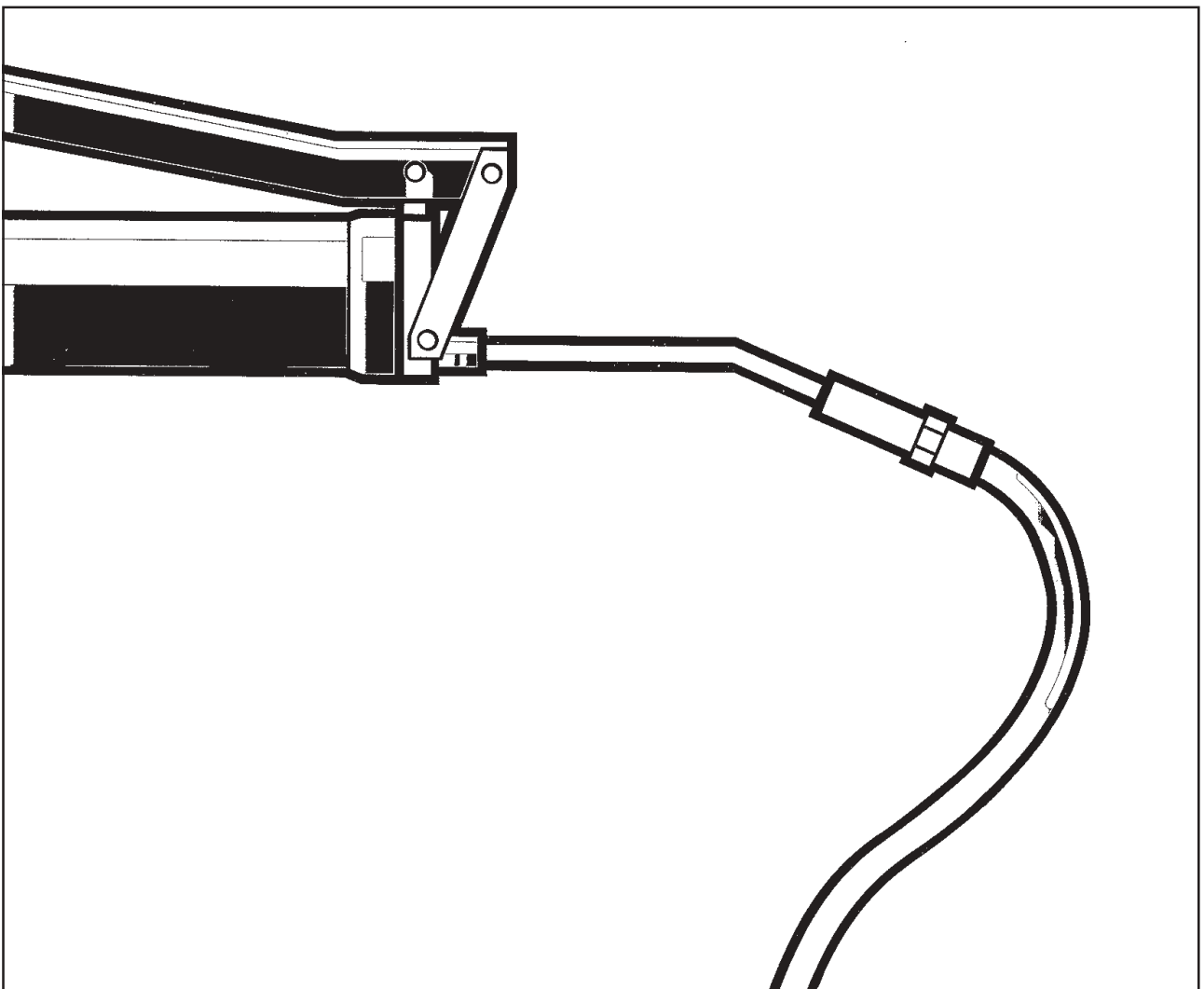


DYNAPAC CC 82/92 MAINTENANCE

M092EN3



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DYNAPAC

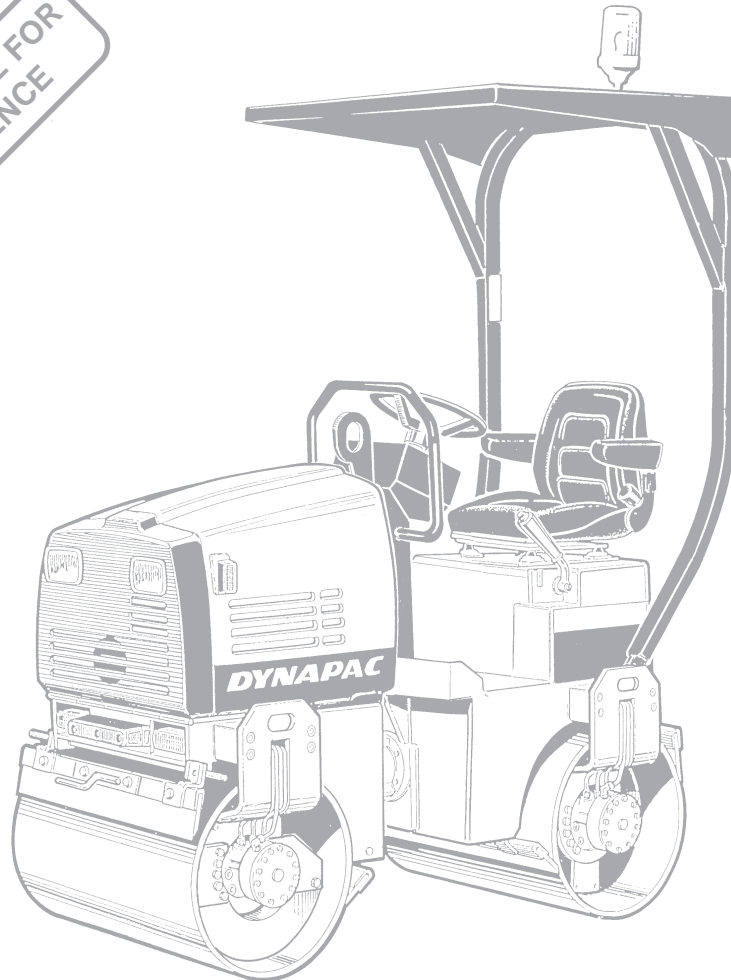
Vibratory Roller CC 82/92

Maintenance M092EN3, January 2002

**Diesel engine:
HATZ 2G40**

**These instructions apply from:
CC 82: PIN (S/N) *60620504*
CC 92: PIN (S/N) *60610500***

**KEEP THIS MANUAL FOR
FUTURE REFERENCE**



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.

