# Instruction manual

## Operating & Maintenance

**4812160101_B.pdf**

**Vibratory roller**
**CA3500DCO**
**CA3600DCO**
**CA5000DCO**
**CA6000DCO**

**Engine**
**Cummins QSB 4.5 (IIIA/T3) / (IIIB/T4i)**
**Deutz TCD 2012 L6 (IIIA/T3) / TCD 6.1 L6 (IIIB/T4i)**

**Serial number**
**10000145x0A010028 -**
**10000146x0A00xxxx -**
**10000147x0A00xxxx -**
**10000148x0A00xxxx -**
**10000133xFA016993 -**
**10000129x0A008983 -**
**10000135x0A00xxxx -**
**10000131x0A00xxxx -**


Translation of original instruction

*Reservation for changes*
*Printed in Sweden*

EN

# Safety (Optional)

## Air conditioning

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

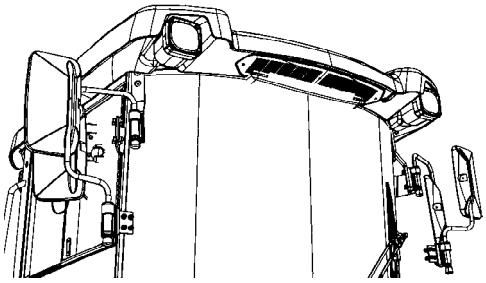


*Fig. Cab*

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

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

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

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

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

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

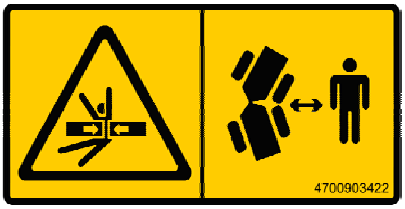
The amplitude indicator shows the percentage (%) of maximum amplitude.

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

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

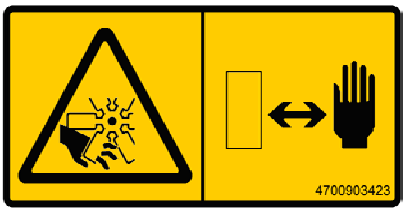
## Safety decals

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



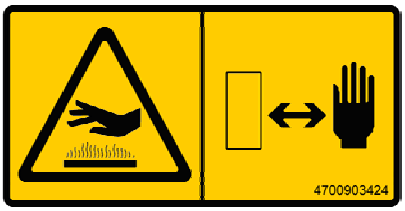

**4700903422**
**Warning - Crush zone, articulation/drum.**

**Maintain a safe distance from the crush zone.**



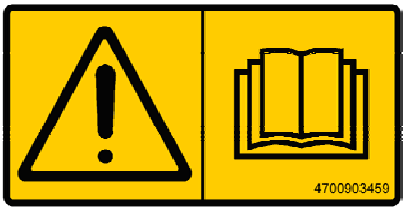

**4700903423**
**Warning - Rotating engine components.**

**Keep your hands at a safe distance.**



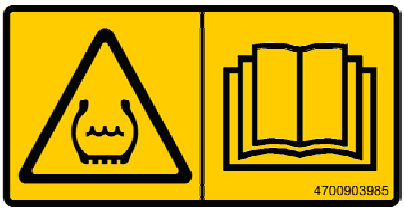

**4700903424**
**Warning - Hot surfaces in the engine compartment.**

**Keep your hands at a safe distance.**




**4700903459**
**Warning - Instruction manual**

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




**4700903985**
**Warning - Ballasted tire.**

Read the instruction manual.

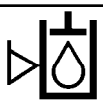
More information in section in Technical specifications.


