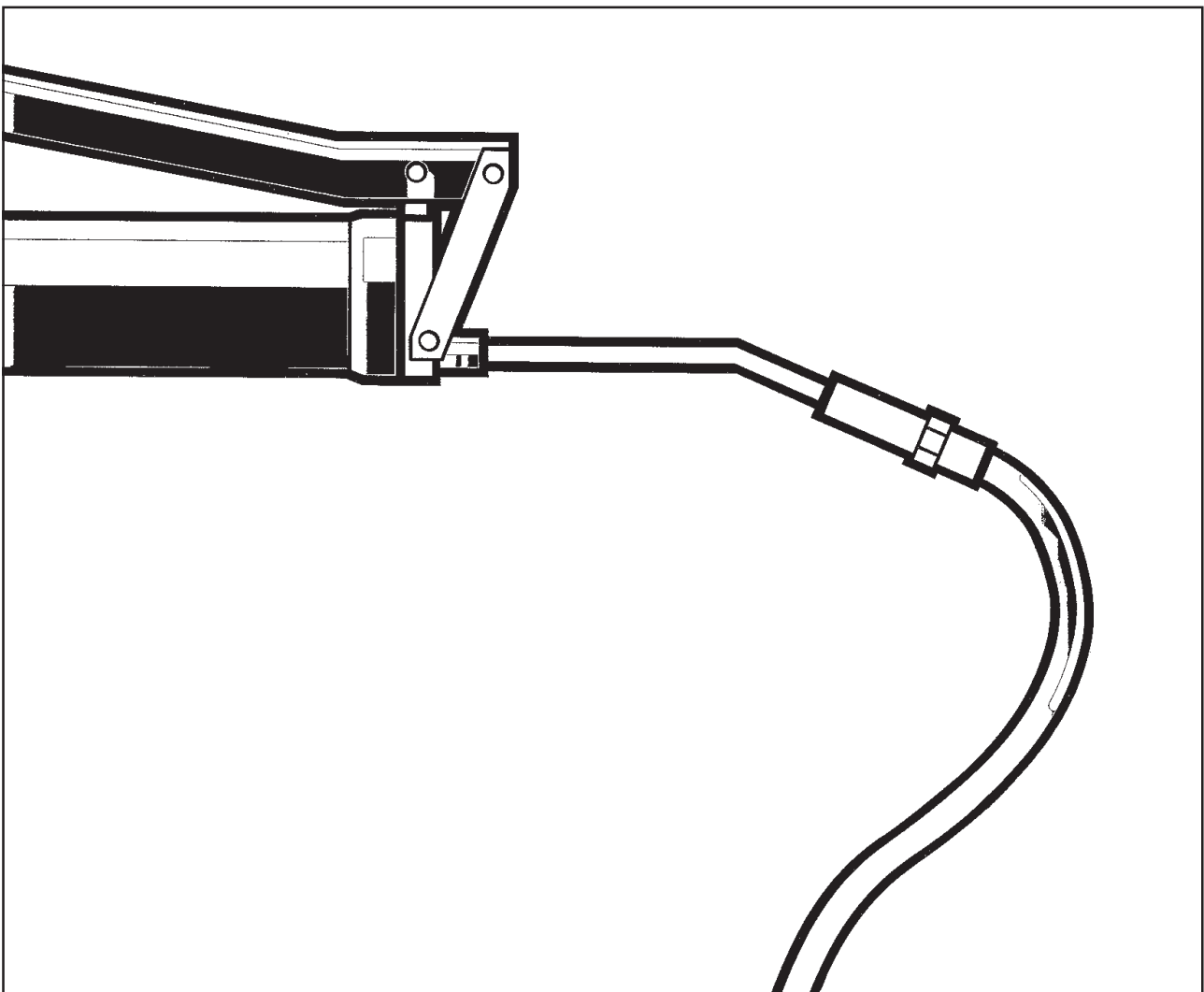


DYNAPAC CA121/141 MAINTENANCE

M121EN4



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DYNAPAC

Vibratory roller CA121/141

Maintenance M121EN4, December 2003

Diesel engine:

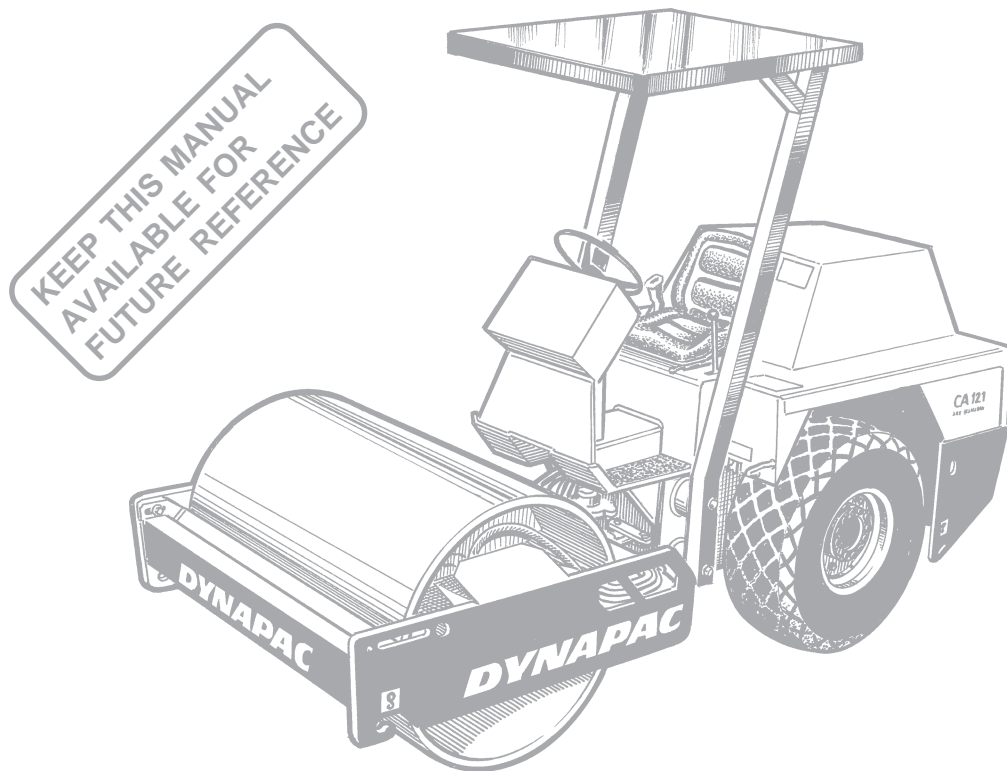
CA121: John Deere 3029TF270

CA141: John Deere 3029TF270

These instructions apply from:

CA121: PIN (S/N) *60311000*

CA141: PIN (S/N) *60410600*



The CA121 is a 4-ton and the CA141 is a 5-ton vibratory roller designed for compaction operations in pipe trenches, on road shoulders and in cramped spaces in connection with refilling work. The rollers are also suitable for repair work on dams, power stations, parking lots and airfields.

The CA121 and CA141 are each available in two versions, D and PD. The smooth drum version with drum drive (D) gives good maneuverability even on very steep slopes. The PD version, equipped with pads and drum drive, is especially suitable for the compaction of silt and clayey soils.

