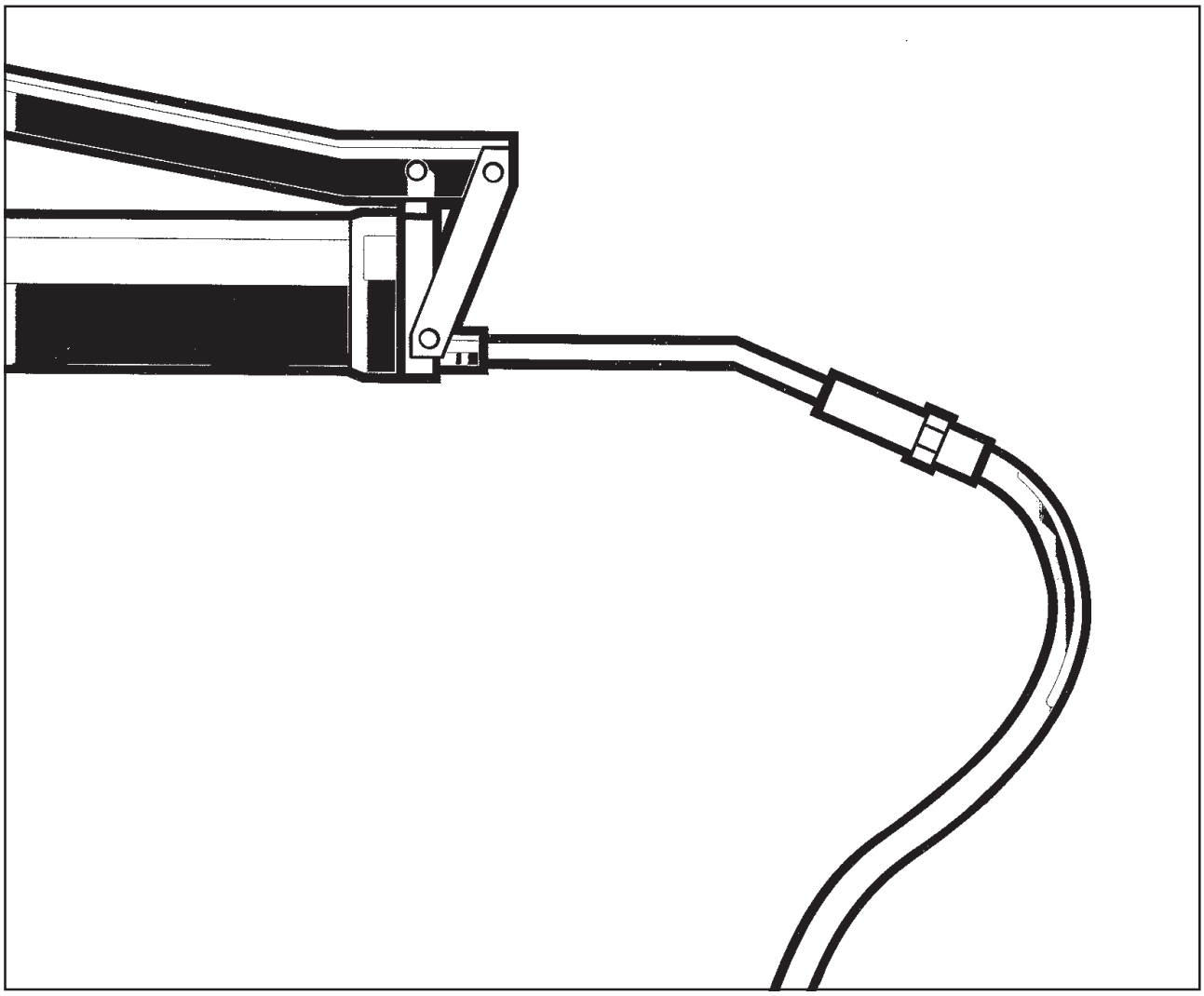
DYNAPAC
CC 422/422C/CC 422HF/422CHF
CC 432
CC 522/522C/CC 522HF/522CHF
MAINTENANCE

M422EN5



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DYNAPAC

Vibratory roller
CC 422/422C/CC 422HF/CC 422CHF/CC 432
CC 522/522C/CC 522HF/522CHF

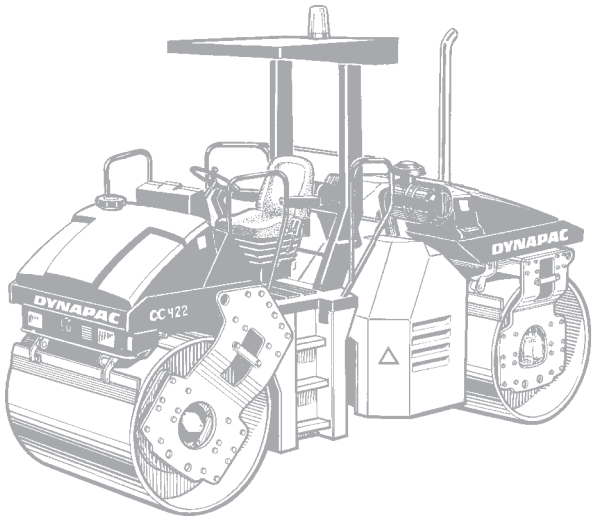
Maintenance
M422EN5, August 2003

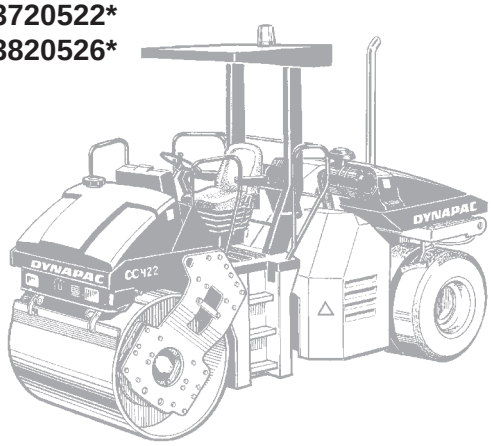
KEEP THIS MANUAL FOR FUTURE REFERENCE

Diesel engine:
Cummins B 3.9 TAA

These instructions apply from:

CC 422	**PIN (S/N) *42520422***
CC 422C	**PIN (S/N) *42620427***
CC 422HF	**PIN (S/N) *43520423***
CC 422CHF	**PIN (S/N) *43620429***
CC 432	**PIN (S/N) *42720433***
CC 522	**PIN (S/N) *42920523***
CC 522C	**PIN (S/N) *43020527***
CC 522HF	**PIN (S/N) *43720522***
CC 522CHF	**PIN (S/N) *43820526***





The Dynapac CC 422 is a vibratory roller in the 10-tonne class, with articulated steering and with propulsion, brakes and vibration on both drums.

The above roller is also available in a so-called Combi version with model designation CC 422C. It weighs about 9 tonnes and has a vibratory drum at the front and four smooth rubber tyres at the rear; all with drive and braking functions.

CC 432 is a vibratory roller in the 11-ton class, with articulated steering and vibration on both drums.

CC 522 is the designation of this model, the biggest roller in the series. It features wider and larger diameter drums compared with the CC 422 and is in the 12 tonne class.

This roller is also available in a combi version, weighing about 11 tons and with model designation CC 522C.

Reservation for changes.
Printed in Sweden.

CONTENTS

WARNING SYMBOLS

Safety instructions - Personal safety

Special caution - Machine or component damage

GENERAL

Read the entire manual before starting any service work.

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

The machine must be cared for properly 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.

TAKE CARE OF THE ENVIRONMENT! Do not leave behind any oil, fuel or other substances that are detrimental to the environment.

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

The manufacturer's instructions noted 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 recommended amounts. Too much grease or oil can cause overheating and subsequent increased wear.

	ENGINE OIL ambient temperature -10°C-+40°C (14°F-104°F)	Shell Rimula SAE 15W/40 or equivalent. API CF-4/SG (CD/CE)
	HYDRAULIC FLUID ambient temperature -10°C to +40°C (14°F-104°F) above +40°C (above 104°F)	Shell Tellus TX68 or equivalent Shell Tellus TX100 or equivalent
Bio-Hydr.	**BIOLOGICAL HYDRAULIC FLUID**	Shell Naturelle HF-E46 When it leaves the factory, the machine may be filled with biologically degradable fluid. The same type of fluid must be used when changing or topping off.
	DRUM OIL ambient temperature -15°C to +40°C (5°F-104°F)	Mobil SHC 629 or equivalent
	TRANSMISSION OIL ambient air temperature -15°C – +40°C (5°F - 104°F)	Shell Spirax SAE 80W/90, HD API, GL-5
	GREASE	SKF LGHB2 (NLGI Class 2) or equivalent for the articulated joint. Shell Retinax LX2 or equivalent for other grease points.
D	**FUEL**	See engine manual.
50 50	**COOLANT** mixed 50/50 with water	GlycoShell or corresponding. Anti-freeze protection down to about -41°C (-106°F).

CAUTION

Other fuel and lubricants are required for operation in extremely high or extremely low ambient temperature. See the “Special instructions” chapter, or consult Dynapac.

	Engine, oil level		Air filter
	Engine, oil filter		Battery
	Hydraulic reservoir, level		Sprinkler
	Hydraulic fluid filter		Sprinkler water
	Drum, oil level		Recycling
	Lubricating oil		Fuel filter
	Air pressure		Sprinkler, tyres
	Coolant, level		Transmission, oil level

TECHNICAL SPECIFICATIONS

Weights & dimensions	CC422/HF	CC422C/CHF	CC432
Operating mass with ROPS, EN500, kg (lbs)	10400 (22,932)	9950 (21,940)	11900 (26,240)
Operating mass without ROPS, kg (lbs)	10000 (22,050)	9550 (21,058)	11500 (25,358)
Operating mass with cab, kg (lbs)	10400 (22,932)	9950 (21,940)	11900 (26,240)
Length, standard equipped roller, mm (in)	4950 (195)	4950 (195)	4950 (195)
Width, standard equipped roller, mm (in)	1810 (71)	1810 (71)	1810 (71)
Width, with cab, mm (in)	2025 (80)	2025 (80)	2025 (80)
Height, without cab (Shipping height), mm (in)	2170 (85)	2170 (85)	2170 (85)
Height, with cab, mm (in)	2970 (117)	2970 (117)	2970 (117)
Height, with AC, mm (in)	2970 (117)	2970 (117)	2970 (117)
Height, with AC and hazard beacon, mm (in)	3295 (130)	3295 (130)	3295 (130)

Weights & dimensions	CC522/HF	CC522C/CHF
Operating mass with ROPS, EN500, kg (lbs)	11850 (26,129)	11000 (24,255)
Operating mass without ROPS, kg (lbs)	11450 (25,247)	10600 (23,373)
Operating mass with cab, kg (lbs)	11850 (26,129)	11000 (24,255)
Length, standard equipped roller, mm (in)	5090 (200)	5090 (200)
Width, standard equipped roller, mm (in)	2090 (82)	2090 (82)
Width, with cab, mm (in)	2160 (85)	2160 (85)
Height, without cab (Shipping height), mm (in)	2240 (88)	2240 (88)
Height, with cab, mm (in)	3040 (120)	3040 (120)
Height, with AC, mm (in)	3040 (120)	3040 (120)
Height, with AC and hazard beacon, mm (in)	3365 (132)	3365 (132)

Fluid volumes, Litres	CC422/HF	CC422C/CHF	CC432	CC522/HF	CC522C/CHF
Drum (qts)	14 (14.8)	14 (14.8)	6 (6.3)	14 (14.8)	14 (14.8)
Hydraulic reservoir (qts)	40 (42.3)	40 (42.3)	40 (42.3)	40 (42.3)	40 (42.3)
Fuel tank (gal)	200 (52.8)	200 (52.8)	200 (52.8)	200 (52.8)	200 (52.8)
Emulsion tank (gal)	–	485 (128)	–	–	485 (128)
Water tank (gal)	485 (128)	485 (128)	485 (128)	485 (128)	485 (128)
Diesel engine, lubr. oil (qts)	11 (11.6)	11 (11.6)	11 (11.6)	11 (11.6)	11 (11.6)
Transmission (qts)	0,8 (0.9)	0,8 (0.9)	0,8 (0.9)	0,8 (0.9)	0,8 (0.9)
Diesel engine, coolant (qts)	7,9 (8.4)	7,9 (8.4)	7,9 (8.4)	7,9 (8.4)	7,9 (8.4)