**4700908229**
**Warning - Risk of crushing**

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

**Read the instruction manual.**

## Machine alarm

| Symbol | Designation | Function |
|---|---|---|
|  | Warning symbol, hydraulic fluid filter | If the symbol is shown when the diesel engine is running at full speed, the hydraulic fluid filter must be changed. |
|  | Warning symbol, clogged air filter | If this symbol is shown when the engine is running at full speed, the air filter must be checked/replaced. |
|  | Warning symbol, battery charging | If the symbol is shown when the engine is running, then the alternator is not charging.<br>Switch off the engine and locate the fault. |
|  | Warning symbol, engine temperature | If this symbol is shown, the engine is too hot. Stop the engine immediately and locate the fault.<br>Refer also to the engine manual. |
|  | Warning symbol, hydraulic fluid temperature | This symbol is shown when the hydraulic fluid is too hot.<br>Do not drive the roller; allow the fluid to cool by running the engine on idle, and then locate the fault. |
|  | Warning symbol, hydraulic fluid temperature (coldl) | This symbol is shown when the hydraulic fluid is too cold for the use of vibrations at full speed. (The oil must over 5 degrees (C))<br>Is the optional ECO chosen you can vibrate in ECO mode even if the oil has not reached 5 degrees (C). |
|  | Warning symbol, low fuel level | If this symbol is shown, there is less than 10% of the fuel left. |
|  | Warning symbol, low oil pressure, diesel engine | If this symbol is shown, the engine's oil pressure is too low.<br>Switch off the engine immediately. |
|  | Warning symbol, low coolant level | If this symbol is shown, fill with coolant/glycol and search for leaks. |
|  | Warning symbol, water in the fuel | If this symbol is shown, the engine must be stopped and the fuel pre-filter drained of water. |
|  | Warning symbol, low hydraulic fluid level | If this symbol is shown, fill with hydraulic fluid to the correct level and search for leaks. |

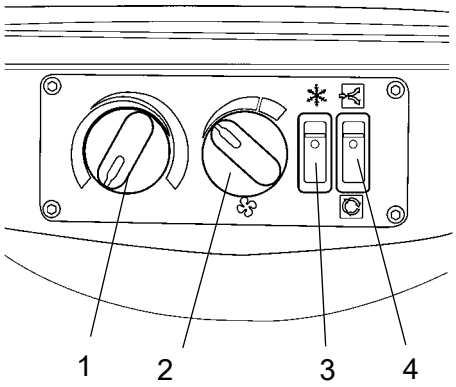
## Using the cab controls

### Defroster

To quickly remove ice or mist, make sure that only the front and rear air nozzles are open.

Turn the heater and fan dial (1 and 2) to max.

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




AC

### Heat

If the cab is cold, open the lower nozzle on the front columns and the middle nozzles just over the controls for the heater and fan.

Turn to max heat and max fan speed.

When the required temperature has been reached, open the other nozzles and if necessary turn down the heat and fan speed.

### AC/ACC

**NOTE:** When using AC/ACC all the windows must be closed for the system to work efficiently.

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

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

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

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

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

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

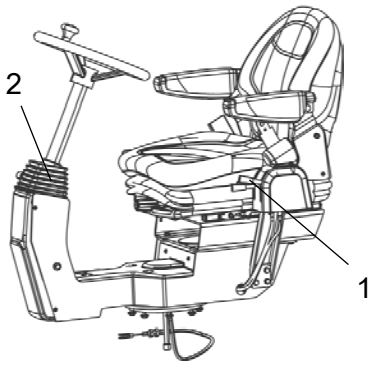



*Fig. Operator's station*
*1. Locking lever - rotation*
*2. Locking lever - steering column angle*

## Control panel, adjustments

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

For rotation, lift the lever (1).
Ensure that the control unit locks in position before operating the machine.

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

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

***Adjust all settings when the machine is stationary.***

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

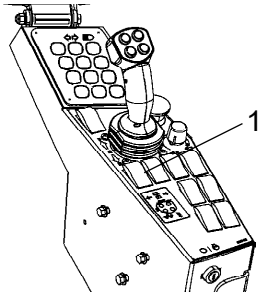



*Fig. Control panel*
*1. Parking brake*

## Parking brake

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

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

**The parking brake must be activated to start the machine!**

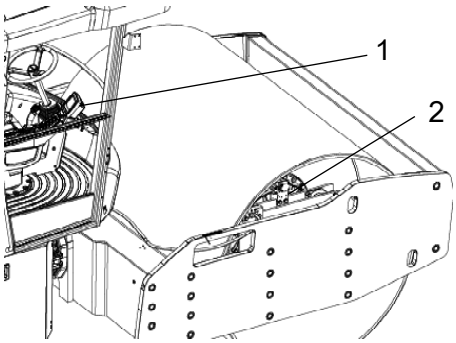



*Fig. Principal components*
*1. Display with CMV view*
*2. Sensor/Processor unit*


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

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

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

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

### Setting limit

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

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

## Long-term parking

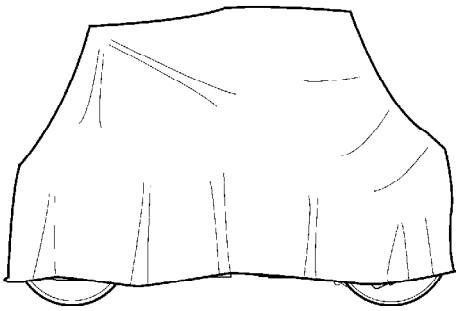


*Fig. Roller weather protection*

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

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

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

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

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

### Engine

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

### Battery

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

### Air cleaner, exhaust pipe

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

### Fuel tank

Fill the fuel tank completely full to prevent condensation.