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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.

The machine must be properly cared for to ensure satisfactory operation. Keep the machine clean to facilitate quick and timely detection of any leakage, loose bolts or 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 done 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
















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

	ENGINE OIL	Shell Rimula SAE 15W/40 or equivalent API CF-4/SG (CD/CE)
	HYDRAULIC FLUID ambient temperature –10 to +40°C (14 to 104°F) ambient temperature higher than +40°C (104°F)	Shell Tellus Oil TX68 or equivalent Shell Tellus Oil TX100 or equivalent
 Bio-Hydr.	BIODEGRADABLE 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.
	TRANSMISSION OIL ambient temperature –15 to +40°C (5 to 104°F) ambient temperature higher than +40°C (104°F)	Shell Spirax SAE 80W/90, HD API, GL-5 Shell Spirax HD85W/140, or equivalent
	GREASE	SKF LGHB2 (NLGI-Class 2) or equivalent for the articulated joint Shell Retinax 2 or equivalent for other grease points
	FUEL	See engine manual
	COOLANT 50/50 mixture with water	Shell Anti Freeze 402 or equivalent. Antifreeze down to about –41°C (–106°F).
	DRUM OIL ambient temperature –15°C to +40°C (5 to 104°F) ambient temperature higher than +40°C (104°F)	Shell Spirax SAE 80W/90, HD API, GL-5 Shell Spirax HD85W/140, or equivalent



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

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

TECHNICAL SPECIFICATIONS

Weight and sizes	CA121D	CA121PD	CA141D	CA141PD
Service weight with ROPS, EN500 (kg) (lb) ..	4150 (9,150)	4500 (9,900)	4900(10,800)	5050 (11,100)
Service weight without ROPS (kg) (lb)	3950 (8,700)	4300 (9,500)	4700 (10,400)	4850 (10,700)
Length, standard equipped roller (mm) (in)	3580 (141)	3580 (141)	3800 (150)	3800 (150)
Width, standard equipped roller (mm) (in)	1486 (58)	1486 (58)	1626 (64)	1626 (64)
Height, standard equipped roller (mm) (in)	1626 (64)	1702 (67)	1626 (64)	1702 (67)
Height, standard equipped roller with ROPS (mm) (in)	2340 (92)	2370 (93)	2361 (93)	2403 (95)
Fluid volumes, liters	(gal or qts)			
Hydraulic reservoir	61		(16.1gal)	
Fuel tank	106		(28 gal)	
Lubricating oil, Diesel engine	8,5		(9 qts)	
Drum	5,5 (CA 121), 7,0 (CA 141)		(5.8 qts)	
Drum gearing	1,1		(1.2 qts)	
Wheel gearing	2x 1,1		(2x 1.2 qts)	
Coolant	12		(12.7 qts)	
Electrical system				
Battery	12 V 60 Ah			
Alternator	12 V 55 A			
Compaction data	CA121D	CA121PD	CA141D	CA141PD
Static linear load .. (kg/cm) (pli)	12,5 (70)	-	15,1 (84.5)	-
Amplitude	1,4 (0.055)	1,3 (0.051)	1,2 (0.047)	1,1 (0.043)
Frequency	30 (1800)	30 (1800)	32,5 (1950)	32,5 (1950)
Centrifugal force .. (kN) (psi)	47 (10,600)	52 (11,700)	71 (16,000)	76 (17,100)
Propulsion	CA121D	CA121PD	CA141D	CA141PD
Speed range	0-5 (0-3)	0-5 (0-3)	0-7 (0-4)	0-7(0-4)
Tires	CA121D	CA121PD	CA141D	CA141PD
Tire size	13,5 x 16,1 8 ply	13,5 x 16 6 ply	16,5 x 16,1 10 ply	16,5 x 16,1 10 ply
Air pressure	110-125 kPa (1,1 - 1,25 kp/cm ²)			
Engine speed (r/min)	CA121		CA141	
Idling	1000		1000	
Maximum	2325		2325	
Vibration	30 Hz (1800 vpm)		32,5 Hz (1950 vpm)	

TECHNICAL SPECIFICATIONS

Tightening torque

Tightening torque in Nm 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



The ROPS bolts must always be torque-tightened dry.

Bolt size:	1 1/4 x 4 UNC (P/N 908218)
Strength class:	10,9
Tightening torque:	2100 Nm (Dry)

Hydraulic system

Opening pressure (MPa)	CA121/141
Drive system	34,5
Supply system	2,1
Vibration system	16
Control systems	12,4
Brake release	1,1

TECHNICAL SPECIFICATIONS

Vibration – Drivers seat (ISO 2631)

The vibration 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.

Whole-body vibration is measured at less than the action value of 0.5 m/s² specified in EU directive 2002/44/EC. (The limit value is 1.15 m/s².)

Hand/arm vibration is measured at less than the action value of 2.5 m/s² specified in the same directive. (The limit value is 5 m/s².)



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) LwA	Acoustic pressure level, operator's ear (platform) dB(A) LpA
CA121	108	88
CA141	105	88



