is, depressed the parking lights are on.
15.	Working lights switch (Optional)		When depressed, the working lights are on
16.	Hazard warning lights, switch (Optional)		Where depressed, the hazard warning lights are on

No	Designation	Symbol	Function
17.	Hazard beacon, switch (Optional)		Where depressed, the hazard beacon is on
18.	Direction indicators, switch (Optional)		When depressed to the left, the left direction indicators are on etc. In the middle position the function is shut off.
19.	Horn, switch		Press to sound the horn.
20.	Vibration, switch		Activates the vibration together with the switch in the forward/reverse lever.
21.	Strike-off blade, On/Off, switch (Optional)		When pressed, the strike-off blade is activated.
22.	Control panel		
23.	Warning lamp, low fuel level		The lamp comes on when the fuel level in the tank is low.
24.	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.
25.	Warning lamp, parking brake		The lamp lights when the parking brake is activated.
26.	Fuel level		Shows the fuel level in the diesel tank.
27.	Warning lamp, water temperature		The light comes on if the water temperature is too high.
28.	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.
29.	Warning lamp, glow plug		The lamp must go out before the starter switch is moved to position 3c for activation of the starter motor.
30.	Hourmeter		Shows the number of hours the engine has run.
31.	Parking brake On/Off, switch		Push in to activate the parking brake, the machine stops with the engine running. **Always use the parking brake when the machine is stationary on a sloping surface.**
32.	Motor diagnostics		Control lamp red. Serious fault: Turn the motor off at once! Attend to before restarting.
33.	Motor diagnostics		Control lamp yellow. Less serious fault: Attend to as soon as possible.

Machine description - Electrical system

Fuses

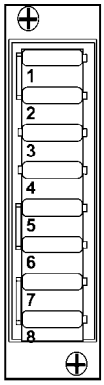


Fig. Fuse box

The figure shows the position of the fuses.

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

The machine is equipped with a 12V electrical system and an AC alternator.

Fuses in the fusebox

1.	Emergency stop, ECU, reversing alarm, neutral position, seat switch, vibration	15A	5.	Driving lights: headlights, position lights, brake lights, number plate lights	20A
2.	Horn, buzzer, control panel	10A	6.	Direction indicators, hazard flashers	10A
3.	Hazard beacon, strike-off blade	10A	7.	Right direction indicators, side blinkers	5A
4.	Working lights	20A	8.	Left direction indicators, side blinkers	5A

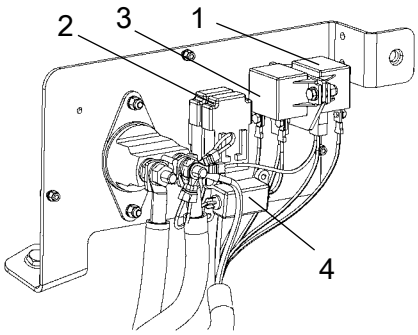


Fig. Engine compartment
1. Starter relay
2. Main fuse
3. Preheating relay
4. Fuse for preheating relay

Main fuses

There is one main fuse (2). It is located behind the battery master switch. The three screws need to be unscrewed to remove the plastic cover.

The fuse if of the flat pin type.

The starter relay (1), preheating relay (3) and fuse for the preheating relay (4) are also fitted here.

Supply standard	40A	(Orange)
Supply lighting *	20A	(Yellow)
Power supply, preheater	100A	(Blue)

* Optional equipment

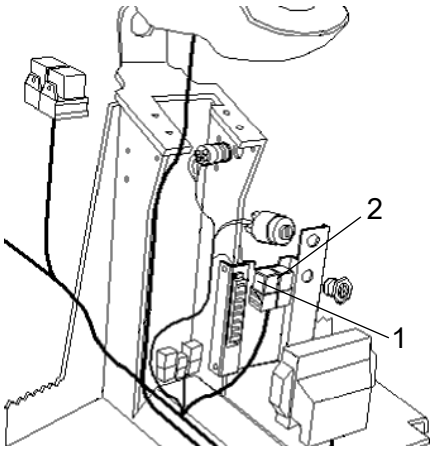


Fig. Control column

Relays

1.	*k7*	*Direction indicators*
2.	*K6*	*Stop lights*

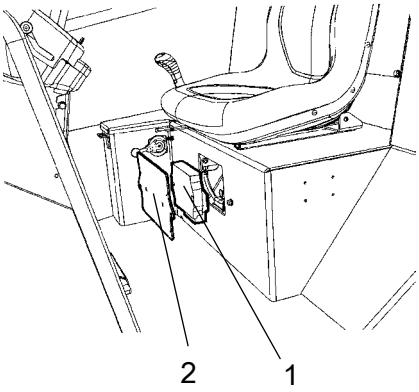


Fig. Operator station
1. Control unit (ECU) 2. Cover

The control unit (ECU) (1) is located behind the cover (2) under the operator seat.

This control unit looks after the electrical drive control, including vibration, start-stop.

Operation - Starting

Before starting

Master switch - Switching on

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

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

The engine hood must be closed by unlocked when operating, so that the battery voltage can be quickly disconnected if necessary.

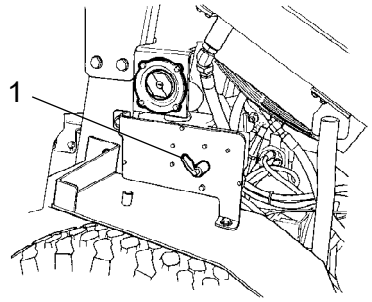


Fig. Engine compartment
1. Master switch

Operator’s seat - Adjusting

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

The seat can be adjusted lengthways (1).

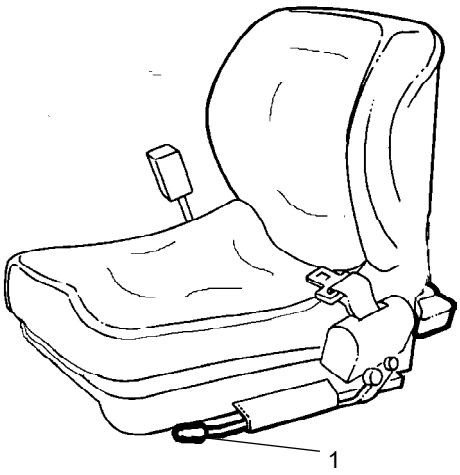


Fig. Operator's seat
1. Length adjustment

Instruments and lamps - Checking

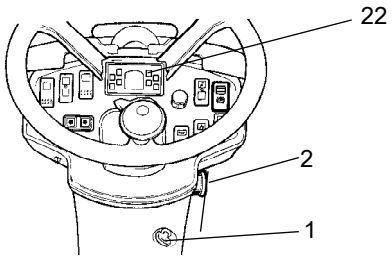


Fig. Instrument panel
1. Starter switch
2. Emergency stop
22. Warning panel

Make sure that the emergency stop (2) 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 (2).

Turn the switch (1) to position 3a.

Check that the warning lamps in the warning panel (22) come on.