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WARNING SYMBOLS

WARNING



Safety instructions—Personal safety.

CAUTION



Special caution—Machine or component damage.

GENERAL

WARNING



Read the entire manual before starting any service work.

WARNING



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.

CAUTION



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

CAUTION















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

	ENGINE OIL, Ambient temp. -10° C - +50° C (14 to 122°F)	Shell Rimula Super SAE 15W/40 or equivalent ACEA-E3, API-CH-4, CG-4, CF-4, CF
	HYDRAULIC FLUID, Ambient temp. -10° C - +40° C (14 to 104°F) Ambient temp. above +40° C (104°F)	Shell Tellus Oil TX68 or equivalent Shell Tellus Oil TX100 or equivalent
	DRUM OIL, Ambient temp. 15° C - +40° C (5 to 104°F) Ambient temp. above +40° C	Shell Spirax SAE 80W/90, HD API, GL-5 Shell Spirax HD85W/140 or equivalent
	GREASE	Shell Calithia EPT2 or equivalent
	FUEL	See engine manual

CAUTION



Other lubricants are required for operation in extremely high or extremely low ambient temperature. See, chapter "Special instructions", or get in touch with Dynapac.

	Engine oil level		Air cleaner
	Engine oil filter		Battery
	Hydraulic reservoir level		Sprinkler
	Hydraulic fluid filter		Sprinkler water
	Transmission oil level		Recyclable
	Lubricating oil		Fuel filter

TECHNICAL SPECIFICATIONS

Weight and sizes

CC 82 CC 82H CC 92

Service weight, with ROPS, EN500 (kg/lbs) ..	1570/3461	1630/3594	1590/3505
Length, standard equipped roller with ROPS (mm/inch)	2050/81	2050/81	2050/81
Width, standard equipped roller with ROPS (mm/inch)	1058/42	1058/42	1058/42
Height, standard equipped roller with ROPS (mm/inch)	2405/95	2405/95	2405/95
Height, standard equipped roller without ROPS (mm/inch)	1600/63	1600/63	1600/63

Fluid volumes (Litres)

Hydraulic reservoir (gal)	30/7.9	30/7.9	30/7.9
Fuel tank (gal)	30/7.9	30/7.9	30/7.9
Water tank (gal)	75/19.8	75/19.8	80/21.1
Diesel engine (Hatz 2G40) (qts)	3.0/3.2	3.0/3.2	3.0/3.2
Drum (qts)	3.5/3.7	3.5/3.7	3.5/3.7

Electrical system

Battery	12V, 75Ah
Alternator	14V, 55A
Fuses	8A & 16A

Vibration data

CC 82 CC 82H CC 92

Static linear load, front/rear (kg/cm)	9,4/10,2	10,2/10,2	8,5/9,1
Amplitude (mm/inch)	0,27/0.010	0,27/0.010	0,27/0.010
Frequency (Hz)	68	68	68
Centrifugal force (kN/lb)	13/2.925	13/2.925	13/2.925

Propulsion data

Speed range (km/h)	0-10 (0-0.6 mph)
Climbing capacity - theoretical (%)	60

Diesel engine

Model	Hatz 2G 40
Max. power, DIN at 2700 r/min (kW)	13 (18.0 hp)

TECHNICAL SPECIFICATIONS

Tightening torque

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

M thread	STRENGTH CLASS		
	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	—

ROPS

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)

Acoustic pressure levels with vibration switched OFF, (dB(A)) (Measured on hard surface/standard roller)	
Standard roller	
Operator’s station	84
7 yards from the machine	82
Noise-suppressed roller	
Operator’s station	80
7 yards from the machine	74

Vibration – Operator’s station (ISO 2631)

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

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.		
Model	Guaranteed acoustic power level dB(A)	Acoustic pressure level, operator’s ear (ROPS) dB(A)
CC 82	103	–
CC 92	103	–

CAUTION



Noise level can vary when driving on different courses and with different seat positions.

