DYNAPAC

# Instructions manual

## ICA250-US1EN1.pdf
**Driving & Maintenance**

**Vibratory Roller**
**CA250**

**Engine**
**Cummins 4BTAA-3,9C**

**Serial number**
***65X2US5250* -**


Dynapac CA250 is a roller in the 11-ton class. CA250 is available in the STD, D (smooth drum) and P (pads) and PD versions. The main applications for the P and PD versions are on cohesive material and weathered stone material.

All types of base courses and subbase courses can be compacted to a greater depth and the interchangeable drums STD for P, and D for PD, and vice versa, facilitate even greater versatility during the choice of application.

The cab and safety related accessories are described in this manual. Other accessories, such as compaction meters, are described in separate instructions.

*Reservation for changes*
*Printed in Sweden*

## Table of Contents

# Introduction

## 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.

# 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. **Board and leave the roller only when it is stationary. Use the grips and railings provided. Always use the three-point grip (both feet and one hand or one foot and both hands) when boarding or disembarking 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 or holes, make sure that at least 2/3 of the drum width is on previously compacted materials.**
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 what type of material 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. Refer to the operating instruction in the STOP section.**

# Safety - when operating

## Driving near edges

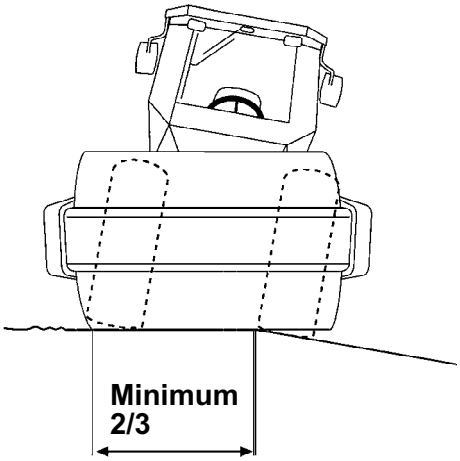



*Fig. Position of drum when driving near an edge*

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

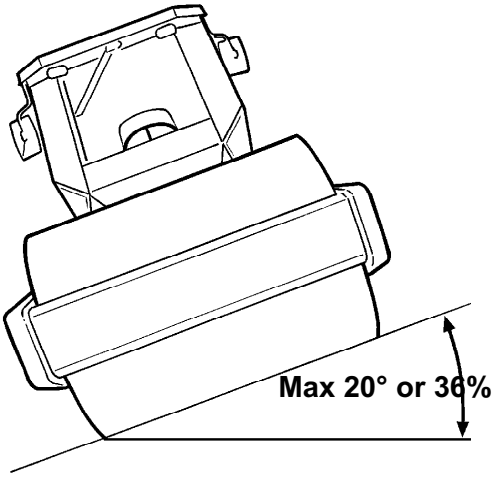



*Fig. Operating on slopes*

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.

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

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

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

# 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 - 104°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.

## Temperatures

The temperature limits apply to standard versions of rollers.

Rollers equipped with additional equipment, such as noise suppression, may need to be more carefully monitored in the higher temperature ranges.

## High pressure cleaning

Do not spray water directly onto electrical components or the instrument panels.

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 ABE-class powder fire extinguisher.

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

## Roll Over Protective Structure (ROPS), ROPS approved cab

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

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

## Battery handling

***When removing the battery, always disconnect the negative cable first.***

***When fitting the battery, 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.***

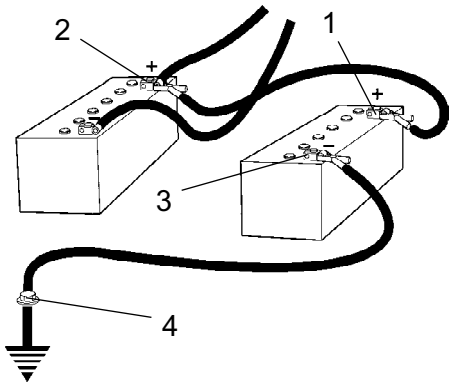



***Fig. Jump starting***

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 lifjting eye on the machine with the flat battery.

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

# Technical specifications - 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) |

## Electrical system

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

## Noise level

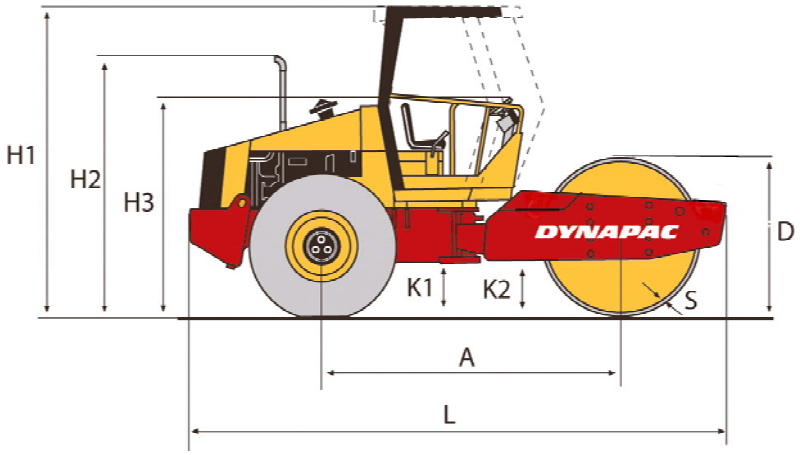
**Sound levels have been measured according to the operational cycle described in the EU directive 2000/14/EC on machines equipped for the EU market with operator seat in transport position.**

| | |
|---|---|
| Guaranteed sound power level, $L_{wA}$ | 109 dB (A) |
| Sound pressure level at the operator's ear (platform), $L_{pA}$ | 90 dB (A) |
| Sound pressure level at the operator's ear (cab), $L_{pA}$ | 83 dB (A) |

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

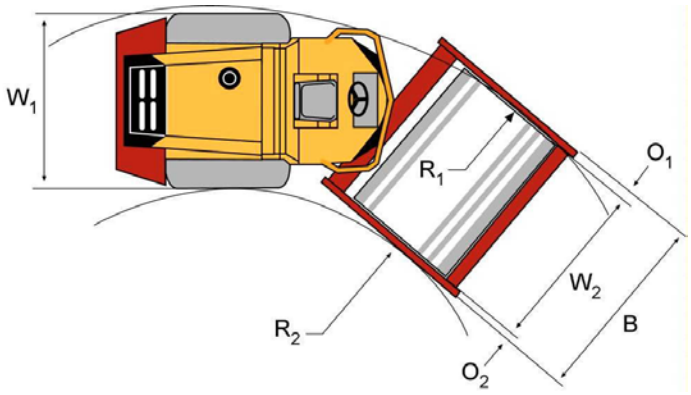
## Technical specifications - Dimensions

### Dimensions, side view




| | Dimensions | mm | in |
|---|---|---|---|
| A | Wheelbase, drum and wheel | 2879 | 113,3 |
| L | Length, standard equipped roller | 5550 | 218,5 |
| H1 | Height, with ROPS (D) | 2952 | 116,2 |
| H1 | Height, with ROPS (PD) | 2977 | 117,2 |
| H1 | Height, with cab (D) | 2952 | 116,2 |
| H1 | Height, with cab (PD) | 2977 | 117,2 |
| H2 | Height, without ROPS (D) | 2190 | 86,2 |
| | Height, without ROPS/cab (P, PD) | 2210 | 87,0 |
| H2 | Hight, exhaust pipe (STD, D) | 2610 | 102,8 |
| D | Diameter, drum | 1523 | 60 |
| S | Thickness, drum sweep, nominal (D/PD) | 25 | 0,98 |
| P | Height, pads (PD) | 100 | 3,9 |
| K2 | Clearance, drum frame (D) | 453 | 17,8 |
| K2 | Clearance, drum frame (STD, D) | 400 | 15,7 |
| K2 | Clearance, drum frame (PD) | 495 | 19,5 |

## Dimensions, top view




| | Dimensions | mm | in |
|---|---|---|---|
| B | Width, standard equipped roller | 2384 | 93,9 |
| O1 | Thickness, left frame side | 127 | 5,0 |
| O2 | Thickness, right frame side | 127 | 5,0 |
| R1 | Turn radius, external | 5400 | 212,6 |
| R2 | Turn radius, internal | 3100 | 122 |
| W1 | Width, tractor section | 2130 | 83,9 |
| W2 | Width, drum | 2130 | 83.9 |

# Technical specifications - Weights and volumes

## Weights

| | | |
|---|---|---|
| Service weight without ROPS (STD) | 10235 kg | 22.568 lbs |
| Service weight without ROPS (D) | 10435 kg | 23.009 lbs |
| Service weight without ROPS (P) | 11635 kg | 25.655 lbs |
| Service weight without ROPS (PD) | 11835 kg | 26.096 lbs |
| Service weight with ROPS (EN500) (STD) | 10600 kg | 23.373 lbs |
| Service weight with ROPS (EN500) (D) | 10800 kg | 23.814 lbs |
| Service weight with ROPS (EN500) (P) | 12000 kg | 26.460 lbs |
| Service weight with ROPS (EN500) (PD) | 12200 kg | 26.901 lbs |
| Service weight with cab (STD) | 10735 kg | 23.670 lbs |
| Service weight with cab (D) | 10935 kg | 24.255 lbs |
| Service weight with cab (P) | 12135 kg | 26.901 lbs |
| Service weight with cab (PD) | 12335 kg | 27.342 lbs |

## Fluid volumes

| | | |
|---|---|---|
| Rear axle | | |
| - Differential | 12 liters | 12,68 qts |
| - Planetary gear | 1,7 liters/side | 1,8 qts/side |
| Drum gearbox | 3,0 liters | 3,17 qts |
| Drum cartridge | 2,2 liters/side | 2,32 qts |
| Hydraulic reservoir | 52 liters | 13,7 gal |
| Oil in hydraulic system | 23 liters | 6,0 gal |
| Lubrication oil, diesel engine | 10 liters | 10,6 qts |
| Coolant, diesel engine | 24 liters | 6,3 gal |
| Fuel tank | 250 liters | 66 gal |

# Technical specifications - Working capacity

## Compaction data

| | | | | |
|---|---|---|---|---|
| Static linear load (STD) | 28,2 | kg/cm | 157,92 | pli |
| Static linear load (D) | 28,2 | kg/cm | 162,96 | pli |
| Static linear load (P, PD) | - | kg/cm | - | pli |
| Static linear load with ROPS (D, PD) | - | kg/cm | - | pli |
| Static linear load with cab (D, PD) | - | kg/cm | - | pli |
| Amplitude, high (STD, D) | 1,7 | mm | 0.066 | in |
| Amplitude, high (P, PD) | 1,6 | mm | 0.062 | in |
| Amplitude, low (STD, D) | 0,8 | mm | 0.031 | in |
| Amplitude, low (P, PD) | 0,8 | mm | 0.031 | in |
| Vibration frequency, high amplitude (STD, D) | 33 | Hz | 1980 | vpm |
| Vibration frequency, high amplitude (P, PD) | 33 | Hz | 1980 | vpm |
| Vibration frequency, low amplitude (STD, D) | 33 | Hz | 1980 | vpm |
| Vibration frequency, low amplitude (P, PD) | 33 | Hz | 1980 | vpm |
| Centrifugal force, high amplitude (STD, D) | 246 | kN | 55,35 | lb |
| Centrifugal force, high amplitude (P, PD) | 300 | kN | 67,5 | lb |
| Centrifugal force, low amplitude (STD, D) | 119 | kN | 26,77 | lb |
| Centrifugal force, low amplitude (P, PD) | 146 | kN | 32,85 | lb |

# Technical specifications - General

## Engine

| | | |
|---|---|---|
| Manufacturer/Model | Cummins 4BTAA-3.9C | Water cooled turbo diesel with after cooler |
| Power (SAE J1995) | 82 kW | 110 hp |
| Engine speed | 2200 rpm | |
| Fuel tank capacity | 250 liters | |

## Electrical system

| | |
|---|---|
| Battery | 12V 170Ah |
| Alternator | 14V 95A |
| Fuses | See the Electrical system section - fuses |

| Tire | Tire dimensions | Tire pressure |
|---|---|---|
| Std-type | 23.1 x 26.0 8 ply | 110 kPa (1.1 kp/cm) (16 psi) |
| Tractor type | 23.1 x 26.0 12 ply | 110 kPa (1.1 kp/cm) (16 psi) |

***The tires can be optionally filled with fluid, (extra weight up to 500 kg/tire) (1102 lbs/tire). When servicing, bear this extra weight in mind.***

## Hydraulic system

| Opening pressure | MPa |
|---|---|
| Drive system | 38,0 |
| Supply system | 2.0 |
| Vibration system | 42,5 |
| Control systems | 17,5 |
| Brake release | 1,4 |

## ROPS - bolts

| | |
|---|---|
| Bolt dimensions : | M24 (PN 904562) |
| Strength class : | 10.9 |
| Tightening torque : | 800 Nm (Dacromet treated) |

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

## Tightening torque

Tightening torque in Nm for oiled, bright galvanized bolts tightened using a torque wrench.

| | STRENGTH CLASS | | |
|---|---|---|---|
| **M - thread** | **8.8** | **10.9** | **12.9** |
| **M6** | 8,4 | 12 | 14,6 |
| **M8** | 21 | 28 | 34 |
| **M10** | 40 | 56 | 68 |
| **M12** | 70 | 98 | 117 |
| **M16** | 169 | 240 | 290 |
| **M20** | 330 | 470 | 560 |
| **M24** | 570 | 800 | 960 |
| **M30** | 1130 | 1580 | 1900 |
| **M36** | 1960 | 2800 | - |

# Machine plate - Identification

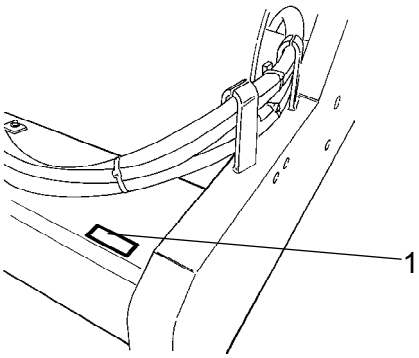



*Fig. Front frame*
*1. PIN*

## Product identification number on the frame

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

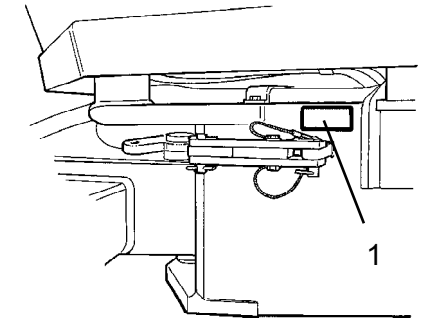



*Fig. Operator platform*
*1. Machine plate*

## Machine plate

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

The plate specifies the manufacturers name and address, the type of machine, the PIN product identification number (serial number), operating weight, engine power and year of manufacture. (If the machine is supplied to outside the EU, there are no CE markings and in some cases no year of manufacture.)

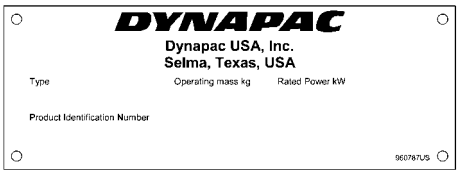



*Fig. Machine plate*

**Please state the machine's PIN when ordering spares.**

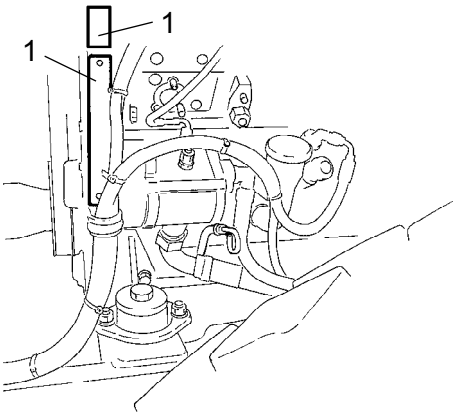



*Fig. Engine*
*1. Type plate*
*2. EPA plate (USA)*

## Engine plates

The engine plate (1) is affixed to the right side of the engine.

