



## 2.0.1 Maintenance

### Contents, Maintenance

<b>Inhalt/ Contents</b>	<b>Seite/ Page</b>
Maintenance plan	3 - 15
Check the engine oil and coolant levels (daily maintenance)	16- 18
Check the air filter soiling service indicator (daily maintenance)	19- 20
Drain any condensation from the water separator after 50 operation hours	21
Check the vacuum nozzle and circular brush settings (weekly maintenance)	22
Check the fresh water system (fresh water nozzles, nozzle filters, sieve filters weekly mainten.)	23
Grease the vehicle (weekly maintenance)	24- 26
Change the engine oil and engine filter after 50 and subsequently every 250 operating hours	27- 28
Change the fuel filter after 50 and subsequently every 500 operating hours	29- 30
Change the hydraulic oil return flow filter after 50 and subsequently every 500 operating hours	31
Check and adjusting the valve clearance on the Yanmar engine every 1000 operating hours	32
Change the membrane in the valve cover of the Yanmar engine every 1000 operating hours	33



2.0.1 Maintenance  
**Contents, Maintenance**

<b>Inhalt/ Contents</b>	<b>Seite/ Page</b>
Change the hydraulic pump Bowden cables (accelerator pedal) after 1000 operating hours	34
Check the final speed; max. 30 kph) after changing the Bowden cables	35
Spare parts lists for 50, 250, 500 and 1000 operating hours maintenance	36- 37
Notes	38- 40



## 2.0.1 Maintenance

### Daily and weekly Maintenance customer

Activity	Interval	
	Daily	Weekly
Cleaning of the machine as required	o	o
Check the engine oil level, if necessary top up	o	o
Check the coolant level in the compensation tank, if necessary top up	o	o
Check the the fuel level, if necessary top it up	o	o
Check the solution nozzle on the vacuum nozzle, if necessary clean it	o	o
Check the maintenance indicator for the air filter, if necessary clean it	o	o
Check the combined cooler for the engine, if necessary clean it	o	o
Check the the level for the windscreen washer fluid, if necessary top up	o	o
Empty the water separator		o
Check the cabin air filter, if necessary clean it		o
Grease the lubrication points as described in the lubrication schedule		o
Check the hydraulic oil level; refill as necessary		o
Check the lighting system		o
Check the air pressure in the tires		o



## 2.0.1 Maintenance

### Daily and weekly Maintenance customer

Activity	Interval	
	Daily	Weekly
Check sweeping unit / scrubber unit for wear and damage Check sweeping pattern, adjust if necessary Check the spray nozzles, spray nozzle filters and strainers in the water system, if necessary clean them		o
Check vacuum nozzle for wear and damage Check the vacuum nozzle adjustment, if necessary adjust it Check the suction hose for wear and proper installation Check the seal between the suction hose and the dirt hopper Check the solution nozzle and the circulation water system on the vacuum nozzle Check the vacuum nozzle flap		o
Test drive with braking test		o



## 2.0.1 Maintenance

### Daily and weekly Maintenance customer

Activity	Interval
	After 50 operating hours (one-off)
<b>Lubrication service (weekly)</b>	
Front unit - lifting cylinders above and below and on left-hand and right-hand sides (4x) for removing front attachment	○
Front unit - mechanism on left-hand and right-hand sides (4x) mechanism for removing front attachment	○
Sweeping system - circular brushes tilting joints left-hand/right-hand sides (4x)	○
Sweeping system - mechanism for removing vacuum nozzle (3x)	○
Sweeping system - circular brushes levers for sideways movement (2x)	○
Circulation water lever (1x)	○
Accelerator pedal (1x)	○
Brake pedal (1x)	○
Larger material flap (1x)	○
Greasing support (2x) (not for the Easy Grease option)	○
Wing mirrors on left-hand/right-hand sides (2x)	○
Lifting cylinders for dirt hopper on left-hand/right-hand sides (4x)	○
Articulated joint (2x)	○
Ball-and-socket joint for rear support (2x)	○
Easy Grease (optional)	○
<b>Miscellaneous</b>	
Check the appearance of the vehicle	○
Test drive	○
If necessary clean the vehicle	○



## 2.0.1 Maintenance

### Maintenance 50 operating hours

**Hako system maintenance schedule**  
**- one-off**

The following maintenance work must be completed by an authorized Hako service center.

<b>Activity</b>	<b>Interval</b>
	<b>After 50 operating hours (one-off)</b>
<b>Engine</b> Change the engine oil Change engine oil filter Change the fuel filter Empty the water separator Check the idling, preferred and operating engine speeds Check the v-belts for the generator and the air conditioning system Check the cooler and the coolant hoses Check the combined cooler and radiator grille	○ ○ ○ ○ ○ ○ ○ ○
<b>Brakes</b> Check the service brake and parking brake, if necessary readjust them Check the the Bowden cables on the parking brake for signs of rubbing Check the brake fluid for the service brake, if necessary top up	○ ○ ○
<b>Wheels</b> Check the bolts for proper tightness (also after every wheel change) Check the tire air pressure	○ ○



2.0.1 Maintenance  
**Maintenance 50 operating hours**

Activity	Interval
	After 50 operating hours (one-off)
<b>Hydraulics</b> Exchange the return line filter Check the oil level Check functioning and check for leaks Raise the dirt hopper using the manual pump	○ ○ ○ ○
<b>Steering</b> Check the functioning and easy running Check the ball heads and steering cylinders	○ ○
<b>Bowden cables</b> Check the functioning, easy operation and zero point	○
<b>Sweeping unit / scrubber unit</b> Check for wear and damage Check sweeping pattern, adjust if necessary Check the spray nozzles, spray nozzle filters and strainers in the water system, if necessary clean them	○ ○ ○
<b>Vacuum nozzle</b> Check for wear and damage Check the vacuum nozzle adjustment, if necessary adjust it Check the suction hose for wear and proper installation Check the seal between the suction hose and the dirt hopper Check the solution nozzle and the circulation water system on the vacuum nozzle Check the vacuum nozzle flap	○ ○ ○ ○ ○ ○



2.0.1 Maintenance

Maintenance 50 operating hours

Activity	Interval
	Every 250 operating hours
<p><b>Lubrication service</b></p> <ul style="list-style-type: none"> <li>Front unit - lifting cylinders above and below and on left-hand and right-hand sides (4x) for removing front attachment</li> <li>Front unit - mechanism for removing front attachment on left-hand and right-hand sides (4x)</li> <li>Sweeping system - circular brushes tilting joints left-hand/right-hand sides (4x)</li> <li>Sweeping system - vacuum nozzle lifting mechanism (3x)</li> <li>Sweeping system - circular brushes, lever for sideways movement (2x)</li> <li>Circulation water lever (1x)</li> <li>Accelerator pedal (1x)</li> <li>Brake pedal (1x)</li> <li>Larger material flap (1x)</li> <li>Greasing support (2x) (not for the Easy Grease option)</li> <li>Wing mirrors on left-hand/right-hand sides (2x)</li> <li>Cylinders for removal of dirt hopper on left-hand/right-hand sides (4x)</li> <li>Articulated joint (2x)</li> <li>Ball-and-socket joint for rear support (2x)</li> <li>Easy Grease (optional)</li> </ul>	<ul style="list-style-type: none"> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> <li>o</li> </ul>
<p><b>Miscellaneous</b></p> <ul style="list-style-type: none"> <li>Check the appearance of the vehicle</li> <li>Test drive</li> <li>If necessary clean the vehicle</li> </ul>	<ul style="list-style-type: none"> <li>o</li> <li>o</li> <li>o</li> </ul>





## 2.0.1 Maintenance

### Maintenance every 250 operating hours

#### Hako system maintenance schedule

I

The following maintenance work must be completed by an authorized Hako service center.

Activity	Interval
	Every 250 operating hours
<b>Engine</b> Change the engine oil Change the engine oil filter Check the fuel filter Empty the water separator Check the filter insert for the air filter Check the v-belts for the generator and the air conditioning system Check the cooler and the coolant hoses Check the combined cooler and radiator grille	○ ○ ○ ○ ○ ○ ○ ○
<b>Brakes</b> Check the service brake and parking brake, if necessary readjust them Check the Bowden cables on the parking brake for signs of rubbing Check the brake fluid for the service brake, if necessary top up	○ ○ ○
<b>Wheels</b> Check the wheel bolts for proper tightness (also after any wheel change) Check the tire air pressure	○ ○



## 2.0.1 Maintenance

### Maintenance every 250 operating hours

Activity	Interval
	Every 250 operating hours
<b>Hydraulics</b> Check the oil level Check functioning and check for leaks Raise the dirt hopper using the manual pump	○ ○ ○
<b>Steering</b> Check the functioning and easy running Check the ball heads and steering cylinders	○ ○
<b>Bowden cables</b> Check the functioning, easy operation and zero point	○
<b>Sweeping unit / scrubber unit</b> Check for wear and damage Check sweeping pattern, adjust if necessary Check the spray nozzles, spray nozzle filters and strainers in the water system, if necessary clean them	○ ○ ○
<b>Vacuum nozzle</b> Check for wear and damage Check the vacuum nozzle adjustment, if necessary adjust it Check the suction hose for wear and proper installation Check the seal between the suction hose and the dirt hopper Check the solution nozzle and the circulation water system at the vacuum nozzle Check the vacuum nozzle flap	○ ○ ○ ○ ○ ○



## 2.0.1 Maintenance

### Maintenance every 250 operating hours

Activity	Interval
	Every 250 operating hours
<b>Dirt hopper</b> Check for signs of soiling Check the flap in the sump Check the speed of the suction turbine and check for contamination Check the bearing for the suction turbine (anti-vibration buffer) Check the anti-vibration buffer for the intake sieve in the dirt hopper Check the hydraulic lines for the suction turbine drive for leaks Check the baffle plate for wear Check the seals on the container cover for leaks and damage Check the joints and bearings for the container cover Check the waste air side of the container cover for contamination	○ ○ ○ ○ ○ ○ ○ ○ ○ ○
<b>Electrics</b> Check the horn, lighting and work functions Check the cabling for signs of rubbing and wear Check the state of charge of the battery Clean and grease the battery poles	○ ○ ○ ○
<b>Cab</b> Clean the cabin air filter Check the functioning of the heating Check the functioning of the air conditioning system Check the windscreen washer fluid	○ ○ ○ ○



## 2.0.1 Maintenance

### Maintenance every 250 operating hours

Activity	Interval
	Every 250 operating hours
<b>Lubrication service</b>	
Front unit - lifting cylinders above and below and on left-hand and right-hand sides (4x) for removing front attachment	o
Front unit - mechanism for removing front attachment on left-hand and right-hand sides (4x)	o
Sweeping system - circular brushes tilting joints left-hand/right-hand sides (4x)	o
Sweeping system - vacuum nozzle lifting mechanism (3x)	o
Sweeping system - circular brushes, lever for sideways movement (2x)	o
Circulation water lever (1x)	o
Accelerator pedal (1x)	o
Brake pedal (1x)	o
Larger material flap (1x)	o
Greasing support (2x) (not for the Easy Grease option)	o
Wing mirrors on left-hand/right-hand sides (2x)	o
Cylinders for removal of dirt hopper on left-hand/right-hand sides (4x)	o
Articulated joint (2x)	o
Ball-and-socket joint for rear support (2x)	
Easy Grease (optional)	
<b>Miscellaneous</b>	
Check the appearance of the vehicle	o
Test drive	o
If necessary clean the vehicle	o



## 2.0.1 Maintenance

### Maintenance every 500 operating hours

#### Hako system maintenance schedule

##### II

The following maintenance work must be completed by an authorized Hako service center.