### Hydraulic reservoir

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

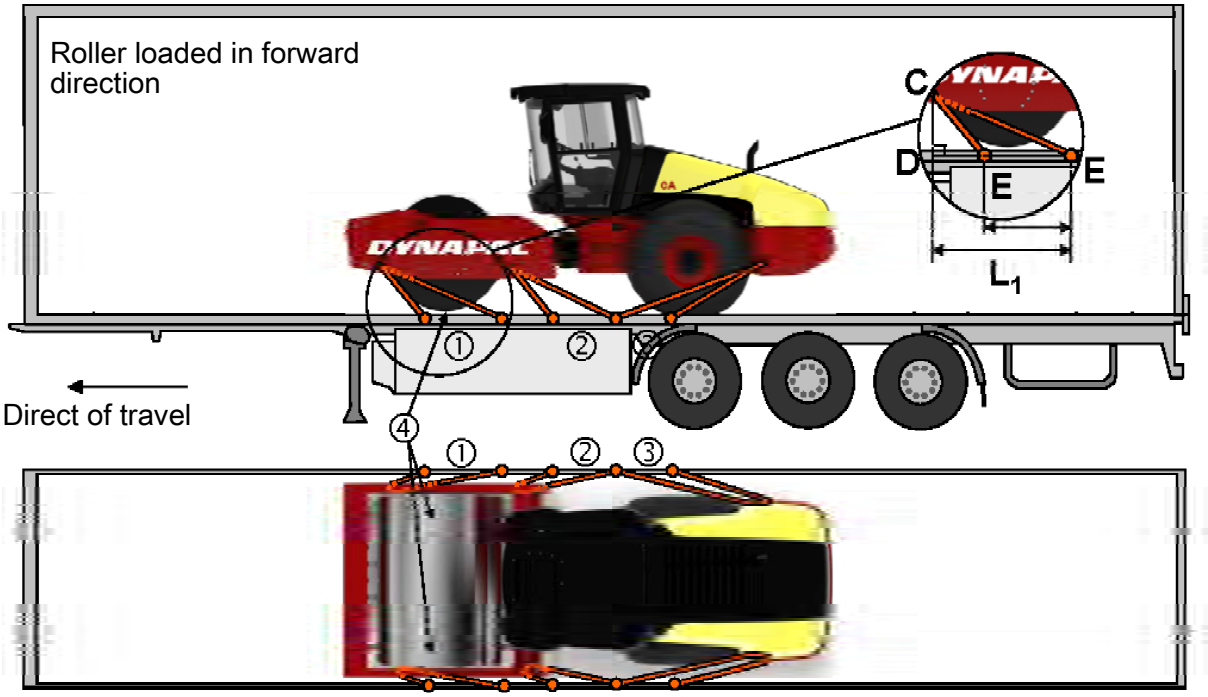
### Tires (All-weather)

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

## Securing CA5000 for loading

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

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




1 - 3 = double lashings, i.e. one lashing with two parts secured to two different lashing mounts, symmetrically located on the right and left sides.
4 = rubber

| The lashings' permitted distance interval in meters | | |
|---|---|---|
| (1 - 3: Double lashings, LC at least 1.7 tonnes (1700 daN), $S_{TF}$ 300 kg (300daN)) | | |
| Double $L_1$ | Double $L_2$ | Double $L_3$ |
| 1,1 - 3,0 | 1,1 - 3,0 | 0,1 - 2,0 |