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

MAINTENANCE SCHEDULE

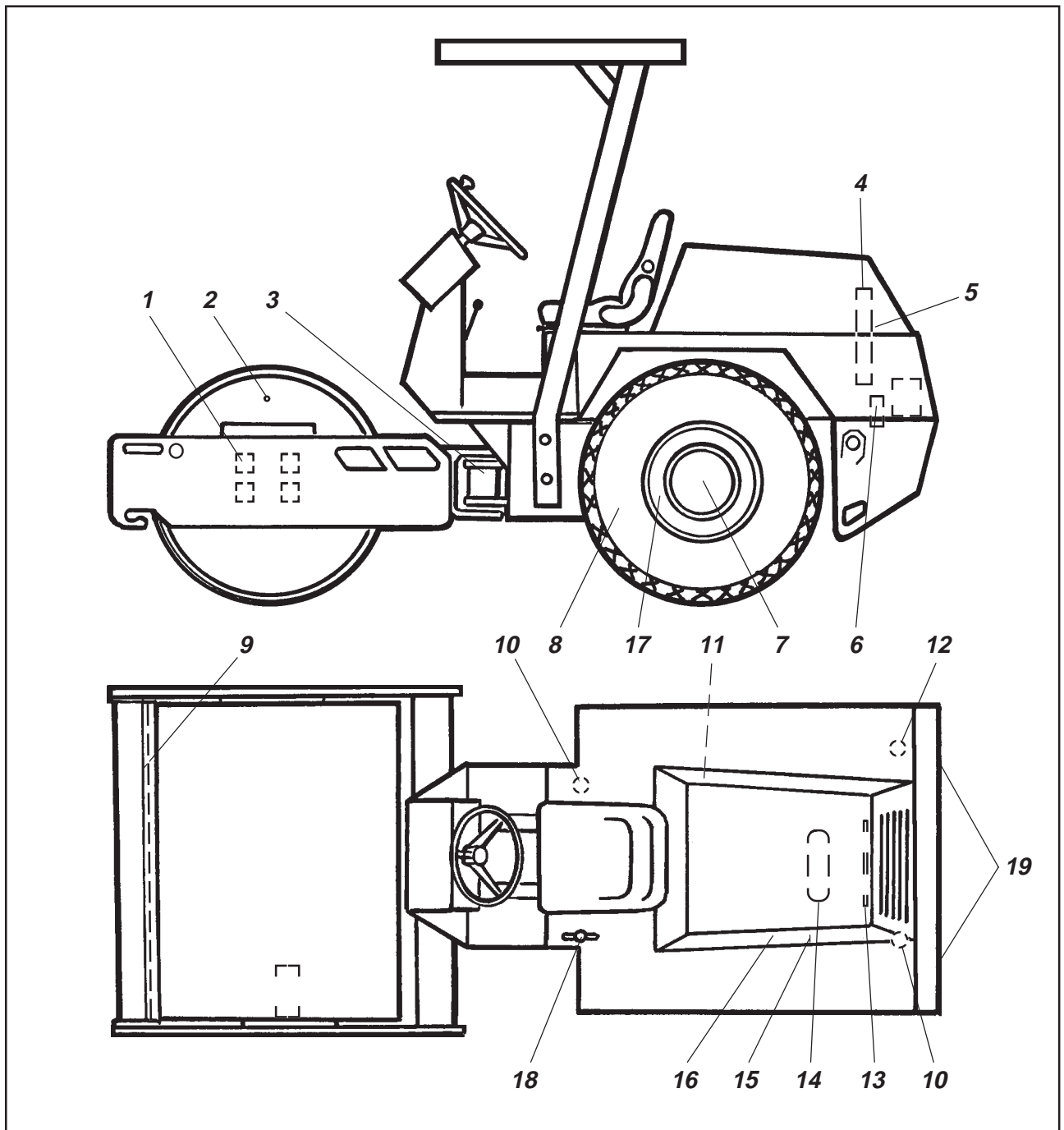


Fig. 1 Maintenance points

- 1. Rubber element, fastening screws
- 2. Drum oil filling/level
- 3. Articulation joint, steering cylinder
- 4. Radiator
- 5. Pre-filter
- 6. Hydraulic reservoir
- 7. Wheel gearing (x2)

- 8. Tires
- 9. Scraper
- 10. Hydraulic filter, (x2)
- 11. Engine suspension
- 12. Fuel tank
- 13. Drive belts
- 14. Air filter

- 15. Oil level, diesel engine
- 16. Fuel filter
- 17. Wheel nuts
- 18. Forward/reverse lever
- 19. Engine hood, hinges

MAINTENANCE MEASURES

Periodic maintenance measures must be carried out at the first applicable interval - daily, weekly, etc. -or after the stipulated hours of operation.



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



The manufacturer's instructions in the engine manual also apply.

Every 10 hours of operation (daily)

Items in fig. 1	Action	See page	Comments
	Before starting up		
15	Check oil level in the engine	10	See engine instruction manual
4	Check coolant level	10	See engine instruction manual
4	Check for free circulation of cooling air	10	See engine instruction manual
	Test the brakes	11	
9	Check the scraper setting	11	
6	Check the hydraulic reservoir level	11	
12	Refuel	12	

Every 50 hours of operation (weekly)

Items in fig. 1	Action	See page	Comments
14	Check that hoses and connections are tight		
14	Inspect/Clean the filter element in the air cleaner	13	Replace as necessary
8, 17	Check tire pressure, control tighten wheel nuts	14	
1	Check rubber elements and bolted joints	14	
3	Grease the articulation joint and the steering cylinder mounts	14	
	Lubricate the strike-off blade bearings	14	Optional
	After the first 50 hours of operation, change all oil filters and oil, except the hydraulic fluid.		

MAINTENANCE MEASURES

Every 250 hours of operation (monthly)

Items in fig. 1	Action	See page	Comments
13	Check belt tension of the radiator fan and alternator		See engine instruction manual See engine instruction manual
15	Change the engine oil and oil filter		
7	Check oil level in the wheel gearing	15	
2	Check oil level in the drum	16	
11	Control tighten engine suspension and bolted joints	16	

Every 500 hours of operation (every three months)

Items in fig. 1	Action	See page	Comments
10	Replace the hydraulic filter and clean the outside of the hydraulic fluid cooler	18	
18, 19	Lubricate controls and pivoted joints	19	
5	Clean pre-filter	19	

Every 1000 hours of operation (every six months)

Items in fig. 1	Action	See page	Comments
12	Drain condensation from the fuel tank	20	
6	Drain condensation from the hydraulic reservoir	20	
14	Replace main filter in the air cleaner	20	
	Clean the engine fuel pump		See engine instruction manual
	Check/adjust engine valve clearance		See engine instruction manual

Every 2000 hours of operation (yearly)

Items in fig. 1	Action	See page	Comments
6	Change the hydraulic fluid	21	
7	Change oil in the wheel gearing	21	
2	Change oil in the drum	22	

EVERY 10 HOURS OF OPERATION (DAILY)

Engine hood – Safety catch

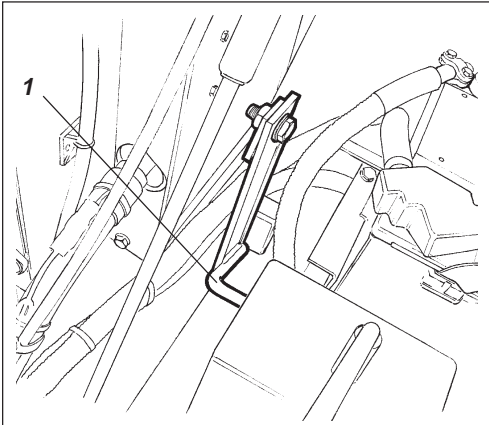


Fig. 2 Engine, left side
1. Catch handle



WARNING
Place the roller on a level base. The engine must be switched off and the Emergency stop knob pressed in for all checking and adjustments on the roller unless otherwise specified.



WARNING
Always secure the engine hood with the catch (1) when open.



WARNING
When lowered, make sure the hood is secured with the locking device at the front edge of the hood.

Engine oil level – Check

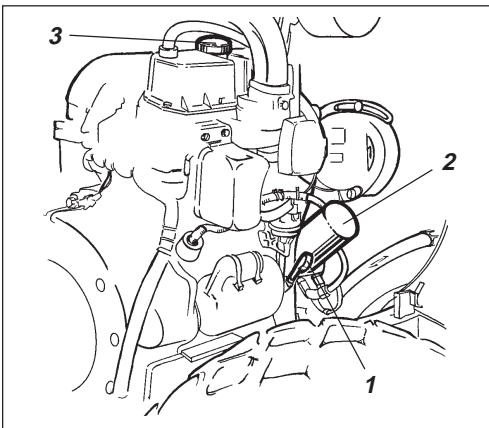


Fig. 3 Engine, left side
1. Oil dipstick
2. Oil filter
3. Filling oil



WARNING
Beware of hot parts of the engine and hot radiator when taking out the oil dipstick. Risk for burns.

The dipstick is on the left-hand side of the engine.

