The CC 82/92 is an articulated, vibratory tandem roller in the 1.5 tonne range.

These rollers are designed for the compaction of both earth masses and asphalt compounds, and are suitable for repair and maintenance work and for the construction of pedestrian paths and cycle tracks, minor streets and roads, parking lots and yards.
Read the entire manual before starting any service work.

Make sure that ventilation (extraction) is adequate if the engine is run indoors.

It is essential that the machine is properly cared for to ensure satisfactory operation. Keep the machine clean to facilitate quick and timely detection of any leakage, loose bolts and loose connections.

Make a habit each day, before starting up, of checking the roller to detect any leakage or damage. Also check the ground underneath the roller, where it is most often easier to detect any leakage.

PROTECT THE ENVIRONMENT!
Do not leave behind any oil, fuel or other substances that are harmful to the environment.

This manual contains instructions for periodic measures that should normally be performed by the operator.

The manufacturer’s instructions in the engine manual also apply. This is placed under a separate flap in the product folder for the roller.

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.
### LUBRICANTS AND SYMBOLS

<table>
<thead>
<tr>
<th>Lubricant</th>
<th>Recommended Type and Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ENGINE OIL</strong></td>
<td>Shell Rimula Super SAE 15W/40 or equivalent (ACEA-E3, API-CH-4, CG-4, CF-4, CF)</td>
</tr>
<tr>
<td><strong>HYDRAULIC FLUID</strong></td>
<td>Shell Tellus Oil TX68 or equivalent</td>
</tr>
<tr>
<td></td>
<td>Shell Tellus Oil TX100 or equivalent</td>
</tr>
<tr>
<td><strong>DRUM OIL</strong></td>
<td>Shell Spirax SAE 80W/90, HD API, GL-5</td>
</tr>
<tr>
<td></td>
<td>Shell Spirax HD85W/140 or equivalent</td>
</tr>
<tr>
<td><strong>GREASE</strong></td>
<td>Shell Calithia EPT2 or equivalent</td>
</tr>
<tr>
<td><strong>FUEL</strong></td>
<td>See engine manual</td>
</tr>
</tbody>
</table>

#### CAUTION
- Always use high-quality lubricants in the amounts recommended. Too much grease or oil can cause overheating and subsequent increased wear.
- Other lubricants are required for operation in extremely high or extremely low ambient temperature. See, chapter “Special instructions”, or get in touch with Dynapac.
## TECHNICAL SPECIFICATIONS

### Weight and sizes

<table>
<thead>
<tr>
<th></th>
<th>CC 82</th>
<th>CC 82H</th>
<th>CC 92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service weight, with ROPS, EN500 (kg/lbs)</td>
<td>1570/3461</td>
<td>1630/3594</td>
<td>1590/3505</td>
</tr>
<tr>
<td>Length, standard equipped roller with ROPS (mm/inch)</td>
<td>2050/81</td>
<td>2050/81</td>
<td>2050/81</td>
</tr>
<tr>
<td>Width, standard equipped roller with ROPS (mm/inch)</td>
<td>1058/42</td>
<td>1058/42</td>
<td>1058/42</td>
</tr>
<tr>
<td>Height, standard equipped roller with ROPS (mm/inch)</td>
<td>2405/95</td>
<td>2405/95</td>
<td>2405/95</td>
</tr>
<tr>
<td>Height, standard equipped roller without ROPS (mm/inch)</td>
<td>1600/63</td>
<td>1600/63</td>
<td>1600/63</td>
</tr>
</tbody>
</table>

### Fluid volumes (Litres)

<table>
<thead>
<tr>
<th></th>
<th>CC 82</th>
<th>CC 82H</th>
<th>CC 92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic reservoir (gal)</td>
<td>30/7.9</td>
<td>30/7.9</td>
<td>30/7.9</td>
</tr>
<tr>
<td>Fuel tank (gal)</td>
<td>30/7.9</td>
<td>30/7.9</td>
<td>30/7.9</td>
</tr>
<tr>
<td>Water tank (gal)</td>
<td>75/19.8</td>
<td>75/19.8</td>
<td>80/21.1</td>
</tr>
<tr>
<td>Diesel engine (Hatz 2G40) (qts)</td>
<td>3.0/3.2</td>
<td>3.0/3.2</td>
<td>3.0/3.2</td>
</tr>
<tr>
<td>Drum (qts)</td>
<td>3.5/3.7</td>
<td>3.5/3.7</td>
<td>3.5/3.7</td>
</tr>
</tbody>
</table>