TECHNICAL SPECIFICATIONS

Electrical system	
Battery	12 V 170 Ah
Alternator	12 V 95A
Fuses	5, 7,5, 15, 20 och 25 Ampére

Vibrationsdata	CC422/HF	CC422C/CHF	CC432	CC522/HF	CC522C/CHF
Static linear load, (kg/cm)					
Front:	30,7/30,7	30,7/30,7	35,1	30,2/30,2	30,2
Rear:	31,2/31,2	–	35,7	30,6/30,6	–
Amplitude, (mm)					
High:	0,8/0,7	0,8/0,7	0,6	0,67/0,59	0,67/0,59
Low:	0,4/0,28	0,4/0,28	0,3	0,34/0,24	0,34/0,24
Frequency, (Hz)					
At High amplitude:	49/49	49/49	49	49/49	49/49
At Low amplitude:	49/62	49/62	49	49/62	49/62
Centrifugal force, (kN)					
At High amplitude:	128/111	128/111	133	128/111	128/111
At Low amplitude:	65/72	65/72	68	65/72	65/72

Vibrationsdata	CC422/HF	CC422C/CHF	CC432	CC522/HF	CC522C/CHF
Static linear load, (pli)					
Front:	171.9/171.9	171.9/171.9	196.6	169.1/169.1	169.1
Rear:	174.7/174.7	–	199.9	171.4/171.4	–
Amplitude, (in)					
High:	0.031/0.028	0.031/0.028	0.024	0.026/0.023	0.026/0.023
Low:	0.016/0.011	0.016/0.011	0.012	0.013/0.009	0.013/0.009
Frequency, (vpm)					
At High amplitude:	2940/2940	2940/2940	2940	2940/2940	2940/2940
At Low amplitude:	2940/3720	2940/3720	2940	2940/3720	2940/3720
Centrifugal force, (lb)					
At High amplitude:	28,800/24,950	28,800/24,950	29,925	28,800/24,950	28,800/24,950
At Low amplitude:	14,625/16,186	14,625/16,186	15,287	14,625/16,186	14,625/16,186

Traction	CC422/HF	CC422C/CHF	CC432	CC522/HF	CC522C/CHF
Speed range, km/h (mph)	0-11 (0-7)	0-11 (0-7)	0-11 (0-7)	0-12 (0-7.5)	0-12 (0-7.5)
Climbing ability (theoretical) %	42	47	36	34	34

Tires	CC422C/CHF	CC522C/CHF
Tire dimension	E20 (13/80 R20) Lisse	E20 (13/80 R20) Lisse
Tire pressure(kPa)	200 (2,0 kp/cm²), (29 psi)	200 (2,0 kp/cm²), (29 psi)

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

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

Bolt size:	M24 (P/N 903792)
Strength class:	10,9
Tightening torque:	800 Nm (590lbf.ft) (for Dacromet treated)

Hydraulic system

Opening pressure, MPa (psi)	CC 422/432/522
Drive system	42,0 (6,100)
Charge system	2,4 (350)
Vibration system	35,0 (5,100)
Steering system	20,0 (2,900)
Brake release	1,5 (220)

Air Condition (Optional)

The system described in this manual is of the ACC type (Automatic Climate Control), ie, a system that maintains the set temperature in the cab, on condition that windows and door are kept closed.

Refrigerant designation: HFC-R134:A
Weight of refrigerant newly filled: 1600 gram

Vibration (ISO 2631)

The vibration levels are measured in conformance with the operation cycle described in EU directive 2000/14/EC on EU equipped machines, on soft polymer material with vibration switched ON and operator's seat in the transport mode.

Whole-body vibration is measured at less than the action value of 0.5 m/s^2 specified in EU directive 2002/44/EC. (The limit value is 1.15 m/s^2.)

Hand/arm vibration is measured at less than the action value of 2.5 m/s^2 specified in the same directive. (The limit value is 5 m/s^2.)

Vibration levels may vary when driving on different courses and with different seat positions.

Acoustic values

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

Model	Guaranteed acoustic power level dB(A)	Acoustic pressure level, operator's ear (platform) dB(A)	Acoustic pressure level, operator's ear (cab) dB(A)
CC 422	110	-	-
CC 422HF	110	-	-
CC 422C	110	-	-
CC 422CHF	110	-	-
CC 432	110	-	-
CC 522	109	-	-
CC 522HF	109	-	-
CC 522C	109	-	-
CC 522CHF	109	-	-

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

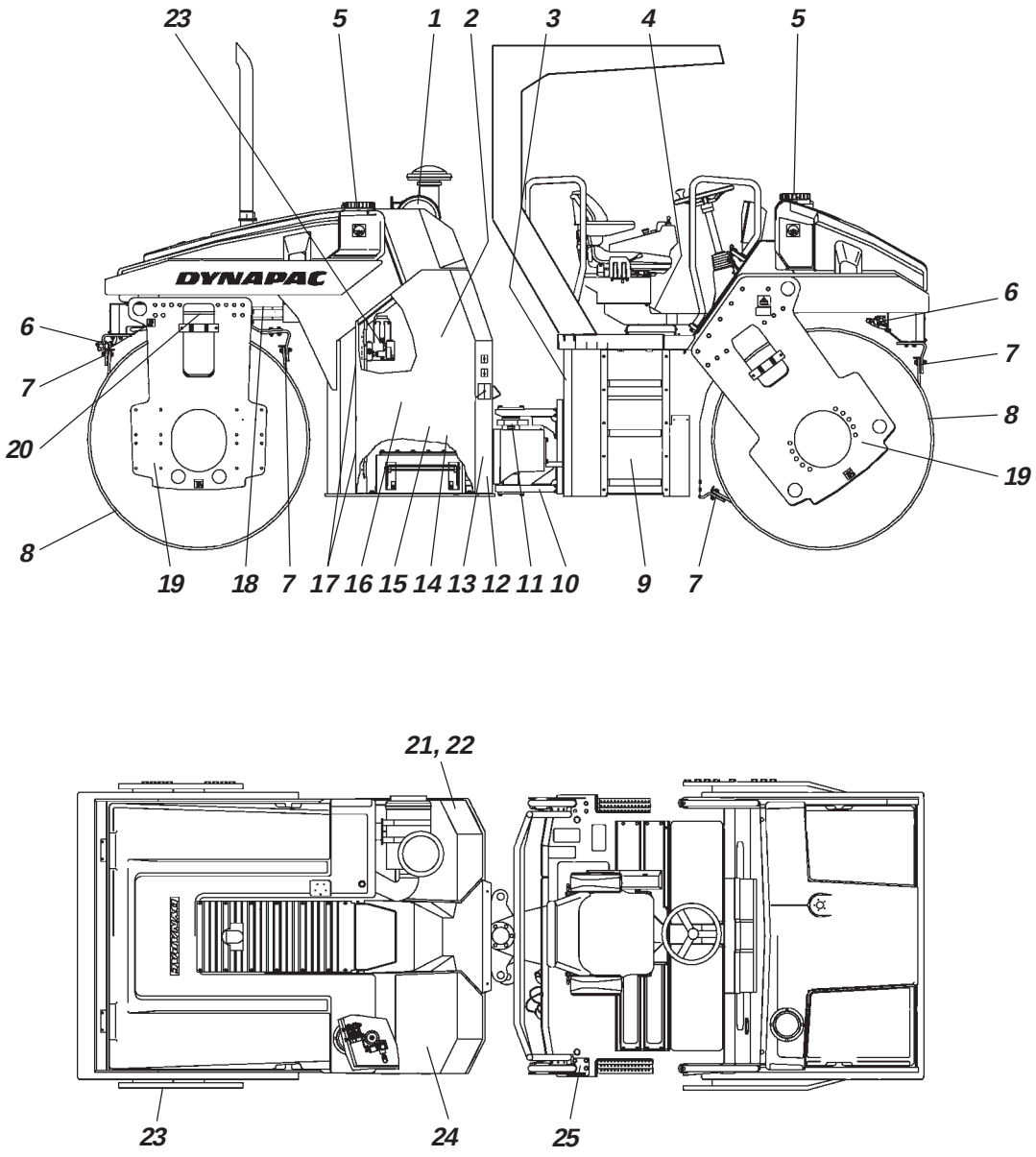


Fig. 1 Service and maintenance points

1. *Air cleaner*
2. *Engine oil*
3. *Fuel cap*
4. *Seat bearing*
5. *Water tanks*
6. *Watering system*
7. *Scrapers*
8. *Drums*
9. *Fuel tank*
10. *Articulated steering*
11. *Steering cylinder*
12. *Hydraulic fluid filter*
13. *Hydraulic fluid level*
14. *Hydraulic reservoir cap*
15. *Hydraulic reservoir*
16. *Diesel engine*
17. *Hinge*
18. *Pivot cylinder*
19. *Rubber element*
20. *Pivot bearing*
21. *Battery*
22. *Hydraulic fluid cooler/Radiator*
23. *Tire (Combi)*
24. *Pump gearing*
25. *Rail catch*

MAINTENANCE MEASURES

The periodic measures should be performed primarily after the specified hours of operation. Use the daily, weekly, etc. time periods only where this is not possible.

CAUTION

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

CAUTION

The engine manual specifies additional service/maintenance instructions which relate to the diesel engine.

Every 10 hours of operation (Daily)

Item in fig. 1	Measure	See page	Comments
	Before starting each day		
2	Check level of engine oil	11	See engine manual
22	Check level of engine coolant	11	
13	Check level in hydraulic reservoir	12	
3	Refuel	12	
5	Fill the water tanks	12	
6	Check the watering system/drum	13	
6	Emergency watering	14	
7	Check setting of scrapers/drum	14	
	Inspect spring-action scrapers	14	
23	Check the watering system/tyres	15	
23	Check setting of scrapers/tyres	15	
	Check brakes	16	

Every 50 hours of operation (Weekly)

Item in fig. 1	Measure	See page	Comments
10	Lubricate the steering articulation	17	
11	Lubricate steering cylinder mounts	17	
18	Lubricate control cylinder for pivot steering	17	Optional
1	Inspect and if necessary clean the filter element in the air cleaner	18	Replace as required
23	Check the tire pressure (Combi)	19	
24	Check oil level in pump gearing	19	
	Inspect the air conditioning	20	Optional
	Inspect/lubricate the edge cutter	20	Optional

CAUTION

After the **first** 50 hours of operation change only the drum oil and all the oil filters.

MAINTENANCE MEASURES

Every 250 hours of operation (Monthly)

Item in fig. 1	Measure	See page	Comments
22	Clean the hydraulic cooler and the water radiator	21	Or when required
21	Check level of battery fluid	21	
	Inspect the air conditioning	23	Optional

Every 500 hours of operation (Every three months)

Item in fig. 1	Measure	See page	Comments
16	Change engine fuel filter		See engine manual
2	Change the engine oil and oil filter	22, 23	See engine manual
8	Check oil level in drums	24	
20	Lubricate the pivot bearing	25	Optional
19	Check the rubber elements and bolted joints	25	
14	Check the cap/vent of the hydraulic reservoir	25	
17	Lubricate hinges and controls	26	
4	Lubricate the seat bearing	26	
	Grease the steering chain	27	
16	Change/clean the engine prefilter	27	

Every 1000 hours of operation (Every six months)

Item in fig. 1	Measure	See page	Comments
16	Check engine valve clearance		See engine manual
16	Check the engine belt-drive system		See engine manual
12	Change hydraulic filter	28	
1	Change main filter of the air cleaner	28	
24	Change oil in the pump gearing	29	
	Replace air cleaner filter in cab	29	
8	Change oil in drum/drums (HF version)	29	

Every 2000 hours of operation (Yearly)

Item in fig. 1	Measure	See page	Comments
15	Change fluid in hydraulic reservoir	30	
8	Change oil in drum/drums	30	
9	Empty and clean the fuel tank	30	
5	Empty and clean the water tanks	31	
	Lubricate the Forward/Reverse control	31	
10	Check the condition of the articulation	32	
	Overhaul air conditioning	33	Optional
	Overhaul compressor	34	Optional
	Overhaul drying filter	34	Optional

Diesel engine, oil level – Check

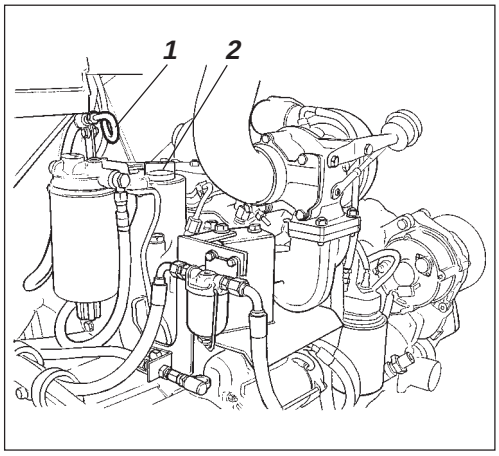


Fig. 2 Engine compartment
1. Oil dipstick
2. Filler cap

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.