Operator position

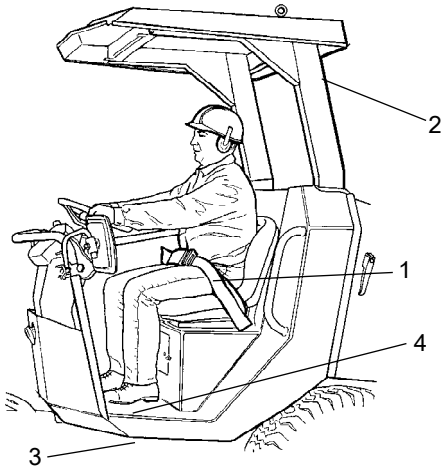


Fig. Driver's seat
1. Seat belt
2. ROPS
3. Rubber element
4. Anti-slip

If a ROPS (2) (Roll Over Protective Structure) is fitted on 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 the 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.

Interlock

The roller is equipped with Interlock.

If you stand up from the operator's seat when the forward/reverse lever is in the drive position, the machine stops and the diesel engine is switched off after 3 seconds. Brace yourself for a sudden stop.

Interlock is not activated if the forward/reverse lever is in neutral.

If the emergency stop is activated the diesel engine will stop.

Starting

Starting the engine

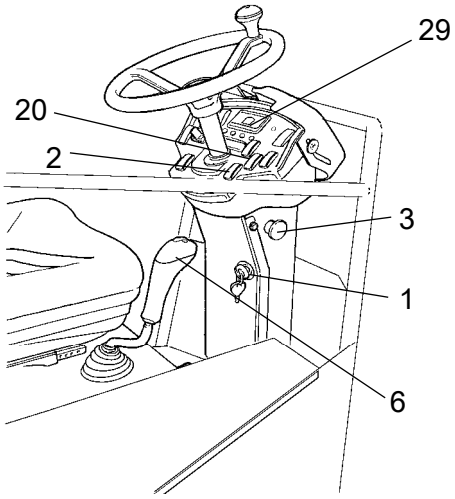


Fig. Control panel
1. Starter switch
2. Engine speed control
3. Emergency stop
6. Forward/Reverse lever
20. Vibration switch
29. Glow lamp

Make sure that the emergency stop (3) is pulled out.

Set the forward/reverse lever (6) in neutral. The engine can only be started when the lever is in neutral.

Turn the vibration switch (20) to the Off position (position O).

In the event of high external temperature, set the speed control (2) in idling position: Low.

Preheating: Turn the key to position II. When the glow lamp (29) goes off, after about 10 seconds, turn the starter switch (1) to position 3c. Release the starter as soon as the engine has started.

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.

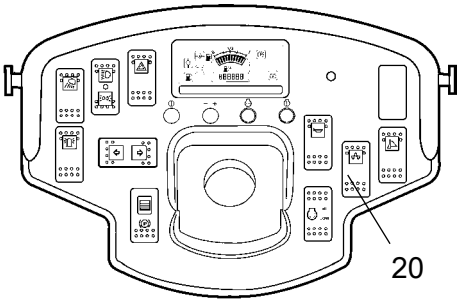


Fig. Instrument panel
20. Vibration switch

Check while warming the engine that the warning lamps for the oil pressure (24) and charging (28) go out.

The warning lamp (25) 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.

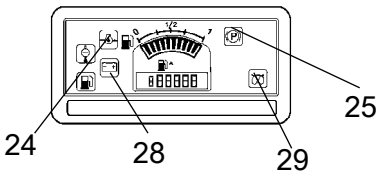


Fig. Control panel
28. Charging lamp
24. Oil pressure lamp
25. Brake lamp
29. Glow plug lamp

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

Strike-off blade (Optional)

Ensure always that the strike-off blade is secured by the locking pins (1) when driving with the blade in its raised position. Always lower the blade to the ground before leaving or parking the roller.

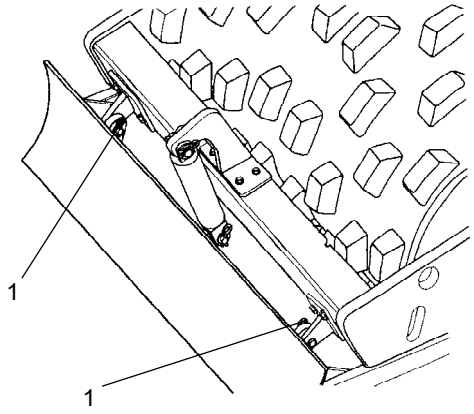


Fig.Strike-off blade
1. Locking pins (2 pcs)

Operation - Driving

Operating the roller

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

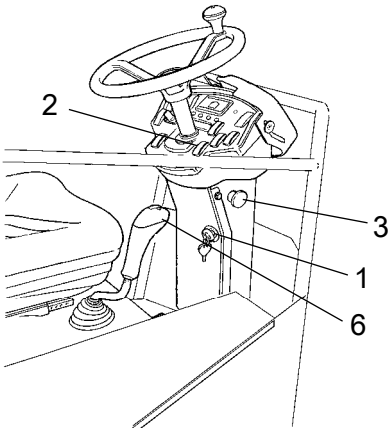


Fig. Instrument panel
1. Starter switch
2. Engine speed control
3. Emergency stop
6. Forward/reverse lever

Set the speed control (2) in working position: High.

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 (6) forwards or backwards, depending on which direction of travel is required.

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

The speed should always be controlled by using the forward/reverse lever, and never by changing the engine speed.

Test the emergency stop by pressing the emergency stop button (3) 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.

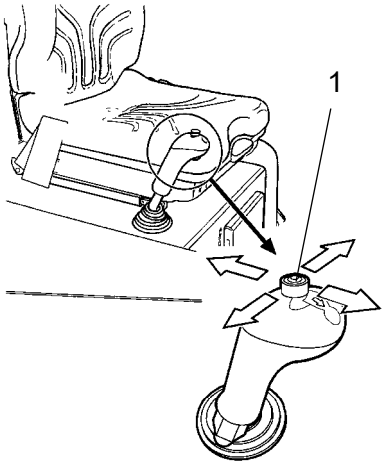


Fig. Forward/reverse lever
1. Joystick, strike-off blade

Operating the strike-off blade (optional)

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 position.
Reverse - Lifting the blade.
Forward - Lowering the blade.
Tilting - Right/Left (Option)

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

Use the blade only when driving FORWARD.

Operation - Vibration

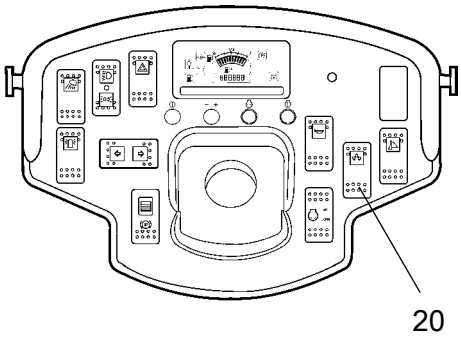


Fig. Instrument panel
20. Vibration switch.

Vibration On/Off

Activation/deactivation of the vibration is selected with the switch (20).

The operator must activate the vibration via the switch (4) on the underside of the forward/reverse handle. See illustration below.