### Electrical system

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>12V, 75Ah</td>
</tr>
<tr>
<td>Alternator</td>
<td>14V, 55A</td>
</tr>
<tr>
<td>Fuses</td>
<td>8A &amp; 16A</td>
</tr>
</tbody>
</table>

### Vibration data

<table>
<thead>
<tr>
<th></th>
<th>CC 82</th>
<th>CC 82H</th>
<th>CC 92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static linear load, front/rear (kg/cm)</td>
<td>9.4/10.2</td>
<td>10.2/10.2</td>
<td>8.5/9.1</td>
</tr>
<tr>
<td>Amplitude (mm/inch)</td>
<td>0.27/0.010</td>
<td>0.27/0.010</td>
<td>0.27/0.010</td>
</tr>
<tr>
<td>Frequency (Hz)</td>
<td>68</td>
<td>68</td>
<td>68</td>
</tr>
<tr>
<td>Centrifugal force (kN/lb)</td>
<td>13/2.925</td>
<td>13/2.925</td>
<td>13/2.925</td>
</tr>
</tbody>
</table>

### Propulsion data

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed range (km/h)</td>
<td>0-10 (0-0.6 mph)</td>
</tr>
<tr>
<td>Climbing capacity - theoretical (%)</td>
<td>60</td>
</tr>
</tbody>
</table>

### Diesel engine

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Hatz 2G 40</td>
</tr>
<tr>
<td>Max. power, DIN at 2700 r/min (kW)</td>
<td>13 (18.0 hp)</td>
</tr>
</tbody>
</table>
TECHNICAL SPECIFICATIONS

Tightening torque

Tightening torque in Nm (lbf.ft) for oiled, bright galvanized bolts tightened with a torque wrench.

<table>
<thead>
<tr>
<th>M thread</th>
<th>STRENGTH CLASS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.8</td>
</tr>
<tr>
<td>M6</td>
<td>8,4</td>
</tr>
<tr>
<td>M8</td>
<td>21</td>
</tr>
<tr>
<td>M10</td>
<td>40</td>
</tr>
<tr>
<td>M12</td>
<td>70</td>
</tr>
<tr>
<td>M16</td>
<td>169</td>
</tr>
<tr>
<td>M20</td>
<td>330</td>
</tr>
<tr>
<td>M24</td>
<td>570</td>
</tr>
<tr>
<td>M30</td>
<td>1130</td>
</tr>
<tr>
<td>M36</td>
<td>1960</td>
</tr>
</tbody>
</table>

CAUTION

ROPS bolts must **always** be tightened dry.

Bolt size: M16 (P/N 90 37 45)
Strength class: 10.9
Tightening torque: 240 Nm (for Dacromet treated)

Hydraulic system

**Opening pressure, MPa (psi)**

- Drive system ......................... 33,0 (4,800)
- Charge system .......................... 2,0 (348)
- Vibration system ...................... 31,0 (4,500)
- Steering system ...................... 6,5 (943)
- Brake release ........................... 1,4 (203)
**TECHNICAL SPECIFICATIONS**

**Noise levels – Operator’s station (ISO 6394)**

<table>
<thead>
<tr>
<th></th>
<th>Acoustic pressure levels with vibration switched OFF, (dB(A)) (Measured on hard surface/standard roller)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard roller</strong></td>
<td>Operator’s station .................................................. 84</td>
</tr>
<tr>
<td></td>
<td>7 yards from the machine ........................................ 82</td>
</tr>
<tr>
<td><strong>Noise-suppressed roller</strong></td>
<td>Operator’s station .................................................. 80</td>
</tr>
<tr>
<td></td>
<td>7 yards from the machine ........................................ 74</td>
</tr>
</tbody>
</table>

**Vibration – Operator’s station (ISO 2631)**

<table>
<thead>
<tr>
<th></th>
<th>Measured with vibration switched ON and on soft polymer material, standard roller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibration in the operator’s seat is 0.26 m/s(^2) (0.853 ft/s(^2)) (without cab)</td>
<td>Vibration in the operator’s seat is 0.74 m/s(^2) (2.428 ft/s(^2)) (with cab)</td>
</tr>
<tr>
<td>Limit value for declaration according to the Machine Directive 98/37/EC is 0.5 m/s(^2) (1.641 ft/s(^2))</td>
<td></td>
</tr>
</tbody>
</table>

**Acoustic values**

The acoustic values are measured in conformance with EU directive 2000/14/EC on EU-equipped machines, on soft polymer material with vibration switched ON and the operator’s seat in transport mode.