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

# Maintenance - Maintenance schedule

## Service and maintenance points

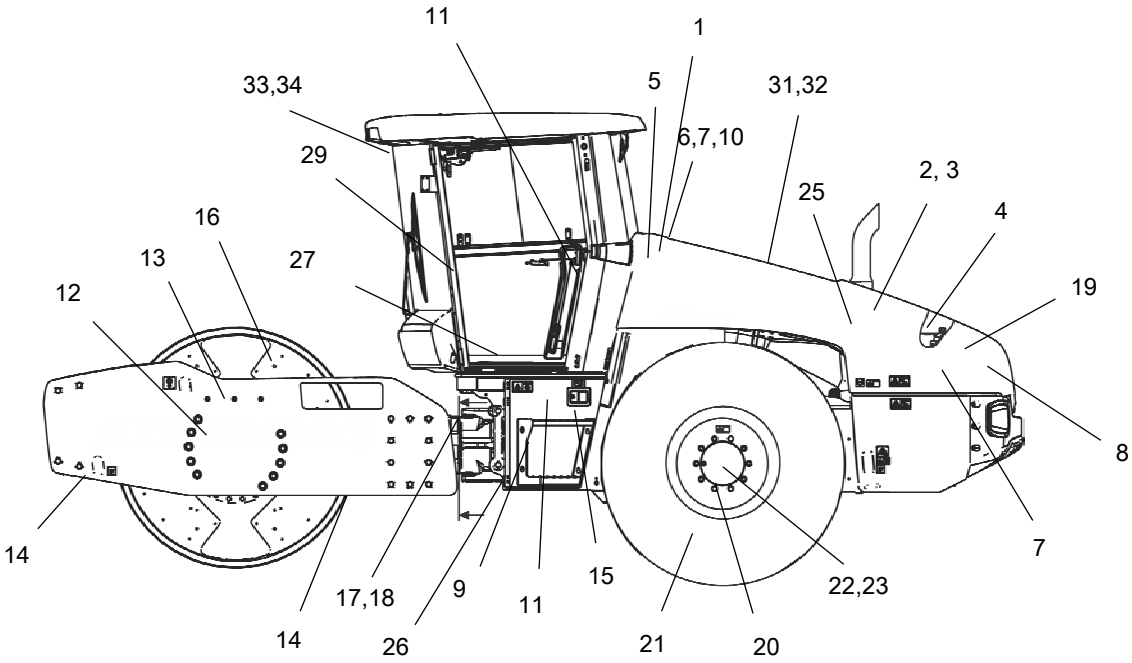



*Fig. Service and maintenance points*

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

* Optional equipment

## General

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

## Diesel engine  Check oil level

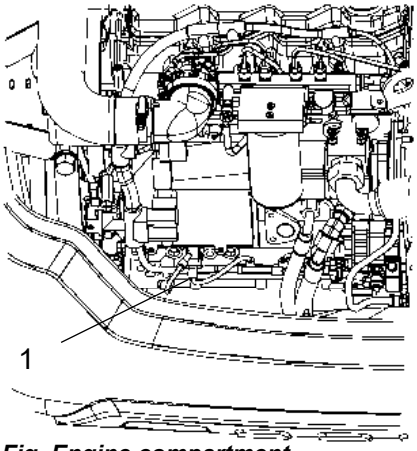



*Fig. Engine compartment*
*1. Dipstick*

***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 beside the engine's oil and fuel filter.

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

## Fuel tank - Filling

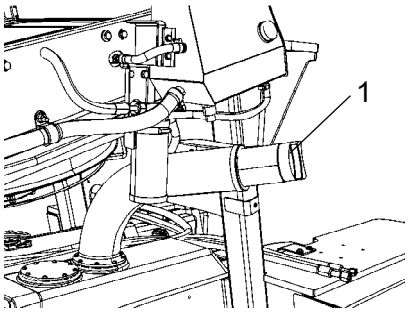



*Fig. Fuel tank*
*1. Filler pipe*

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

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

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

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

# Maintenance - 250 / 750 / 1250 / 1750h

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

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

## Rear axle differential - Check oil level

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

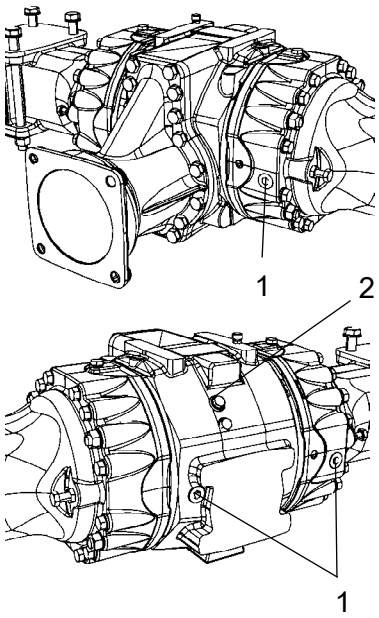



***Fig. Level control - differential housing***
***1. Level plugs (x 3)***
***2. Filler plug***

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

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

Clean and refit the plug.