MAINTENANCE SCHEDULE

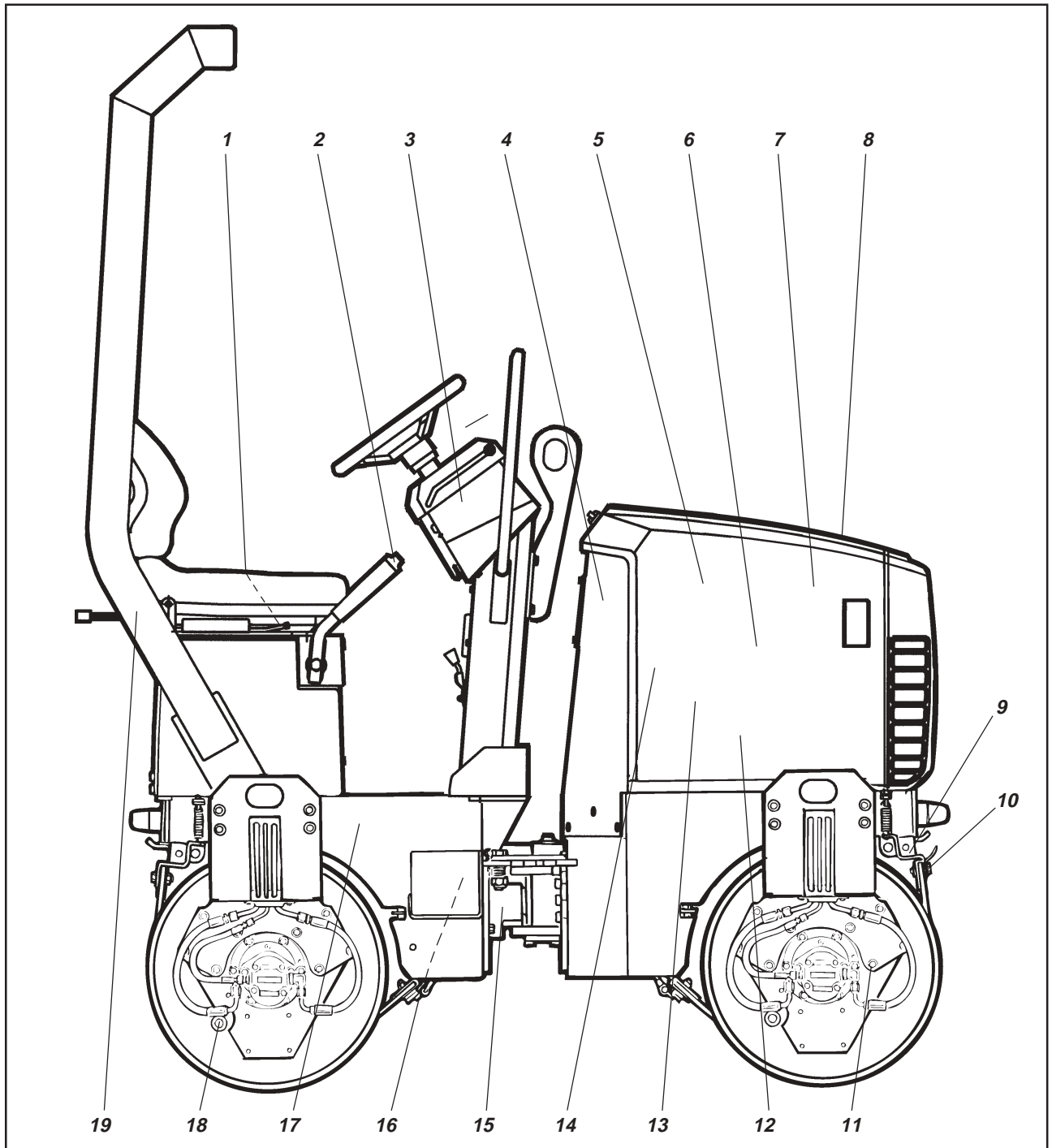


Fig. 1 Service and maintenance points

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

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)

Items in fig. 1	Action	See page	Comments
Before starting each day			
6	Check level of engine oil	10	See engine manual
14	Check level in hydraulic reservoir	10	
17	Refuel	11	
	Fill the water tank		
9	Check sprinkler system	11	
6	Check that cooling air is unrestricted	12	
10	Check setting of scrapers	12	
3	Test the brakes	12	

Every 50 hours of operation (Weekly)

Items in fig. 1	Action	See page	Comments
15	Lubricate the articulation	13	
16	Lubricate the steering cylinder mounts	13	
5	Empty the air cleaner dust trap	13	
4	Check the battery	14	
11	Check rubber elements and bolted joints	14	
	<p>CAUTION</p>  <p>After the first 50 hours of operation, change all oil and hydraulic fluid filters and the lubricating oil, but not the hydraulic fluid.</p>		

MAINTENANCE MEASURES

Every 250 hours of operation (Monthly)

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

Every 500 hours of operation (Every three months)

Items in fig. 1	Action	See page	Comments
6	Change the fuel filter		See engine manual
13	Change the hydraulic fluid filter	19	

Every 1000 hours of operation (Every six months)

Items in fig. 1	Action	See page	Comments
14	Drain condense water from hydr. reservoir	20	
5	Change the air filter	20	
12	Check toothed belt on vibration pump	20	

Every 2000 hours of operation (Yearly)

Items in fig. 1	Action	See page	Comments
14	Change fluid in hydraulic reservoir	21	
18	Change oil in drums	21	
1	Empty and clean the water tank	22	
17	Empty and clean the fuel tank	22	
	Check the condition of the steering joints	22	

EVERY 10 HOURS OF OPERATION (Daily)

Diesel engine – Checking the oil level

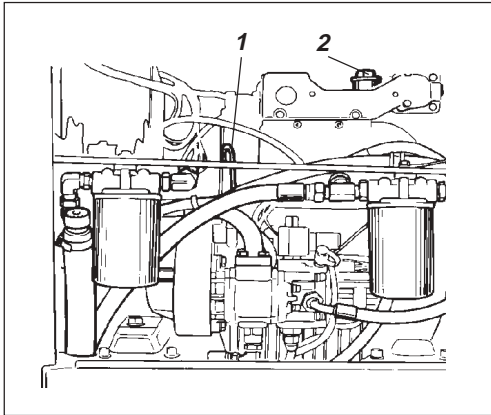


Fig. 2 Diesel engine

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.

Hydraulic reservoir – Checking the level

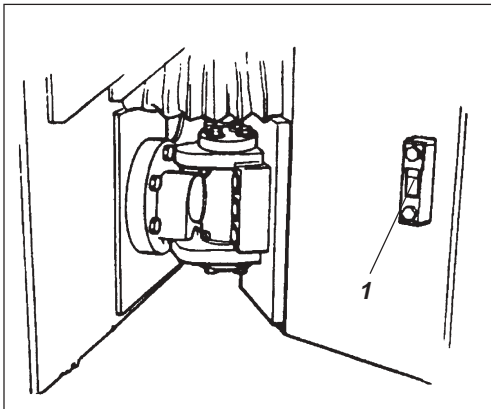


Fig. 3 Hydraulic reservoir

1. Sight glass

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

Hydraulic reservoir – Topping up

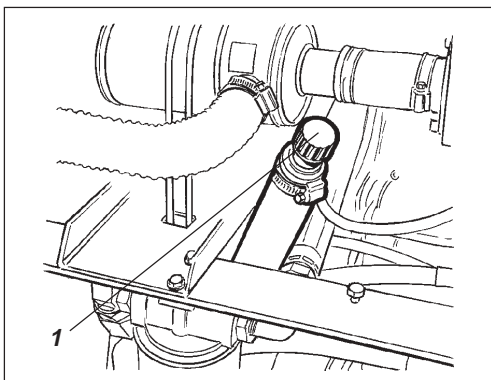


Fig. 4 Right-hand side in engine compartment

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.