<table>
<thead>
<tr>
<th>Model</th>
<th>Guaranteed acoustic power level dB(A)</th>
<th>Acoustic pressure level, operator’s ear (ROPS) dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC 82</td>
<td>103</td>
<td>–</td>
</tr>
<tr>
<td>CC 92</td>
<td>103</td>
<td>–</td>
</tr>
</tbody>
</table>

**CAUTION**

Noise level can vary when driving on different courses and with different seat positions.
Fig. 1 Service and maintenance points

1. Water tank, filling  
2. Forward/reverse lever  
3. Emergency brake  
4. Battery  
5. Air cleaner  
6. Diesel engine  
7. Hydraulic fluid cooler  
8. Alternator belt  
9. Sprinkler  
10. Scrapers  
11. Rubber elements  
12. Toothed belt  
13. Hydraulic fluid filter  
14. Hydraulic reservoir, filling  
15. Articulated steering  
16. Steering cylinder  
17. Fuel tank, filling  
18. Drums, oil filling  
19. ROPS
### MAINTENANCE MEASURES

The periodic measures are intended to be performed primarily with the specified hours of operation, secondarily for the periods: daily, weekly, etc.

**CAUTION**

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

**CAUTION**

The manufacturer’s instructions noted in the engine manual also apply.

### Every 10 hours of operation (Daily)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before starting each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Check level of engine oil</td>
<td>10</td>
<td>See engine manual</td>
</tr>
<tr>
<td>14</td>
<td>Check level in hydraulic reservoir</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Refuel</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Fill the water tank</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Check that cooling air is unrestricted</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Check setting of scrapers</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Test the brakes</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

### Every 50 hours of operation (Weekly)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Lubricate the articulation</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lubricate the steering cylinder mounts</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Empty the air cleaner dust trap</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Check the battery</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Check rubber elements and bolted joints</td>
<td>14</td>
<td></td>
</tr>
</tbody>
</table>

**CAUTION**

After the first 50 hours of operation, change all oil and hydraulic fluid filters and the lubricating oil, but not the hydraulic fluid.
## MAINTENANCE MEASURES

### Every 250 hours of operation (Monthly)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Change or clean filter element of air cleaner, ensure that hoses and connections are tight</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Clean the engine cooling fins</td>
<td></td>
<td>See engine manual</td>
</tr>
<tr>
<td>6</td>
<td>Check engine valve clearance</td>
<td></td>
<td>See engine manual</td>
</tr>
<tr>
<td>6</td>
<td>Change engine oil and oil filter</td>
<td>16</td>
<td>See engine manual</td>
</tr>
<tr>
<td>7</td>
<td>Clean outside of hydraulic fluid cooler</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Lubricate controls and pivots</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Check oil level in drums</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Check cap/venting on hydraulic reservoir</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Check alternator belt tension</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

### Every 500 hours of operation (Every three months)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Change the fuel filter</td>
<td></td>
<td>See engine manual</td>
</tr>
<tr>
<td>13</td>
<td>Change the hydraulic fluid filter</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>

### Every 1000 hours of operation (Every six months)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Drain condense water from hydr. reservoir</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Change the air filter</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Check toothed belt on vibration pump</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

### Every 2000 hours of operation (Yearly)

<table>
<thead>
<tr>
<th>Items in fig. 1</th>
<th>Action</th>
<th>See page</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>Change fluid in hydraulic reservoir</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Change oil in drums</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Empty and clean the water tank</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Empty and clean the fuel tank</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check the condition of the steering joints</td>
<td>22</td>
<td></td>
</tr>
</tbody>
</table>
EVERY 10 HOURS OF OPERATION (Daily)

Diesel engine
– Checking the oil level

![Diagram of Diesel engine with labels: 1. Dipstick, 2. Filler cap]

**WARNING**

Place the roller on a level base. The engine must be switched off and the reserve/parking brake knob pushed in for all checking and adjustments on the roller unless otherwise specified.