The oil dipstick is accessible through the right door of the engine compartment.

WARNING

Beware of hot parts of the engine and exhaust pipe when taking out the oil dipstick. Observe caution. Wear gloves and safety goggles.

The dipstick is located on the short side of the engine above the hydraulic pumps.

Pull up the dipstick (1) and ensure that the oil level is between the upper and lower mark. For further details, see the engine manual.

Coolant level – Check

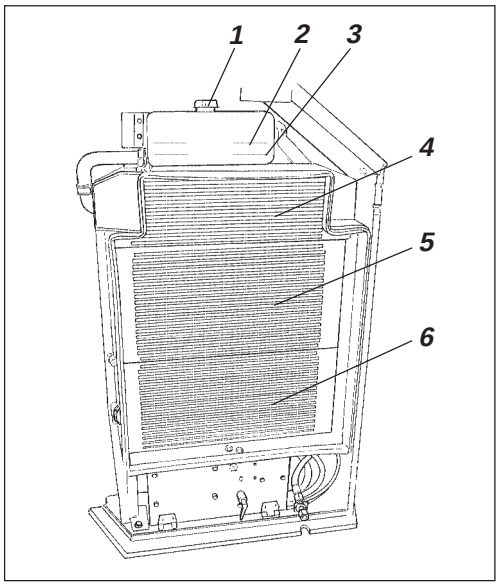


Fig. 3 Radiator
1. Filler cap
2. Level/max. mark
3. Level/min. mark
4. Intercooler
5. Radiator
6. Hydraulic fluid cooler

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

WARNING

Observe caution if the filler cap must be opened while the engine is hot. Wear gloves and safety goggles.

Fill with a mixture of 50% water and 50% anti freeze. See page 3 in these instructions and in the engine manual.

CAUTION

Flush the system every other year and change the coolant. Ensure also that air can flow unrestricted through the radiator.

EVERY 10 HOURS OF OPERATION (Daily)

Hydraulic reservoir, level check – Filling

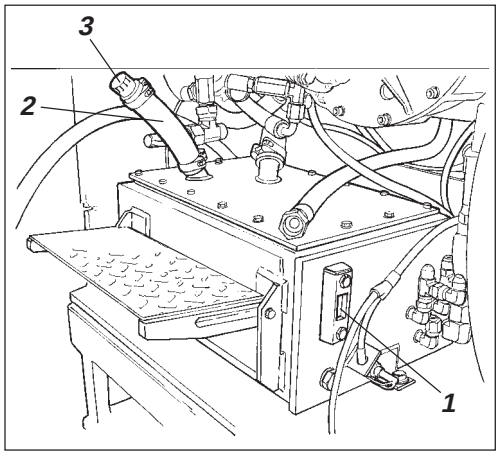


Fig. 4 Hydraulic reservoir
1. Oil sight glass
2. Filler hose
3. Filler cap

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.

Open the right door of the engine compartment.

Make sure that the oil level is between the max/min marks. Top off with hydraulic fluid according to the lubricant specification if the level is too low.

Fuel tank – Refueling

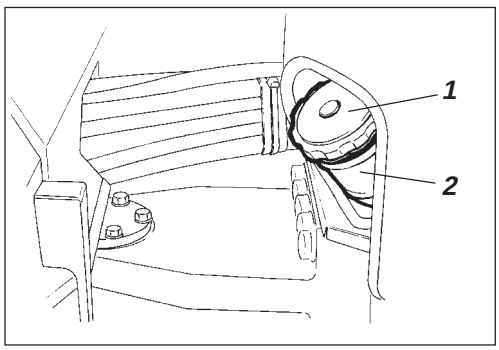


Fig. 5 Fuel tank
1. Tank cap
2. Filler pipe

Refuel every day before starting to work. Screw off the lockable tank cap (1) and fill diesel fuel to the lower edge of the filler pipe (2).

WARNING

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

See the engine handbook for the grade of diesel fuel.

The tank holds 200 litres (52.8 gal) of fuel.

Water tanks – Filling

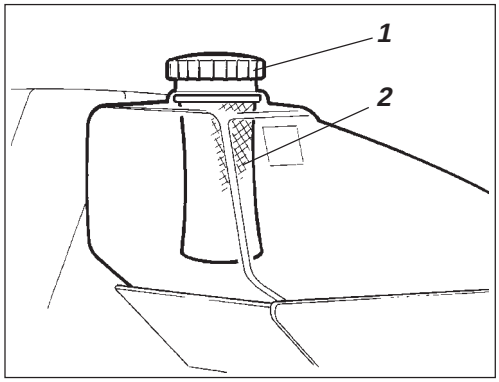


Fig. 6 Rear water tank
1. Tank cap
2. Strainer

CAUTION

Screw off the tank cap (1) and fill with pure water. Do not remove the strainer (2).

Fill both water tanks; they hold 485 liters (128 gal) each.

A step is located on the hydraulic reservoir behind the right door of the engine compartment to facilitate access to the tank cap, and also a retractable step on the right front drum fork.

Sole additive: A small amount of environment friendly antifreeze, and for combi-models possibly cutting fluid.

Sprinkler system/Drum – Checking/Cleaning

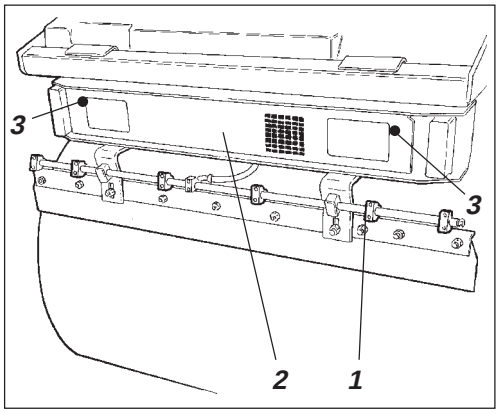


Fig. 7 ***Rear drum***
1. Nozzle
2. Pump system/cover
3. Quick-screws

Start the sprinkler system and make sure that no nozzle (1) is clogged. If necessary, clean clogged nozzles and the coarse filter located adjacent to the water pump (2); see figures below.

A pump system is located underneath each water tank behind the cover (2), which is opened by turning the quick-screws (3) a 1/4 turn counter-clockwise. To lock the cover, place the screws with the slot vertical and push straight in.

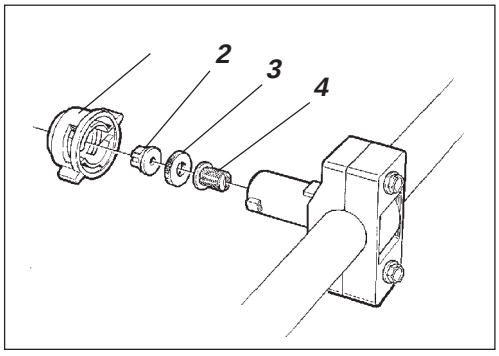


Fig. 8 ***Nozzle***
1. Sleeve
2. Nozzle
3. Seal
4. Fine filter

Dismantle the clogged nozzle by hand. Blow the nozzle (2) and fine filter (4) clean with compressed air, or install replacement parts and clean the clogged parts at a later opportunity.

WARNING

Use protective goggles when working with compressed air.

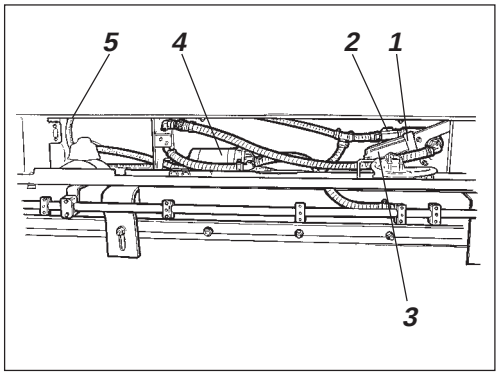


Fig. 9 ***Pump system***
1. Coarse filter
2. Stop cock
3. Filter housing
4. Water pump
5. Drain cock

When cleaning the coarse filter (1), close the stopcock (2) and loosen the filter housing (3).

Clean the filter and filter housing, ensure that the rubber gasket in the filter housing is intact.

After inspection and any cleaning, start the system and check that it works.

A drain cock (5) is located in the left part of the pump system area. This facilitates draining of both tank and pump system.

Emergency watering

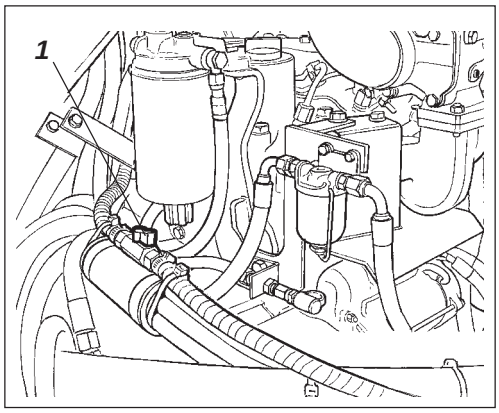


Fig. 10 Engine compartment, right side
1. Stopcock

If one of the water pumps stops, the remaining pump will be able to keep the sprinkler system operating - however, at reduced capacity.

To operate with only one pump, open the stopcock (1) in the water hose in the engine compartment, and also the stopcock on the coarse filter by the pump that has stopped, see pump system.

Scrapers, fixed – Checking/Setting

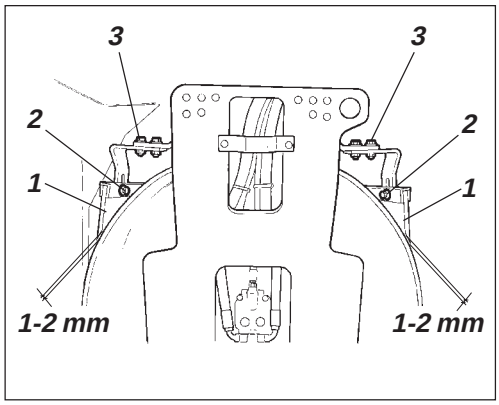


Fig. 11 Rear drum scrapers
1. Scraper blade
2. Adjusting screws
3. Adjusting screws

Make sure that the scrapers are undamaged. Adjust the scrapers so that they lie 1–2 mm (0.04-0.08 in) from the drum. For special asphalt compounds, it may be better if the scraper blades (1) lie lightly against the drums.

Asphalt remnants can accumulate on the scraper and affect the contact force.

Loosen the screws (2) to adjust the scraper blade up or down.

Loosen the screws (3) to adjust the contact pressure of the scraper blade against the drum.

Remember to tighten all the screws after any adjustment.

Scrapers, spring loaded (Optional) – Checking

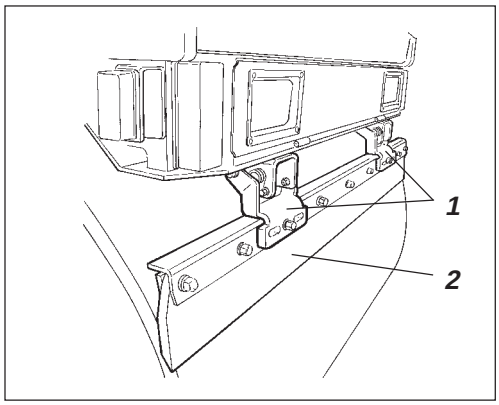


Fig. 12 Spring loaded scrapers
1. Spring mechanism
2. Scraper blade

Make sure that the scrapers are undamaged. The spring loaded scrapers require no adjustment because the spring force provides the correct contact force. Asphalt remnants can accumulate on the scraper and affect the contact force.

Clean as needed.

CAUTION

The scrapers must be retracted from the drum during transport driving.