EVERY 10 HOURS OF OPERATION (Daily)

Fuel tank – Refueling

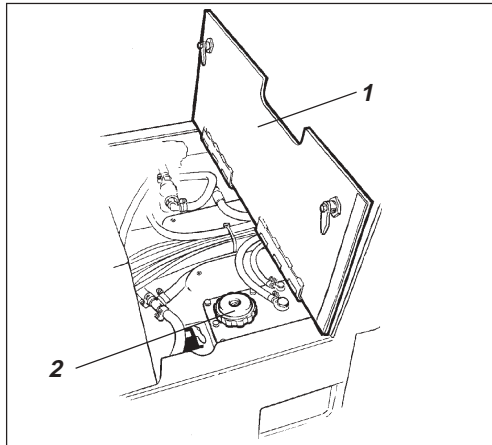


Fig. 5 Floor of operator's platform

1. Floor cover
2. Filler pipe/cap

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.

Water tank – Filling

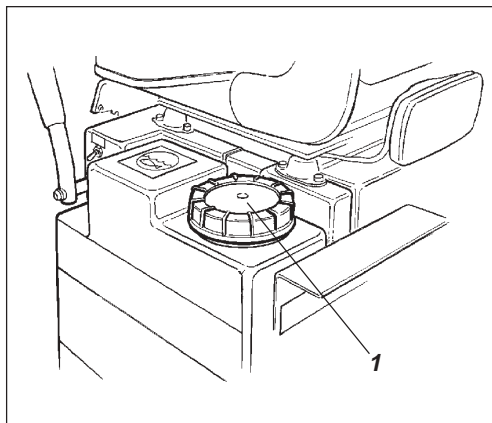


Fig. 6 Water tank

1. Tank cap

CAUTION



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.

Sprinkler system – Checking, cleaning

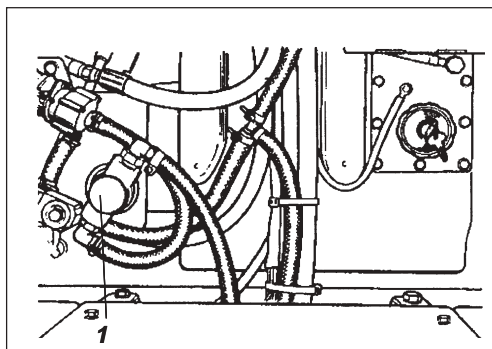


Fig. 7 Sprinkler system

1. Water filter

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.

EVERY 10 HOURS OF OPERATION (Daily)

Air circulation – Checking

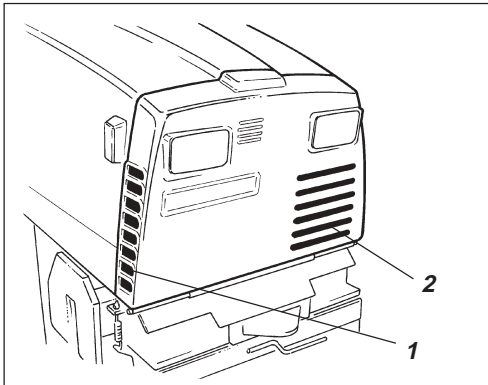


Fig. 8 Engine hood

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

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

Scrapers

– Checking, adjustment

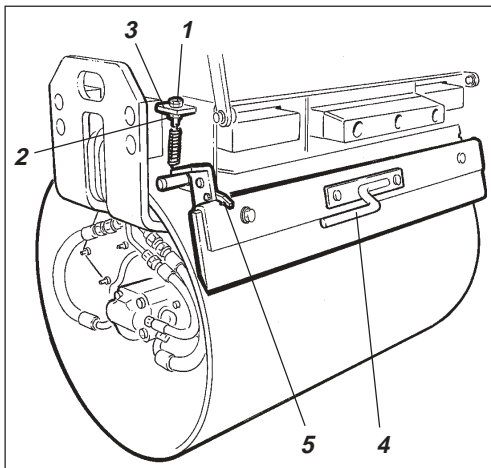


Fig. 9 Front scraper in transport mode

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

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, ie, by raising the scraper with the handle (4) and the catch (5).

Brakes – Check

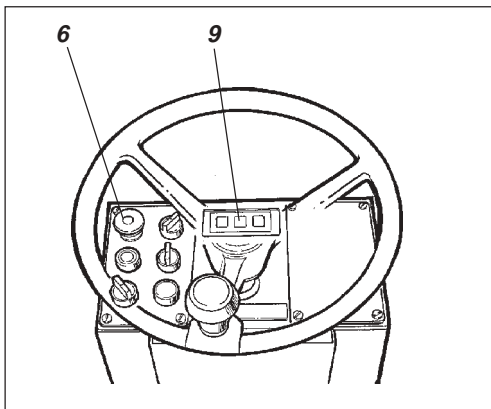


Fig. 10 Instrument panel

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

WARNING



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

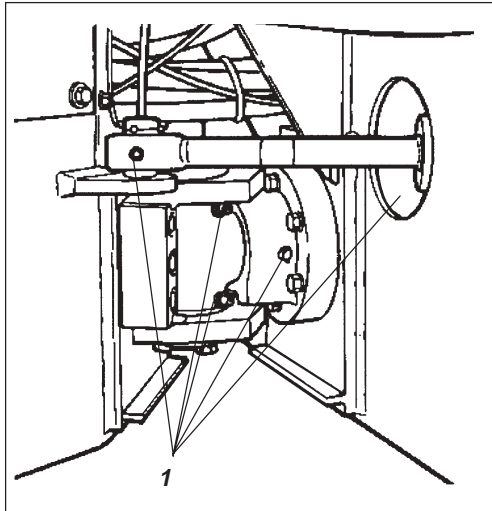


Fig. 11 Steering joint, left side
1. Lubricating nipples

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



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.