Turn the engine hood catch and open the hood forward.

**WARNING**

Ensure that the engine hood is fully open.

Check the oil level with the dipstick (1). The level should be between the two marks. If the level is close to the lower mark, top up with fresh engine oil through the filler cap (2). See under the heading Lubricants for the correct grade of oil.

**CAUTION**

Never fill too much oil, it may damage the engine.

Fig. 2 Diesel engine
1. Dipstick
2. Filler cap

Hydraulic reservoir
– Checking the level

![Diagram of Hydraulic reservoir with label: 1. Sight glass]

Wipe the sight glass (1). Make sure that the oil level is between the max. and min. marks.

Fig. 3 Hydraulic reservoir
1. Sight glass

Hydraulic reservoir
– Topping up

![Diagram of Hydraulic reservoir with label: 1. Filler hose]

Top up with fresh hydraulic fluid through the filler hose (1), until the level is visible in the sight glass.

See under the heading Lubricants for the correct grade of fluid.

Fig. 4 Right-hand side in engine compartment
1. Filler hose
**EVERY 10 HOURS OF OPERATION (Daily)**

**Fuel tank – Refueling**

Fill the fuel tank every day before work begins. Open the floor hatch (1) for refueling, using the hatch key provided. Fill through the fuel filler pipe (2).

*WARNING*

- Never refuel while the engine is running, do not smoke, and avoid spilling fuel.

*WARNING*

- Stop the engine. Short the refuelling nozzle by pressing it against the filler pipe (2) when refuelling.

The tank holds 30 quarts of fuel.

### Fig. 5 Floor of operator’s platform
1. Floor cover
2. Filler pipe/cap

**Water tank – Filling**

Screw off the tank cap (1) and fill with pure water, do not remove the strainer.

Fill the water tank; it holds 75–80 litres.

- Sole additive: Small amount of environment-friendly antifreeze liquid.

### Fig. 6 Water tank
1. Tank cap

**Sprinkler system – Checking, cleaning**

Ensure that the water filter (1) and holes in the sprinkler pipes are not clogged. Clean as required. Clean the water filter by lifting it out of its holder, screw off the lower part of the filter and clean the strainer and filter housing. Reassemble in the reverse order.

### Fig. 7 Sprinkler system
1. Water filter
EVERY 10 HOURS OF OPERATION (Daily)

Air circulation – Checking

![Fig. 8 Engine hood](image)

1. Cooling-air grille/engine
2. Cooling-air grille/oil cooler

Scrapers – Checking, adjustment

![Fig. 9 Front scraper in transport mode](image)

1. Adjusting nut
2. Lock nut
3. Mounting bracket
4. Handle
5. Catch

Ensure that circulation of cooling air to the diesel engine through the protective grille on the engine hood is unrestricted.

Check that the scrapers are undamaged. Adjust the scrapers as follows, if needed:

To set the scraper harder, loosen the lock nut (2) and turn the adjusting nut (1) clockwise to the desired setting.

Tighten the lock nut against the mounting bracket (3) to fix the setting.

Adjust the tension on both scraper mountings.

To set the scraper looser, adjust in the reverse order to the above.

The scrapers can suitably be released from the drum for transport driving, i.e., by raising the scraper with the handle (4) and the catch (5).

Brakes – Check

![Fig. 10 Instrument panel](image)

6. Reserve/parking brake knob
9. Brake warning lamp

Check operation of the brakes as follows:

Drive the roller slowly forward.

Push in the reserve/parking brake knob (6). The brake warning lamp (9) on the instrument panel should light and the roller should stop.

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

Pull up the reserve/parking brake knob.

The roller is now ready for operation.
EVERY 50 HOURS OF OPERATION (Weekly)

Steering cylinder and articulated steering – Lubrication

Place the roller on a level surface. Switch the engine off and push in the reserve/parking brake knob for all checking and adjustments on the roller, unless otherwise specified.

Allow no one to get near the steering joint when the engine is running. Danger of being crushed when steering is operated. Push the reserve/parking brake knob before lubricating.