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

| | | | | | |
|---|---|---|---|---|---|
| Cummins Engine Company, Inc<br>Columbus, Indiana<br>47202-3005 | C.I.D./L 275/4.5 | | CPL 8204 | Engine Serial No. xxxxxxxx | |
| | Family 4CEXL0275AAC | | | Cust. Spec. SO 41506 | |
| | e 11*97/68ge*2002/88*0239*00 | | | Engine Model B4.5–C | |
| Warning Injury may result and warranty is voided if fuel rate, rpm or altitude exceed published maximum values for this model and application. | Valve lash | Inch .010 Int. 020 | Exh. | Timing-TDC B4.5–C | |
| | cold | MM .254 Int. 506 | Exh. | Fuel rate at rated HP | 83 mm /st |
| Date of MFG<br>Made in Great Britain.<br>XX-XX-XX | Firing Order 1–3–4–2 | | | FR 91170 | Low idle RPM 900 ± 300 |
| | Rated HP/KW 99/74 | | at 2200 RPM | | |

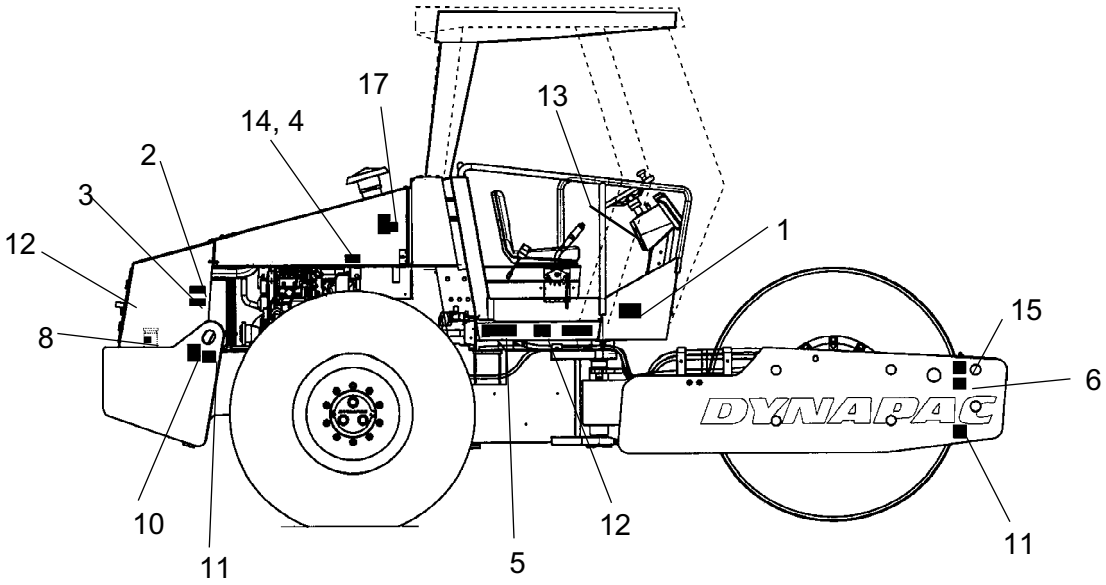
Please specify the engine serial number when ordering spares. Refer also to the engine manual.

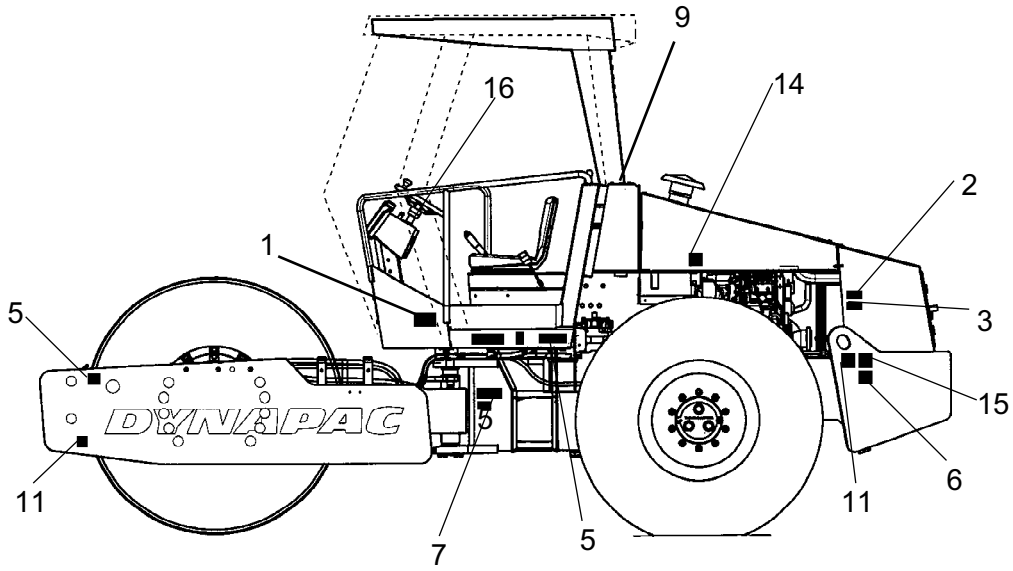
**IMPORTANT ENGINE INFORMATION**
**This engine conforms to YYYY U.S. EPA and California regulations for heavy duty non-road compression ignition diesel cycle engines as applicable.**
**THIS ENGINE IS CERTIFIED TO OPERATE ON DIESEL FUEL**
**3935108**

*Fig. EPA-plate (USA)*

# Machine description- Decals

## Location - decals



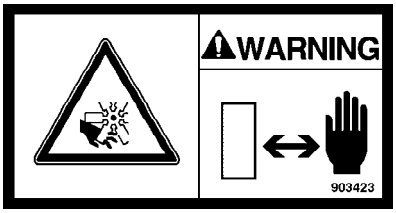




1. Warning, Crush zone
2. Warning, Rotating engine components
3. Warning, Hot surfaces
4. Warning, Ballasted tire.
5. Warning, Read instructions manual
6. Warning, locking
7. Product sign
8. Diesel fuel
9. Hydraulic fluid/Biohydraulic fluid
10. Lifting point
11. Fixing point
12. Master switch
13. Handbook compartment
14. Tire pressure
15. Hoisting plate
16. Warning sign
17. Hydraulic fluid/Biohydraulic

## Safety decals

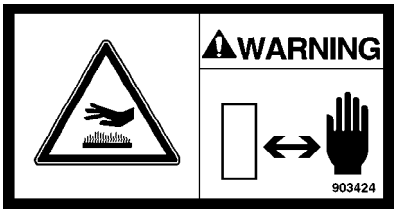

**903422**
**Warning - Crush zone, articulation/drum.**

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



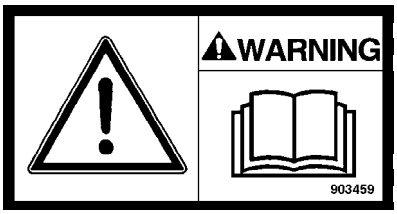

**903423**
**Warning - Rotating engine components.**

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



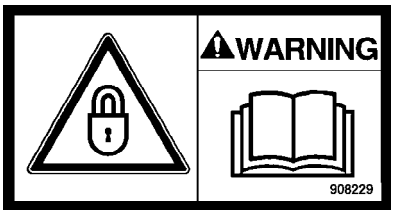

**903424**
**Warning - Hot surfaces in the engine compartment.**

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




**903459**
**Warning - Instruction manual**

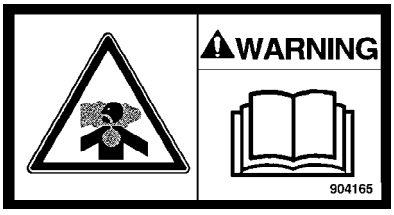
**The operator must read the safety, operation and maintenance instructions before operating the machine.**




**908229**
**Warning - Locking**

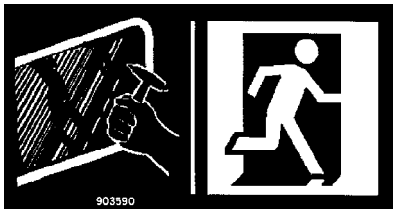
**The articulation must be locked when lifting.**

**Read the instruction manual.**

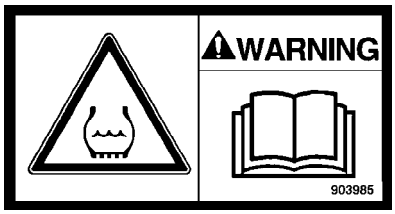



**904165**
**Warning - Toxic gas (accessory, ACC)**

**Read the instruction manual.**




**903590**
**-Emergency exit**

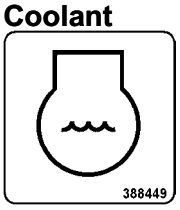



**903985**
**Warning - Ballasted tire.**

Read the instruction manual.

## Info decals

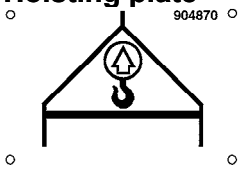
**Coolant**



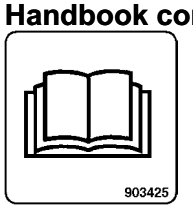

**Diesel fuel**


**Lifting point**

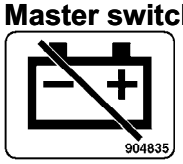

**Hoisting plate**



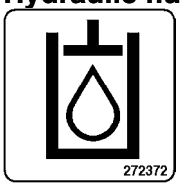

**Handbook compartment**



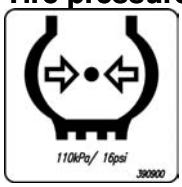

**Master switch**



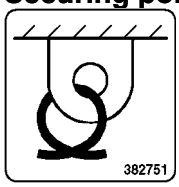

**Hydraulic fluid**



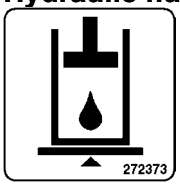

**Tire pressure**




**Securing point**




**Hydraulic fluid level**




# Machine description - Instruments/Controls

## Locations - Instruments and controls

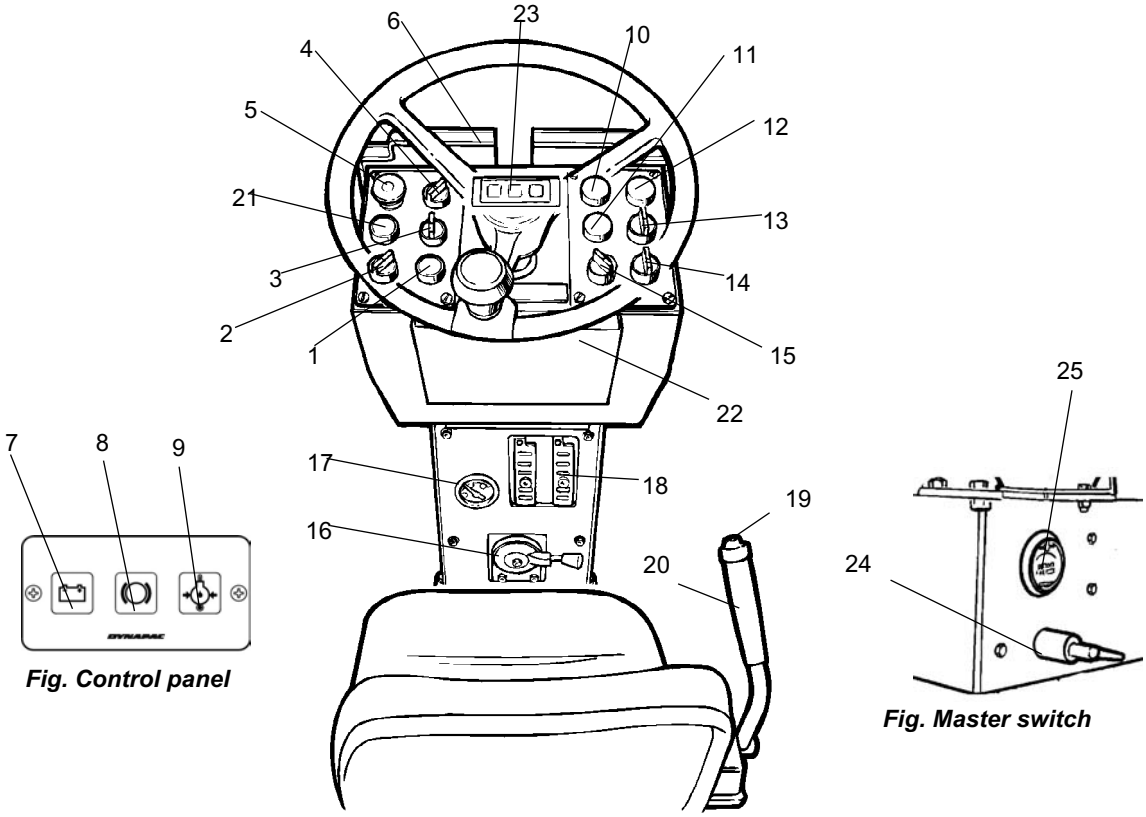



*Fig. Control panel*

*Fig. Master switch*

*Fig. Instruments and control panel*

1. Horn
2. Starter switch
3. * Test button, warning lamps, Optional
4. * Working lights, Optional
5. Reserve/parking brake knob
6. Instrument cover
7. Warning lamp, charging
8. Brake warning lamp
9. Warning light, Engine - oil pressure/temperature
10. Warning lamp, hydraulic fluid filter
11. Warning lamp, air filter
12. Warning lamp, hydraulic fluid temperature
13. Amplitude selector Low/O/High
14. * Speed selector, drum
15. * Speed selector, rear axle
16. Engine RPM control
17. Fuel gauge
18. Fuse box
19. Vibration ON/OFF
20. Forward/Reverse lever
21. Test button, warning lamps
22. Handbook compartment
23. See fig. Control panel
24. Master switch
25. Hourmeter