Air cleaner – Emptying

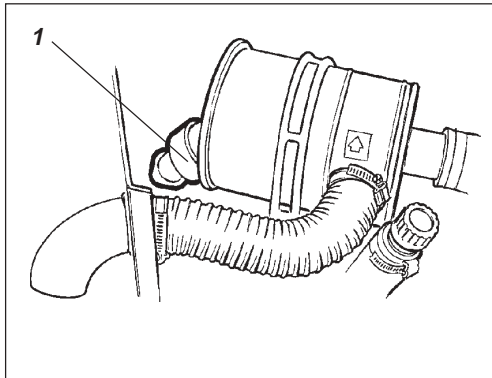


Fig. 12 Air cleaner
1. Dust trap

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.

EVERY 50 HOURS OF OPERATION (Weekly)

Battery – Checking the electrolyte level

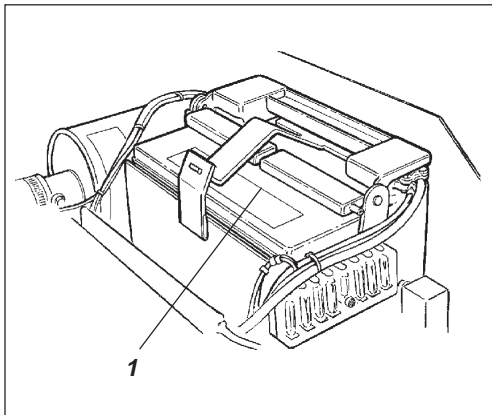


Fig. 13 Battery shelf
1. Battery

WARNING



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.

WARNING



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

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.

CAUTION



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.

WARNING



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

Battery cell

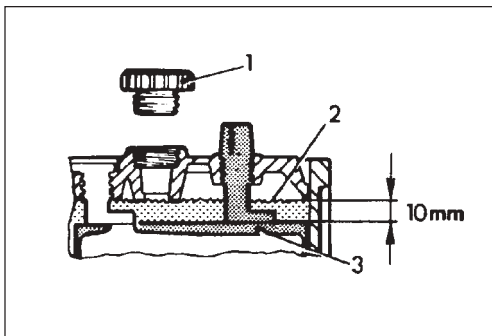


Fig. 14 Electrolyte level in battery
1. Cell cap
2. Electrolyte level
3. Plate

Rubber elements and fastening bolts – Checking

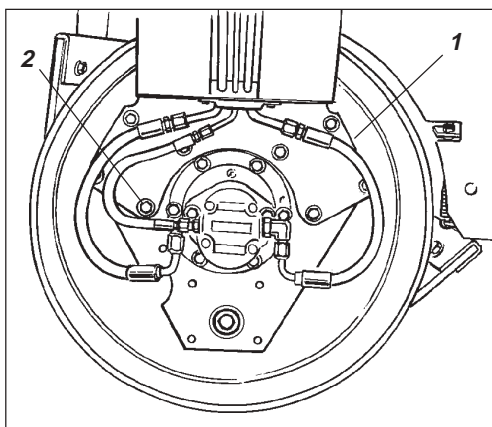


Fig. 15 Drum suspension
1. Rubber element
2. Fastening bolts

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.

CAUTION



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

EVERY 250 HOURS OF OPERATION (Monthly)

Air cleaner – Dismantling

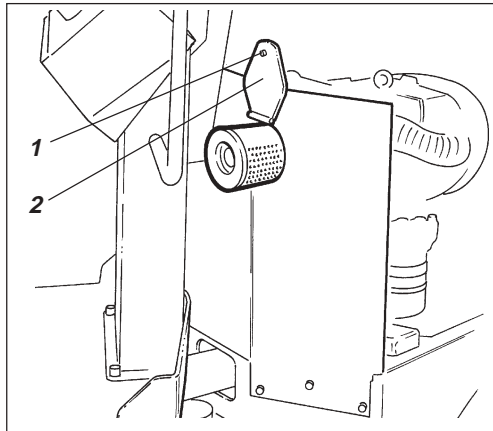


Fig. 16 Air cleaner
1. Securing screw
2. Cover

Turn the machine in position for a left-hand turn. Loosen the screw (1) by turning it a ¼ turn, lift the cover (2) and take out the filter through the opening after carrying out the following items.

Air Cleaner – Cleaning

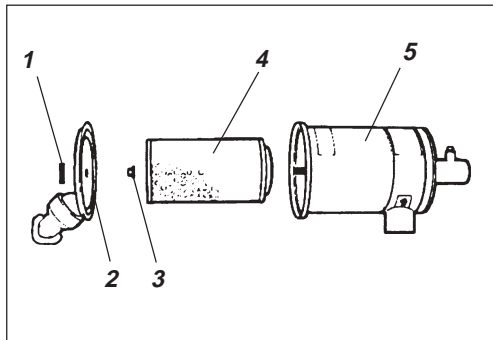


Fig. 17 Air cleaner
1. Wing nut
2. Cover
3. Nut
4. Backup filter
5. Filter housing

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



Fig. 18 Backup filter

Blow up and down along the paper pleats on the inside of the filter element. Hold the nozzle 20 to 30 mm (¾ 1") from the pleats to avoid tearing the paper.

WARNING



Wear protective goggles when working with compressed air.