Sprinkler system/Wheels – Checking/Cleaning

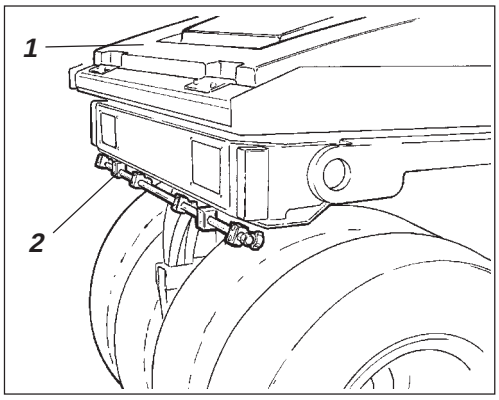


Fig. 13 Wheel rack
1. Rear water tank
2. Sprinkler nozzle

Fill the rear tank with emulsion fluid; for example, water mixed with 2% cutting fluid. Make sure that the sprinkler nozzles (2) are not clogged. Clean them and the filter if necessary. See under Sprinkler system/Drum – Check/Cleaning, for detailed instructions.

WARNING

Fluids that are flammable or detrimental to the environment may not be used in the emulsion tank.

CAUTION

Inspect the tire tread now and then to detect asphalt compound that has fastened. This is likely until the tires are sufficiently warm.

Scrapers – Checking/Setting

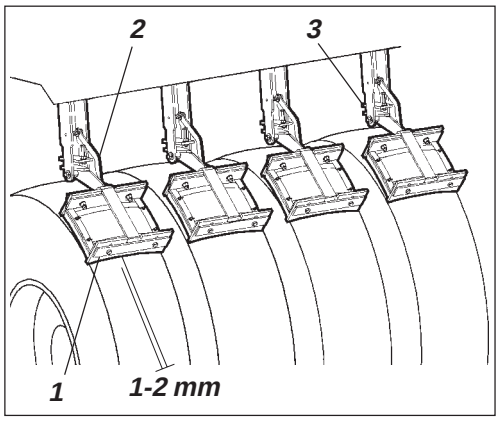


Fig. 14 Tire scrapers
1. Scraper blade
2. Locking bracket
3. Adjusting screw

Make sure that the scrapers are undamaged. Adjust the scrapers so that they lie 1–2 mm (0.04-0.08 in) from the tires. For special asphalt compounds, it may be better if the scraper blades (1) lie lightly against the tires. Contact is adjusted with the screw at the back of the scraper mount.

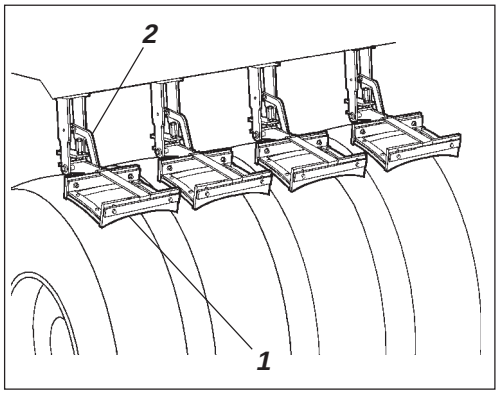


Fig. 15 Tire scrapers
1. Scraper blade
2. Locking bracket

The scrapers shall hang freely away from the tyres during transport driving. Lift up the scraper blades (1) and latch them in the raised position with locking bracket (2).

Brake function – Check

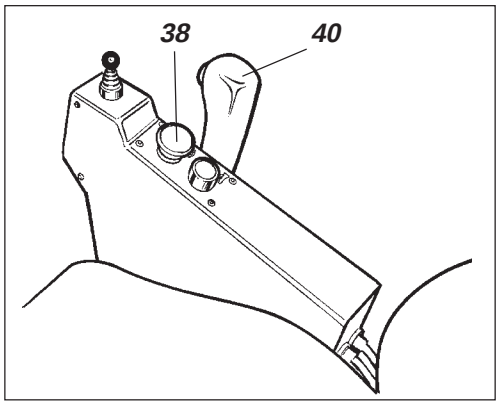


Fig. 16 Control panel
38. Reserve/parking brake knob
40. Forward/reverse lever

WARNING

Check operation of the brakes as follows:

Drive the roller **slowly** forward.

Push the reserve/parking brake knob (38); the warning lamp on the instrument panel should light and the roller should stop.

After testing the brakes, set the forward/reverse lever (40) in neutral.

Pull up the reserve/parking brake knob.

The roller is now ready for operation.

Steering joint – Lubrication

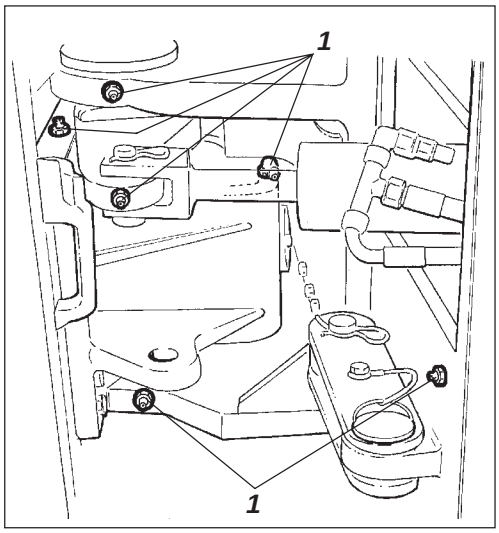


Fig. 17 Right side of articulation
1. Grease nipples

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 left to gain access to all four grease nipples (1) from the right side of the machine.

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

Steering cylinder – Lubrication

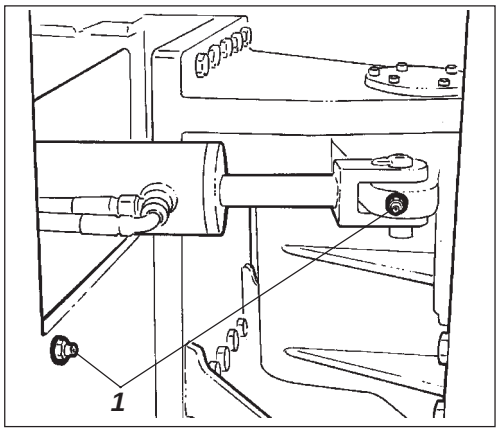


Fig. 18 Left side of articulation
1. Grease nipples

Turn the machine back for driving straight ahead. This makes the two grease nipples of the steering cylinder accessible from the left side of the machine.

Wipe the nipples (1) and grease each one with three strokes of the hand-operated grease gun.

Pivot cylinder – Lubrication (Optional)

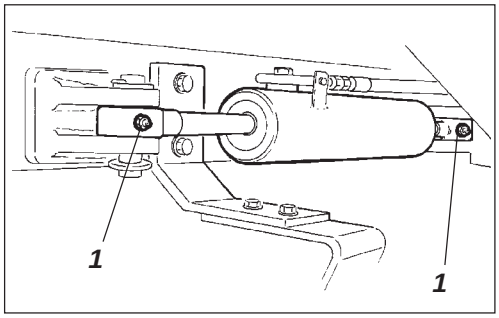


Fig. 19 Pivot cylinder
1. Grease nipples

WARNING

Allow no one near the rear drum while the engine is running. Danger of being crushed when the drum is operated.

Turn the rear drum for turning left to make the two grease nipples (1) accessible from the right side of the machine.

Wipe the nipples and lubricate in the same way as for the steering cylinder above.

EVERY 50 HOURS OF OPERATION (Weekly)

Air cleaner – Check/Cleaning

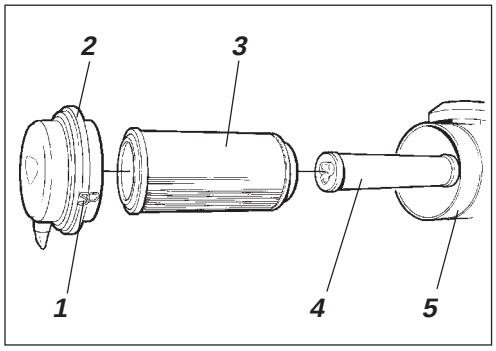


Fig. 20 Air cleaner
1. Locking braces
2. Cover
3. Main filter
4. Backup filter
5. Filter housing

CAUTION

Replace or clean the main filter of the air cleaner when the warning lamp on the instrument panel lights at full engine revs.

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

Do not remove the backup filter (4).

Main filter – Cleaning with compressed air

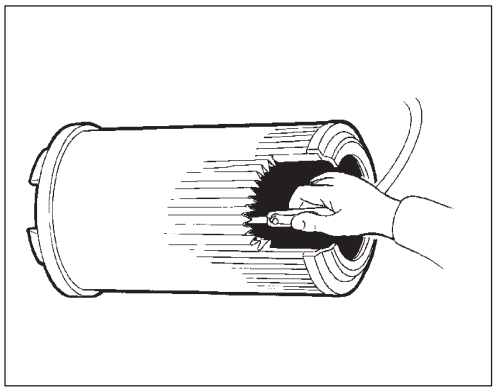


Fig. 21 Main filter

Use compressed air at a maximum pressure of 5 bar (72 psi) to clean the main filter by blowing up and down along the inside of the pleated paper filter.

Hold the air nozzle at least 2 to 3 cm (0.8-1.2 in) from the paper pleats so as not to tear the paper.

WARNING

Use protective goggles when working with compressed air.

Wipe the inside of the cover (2) and the filter housing (5).

CAUTION

Ensure that the hose clips between the filter housing and the intake hose are tightened and that the hoses are intact. Inspect the entire hose system all the way to the engine.

CAUTION

Change the main filter after cleaning it five times.

Backup filter – Replacement

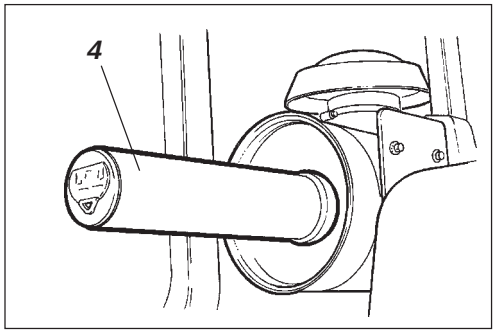


Fig. 22 Air filter
4. Backup filter

Replace the backup filter with a new one after cleaning or changing the main filter five times. The backup filter cannot be cleaned and reused.

To change the backup filter (4), pull the old filter out from its holder, insert a new one and reassemble the air cleaner in the reverse order.

Tires
– Tire pressure

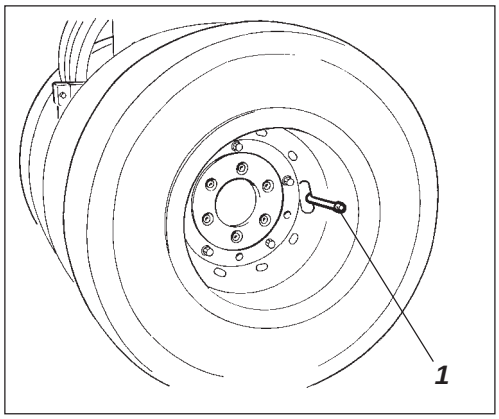


Fig. 23 Outer wheel
1. Air valve

Check the tire pressure with a pressure gauge.

Make sure that the tires have equal pressure.

Recommended pressure: See Technical Specifications.

The figure shows the position of the air valve on the outer tires.

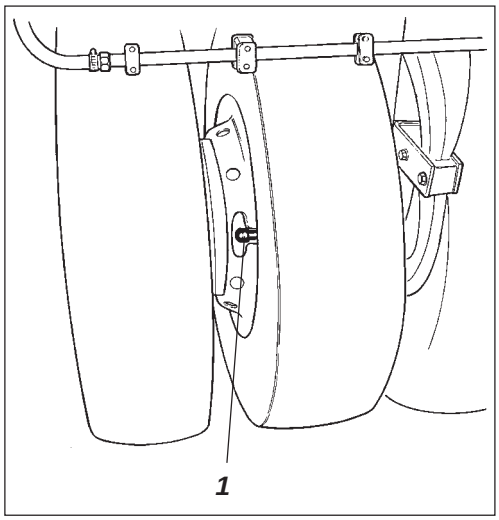


Fig. 24 Inner wheel
1. Air valve

The figure shows the position of the air valve on the inner tires.

WARNING

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

Pump drive, oil level
– Checking/Topping up

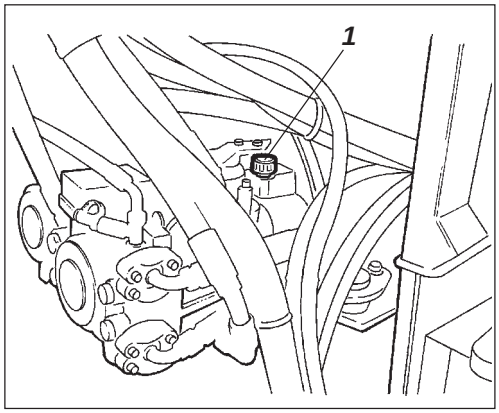


Fig. 25 Pump gearing
1. Dipstick

Position the roller on a flat surface.