Turn the steering wheel fully to the right to gain access to all five grease nipples (1) from the left side of the machine.

Wipe the grease nipples (1). Grease each nipple with three strokes of the hand-operated grease gun. Make sure that grease penetrates the bearings. If not, it may be necessary to relieve the articulation joint with a jack while repeating the greasing process.

Press the rubber bellows with your fingers to empty the dust trap (1) in the air cleaner. Make sure that the air hoses are intact.

Air cleaner – Emptying

WARNING

![Diagram of steering joint, left side](image1)

Fig. 11 Steering joint, left side
1. Lubricating nipples

![Diagram of air cleaner](image2)

Fig. 12 Air cleaner
1. Dust trap
Never use a naked flame when checking the battery. The electrolyte emits explosive gas while the alternator is charging.

Raise the engine hood to the fully open mode.

Wipe the top of the battery.

Take off the cell caps and make sure that electrolyte is about 10 mm (0.4 in) above the plates. Check the level of all cells. Top off with distilled water to the right level if the level is low. The engine should be run for a while before topping off with distilled water if the ambient temperature is below freezing. 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.

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

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

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

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).

Use the blade of a knife or pointed object to assist when checking.

Make sure that the fastening screws (2) are tightened.

The bolts holding the rubber elements to the drum are sealed with Loctite. Check the rubber elements on both sides of the drum.
Air cleaner
– Dismantling

Turn the machine in position for a left-hand turn. Loosen the screw (1) by turning it a \( \frac{1}{4} \) turn, lift the cover (2) and take out the filter through the opening after carrying out the following items.

Air Cleaner – Cleaning

Loosen the nut (1), cover (2), nut (3) and remove the backup filter (4). Make sure that the backup filter is undamaged. Clear the filter element by knocking it against your hand or other soft object. Then blow with compressed air from the inside of the filter. See below. Clean the filter housing (5) and the cover (2).

CAUTION
Change the backup filter after cleaning it five times.

CAUTION
Check the connections between engine and air cleaner. The connecting items should be checked and replaced if necessary if dust is found in the intake pipe of the engine.

Backup filter – Cleaning with compressed air

 Blow up and down along the paper pleats on the inside of the filter element. Hold the nozzle 20 to 30 mm (\( \frac{3}{4} \) 1\") from the pleats to avoid tearing the paper.

WARNING
Wear protective goggles when working with compressed air.
Changing the engine oil and oil filter

Run the engine warm before draining the oil.

**WARNING**
Make sure that ventilation (extraction) is adequate if the engine is run indoors (risk of carbon monoxide poisoning).

**WARNING**
Switch off the engine and apply the parking brake.

Place a receptacle that holds at least 15 liters of under the drain plug. Save the oil and deposit it in an approved manner.

**WARNING**
Danger of being burned when draining hot oil. Protect your hands.

Release the oil filler cap (3) and the plug (2) in the end of the drain hose; allow all engine oil to run out.

Release the drain hose (1) from the holder on the engine and move out the hose by the front scraper.

**CAUTION**
See the engine manual for detailed instructions concerning changing the oil and filter.

Remove the oil filter (4) and replace with a new one.

Refit the plug (2) in the end of the drain hose, and hang the hose in the holder on the engine.

Fill with fresh engine oil, see under the heading Lubricants for the correct grade of oil, and put the filler cap (3) on again. Ensure that the level is correct on the dipstick, start the engine and check round the oil filter for tightness.

Clean the fins of the fluid cooler, preferably using compressed air. Blow the cooler clean in the opposite direction to the normal flow of air. Check that the thermostat that regulates the radiator fan is working. It should switch on at 60°C (140°F).

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

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**EVERY 250 HOURS OF OPERATION (Monthly)**

**Fig. 19** Engine compartment, right-hand side
1. Drain hose
2. Plug

**Fig. 20** Engine compartment, left-hand side
3. Filler cap
4. Oil filter

**Hydraulic fluid cooler – Cleaning**

**Fig. 21** Engine compartment
1. Hydraulic fluid cooler
**EVERY 250 HOURS OF OPERATION (Monthly)**

**Forward/Reverse controls**
- Checking and lubrication

![Diagram of Forward/reverse controls](Fig. 22 Forward/reverse controls)

1. Friction screws
2. Screw
3. Operating wire

Check friction of the forward/reverse controls. Adjust the friction screws (1) as required to retain the forward/reverse controls at the set position during operation of the roller. The zero mode of the controls is determined by screw (2) gripping the groove in the spindle between the two control levers.