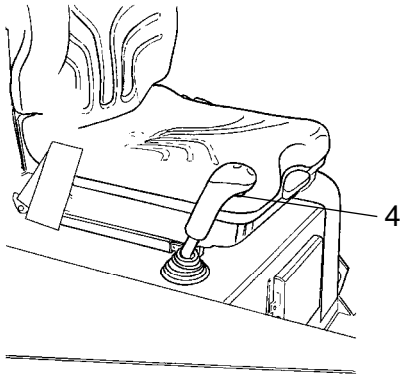


Fig. Forward/Reverse lever
4. Switch, vibration On/Off

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 (4) on the underside of the forward/reverse lever.

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

Operating - Stopping

Braking

Emergency braking

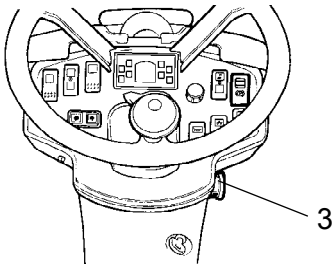


Fig. Instrument panel
3. Emergency stop

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 (3), 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 position and pull out the emergency stop (3). When the roller is fitted with an Interlock it is necessary to sit down in the driver seat to restart the engine.

Normal braking

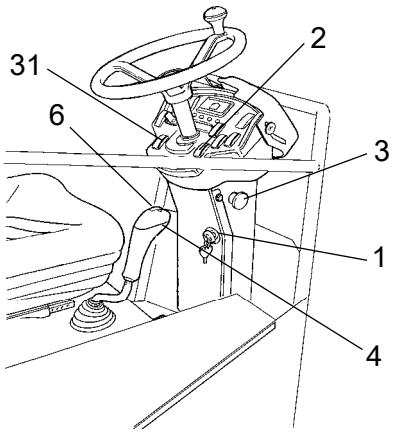


Fig. Instrument panel
1. Key
2. Speed control
3. Emergency stop
4. Vibration On/Off
6. Forward/Reverse level
31. Parkering brake switch

Press the switch (4) to switch off the vibration.

Move the forward/reverse lever (6) to the neutral position to stop the roller.

Set the speed control (2) to idling position: Low.

Set the parkering brake switch (31) in the On position.

Always use the parking brake (31) 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.

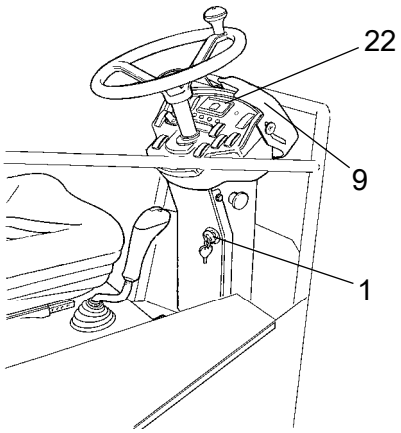


Fig. Instrument panel
1. Starter switch
9. Instrument guard
22. Panel for warning lamps

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 (1) to the left to switched off position 1. At the end of the shift, lower the instrument cover (22) and lock it.

Parking

Chocking the drums

Never disembark from the roller when the engine is running without pressing 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.

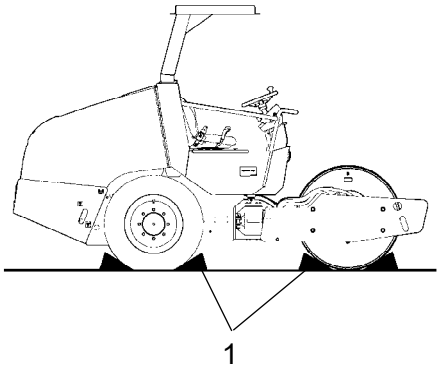


Fig. Arrangement
1. Chock

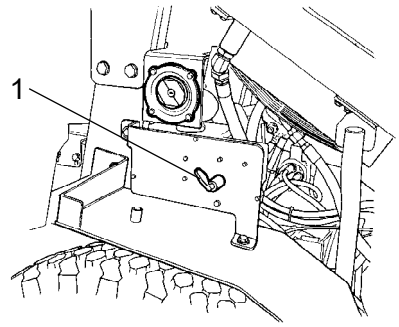


Fig. Tractor frame, front left
1. Battery master switch

Master switch

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

This will prevent the battery discharging and will also make it difficult for unauthorized persons to start and operate the machine. Also lock the hood to the engine compartment.

Long-term parking

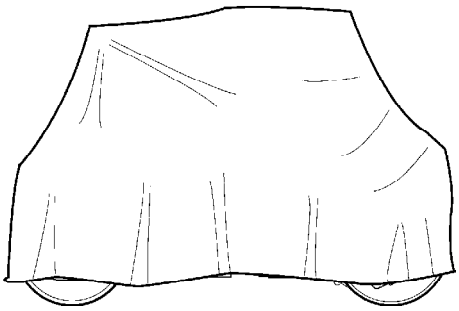


Fig. Roller weather protection

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

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

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

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

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

Engine

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

Battery

* Remove the battery from the machine, clean, 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 200 kPa (2,0 kp/cm^2).

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

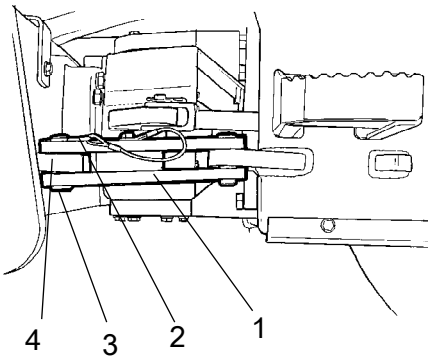


Fig. Articulation in the locked position
1. Locking arm
2. Locking pin
3. Locking stud
4. Locking lug

Locking the articulation

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

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

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).

Lifting the roller

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

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

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

Weight: refer to the hoisting plate on the roller

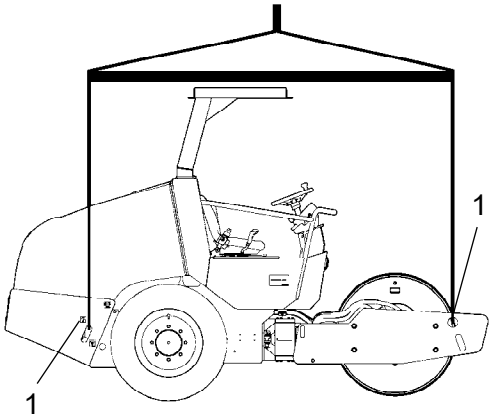


Fig. Roller prepared for lifting
1. Hoisting plate

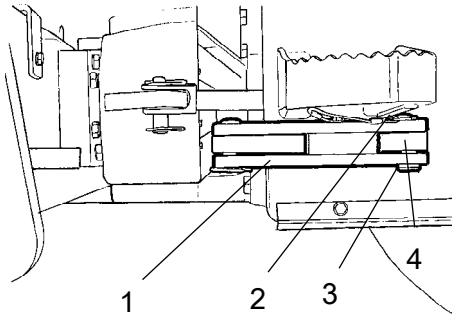


Fig. Articulation in the open position
1. Locking arm
2. Locking pin
3. Locking stud
4. Locking lug

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.