CAUTION

When checking the oil level, the engine must be switched OFF and the parking brake applied.

Open the right door of the engine compartment and screw off the dipstick (1).

The oil level must be between the two marks at the bottom of the dipstick.

Fill with transmission oil if required; see lubricant specification.

Ensure that the rubber packing between the dipstick and gear housing is in place, and firmly screw in the dipstick.

Air conditioning – Inspection (Optional)

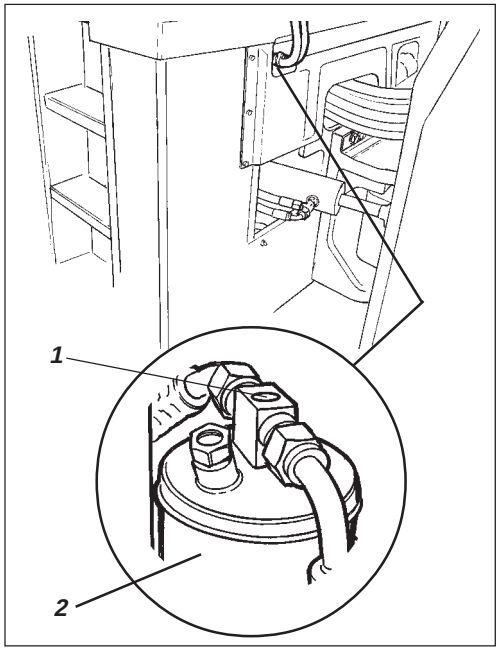


Fig. 26 Drying filter
1. Sight glass
2. Filter housing

WARNING

Never work under the roller with the engine running. Park on a level surface, chock the wheels and press the parking brake control.

When the unit is in operation, check in the sight glass (1) that no bubbles are visible in the dryer filter.

Steer the roller fully to the right for easier access to the dryer filter.

WARNING

Always push the parking brake knob.

The filter is located on the left side underneath the cab. If bubbles are visible in the sight glass it is a sign that the level of refrigerant is too low. The sight glass is visible where the hoses go in under the cab floor, see figure. If so, stop the unit. There is a risk of damage to the unit if it is run with insufficient level of refrigerant. Fill with refrigerant.

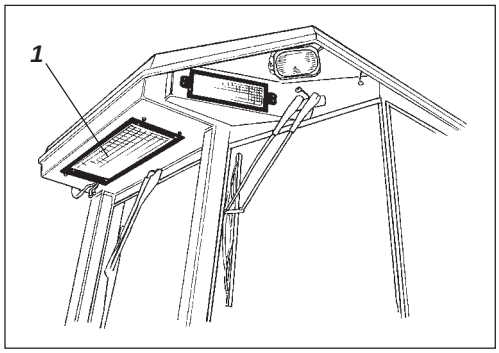


Fig. 27 Cab
1. Condenser element

In the event of noticeable deterioration of cooling capacity, clean the condenser element (1), which is located at the rear of the cab roof. Also clean the cooling unit inside the cab.

Edge cutter – Lubrication

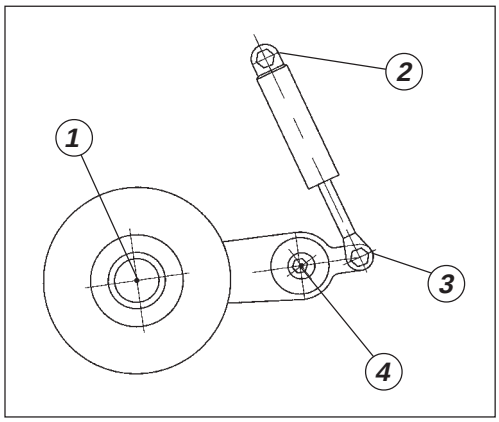


Fig. 28 Four lubrication points

WARNING

See the Operation manual for how to operate the edge cutter.

Grease the four points indicated in the figure.

Additional lubrication should also be with grease, see Lubricant specifications.

Grease all bearing points with five strokes of a handoperated grease gun.

Hydraulic fluid cooler – Check/Cleaning

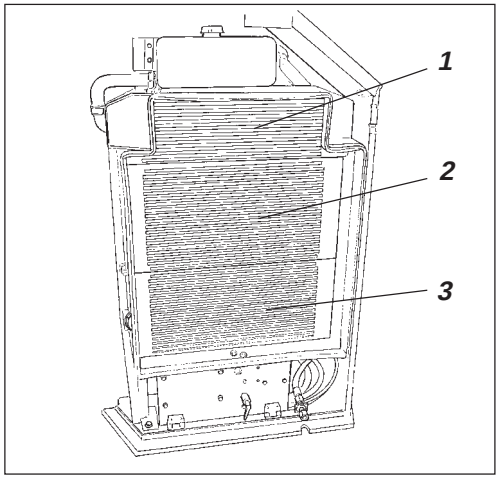


Fig. 29 Radiator
1. Intercooler
2. Radiator
3. Hydraulic fluid cooler

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.

Open the left-hand door to the engine compartment to gain access to the radiator and the hydraulic fluid cooler.

Ensure that air can flow unrestricted through the cooler and radiator, (1), (2) and (3).

Blow a dirty cooler and radiator clean with compressed air, or wash using a high-pressure washing jet.

CAUTION

Take care when using a high-pressure washing jet, do not hold the nozzle too close to the cooler.

WARNING

Use protective goggles when working with compressed air.

Air conditioning – Inspection (Optional)

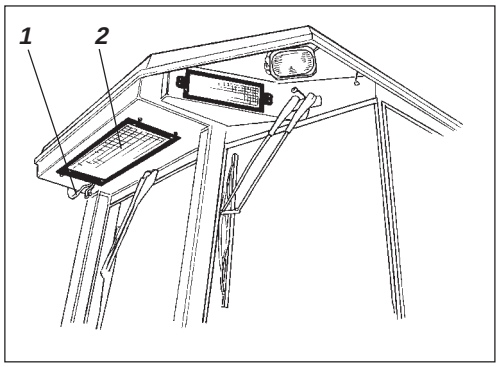


Fig. 30 Air conditioning
1. Refrigerant hoses
2. Condenser element

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

Battery – Checking the electrolyte level

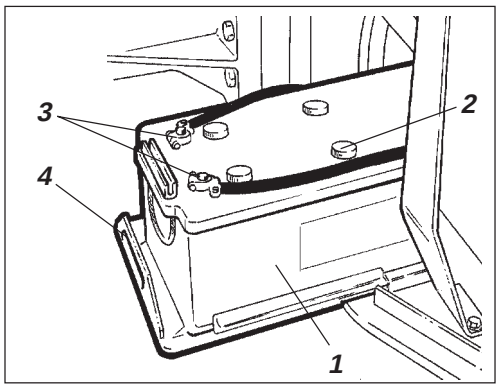


Fig. 31 Battery space
1. Battery
2. Cell cap
3. Cable shoes
4. Pull-out handle

Open the left door of the engine compartment.

Pull out the battery that is located on the floor behind the coolers.

WARNING

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

WARNING

Never use an open flame when checking the electrolyte level. Explosive gas is generated when the alternator is charging.

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.

Battery cell

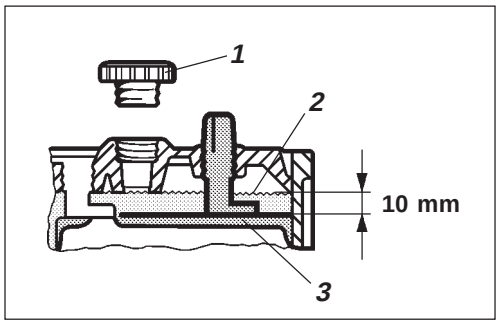


Fig. 32 Electrolyte level in battery
1. Cell cap
2. Electrolyte level
3. Plate

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.

Engine – Changing the oil

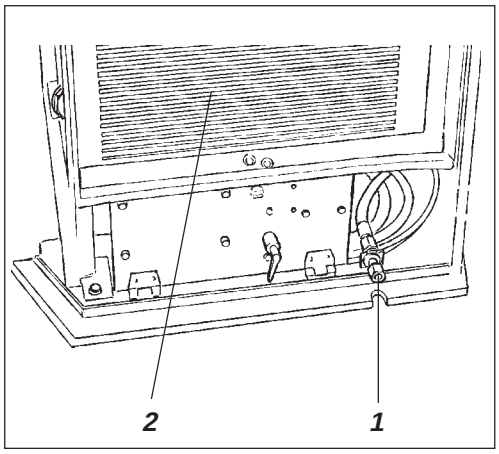


Fig. 33 Engine compartment, left side
1. Oil drain
2. Radiator

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.

The engine oil drain plug is located adjacent to the battery behind the left door of the engine compartment.

Run the engine warm before draining the oil.

WARNING

Ensure that ventilation (evacuation) is adequate if the engine is run indoors. (Risk of carbon monoxide poisoning).

Place a suitable receptacle, for at least 15 litres (4 gal), under the drain plug.

WARNING

Observe caution when draining the engine oil. Wear gloves and safety goggles.

Unscrew the oil drain plug (1). Allow all of the oil to drain off, and refit the plug.

Fill with fresh engine oil; see lubricant specification or the engine manual for the correct grade of oil.

Check the dipstick to ensure that the engine oil level is correct, for details see the engine manual.

Engine – Changing the oil filter

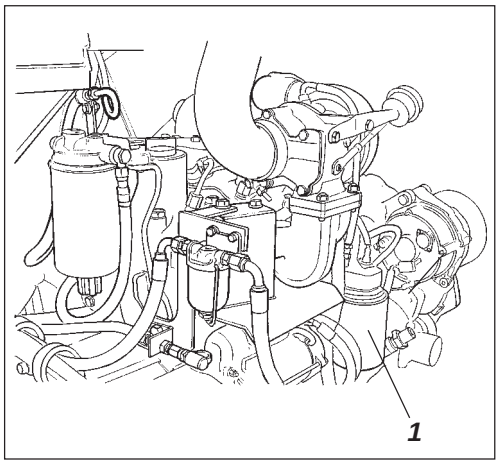


Fig. 34 Engine compartment, right side
1. Oil filter

The oil filter (1) can be reached most easily through the right-hand door of the engine compartment.

See the engine manual for details concerning changing of the filter.

EVERY 500 HOURS OF OPERATION (Every three months)

Drum, oil level – Inspection/Filling

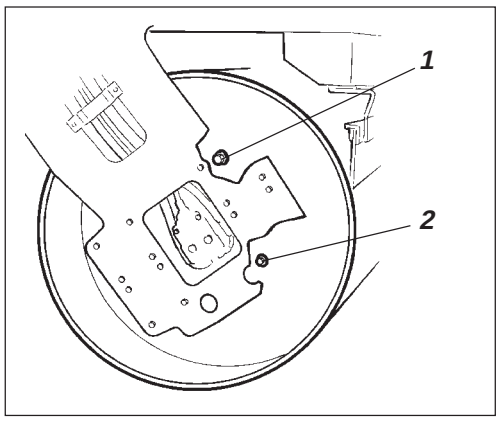


Fig. 35 Drum, vibration side
1. Filler plug
2. Level plug

Position the roller with the filler plug (1) - the large plug - straight up.

Wipe clean around the level plug (2) - the small plug - and unscrew it.

Make sure that the oil level reaches up to the lower edge of the hole, top off with fresh oil as required. See Lubricant specification.

When removing the filler plug, wipe it clean from any metal on its magnet.

Make sure that plug seals are intact and replace with new seals as required.

Refit the plugs.

Check both drums.

Drive a distance and make sure that the plugs are tight.

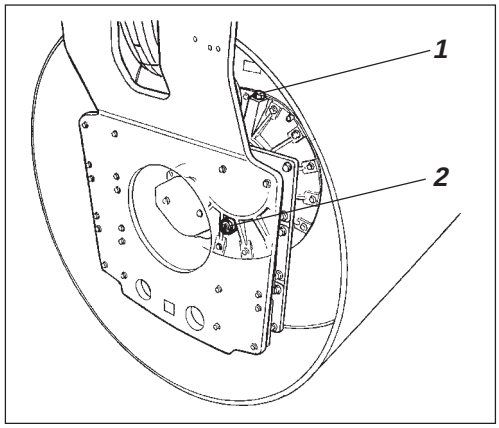


Fig. 36 Drum, vibration side (CC432)
1. Filler plug
2. Sight glass

CC 432

Position the roller with the filler plug (1) straight up.