Pull the dipstick (1) up and check that the oil level is between the upper and lower marks. See the engine manual for further details.

Radiator – Check

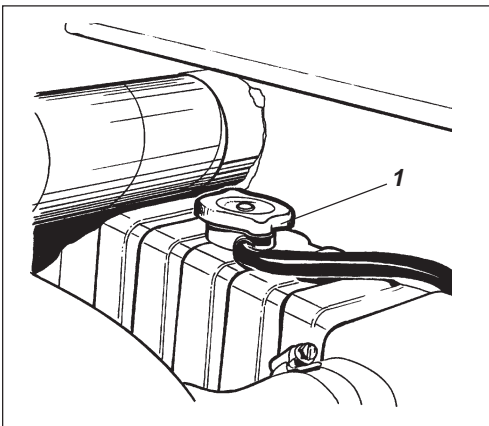


Fig. 4 Radiator
1. Filler cap



WARNING
Take great care if you must open the radiator cap while the engine is hot. Risk for burns. Wear gloves and safety goggles.

Fill with coolant consisting of 50% water and 50% antifreeze. See page 3 in these instructions and the engine manual.



CAUTION
Change the coolant and flush the system every other year. Make sure that air has free passage through the radiator.

EVERY 10 HOURS OF OPERATION (DAILY)

Brakes – Check

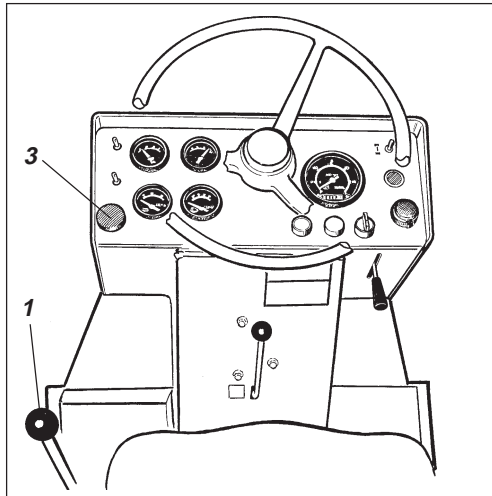


Fig. 5 Instrument panel

1. Forward/Reverse lever
3. Reserve brake

WARNING



Check the brakes as follows:

Drive the roller slowly forward.

Push the reserve brake knob (3). The engine stops and the roller brakes.

After testing the brakes, set the forward/reverse lever (1) in neutral.

Pull out the reserve brake knob.

Restart the roller.

The roller is now ready for operation.

Scraper – Checking/Adjusting

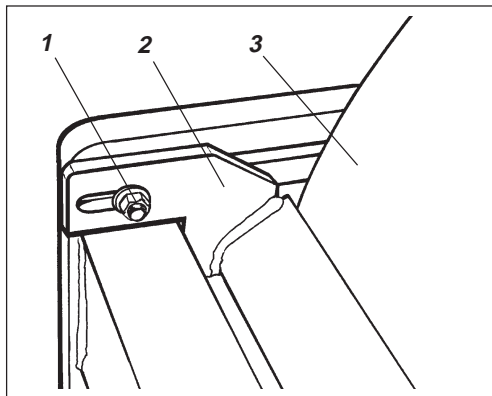


Fig. 6 Scraper setting

1. Fastening screw
2. Scraper
3. Drum

Adjust the distance as follows:

Unscrew the fastening screws (1).

Set the scraper (2) 15–20 mm from the drum (3). Adjust to an equal distance across the entire width.

Tighten the fastening screws.

CAUTION



It is important to remember that the drum tends to move as the machine turns. Consequently, if adjustments are made closer than the values noted below, the scrapers may be damaged or the drum may wear out faster.

Hydraulic fluid level – Check

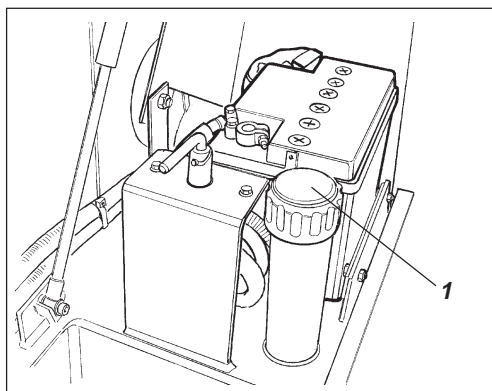


Fig. 7 Rear left corner of engine compartment

1. Filler pipe/level check

Clean the area around the filler cap (1).

Screw off the cap and check level of the hydraulic fluid on the dipstick, which is fixed to the cap. The fluid should reach up to the upper mark.

If the level is low, fill according to the lubricant specification.

Make sure that the breather holes in the hydraulic reservoir cover are not clogged. Clean the cover with diesel oil and blow dry with compressed air as necessary.

EVERY 10 HOURS OF OPERATION (DAILY)

Fuel tank – Refueling

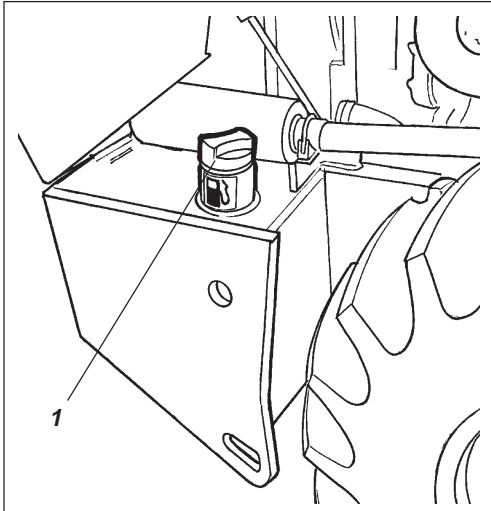


Fig. 8 Rear right corner of engine compartment
1. Filler pipe

Refuel every day up to the lower edge of the filler pipe. Use diesel fuel according to the engine manufacturer's specifications.

WARNING



Stop the diesel engine. Short (press) the filler gun against a non-insulated part of the roller before refueling, and against the filler pipe (1) while refueling is in progress.

WARNING



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

EVERY 50 HOURS OF OPERATION (WEEKLY)

Air cleaner – Cleaning the filter element

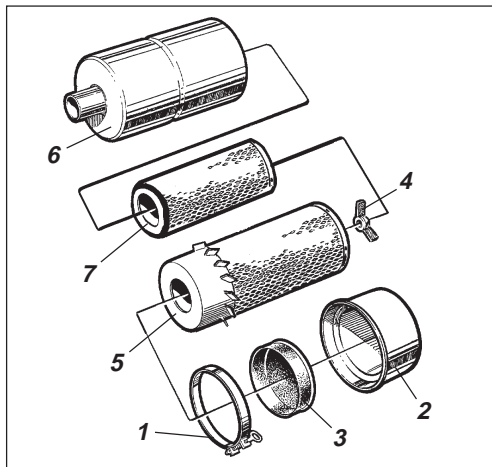


Fig. 9 Air cleaner

1. Clamp
2. Cover
3. Rubber disc
4. Wing nut
5. Main filter
6. Filter housing
7. Backup filter

WARNING



Place the roller on a level base. The engine must be switched off and the Emergency stop knob pressed in for checking and adjustments on the roller unless otherwise specified.