Activity	Interval
	Every 500 operating hours
All maintenance work as described in Hako system maintenance schedule I The following activities in addition:	o
<b>Engine</b> Change the fuel filter Exchange the air filter insert Check the exhaust for damage	o o o
<b>Hydraulics</b> Exchange the return line filter	o



## 2.0.1 Maintenance

### Maintenance every 1000 operating hours

#### Hako system maintenance schedule

##### III/S

The following maintenance work must be completed by an authorized Hako service center.

Activity	Interval
	Every 1000 operating hours
All maintenance work as described in Hako system maintenance schedule I and II The following activities in addition:	o
<b>Engine</b> Exchange air filter safety cartridges Check the idling, preferred and operating engine speeds Check the valve play when the engine is cold, if necessary adjust it Exchange the membrane in the valve cover for the engine ventilation Exchange the coolant - at the latest after 2 years (pay attention to antifreeze during winter operation!)	o o o o o
<b>Brakes</b> Check the brake pads, if necessary exchange them Exchange the brake fluid for the service brake - at the latest after two years	o o
<b>Hydraulics</b> Change the hydraulic oil	o
<b>Bowden cables</b> Exchange the Bowden cable for the engine Exchange the Bowden cables for the travel pump	o o



## 2.0.1 Maintenance

### Maintenance every 1000 operating hours

Activity	Interval
	Every 1000 operating hours
<b>Accelerator</b> Check the functioning and easy movement, if necessary replace defective parts Exchange the stop disc and torsion spring on the accelerator pedal Exchange the accelerator pedal (after 2000 hours of operation)	○ ○ ○
<b>Articulated joint</b> Check the rubber buffer is free of play	○
<b>Dirt hopper</b> Exchange the bearing for the suction turbine (anti-vibration buffer)	○
<b>Cab</b> Exchange the cabin air filter	○
<b>Miscellaneous</b> Check the notices on the machine, if necessary replace them Test all of the components relevant for functioning and safety Check the attachment devices Test drive Log according to UVV-BGV-TÜV-VDE, certification plate and inspection logbook	○ ○ ○ ○ ○

## 2.0.1 Maintenance

### Daily maintenance, check engine oil and coolant levels

#### 6.4 Engine

- 1 Oil filler cap
- 2 Dipstick
- 3 Engine oil filter
- 4 Drain plug for engine oil
- 5 Membrane on the valve cover



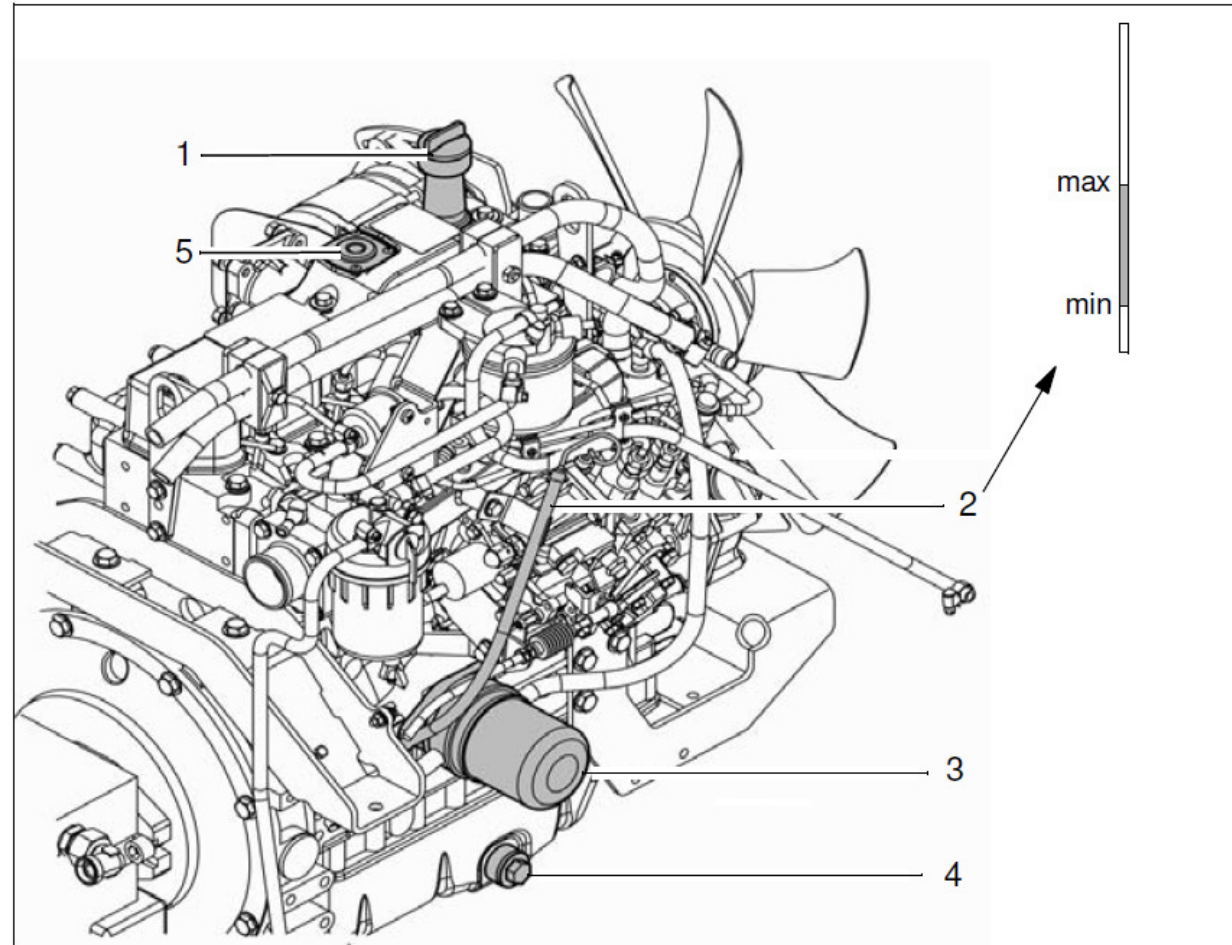
The safety information below has to be observed:

Caution with hot engine oil when the engine was running earlier.

Catch drained engine oil and dispose of with consideration for the environment.

Pay attention to cleanliness when filling with oil.

Use only the operating fluids given in the table, refer to Section 6.4.



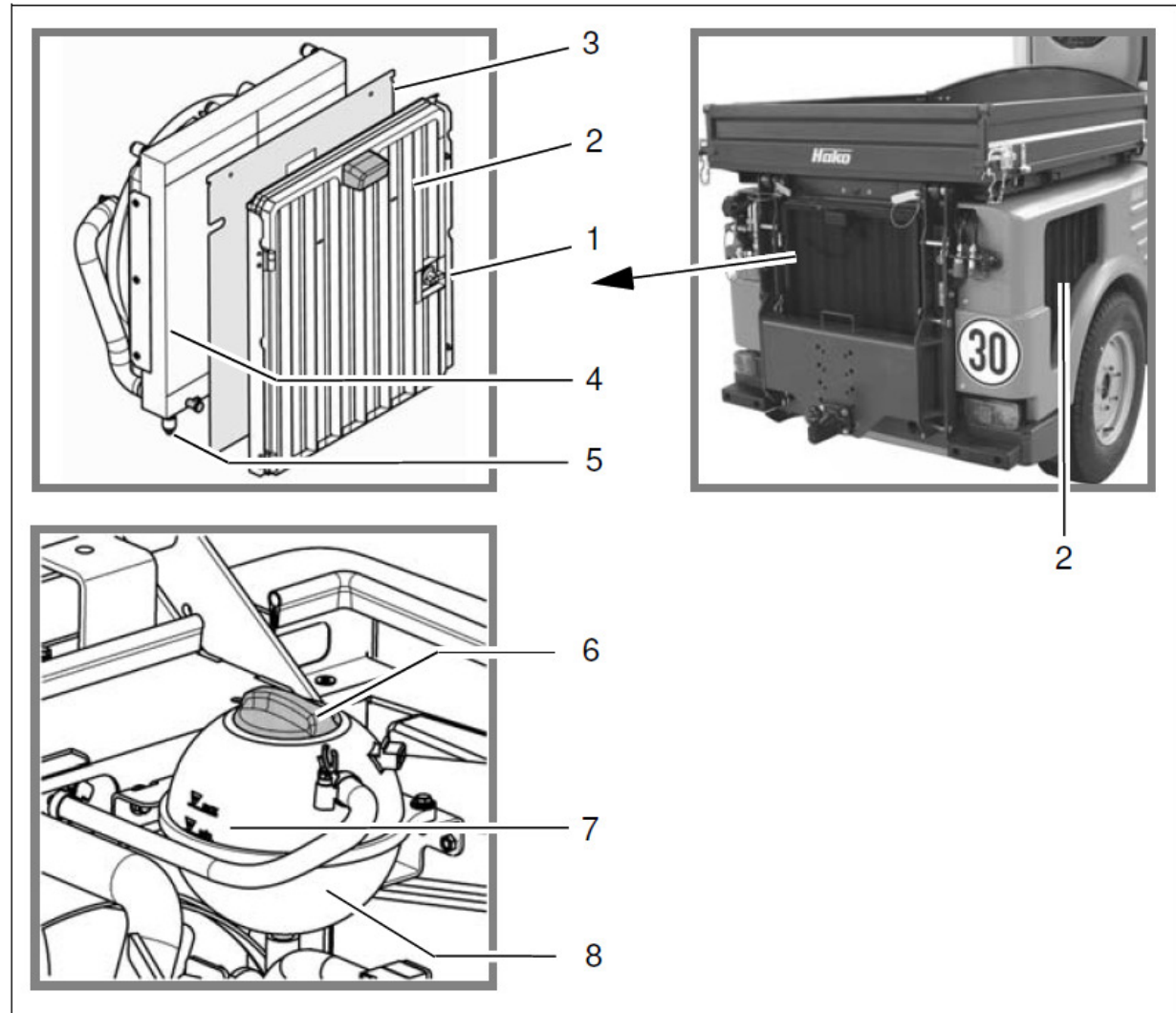


## 2.0.1 Maintenance

Daily maintenance, check engine oil and coolant levels

### 6.7 Cooling system

- 1 Rear door
- 2 Screens
- 3 Cover plate
- 4 Combination cooler
- 5 Drainage valve
- 6 Cap
- 7 Level mark
- 8 Compensation container



## 2.0.1 Maintenance

### Daily maintenance, check engine oil and coolant levels

#### 6.7.1 Cleaning the cooling system

The combination cooler cools both the cooling water for the diesel engine and the hydraulic oil for the operating hydraulics. The cooling air is sucked in by a fan through the screens (Fig. 47/2) in the vehicle's rear section on the left-hand and the right-hand sides and in the rear door (Fig. 47/1) and is supplied to the combination cooler. Check the screens and the combination cooler (Fig. 47/4) every day and clean if necessary.