Alternative 1

Short distance towing with the engine running

Depress the emergency/parking brake knob and temporarily shut off the engine. Chock the drum and tires to prevent the roller from moving

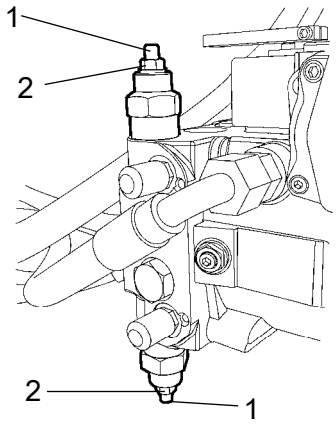


Fig. Propulsion pump
1. Adjusting bolts (2)
2. Lock nuts (2)

Unscrew both lock nuts (2) and carefully screw in the adjusting bolts (1) until they stop. Now turn the adjusting bolts (1) an additional half turn to open the valves. The valves are located on the propulsion pump.

Start the engine and allow it to idle.

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

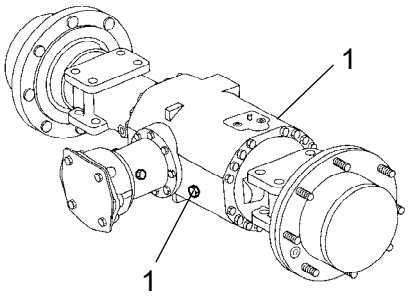


Fig. Rear axle
1. Brake release screw (2).

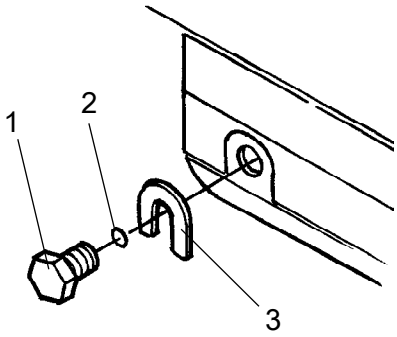


Fig. Brake disengagement
1. Brake release screw
2. O-ring
3. Stop washer

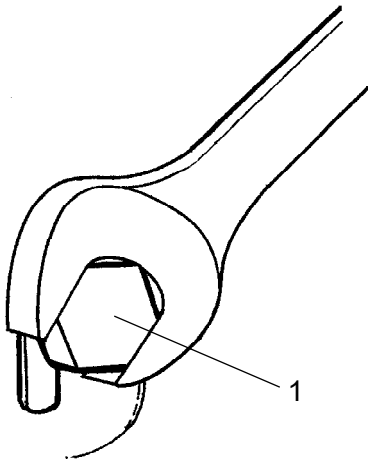


Fig. Brake disengagement
1. Brake release screw

Alternative 2

Towing short distances where the engine is inoperative

Chock the drum and tires to prevent the roller from moving when the brakes are mechanically disengaged.

Rear axle brake

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

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.

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

The brake is now disengaged.

Releasing the drum brake

Drum motor brake

Remove the drum brake's center plug (2) which can be accessed through the center hole (1) in the left frame side.

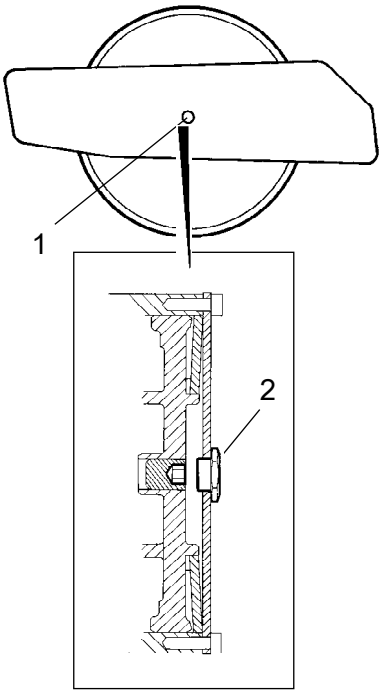


Fig. Left frame side
1. Center hole
2. Center plug

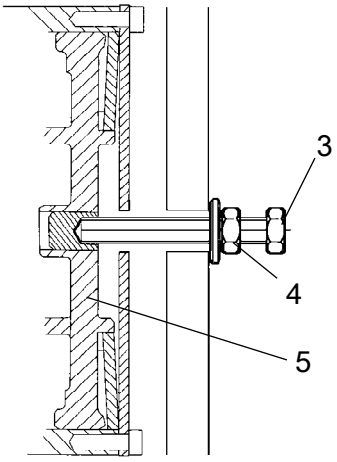


Fig. Cross-section of brake housing
3. Bolt
4. Nut
5. Brake piston

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 0.5 - 0.75 turns, holding the screw in place (3).

The brake is now disengaged and the machine can be towed.

Reset the drum motor brake after towing.

Towing the roller

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

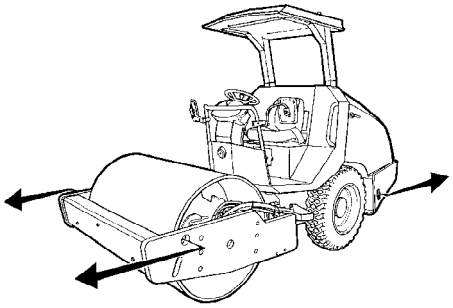


Fig. Towing

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 gross pulling force 75 kN (16860 lbf).

Restore the items for towing according to alternative 1 or 2 on the preceding pages.

Roller prepared for transport

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

Do not use fastening devices over the articulation.

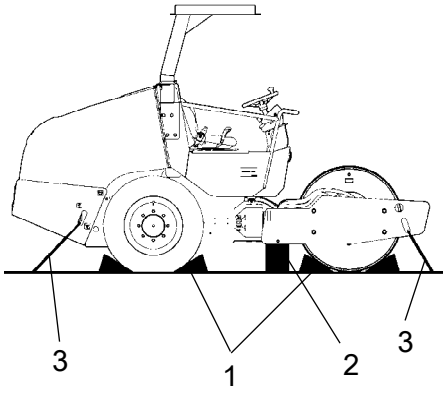


Fig. Transport
1. Chock
2. Block up
3. Lashing wire

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

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

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

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

Operating instructions - Summary

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

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

3. Turn the master switch to the ON position.

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

5. Set the vibration switch in position 0.

6. Set the engine speed control to idle (900 rpm).

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

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

9. Set the engine speed control to the operating position (2870 rpm).

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 immediately reported to the transport company.