Loosen the clamp (1) and remove the cover (2).

Pull the rubber disc (3) out of the cover and wipe the inside of the cover with a clean rag.

Loosen the wing nut (4) and pull out the main filter (5).

Make sure that no dust has penetrated the filter and wipe the filter housing (6) with a clean rag.

Make sure that the filter and its rubber seals are intact. Clean the filter with compressed air.

CAUTION



Check that the hose clamps between the filter housing and the suction hose are tight and that the hoses are intact. Inspect all hoses all the way to the engine.

CAUTION



Change the main filter at the latest after 5 cleanings.

CAUTION



The backup filter (7) cannot be cleaned. Replace it with a new one every third time the main filter is changed.

Replace the filters with new ones as necessary, tighten the wing nut and fit the rubber disc in the cover. Make sure that the mark "top" on the cover faces upwards and tighten the clamp.

Cleaning with compressed air

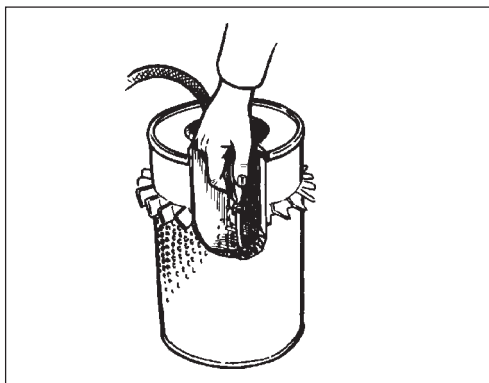


Fig. 10 Air filter

Use compressed air at a maximum pressure of 210 kPa (2.1 bar). Blow up and down the paper pleats on the inside of the filter element. Hold the nozzle at least 20 mm (3/4") from the paper pleats to avoid tearing the paper. See also the engine manual.

WARNING



Wear protective goggles when working with compressed air.

EVERY 50 HOURS OF OPERATION (WEEKLY)

Tires – Tire pressure Wheel nuts – Tightening

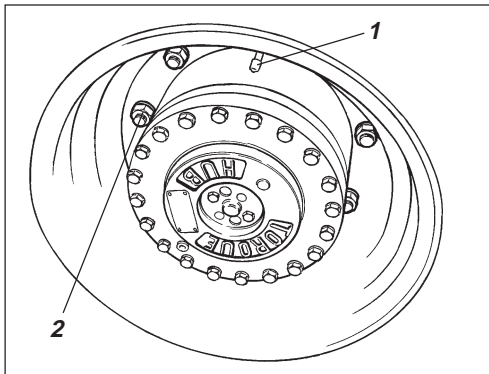


Fig. 11 Wheels

1. Air valve
2. Wheel nut

Check the tire pressure with a pressure gauge.

When the tires are filled with liquid, the air pressure valve (1) must be set at "12 o'clock" when pumping.

Tire pressure is noted under the heading Specifications.

Check both tires.



When changing the tires, it is important that both tires have the same rolling radius, to ensure that the anti-slip device in the rear axle works properly.

Check tightening torque of the wheel nuts (2) at 270 Nm (27 kpm). Check both wheels and all nuts. (Applies only on new machine or newly fitted wheels.)

WARNING



When pumping the tires, see the safety manual that accompanies the roller.

WARNING



Do not allow anyone near the steering joint when the engine is running. Danger of being crushed when steering is operated. Push the Emergency stop knob before lubricating.

Steering cylinder and steering joint – Lubrication

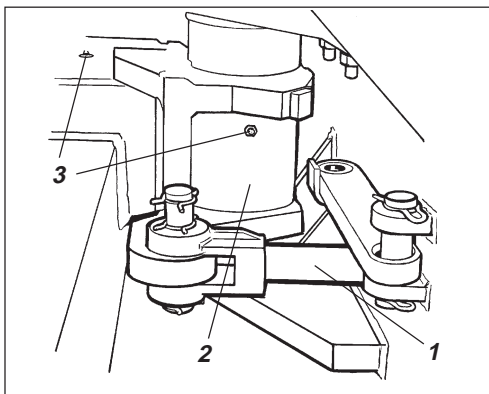


Fig. 12 Left side of articulation

1. Steering cylinder
2. Steering joint
3. Grease nipples

Wipe the nipples clean from grease and dirt.

Grease the steering cylinder (1) mountings and the steering joint (2) with the grease nipples (3). Allow a little grease to remain on the nipples after greasing. This will prevent contamination from entering the nipples.

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

WARNING



Always lower the blade to the ground before leaving/parking the roller.

WARNING



Make sure that nobody is in the way when operating the blade.

Strike-off blade (Optional) – Lubrication

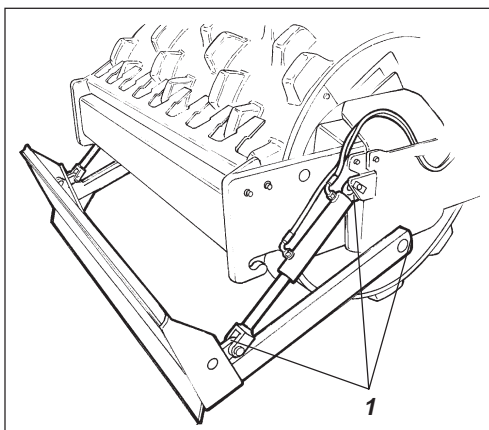


Fig. 13 Strike-off blade

1. Grease nipples

Lower the blade.

Wipe the nipples clean from grease and dirt, three on each side of the machine.

Grease each nipple (1) with four strokes of the grease gun. Allow a little grease to remain on the nipples after greasing. This will prevent contamination from entering the nipples.

EVERY 250 HOURS OF OPERATION (MONTHLY)

Oil level in wheel gearing – Check

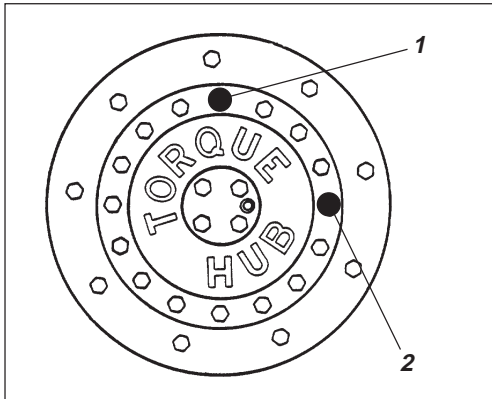


Fig. 14 Wheel hub

1. Filler plug
2. Level/drain plug



WARNING

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



WARNING

Never work underneath the roller when the engine is running. Park on a level surface. Chock the wheels.

Position the roller with the plug (1) in the wheel gearing at 12 o'clock.

Wipe clean, remove the plug (2) and check that the oil level reaches the lower edge of the plug hole. Top off to the right level if the level is low. Use transmission oil. See lubricant specification.

Clean and screw in the plugs tight.

Check the oil level in the same way in the other planetary gearing of the rear axle.