* = Optional

# Function descriptions

| No | Designation | Symbol | Function |
|---|---|---|---|
| 1 | Horn, switch |  | Press to sound the horn. |
| 2 | Starter switch |  | The electric circuit is broken. |
| | |  | All instruments and electric controls are supplied with power. |
| | |  | Starter motor activation. |
| 3 | Hazard beacon, switch (Optional) |  | Turn to the right to switch on the hazard beacon. |
| 4 | Working lights (Optional) |  | Turn to the right to switch on the working lights. |
| 5 | Reserve/parking brake knob | | Push in to activate the reserve brake. Parking brake is applied if pushed in when machine is stationary. Both brakes are released when knob is pulled out. |
| 6 | Instrument cover | | Folded over the instruments to protect them against weather and damage. |
| 7 | Warning lamp, battery charging |  | If the lamp comes on while the engine is running, the alternator is not charging.<br>Stop the engine and locate the fault. |
| 8 | Brake warning lamp |  | The lamp come on when the parking or emergency brake knob is depressed and the brakes are applied. |
| 9 | Warning lamp, engine oil pressure/temperature |  | This lamp lights if the engine is too hot or the oil pressure is too low. Stop the engine immediately and locate the fault.<br>Refer also to the engine manual. |
| 10 | Warning lamp, hydraulic filter |  | If the lamp comes on while the diesel engine is running at full speed, the hydraulic fluid filter must be changed. Change when the oil is at normal operating temperature. |
| 11 | Warning air filter |  | If the lamp comes on while the engine is running at full speed, the air filter must be cleaned or replaced. |
| 12 | Temperature gauge, hydraulic fluid |  | Indicates the temperature of the hydraulic fluid. Normal temperature range 65°-80°C (149°-176°F). Stop the diesel engine if the lamp comes on. Locate the fault. |
| 13 | Amplitude / Frequency selector, switch |  | The left position gives low amplitude / high frequency. |
| | |  | In the central position, amplitude / frequency is switched off. |
| | |  | The right position gives high amplitude / low frequency. |
| 14 | Speed selector, drum |  | Transport speed (High) (Option) |
| | |  | Working speed (Low) |

| No | Designation | Symbol | Function |
|---|---|---|---|
| 15 | Speed selector, rear axle |  | Transport speed (High) (Option) |
| | |  | Working speed (Low) |
| 16 | Engins speed control, engine | | In the right position, the engine idles.<br>In the left position, the engine runs at maximum speed. |
| 17 | Fuel gauge |  | Shows level in the fuel tank. |
| 18 | Fuse box | | Unscrew the cover to access the fuses. |
| 19 | Vibration On/Off, switch | | Push in and release the switch to engage vibration. Press the switch again to disengage vibration. The above applies only when the amplitude selector (13) is in position High or Low. |
| 20 | Forward/Reverse lever | | The lever must be in neutral to start the engine. The engine cannot be started if the forward/reverse lever is in any other position.<br>The forward/reverse lever controls both the roller's driving direction and speed. When the lever is moved forward, the roller moves forward.<br>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. |
| 21 | Test button, warning lamps |  | Press in the switch to check the lamps 10. 11. 12 |
| 22 | Handbook compartment |  | Storage space for the roller's safety manual and operator's manual. |
| 23 | Control panel | | Warning lamps |
| 24 | Master switch | | In the shut off position, the key can be removed. Turn the key a quarter of a turn clockwise to supply the roller with power. |
| 25 | Hourmeter | | Registers the number of hours that the engine is operated. |

## Controls in the cab

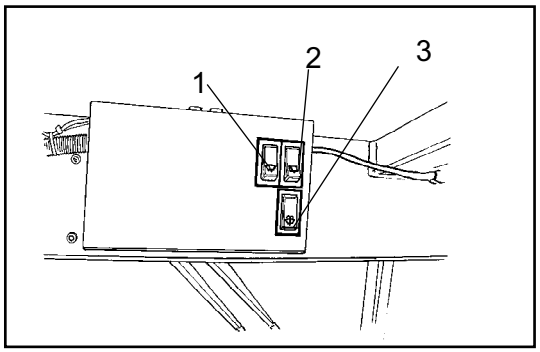



*Fig. Cab roof, front*
*1. Front wiper 2. Rear wiper (Optional)*
*3. Front and rear windshield washers*

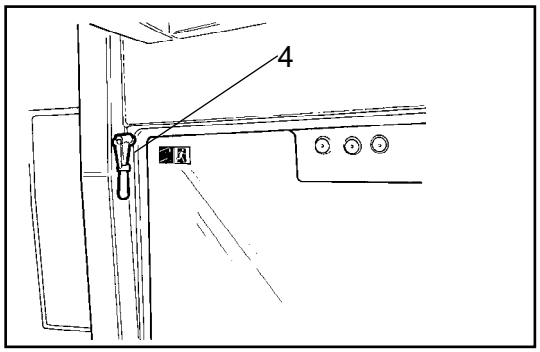



*Fig. Cab roof, rear*
*4. Hammer for emergency escape*

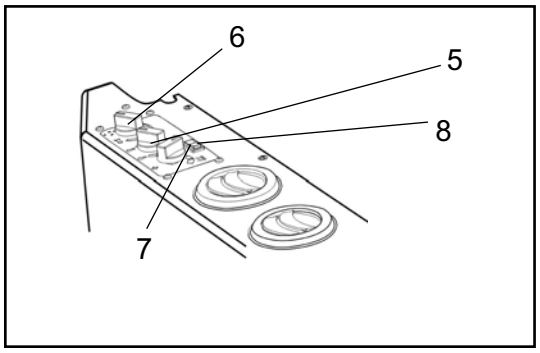



*Fig. Cab, right side. Heater (Optional)*
*5. Control, temperature*
*6. Control, circulation,*
*7. Control, fan*
*8. Switch, AC (Optional)*

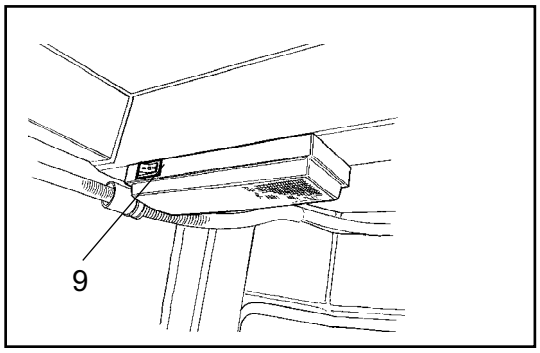



*Fig. Cab, rear*
*9. Switch, cab lighting (Optional)*

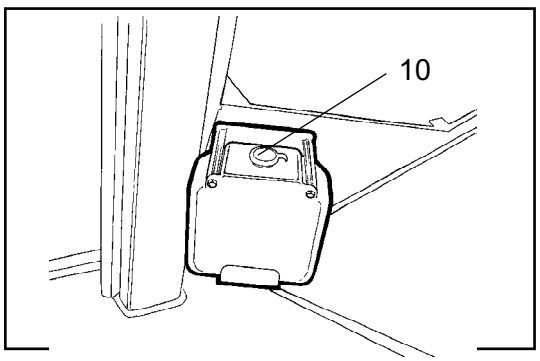



*Fig. Cab, left side*
*10. Windscreen washer fluid container (Optional)*

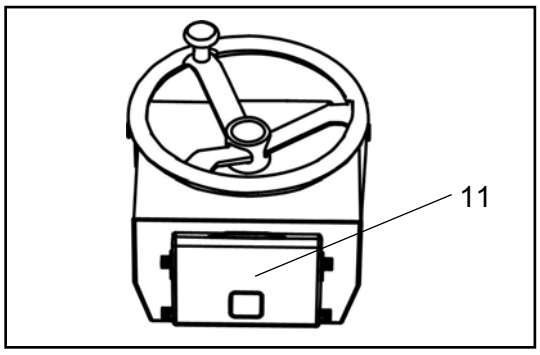
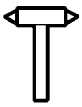



*Fig. Cab steering column*
*11. Handbook compartment*

## Function description of instruments and controls in the cab

| No | Designation | Symbol | Function |
|---|---|---|---|
| 1 | Front wiper, switch |  | Press to operate the front screen wiper. |
| 2 | Rear wiper, switch (Optional) |  | Press to operate the rear screen wiper. |
| 3 | Front and rear window screen washers, switch |  | Press at the top to spray the windshield. |
| | |  | Press at the bottom to spray the rear windshield. |
| 4 | Hammer for emergency exit |  | To escape from the cab in an emergency, release the hammer and break the **REAR** window. |
| 5 | Control, temperature (Optional) |  | In the left position, the heating is OFF.In the right position, maximum heating. |
| 6 | Control, circulation (Optional) | | In the left position, the circulation is OFF. In the right position, maximum circulation |
| 7 | Control, fan (Optional) |  | In the left position, the fan is OFF. In the right position, maximum fan. |
| 8 | AC, switch (Optinal) | | |
| 9 | Cab lighting, switch (Optional) |  | Push in to turn on cab lighting |
| 10 | Windscreen wiper fluid container (Optional) | | Fill with screenwash as required. |
| 11 | Handbook compartment |  | Stowage space for safety manual and instruction books. |

# Machine description - Electrical system

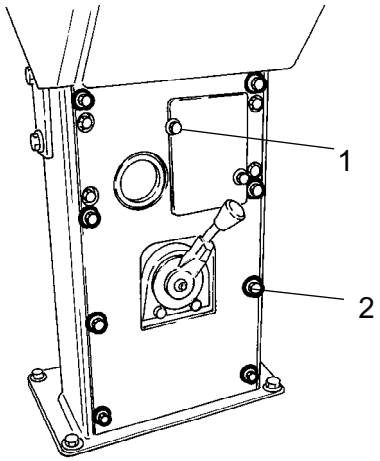



*Fig. Instrument column*
*1. Screws for fusebox cover (2)*
*2. Screws for column cover(12)*

## Fuses and relays

The electrical regulating and control system is protected against overload by fuses and relays. The number of fuses and relays is dependent on how much extra equipment the machine in question has.

The fuse boxes and relays are located behind the column cover on the lower part of the instrument column, as illustrated. The cover for the fuses is removed with 2 screws (1). To access the relays, open the entire cover by unscrewing the screws ( 2) according to fig.

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

***Connect the correct polarities (earth) to the battery. The cable between battery and alternator must not be disconnected when the engine is running.***

## Location, fuses and relays

The figure shows the position of the different relays in the machine.

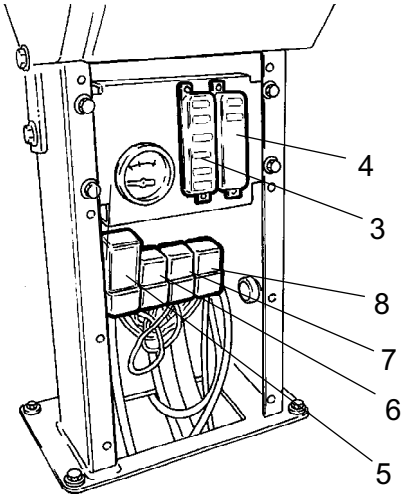



*Fig. Instrument panel with fuses and relays.*

3. Fuse box, left side
4. Fuse box, right side
5. VBS relay
6. Main relay
7. Hourmeter
8. Light relay, optional

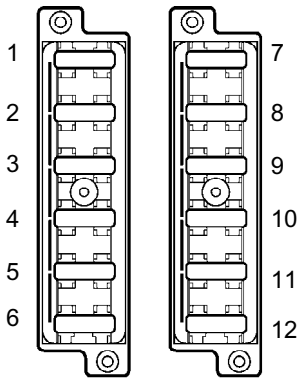



*Fig. Fuse box, left and right side.*

## Fuses

The figure shows the position of the fuses. The table below gives fuse amperage and function. All fuses are flat pin fuses.

| Fuse boxes, left side | | | Fuse boxes, right side | | |
|---|---|---|---|---|---|
| 1. | Hourmeter | 7.5A | 7. | High/Low gear (Optional) | 7.5A |
| 2. | VBS relay | 7.5A | 8. | Compaction meter (Optional) | 3A |
| 3. | Warning lamp | 7.5A | 9. | Hazard beacon (Optional) | 7.5A |
| 4. | Horn, Fuel gauge | 7.5A | 10. | Reversing alarm (Optional) | 3A |
| 5. | | | 11. | Working lights (Optional) | 20A |
| 6. | Front wiper, cab (Optional) | 10A | 12. | Working lights (Optional) | 20A |

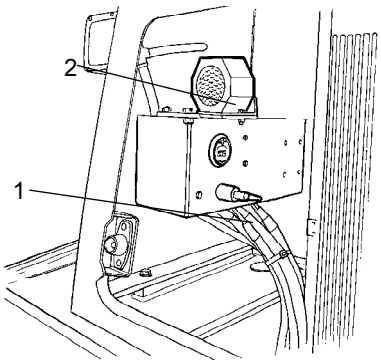



*Fig. Master switch/fuse box in engine compartment.*
*1. Cover*
*2. Screw*

## Main fuses

Undo the screws (2) to remove the cover (1) on the Master switch/fuse box, in order to access main fuses and relays.

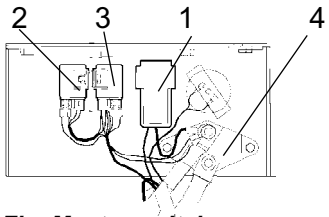



*Fig. Master switch*
*1. Main fuse*
*2. Fuel solenoid relay*
*3. Starter relay*
*4. Master switch*

## Main fuses

The main fuse (1) is placed by the battery disconnector (4). The fuse is of the flat pin type. The fuel solenoid relay (2) and the starter relay (3) are also fitted here.

Main fuse 30A (Green)

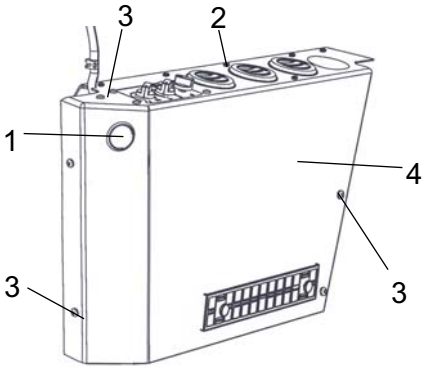



*Fig. Heater box in cab.*
*1. Plug*
*2. Screws (x5)*
*3. Screws (x9)*
*4. Cover*

## Fuses and relay in cab heater box (Optional)

To access the fuses (x2) in the heater box, release the plug (1)

The relay in the heater box is accessed by releasing the screws (2) and (3) on the top of the cover, and the screws (3) on the front of the cover, after which the cover (4) can be lifted off the heater box.

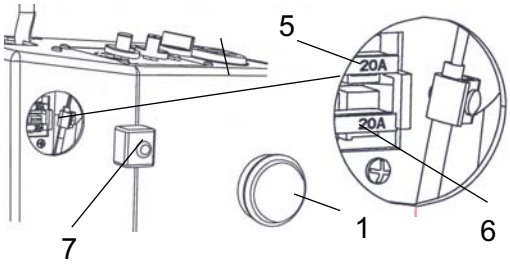



*Fig. Heater box in cab.*
*1. Plug*
*5. Fuse (x1)*
*6. Fuse (x1)*
*7. Cover for fuse box*

## Fuses in heater box

To access the fuses (x2) in the heater box, release the plug (1). Unscrew the cover (7) on the fuse box.

5. 20 A Fan
6. 20 A AC (Optional)

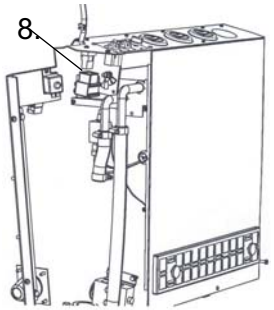



*Fig. Heater box in cab.*
*8. Relay 12V*

## Relay in heater box

To access the relay (8) (x1) in the heater box: Unscrew the screws (2) and (3) on the top of the cover, and the screws (3) on the front of the cover. The cover (4) can now be lifted off the heater box.