Wipe clean round the sight glass (2).

Ensure that the oil level reaches half way in the sight glass, top up with fresh oil if the level is not correct. See Lubricant specification.

When removing the filler plug, wipe it clean from any metal on its magnet.

Refit the plug.

Inspect all four drum halves.

Drive a distance and ensure that the plugs are tight.

EVERY 500 HOURS OF OPERATION (Every three months)

Pivot bearing (Optional) – Lubrication

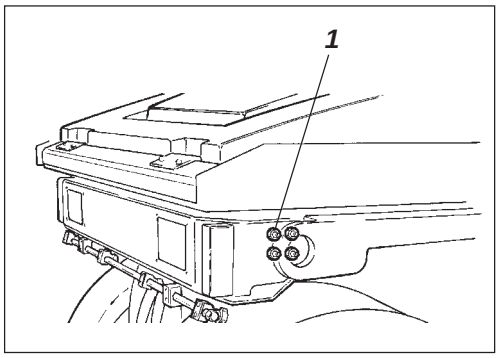


Fig. 37 Rear drum, right side
1. Grease nipples, 4 off

Grease each nipple (1) with five strokes of a handoperated grease gun.

Use grease according to the lubricant specification.

Rubber elements and fastening screws – Check

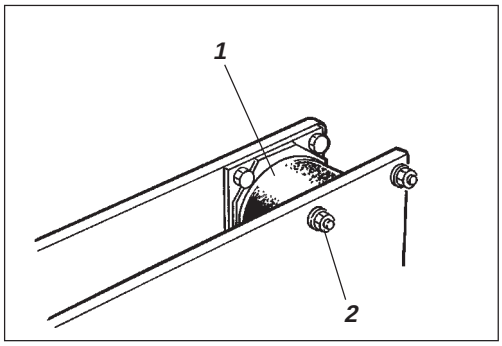


Fig. 38 Drum, vibration side
1. Rubber element
2. Fastening screws

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.

Hydraulic reservoir cap – Check

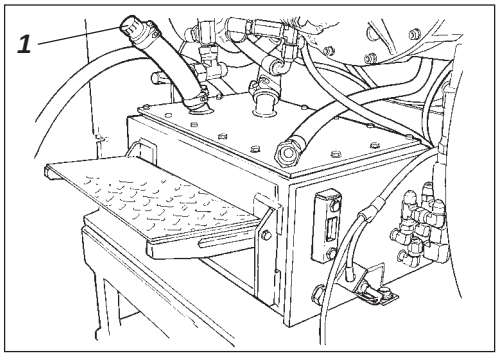


Fig. 39 Engine compartment, right side
1. Tank cap

Open the right door of the engine compartment.

Unscrew and make sure 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

Use protective goggles when working with compressed air.

EVERY 500 HOURS OF OPERATION (Every three months)

Hinges, controls – Lubrication

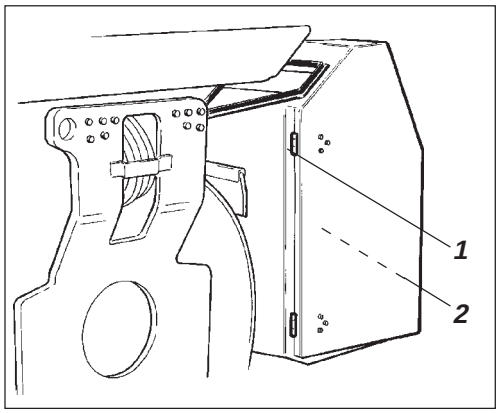


Fig. 40 Engine hood
1. Hinge
2. Control wires

Lubricate both hinges (1) on the engine compartment doors until grease penetrates through.

Grease the hinges of the cab door in the same way.

Lubricate the hinges of the front and rear spotlight covers with a few drops of oil.

Lubricate the forward/reverse control wires by the control arm of the hydraulic pump. Apply a few drops of oil to the mouth of the control sleeve.

Seat bearing – Lubrication

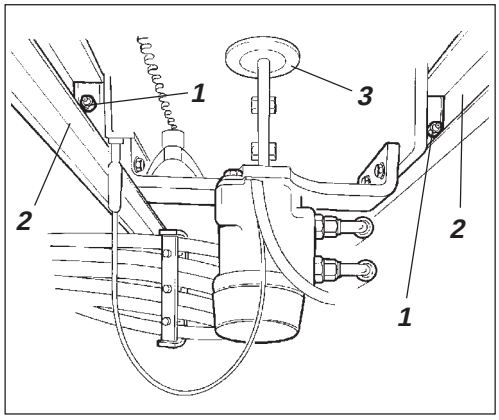


Fig. 41 Seat bearing, underneath
1. Grease nipples
2. Slide rails
3. Lubrication nipple

Remove both steps from under the operator's platform, or one step and cover plate on the other side of the roller if fitted with a cab.

Lubricate the seat sliding rails for transverse travel with five strokes of a hand-operated grease gun. Grease all four nipples, two of which (1) are accessible from each side.

Also grease the slew bearing of the seat with a few strokes of the gun. The lubrication nipple (3) is accessible after the cover on the seat frame underneath the front of the seat is removed.

Also lubricate the seat locking mechanism, both for transverse travel and slewing. Use engine oil or drum oil.

CAUTION

If the seat begins to bind when resetting, then it should be lubricated more often than specified here.

Seat bearing – Lubrication

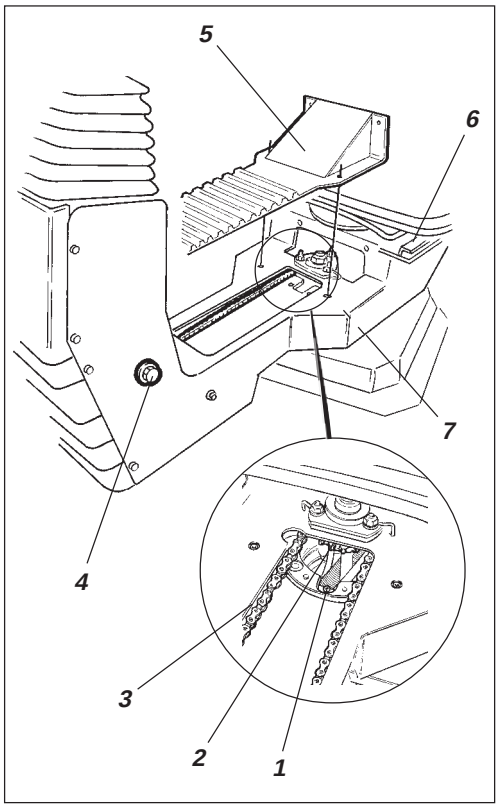


Fig. 42 Seat bearing
1. Lubrication nipple
2. Cogwheel
3. Steering chain
4. Adjusting screw
5. Cover
6. Slide rails
7. Slew interlock

CAUTION

Remember that the chain is a vital part of the steering mechanism.

Remove the cover (5) to gain access to the lubrication nipple (1). Lubricate the slew bearing of the operator's seat with three strokes of a hand-operated grease gun.

Lubricate the seat locking latch (7), accessible from below.

Also grease the slide rails of the seat (6).

CAUTION

If the seat begins to bind when resetting, it needs to be lubricated more often.

lean and grease the chain (3) between the seat and the steering column.
If the chain becomes slack on the cogwheel (2), loosen the screws (4) and move the steering column forward, tighten the screws and check the tension of the chain.

Diesel engine fuel filter – Change/cleaning

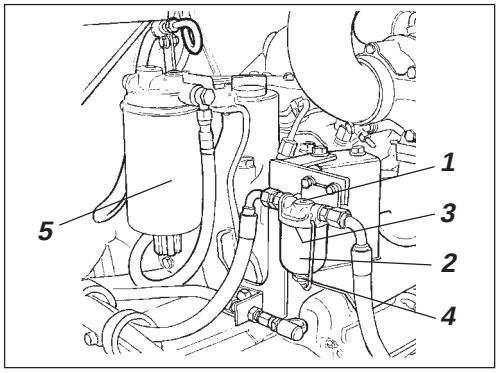


Fig. 43 Diesel engine
1. Prefilter
2. Glass bowl
3. Strainer
4. Nut
5. Fuel filter

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.

Prefilter, loosen the screw (1) and remove the glass bowl (2).

Take out the strainer (3) and clean using a non-flammable fluid. Reinstall the strainer and the bowl.

Replace fuel filter. See engine manual.

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

WARNING

Make sure there is adequate ventilation (extraction) if the diesel engine is run in-doors. Risk of carbon monoxide poisoning.

EVERY 1000 HOURS OF OPERATION (Every six months)

Hydraulic fluid filter – Changing

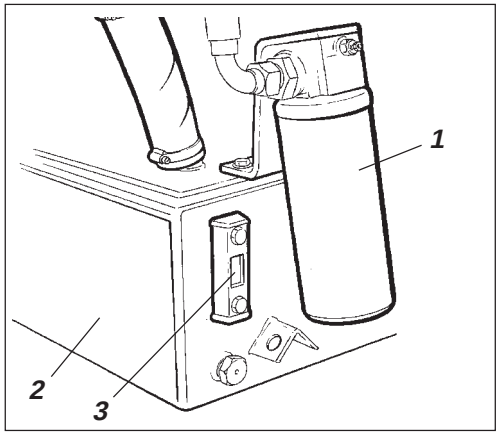


Fig. 44 Hydraulic reservoir
1. Hydraulic filter
2. Reservoir
3. Sight glass

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.

Open the right door of the engine compartment.

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

Air filter – Replacement

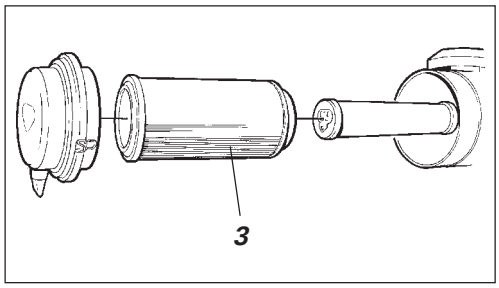


Fig. 45 Air cleaner
3. Main filter

Replace the main filter (3) of the air cleaner even if it has not yet been cleaned five times; see under the heading “Every 50 hours of operation” for changing the filter.

CAUTION

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

Pump drive – Oil change

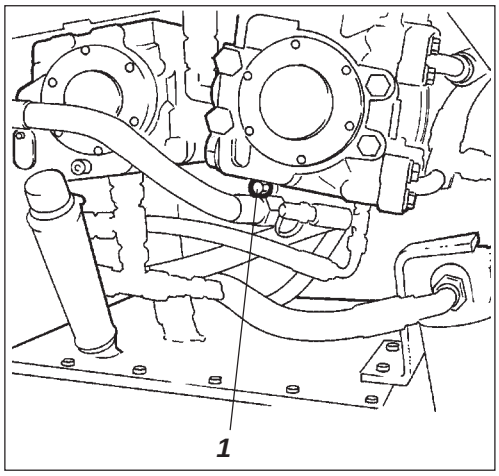


Fig. 46 Pump gearing
1. Drain plug

WARNING

Observe caution when draining hot oil. Wear gloves and safety goggles.

Use a receptacle that will hold at least 1.5 litre (1.6 qts) for draining the oil.

Unscrew the drain plug (1) and also unscrew the dipstick to allow the oil to flow freely, see under the ”Every 50 hours of operation” heading.

Wipe away any metal particles from the magnetic drain plug, and refit the plug and its packing.

The gearbox holds 0.8 liter (0.85 qts). For topping off, see under the ”Every 50 hours of operation” heading.

Fresh air filter – Replacement

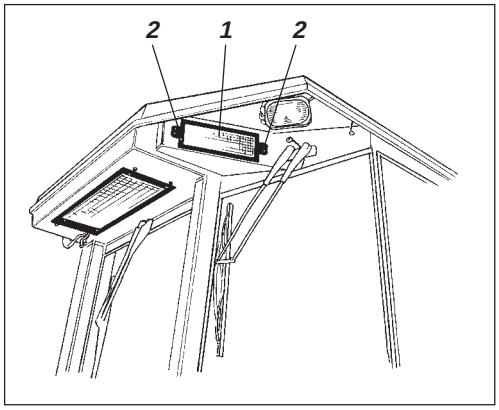


Fig. 47 Cab
1. Fresh air filter (x2)
2. Screw (x2)

WARNING

Use a stepladder to reach the filter (1).