EVERY 250 HOURS OF OPERATION (MONTHLY)

Oil level in drum – Check

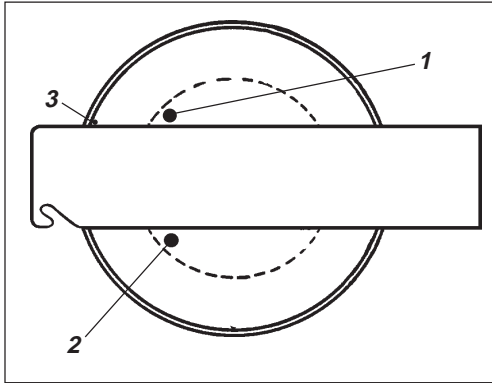


Fig. 15 Left side of drum
(checking position)

1. Filler plug
2. Level plug
3. Level indicator

Place the roller level, with the level indicator (3) as illustrated.

Wipe clean, remove the plug (2) and check that the oil level reaches the lower edge of the plug hole. Top off to the right level if the level is low. Use transmission oil. See lubricant specification.

Clean and screw in the plugs tight.

Bolted joints – Tightening check

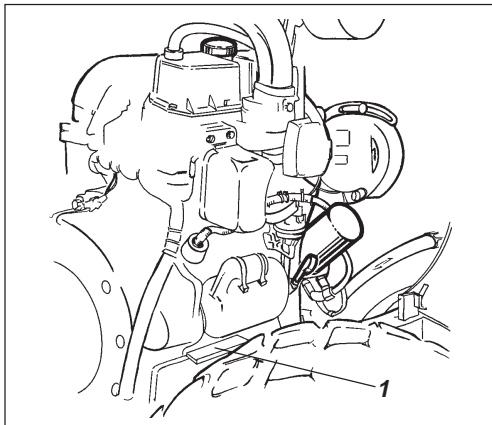


Fig. 16 Engine suspension

1. Bolted joints

Make sure that all bolts on the motor and drive assembly suspension are tight, see the "Specifications – tightening torque" section.

Check that all bolted joints between the engine and the pump drive, and also all hydraulic components, are tightened to the stipulated tightening torque.

Rubber elements and screw joints – Check

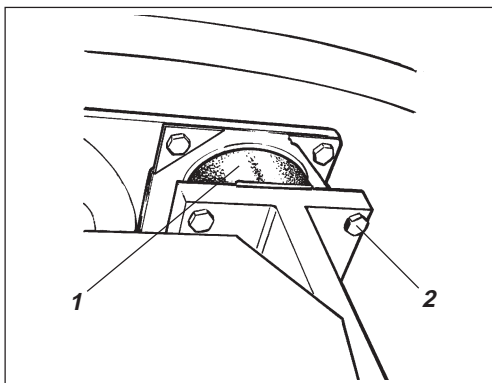


Fig. 17 Drum

1. Rubber element
2. Fastening screw

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 (3/8–5/8").

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

Also make sure that the fastening screws (2) are tightened.

EVERY 250 HOURS OF OPERATION (MONTHLY)

Diesel engine – Oil and filter change

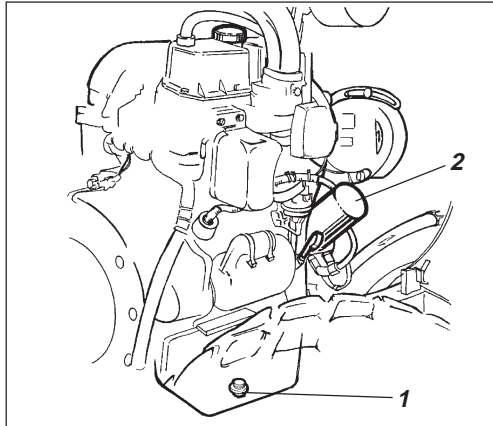


Fig. 18 Left side of engine

1. Drain plug
2. Oil filter

WARNING



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

The oil drain plug (1) is most easily accessible from underneath the engine. Drain off the oil while the engine is warm. Place a receptacle that holds at least 15 quarts under the drain plug.

WARNING



Risk for burns when draining hot oil. Protect your hands.

Fill oil according to the engine manual. Replace the engine oil filter (2) at the same time. See also engine instruction manual.



Dispose of the drained oil and filter in an approved manner.

EVERY 500 HOURS OF OPERATION (EVERY THREE MONTHS)

Hydraulic system – Changing the filters

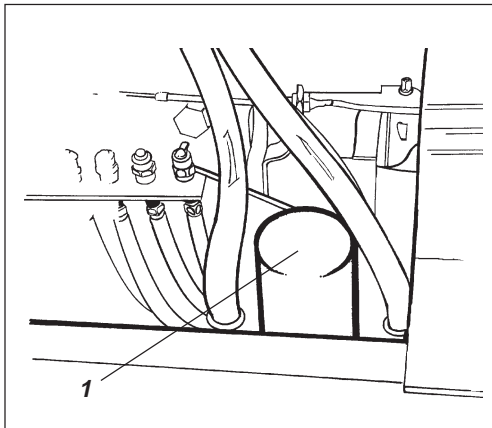


Fig. 19 Hydraulic filter
1. Pressure filter

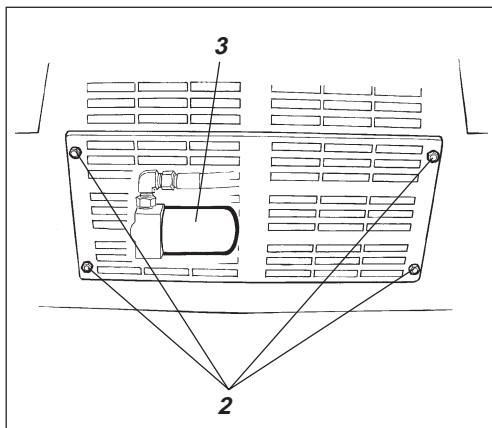


Fig. 20 Hydraulic filter
2. Fastening screws (x4)
3. Return filter

WARNING



Place the roller on a level base. The engine must be switched off and the Emergency stop knob pressed in for checking and adjustments on the roller unless otherwise specified.

Loosen the cap/breather filter on the reservoir to eliminate any overpressure inside.

Make sure that the breather filter is not clogged. Air must pass through the cap unobstructed 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.

Unscrew the fastening screws (2) and remove the cooling air grille.

WARNING



Wear protective goggles when working with compressed air.

Clean thoroughly around the oil filters.



Remove the oil filters (1) and (3), and dispose of them in an approved manner. They are expendable and cannot be cleaned.

CAUTION



Make sure that the old gaskets do not remain on the filter holders. Otherwise, leakage may occur between the new and the old gaskets.

Thoroughly clean the sealing surfaces of the filter holders.

Apply a thin coat of fresh hydraulic fluid on the new filter gaskets. Tighten the filters by hand.

CAUTION



First, screw on until the filter seal lies against the filter holder. Then screw another half turn. Do not tighten the filter too hard; this could damage the gasket.

Start the engine and make sure that there is no leakage of hydraulic fluid from the filters. Check the level and top off as necessary.