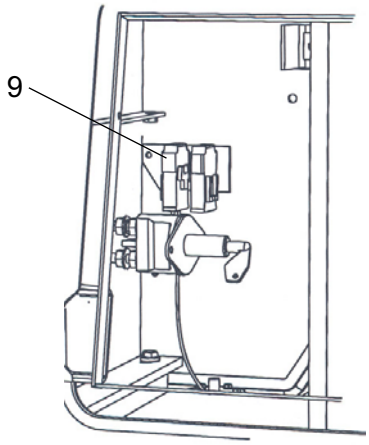



*Fig. Battery disconnector/fuse box in cooler compartment.*
*9. Fuse*

## Fuses, battery disconnector/fuse box

To access the fuse (9), remove the front of the battery disconnector/fuse box by unscrewing the screws. Pull off the top of the fuse holder to see the fuse.

| | | |
|---|---|---|
| 9 | 50 A | Main fuse for cab |

# Operation - Starting

## Before starting

### Master switch - Switching on

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

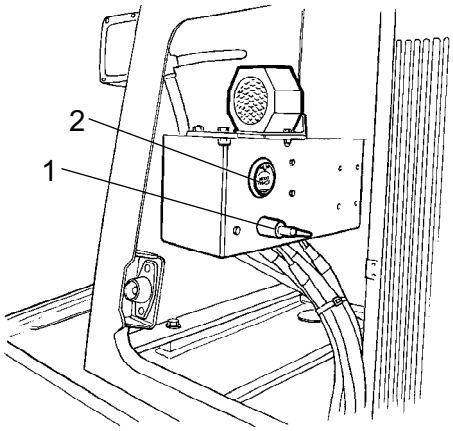



*Fig. Engine compartment*
*1. Master switch*
*2. Hourmeter*

The master switch is located in the engine compartment. Open the engine cover and set the key (1) to the ON position. The entire roller is now supplied with power.

The hourmeter (2) records the number of hours the engine has been running.

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

### Operator's seat - Adjusting

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

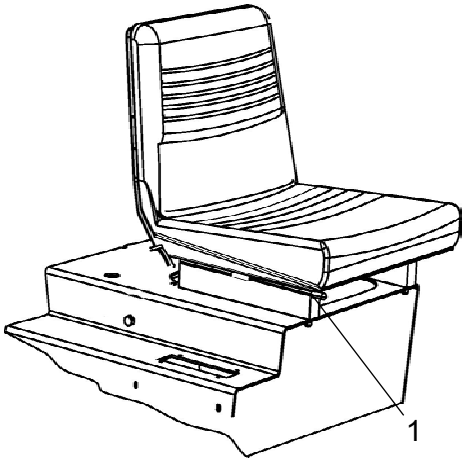



*Fig. Operator's seat*
*1. Locking lever - length adjustment*

The seat can be adjusted longitudinally (1)

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

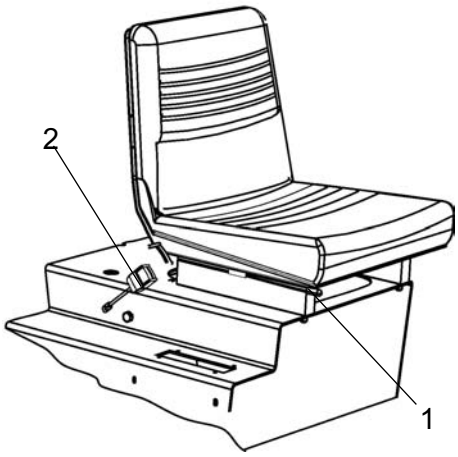



*Fig. Operator's seat*
*1. Locking lever - length adjustment*
*2. Safety belt*

## Operator’s seat in cab/ROPS - 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 as follows.

- Length adjustment (1)

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

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

***Don't forget to wear the safety belt (2).***

## Instruments and lamps - Checking

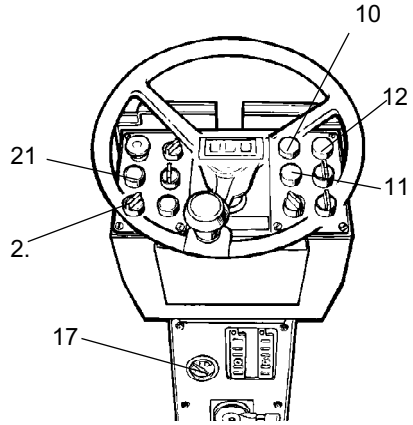



*Fig. Instrument panel*
*2. Starter switch*
*10. Warning lamp, hydraulic fluid filter*
*11. Warning lamp, air filter*
*12. Warning lamp, hydraulic fluid temperature*
*17. Fuel gauge*
*21. Test button, warning lamp*

Turn the starter switch (2) to position I. Push in the test button (21) and check that all the control lamps come on.

Check that the fuel gauge (17) gives a reading.

Check that the warning lamps for charging (7), oil pressure (9) and the parking brake (8) come on.

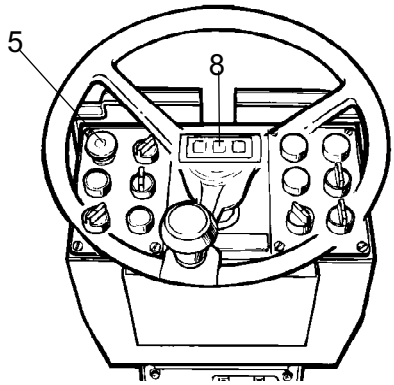



*Fig. Control panel*
*5. Emergency/Parking brake knob*
*8. Warning lamp, brake system*

## Parking brake - Check

***Make sure that the emergency/parking brake knob (5) really is in the depressed position and that the warning lamp for the brake system (8) is on. The roller can start to roll when the engine is started on sloping ground, if the emergency/parking brake is not applied.***

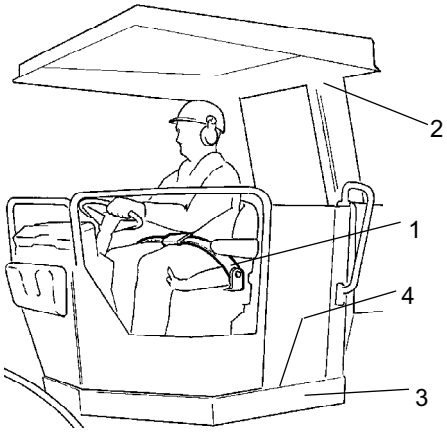



*Fig. Operator's station*
*1. Seat belt*
*2. ROPS*
*3. Rubber element*
*4. Anti-slip*

## Operator position

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

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

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

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

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

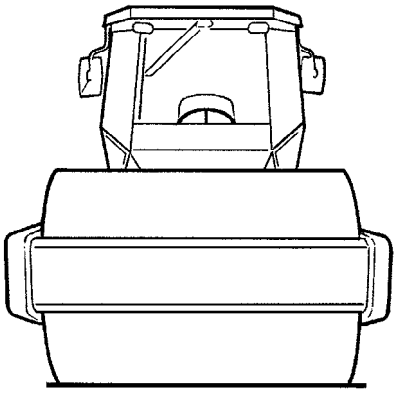


Fig. view

## View

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

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

## Interlock (Optional)

The roller can be equipped with Interlock.

The engine switches off 7 seconds after the operator rises from the seat.

The engine stops whether the forward/reverse lever is in the neutral or the drive position.

The engine does not stop if the parking brake is activated.

# Starting

## Starting the engine

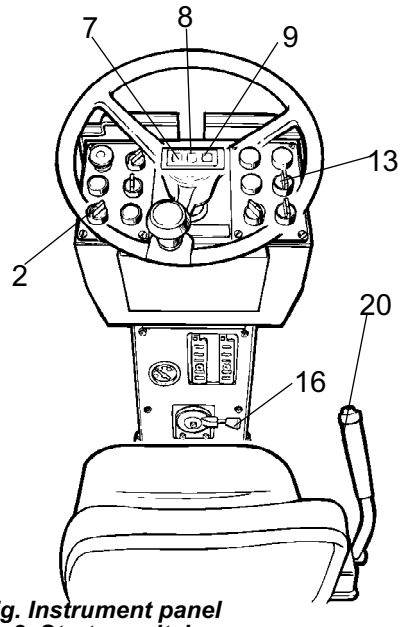



*Fig. Instrument panel*
*2. Starter switch*
*7. Charging lamp*
*8. Brake warning lamp*
*9. Oil pressure/ temperature lamp*
*13. Ampitude selector*
*16. Speed control*
*20. Forward/reverse lever*

Set the forward/reverse lever (20) in neutral. The engine can only be started when the lever is in neutral.

Set the amplitude selector (13) for Low/High vibration to position O.

Set the engine speed control (16) to the idling mode.

Turn the starter switch (2) to the right to position I. Then activate the starter motor by turning one position further.

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

Let the engine idle for a few minutes to warm, longer if the ambient temperature is below +10°C (50°F).

While the engine is warming up, check that the warning lamps for oil pressure (9) and charging (7) are turned off. The warning lamp (8) for the reserve/parking brake should still be lit.

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

***When starting up and driving a cold machine, which implies cold hydraulic fluid, the braking distance will be longer than normal until the machine reaches working temperature.***

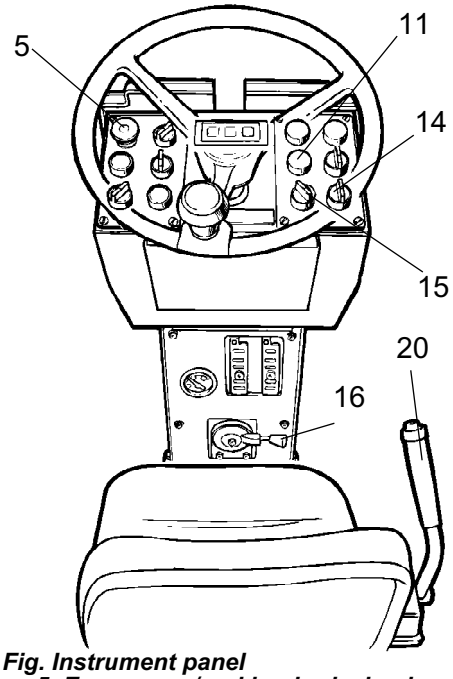



*Fig. Instrument panel*
*5. Emergency/parking brake knob*
*11. Warning lamp, air filter*
*14. Speed selector, drum (Optional)*
*15. Speed selector, rear axle (Optional)*
*16. Speed control*
*20. Forward/reverse lever*

# 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.***

Turn the speed control (16) upwards and lock it in its end position, whereby the engine speed should be 2,300 rpm. During idling the speed should be approx. 900 rpm.

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 work area in front and behind the roller is clear.***

***Pull up the emergency/parking brake knob (5) and check that the parking brake warning lamp is off. Remember that the roller can start to roll.***

Set the High/Low speed selectors (14) and (15) to the desired mode, see decal on the instrument panel.

| **Max. speed/hour** | | |
|---|---|---|
| Low drum/Low rear axle | 5 km/h | |
| High drum/Low rear axle | 6 km/h | (Only with accessory) |
| Low drum/High rear axle | 9 km/h | (Only with accessory) |
| High drum/High rear axle | 16 km/h | (Only with accessory) |

***The High/High mode may only be used for transport runs on an even 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.***

Carefully move the forward/reverse lever (20) forwards or backwards, depending on which direction of travel is required. Speed increases as the lever is moved

away from the neutral position.

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

***Test the reserve brake by pressing the reserve/parking brake knob (5) while the roller is running slowly forward.***

Check while driving that the gauges show normal readings. If the oil pressure lamp comes on or if the buzzer sounds, immediately stop the roller and turn off the diesel engine. Check and remedy any fault; see also the chapter on maintenance and the engine manual.

If the warning lamp for the air filter (11) comes on during operation (when the diesel engine is running at full speed), the main filter must be cleaned or replaced. See the Maintenance Manual.

# Operation - Vibration

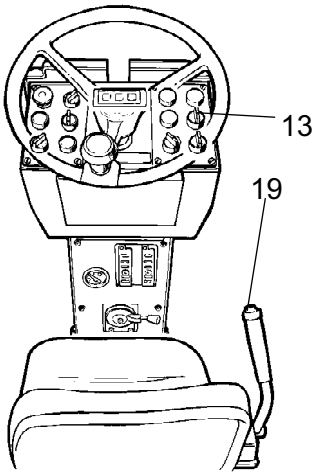



*Fig. Instrument panel*
*13. Amplitude selector*
*19. Vibration On/Off*

## Amplitude/frequency - Changeover

There are two settings for the drum vibration, use the switch (13) to select.

Turn the knob to the left for low amplitude/high frequency and to the right for high amplitude/low frequency.

The amplitude setting must not be changed when vibration is in operation.
Switch the vibration off (19) and wait until vibration stops before adjusting the amplitude.

Engagement and disengagement of the vibration is made with the switch (19) on the top of the forward/reverse lever.

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

Vibration should not be active when the roller is stationary. This can damage both the surface and the machine.

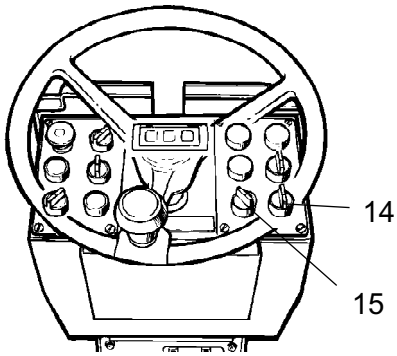



*Fig. Instrument panel*
*14. Speed selector, drum (Optional)*
*15. Speed selector, rear axle (Optional)*

## Driving on difficult surfaces

If the machine becomes stuck and is equipped with two-speed drum drive, set the drive knobs as described below

- If the drum spins, put the drum drive to high and the rear axle to low.

- If the tires spin, turn the drum drive to low and the rear axle to high.

When the machine has regained grip, set the knobs to their original position.

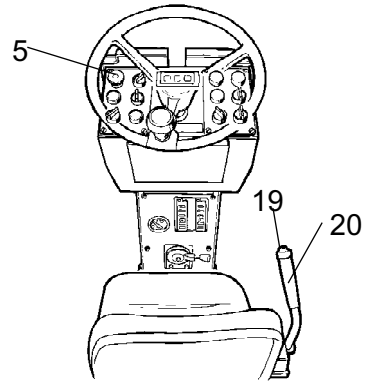



*Fig. Control panel*
*5. Reserve/parking brake knob*
*19. Switch, vibration On/Off.*
*20. Forward/reverse lever*

# Operating - Stopping

## Braking

### Emergency brake

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

There are also disc brakes in the drum motor and the rear axle that act as an emergency brake when in motion and as a parking brake when stationary.

***To perform emergency braking, press the reserve/parking brake knob (5), hold the steering wheel firmly and be prepared for a sudden stop.***

After braking, return the forward/reverse lever to the neutral position and pull up the emergency/parking brake knob.

### Normal braking

Press the switch (19) to switch off the vibration.

Move the forward/reverse lever (20) to the neutral position to stop the roller.

***Always press the reserve/parking brake knob (5) even for brief stops when on sloping ground.***

Turn the engine speed control back to idling. Allow the engine to idle for a few minutes to cool down.

***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.***

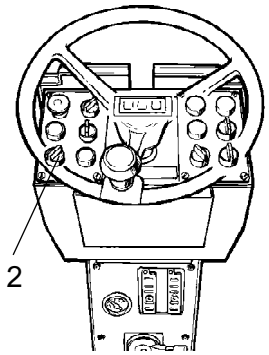



*Fig. Instrument panel*
*2. Starter switch*

### 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 (2) to the left to the off position O. Lower the instrument cover (on rollers without cab) and lock it.