Warranty

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

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

Maintenance - Lubricants and symbols

Fluid volumes

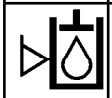
Rear axle				
- Differential	4,5	liter	4,2	qts
- Planetary gear	0,9	liters/side	0,95	qts/side
- Pinion housing	0,3	liters	0,32	qts
Drum	6.5	liter	6.8	qts
Hydraulic reservoir	32,0	liters	8,4	gal
Oil in hydraulic system	42.0	liters	11.1	gal
Lubrication oil, diesel engine	11.2	liter	11.8	qts
Coolant, diesel engine	10.0	liter	10.5	qts

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

			DYNAPAC
ENGINE OIL	Air temperature -15°C - +50°C (5°F-122°F)	Shell Rimula R4 L 15W-40, API CH-4 or equivalent.	
HYDRAULIC FLUID	Air temperature -15°C - +50°C (5°F-104°F)	Shell Tellus S2 V68 or equivalent.	
	Air temperature over +50°C (104°F)	Shell Tellus S2 V100 or equivalent.	
Bio-Hydr. 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)	
BIOLOGICAL HYDRAULIC FLUID	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.	BP Biohyd SE-S46	
DRUM OIL	Air temp. -15°C - +40°C (5°F-104°F)	Shell Spirax S3 AX 80W/90, API GL-5 or equivalent.	**Dynapac Gear Oil 300**, P/N 4812030756 (5 litres), P/N 4812030117 (20 litres), P/N 4812031574 (209 litres)
	Air temp. 0°C (32°F) - above +40°C (104°F)	Shell Spirax AX 85W/140, API GL-5 or equivalent.	
GREASE		SKF LGHB2 (NLGI-Klass 2) or equivalent for the articulated joint.	**Dynapac Roller Grease** (0.4kg), P/N 4812030096
		Shell Retinax LX2 or equivalent for other grease points.	
FUEL	See engine manual.	-	-
TRANSMISSION OIL	Air temperature -15°C - +40°C (5°F-104°F)	Shell Spirax S3 AX 80W/90, API GL-5 or equivalent	**Dynapac Gear Oil 300**, P/N 4812030756 (5 litres), P/N 4812030117 (20 litres), P/N 4812031574 (209 litres)
	Air temperature 0°C (32°F) - above +40°C (104°F)	Shell Spirax AX 85W/140, API GL-5 or equivalent.	
COOLANT	Anti-freeze protection down to about -37°C (-34.6°F)	GlycoShell/Carcoolant 774C or equivalent, (mixed 50/50 with water)	

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.

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

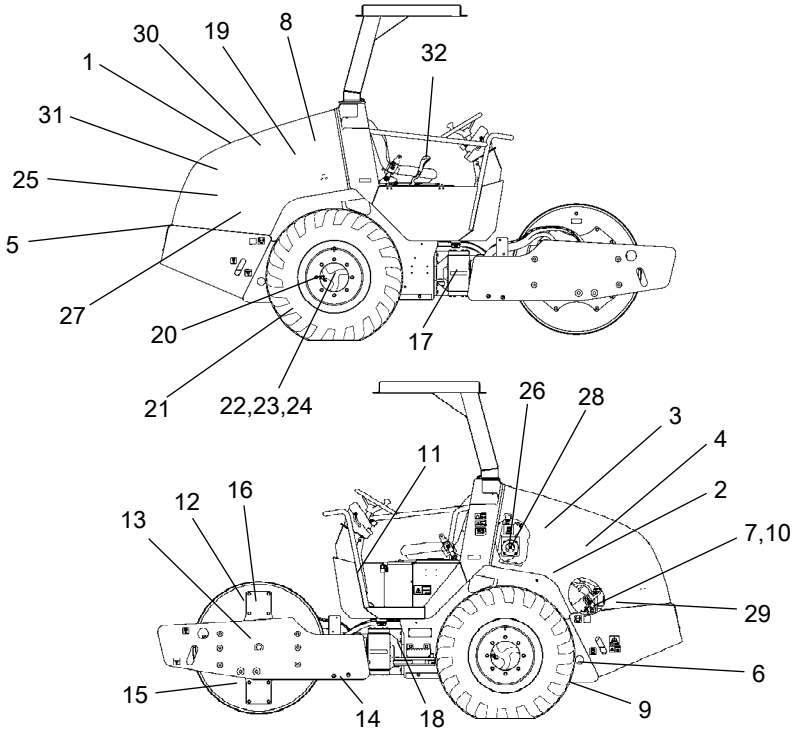


Fig. Service and maintenance points

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
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

General

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

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

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

Every 10 hours of operation (Daily)

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

Pos. in fig	Action	Comment
	Before starting up for the first time on that day	
1	Check for free circulation of cooling air	
30	Check coolant level	Refer to the engine manual
2	Check the engine oil level	Refer to the engine manual
28	Refuel	
6	Check fluid level in hydraulic reservoir	
	Test the brakes	

After the FIRST 50 hours of operation

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

Pos. in fig	Action	Comment
2	Change the engine oil and oil filter	Refer to the engine manual
3	Change the fuel filter	Refer to the engine manual
8	Change the hydraulic fluid filter	

Every 50 hours of operation (Weekly)

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

Pos. in fig	Action	Comment
	Check that hoses and couplings are not leaking	
14	Check the scraper setting	
4	Check the air cleaner	Replace as required
20	Check the wheel-nuts are tightened	
21	Check the tire pressure	

Every 250 hours of operation (Monthly)

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

Pos. in fig	Action	Comment
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	
30	Clean coolers	
20	Check bolted joints	The above applies to new or reconditioned components only
24	Check the bolted joints	The above applies to new or reconditioned components only
16	Check rubber elements and bolted joints	
29	Check battery	

Every 500 hours of operation (Every three months)

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

Pos. in fig	Action	Comment
3	Replace fuel filter	Refer to the engine manual
32	Lubricate controls and joints	
25	Change the engine oil and oil filter	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

Every 1000 hours of operation (Every six months)

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

Pos. in fig	Action	Comment
8	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	

Every 2000 hours of operation (Yearly)

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

Pos. in fig	Action	Comment
9	Change the hydraulic fluid	
12	Change the oil in the drum	
17	Check the steering joint	

Maintenance, 10h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

Air circulation - Check

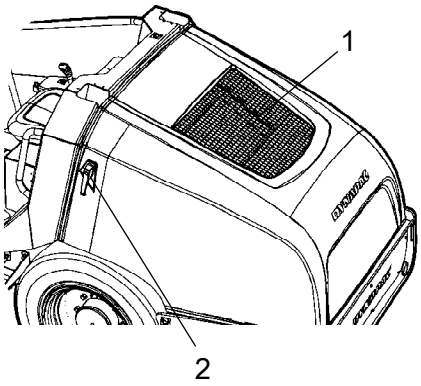


Fig. Engine hood
1. Protective grille
2. Hood lock/Locking arm

Check that the diesel engine has free circulation of cooling air through protective grille (1) in the hood.

The engine hood is opened by turning the locking arm (2) upwards. Lift up and fold back the hood to fully opened position. Check that the safety catch on the left side of the hood is in locked position.

Lock the hood in open position.

Coolant level - Check

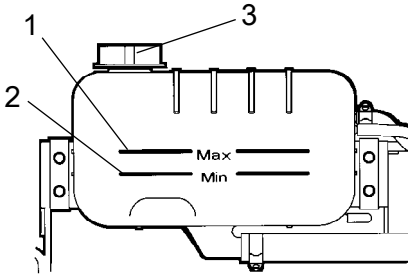


Fig. Water tank
1. Max. level
2. Min. level
3. Filler cap

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

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

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

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

Diesel engine Check oil level

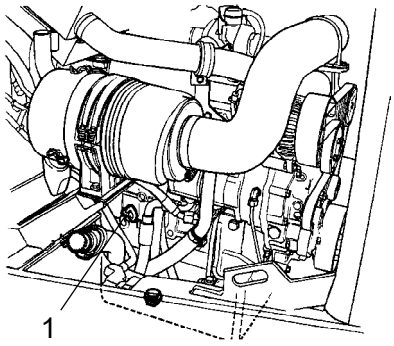


Fig. Engine compartment
1. Dipstick

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 left 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.