EVERY 250 HOURS OF OPERATION (Monthly)

Changing the engine oil and oil filter

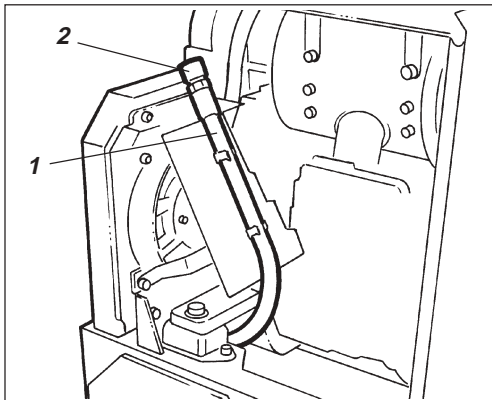


Fig. 19 Engine compartment, right-hand side

- 1. Drain hose
- 2. Plug

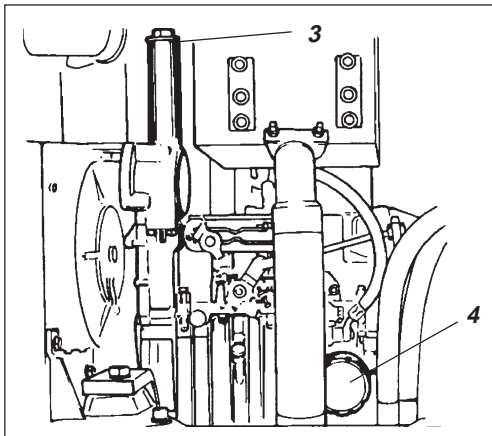


Fig. 20 Engine compartment, left-hand side

- 3. Filler cap
- 4. Oil filter

Hydraulic fluid cooler – Cleaning

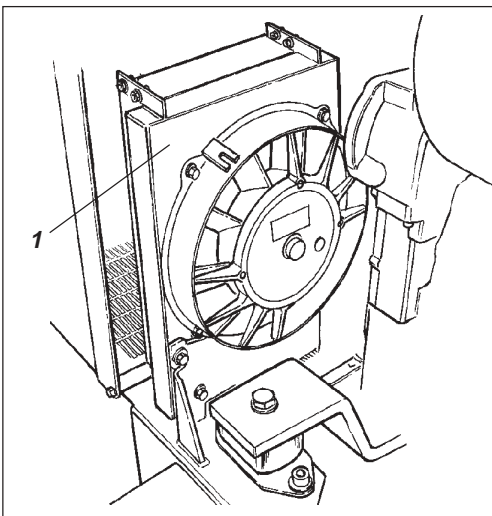


Fig. 21 Engine compartment
1. Hydraulic fluid cooler

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.

EVERY 250 HOURS OF OPERATION (Monthly)

Forward/Reverse controls – Checking and lubrication

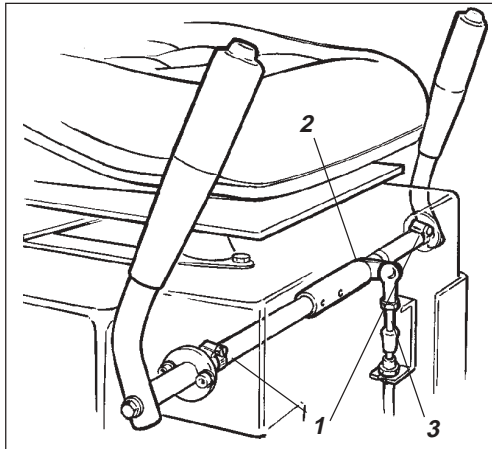


Fig. 22 Forward/reverse controls

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.

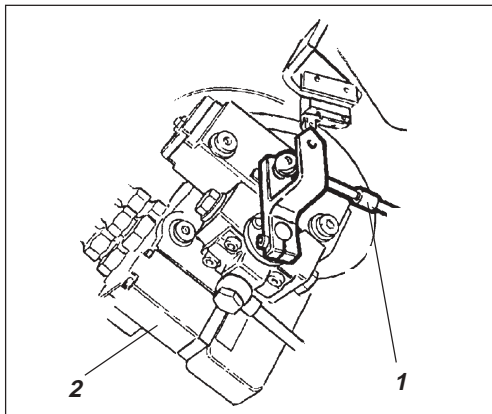


Fig. 23 Engine compartment

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

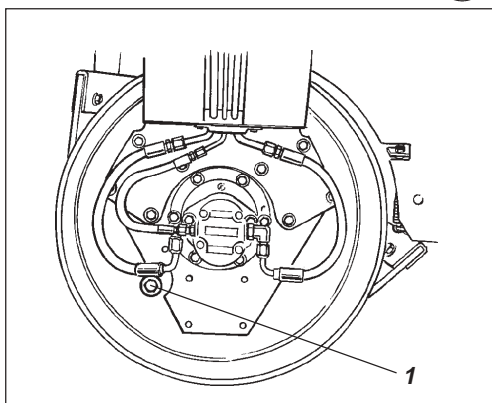


Fig. 24 Drive side of drum

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.

EVERY 250 HOURS OF OPERATION (Monthly)

Hydraulic reservoir – Checking/venting

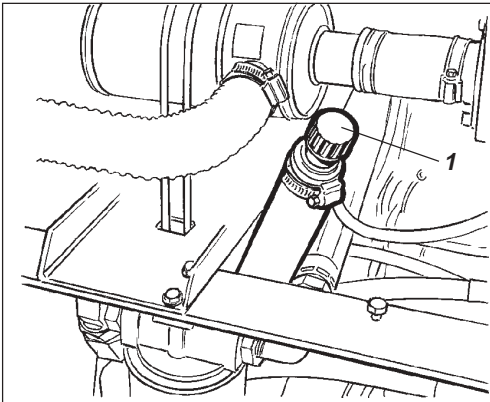


Fig. 25 Engine compartment, right-hand side
1. Hydraulic reservoir, filler cap

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.