WARNING



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

EVERY 500 HOURS OF OPERATION (EVERY THREE MONTHS)

Controls and pivoted joints – Lubrication

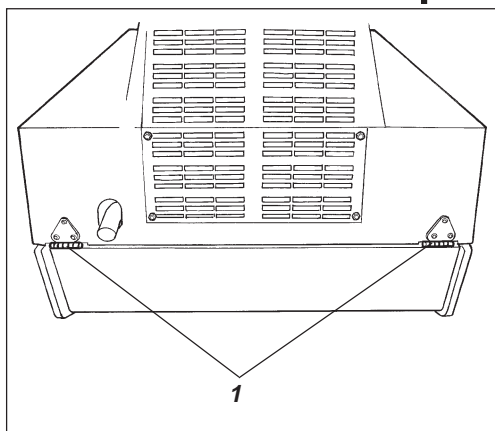


Fig. 21 Engine hood
1. Hinges

Lubricate the engine hood hinges (1) and slide rails of the operator's seat with grease, other moving parts and controls with oil. See lubricant specification.

Pre-filter – Cleaning

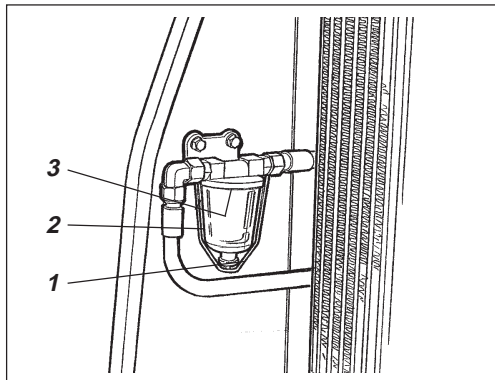


Fig. 22 Engine
1. Screw
2. Glass bowl
3. Strainer

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.

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.

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 indoors. Risk of carbon monoxide poisoning.

EVERY 1000 HOURS OF OPERATION (EVERY 6 MONTHS)

Fuel tank – Draining

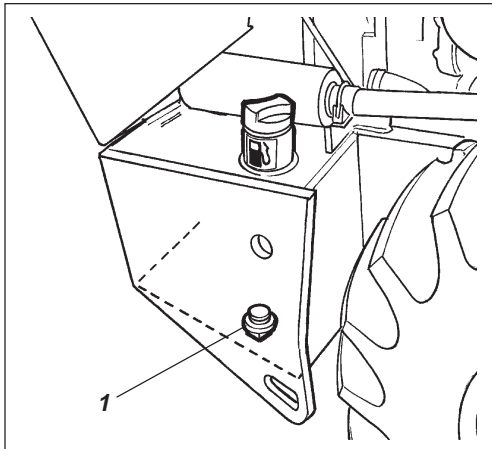


Fig. 23 Rear right corner of engine compartment
1. Drain plug

Water and sediment in the fuel tank is drained via the drain plug (1) in the bottom of the fuel tank.

CAUTION



Take great care when draining. Do not drop the plug so that all the fuel runs out.

Draining must be done after the roller has stood still for a long period—for example, overnight. The fuel level should be as low as possible.

The roller should preferably have stood with the drain plug slightly lower so that water and sediment are concentrated over the drain plug (1). Drain as follows:

Hold a suitable receptacle under the plug (1).

Loosen the plug and drain off the water and sediment until only pure fuel flows from the plug. Tighten the plug again.

Draining must be done after the roller has stood still for a long period—for example, overnight. Drain as follows:

Hold a suitable receptacle under the drain plug (1).

Carefully unscrew the plug and allow water and sediment to drain off.

Tighten the plug again.

CAUTION



Work carefully, do not drop the plug.

WARNING



Risk for burns when draining hot oil. Protect your hands.

Hydraulic reservoir – Draining

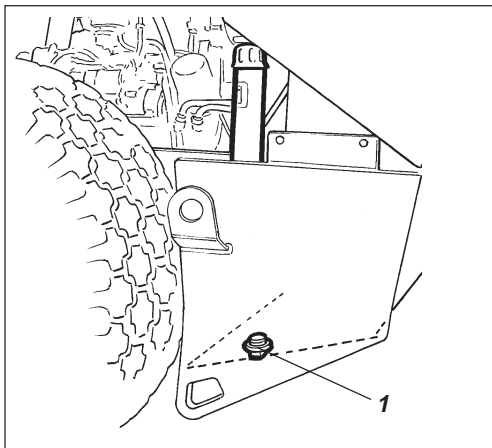


Fig. 24 Rear left corner of engine compartment
1. Drain plug

Air cleaner

– Cleaning the filter element

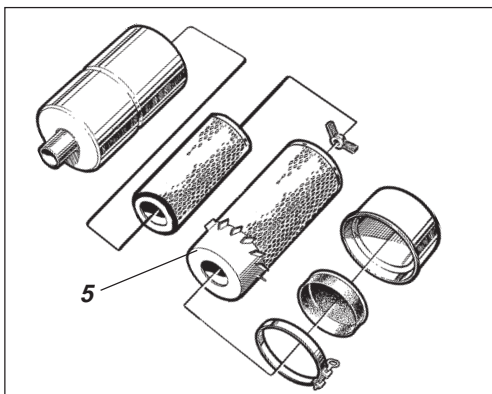


Fig. 25 Air cleaner
5. Main filter

Replace the main filter of the air cleaner even if it has not yet been cleaned five times; see every 50 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 risks being damaged.

EVERY 2000 HOURS OF OPERATION (YEARLY)

Hydraulic reservoir – Changing the fluid

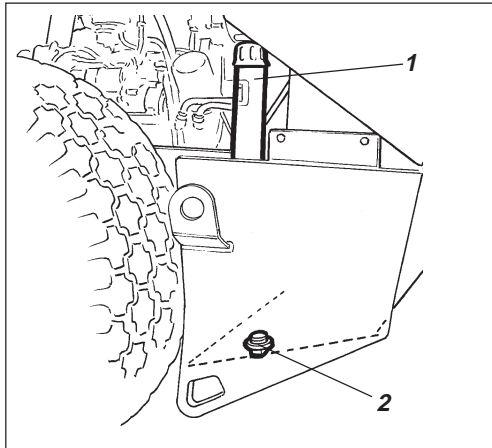


Fig. 26 Hydraulic reservoir
1. Filler pipe
2. Drain plug

WARNING



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

WARNING



Risk for burns when draining hot oil. Protect your hands.

Arrange a receptacle to collect the fluid. The receptacle should hold at least 65 quarts.



Collect the oil and dispose of it properly.

Fill with fresh hydraulic fluid according to instructions under the heading "Hydraulic reservoir—checking the level". Change the hydraulic filter at the same time.

Start the engine and operate the hydraulic functions.

WARNING



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

Check the level and top off as necessary.