## Parking

### Master switch

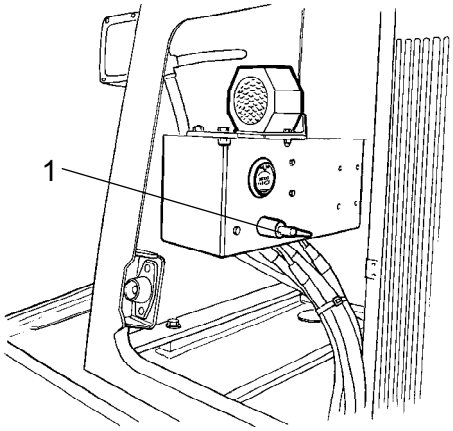



*Fig. Engine compartment*
*1. Master switch*

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

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

### Chocking the drums

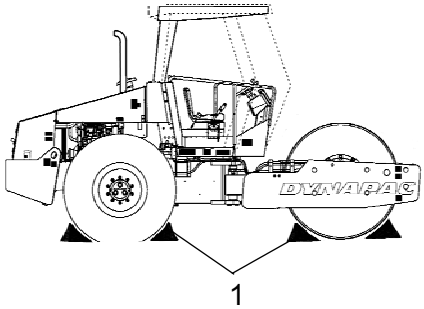



*Fig. Arrangement*
*1. Chock*

***Never disembark from the machine when the is engine running, unless the reserve/parking brake knob is depressed.***

***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.***

Keep in mind that there is a risk of freezing during the winter. Fill the engine cooling system and the screenwash bottle in the cab with suitable anti-freeze mixtures. See also the maintenance instructions.

## Long-term parking

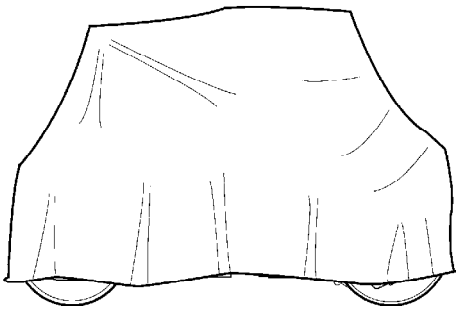


*Fig. Roller weather protection*

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.

### 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 the battery, check that the electrolyte level is correct (see under the heading 'Every 50 hours of operation') and trickle-charge the battery once a month.

### 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.')

### Steering cylinder, hinges, etc.

Lubricate the steering joint bearings and both bearings on the steering cylinder with grease (see under the heading 'Every 50 hours of operation').

Grease the steering cylinder piston with conservation grease.

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

### Hoods, tarpaulin

* Lower the instrument cover over the instrument panel.

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

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

### Tires (All-weather)

Check that tire pressure is 110 kPa (1.1 kp/cm 2 ), (16 psi).

# Miscellaneous

## Lifting

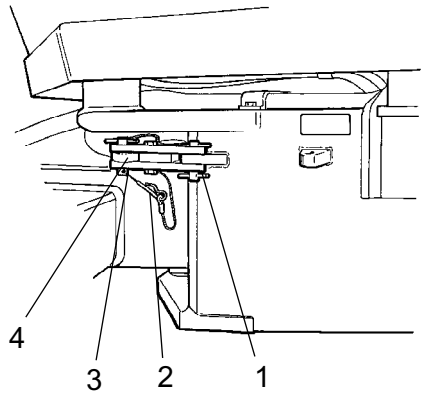



*Fig. Articulation in the locked position*
*1. Locking arm*
*2. Locking pin*
*3. Locking stud*
*4. Locking lug*

### 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 lowermost locking pin (2), which has a a wire attached. Pull up the locking dowel (3) which also has a wire attached.

Fold out the locking arm (1) and secure it to the upper locking lug (4) on steering joint.

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

Weight: refer to the hoisting plate on the roller

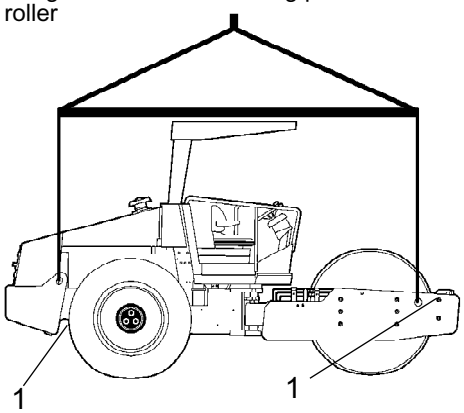



*Fig. Roller prepared for lifting*
*1. Hoisting plate*

### Lifting the roller

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

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

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

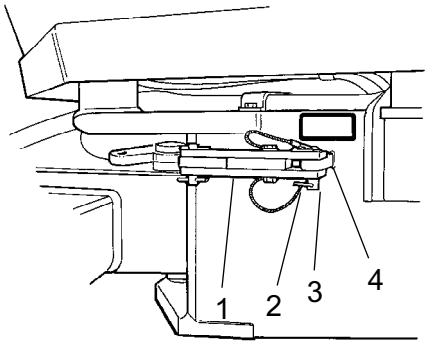



*Fig. Articulation in the open position*
*1. Locking arm*
*2. Locking pin*
*3. Locking stud*
*4. Locking lug*

### Unlocking the articulation

Remember to unlock the articulation before operating.

Fold the locking arm (1) back and secure it in the locking lug (4) with the locking stud (3). Insert the lowermost locking pin (2) fitted with a wire, to secure the locking 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.

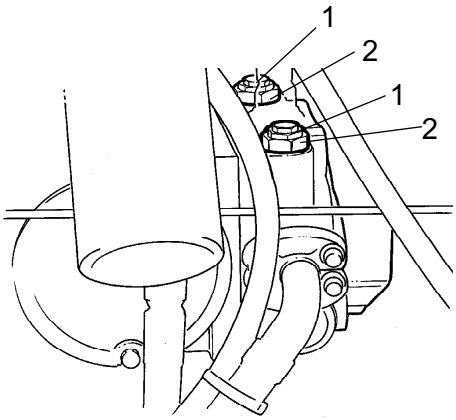



*Fig. Propulsion pump*
*1. Towing valve*
*2. Locknut*

### Alternative 1

### Short distance towing with the engine running

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

Turn both towing valves (1) (middle hexagonal nuts) three turns counter clockwise, while holding the multifunction valve (2) (lowermost hexagonal nut) in place. The valves are placed on the forward drive 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.

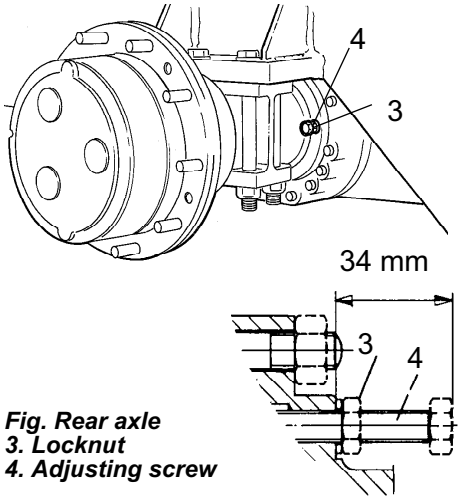



*Fig. Rear axle*
*3. Locknut*
*4. Adjusting screw*

## Alternative 2

## Towing short distances where the engine is inoperative

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

First release both towing valves as per alternative 1.

## Rear axle brake

Undo the lock nut (3) and screw the adjustment screws (4) by hand until resistance increases, and then one additional turn. The adjustment screws are located on the rear axle, two screws on each side of the differential housing.

## Drum gearbox brake

The drum brake is disengaged by screwing out the 4 hexagonal socket screws (5) approx. 5 mm, and then pulling out the engine adapter towards the screw heads.

The brakes are now disengaged and the roller can be towed.

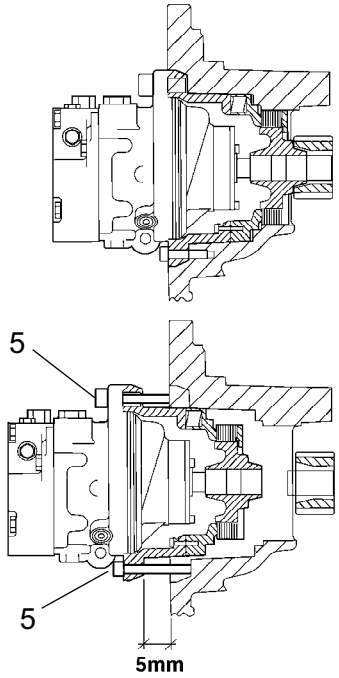



*Fig. Drum brake*
*5. Screw*

After towing, remember to reset the towing valves (1). Unscrew the adjusting screw (4) to its original position 34 mm from the contact surface and tighten the lock nuts (3). Tighten the four hexagonal socket screws (5). See section "short distance towing" alternative 1 and 2.

## Towing the roller

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

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

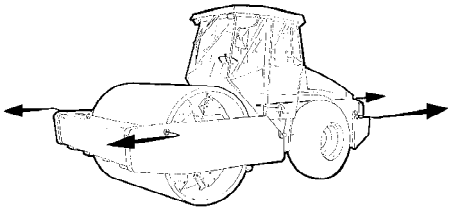


*Fig.Towing*

When towing/retrieving a machine, the towing device must be connected to both lifting holes. The pulling force must act longitudinally on the machine as shown in the figure. Maximum gross pulling force 207 kN (46535 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.***

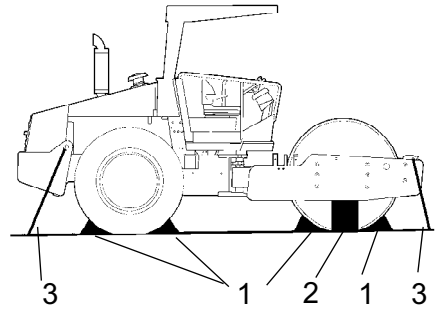



*Fig. Transport*
*1. Chock 2. Block up*
*3. Lashing wire*

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 switch for Manual/Automatic vibration to the 0 position.

6. Set the engine speed control to idle.

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

8. Set the engine speed control to the operating position.

9. Set the emergency/parking brake knob in the pulled-out position.

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:**
    **- Push in the EMERGENCY/PARKING BRAKE KNOB**
    **- Hold the steering wheel firmly.**
    **- Brace yourself for a sudden stop.**

14. When parking:
    - Push in the reserve/parking brake knob.
    - Stop the engine and 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.

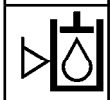
# Maintenance - Lubricants and symbols

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

| | | |
|---|---|---|
|  | **ENGINE OIL** | Air temperature -15°C - +50°C (5°F-122°F)<br>Shell Rimula Super 15W/40, API CH-4 or equivalent. |
|  | **HYDRAULIC FLUID** | Air temperature -15°C-+40°C (5°F-104°F)<br>Shell Tellus TX68 or equivalent.<br>Air temperature above +40°C (104°F)<br>Shell Tellus T100 or equivalent. |
|  | **TRANSMISSION OIL** | Air temperature -15°C - +40°C (5°F-104°F)<br>Shell Spirax AX 80W/90, API GL-5 or equivalent.<br>Air temperature 0°C (32°F) - above +40°C (104°F)<br>Shell Spirax AX 85W/140, API GL-5 or equivalent. |
|  | **DRUM OIL** | Mobil SHC 629 |
|  | **GREASE** | SKF LGHB2 (NLGI-Klass 2) or equivalent for the articulated joint.<br>Shell Retinax LX2 or equivalent for other grease points. |
|  | **FUEL** | See engine manual. |
|  | **COOLANT** | GlycoShell or equivalent, (mixed 50/50 with water).<br>Anti-freeze protection down to about -37°C (-34.6°F). |

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

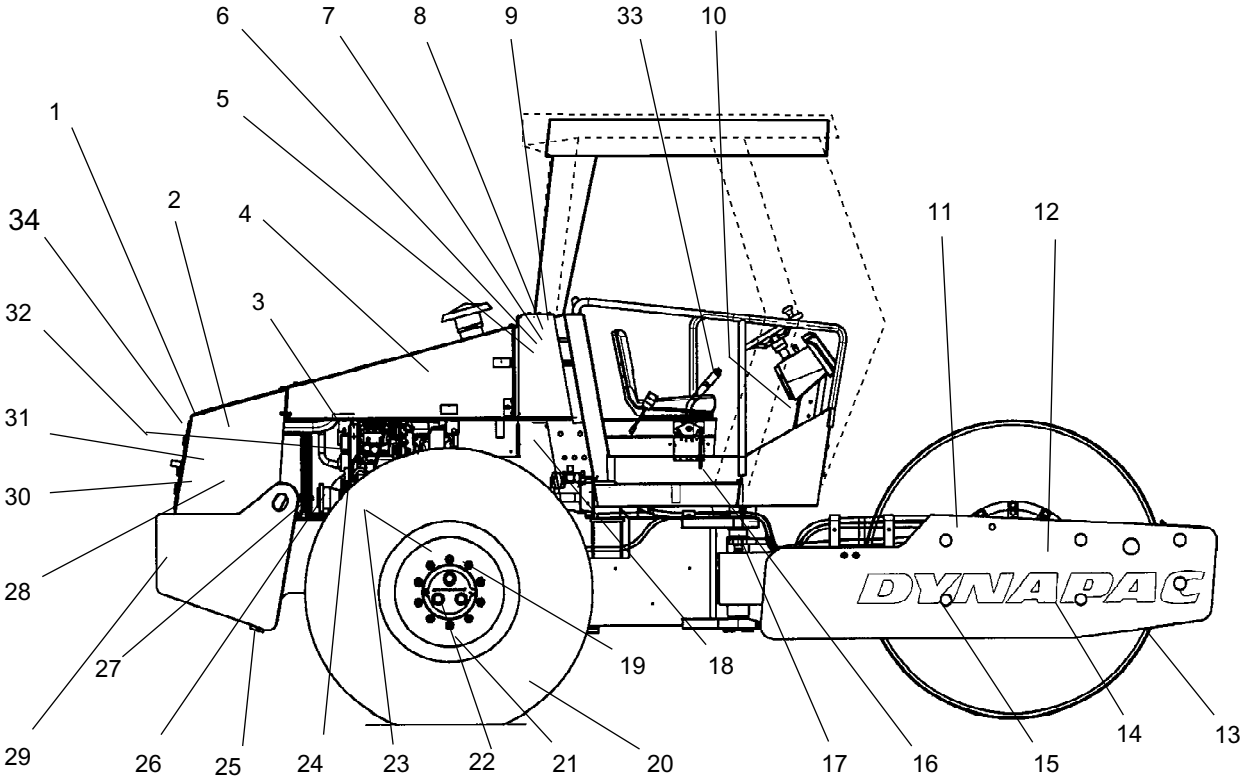



*Fig. Service and maintenance points*

1. Cooler grille
2. Fuel filter, fuel prefilter
3. Oil level, diesel engine
4. Air filter
5. Hydraulic reservoir, sight glass
6. Bleeder filter
7. Hydraulic fluid filter, x1
8. Draining, hydraulic fluid reservoir
9. Hydraulic fluid, filling
10. Fuse box
11. Drum cassette oil, filling, x2
12. Drum gearbox
13. Scrapers
14. Drum cartridge oil, level plug, x2
15. Shock absorbers and attachment screws
16. Steering joint
17. Steering cylinders, x2
18. Flywheel casing, hydraulic pumps
19. Wheel-nuts
20. Tires, air pressure
21. Rear axle, differential
22. Rear axle, planetary gears, x2
23. Rear axle suspension, 2 sides
24. Oil filter, diesel engine
25. Draining, fuel tank
26. Diesel engine suspension, x4
27. Feed pump, fuel
28. Diesel engine, filling
29. Battery
30. Cooler
31. Hydraulic fluid cooler
32. Drive belts, cooling, alternator
33. Forward/Reverse lever
34. Engine hood, hinge

## 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** | |
| 13 | Check the scraper setting | |
| 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 | |
| 5 | Check the hydraulic reservoir level | |
| | 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 | |
| 12 | Change the drum oil | |

## 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 |
|---|---|---|
| 4 | Check that hoses and couplings are not leaking | |
| 6 | Inspect/clean the filter element in the air cleaner | Replace as required |
| 16 | Lubricate the articulation | |
| 17 | Lubricate the steering cylinder mounts | |
| 19 | Check the wheel-nuts are tightened | |
| 20 | Check the tire pressure | |
| | Check the air conditioning | Optional |