Alternator – Checking and belt tension

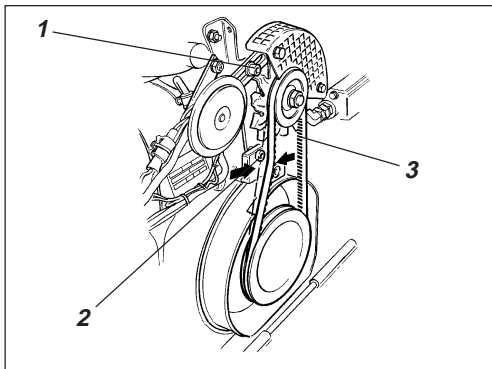


Fig. 26 Alternator viewed from the front
1. Adjusting screw
2. Mounting screw
3. Alternator belt

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 ($\frac{3}{8}$ ") 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.

EVERY 500 HOURS OF OPERATION (Every three months)

Hydraulic fluid filters – Changing

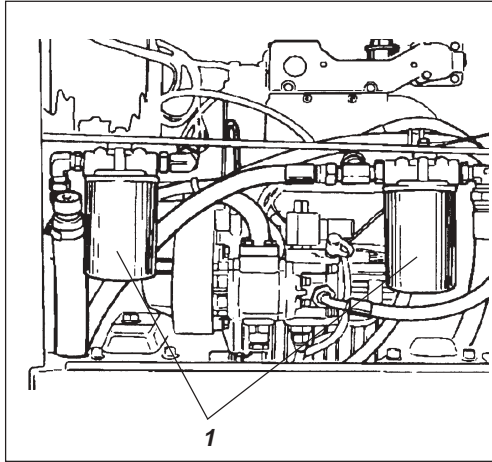


Fig. 27 Engine compartment, right-hand side
1. Hydraulic filters

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.



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."

CAUTION



Do not tighten the filters too hard, the seals may otherwise be damaged.

EVERY 1000 HOURS OF OPERATION (Every six months)

Hydraulic reservoir – Draining

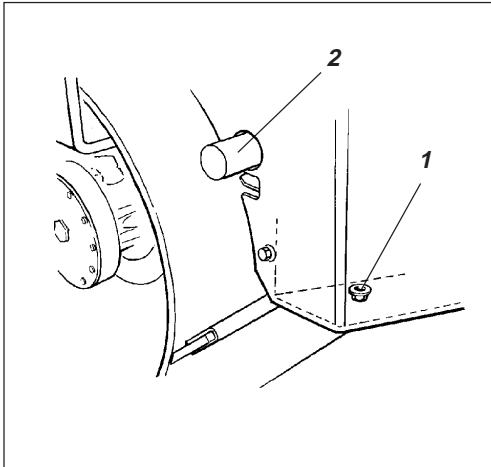


Fig. 28 Left side of machine

1. Oil drain plug
2. Exhaust pipe

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

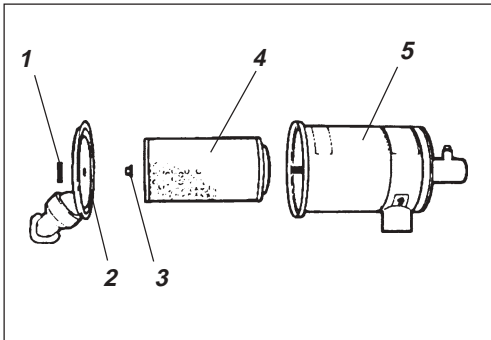


Fig. 29 Air cleaner

1. Wing nut
2. Cover
3. Nut
4. Backup filter
5. Filter housing

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

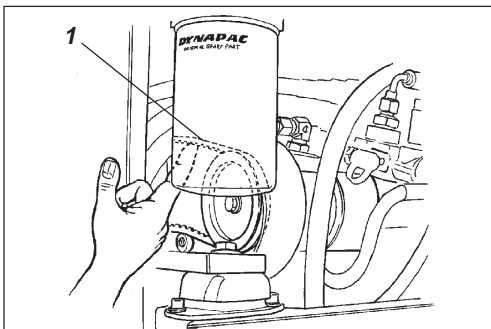


Fig. 30 Engine compartment, right-hand side

1. Toothed belt

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.

EVERY 2000 HOURS OF OPERATION (Yearly)

Hydraulic reservoir – Changing the fluid

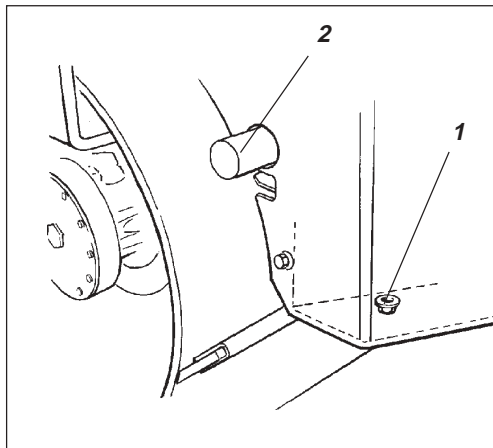


Fig. 31 Left side of roller
1. Drain plug
2. Exhaust pipe

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.

Drum – Changing the oil

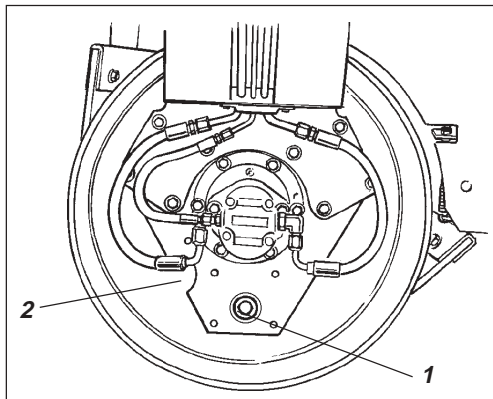


Fig. 32 Drum, vibration side
1. Filler plug
2. Position for level check

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

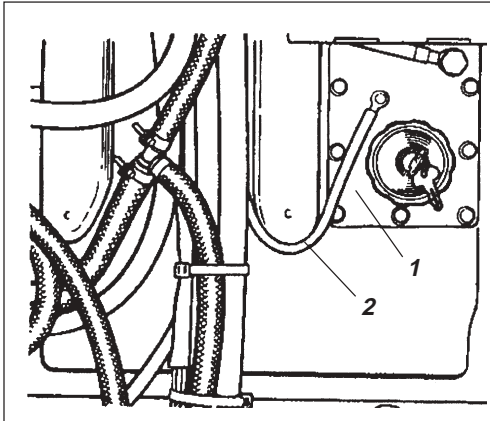


Fig. 33 Fuel tank
1. Manhole cover
2. Return lead

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 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.