Wheel gearing – Changing the oil

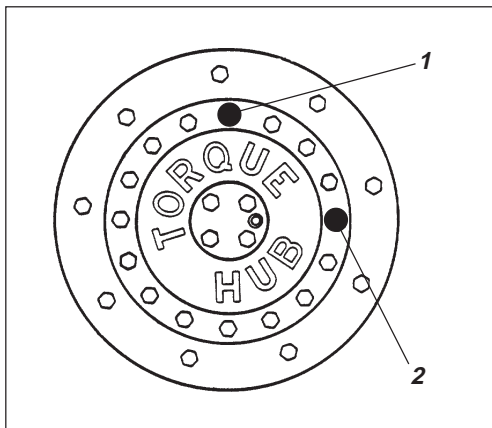


Fig. 27 Wheel hub
1. Filler plug
2. Level/drain plug

Position the roller with the drain plugs (2) straight down.

Wipe clean, loosen the plugs (1) and (2), and drain off the oil. The volume is about 1.1 quart.

Position the roller with the plug (2) at 3 o'clock.

Fill with oil to lower edge of level hole.

Clean and screw in the plugs tight. Use transmission oil. See lubricant specification.

Repeat the procedure on the other wheel.



Collect the oil and dispose of it properly.

EVERY 2000 HOURS OF OPERATION (YEARLY)

Drum – Changing the oil

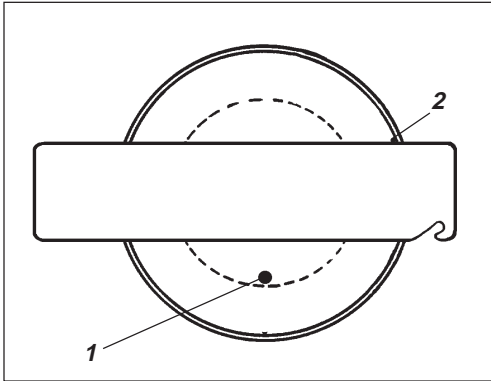


Fig. 28 Right side of drum
(draining position)

1. Drain plug
2. Level indicator

Place the roller level and with the level indicator (2) as illustrated.

Clean and unscrew the drain plug (1). Collect the drained oil in a receptacle, volume 5.5 quart (CA121), 7 quart (CA141).

Clean and refit the drain plug (1).



Collect the oil and dispose of it properly.

Drum – Changing the oil

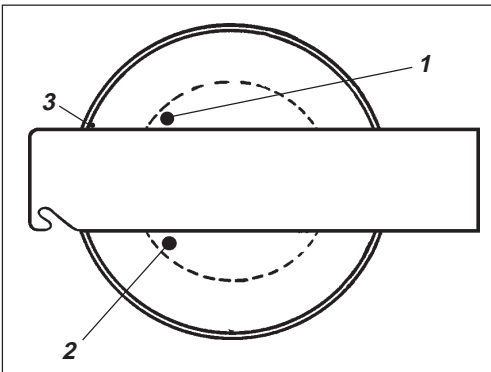


Fig. 29 Left side of drum
(checking/filling position)

1. Filler plug
2. Level plug
3. Level indicator

Place the roller level and with the level indicator (3) as illustrated.

Clean and unscrew the plugs (1) and (2).

Fill to the lower edge of the level hole.

Clean and refit the plugs (1) and (2).

Use transmission oil. See lubricant specification.

LONG – TERM PARKING

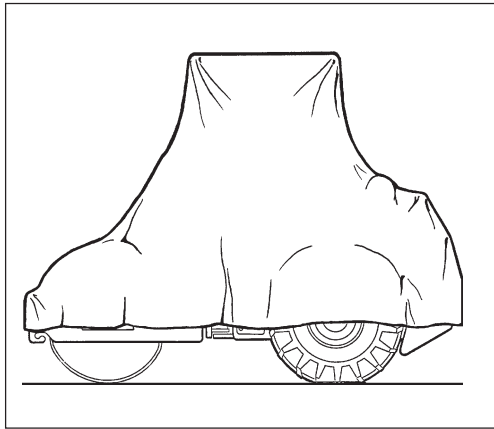


Fig. 30 Roller protected against the weather



For parking longer than one month, follow these instructions:

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

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

Diesel engine

- * See the 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 and trickle charge the battery once a month.

Air cleaner, exhaust pipe

- * Cover the air cleaner or its opening with plastic or tape. Cover the exhaust opening. This is necessary to prevent moisture from entering the engine.

Fuel tank

To avoid condensation, make sure that the fuel tank is completely filled.

Hydraulic reservoir

Drain off any condensation water and fill the hydraulic reservoir to the upper mark.

Steering cylinder, hinges, etc.

Grease the steering joint bearings and both bearings of the steering cylinder. Grease the piston rod of the steering cylinder with inhibitor grease. Also grease the hinges of the engine compartment and cab doors, and both ends (bright parts) of the forward/reverse control.

Tires

Make sure that tire pressure is 110 kPa (1.1 kp/ cm²).

Hoods, tarpaulin

- * Lower the instrument shield plate on the steering column. Cover the entire roller with a tarpaulin that is clear of the ground. Store the roller indoors if possible, preferably in a location 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 and 104°F).



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 max. $+50^{\circ}\text{C}$

The diesel engine can be run at this temperature using the normal oil but for other components the following fluids should be used:
Hydraulic system and mineral oil: 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, 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 an elastic band. This will prevent water under pressure from entering the venting hole in the filler cap, which could otherwise cause operational disturbance.

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), safety cab

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

Starting aid

When you use 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.

ELECTRICAL SYSTEM, FUSES

Fuses, relays and instrument panel

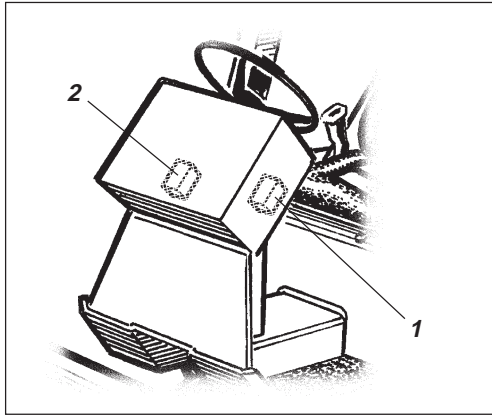


Fig. 31 Steering column
1. Fuse 15A
2. Relay, neutral start

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



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



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

The electrical regulating and control system is protected by 2 fuses, 15A (1), fig. 31, and 30A (1), see fig. 32 below.

Fuses, relays and engine

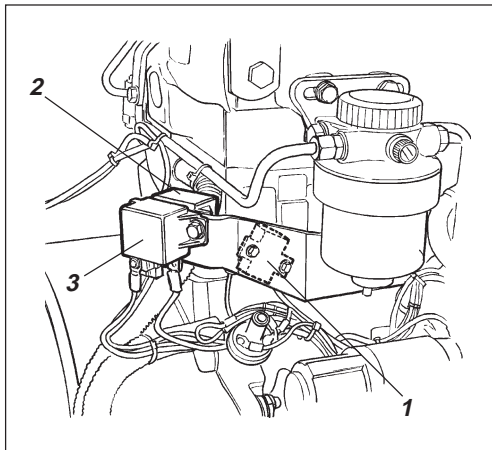


Fig. 32 Engine compartment
1. Fuse 30A
2. Relay, start
3. Relay, preheater (optional)