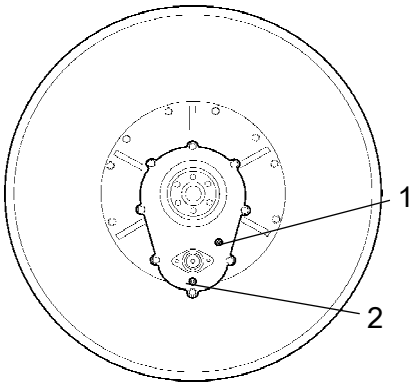



*Fig. Gearbox - Drum, right side*
*1. Filler plug/Level plug*
*2. Drain plug*

## Gearbox - Oil change

Place the roller on a level surface.

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

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

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

Deliver the drain oil to environmentally correct handling.

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

Clean and refit filler/level plug (1).

## Drum gearbox - Checking the oil level

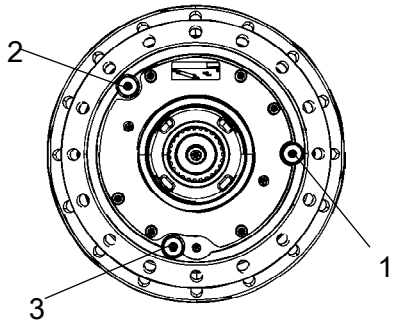



*Fig. Oil level check - drum gearbox*
*1. Level plug*
*2. Filler plug*
*3. Drain plug*

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

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

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

Clean and refit the plugs.

## Rear axle differential - Oil change

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

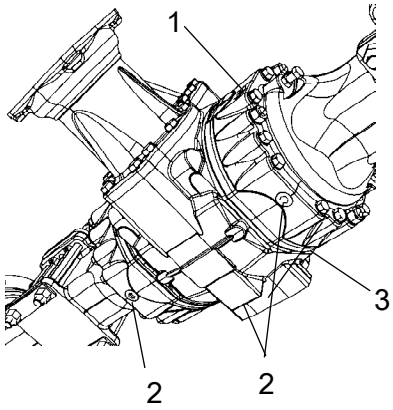



***Fig. Rear axle, underside***
***1. Level/Filler plugs (x 3)***
***2. Drain plugs (x 3)***
***3. Filler plugs (x x)***

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

Deliver the drain oil to environmentally correct handling.

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

## Rear axle planetary gear - Oil change

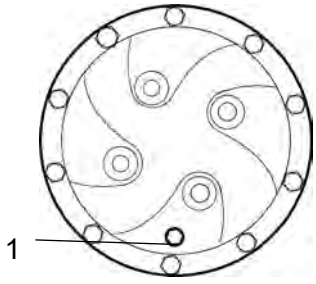



***Fig. Planetary gear/drainage position***
***1. Plug***

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

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

Oil should be taken to your local waste disposal station.

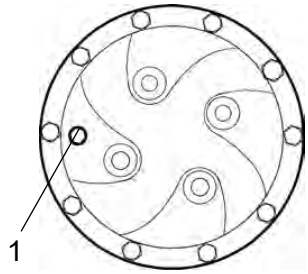



***Fig. Planetary gear/filling position***
***1. Plug***

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

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

Clean and refit the plug.

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

# Maintenance - 2000h

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

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

## Hydraulic reservoir - Oil change

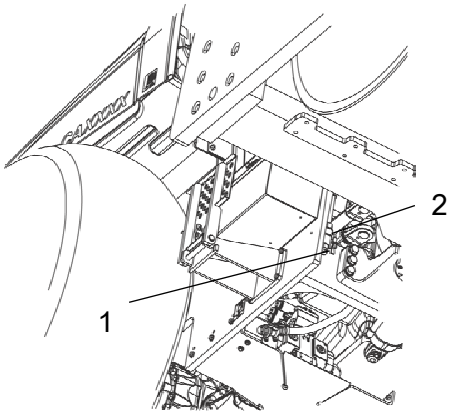



***Fig. Machine's right underside***
***1. Drain cock***
***2. Plug***

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

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

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

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

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

Start the diesel engine and operate the various hydraulic functions.

Check the fluid level and top up if necessary.