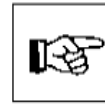
Do not use a steam cleaner or a high pressure washer. Do not direct the water jet directly at electrical and electronic components.

The cooling ribs are very thin and they can easily become damaged.

1. Ensure that the vehicle is standing horizontally, then apply the parking brake and switch off the engine.
2. Open the rear door (Fig. 47/1).
3. Check the screens (Fig. 47/2) and the combination cooler (Fig. 47/4) for contamination and if necessary

clean with compressed air or a water jet.

#### 6.7.2 Cover plate for winter operation



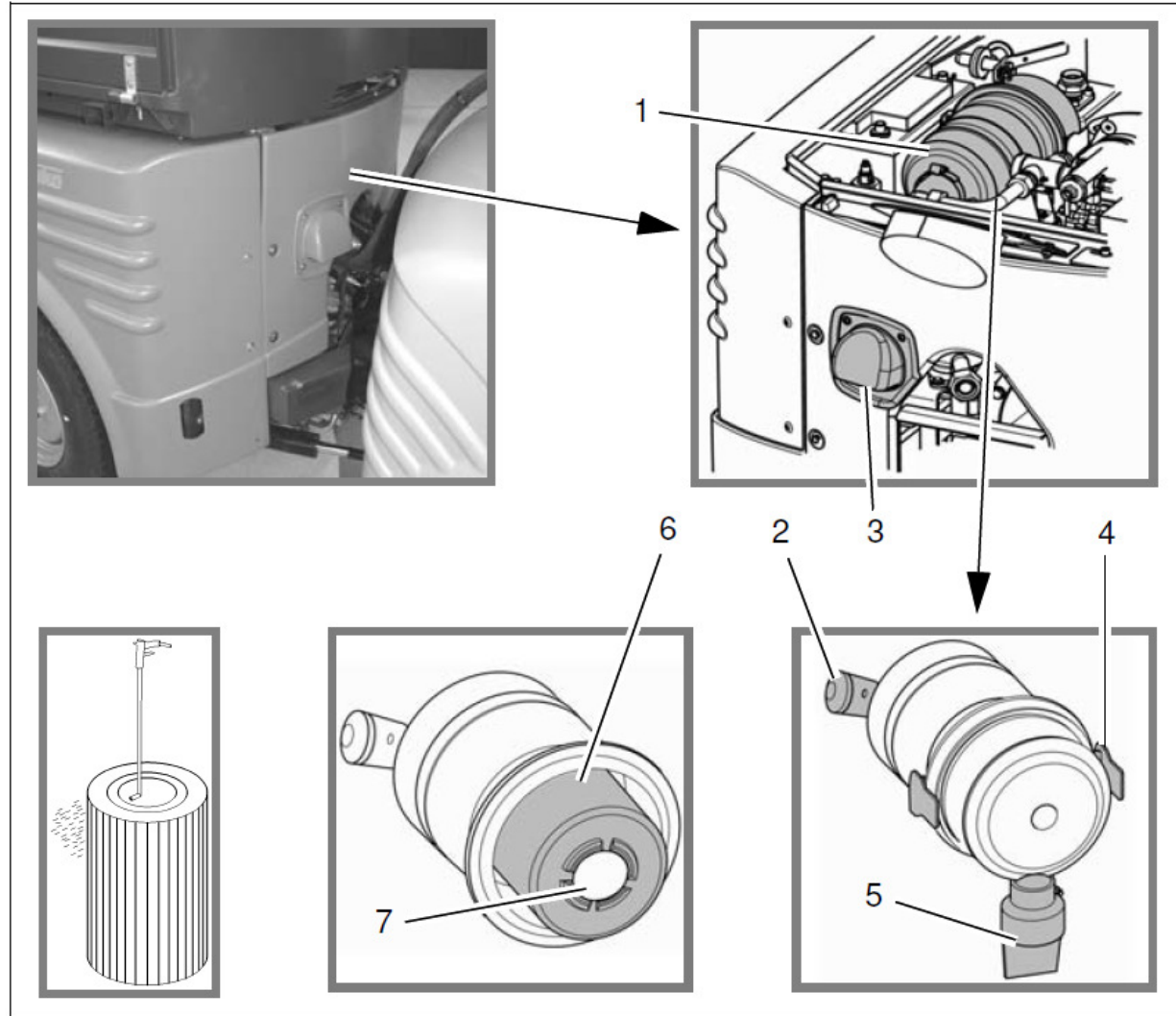
If the vehicle has been fitted with a salt and sand spreader for winter operation, the cover plate has to be installed for the protection of the combination cooler (Fig. 47/3).

## 2.0.1 Maintenance

### Daily maintenance, check air filter soiling service indicator

#### 6.6 Air filter

- 1 Air filter
- 2 Maintenance indicator
- 3 Screen
- 4 Clamps
- 5 Dust removal valve
- 6 Filter insert
- 7 Safety cartridges



## 2.0.1 Maintenance

### Daily maintenance, check air filter soiling service indicator

#### 6.6.1 Maintenance indicator

The contamination of the air filter has to be checked every day. The maintenance indicator (Fig. 46/2) indicates the degree of contamination.

#### 6.6.2 Cleaning the filter insert

The filter insert (Fig. 46/6) has to be checked according to the maintenance indicator (Fig. 46/2) and be cleaned when necessary. At the latest after every 500 hours of operation, the filter insert has to be exchanged.



We cannot accept liability for cleaned filter inserts. Never allow the engine to run without a filter insert!

1. Ensure that the vehicle is standing horizontally, then apply the parking brake and switch off the engine.
2. Remove the filter insert and carefully clean by blowing from the inside with dry compressed air (max. 3 bar) and moving the the compressed air nozzle up and down.
3. Immediately replace a contaminated or damaged filter insert.
4. Clean the inside of the filter housing.
5. Re-install the filter insert.

#### 6.6.3 Changing the safety cartridge



Do not clean the safety cartridge! Never allow the engine to run without a filter insert!

In the centre of the filter insert is a safety cartridge (Fig. 46/7). It is the purpose of this safety cartridge to prevent dirt from getting into the air inlet during the filter cleaning or filter exchange. The safety cartridge has to be exchanged at the latest after every 1000 hours of operation whenever the filter is exchanged.

#### 6.6.4 Pre-separator and dust discharge valve

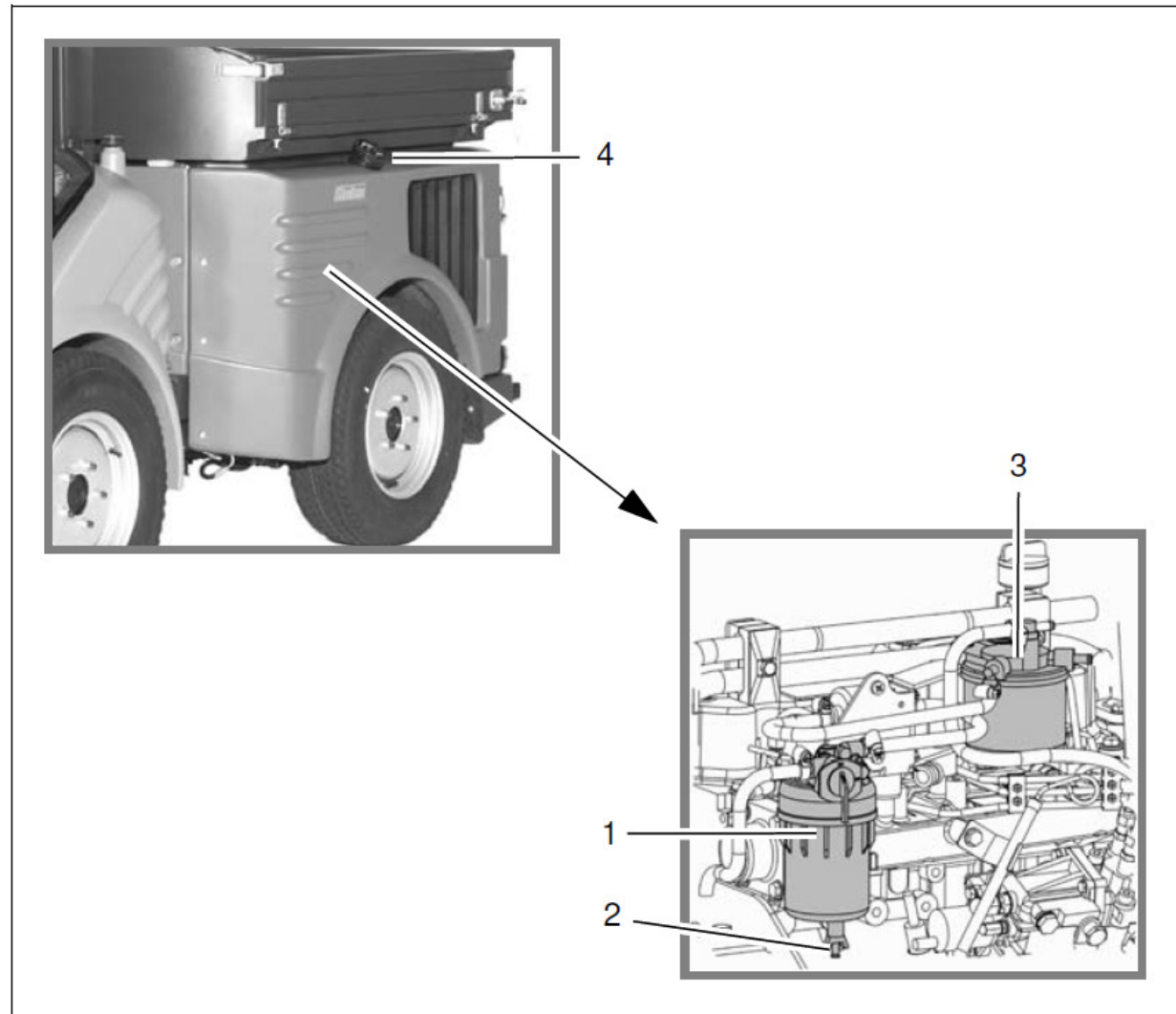
The air filter contains a pre-separator (Fig. 46/5) which is integrated into the filter housing . This considerably lengthens the service life of the filter insert. The dust particle separated off in the filter housing are discharged through the dust discharge valve (Fig. 46/5).