Fuel tank - Filling

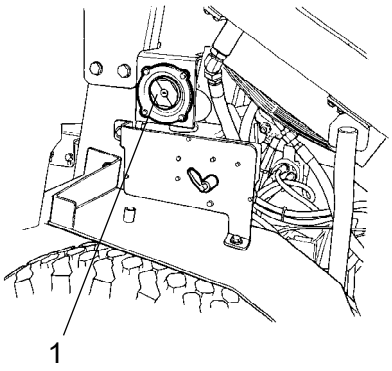


Fig. Filling with fuel
1. Filler pipe

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.

Brakes - Check

Check operation of the brakes as follows:

Checking the emergency stop

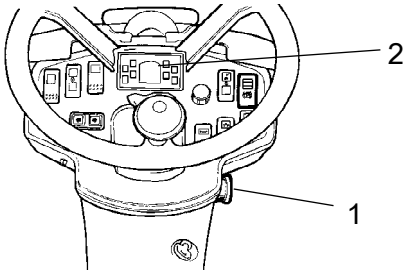


Fig. Instrument panel
1. Emergency stop
2. Parking brake lamp

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

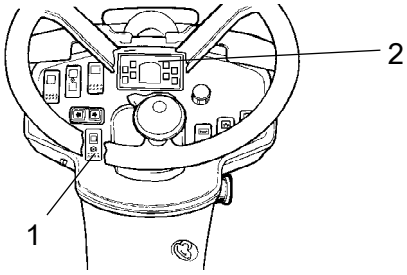


Fig. Instrument panel
1. Parkering brake switch
2. Parkering brake lamp

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

Push in the parking brake switch (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 switch (1).

The roller is now ready for operation.

Refer also to the section in the manual on operation.

Hydraulic reservoir - Check fluid level

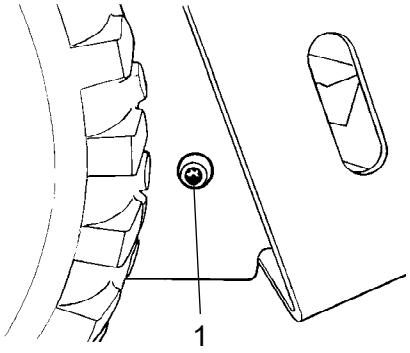


Fig. Sight glass hydraulic reservoir
1. Sight glass

The sight glass is located on the left side of the roller behind the tire.

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.

Maintenance - 50h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

Scrapers - Check, adjustment

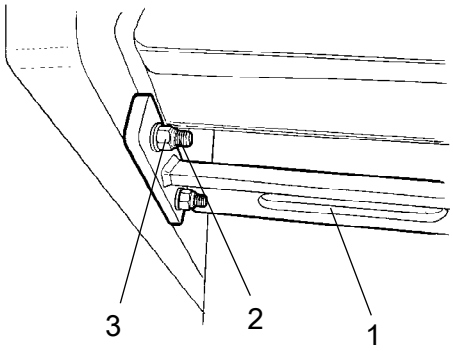


Fig. Scrapers
1. Scraper
2. Screws
3. Nuts

If necessary, adjust the distance to the drum as follows: the scraper is mounted on the underside of the rear cross beam.

Loosen the four screws (2) on the outside of the drum frame, and the nuts on the inside of the (3) drum frame.

Adjust the scraper (1) to:
For the D model 20 mm from the roller
For the PD model to 25 mm between the scraper teeth and the roller.

Tighten the screw (2) and nuts (3).

Tires - Air pressure - Wheel nuts - Tightening

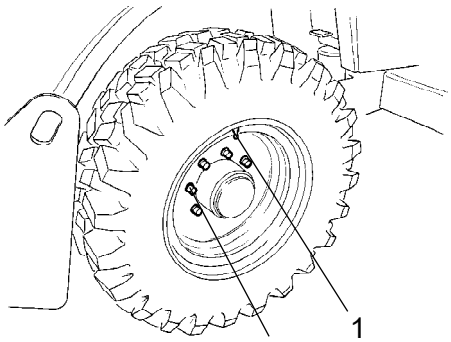


Fig. Wheels
1. Air valve
2. Wheel nut

Check the tire pressures using a pressure gauge.

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

Recommended pressure: See Technical Specifications.

Check the tire pressure.

When changing the tires it is important that both of them have the same rolling radius. This is necessary to ensure proper functioning of the 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.

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.

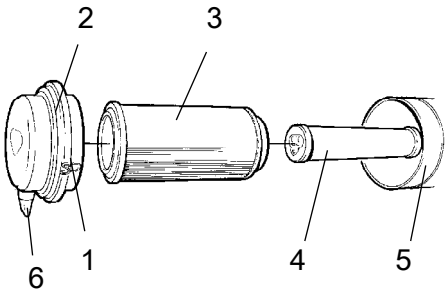


Fig. Air cleaner
1. Clips
2. Cover
3. Main filter
4. Backup filter
5. Filter housing
6. Dust valve

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

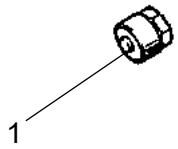


Fig. Indicator
1. Button

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

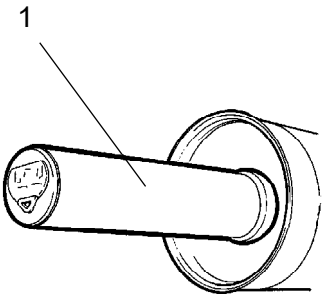


Fig. Air filter
1. Backup filter

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

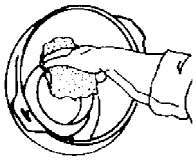
To change the backup filter (1), pull the old filter out of its holder, insert a new filter and reassemble the air cleaner in the reverse order.

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

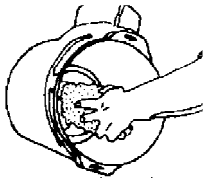
Air cleaner
- Cleaning

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.

Maintenance - 250h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not 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.

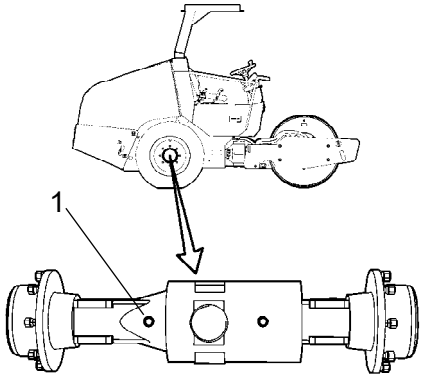


Fig. Level check - differential housing
1. Level/Filler plug

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.