## 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 |
|---|---|---|
| 22 | Check oil level in rear axle/planetary gearing | |
| 12 | Check oil level in drum gearbox | Accessories D/PD |
| 14 | Check oil level in the drum cartridge | |
| 31 | Clean the coolers | |
| 19 | Check the bolted joints | The above applies to new or reconditioned components only |
| 23 | Check the bolted joints | The above applies to new or reconditioned components only |
| 15 | Check rubber elements and bolted joints | |
| 29 | Check battery | |
| 39 | Check the AC | Optional |

### 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 |
|---|---|---|
| 24 | Change the engine oil and oil filter | Refer to the engine manual |
| 3 | Replace the fuel filter | Refer to the engine manual |
| 3 | Clean the fuel pre-filter. | |
| 6 | Check bleeder filter on hydraulic reservoir | Optional |

### 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 |
|---|---|---|
| 7 | Change the hydraulic fluid filter | |
| 8 | Drain the condensate from hydraulic reservoir | |
| 25 | Drain condensate from fuel tank | |
| 4 | Replace the main filter in the air cleaner | |
| 21 | Change oil in rear axle differential | |
| 22 | Change oil in the rear axle planetary gearing | |
| | Check engine valve clearances | Refer to the engine manual |
| 32 | Check belt tension for drive system | Refer to the engine manual |

### 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 |
|---|---|---|
| 8, 9 | Change the hydraulic fluid | |
| 12 | Change the oil in the drum cartridge | |
| 12 | Change the oil in the drum gearbox | Accessories D/PD |
| 33 | Lubricate the Forward/Reverse lever | |
| | Overhaul air conditioning | Option |

# 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.***

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

## Scrapers - Check, adjustment

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

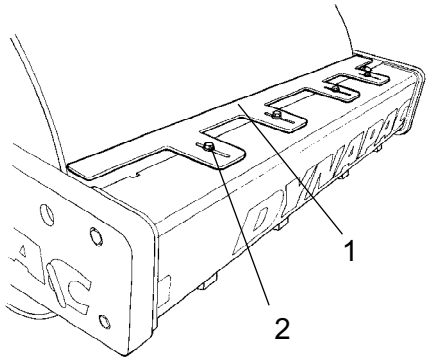



***Fig. Skrapers***
***1. Skraper blades***
***2. Screws (4)***

If necessary, adjust distance to the drum as follows:

Undo the screws (2) on the scraper attachment.

Then adjust the scraper blade (1) to 20 mm from the drum.

Tighten the screws (2).

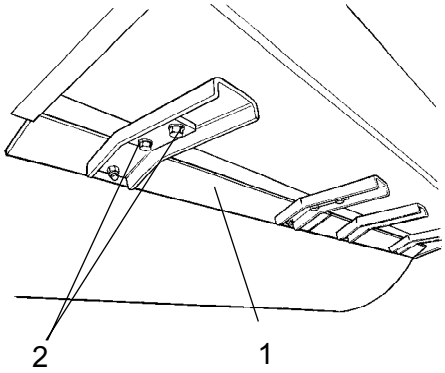



*Fig. Scrapers*
*1. Scraper blades (x4)*
*2. Screws*

## Steel scrapers (Optional)

If necessary, adjust distance to the drum as follows:

Undo the screws (2) on the scraper attachment.

Then adjust the scraper blade (1) to 20 mm from the drum.

Tighten the screws (2).

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

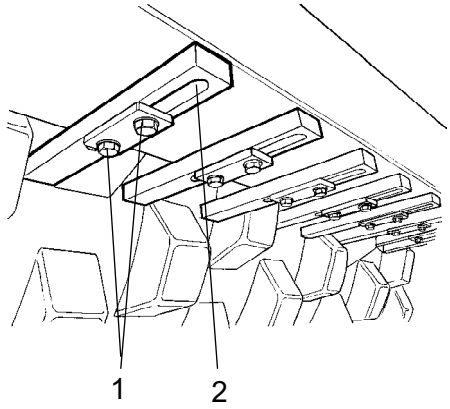



*Fig. Scrapers*
*1. Screws*
*2. Scraper teeth (x18)*

## Scrapers, Pad-drum

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

Center each scraper tooth (2) between the pads.

Tighten the screws (1).

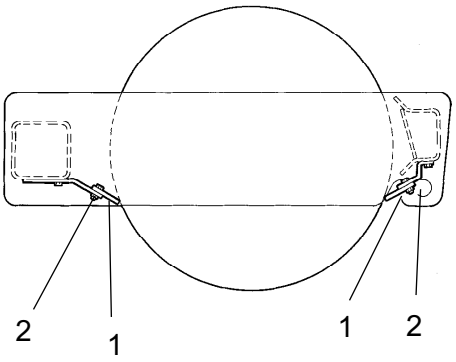



*Fig. Scrapers*
*1. Scraper blade*
*2. Screws*

## Soften scrapers (Optional)

Loosen the screws (2).

Then, adjust the scraper blade (1) so that it lightly touches the drum.

Tighten the screws (2).

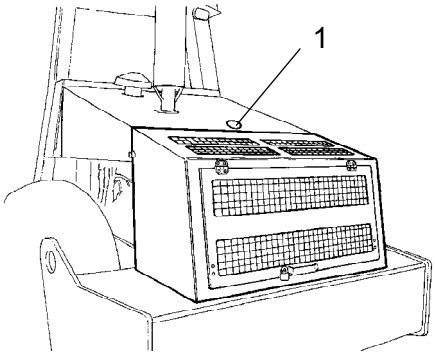



*Fig. Cooler grille*
*1. Filler cap, coolant*

## Air circulation - Check

Ensure that the diesel engine has free circulation of cooling air through the vents in the hood.

***Observe extreme caution if the filler cap must be opened when the engine is hot. NOTE, the engine must be switched off. Wear protective gloves and goggles.***

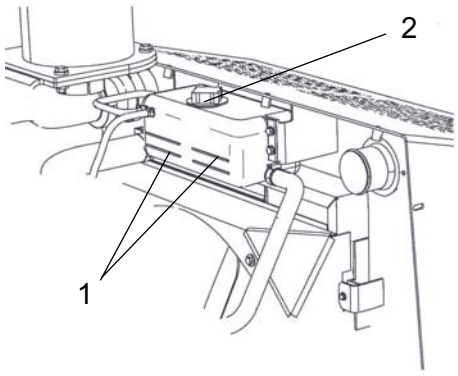



*Fig. Coolant container*
*1. Level mark in coolant container (min/max markings)*
*2. Filler cap*

## Coolant level - Check

The cooler container is located over the engine's cooling fan and is most easily visible from the left side of the roller.

The filler cap (2) is accessible from the top of the engine hood.

Check the coolant level with the engine stopped and cold.

Check that the coolant level is between the max/min markings (1).

Make sure that cooling air flows freely through the protective grille to the engine.

***The coolant is hot and under pressure at working temperature and the escaping steam can cause serious scalding. Open the filler cap carefully to release the pressure. Wear protective goggles and protective gloves.***

Fill with a mixture of 50% water and 50% antifreeze. See instructions for lubricant and symbols.

## Fuel tank - Filling

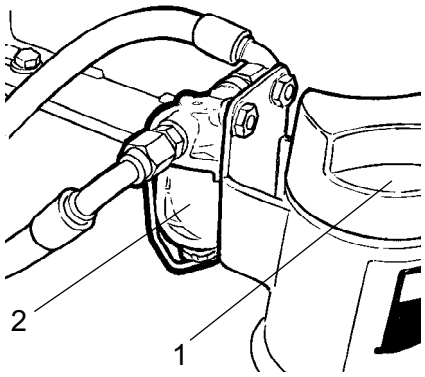



*Fig. Filling with fuel*
*1. Filler pipe*

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 250 liters of fuel.

Check that there is no sediment or water in the fuel pre-filter (2). Clean the pre-filter if required, see under "500 hours of operation".

## Diesel engine  Check oil level

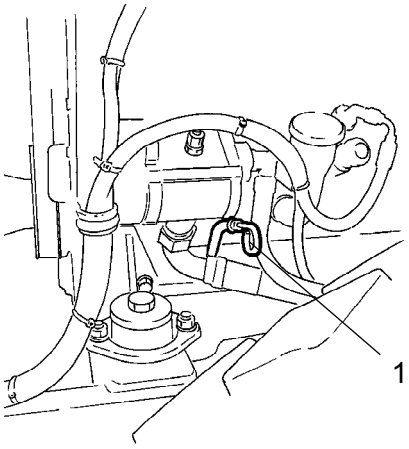



*Fig. Engine compartment*
*1. Dipstick*

***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 engine's right side.

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

## Hydraulic reservoir - Check fluid level

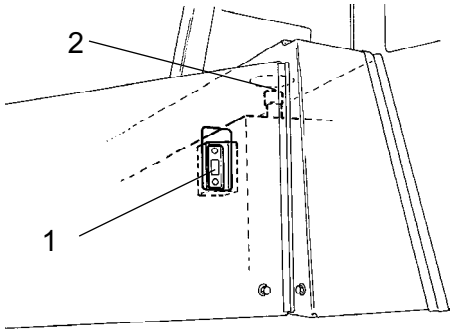



*Fig. Sight glass hydraulic reservoir*
*1. Sight glass*

The sight glass is located on the right-hand side of the roller behind the operator's seat.

Place the roller on a flat surface and check the fluid level in the sight glass (1). If the level is too low, top up with the type of hydraulic fluid specified in the lubricant specification.

## Brakes - Check

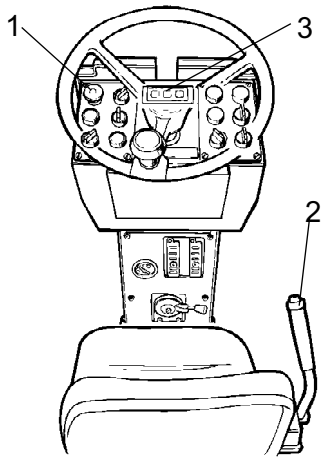



*Fig. Control panel*
*1. Emergency/parking brake knob*
*2. Forward/Reverse lever 3. Brake warning lamp*

***Check the brakes by carrying out the following :***

Drive the roller **slowly** forwards.

Depress the emergency/parking brake knob (1). The warning lamp (3) on the instrument panel should come on and the roller should stop.

After testing the brakes, set the forward/reverse lever (2) in neutral.

Pull up the emergency/parking brake knob.

The roller is now ready for operation.

# 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.***

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

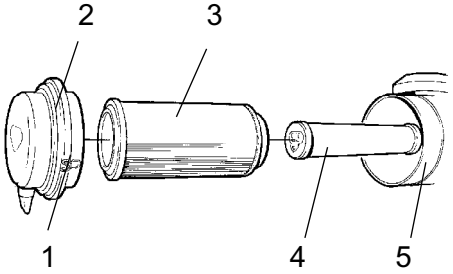



***Fig. Air cleaner***
***1. Locking flaps***
***2. Cover***
***3. Main filter***
***4. Backup filter***
***5. Filter housing***

## Air cleaner
## Checking - Cleaning

Replace or clean the air cleaner main filter if the warning lamp on the control panel comes on when the engine is running at maximum speed.

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

Do not remove the backup filter (4).

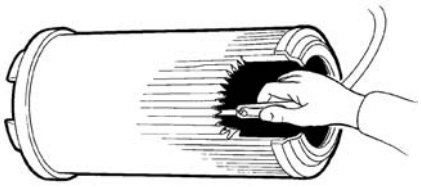


*Fig. Main filter*

## Main filter
## - Cleaning with compressed air

When cleaning the air filter, use compressed air with a maximum pressure of 5 bars. Blow air up and down along the paper pleats on the inside of the filter.

Hold the nozzle at least 2-3 cm (0.8-1.2 in) away from the paper pleats so that the paper is not torn by the air pressure.

***Wear protective goggles when working with compressed air.***

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

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.

Change the main filter after 5 cleanings or more frequently.

## Backup filter - Change

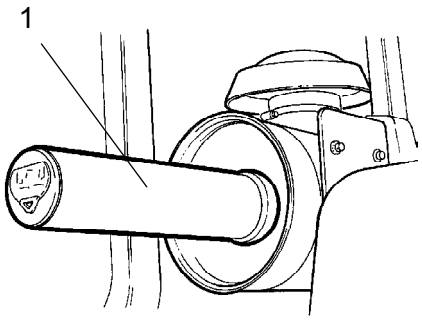



*Fig. Air filter*
*1. Backup filter*

Change the backup filter with a new filter after every fifth replacement or cleaning of the main filter.

The back-up filter cannot be cleaned.

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.

## Articulation - Lubrication

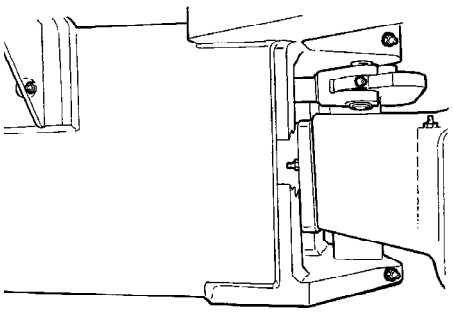


*Fig. Steering hitch right side*

***Do not allow anyone to remain in the vicinity of the steering joint when the engine is running. Risk of being crushed when the steering is operated. Press the emergency/parking brake knob before lubricating.***

Turn the steering wheel fully to the left to gain access to all the steering system's lubricating nipples (4) on the right-hand side of the machine.

Use grease as per the lubricant specification

## Steering joint - Lubrication

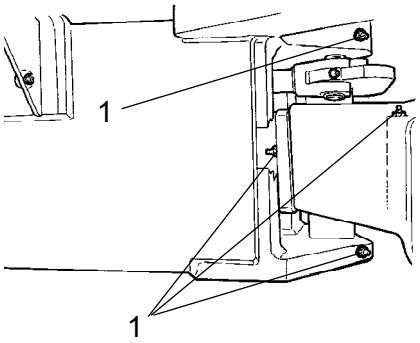



*Fig. Articulation, right side*
*1. Lubricating nipples, articulation (4)*

Wipe off any dirt and grease from the nipples.

Grease each nipple (1) with five strokes of a hand-operated grease gun. Make sure that grease penetrates into the bearings.

If grease does not penetrate the bearings, it may be necessary to relieve the articulation joint with a jack while repeating the greasing process.

## Tires - Air pressure - Wheel nuts - Tightening

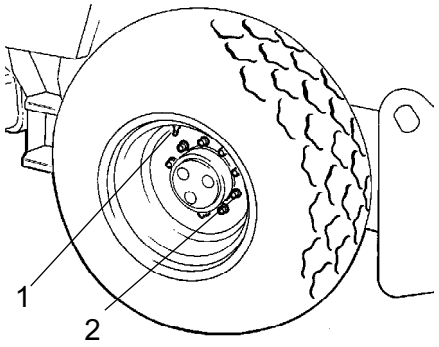



*Fig. Wheels*
*1. Air valve*
*2. Wheel nut*

Check the tire pressures using a pressure gauge.

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

Recommended pressure: See Technical Specifications.

Check the tire pressure.

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

Check the tightening torque of the wheel nuts (2) at 470 Nm (350 lbf.ft).