## 2.0.1 Maintenance

**Weekly Maintenance customer, drain any condensation from the water separator after 50 operation hours**

### 6.5 Fuel system

- 1 Water separator
- 2 Drain plug
- 3 Filter, fuel
- 4 Tank cap

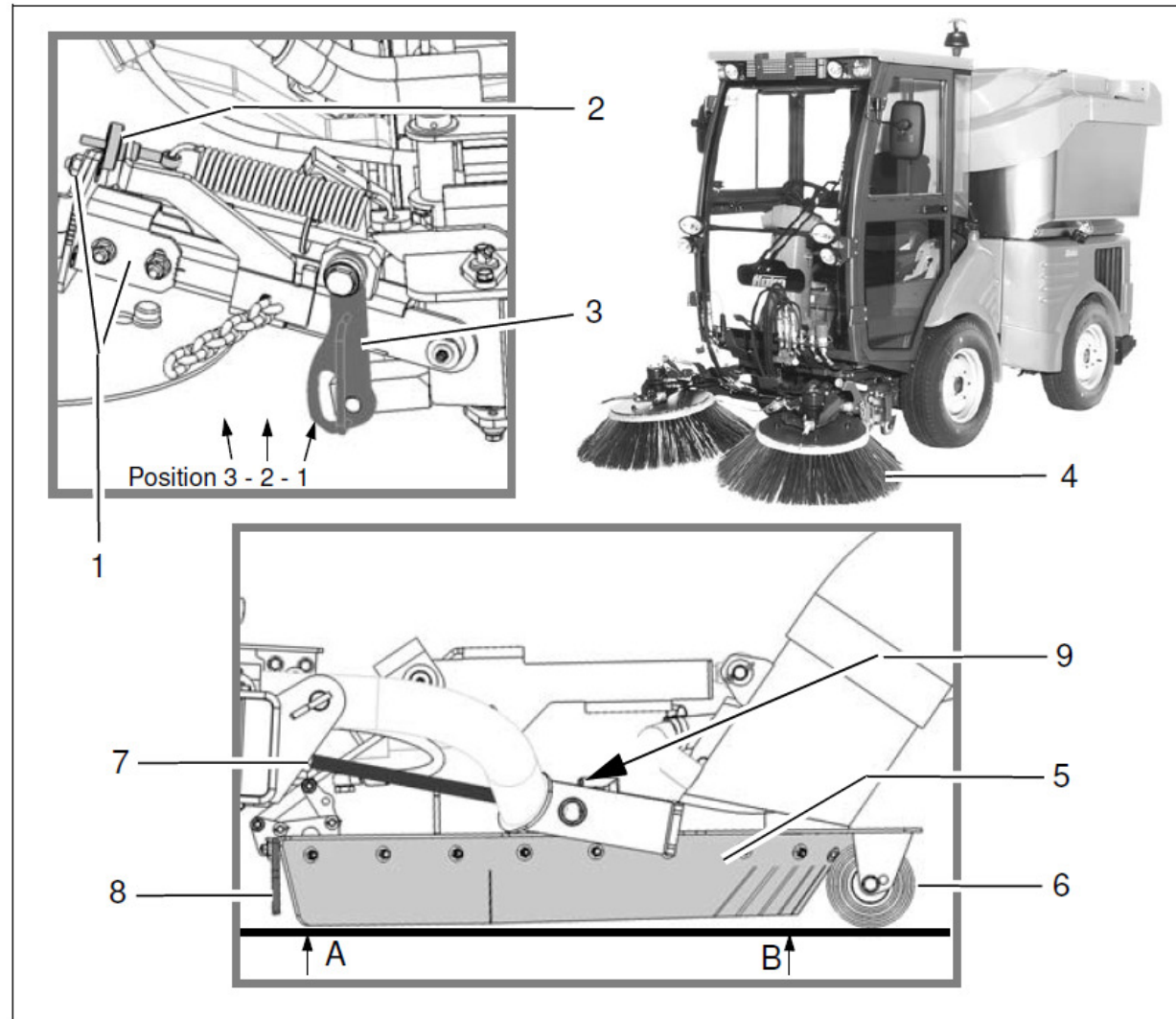


## 2.0.1 Maintenance

### Weekly maintenance sweeping system

#### 6.10 Sweeping system

- 1 Adjustment screws for the sweeping pattern
- 2 Adjustment screws for the surface pressure of the circular brushes
- 3 Locking device for the surface pressure for the circular brushes and transport position
- 4 Circular brushes
- 5 Sealing strip on the vacuum nozzle
- 6 Rollers
- 7 Threaded rods
- 8 Larger material flap
- 9 Spray jet on the vacuum nozzle



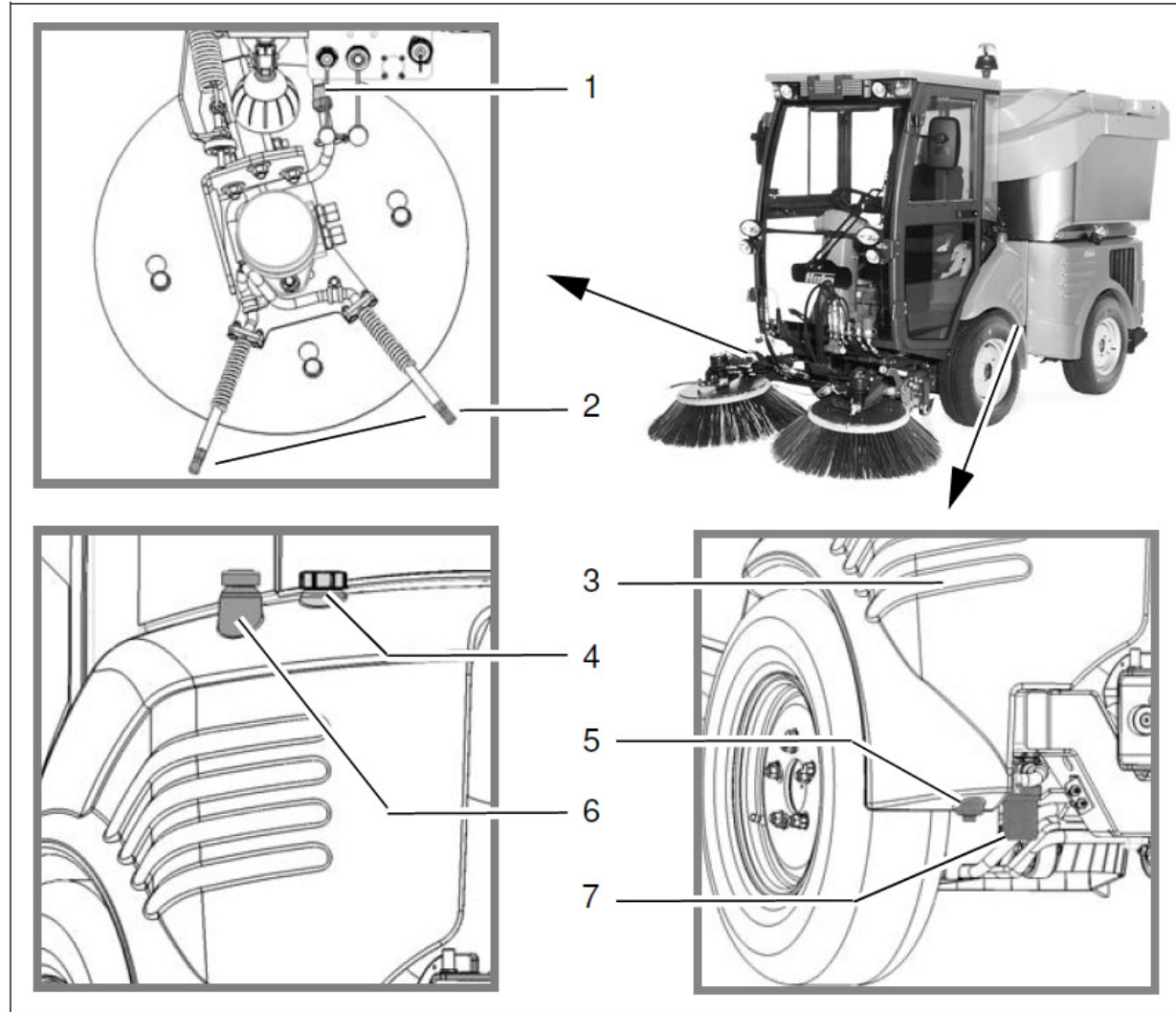
The gap between the sealing strip and the floor in the front area **A** has to be approx **3+2** mm.  
 In the rear area **B** approx **8+2** mm

## 2.0.1 Maintenance

### Weekly maintenance Clean water system and spray nozzles

#### 6.9 Solutionsystem

- 1 Spray nozzle filter
- 2 Spray jets
- 3 Solution tank
- 4 Cap
- 5 Drain plug
- 6 Fill level indicator
- 7 Sieving filter