There are two fresh-air filters (1), one on each side of the cab. Unscrew the screws (2), take down the entire housing and remove the filter insert.

Replace with new filters.

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

Drum – Oil change (HF version)

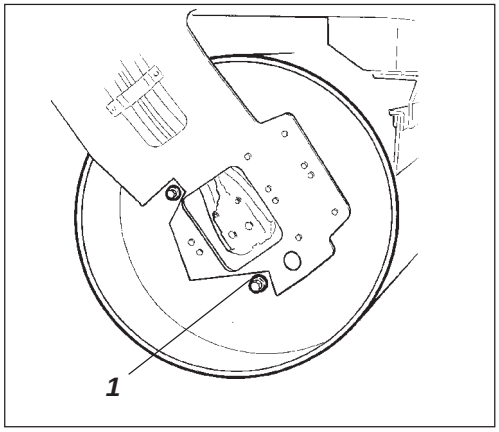


Fig.48 Drum, vibration side
1. Drain plug

WARNING

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

Drive the roller until the drain plug (1) - the large plug - is straight down.

WARNING

Switch off the engine and push the reserve/ parking brake knob.

Place a receptacle that will hold at least 20 liters (21 qts) under the plug. Save the oil and dispose of it in an approved manner.

Remove the plug (1) and allow all the oil to run out. See under the heading ”Every 500 hours of operation” for filling oil.

Hydraulic reservoir – Changing the fluid

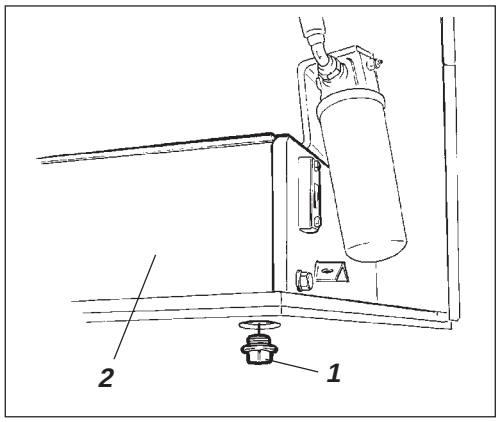


Fig. 49 Engine compartment, right side
1. Drain plug
2. Hydraulic reservoir

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

Observe caution when draining hot oil. Wear gloves and safety goggles.

Place a receptacle that will hold at least 50 liters (53 qts) 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.

Drum – Oil change

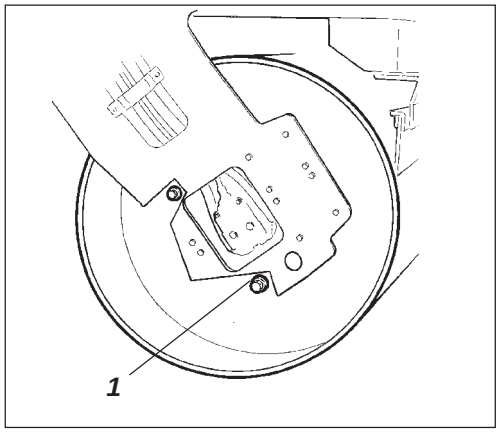


Fig. 50 Drum, vibration side
1. Drain plug

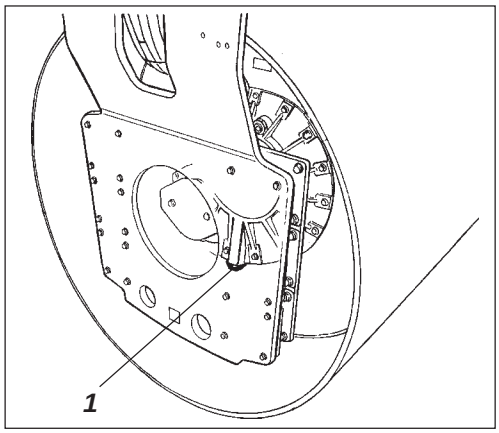


Fig. 51 Drum, vibration side (CC432)
1. Drain plug

Drive the roller until the drain plug (1) - the large plug - is straight down.

WARNING

Switch off the engine and push the reserve/ parking brake knob.

Place a receptacle that will hold at least 20 liters (7 qts) under the plug. Save the oil and dispose of it in an approved manner.

Remove the plug (1) and allow all the oil to run out. See under the heading ”Every 500 hours of operation” for filling oil.

CC 432 (four drum halves)

Position the roller with the drain plug (1) straight down.

Place a receptacle that will hold at least 7 liters (21 qts) under the plug. Save the oil and dispose of it in an approved manner.

Remove the plug (1) and allow all the oil to run out. See under the heading ”Every 500 hours of operation” for filling oil.

Change the oil in all four drum halves.

Fuel tank – Cleaning

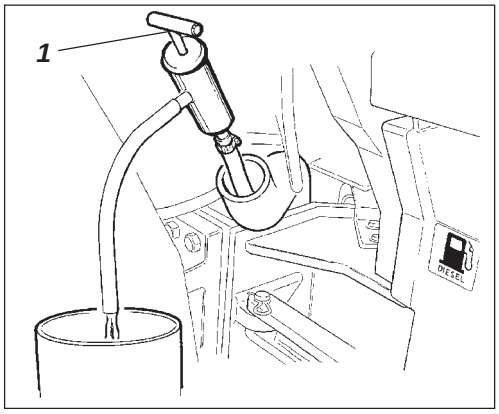


Fig. 52 Fuel tank
1. Oil emptying pump

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

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.

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

Watering system – Draining

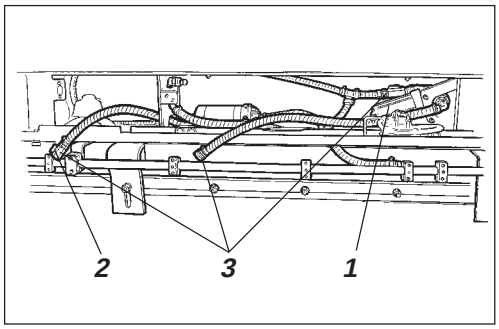


Fig. 53 Pump system
1. Filter housing
2. Drain cock
3. Quick-couplings

CAUTION

Remember the risk of freezing during the winter period and drain the tank, pump and leads; or mix the water with a small amount of environmentally friendly antifreeze.

The easiest way to empty the tank is to screw off the filter housing (1) and disconnect the hoses by releasing the quick-couplings.

There is also a drain cock (red square) under each water tank.

Open the drain cock (2) to empty the water pump.

Water tank – Cleaning

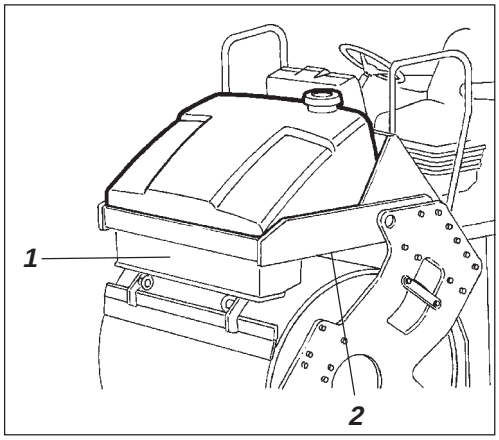


Fig. 54 Water tank
1. Pump system
2. Drain plug

Clean the tanks with water and a suitable detergent for plastic surfaces.

Refit the filter housing (1) or the drain plug (2), fill with water and check for tightness.

The water tanks are made of recyclable plastic (polyethylene).

EVERY 2000 HOURS OF OPERATION (Yearly)

Forward/Reverse lever – Lubrication

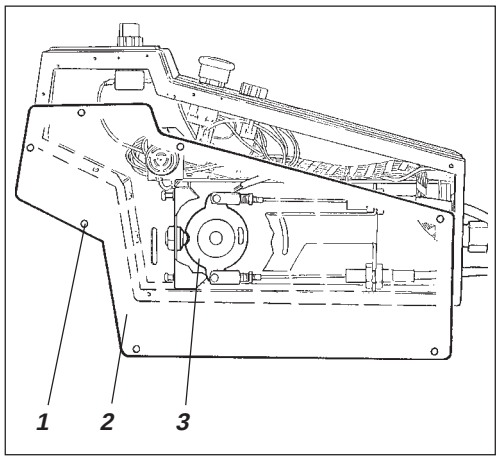


Fig. 55 Forward/Reverse lever
1. Screw
2. Plate
3. Cam disc

Remove the screws (1) and take off the plate (2).

Lubricate the sliding surface of the cam disc (3) with grease.

Refit the plate (2) and the screws (1).

Steering joint – Check

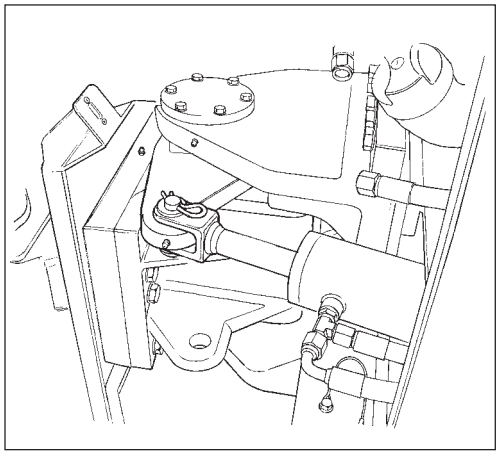


Fig. 56 Steering joint

Inspect the steering joint to detect any damage or cracks.

Check and correct any loose bolts.

Check also for any stiffness and play.

Air conditioning – Overhaul (Optional)

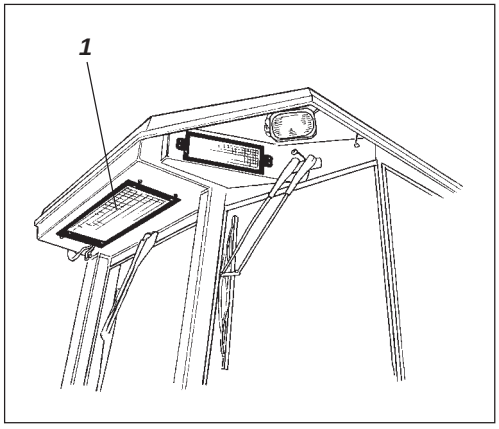


Fig. 57 Cab
1. Condenser element

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

Clean the condenser element (1) free from dust with the aid of compressed air. Blow from above.

CAUTION

The air jet could damage the flanges of the elements if it is too powerful.

WARNING

Wear protective goggles when working with compressed air.

Inspect the fastening of the condenser element.

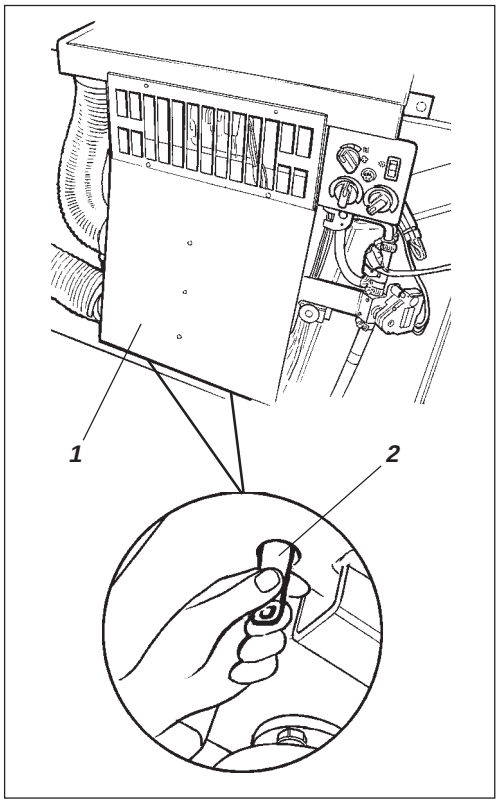


Fig. 58 Aircondition
1. Cooling element
2. Drain valve (x2)

Clean the cooler unit and the cooling elements (1) free from dust with the aid of compressed air.

Inspect the system hoses for chafing. Make sure that drainage from the cooling unit is unobstructed so that condensation does not accumulate inside the unit.

Check the drain by squeezing the valves (2) underneath the cab.