If the controls begin to bind after a long period of use, lubricate them at the bearings (1), and also lubricate the control cable (3) with a few drops of oil at each position.

![Diagram of Engine compartment](Fig. 23 Engine compartment)

1. F/R controls
2. Propulsion pump

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

**Drum**
- Checking the oil level

![Diagram of Drive side of drum](Fig. 24 Drive side of drum)

1. Oil plug

Position the roller on a flat surface and drive slowly until the oil plug (1) is opposite the semi-circular recess in the drum suspension.

**WARNING**

Switch off the engine, break the electric power supply and press the parking brake/emergency stop knob.

Unscrew the plug and check that the oil level reaches up to the lower edge of the filler hole. Fill as required with fresh transmission oil, see under the heading Lubricants for the correct grade of oil.

Clean off any metal particles from the magnetic oil plug (1) and screw in the plug.
Hydraulic reservoir  
– Checking/venting

Lift up the engine hood to its fully open position.

Unscrew and ensure that the reservoir cap is not clogged; air must have unobstructed passage through the cap in both directions.

If clogged in either direction, clean with a little diesel oil and blow with compressed air until free passage is assured, or replace the cap with a new one.

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

Fig. 25 Engine compartment, right-hand side
1. Hydraulic reservoir, filler cap

Alternator  
– Checking and belt tension

**WARNING**  
Switch off the engine, break the electric power supply and press the parking brake/emergency stop knob.

The alternator belt (3) is correctly stretched if it can be pressed down about 10 mm (³3/8") at a position half way between the pulleys. Proceed as follows if the belt needs to be stretched.

Loosen the two hexagonal socket screws (1) and (2).

Push the alternator over to tension the belt to the size mentioned above.

Tighten screw (1) first and then screw (2). Check to make sure that the belt is stretched properly after tightening the screws.

Fig. 26 Alternator viewed from the front
1. Adjusting screw
2. Mounting screw
3. Alternator belt
Hydraulic fluid filters – Changing

Place the roller on a level surface. Switch the engine off and push in the reserve/parking brake knob for all checking and adjustments on the roller, unless otherwise specified.

Remove the oil filter (1) and discard it in a safe manner; it is of the expendable type and cannot be cleaned.

Thoroughly clean the sealing surface of the filter holder.

Apply a thin coat of fresh hydraulic fluid on the rubber gasket of the new filter.

Screw on the filter by hand, first until the filter gasket makes contact with the filter base and then a further ½ turn.

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

Check the hydraulic fluid level in the sight glass (3) and top off as required, see under the heading “Every 10 hours of operation.”

Do not tighten the filters too hard, the seals may otherwise be damaged.
Every 1000 Hours of Operation (Every Six Months)

Hydraulic Reservoir – Draining

Drain condense water from the hydraulic reservoir via the drain plug (1). Drain after the roller has stood still for a longer period, eg, overnight.

**CAUTION**

Take care when draining. Do not drop the plug so that the fluid flows out in an uncontrolled manner.

Drain as follows:

Hold a can underneath the drain plug (1).

Loosen the plug and allow any water to run out.

Tighten the plug.

Air Cleaner – Changing

Replace the main filter (3) of the air cleaner even if it has not yet been cleaned five times; see under the heading “Every 250 Hours of Operation” for changing the filter.

**CAUTION**

If the filter is not replaced when clogged, the engine will emit smoke and lose power and there will be serious risk of damage to the engine.

Toothed Belt on Vibration Pump – Checking the Belt Tension

**WARNING**

Risk of injury by burning. Carry out this check only when the engine is cold. Carefully follow the items below to avoid the risk of injury by crushing.

**WARNING**

Switch off the engine, break the electric power supply and press the parking brake/emergency stop knob.

Put your hand under the left hydraulic filter and feel the top of the belt between the pulleys.