## 2.0.1 Maintenance

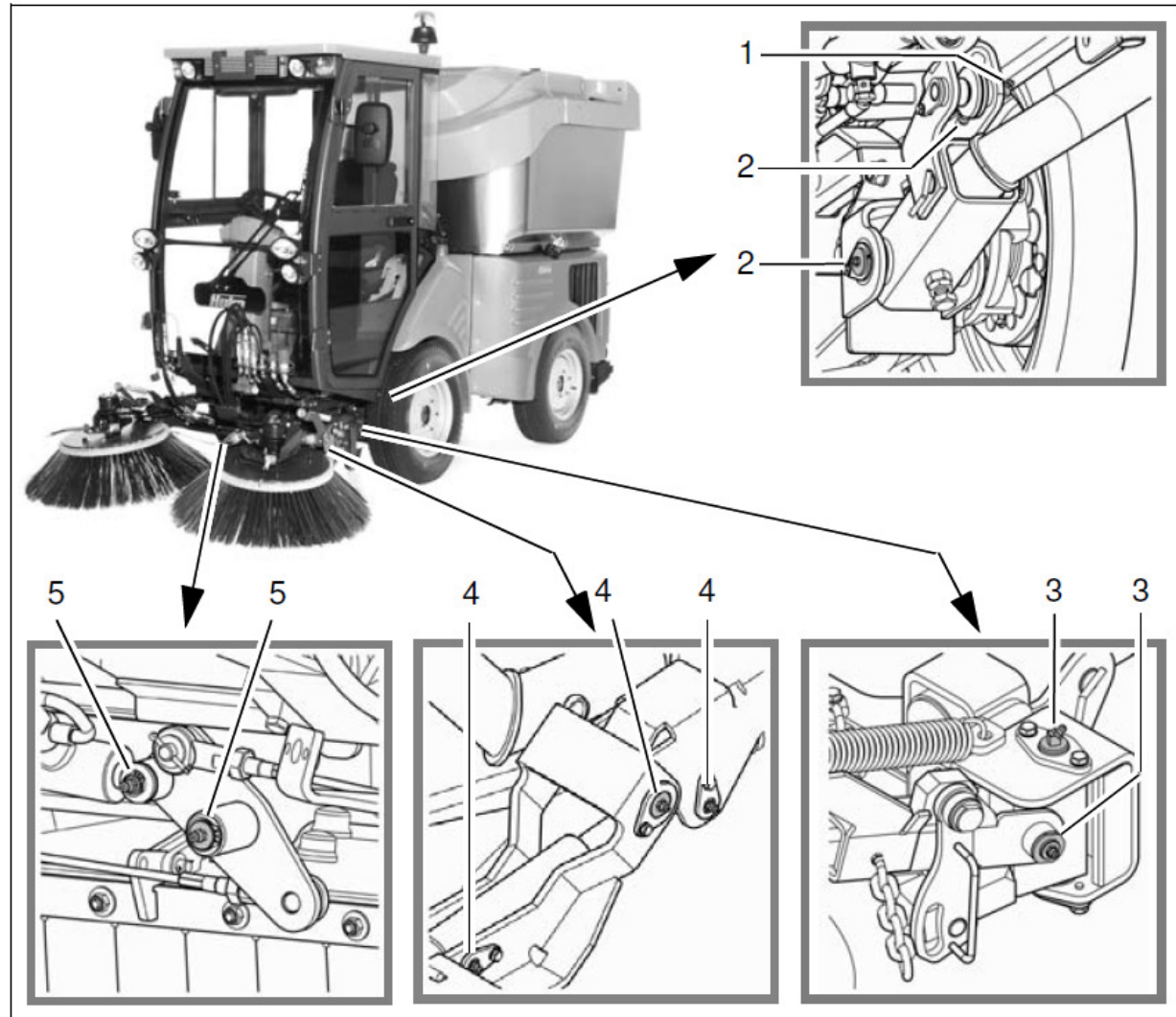
### Weekly Maintenance customer

#### 6.17 Lubrication plan

The values given in brackets give the number of lubrication points on the components.

The lubrication points listed below are to be greased weekly irrespective of the hours of operation.

- 1 Front unit - front lifting point lift cylinder top and bottom and left-hand/right-hand side (4x)
- 2 Front unit - front lifting point left-hand/right-hand side (4x)
- 3 Sweeping system - circular brushes tilting joints left-hand/right-hand side (4x)
- 4 Sweeping system - vacuum nozzle lifting point (3x)
- 5 Sweeping system - circular brushes lever for sideways movement (2x)

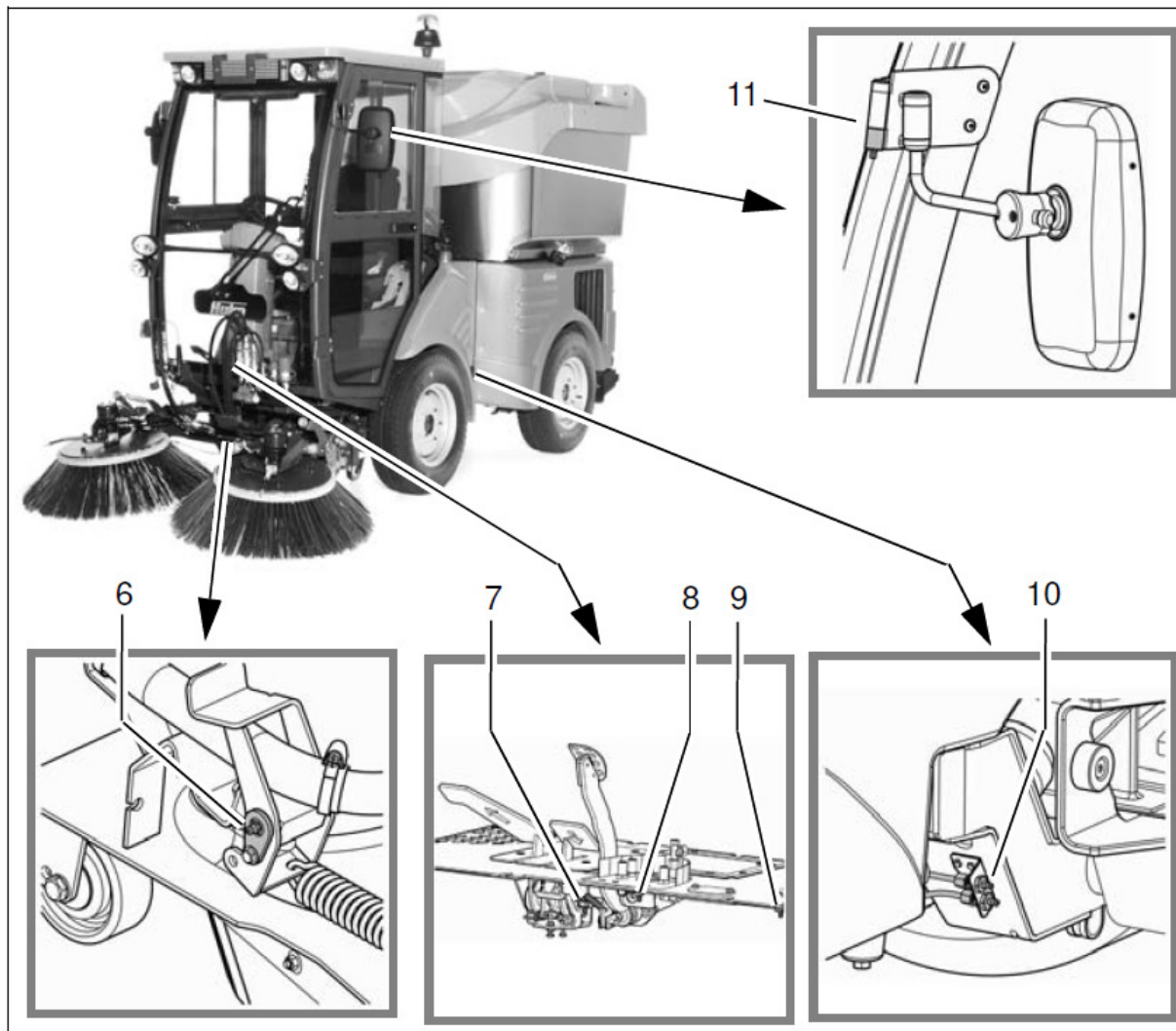




## 2.0.1 Maintenance

### Weekly Maintenance customer

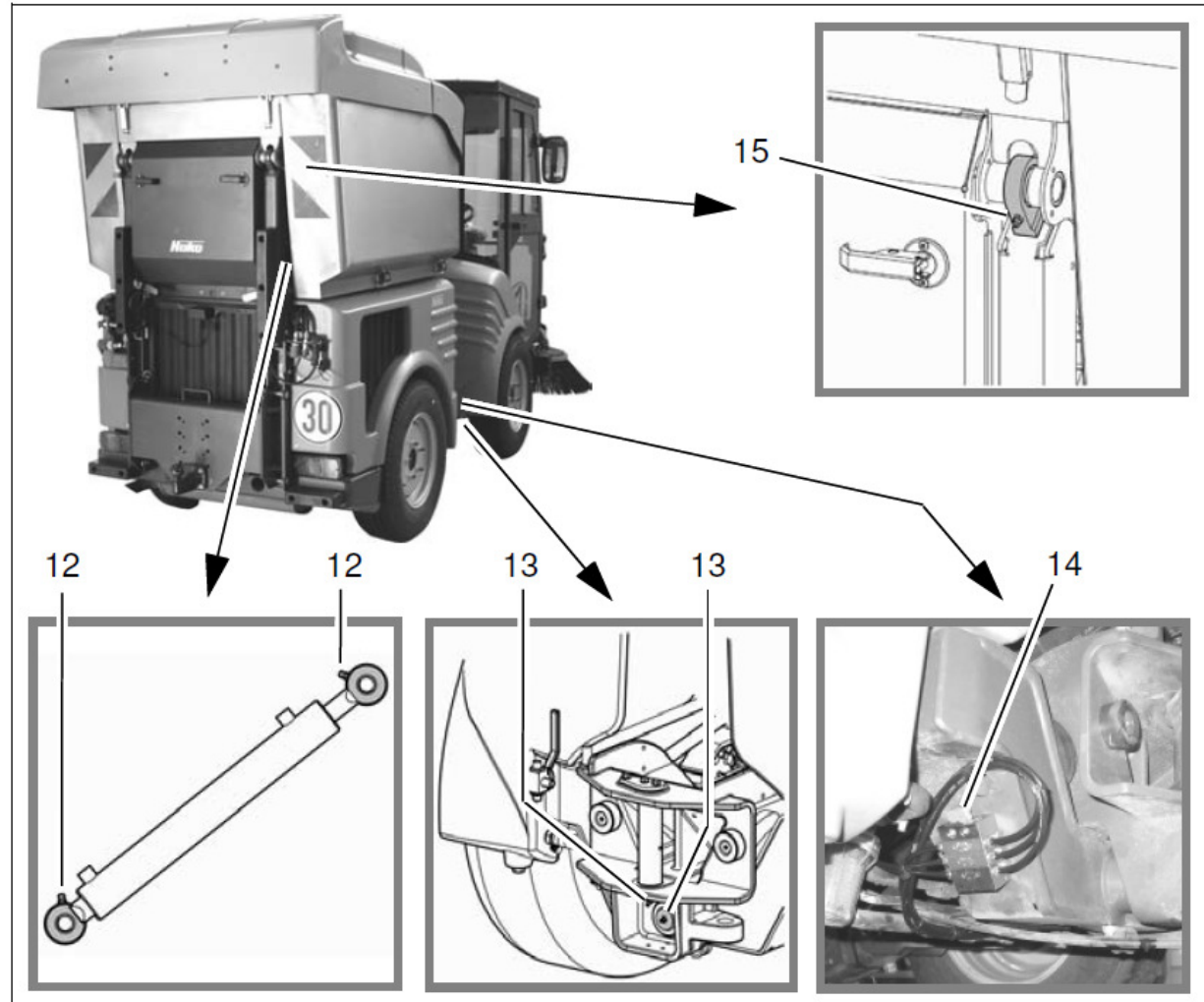
- 6 Circulation water lever (1x)
- 7 Accelerator pedal (1x)
- 8 Brake pedal (1x)
- 9 Larger material flap (1x)
- 10 Greasing support (2x) (not for the Easy Grease option)
- 11 Wing mirror left-hand/right-hand side (2x)