EVERY 2000 HOURS OF OPERATION (Yearly)

Compressor – Inspection

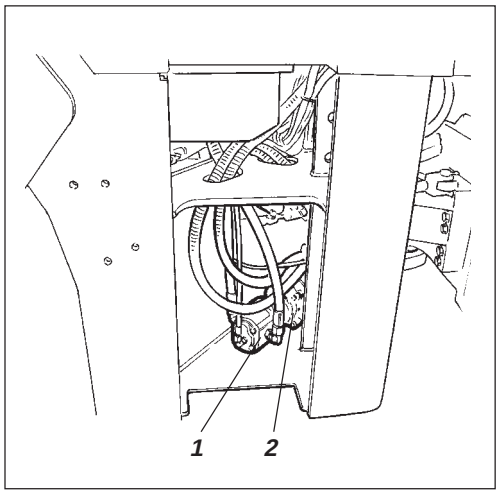


Fig. 59 Compressor
1. Hydraulic motor
2. Compressor

Inspect fastening of the compressor and hydraulic motor. These components are located behind the steps to the cab. Dismantle the steps.

The unit should be run at least five minutes every week, if possible, to ensure that the rubber gaskets in the system remain lubricated.

Drying filter – Inspection

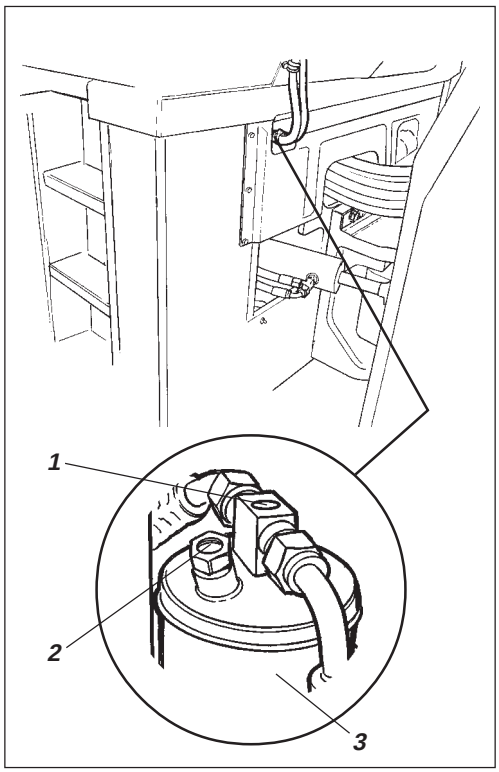


Fig. 60 Dryer filter, underneath cab
1. Sight glass
2. Moisture indicator
3. Dessicator cartridge

WARNING

Never work under the roller with the engine running. Park on a level surface, chock the wheels and press the parking brake control.

Open the engine hood while the unit is operating and check in the sight glass (1) that no bubbles are visible on the dryer filter. If bubbles are visible through the sight glass, it is a sign that the level of refrigerant is too low. If so, stop the unit. There is a risk of damage to the unit if it is run with insufficient refrigerant.

Check the moisture indicator (2). The color should be blue; if it is beige the dryer cartridge must be replaced by an authorized service company.

WARNING

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

WARNING

Do not disconnect the hose coupling.

WARNING

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

WARNING

The system contains pressurized refrigerant. Releasing refrigerants into the air is prohibited. The refrigerant circuit may only be repaired by an authorized company.

LONG-TERM STORAGE

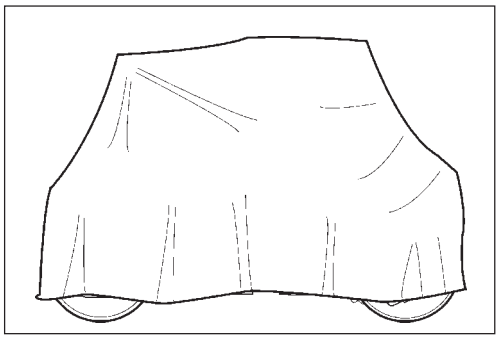


Fig. 61 Roller protected against the weather

CAUTION

The following instructions should be followed for storage 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 tricklecharge the battery once a month.

Air cleaner, exhaust pipe

* Cover the air cleaner (see under the heading "Every 50 hours of operation" and also under the heading "Every 1000 hours of operation") or its opening with plastic or tape, and also 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 hinges on doors to the engine compartment and the cab, and also grease both ends of the forward/reverse control (bright parts) (see under the heading "Every 500 hours of operation").

Tires (Combi)

Make sure that tire pressure is at least 200 kPa, (2,0 kp/cm²) (29 psi).

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

When they leave the factory, the 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).

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

Higher ambient temperature above +50°C (122°F)

The following recommendations apply for operation in higher ambient temperatures up to a maximum of +50°C (122°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: mineral fluid Shell Tellus TX100 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

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 a rubber band. This will prevent water from entering the venting hole in the filler cap. This could otherwise cause operational disturbance, for example, 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), protective cab

If the roller is equipped with a protective structure (ROPS, Roll Over Protective Structure), or protective cab, never subject the structure or cab to welding or drilling. Never attempt to repair a damaged structure or cab; they must be replaced with new ones.

Starting aid

When using an auxiliary battery to assist starting, always connect the positive terminal of the auxiliary battery to the positive terminal of the roller battery, and negative to negative.

Fuses

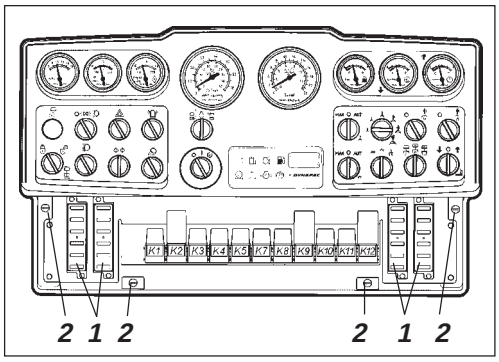


Fig. 62 Instrument panel
1. Fuse boxes
2. Quick-screws

The electrical regulating system and control system are protected by 24 fuses, located in the instrument panel and in the engine compartment.

The four fuse boxes (1) are located behind the lower instrument plate, which is opened by turning the four quick-screws (2) a 1/4 turn counter-clockwise.

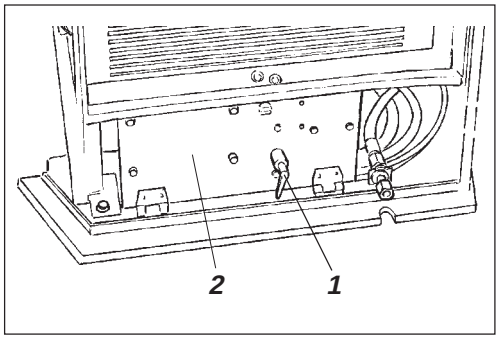


Fig. 63 Battery space
1. Battery disconnector
2. Main fuse panel

Fuses in the engine compartment are located together with the battery disconnecter, behind the left cover of the engine compartment.

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

WARNING

Connect the battery to the correct polarity (– to ground). The cable between battery- and alternator must not be disconnec-tedwhen the engine is running.

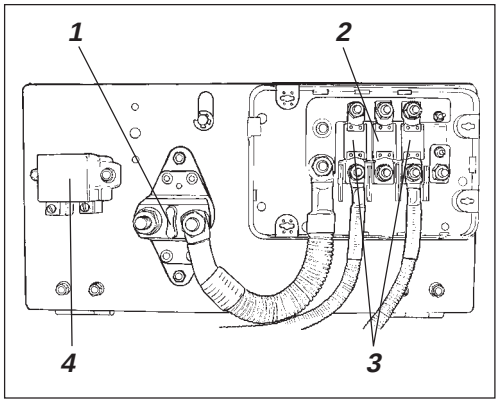


Fig. 64 Main fuse panel
1. Battery disconnecter
100A 2. Main fuse,, Cab/standard electricity
125A 3. Preheating, engine
4. Start relay

The main fuse panel is located behind the left cover of the engine compartment.

The main fuses and start relay are easily accessible on lowering the cover forward.

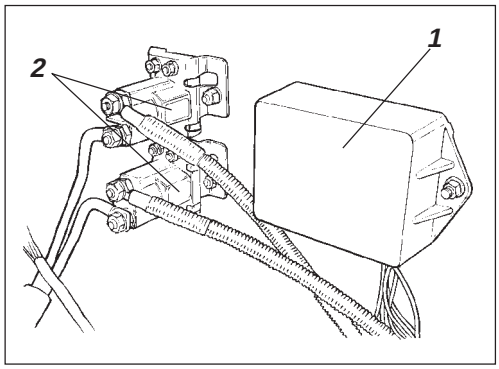


Fig. 65 Engine compartment, left side
1. Control unit for preheating
2. Heating relay

The control unit and relays for preheating the diesel engine are located behind the left door of the engine compartment on the wall adjacent to the rear drum.

Relays

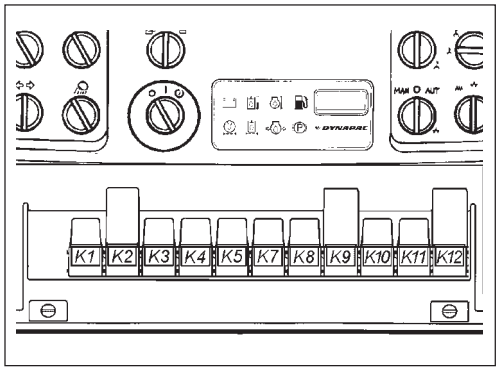
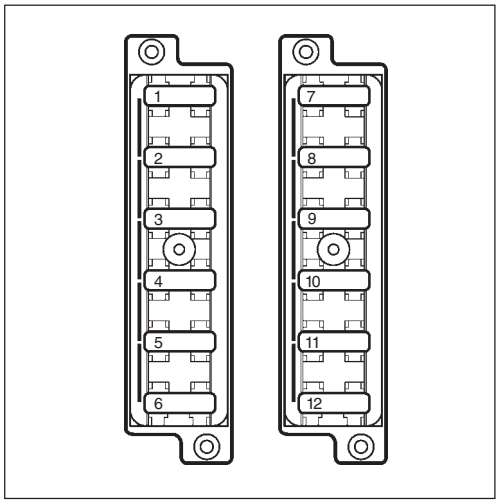


Fig. 66 Instrument panel

K1 Lights relay
K2 Direction indicator relay
K3 Brakes relay
K4 Reverse alarm relay
K5 Fuel level relay
K7 Horn relay
K8 Sprinkler
K9 Main relay
K10 AVC
K11 Neutral switch
K12 VBS relay

Fuses on the machine



The figure shows the rating and function of the different fuses. All fuses are flat pin fuses..

Fig. 67 Fuse boxes, left side

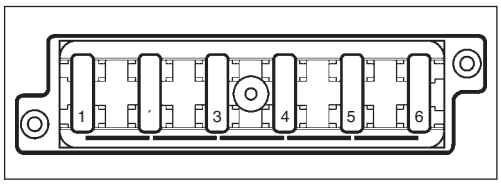
1. Vacant
10A 2. Direction indicators, main fuse
7,5A 3. Left position lights, front and rear, brake lights
5A 4. Right position lights, front and rear
5A 5. Left direction indicator, front and rear, side blinkers
5A 6. Right direction indicator, front and rear, side blinkers
**/20A 7. Right working lights*
**/20A 8. Left working lights*
7,5A 9. Left front headlight, instrument lighting
7,5A 10. Right front headlight
7,5A 11. Edge cutter, sprinkler Up/Down
12. Vacant

**/ If driving lights 10A*

Fuse boxes, right side

7,5A 1. Brake valve, start relay, control relay cab
10A 2. Vibration relay, VBS
3A 3. Indicator panel
7,5A 4. Horn
7,5A 5. Vibration Front/Both/Rear, AVC-relay
10A 6. Hazard beacon
7,5A 7. Sprinkler pump front
7,5A 8. Sprinkler pump rear
15,0A 9. Sprinkler system main fuse
15,0A 10. Steering, offset up/down
7,5A 11. Reversing alarm
7,5A 12. Instruments, voltmeter, temperature level, speedometer, tachometer, frequency meter

Fuses in the cab



The electrical system in the cab has an individual fuse box located in the right front side of the cab roof. The figure shows the rating and function of the different fuses. All fuses are flat pin fuses.

Fig. 68 Fuse box in cab

15A 1. Rear cab working light
15A 2. Front cab working light, drum headlight
5A 3. Cab interior lighting
20A 4. Heating/fresh-air fan
15A 5. Windshield wiper/washer
15A 6. Front windshield wiper/washer