The belt is correctly stretched if it can be moved about 5 mm (\(^{3/16}\)”) up or down.
Hydraulic reservoir
– Changing the fluid

![Fig. 31 Left side of roller](image)

1. Drain plug
2. Exhaust pipe

Drum – Changing the oil

![Fig. 32 Drum, vibration side](image)

1. Filler plug
2. Position for level check

**WARNING**

Place the roller on a level surface. Switch the engine off and push in the reserve/parking brake knob for all checking and adjustments on the roller, unless otherwise specified.

**WARNING**

Danger of being burned when draining hot oil. Protect your hands.

**CAUTION**

Place a receptacle that will hold at least 50 liters under the plug. Save the oil and dispose of it in an approved manner.

Remove the drain plug (1) and allow all the oil to run out, wipe and refit the drain plug.

**CAUTION**

Fill with fresh hydraulic fluid of the grade indicated in the Lubricant specification.

Replace the hydraulic filter as described under the heading “Every 1000 hours of operation.”

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

**WARNING**

Make sure that ventilation (extraction) is adequate if the engine is run indoors. Risk of carbon monoxide poisoning.

**WARNING**

Switch off the engine, break the electric power supply and press the parking brake/emergency stop knob.

Loosen the plug (1) slightly, when it is at the position for level check (2), so that it can later be unscrewed by hand.

Position the roller on a level surface and slowly drive it until the plug (1) is at the bottom position.

Place a receptacle that will hold at least 5 liters under the plug. Save the oil and dispose of it in an approved manner.

Remove the drain plug and drain off the fluid.

See Every 250 hours of operation with regard to filling.
EVERY 2000 HOURS OF OPERATION (Yearly)

Fuel tank – Cleaning

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

CAUTION
Pump out any bottom sediment with a suitable pump; for example, an oil emptying pump. Save the oil in a can and dispose of it in an approved manner.

WARNING
Remember the danger of fire when handling fuel.

Remove the manhole cover (1).

Clean the inside of the fuel tank using a high-pressure washing jet, or by other suitable means, and remove any deposits. Wipe dry.

Fill with diesel fuel and check that all connections are tight.

If necessary, use the hand-operated pump on the left side of the engine to pump fuel through the system to the tank via the return lead (2).

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

CAUTION
Beware of the risk of freezing in the winter. Drain the tank, pump and piping.

Disconnect the hose (1) at the filter to drain the tank.

Clean the inside of the fuel tank using a high-pressure washing jet, or by other suitable means, and remove any deposits. Wipe dry.

Fill with diesel fuel and check that all connections are tight.

If necessary, use the hand-operated pump on the left side of the engine to pump fuel through the system to the tank via the return lead (2).

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

CAUTION
Beware of the risk of freezing in the winter. Drain the tank, pump and piping.

Disconnect the hose (1) at the filter to drain the tank.

Clean the inside of the fuel tank using a high-pressure washing jet, or by other suitable means, and remove any deposits. Wipe dry.

Fill with diesel fuel and check that all connections are tight.

If necessary, use the hand-operated pump on the left side of the engine to pump fuel through the system to the tank via the return lead (2).

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

CAUTION
Beware of the risk of freezing in the winter. Drain the tank, pump and piping.

Disconnect the hose (1) at the filter to drain the tank.

Clean the inside of the tank with water and a suitable detergent for plastic material.

Refit the hose and clean the water filter (2). Fill the tank with water and check that the sprinkler is working.

The water tank is made of plastic (polythene) and is recyclable.

Inspect the steering joint to detect any damage or cracks.

Check and correct any loose bolts.

Check also for any stiffness and play.
The following instructions should be followed for parking longer than one month:

The measures apply for a period of up to 6 months.

The items marked * must be restored before using the roller.

Fig. 36 Roller protected against the weather

**Diesel engine**

* See manufacturer’s instructions in the engine manual that accompanies the roller.

**Battery**

* Remove the battery from the roller, clean it, 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 its opening with plastic or tape. Cover the exhaust opening. This is necessary to prevent moisture from entering the engine.

**Fuel tank**

Fill the fuel tank completely to prevent condensation.

**Hydraulic reservoir**

Fill the hydraulic reservoir to the uppermost level mark, see under the heading "Every 10 hours of operation."