## 2.0.1 Maintenance

### Weekly Maintenance customer

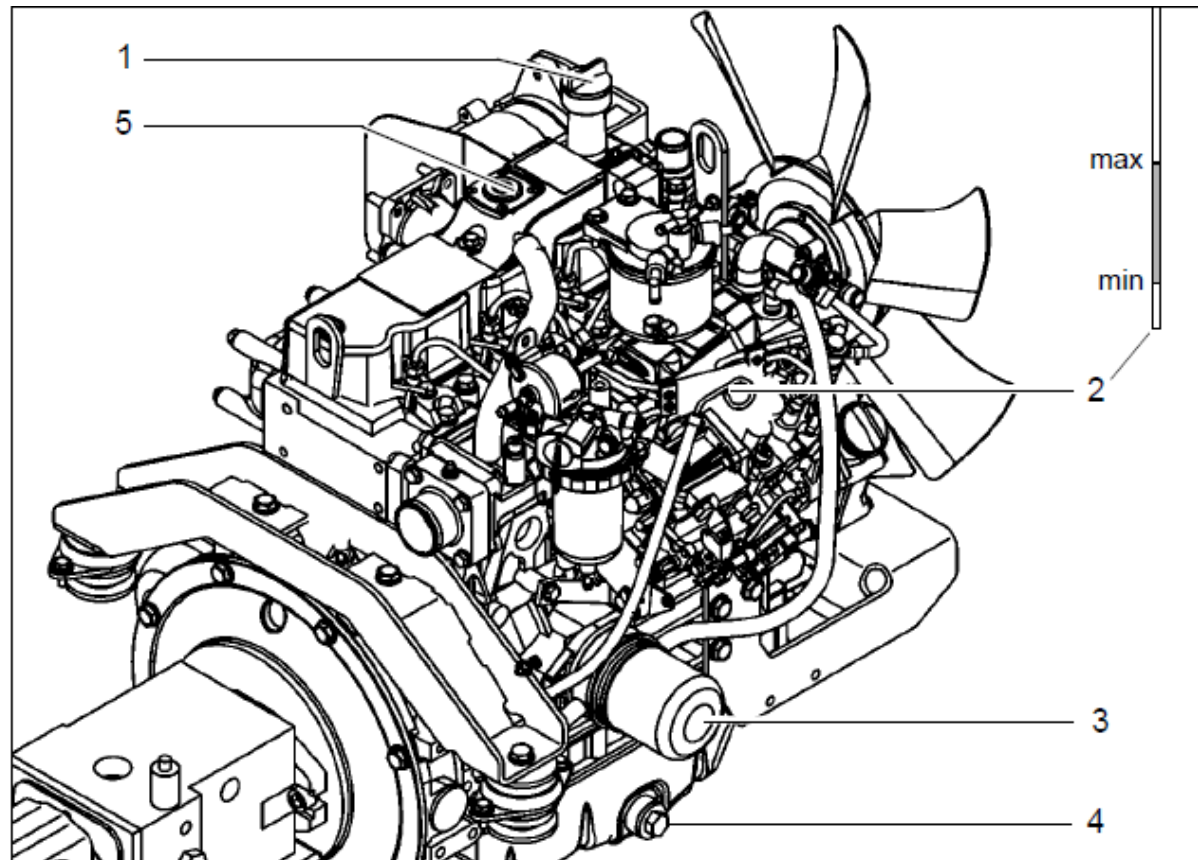
- 12 Lifting point cylinder for dirt hopper left-hand/right-hand side (4x)
- 13 Articulated joint (2x)
- 14 Easy grease (optional) for:
  - Articulated joint (2x)
  - Front unit - front lifting point lift cylinder top and bottom and left-hand/right-hand side (4x)
  - Front unit - front lifting point left-hand/right-hand side (2x)
- 15 Ball-and-socket joint for rear support (2x)



### 2.0.1 Maintenance

Change engine oil and filter after 50 and subsequently every 250 operating hours

Oil quantity  
8.6l engine oil  
SAE 15 W40



**Fig. 26 Engine**  
1 Engine oil filler neck  
2 Dipstick  
3 Engine oil filter  
4 Engine oil drain plug  
5 Diaphragm (valve bonnet)

## 2.0.1 Maintenance

### Change engine oil and filter after 50 and subsequently every 250 operating hours

#### 6.4.2 Changing the engine oil and the engine oil filter

Change the engine oil for the first time after 50 hours of operation, and subsequently every 250 hours of operation. Drain the engine oil when the engine is at operating temperature.

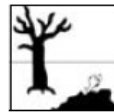
1. Ensure that the vehicle is standing horizontally, then apply the parking brake and switch off the engine.



The engine oil in the circulation system will need a few minutes to return to the oil sump.

2. Place a suitable container below the drainage plug (Fig. 44/4).
3. Remove the oil filler cap (Fig. 44/1) for venting the system.
4. Unscrew the drainage plug and completely drain the engine oil.
5. Changing the engine oil filter (Fig. 44/3). Ensure that the sealing surfaces are kept clean and insert a new sealing ring.
6. Re-insert the drainage plug with a new sealing ring.

7. Fill with engine oil.  
Engine oil: Mobiloil DELVCAC MX 15W-40 or similar.  
Filling quantity with engine oil filter: 8.6 liter  
Filling quantity without engine oil filter: 8.2 liter.



Collect the drained engine oil and dispose of with consideration for the environment.

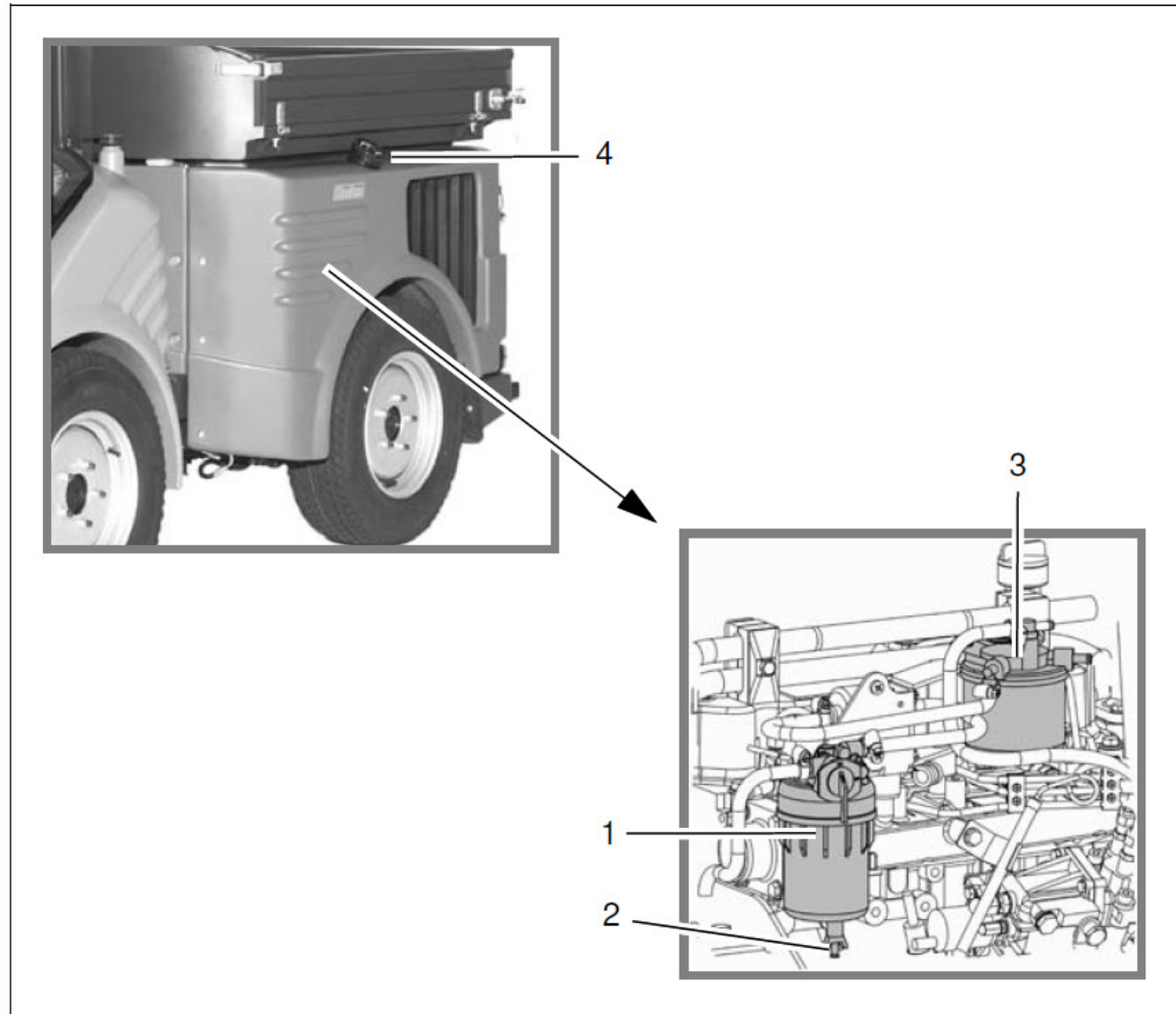
8. Start up the engine and allow to run for a short time at a low speed. The control lamp for the engine oil pressure has to go out after a short time.
9. Turn the engine off, check for leaks and check the engine oil level once again.
10. Return the oil filler cap and the oil filler cap to their locations.