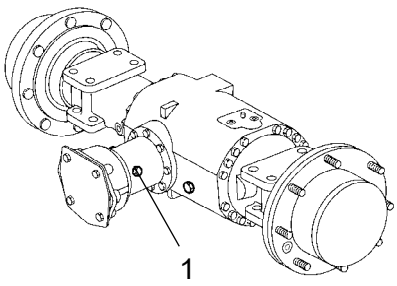


Fig. Level check - Pinion housing
1. Level/Filler plug

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

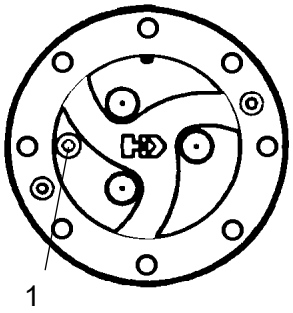


Fig. Level check - planetary gear
1. Level/Filler plug

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

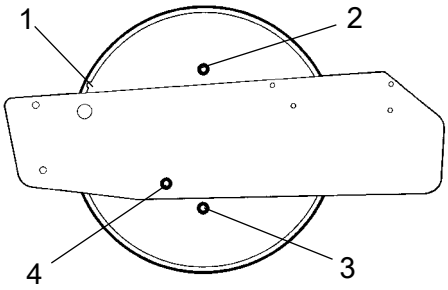


Figure. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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.

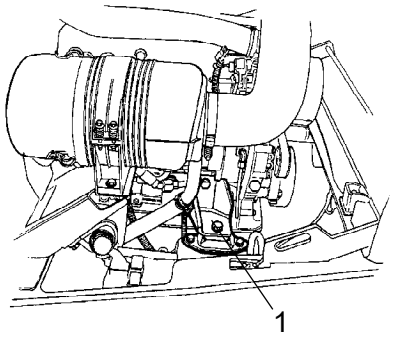


Fig. Engine suspension
1. Bolted joint

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).

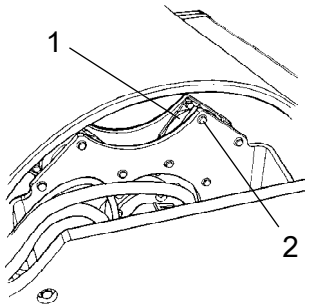


Fig. Drum, vibration side
1. Rubber element
2. Screws

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 screws (2) are tightened.

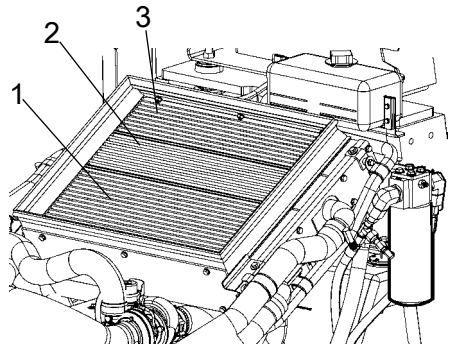


Fig. Engine compartment
1. Water cooler
2. Charge air cooler
3. Hydraulic fluid cooler

Radiator - Check/Cleaning

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

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

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

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

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

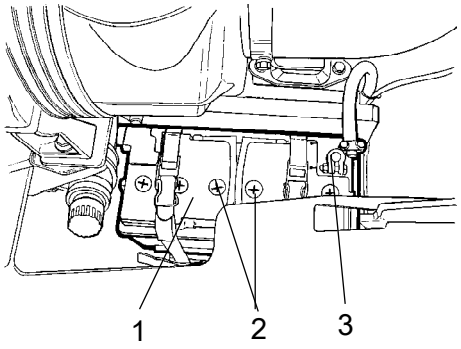


Fig. Battery bay
1. Battery
2. Cell cap
3. Cable shoes

Battery
Checking the electrolyte level

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

Open the engine hood. The battery is located on the left side of the roller.

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

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

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

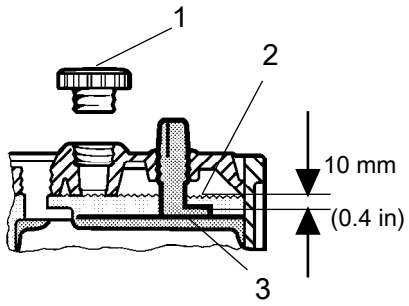


Fig. Electrolyte level in battery
1. Cell cap
2. Electrolyte level
3. Plate

Battery cell
Electrolyte level

Remove the cell caps and check that the electrolyte is about 10 mm (0.4 in) above the plates. Check the level of all cells. If the level is below this, top off to the correct level with distilled water.

If the ambient temperature is below freezing, the engine should be run for a while before topping the battery off with distilled water . The electrolyte can otherwise freeze.

Check that the ventilation holes in the cell covers are not blocked and refit the covers.

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

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

Maintenance - 500h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

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

Replacing the fuel filter

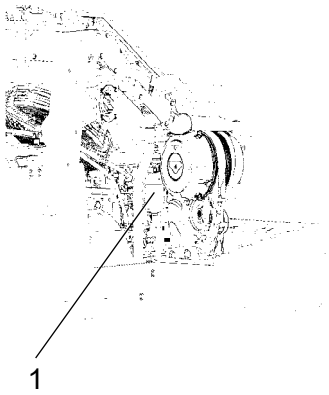


Fig. Engine compartment
1. Fuel filter

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

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

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

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

Controls and moving joints - Lubrication

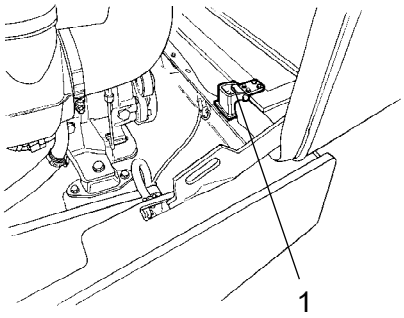


Fig. Engine hood
1. Hinge

Lubricate the engine hood hinges (1) with grease, the other joints and controls are lubricated with oil. See lubricant specification.

Forward/Reverse controls and joints - Check and lubrication

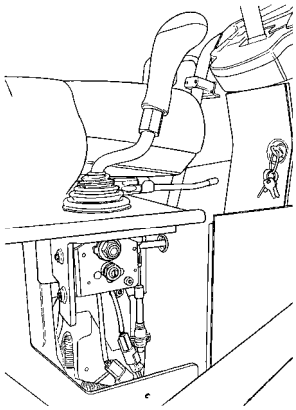


Fig. Forward/reverse lever

The forward/reverse lever joints are best accessed via the compartment for the manual on the right side of the operator station. Check the friction on the forward/reverse lever. The friction screws should be applied sufficiently hard that the forward/reverse lever remains in the set position during operation. The lever's 0-position is determined by the screw that grips in the groove on the axle between the lever.

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.

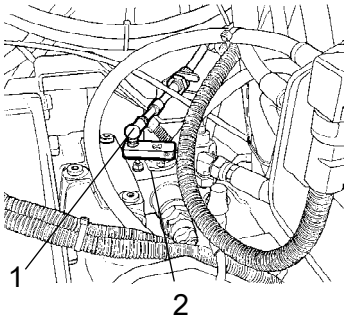


Fig. Engine compartment
1. Forward/Reverse-control cable
2. Propulsion pump

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.