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

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

## Automatic Climate Control (Optional) - Inspection

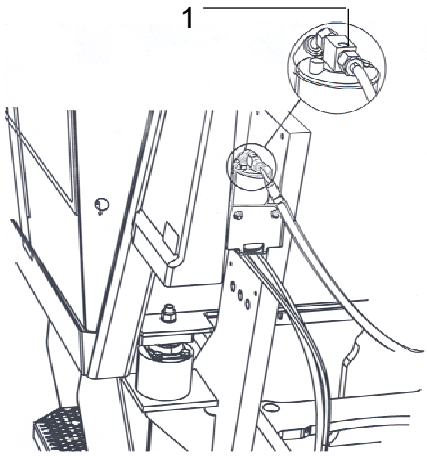



*Fig. Drying filter*
*1. Sight glass*

The system described in this manual is type ACC (Automatic Climate Control).

***Never work under the roller when the engine is running. Park the roller on a level surface, chock the wheels and depress the parking brake control.***

The filter is located on the left side of the engine compartment´s front edge

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

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

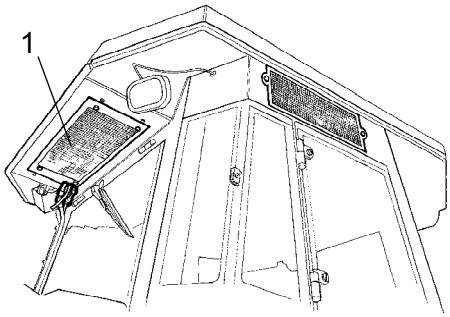



***Fig. Cab***
***1. Condensor element***

Where cooling capacity is markedly reduced, clean the condensor element (1) located on the rear edge of the cab. Also clean the cooling unit in the cab. See under the heading 2000 hours, automatic climate control - overhaul.

# 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.***

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

## Rear axle differential - Check oil level

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

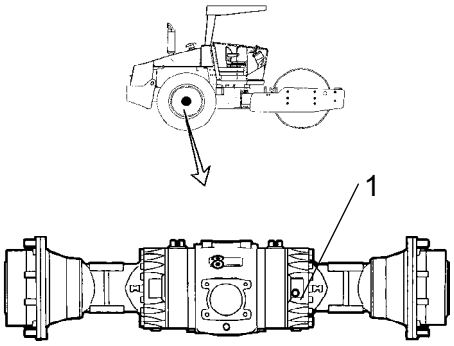



*Fig. Level check - differential housing*
*1. Level/Filler plug*

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

Clean and refit the plug.

## Rear axle planetary gears - Check oil level

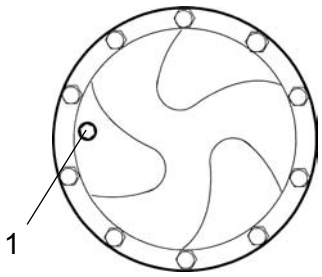



*Fig. Level check - planetary gear, std*
*1. Level/Filler plug*

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. See lubrication specification.

Clean and refit the plug.

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

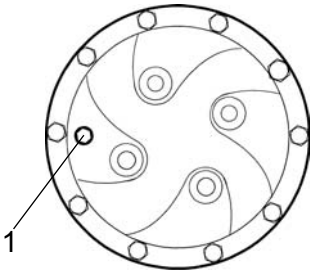



*Fig. Level check - planetary gear, optional*
*1. Level/Filler plug*

## Drum gearbox (D/PD) - Checking the oil level

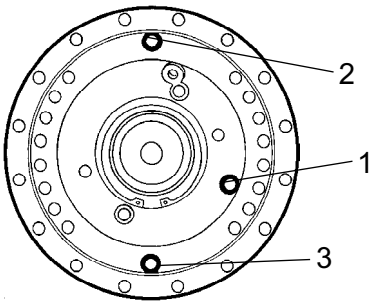



*Fig. Oil level check - drum gearbox*
*1. Level plug*
*2. Filler plug*
*3. Drain plug*

Position the drum so that the filler plug (2) is straight up.

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

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

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

Clean and refit the plugs.

## Drum cartridge - Checking the oil level

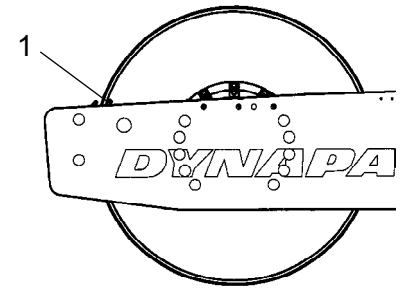



*Fig. Left drum side*
*1. Indicator pin*

Position the machine level so that the indicator pin (1) on the inside of the drum is aligned with the top of the drum frame.

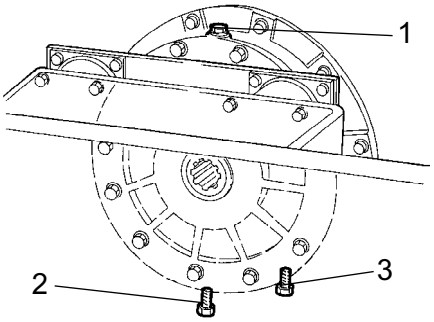



*Fig. Right drum side*
*1. Filler plug*
*2. Drain plug*
*3. Level plug*

Wipe clean the filler plug (1) and level plug (3).

Unscrew the filler plug (1).

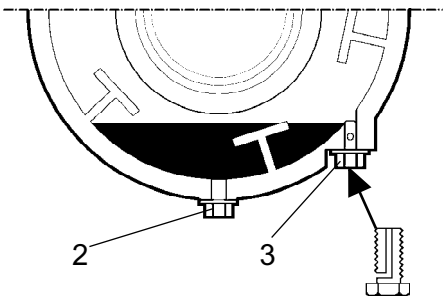



*Fig. Drum cartridge*
*2. Drain plug*
*3. Level plug*

Then loosen the level plug (3) on the underside of the cartridge and unscrew it until the hole in the middle of the plug becomes visible.

Top off with oil through the filler plug (1), until oil begins to run out from the level plug's (3) hole. The level is correct when it stops running.

Ensure that only MOBIL SHC 629 is used in the cartridges..

Do not overfill with oil - risk for overheating.

Clean and refit the plugs. Now repeat the procedure on the opposite side.

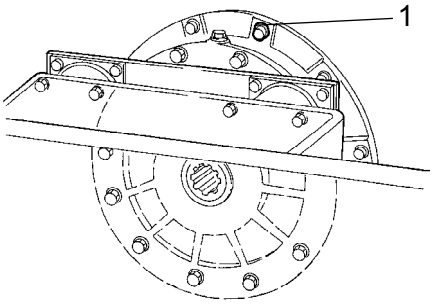



*Fig. Drum*
*1. Ventilation screw*

## Drum cartridge - Cleaning the ventilation screw

Clean the drum's ventilation hole and ventilation screw (1). The hole is required to eliminate excess pressure inside the drum.

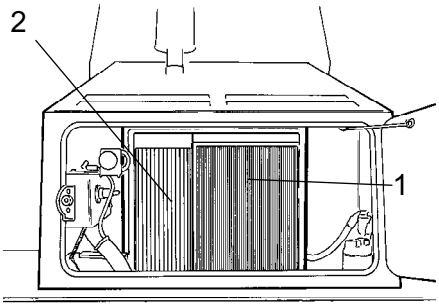



*Fig. Hydraulic fluid cooler*
*1. Radiator*
*2. Hydraulic fluid cooler*

## Radiator - Check/Cleaning

The water and hydraulic fluid coolers can be accessed when the engine compartment cover is opened.

Make sure that the air flow through the coolers is unobstructed (1) and (2).

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.***

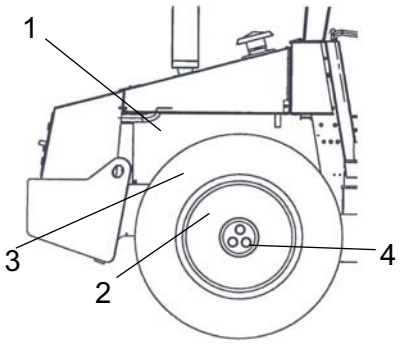



*Fig. Right side of machine*
*1. Steering pump*
*2. Rear axle*
*3. Engine suspension*
*4. Wheel nuts*

## Bolted joints - Checking tightening torque

Steering pump to diesel engine (1) 55 Nm, lightly oiled

Rear axle suspension (2) 330 Nm (243 lbf.ft), oiled.

Engine suspension (3). Check that all the M12 bolts (x20) are tightened, 70 Nm, and lightly oiled.

Wheel nuts (4). Check that all nuts are tightened, 470 Nm oiled.

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

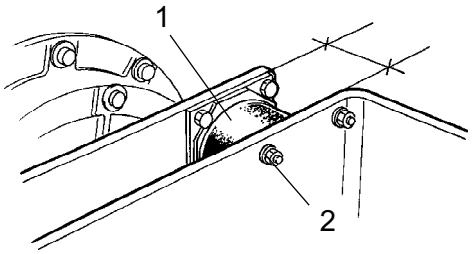



*Fig. Drum, vibration side*
*1. Rubber element*
*2. Fastening screws*

## Rubber elements and fastening screws - Check

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

Check using a knife blade or pointed object.

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

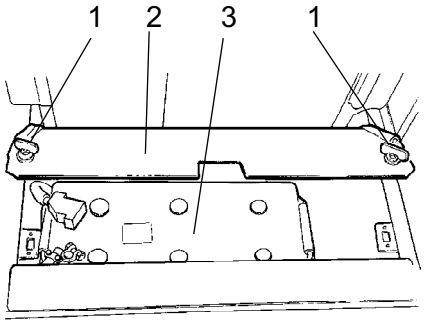



*Fig. Battery shelf*
*1. Quick-screws*
*2. Battery cover*
*3. Battery*

## Battery - Check electrolyte level

***Never use a naked flame when checking the battery as the electrolyte emits explosive gas while the alternator is charging.***

Open the engine cover and undo the quick-release screws (1).

Raise the battery cover (2).

Wipe the top of the battery.

***Wear safety goggles. The battery contains corrosive acid. Rinse with water if electrolyte comes into contact with the body.***

## Battery cell

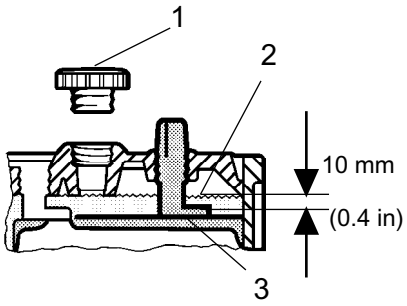



*Fig. Electrolyte level in battery*
*1. Cell cap*
*2. Electrolyte level*
*3. Plate*

Take off the cell caps (1) and make sure that electrolyte (2) is about 10 mm (0.4in) above the plates (3). Check the level of all cells. Top off with distilled water to the right level if the level is low.

If the ambient temperature is below freezing, run the engine for a while before topping off with distilled water. Otherwise the electrolyte might freeze.

Make sure that ventilation holes in the cell cover are not clogged, then put the cover back on.

The cable shoes should be clean and well tightened. Clean corroded cable shoes and grease them with acid-free Vaseline.

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

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

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

## Air conditioning (Optional) - Inspection

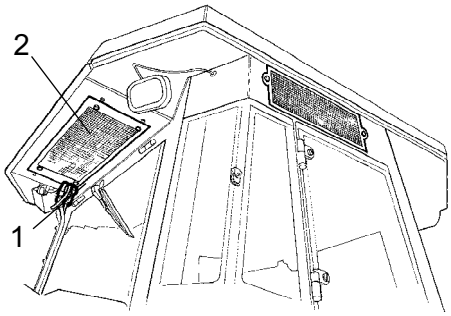



*Fig. Air conditioning*
*1. Refrigerant hoses*
*2. Condensor element*

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

## 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.***

### Fuel pre-filter - Cleaning

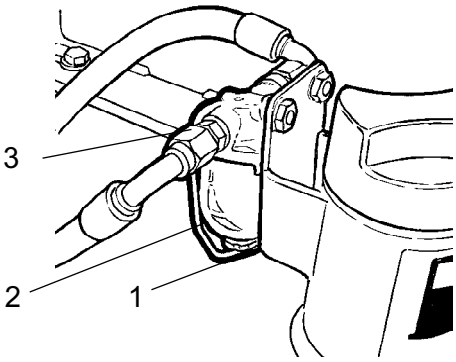



***Fig. Engine***
***1. Screw***
***2. Glass container***
***3. Strainer***

Undo the screw (1) and remove the glass container (2).

Remove and clean the strainer (3) using a non-flammable agent. Install the strainer and the container.

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

## Diesel engine - Oil and Filter change

***Observe care when draining hot engine oil. Wear protective gloves and goggles.***

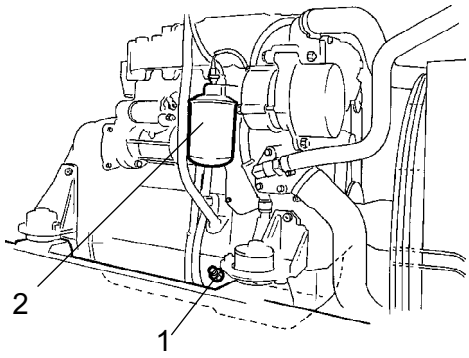



*Fig. Left side of engine*
*1. Drain plug*
*2. Oil filter*

The oil drain plug (1) is most easily accessible from the bottom of the engine and is located attached to a hose on the rear axle.. Drain the oil when the engine is warm. Place a receptacle that holds at least 15 liters (4 gal) under the drain plug.

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

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

## Bleeder filter - Inspection/Cleaning

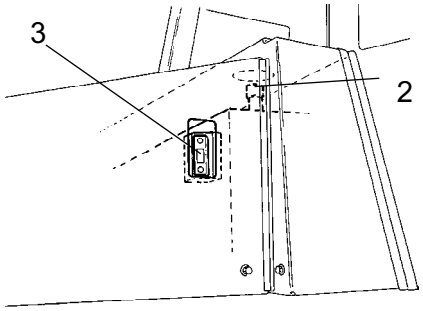



*Fig. Hydraulic reservoir*
*2. Filler cap/Air filter*
*3. Sight glass*

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.

***Always wear protective goggles when working with compressed air.***

Check that the bleeder filter (2) is not clogged. Air should be able to pass through the cap unobstructed in both directions.

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

# 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 fluid filter - Replacement

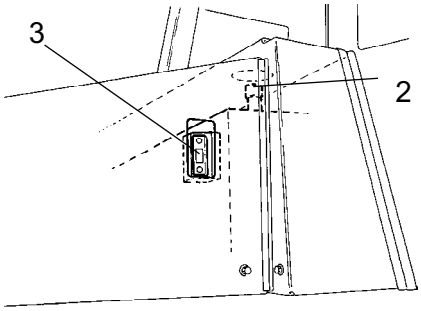



***Fig. Hydraulic reservoir***
***2. Filler cap***
***3. Sight glass***

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

Check that the bleeder filter (2) is not clogged, air must flow through the cap in both directions.

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

***Wear protective goggles when working with compressed air.***

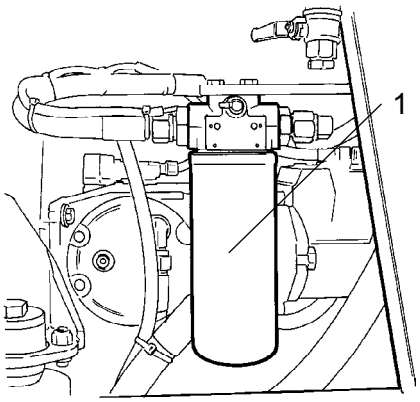



***Fig. Engine compartment***
***1. Hydraulic fluid filter (x1)***

Carefully clean round the hydraulic filter.

Remove the 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 seal is not left on the filter head. Leakage will otherwise occur between the new and old seal.

Thoroughly clean the sealing surfaces on the filter head.