## 2.0.1 Maintenance

Change fuel filter after 50 and subsequently every 500 operating hours

### 6.5 Fuel system

- 1 Water separator
- 2 Drain plug
- 3 Filter, fuel
- 4 Tank cap



## 2.0.1 Maintenance

### Change fuel filter after 50 and subsequently every 500 operating hours

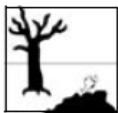
#### 6.5.1 Fuelling the vehicle

The fuel tank is located on the left-hand side of the vehicle on the rear section. Open the tank cap (Fig. 45/4) and fill with diesel corresponding to DIN 51601. Tank contents: approx. 60 liter.



The following safety information has to be observed:

Before fueling, switch the engine off and remove the key from the ignition switch. Do not fill with fuel in enclosed spaces. Smoking and handling fire is forbidden while filling fuel containers and working with or close to containing fuel components.



Do not allow any fuel to flow next to the fuel tank opening. Collect any spilled fuel and dispose of it with consideration for the environment.

#### 6.5.2 Checking the water separator

Check the water separator every week and, if necessary drain the condensation from the water separator (Fig. 45/1).

1. Ensure that the vehicle is standing horizontally, then apply the parking brake and switch off the engine.
2. Place a suitable container below the water separator.
3. Open the drainage screw (Fig. 45/2), and collect the condensation water.
4. Close the drainage screw again.

#### 6.5.3 Changing the fuel filter

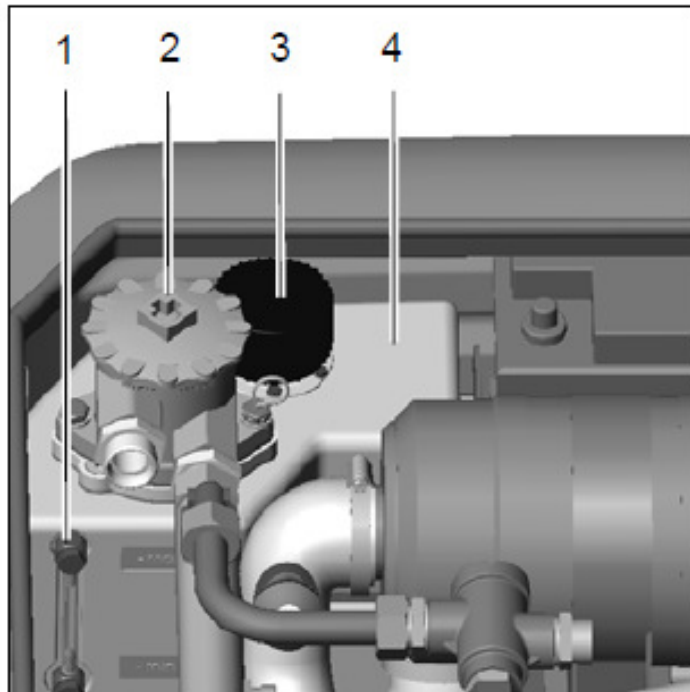
The fuel filter (Fig. 45/3) has to be changed after every 500 hours of operation.

1. Ensure that the vehicle is standing horizontally, then apply the parking brake and switch off the engine.
2. Unscrew the fuel filter (Fig. 45/3) and hold together with the fuel in a suitable container.
3. Install a new fuel filter.
4. Replace the drainage screw.

## 2.0.1 Maintenance

**Change hydraulic oil return flow filter after 50 and then every 500 operating hours**

### 6.8 Hydraulic System



**Change the hydraulic oil every 1000 operating hours.**

**Approx. 45 l hydraulic oil; HVLV 46, e.g. Mobil DTE 15M or equivalent hydraulic oil.**

**When changing the hydraulic oil, also change the return flow suction filter for the hydraulic oil and the air filter, Pos. 3.**

**The return flow suction filter for the hydraulic oil is located under the cap, Pos. 2 .**

**Fig. 34 Hydraulic system**

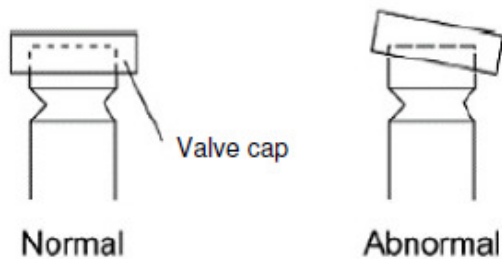
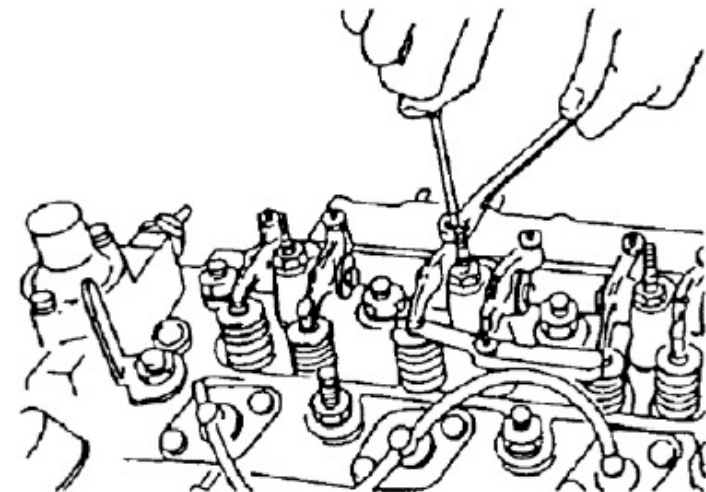
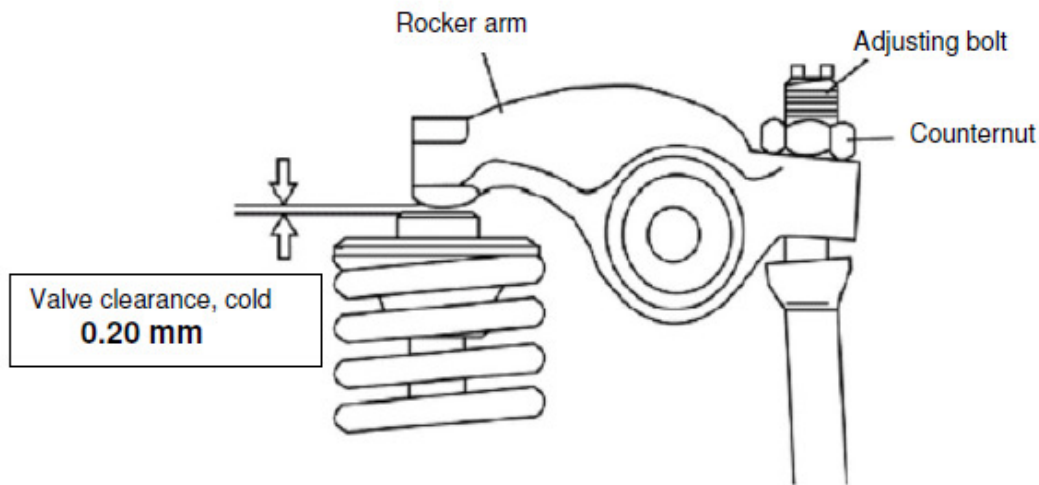
- 1 Filling indicator
- 2 Lid
- 3 Ventilation filter with filler filter
- 4 Hydraulic fluid tank

## 2.0.1 Maintenance

### Check/Adjust valve clearance on Yanmar engine every 1000 operating hours

The valve clearance must be checked every 1000 operating hours or at least once a year and readjusted, as necessary.

During this maintenance work, check whether the valve caps are set square on the valves or if they have become misaligned due to wear or infiltration of dirt.



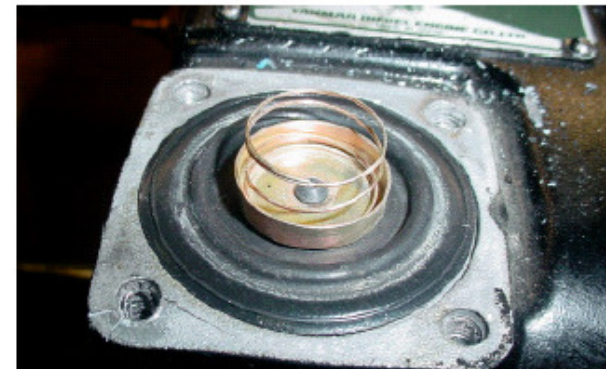
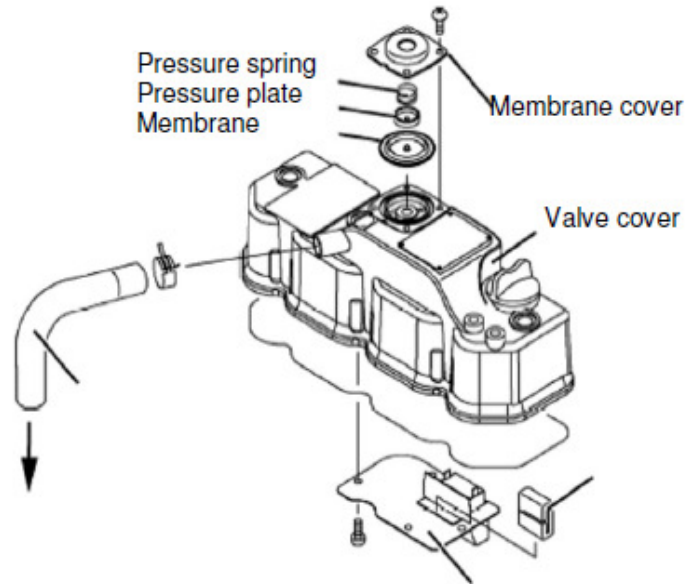


## 2.0.1 Maintenance

### Change membrane in valve cover of Yanmar engine every 1000 operating hours

Complete the following every 1000 operating hours or every 2 years:

- Check whether any oil or condensate has penetrated between the membrane and cover.