**Sprinkler system**

* Empty the water tank completely (see under the heading "Every 10 hours of operation"), also hoses, filter housing and water pump. Remove all the sprinkler nozzles (see under the heading "Every 10 hours of operation").

**Steering cylinder, hinges, etc.**

Lubricate bearings of the steering joint and both bearings of the steering cylinder with grease (see under the heading "Every 50 hours of operation"). Grease the piston rod of the steering cylinder with inhibitor grease. Grease the engine hood hinges, seat slide rails, revs control, and both ends of the forward/reverse control (bright parts) (see under Every 250 hours of operation).

**Hoods, tarpaulin**

* Lower the instrument shield plate on the steering column. Cover the entire roller with a tarpaulin. The tarpaulin must be free from the ground. Store the roller indoors if possible, preferably on premises with an even temperature.
SPECIAL INSTRUCTIONS

Standard oils and other recommended fluids
On leaving the factory, the various systems and components are filled with oil or fluid as indicated in the Lubrication specification and are thus suitable for operation in ambient temperatures between -10°C and +40°C (14°F-104°F)

CAUTION
A maximum temperature of +35°C (95°F) applies for biological hydraulic fluid.

The following recommendations apply for operation in higher ambient temperatures, up to a maximum of +50°C (122°F):

Higher ambient temperature above +40°C (104°F)
The diesel engine can be run at this temperature using the normal oil, but for other components the following fluids must be used: Hydraulic system using mineral fluid Shell Tellus TX100 or equivalent. Other components using transmission oil: Shell Spirax HD 85W/140, or equivalent.

Temperature
The temperature limits apply to standard versions of the roller. Rollers that are fitted with additional equipment, such as noise suppression, etc, may require extra observation in the higher temperature ranges.

High-pressure washing
CAUTION Never aim a water jet directly at the cap of the fuel tank or hydraulic reservoir. This is especially important when using a high-pressure jet.

Do not spray water directly on electric components or the instrument panel. Put a plastic bag over the filler cap of the fuel tank and secure with an elastic band. This will prevent water from entering the venting hole in the filler cap. This could otherwise cause operational disturbance, such as a clogged filter.

Fire fighting
In the event of fire in the machine, use an ABE powder fire extinguisher if possible. A BE-type carbon dioxide fire extinguisher may also be used.

Protective structure (ROPS)
If the roller is equipped with a protective structure (ROPS, Roll Over Protective Structure), or protective cab, the structure or cab must on no account be subjected to welding or the drilling of holes. Never attempt to repair a damaged structure or cab; they must be replaced with new ones.

Starting aid
CAUTION Do not connect the negative cable to the negative pole of the discharged battery, because in the event of a spark, the oxyhydrogen gas that is emitted around the battery could explode.

Always ensure that voltage of the jump-start battery is the same as that of the discharged battery.

Switch off the ignition and all power consuming items. Switch off the engine in the assisting machine. First connect the positive pole of the jump-start battery to the positive pole of the discharged battery and then connect the negative pole of the jump-start battery to a bolt or the engine lifting lug in the machine to the discharged battery. Start the engine of the assisting machine and let it run for a while. Attempt to start the other machine. Disconnect the cables in the reverse order.
ELECTRICAL SYSTEM, FUSES

Fuses

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

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

CAUTION
Before electric welding on the machine, disconnect the earthing cable of the battery and then all electrical connections to the alternator.

The electrical regulating and control system is protected against overload by fuses fitted in the fuse box, which is located in the engine compartment to the left of the battery.

The figures show the ampere rating and function of the different fuses.
The left fuse box is found in all machines.
The right fuse box is provided only in machines equipped with electric accessories.

Remove the cover plate on the front of the steering column to gain access to the fuses. The plate is held in position by two screws.

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**Fig. 38** Left fuse box (standard)
7,5 A 1. Starter
15 A 2. Fan, hydraulic fluid cooler
7,5 A 3. Sprinkler, neutral switch relay
7,5 A 4. Horn, fuel gauge
7,5 A 5. Reversing signal
6. VBS-relay, AVC

**Fig. 39** Right fuse box (optional)
15 A 1. Driving lights
15 A 2. Working lights
5 A 3. Direction indicator right
5 A 4. Direction indicator left
10 A 5. Hazard beacon
10 A 6. Blinkers relay