Apply a thin coat of fresh hydraulic fluid to the seal on

the new filter. Screw tight the filter by hand.

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

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

## Hydraulic fluid reservoir - Draining

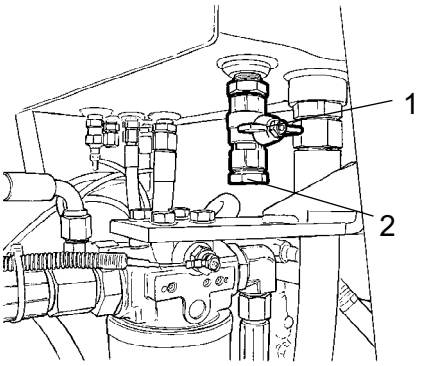



*Fig. Hydraulic reservoir, bottom*
*1. Drainage tap*
*2. Plug*

Condensate in the hydraulic reservoir is drained via the plug (2).

Drainage must be performed when the roller has been stationary for an extended period, e.g. after being stationary overnight.

Drain as follows:

- Remove the plug (2).

- Place a container under the tap. - Open the tap (1). Drain off any condensate.

- Close the drainage tap and refit the plug.

Save the condensate and hydraulic fluid and hand it in to an environment-friendly waste disposal station.

## Fuel tank - Drainage

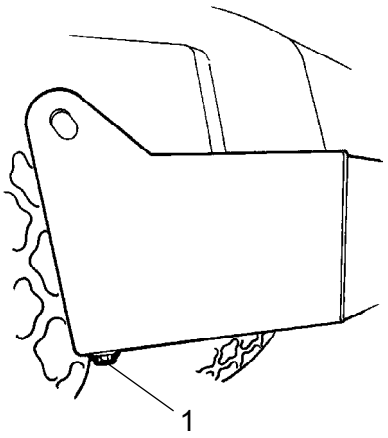



*Fig. Fuel tank*
*1. Drainage plug*

Water and sediment in the fuel tank are removed via the drainage plug (1) in the bottom of the fuel tank.

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

Drainage must be performed when the roller has been stationary for an extended period, e.g. after being stationary overnight. The fuel level should be as low as possible.

The roller should preferably have been standing with this side slightly lower, so that water and sediment have gathered near the drainage plug (1).

Save the condensate and sediment and hand it in to an environment-friendly waste disposal station.

Drain as follows:

- Place a container under the plug (1).
- Remove the plug (1).
- Drain out the condensate and sediment until only pure fuel emerges at the plug.
- Screw in the plug again.

## Air filter - Changing

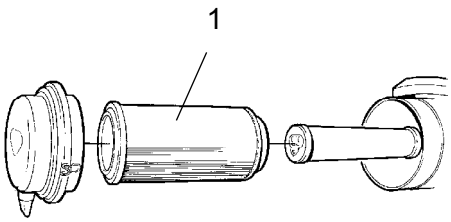



*Fig. Air cleaner*
*1. Main filter*

Replace the air cleaner main filter (1) even if it has not been cleaned five times See under the heading 'Every 50 hours of operation' for information on changing the filter.

If a blocked filter is not replaced, the exhaust fumes will be black and the engine will loose power. There is also a risk of severe damage to the engine.

## Air conditioning (Optional)
## Fresh air filter - Change

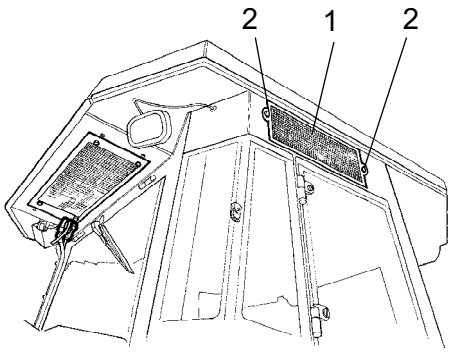



*Fig. Cab*
*1. Fresh air filter*
*2. Screw (x2)*

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

Loosen the two screws (2) on the cab's right side. Take down the whole holder and remove the filter insert.

Replace with a new filter.

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

## Rear axle differential - Oil change

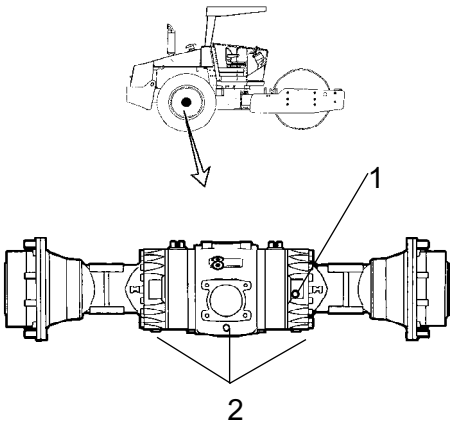



*Fig. Rear axle*
*1. Level/Filler plug*
*2. Drain plugs*

***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 all three drain plugs (2) and drain the oil into a suitable receptacle. The volume is approximately 12.5 liters (13.2 qts).

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

Refit the drainage plugs and top up with fresh oil until the correct level is reached. Note that it takes a while for the oil to be distributed in the axle. Do not fill the entire volume at once. Refit the level/filler plug. Use transmission oil, see Lubricant Specification.

## Rear axle's planetary gears - Draining the oil

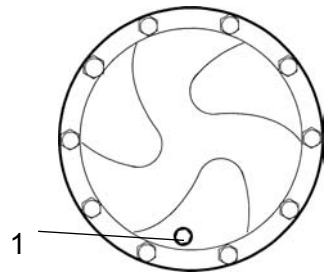



*Fig. Draining the oil - planetary gear, std*
*1. Level/Filler plug*

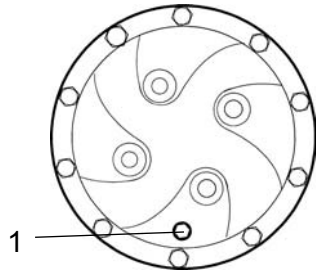



*Fig. Draining the oil - planetary gear, optional*
*1. Level/Filler plug*

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

Wipe clean and remove the plug (1) and drain the oil into a receptacle. The volume is approx. 2 liters (2.1 qts).

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

## Rear axle's planetary gears - Oil change - Oil filling

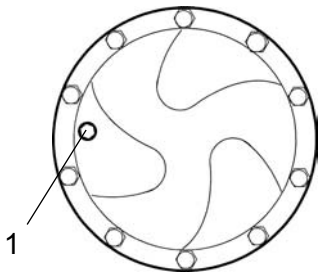



*Fig. Oil filling - planetary gear, std*
*1. Level/Filler plug*

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

Wipe clean and remove the plug (1).

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

Clean and refit the plug (1).

Fill with oil in the same way as for the rear axle's second planetary gear.

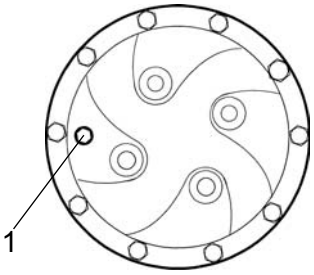



*Fig. Oil filling - planetart gear, optional*
*1. Level/Filler plug*

# 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 - Changing the fluid

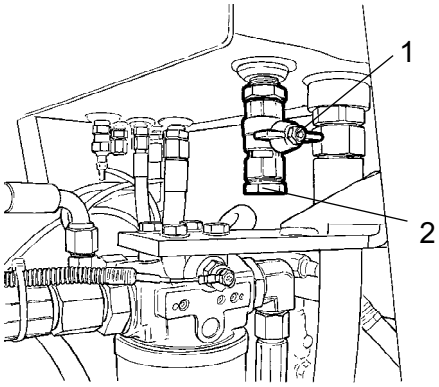



***Fig. Hydraulic reservoir, bottom***
***1. Stop cock (3/4")***
***2. Plug***

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

Place a receptacle that holds at least 60 liters (15.9 gal)) beside the roller.

Unscrew the drain plug (2).

Open the stock cock and allow the oil to run through a hose to the drainage receptacle.

Refit the plug.

Deliver the drained fluid to environmentally correct handling.

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

Change the hydraulic fluid filter as described under the heading 'Every 1000 hours of operation'.

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

## Drum cartridge - Oil change

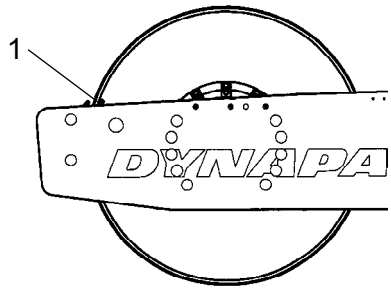



*Fig. Left drum side*
*1. Indicator pin*

Position the machine level so that the indicator pin (1) on the inside of the drum is aligned with the top of the drum frame.

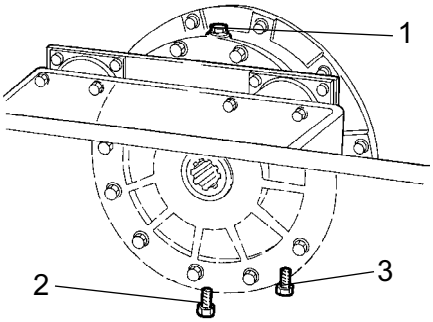



*Fig. Right drum side*
*1. Filler plug*
*2. Drain plug*
*3. Level plug*

Place a receptacle for about 5 liters (1.32 gal) underneath the drain plug (2).

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

Clean and unscrew the filler plug (1) and the drain plug (2).

Allow all the oil to run out. Fit the drain plug and fill with new synthetic oil in accordance with the instructions under "Drum cartridge - checking the oil level".

Repeat the procedure on the opposite side.

Ensure that only MOBIL SHC 629 is used in the cartridges..

## Drum gearbox - Oil change

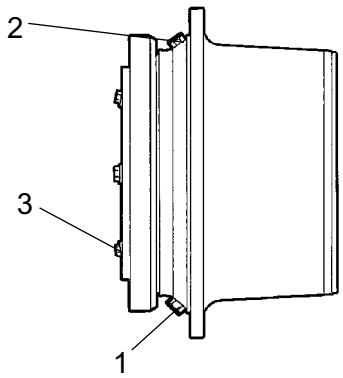



*Fig. Drum gearbox*
*1. Drain plug*
*2. Filler plug*
*3. Level plug*

Place the roller on a level surface with the plugs (1) and (2) as illustrated.

Wipe clean, unscrew the plugs (1, 2 and 3) and drain the oil into a suitable receptacle, capacity about 3.5 liters (1 gal.).

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

Use transmission oil according to the lubricant specification.

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

## Steering hitch - Check

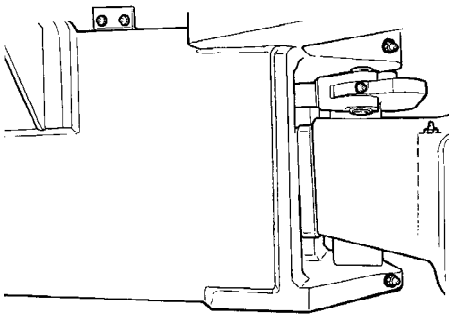


*Fig. Steering hitch*

Inspect the steering hitch to detect any damage or cracks.

Check and tighten any loose bolts.

Check also for any stiffness and play.

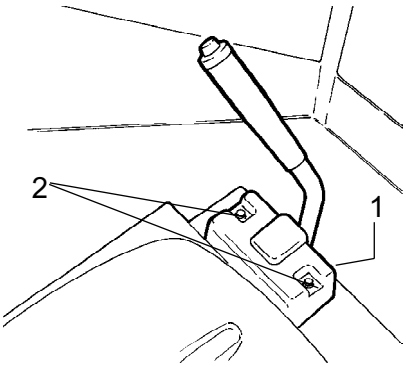



*Fig. Steering joint*
*1. Protective cover*
*2. Screws*

## Controls - Lubrication

Lubricate the forward/reverse lever's mechanical mechanism. Remove the protective cover (1) by undoing the screws (2). Lubricate the mechanism with oil.

Check and tighten any loose bolts.

Refit the protective cover.

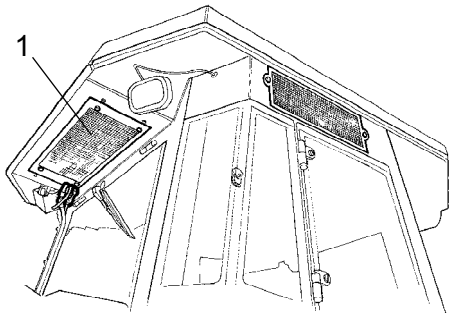



*Fig. Cab*
*1. Condensor element*

## Automatic Climate Control (Optional) - Overhaul

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

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

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

***Wear protective goggles when working with compressed air.***

Inspect the condenser element attachment.

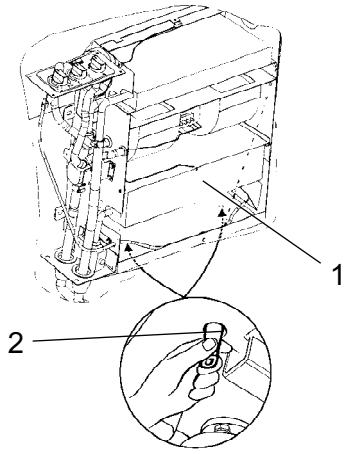



*Fig. Automatic climate control*
*1. Cooling element*
*2. Drain valve (x2).*

Clean all dust from the cooling unit and the cooling element (1) using compressed air.

Check the system hoses for chafing. Make sure that drainage from the cooling unit is unobstructed so that no condensation accumulates inside the unit.

Drain by pinching the valves (2)

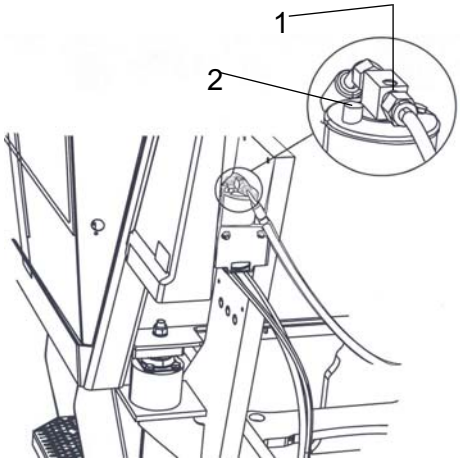



*Fig. Drying filter in engine compartment*
*1. Sight glass*
*2. Moisture indicator*

## Drying filter - Check

The drying filter is located on the left side of engine compartment´s front edge.

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

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

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

***Do not disconnect or undo the hose couplings.***

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

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

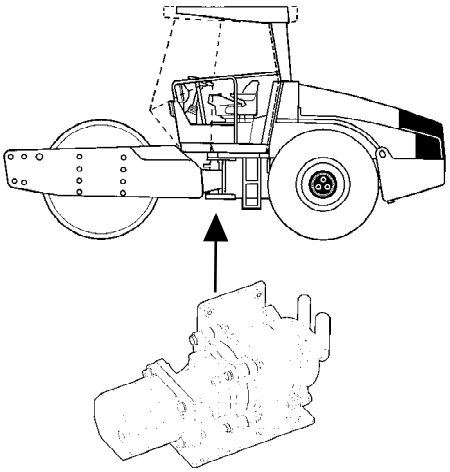


*Fig. Compressor*

## Compressor - Check (Optional)

Inspect the compressor's and hydraulic motor's attachment.

These are located under the cab between the rear frame sides. The components can be accessed from underneath.

The unit should, if possible, be run at least five minutes every week, to ensure lubrication of the rubber gaskets and compressor in the system.

The automatic climate control should not be run when the external temperature is less than 0 C, in any other case than the above.

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