## 2.0.1 Maintenance

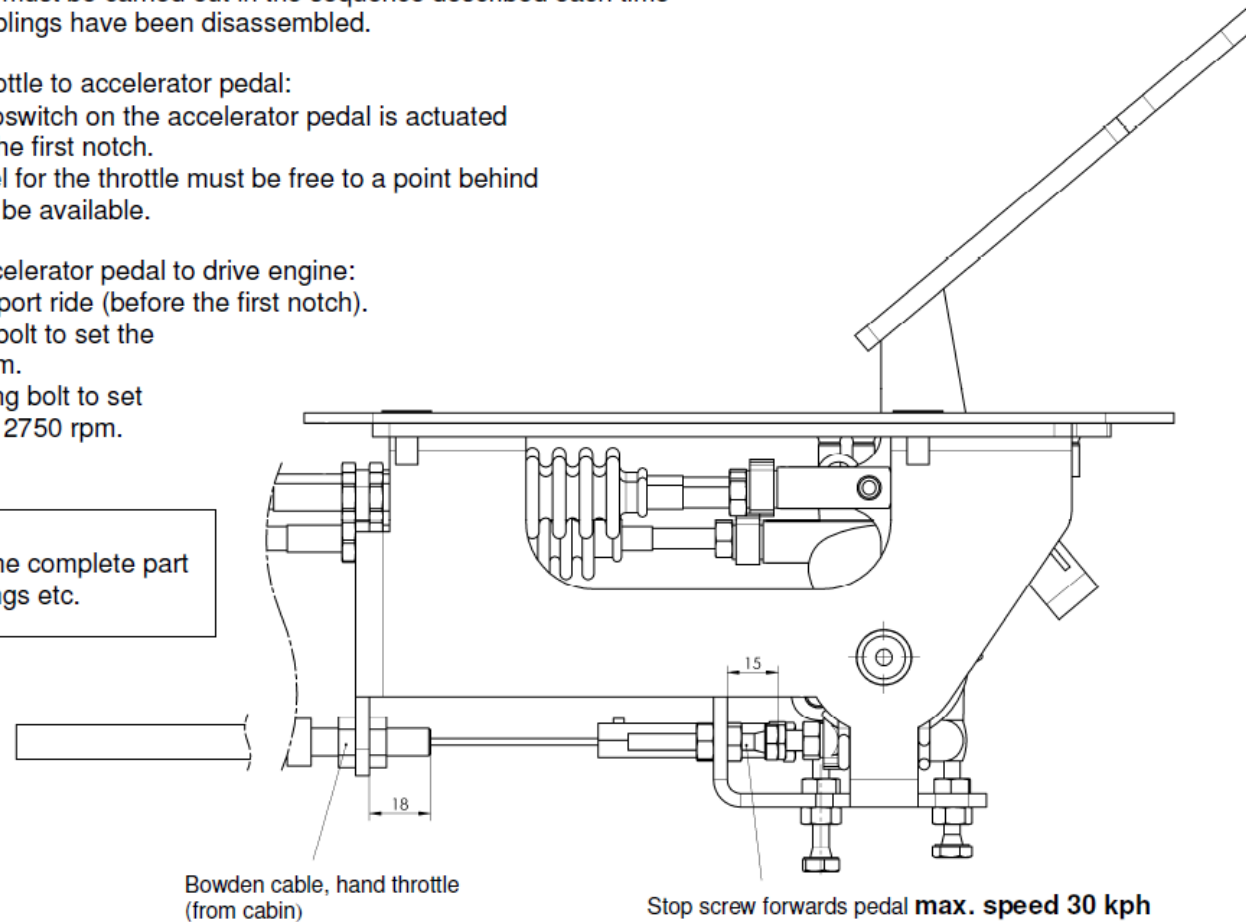
**Change Bowden cables for the hydraulic pump (accelerator pedal) every 1000 operating hours**  
**Check accelerator every 1000 op. hours for signs of wear; change defective parts as necessary**

### Accelerator pedal

The following adjustments must be carried out in the sequence described each time the Bowden cables or couplings have been disassembled.

1. Bowden cable from throttle to accelerator pedal:
  - Adjust so that the microswitch on the accelerator pedal is actuated when the throttle is at the first notch.
  - The entire path of travel for the throttle must be free to a point behind the second notch must be available.
2. Bowden cable from accelerator pedal to drive engine:
  - Set the throttle to transport ride (before the first notch). Use the rear adjusting bolt to set the engine to  $1100 \pm 50$  rpm.
  - Adjust the front adjusting bolt to set the maximum speed of 2750 rpm.

**Attention!**  
 Check each 1000h the complete part for wearout of bushings etc.

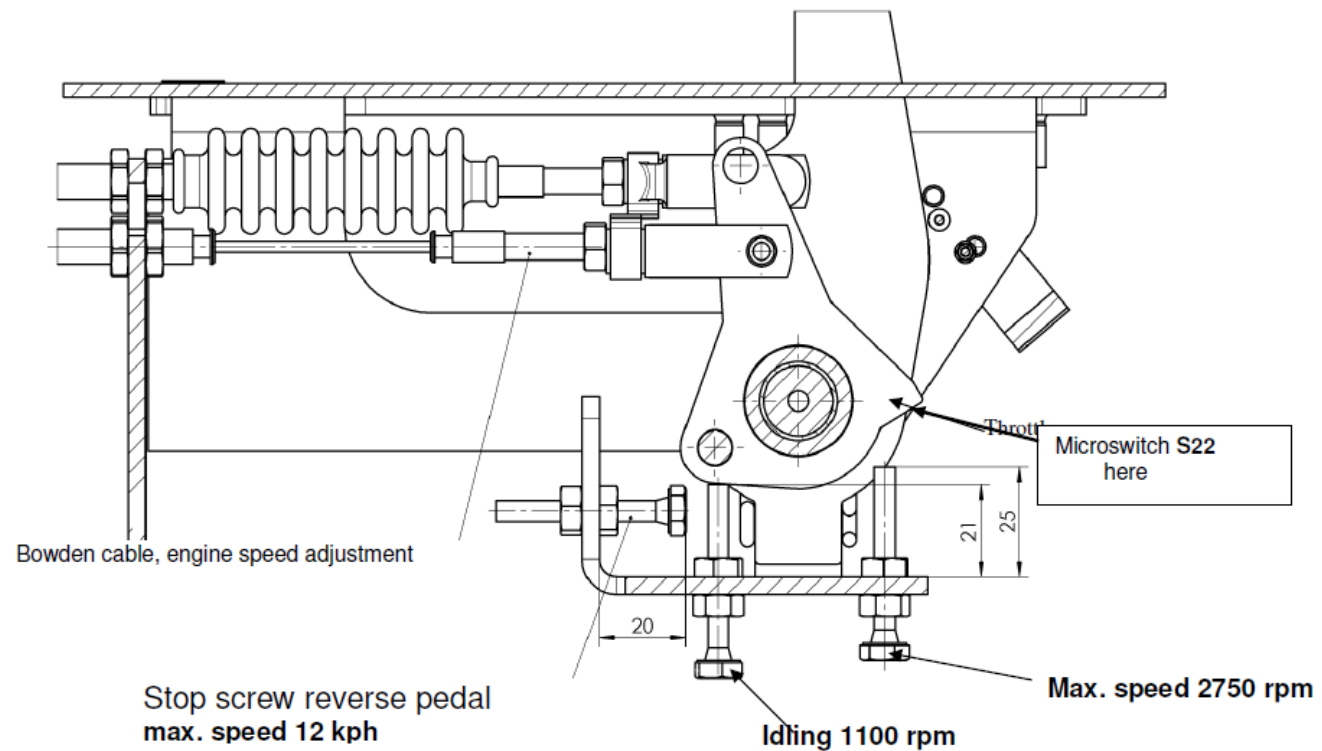


## 2.0.1 Maintenance

**Change Bowden cables for hydraulic pump every 1000 operating hours**  
**Check accelerator every 1000 op. hours for signs of wear; change defective parts as necessary**

Bowden cables in the hydraulic pump:

- Raise the front of the machine, set the hand throttle to "Transport mode", actuate the parking brake and secure the machine by positioning chocks against the rear wheels.
- Disconnect both cables from the accelerator pedal and check that the pedals are parallel.
- Hook in the cables for the forward ride and adjust them so that the pump is not moved when the pedals are in a neutral position. Adjust the stop screw so that the average of both front wheel speeds is maximal 30 kph.
- Hook in the cable for reverse ride and adjust until the average speed is 12 kph.





## 2.0.1 Maintenance

### Spare parts lists for maintenance

<b>Hako System Maintenance unique (50)</b>		
<i>Pcs.</i>	<i>PN</i>	<i>Description</i>
1	01140320	engine oil filter
1	01140330	fuel filter
1	01092790	return filter (hydraulic system)
<i>Liter</i>	<i>Resources</i>	
8,6	Engine oil	SAE 15 W 40
0,5	Brake fluid	SAE J 1703, top up if required

<b>Hako System Maintenance I* (250)</b>		
<i>Pcs.</i>	<i>PN</i>	<i>Description</i>
1	01140320	engine oil filter
1		test record
1		test seal
<i>Liter</i>	<i>Resources</i>	
8,6	Engine oil	SAE 15 W 40
0,5	Brake fluid	SAE J 1703, top up if required

<b>Hako System Maintenance II* (500)</b>		
<i>Pcs.</i>	<i>PN</i>	<i>Description</i>
1	01140320	engine oil filter
1	01140330	fuel filter
1	01143470	air filter element
1	01092790	return filter (hydraulic system)
1		test record
1		test seal
<i>Liter</i>	<i>Resources</i>	
8,6	Engine oil	SAE 15 W 40



## 2.0.1 Maintenance

### Spare parts lists for maintenance

Hako System Maintenance III* (1000)		
<i>Pcs.</i>	<i>PN</i>	<i>Description</i>
1	01140320	engine oil filter
1	01140330	fuel filter
1	01143470	air filter element
1	01143480	safety cartridge of air cleaner
1	01082600	ventilation filter in hydraulic tank
1	01092790	return filter (hydraulic system)
1	01144410	diaphragm in valve bonnet
1	01144130	gasket valve bonnet
1	01065540	air filter cabin with air conditioning
1	01063650	air filter cabin without air conditioning
1	<b>01166240</b>	<b>Bowden cable engine</b>
2	01140240	Bowden cable drive pump
2	01141300	Torsion spring drive pedal
2	01146170	Washer/ disk for torsion spring
1	(01161810)	check drive pedal, replace if required
1	<b>01161810</b>	<b>Replace drive pedal after 2000 working hours!</b>
4	01160950	Rubber buffers from the suction fan
2	(00302060)	brake shoes, check and replace if required
2	(00301890)	brake shoes, check and replace if required
1		test record
1		test seal
<i>Liter</i>	<i>Resources</i>	
8,6	Engine oil	SAE 15 W 40
45	Hydraulic oil	DTE 15 M
0,5	Brake fluid	DOT 3 / SAE J 1703
7,5	Coolant	water incl. 40 - 60 % coolant additive Glaceelf Auto Supra

## 2.0.1 Maintenance

### Notes



## 2.0.1 Wartung

### Notizen



## 2.0.1 Wartung

### Notizen