Water tank – Cleaning

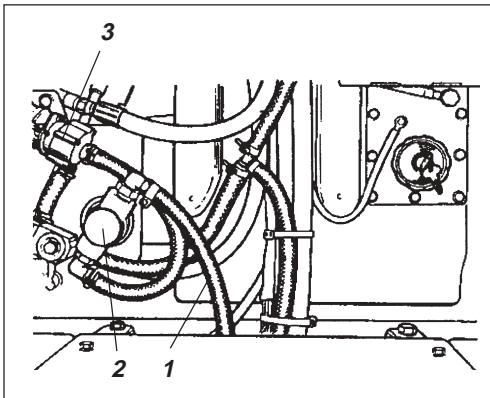


Fig. 34 Space under the floor
1. Tank hose
2. Water filter
3. Water pump

Steering joint – Check

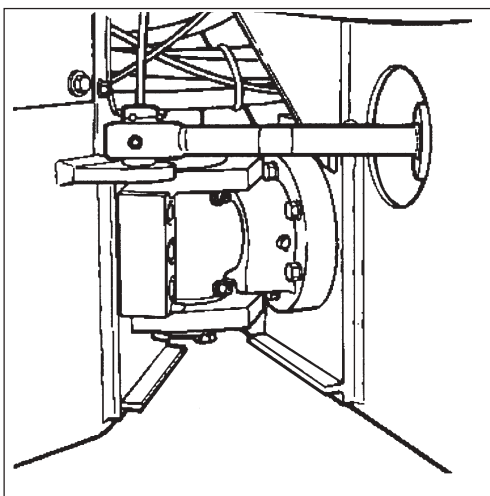


Fig. 35 Steering joint

LONG-TERM PARKING

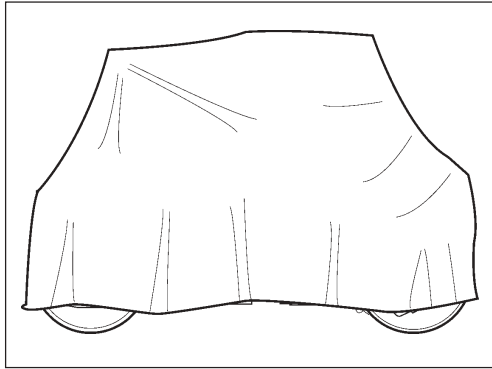


Fig. 36 Roller protected against the weather

CAUTION



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.

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 $+40^{\circ}\text{C}$ (14°F - 104°F)

CAUTION



A maximum temperature of $+35^{\circ}\text{C}$ (95°F) applies for biological hydraulic fluid.

The following recommendations apply for operation in higher ambient temperatures, up to a maximum of $+50^{\circ}\text{C}$ (122°F):

Higher ambient temperature above $+40^{\circ}\text{C}$ (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

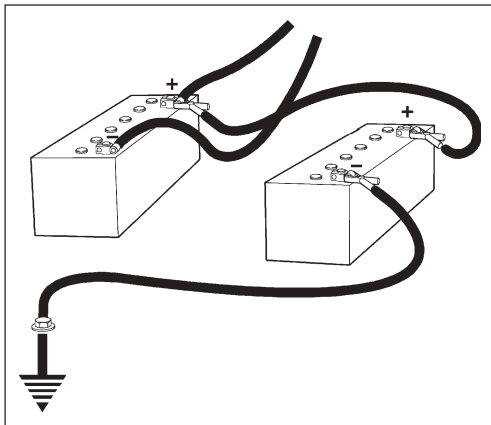


Fig. 37 Starting aid

WARNING



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.

CAUTION



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

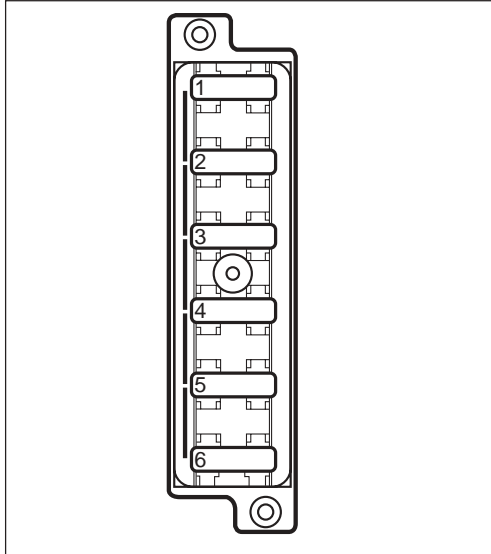


Fig. 38 Left fuse box (standard)

- 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
- 7,5 A 6. VBS-relay, AVC

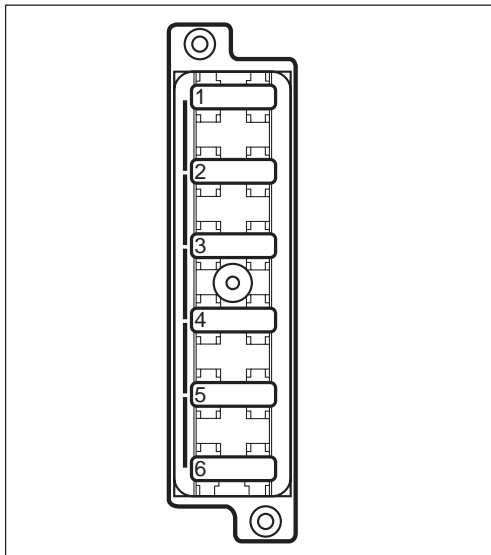


Fig. 39 Right fuse box (optional)

- 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

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.