Diesel engine - Oil- and Filter change

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

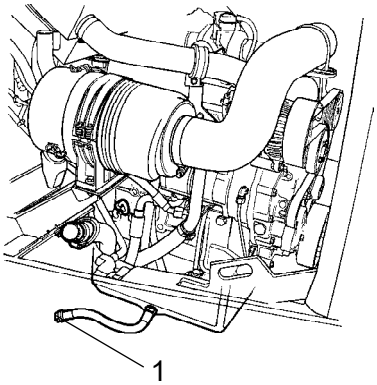


Fig. Left side of engine
1. Drain plug

The oil plug (1) is most easily accessible from the underside of the engine, and is fitted with a hose on the tractor frame. Drain the oil when the engine is warm. Place a receptacle that holds 15 liters (4 gal) under the drain plug.

Change the engine oil filter at the same time. Refer to the engine manual.

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

Maintenance - 1000h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

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

Hydraulic filter - Replacement

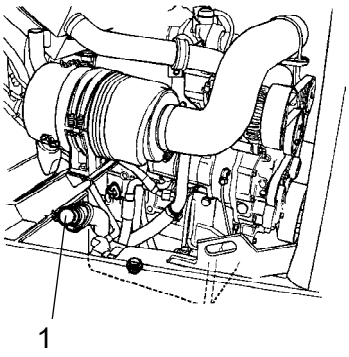


Fig. Hydraulic reservoir
1. Filler cap/Breather filter

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.

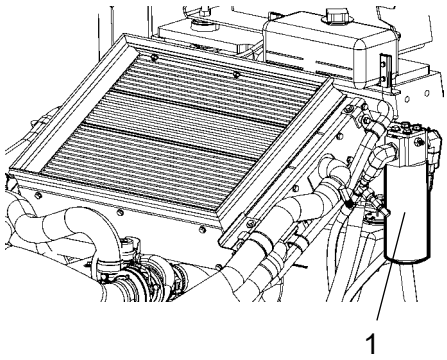


Fig. Engine compartment
1. Hydraulic fluid filter (1pc).

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. crew 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.

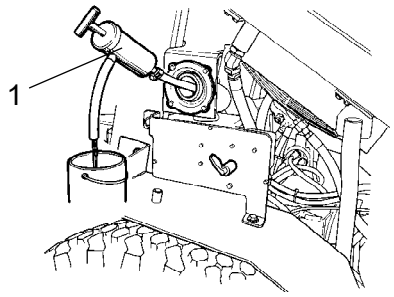


Fig. Fuel tank
1. Oil drain pump

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

Hydraulic reservoir - Draining

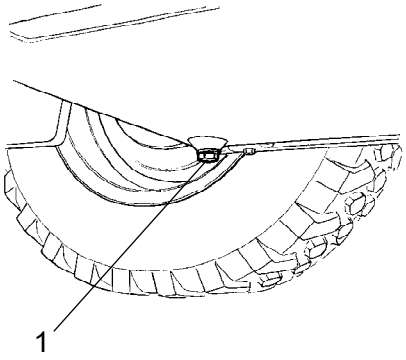


Fig. Hydraulic reservoir, bottom
1. Drain plug

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.

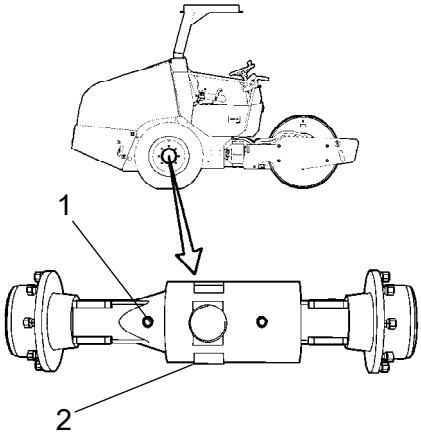


Fig. Rear axle
1. Level/Filler plug
2. Drain plug

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

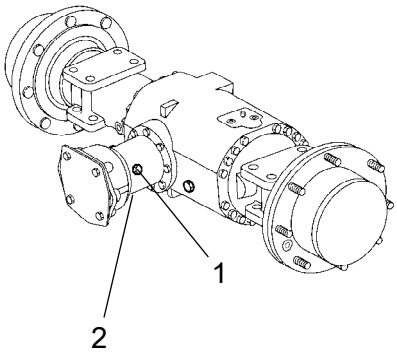


Fig. Rear axle
1. Level/Filler plug
2. Drain plug

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/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

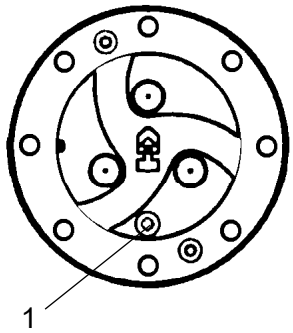


Fig. Planetary gear/drainage position
1. Plug

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.

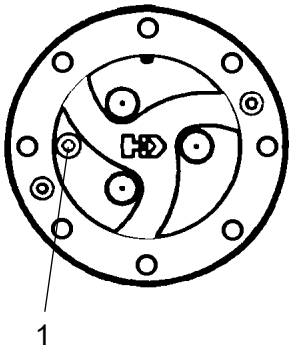


Fig. Planetary gear/filling position
1. Plug

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.

Maintenance - 2000h

Park the roller on a level surface.
When checking and making adjustments, the engine should be switched off and the emergency/parking brake should be applied, if not otherwise specified.

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

Hydraulic reservoir - Oil change

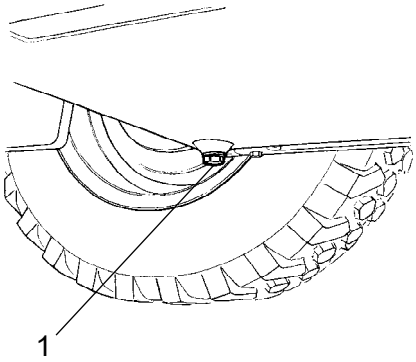


Fig. Hydraulic reservoir, bottom
1. Drain plug

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.

Drum - Oil change

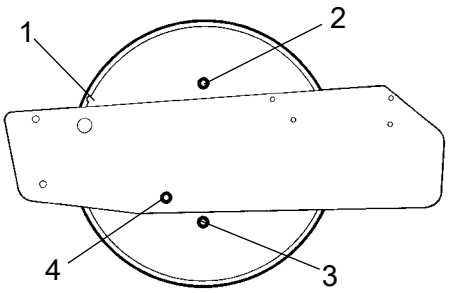


Figure. Drum, left side
1. Groove
2. Filler plug
3. Drain plug/Magnetic plug
4. Level plug

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 (2.8 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).

Steering joint - Check

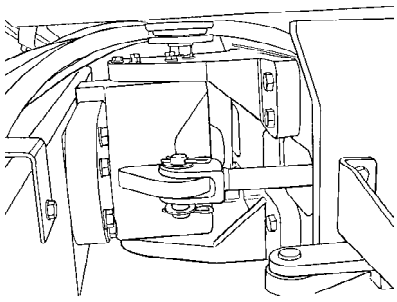


Fig. Steering joint

Inspect the steering joint to detect any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness and play.

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